City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Meeting Agenda

City Commission

Dan Holladay, Mayor
Carol Pauli, Commission President
Brian Shaw, Rocky Smith, Jr., Daphne Wuest

Wednesday, January 21, 2015 | **7:00 PM** | **Commission Chambers**

6:15 P.M. - EXECUTIVE SESSION OF THE CITY COMMISSION

a. Pursuant to ORS 192.660(2)(h): To consult with counsel concerning the legal rights and duties of a public body with regard to current litigation or litigation likely to be filed.

1. Convene Regular Meeting and take Roll Call

2. Flag Salute

3. Ceremonies, Proclamations

4. Citizen Comments

Citizens are allowed up to 3 minutes to present information relevant to the City but not listed as an item on the agenda. Prior to speaking, citizens shall complete a comment form and deliver it to the City Recorder. The City Commission does not generally engage in dialog with those making comments, but may refer the issue to the City Manager. Complaints shall first be addressed at the department level prior to addressing the City Commission.

5. Adoption of the Agenda

6. Public Hearings

6a. PC 15-147 Two Appeals of Planning File SP 14-01- Beavercreek Road Live/Work Apartments (Planning Files: AP 14-01 and AP 14-02).

Sponsors: Community Development Director Tony Konkol

Attachments: Staff Report

AP 14-01 AP 14-02 Staff Memo

Exhibit 1. SP 14-01 Decision Full Record

Exhibit 2. AP 14-01 Applicant Appeal

Exhibit 3. AP 14-02 Graser-Lindsay Appeal

Exhibit 4. City Engineer Memo regarding AP 14-01 Sewer

Exhibit 5. CFD#1 Email

Exhibit 6. OCPD Coverage Letter - Chief Band

Exhibit 7. CRW Comments

7. General Business

7a. 15-069 Request to Move into Design Development Phase and Public Review Process of Library Project

Sponsors: Library Director Maureen Cole
Attachments: Staff Report
Transportation Impact Study
Appendix to the Transportation Impact Study
Presentation to City Commission Work Session

7b. 15-044 Ordinance for Introduction, No. 14-1019, Approving the Election Results for Planning File AN 14-01 and Annexing Certain Property to the City of Oregon City

Sponsors: Community Development Director Tony Konkol
Attachments: Staff Report
Ordinance No. 14-1019
Exhibit A - Legal Description
Exhibit B - Findings
Exhibit C - Certified Election Results

8. Consent Agenda

This section allows the City Commission to consider routine items that require no discussion and can be approved in one comprehensive motion. An item may only be discussed if it is pulled from the consent agenda.

8a. 14-675 Resolution No. 15-02, Adjusting Alarm System User Permit Fees and Establishing an Annual Inflationary Adjustment

Sponsors: Finance Director Wyatt Parno
Attachments: Staff Report
Resolution No. 15-02
Schedule of Fees and Assessments
Regional Comparison

8b. 15-068 Selection of On-call Consultants for Professional Engineering Services

Sponsors: Public Works Director John Lewis
Attachments: Staff Report
Engineering Short List
Evaluation Scores
Request for Qualifications
Brown and Caldwell Fee Schedule
MSA Fee Schedule
RH2 Fee Schedule
Tetra Tech Fee Schedule
Wallis Fee Schedule

8c. 15-042 Contract Modification #3, 2014 Pavement Improvements Project

Sponsors: Public Works Director John Lewis
Attachments: Staff Report
Contract Modification #3
Contract Modification #2
Contract Modification #1

8d. 15-067 Settler's Point Sewage Pump Station Improvements Project Contract Award

Sponsors: Public Works Director John Lewis
Attachments: Staff Report
Contract
Location and Boundary Map
Award Recommendation

8e. 15-059 Personal Services Agreement for Transportation Engineering Services Related to the Meyers Road Extension Alternatives Analysis

Sponsors: Public Works Director John Lewis
Attachments: Staff Report
Personal Services Agreement

8f. 15-060 Meyers Road Concept Plan Cost Sharing Agreement

Sponsors: Public Works Director John Lewis
Attachments: Staff Report
Meyers Road Cost-Sharing Agreement
Exhibit A - TSP Figure 21
Exhibit B - Scope of Work

8g. 15-054 Resolution No. 15-01, Amending Resolution No. 09-31, Establishing and Authorizing the Use of the General Records Retention Schedule for the Cities of Oregon, Adopted as OAR Chapter 166, Division 200

Sponsors: City Recorder Nancy Ide
Attachments: Staff Report
Resolution No. 15-01

8h. 15-022 RegJIN Participant - Intergovernmental Agreement between the City of Portland and the City of Oregon City.

Sponsors: Police Chief and Public Safety Director James Band
Attachments: Staff Report
Intergovernmental Agreement

8i. 15-023 OLCC: Liquor License Application - Full On-Premises Sales, New Outlet, Applying as a Corporation; MLB, Inc., DBA McAnulty & Barry's, 820 Main Street, Oregon City, OR 97045

Sponsors: Police Chief and Public Safety Director James Band
Attachments: Staff Report
Application

8j. 15-072 Minutes of the January 7, 2015 Regular Meeting

Sponsors: City Recorder Nancy Ide
Attachments: Staff Report
Minutes of 01/07/2015

9. Communications

a. City Manager

b. Mayor

c. Commission

10. Adjournment

Citizen Comments: The following guidelines are given for citizens presenting information or raising issues relevant to the City but not listed on the agenda.
**Complete a Comment Card prior to the meeting and submit it to the City Recorder.*
**When the Mayor calls your name, proceed to the speaker table and state your name and city of residence into the microphone.*
**Each speaker is given 3 minutes to speak. To assist in tracking your speaking time, refer to the timer on the table.*
**As a general practice, the City Commission does not engage in discussion with those making comments.*
**Electronic presentations are permitted, but shall be delivered to the City Recorder 48 hours in advance of the meeting.*

Agenda Posted at City Hall, Pioneer Community Center, Library, City Web site.
Video Streaming & Broadcasts: The meeting is streamed live on Internet on the Oregon City's Web site at www.orcity.org and available on demand following the meeting. The meeting can be viewed live on Willamette Falls Television on channels 23 and 28 for Oregon City area residents. The meetings are also rebroadcast on WFMC. Please contact WFMC at 503-650-0275 for a programming schedule.

City Hall is wheelchair accessible with entry ramps and handicapped parking located on the east side of the building. Hearing devices may be requested from the City Recorder prior to the meeting. Disabled individuals requiring other assistance must make their request known 48 hours preceding the meeting by contacting the City Recorder's Office at 503-657-0891.

City of Oregon City

625 Center Street
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Staff Report

File Number: PC 15-147

Agenda Date: 1/21/2015

Status: Public Hearing

To: City Commission

Agenda #: 6a.

From: Community Development Director Tony Konkol

File Type: Planning Item

SUBJECT:
Two Appeals of Planning File SP 14-01- Beavercreek Road Live/Work Apartments (Planning Files: AP 14-01 and AP 14-02).

RECOMMENDED ACTION (Motion):
Staff recommends the City Commission deny AP 14-01 and AP 14-02 and affirm the Community Development Director's approval with conditions of the application SP 14-01.

BACKGROUND:
SP 14-01 is an application for Site Plan and Design Review for a 121-unit Apartment complex and 59 Live-Work Units on 9.7 acres (Zoned MUC-1). The Community Development Director approved the application as a Type II Limited Land Use decision on November 14, 2014.

AP 14-01 is an appeal by the Applicant regarding Condition of Approval #37.

AP 14-02 is an appeal by Elizabeth Graser-Lindsey for various reasons.

Please see attached memorandum from City Attorney Carrie Richter for analysis and recommendation.

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OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

M E M O R A N D U M

To: The Honorable Mayor and City Commission
From: Carrie Richter, Deputy City Attorney
Tony Konkol, Community Development Director
Pete Walter, AICP, Associate Planner
Re: **AP 14-01 and 14-02**: Appeals of Community Development Director's approval on November 14, 2014 of file number **SP 14-01**, a Site Plan and Design Review application for 120 Apartments Units and 59 Live-Work Units on 9.7 acres (Zoned MUC-1).
Date: January 15, 2015

STAFF RECOMMENDATION:

Staff recommends the City Commission deny the two appeals, one filed by the applicant, Beavercreek Road LLC, AP 14-01, and one filed by Elizabeth Graser-Lindsey, AP 14-02, and uphold the Community Development Director's decision to conditionally approve the applicant's request to construct 120 Apartments Units and 59 Live-Work Units on 9.7 acres on the east side of Beavercreek Road including conditions as set out in the staff decision.

NOTICE OF APPEAL HEARING:

As stated in OCMC 17.50.190(E)

Notice of the Appeal Hearing. The planning division shall issue notice of the appeal hearing to all parties who participated either orally or in writing before the close of the public record in accordance with Section 17.50.090B. Notice of the appeal hearing shall contain the following information:

1. The file number and date of the decision being appealed;
2. The time, date and location of the public hearing;
3. The name of the applicant, owner and appellant (if different);
4. The street address or other easily understood location of the subject property;
5. A description of the permit requested and the applicant's development proposal;
6. A brief summary of the decision being appealed and the grounds for appeal listed in the notice of appeal;
7. A statement that the appeal hearing is confined to the issues raised in the notice of appeal;
8. A general explanation of the requirements for participation and the city's hearing procedures.

This appeal hearing has been noticed in accordance with this requirement.

STANDING TO APPEAL:

As stated in OCMC 17.50.190.D(1),

For Type II decisions, only those persons or recognized neighborhood associations who have standing pursuant to ORS 197.175(10)(a)(C) may appeal a planning manager decision. The city commission shall hold a de novo hearing on the appeal. New evidence and new issues be raised at the hearing before the city commission.

Both the applicant and Elizabeth Graser-Lindsey commented in writing during the public comment periods and therefore have standing to appeal. These comments are part of the record.

BASIC FACTS:

The Site Plan and Design Review application SP 14-01 was submitted by the applicant, Beavercreek Road LLC, for review by the Community Development Director on January 22, 2014. The application was deemed incomplete on February 20, 2014, and upon submittal of additional materials, was deemed complete for review on July 11, 2014.

The application was subject to two public comment periods due to new information submitted into the record by the applicant to support their sewer and water system proposal for the development.

Following the two public comment periods and review by staff, the Community Development Director conditionally approved the application on November 14, 2014.

The current extended 120-day decision deadline for this SP 14-01 is February 4, 2015.

BACKGROUND & PROPOSAL

(See Project Overview on Page 8 of SP 14-01 Staff Report)

The subject property was annexed to the Oregon City in 2007. City File #AN 07-02 and Ord. #1021. Appellant Graser-Lindsey and others appealed the annexation decision to LUBA arguing that the Beavercreek Road Concept Plan must be adopted before the annexation can be approved. LUBA No. 2007-171. LUBA rejected the appeal finding nothing in Metro Code Title 11 or the Oregon City Comprehensive Plan that required adoption of the Beavercreek Concept Plan before annexation.

The Beavercreek Concept Plan was adopted in 2008 and included the subject property within its boundaries. The plan designated the subject property Mixed Employment Village, including commercial and residential uses. The appellant and others appealed the concept plan adoption to LUBA. LUBA No. 2008-170. LUBA remanded the City's decision finding that the City failed to adequately explain why the concept plan identified only 120 acres for industrial uses when Metro's Title 4 Significant Industrial and Employment Lands map designated 308 acres for industrial use. The subject property is not located within the area previously mapped as a Title 4 significant industrial area. The City has not taken any further action to adopt the Beavercreek Concept Plan.

In 2010, the City approved a comprehensive plan and zone change application for the subject property from FU-10 to MUC-1 – Mixed Use Corridor District. Conditions of the plan amendment / zone change required compliance with the Beavercreek Road Concept Plan to all subsequent

development, once it is adopted and if the plan is not yet adopted, it establishes development standards including a minimum floor area FAR, building height, pedestrian friendly amenities, green development practices and an urban design consistent with the plan. This decision was not appealed.

The proposed project is a combination of 121 rental apartments and 59 live-work units that form a village concept. The proposed community's mix of live-work ground floor commercial and regular apartments provides opportunities for meeting the Mixed Use Corridor base zoning of the site while also meeting the intent of the soon-to-be-adopted Beavercreek Road Concept Plan – Mixed Employment Village.

ISSUES RAISED BY THE APPLICANT

The Applicant Beavercreek Road LLC argues that City staff erred in imposing a fee in lieu of $545,000 to modify and upsize portions of the off-site sewer system necessary to serve this development. The Public Works Department provides further explanation for its decision in the attached Exhibit 4.

ISSUES RAISED BY THE APPELLANT GRASER-LINDSEY

Ms. Graser-Lindsey's concerns with this project as outlined in Exhibit 2 relate to the following issues:

Compliance with Comprehensive Plan

Appellant statement

- ***This appeal results from application SP 14-01 being approved despite its violation of Oregon City Comprehensive Plan (OCCP), Oregon City Municipal Code (OCMC), Metro Code (MC), and State law.***

Staff Response

The applicant did not provide a great deal of specify as to how the application violates the plans and codes cited above. Staff will attempt to respond to those few specific points the applicant does cite as discussed below.

Appellant statement

- ***Urbanization of the property cannot proceed*** [sic – staff takes appellant to mean "precede"] ***adoption of a valid concept plan according to applicable law inclusive of OCCP*** (sic – staff takes appellant to mean the Oregon City Comprehensive Plan) ***p. 118, Goal 14.3 Orderly Provision of Services to Growth Areas, Goal 14.4 Annexation of Lands to the City, OCMC 14, the city's own Findings to AN 07-02, LUBA's interpretation of these laws specifically with regarding to this property in LUBA 2007-171 (submitted to the record), and LUBA's remand of the Beavercreek Road Concept Plan in LUBA 2008-170.***

Staff Response

"Urbanization" of the subject property may proceed since the property, unlike the other properties within the BRCP area, was annexed, rezoned and conditionally approved for Site Plan and Design Review in compliance with the Oregon City Comprehensive Plan and the Oregon City Municipal

Code. The planning and zoning of the annexed property as MUC-1, suitable for urbanization, was established as part of the 2010 plan and zoning decision and that decision was not appealed. That decision is now final and is beyond further challenge.

Further, although compliance with the concept plan cannot be required, the City has taken numerous steps to ensure that the policies identified in the concept plan are furthered by this development including (1) compliance with the conditions attached to the comprehensive plan and zone change decision requiring massing and design obligations as identified in the concept plan, and (2) the City's more recently adopted sewer, water, and storm water master plans relied on development demand assumptions contained within the concept plan.

With regard to the appellant's claims that this proposal violates certain comprehensive plan policies, the subject decision is a limited land use decision and as such, comprehensive plan policies that are not specifically incorporated as part of the approval criteria do not apply. ORS 197.195(1). Incorporation of plan policies requires that the local government must make it clear what specific policies or other provisions of the comprehensive plan apply to a limited land use decision as approval criteria. *Paterson v. City of Bend*, 49 Or LUBA 160 (2005). Appellant identifies no City Comprehensive Plan policies have been incorporated into the applicable site design and design review criteria. Therefore, the plan policies do not apply.

Further, compliance with the Oregon City Comprehensive Plan was already decided, when the property was rezoned to MUC-1 in 2010. The conditions attached to the plan amendment / zone change decision explain that development of the property may precede adoption of the Beavercreek Road Concept Plan when it was rezoned in 2010 with approval of the Comprehensive Plan Amendment (Planning File PZ 10-01) and concurrent rezoning (Planning File ZC 10-01). The rezoning was properly acknowledged by DLCD, was not appealed and is now final. It is for this reason that the statewide planning goals do not apply to this decision.

The appellant states that the development of the subject site violates the City's own findings regarding AN 07-02 (Exhibit 7 of the decision SP 14-01) presumably based on a discussion by LUBA that urbanization will not occur until the concept plan was adopted. The property owner has the right to develop the property, so long as it is consistent with the applicable provisions of the municipal code and the previously imposed conditions. The density and nature of the proposed residential and commercial mixed use proposal is a use permitted outright in the MUC-1 zone. The only issues germane for review in the site plan design review relates to criteria in OCMC Chapter 17.62, which includes topics such as public utility infrastructure adequacy and development design issues.

The appellant argues that approval of the development violates LUBA's remand of the Beavercreek Road Concept Plan (BRCP) in LUBA 2008-170, but does not specify how or why. LUBA 2008-170 remanded the BRCP to Metro and the City in order to assure that the adopted BRCP was consistent with the Metro 2040 Plan with regard to Title 4 Significant Industrial lands. The subject property is not included within the area previously designated as a Title 4 Significant Industrial land. Metro has subsequently adopted an amendment to the 2040 Plan which is consistent with the BRCP, in any event.

It may be that the Appellant's objections are rooted in a belief that the infrastructure, public facilities and services demand from the BRCP development would adversely affect services for existing residents and therefore, the impacts from this development would have similar adverse effects. First, none of the LUBA decisions considered the public facility impacts from urbanization of the Beavercreek area. LUBA expressly did not decide these issues in LUBA No. 2008-170, the BRCP remand decision. Second, whether the question of infrastructure adequacy coupled with the proposed demand is independently determined by various OCMC provisions such as OCMC 12.04 Streets, Sidewalks and Public Places (Staff Report pp. 18-32), OCMC 17.62.050(A)(14), Public Sewer and Water Facilities (Staff Report pp. 40-43), OCMC 13.12, Stormwater Management (Staff Report pp. 70-73.

Again, based on the city's findings for the subsequent rezoning of the property in 2010 (Files PZ 10-01 / ZC 10-01) which was found to be consistent with the un-adopted BRCP – Mixed Employment Village concept, and which expressly allowed for development of the property prior to adoption of the BRCP, staff can find no reason why development of the property cannot precede adoption of the BRCP.

Appellant Statement

- ***Because of the process being followed (including the absence of a adopted concept plan), public facilities and services are not being handled in a coordinated way respective of and conforming with the needed concept plan or with general good practice, are not adequate nor properly planned (including over-sizing and cost recovery plan, right of way planning and acquisition, response times, etc.), and are not without adverse impact on the city and residents of the area and are consequently in violation of applicable law including OCCP Section 11 Public Facilities, OCMC 17 Zoning (including 17.62 Site Plan and Design Review and 17.52, 17.29), those on infrastructure (including 12 Streets, Sidewalks and Pubic Places and 13 Public Services) and 14 City Boundary Changes and Extension of Services and those above.***

Staff Response

As explained above, comprehensive plan policies are not applicable to this site plan and design review application and therefore OCCP Section 11 Public Facilities, 12 Streets, Sidewalks and Public Places, and 13 Public Services do not apply.

The appellant has not specified which public facilities have not been planned in a coordinated way. The site plan and design review application was reviewed for consistency with the city's adopted public facilities plans or "Ancillary Documents" as they are called in the OCCP. The application was also reviewed for adequacy of public facilities as required in the Oregon City Municipal Code for review of Site Plan and Design Review applications (OCMC 17.62.050.A.(14) and (15)). These include:

Transportation System Plan (adopted 2013) establishes the nature of the roadways necessary to support the proposed development and the City may do no more than require compliance with these standards as required by OCMC 12.04. The applicant has proposed the dedication of new public streets and street stubs to create a block system within the site and also connect to adjacent developable land in accordance with the City Transportation System Plan, OCMC 12.08, and including additional ROW dedication along Beavercreek Road on the applicant's property in

accordance with City Plans and county standards along Beavercreek Road. Conditions of Approval have been attached to the decision to assure compliance with the City's Transportation System Plan as well as coordination with Clackamas County standards for Beavercreek Road.

Sewer Master Plan (adopted 2013) – As explained in the supporting memoranda from Public Works, the Sewer Master Plan contemplates sewer connection of the subject property either along Beavercreek Road within the Beavercreek Sewer Sub Basin or along Highway 213 in the Glen Oak Road Sub Basin. Public Works has identified improvements along Highway 213 necessary to accommodate not only the subject property but also all of the flows that could reasonably be carried from the BRCP area to the Glen Oak Road Sub Basin. This is detailed in Exhibit 6b to the Staff Report for SP 14-01, "Public Works Engineering File Memorandum, dated November 5, 2014, for SP 14-01 Staff Report Findings and Conditions for Sanitary Sewer and Water Service".

Water Master Plan (adopted 2010)
The appellant asserts that the project conflicts with the city's adopted Water Master Plan, that the city should be the sole provider of water service to the property, and that a proposed Condition of Approval for an intergovernmental agreement (IGA) with Clackamas River Water (CRW) to provide water to the property and would compromise CRW's capacity to provide water service to its customers.

The City and CRW have numerous joint agreements throughout the city to provide water service to Oregon City and CRW customers within and outside of the City Limits. These arrangements are legal and not unusual.

Eventually, when the Beavercreek Road area is fully developed, the subject property and the surrounding area will be served exclusively by the Oregon City Water distribution system. In the interim period, the area will be served by a CRW master water meter and Oregon City pipes will provided throughout the property. Far from being "piecemeal", as the applicant asserts, this will assure coordinated water service to the property and adjacent redevelopable land.

CRW provided a response to the appellant's comments (Exhibit 7). Nothing in those comments indicates that adequate water service and pressure cannot be provided to the development or CRW's customers with the approval of the development, through the Conditions of Approval for SP 14-01.

Emergency Services

Clackamas Fire District #1
CFD#1 is a review agency that works with the city throughout the development process. CCFD#1 submitted comments regarding the application (Exhibit 5b of the decision SP 14-01). The scope of the CCFD#1 review is typically limited to fire apparatus access and water supply, although the applicant must comply with all applicable OFC (Oregon Fire Code) requirements. CCFD's comments did not include any statements that fire call response time is or will be a concern.

CFD#1 Fire Marshall Doug Whiteley provided further comments by email (Exhibit 5) indicating that the CFD Urban Community Standard of Coverage for EMS response time for the project area, which

includes Oregon City High School on the other side of the road, is 7 minutes and 15 seconds. This is a baseline figure published in the District's 2013 Standard of Coverage reflects 90 percent of EMS responses, total response time of the first arriving apparatus. The first arriving unit is staffed with two, three, or four personnel and is capable of providing advanced life support and treatment for a one or two patient medical incident while providing for the safety of victims and responders in accordance with department policy and procedures.

Therefore, staff disagrees with the appellant that CFD#1's response times to serve the development will be substandard.

Oregon City Police Department
Oregon City Police Department was provided a copy of the application for comment and did not indicate any concern with emergency response times. OCPD already serves Oregon City High School on the other side of Beavercreek Road. Additionally, the developer is required to pay a supplemental police service funding fee of $3,500/ unit which was required as an Annexation Agreement that runs with the land as a condition of approval of the annexation AN 07-02.

Chief Police Band submitted a letter (Exhibit 6) stating that "while continued growth in Oregon City will require the police department to grow along with the population of our community, I do not believe the presence of this apartment complex will create any issues regarding police response to this location or in the surrounding area."

Therefore, staff disagrees with the appellant that OCPD's ability to serve the development will be compromised.

Appellant Statement

- ***The application is incomplete in that the city and service district responses do not document the availability of water and sewage capacity and the public cannot respond to a complete application in violation of applicable law including OCMC 17.62, OCMC 17.50.070 and 080 (completeness) and Statewide Planning Goals 1 and 2.***

Staff Response
Staff disagrees that there was any defect in the City's completeness review. Completeness review is an administrative review only and provides no declaration as to whether the applicable approval standards are met. In any event, the City did postpone and restart the public comment period after new evidence was submitted by both the applicant and the City allowing all parties sufficient time to respond. Further, the City Commission's review of this matter is *de novo,* meaning that all parties will have an opportunity to review and submit new evidence to supplement the record. The delayed comment period coupled with the *de novo* review allows the public adequate time to respond.

CONCLUSION AND RECOMMENDATION
Staff recommends the City Commission deny the two appeals, one filed by the applicant, Beavercreek Road LLC, AP 14-01, and one filed by Elizabeth Graser-Lindsey, AP 14-02, and uphold the Community Development Director's decision to conditionally approve the applicant's request to construct 120 Apartments Units and 59 Live-Work Units on 9.7 acres on the east side of Beavercreek Road including conditions as set out in the staff decision.

EXHIBITS

1. Complete Record for SP 14-01
2. AP 14-01 Applicant (Beavercreek Road LLC) Appeal
3. AP 14-02 Graser-Lindsey Appeal
4. Public Works Memorandum from City Engineer, Aleta Froman-Goodrich, P.E., regarding AP 14-01, dated January 5th, 2015.
5. Email from CFD#1 Fire Marshall Dough Whiteley, dated January 12, 2014.
6. Letter from OCPD Chief James Band, dated January 12, 2015.
7. Draft Letter from Clackamas River Water responding to Elizabeth Graser-Lindsey remarks regarding CRW water service proposal, dated January 14, 2015.

The staff report and exhibits for SP 14-01 project are available for download at http://www.orcity.org/planning/landusecase/sp-14-01-beavercreek-road-apartments-live-work-units

The public notices for AP 14-01 and AP 14-02 and associated appeals are available for download at http://www.orcity.org/planning/landusecase/ap-14-01-and-ap-14-02-appeals-sp-14-01-beavercreek-road-livework-and-apartment-

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

EXHIBIT 1.

CONDITIONS OF APPROVAL
SP 14-01

Public Works / Engineering Development Services Division

1. The Applicant is responsible for this project's compliance with Engineering Policy 00-01, and for design of facilities in compliance with City design standards. The policy pertains to any land use decision requiring the Applicant to provide any public improvements. This includes attending a pre-design meeting with the City.
2. Prior to final plat approval, the Applicant shall sign a Non-Remonstrance Agreement for the purpose of making sanitary sewer, storm sewer, water and/or street improvements in the future that benefit the Property and assessing the cost to benefited properties pursuant to the City's capital improvement regulations in effect at the time of such improvement.
3. Prior to final construction plan approval, the Applicant shall provide an Erosion Prevention and Sedimentation Control Plan suitable to the Public Works Department to meet the Public Works requirements for erosion control. The Applicant shall provide a Preliminary Grading Plan to the City for review prior to the approval of construction plans. A final site Grading Plan shall be required as part of the final construction plans per the City's Grading Criteria and the International Building Code. If significant grading is required due to its location or the nature of the site, rough grading shall be required of the developer prior to the acceptance of the public improvements. There shall not be more than a maximum grade differential of two (2) feet at all site boundaries. Grading shall in no way create any water traps, or other ponding situations. Prior to final construction plan approval, provide final geotechnical report.
4. The water system shall consist of a master meter assembly owned by CRW capable of accurately providing and metering domestic and fire flow quantities. Following the master meter the distribution system shall be constructed as a standard City system with main lines, services, meters and fire hydrants. The water distribution system shall be designed to meet City design standards.
5. The proposed water line within the easement in the alley loops behind buildings A1 and A3 shall be deleted, and all the water services to the buildings fronting Beavercreek Road shall be from the proposed new water line in Beavercreek Road.
6. All water services shall comply with the City's standards for backflow prevention, including the larger buildings, community center and pool shall have appropriate back flow prevention devices on the water services.
7. Water service for the proposed development shall be provided by the City through a master meter owned by CRW. The specific terms and provisions for water service shall be provided through an intergovernmental agreement (IGA) between the City and CRW. Requirements for water service include:
    a. Prior to submitting construction plans to the City, an IGA between the City and CRW providing the terms and provisions for water service to the development must be executed.
    b. Prior to construction plan approval and after the execution of the proposed IGA, the applicant shall receive CRW's written approval of design plans and specifications for the water facilities agreed upon through the IGA.

c. The applicant shall be responsible for all costs associated with the design and construction of a water line and meter sized to meter domestic and fire flows. The cost would include hydraulic modeling by CRW as well as review and inspection.

d. Once constructed and accepted the water distribution system would be donated to the City to be maintained and operated.

e. The master meter and vault assembly would be donated to CRW to be operated and maintained.

8. Prior to construction plan approval, the Applicant shall submit the proposed development plans to Clackamas County Fire District No. 1 for review and incorporate all Fire District requirements in the construction plans as applicable, and prior to final plat approval the Applicant shall install any required fire hydrants. (Clackamas Fire District #1)

9. The sanitary sewer collection system shall be designed to meet City design standards.

10. The proposed 8-inch sanitary sewer line within the easement in the alley loops behind buildings A1 and A3 shall be deleted, and relocated to Beavercreek Road. All the services to the buildings fronting Beavercreek Road shall be from the proposed new sanitary sewer line in Beavercreek Road. This pipe shall be designed with consideration for connection to a future 15-inch pipe in Beavercreek Road to allow for future transfer to the Beavercreek basin.

11. A final stormwater drainage report which reflects the final design shall be completed and submitted. The final report shall address downstream impacts in more detail taking into account the change in discharge location. The final report shall also reflect the final site plan, potential for over-detention and potential changes to the storm facilities on Beavercreek Road.

12. The applicant shall sign a standard "Maintenance Covenant and Access Easement". The developer will be responsible for operating and maintaining the private stormwater facilities including collection piping, detention and treatment facilities. The City will be given access to inspect the storm water facilities, and require maintenance and/or repairs be done.

13. Treatment of stormwater runoff from the two private parking lots (behind buildings A2 and A3) shall be required prior to discharge into the public storm system. This could be in the form of LID methods or a cartridge filter.

14. Stormwater treatment is not provided for Meyers Road. The applicant will need to provide treatment such as an LID method prior to discharge to the public system. This would be consistent with the Beavercreek Concept Plan. (DS)

15. The applicant has indicated that they may construct a stormwater swale along Beavercreek Road located between the proposed on-street parking and sidewalk. This will cause people to either walk through the stormwater swale or on Beavercreek Road until they can access a crosswalk. The applicant will need to address this issue through modifying the swale design to incorporate pedestrian egress zone with sidewalk connectors across the stormwater swale. If stormwater swales are not constructed, , the applicant shall meet the requirements of providing stormwater detention and treatment through the other proposed stormwater facilities and over detention within the proposed stormwater pond as may be determined through the final stormwater management plan.

16. The final solution for the storm water facilities on Beavercreek Road shall be coordinated with the City and the County. Drainage facilities shall be in conformance Tri-City Service District #4 regulations and Clackamas Roadway Standards, Chapter 4 . Any surface water runoff from the site to the Beavercreek Road right-of-way shall be detained outside of the right-of-way in conformance with Clackamas Roadway Standards. Any surface water runoff discharged to the Beavercreek Road right-of-way will only be allowed if it can be shown that the existing system has the capacity to accept the runoff and no adverse downstream impacts will be created.

17. Ten-foot public utility easements along all street frontages and all easements required for the final engineering plans shall be dedicated to the public on the final plat. All existing and proposed utilities and easements shall be indicated on the construction plans. Any off-site utility easements required for this

project, such as for work on the storm outfall, shall be obtained and submitted to the City prior to approval of the construction plans.

18. Street "A" and Street "B" shall be local streets that are similar to the Beavercreek Road Concept Plan for a neighborhood "greenstreet". There shall be a 62-foot right-of-way dedication.
19. The street section for Street "A" and "B" shall include, but is not to be limited to, base rock, paved street width of 40-foot of pavement, curb and gutter, a 5.5-foot planter strip and a 5-foot sidewalk, curb return radii, curb (handicap) ramps, centerline monumentation in monument boxes, traffic control devices, street trees, and street lights. There shall be parallel parking on both sides of the street. There shall also be curb extensions at the street intersections.
20. Mid-block curb extensions will not be allowed. The applicant shall provide revised plans for the re-configuration, re-location or elimination of the 90-degree parking spaces.
21. The western end of the public portion of Street "B" shall be at the "T" with the two alley loops. The two alley loop shall be private, and shall have public access easements over them.
22. Meyers Road shall be minor arterial constructed similar to the Beavercreek Road Concept Plan for a collector "greenstreet". There shall be an 86-foot right-of-way dedication.
23. Meyers Road shall include, but is not to be limited to, base rock, paved street width of 64-foot of pavement, curb and gutter, a 7.5-foot planter strip and a 5-foot sidewalk, curb return radii, curb (handicap) ramps, centerline monumentation in monument boxes, traffic control devices, stripping, street trees, and street lights. There shall be parallel parking on both sides of the street, and bike lanes.
24. Beavercreek Road shall be major arterial constructed similar to the Beavercreek Road Concept Plan. There shall be a 92-foot right-of-way. The right-of-way dedication shall be sufficient to provide 47-feet of ROW from the centerline on the easterly side of the road (the side where the proposed development is located).
25. Beavercreek Road shall include, but is not to be limited to, base rock, paved street width of 32-foot of pavement from centerline (8-foot interim planting area, 6-foot bike lane, 12-foot travel lane and half of the 12-foot turning lane), curb and gutter, a 7.5-foot storm swale/planter strip and a 7-foot sidewalk, curb return radii, curb (handicap) ramps and end of sidewalk ramps, centerline monumentation in monument boxes, traffic control devices, stripping, street trees, and street lights. Appropriate pavement tapers shall be provided, per Clackamas County Roadway Standards Section 250.6.4. There shall be an 8-foot interim planting area.
26. At the intersection of Beavercreek Road and Meyers Road there shall be two travel lanes and one turn lane on both streets.
27. Beavercreek Road is Clackamas County jurisdictional right-of-way; final street improvements on Beavercreek Road shall be in compliance with Clackamas County Roadway Standards. (DS)
28. The applicant shall provide access control strips across the ends of Meyers Road, Street "A" and Street "B" where they stop at the edge of the development.
29. The sidewalk that connects Street "B" to Beavercreek Road shall be in a 15-foot wide public access easement.
30. The driveway entrances to the four private parking lots shall be designed for two way traffic, and shall be a minimum of 24-feet wide.
31. The driveway entrance on Meyers Road shall be approximately 240 feet from the intersection of Beavercreek Road. The driveway entrance on Street "A" shall be approximately 100 feet from the intersection of Meyers Road. The two driveway entrances on Street "B" shall be approximately 160 feet from the intersection of Street "A".
32. The intersection angle between Meyers Road and Beavercreek Road shall be 80 degrees. (DS)

33. Where pavement cuts are made in existing streets for the installation of improvements, the restoration shall be done in accordance with the City of Oregon City Pavement Cut Standards, or Clackamas County standards in County ROW's.

34. The applicant shall provide 8-inch sanitary sewer collection system in the existing and future public right-of-way with the connection to the existing collection system at the manhole located in Meyers Road at Emerson Court. A short section of the collection system shall be located in a 15-foot wide public easement that extends from the western end of "B" Street to the Beavercreek Road ROW.

35. The applicant shall refer to the City's standard for typical utility placement within the public street section for location of underground utilities.

36. The applicant shall pay a fee-in-lieu for an 8-inch pipe along the northerly frontage of the development on Beavercreek Road (from the northerly development boundary to Meyers Road). This fee-in-lieu shall be based upon costs for design and construction for a public agency construction project. An estimate of this cost shall be provided to the City for review and approval.

37. The applicant shall pay fee-in-lieu of downstream improvements in the Glen Oak Basin required due to the cross basin connection. The amount of the fee-in-lieu shall be $545,000 in accordance with the documentation provided in the "Public Works Engineering File Memorandum" (November 5, 2014).

38. The new water system shall include a minimum 12-inch main in Beavercreek Road from Glen Oak Road at the proposed master meter to Meyers Road, and 8-inch water mains throughout the site. The system shall be designed to loop the water lines as much as possible.

39. The new water lines shall be located within public right-of-way to the maximum extent possible. From the westerly end of proposed street "B" to the ROW of Beavercreek Road there shall be a 15-foot wide easement for water line.

40. A signal modification for the Beavercreek/Meyers signal shall be approved by Clackamas County Traffic Engineering, including signal pole locations, lane configuration, signal detection and signal phasing. The applicant shall also provide queuing estimates for the Beavercreek/Meyers intersection prior to the approval of the improvement plans.

41. The applicant shall provide funds to construct school zone flashers on Beavercreek Road to replace the existing school speed zone signs in the vicinity of the project site.

42. The applicant shall provide minimum intersection sight distance at the intersection of the new Meyers Road intersection with Beavercreek Road. In addition, no plantings at maturity, retaining walls, embankments, fences or any other objects shall be allowed to obstruct vehicular sight distance. Minimum sight distance is 500 feet in each direction. Sight distance shall be measured from a point 14.5 feet back from the edge of the travel lane at a driver's eye height in the driveway of 3.5 feet to a vehicle height of 3.5 feet in the oncoming travel lanes. The applicant shall demonstrate sight lines and compliance with minimum intersection sight distance as part of the Development Permit for the project.

43. The applicant shall submit an Engineer's cost estimate to be approved by Clackamas County Engineering for the asphalt concrete, aggregates, and any other required public improvement in the Beavercreek Road right-of-way.

44. Prior to commencement of site work the applicant shall obtain a Development Permit from Clackamas County for design and construction of required improvements to Beavercreek Road. To obtain the Permit, the applicant shall submit plans prepared and stamped by an Engineer registered in the State of Oregon, provide a Performance Guarantee, and pay an Inspection Fee. The Performance Guarantee is 125% of the approved Engineer's cost estimate for the required improvements.

45. Prior to commencement of utility work within the Beavercreek Road right-of-way a Utility Placement Permit shall be obtained from the Clackamas County.

46. Prior to commencement of any work, including grading, and prior to issuance of the Clackamas County Development and Utility Placement permits, the contractor shall: Provide a traffic control plan for review and approval from Clackamas County's Engineering Office. Provide a certificate of liability insurance,

naming the County as additionally insured. Obtain separate "Street Opening Permits" for utility installations within the County right-of-way. The applicant shall obtain these permits from the Engineering office prior to the issuance of the Development Permit.

47. The applicant shall pay a fee-in-lieu of improvements for the proportional share, 14 percent, of costs to construct the right-turn lane from Meyers Road to northbound OR213. The fee-in-lieu amount is $50,400.

Community Development / Planning Division

1. Prior to issuance of building permits, the applicant shall include the details indicating the required number and extent of pedestrian amenities within the pedestrian amenity areas required by OCMC 17.62.055.D in front of all buildings on the applicable site plan sets (landscaping, etc.).
2. The applicant proposed to name the two new public cross streets at a later time. Those names will comply with the City's adopted street naming policy.
3. Street tree species shall be selected from the adopted Oregon City Street Tree List or as recommended by a Certified Arborist or Landscape Architect and shall be planted in accordance with Chapter 12.08 to promote and maintain the community tree canopy adjacent to public streets. Revised and Final street tree plans shall be submitted for review at the time of construction plan review by the City Engineer (Revised Street Tree Plan) and following approval of Construction Documents by the City Engineer (Final Street Tree Plan).
4. Prior to issuance of building permits, the applicant shall provide a revised plan set indicating common pedestrian path connections in the areas described in the bullet points below in order to provide safe and convenient pedestrian access throughout the site, with concurrent revisions to landscaping and civil plan sets.
    - The large landscaped island situated between Buildings A3 and T2 - there is no common pedestrian path connection to Beavercreek Road in this location. Pedestrian would be forced to walk in the vehicle drive aisles to traverse the property from southeast to northwest.
    - The large landscaped island situated between Buildings A1 and T7 - there is no common pedestrian path connection to Beavercreek Road in this location. Pedestrian would be forced to walk in the vehicle drive aisles to traverse the property from southeast to northwest.
    - Between Buildings T6 and T7 - there is no common pedestrian path connection to Beavercreek Road in this location;
    - Between Buildings T1 and T2 – there is no common pedestrian path connection to Beavercreek Road in this location.
5. Prior to issuance of building permits, the applicant shall provide revised plans for a public pedestrian accessway to connect the dead-end Street B with the public sidewalk along Beavercreek Road. The public pedestrian accessway in this location shall be designed in accordance with the standards A-K of OCMC section 12.04.199 and shall be completed with the public streets prior to issuance of any building permit for the property.
6. Prior to issuance of a building permits, the applicant shall confirm to the satisfaction of the Planning Director that screening of mechanical equipment conforms as the applicant has proposed. Revised or supplemental plans indicating the appropriate screening shall be submitted if required by the Planning Director.
7. Prior to issuance of building permits the applicant shall submit revised plans that provide a minimum of three amenities selected from list D1 of section 17.62.055D for the pedestrian amenity area at the northern corner of Building A1 where the setback exceeds twenty feet. Below in this area on the revised building plans prior to issuance of a building permit.
8. Prior to issuance of a certificate of occupancy for any of the live-work units, the applicant shall record a deed restriction or other document prepared for approval by the City Attorney that includes the applicable restrictions of section 17.54.105.F.(1-4) which shall be recorded with the County Recorder's

office. Said document shall bind the owner, heirs and assigns in perpetuity unless extinguished with prior approval of the Oregon City Community Development Director.

9. Prior to issuance of a building permit for any building on the site, the applicant shall provide structural and architectural details on the submitted building permit application and plan set, to demonstrate to the satisfaction of the Oregon City Building Official and Planning Director that proposed window designs on all facades meet the minimum distance of 2" recess or projection from the building facades as required by OCMC section 17.62.057(L) – Window Design.
10. Prior to issuance of a certificate of occupancy the applicant shall provide a revised lighting plan that shows how the pedestrian circulation system, including the pedestrian accessways, will be adequately illuminated pursuant to OCMC 17.62.065 D.7 and Table 1-17.62.065.
11. Prior to issuance of building permits, the applicant shall provide a revised parking plan that identifies the spaces available for employee, student and commuter parking and designate at least five percent, but not fewer than two, of those spaces for exclusive carpool and vanpool parking.
12. The applicant's transportation engineer shall provide an analysis and explanation showing that the proposed configuration is safe and does not create unsafe maneuvering conditions in the public right-of-way, otherwise the applicant shall provide revised plans for the re-configuration, re-location of elimination of the 90-degree parking spaces.
13. Should performance guarantees be required in order to assure completion of specific site improvements prior to issuance of a certificate of occupancy the applicant shall provide such guarantees in a form approved by the city attorney.
14. Applicant shall provide revised landscaping plans indicating the location, size and type of mitigation trees on a revised landscaping plan prior to issuance of a final certificate of occupancy for the site. All mitigation trees shall be identified separately from and in addition to any standard required landscaping trees required under Chapter 17.62, street trees required under Chapter 12.08, and parking lot trees required under Chapter 17.52.

OREGON CITY
Community Development – Planning
221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION FORM

Type I (OCMC 17.50.030.A)	Type II (OCMC 17.50.030.B)	Type III / IV (OCMC 17.50.030.C)
❑ Compatibility Review	❑ Extension	❑ Annexation
❑ Lot Line Adjustment	❑ Detailed Development Review	❑ Code Interpretation / Similar Use
❑ Non-Conforming Use Review	❑ Geotechnical Hazards	❑ Concept Development Plan
❑ Natural Resource (NROD) Verification	❑ Minor Partition (<4 lots)	❑ Conditional Use
	❑ Minor Site Plan & Design Review	❑ Comprehensive Plan Amendment (Text/Map)
	❑ Non-Conforming Use Review	❑ Detailed Development Plan
	☒ Site Plan and Design Review	❑ Historic Review
	❑ Subdivision (4+ lots)	❑ Municipal Code Amendment
	❑ Minor Variance	❑ Variance
	❑ Natural Resource (NROD) Review	❑ Zone Change

SP 14-01

File Number(s): _____

Proposed Land Use or Activity: Apartment & Live-work Apartment Development

Project Name: _____ Number of Lots Proposed (If Applicable): 1

Physical Address of Site: 19896 Beavercreek Road, Oregon City 97045

Clackamas County Map and Tax Lot Number(s): 3-2E-10C-00800

Applicant(s):

Applicant(s) Signature: _____

Applicant(s) Name Printed: Andrew Brand - Beavercreek Road, LLC Date: 1/21/14

Mailing Address: 600 University St. Suite 1708 Seattle, WA 98101

Phone: 206-535-6248 Fax: _____ Email: andrew@evergreenhd.com

Property Owner(s):

Property Owner(s) Signature: _____

Property Owner(s) Name Printed: Beavercreek Road, LLC Date: 1/21/14

Mailing Address: 600 University St. Suite 1708 Seattle, WA 98101

Phone: 206-535-6248 Fax: _____ Email: andrew@evergreenhd.com

Representative(s):

Representative(s) Signature: _____

Representative (s) Name Printed: Andrew Brand Date: 1/21/14

Mailing Address: 600 University St. Suite 1708 Seattle, WA 98101

Phone: 206-535-6248 Fax: _____ Email: andrew@evergreenhd.com

All signatures represented must have the full legal capacity and hereby authorize the filing of this application and certify that the information and exhibits herewith are correct and indicate the parties willingness to comply with all code requirements.

SITE PLAN & DESIGN REVIEW CHECKLIST

The application will not be deemed complete without all of the requirements proceeding.

City of Oregon City, Community Development Department, 320 Warner Milne Road, P.O. Box 3040, Oregon City, OR 97045, (503) 657-0891
www.orcity.org

1. ✓ **Complete Application Form**

2. ✓ **A List of All Permit Approvals Sought by the Applicant**

3. ✓ **Narrative**
A complete and detailed narrative description of the proposed development that describes existing site conditions, existing buildings, public facilities and services, presence of wetlands, steep slopes and other natural features and any other information indicated by staff at the preapplication conference as being required.

4. ✓ **Review Criteria**
A response addressing each section of Chapters 17.52, 17.62 and any other applicable chapter identified in the Oregon City Municipal Code.

5. ✓ **Site Plan**
A detailed site development plan showing:
   - ☑ ✓ Vicinity information showing streets and access points, pedestrian and bicycle pathways, transit stops and utility locations
   - ☑ ✓ The site size, dimensions, and zoning, including dimensions and gross area of each lot or parcel and tax lot and assessor map designations for the proposed site and immediately adjoining properties
   - ☑ ✓ Contour lines at two foot contour intervals for grades zero to ten percent, and five-foot intervals for grades over ten percent
   - ☑ ✓ The location of natural hazard areas on and within one hundred feet of the boundaries of the site, including:
     - ☐ Areas indicated on floodplain maps as being within the one hundred-year floodplain N/A
     - ☐ Geologic Hazards as defined in Section 17.44.020 N/A
     - ☐ Areas identified on the seismic conditions map in the comprehensive plan as subject to earthquake and seismic conditions N/A
   - ☑ ✓ The location of natural resource areas on and within one hundred feet of the boundaries of the site, including fish and wildlife habitat, natural areas, wooded areas, areas of significant trees or vegetation, and areas designated as being within the water resources overlay district N/A
   - ☑ ✓ The location of inventoried historic or cultural resources on and within one hundred feet of the boundaries of the site N/A
   - ☑ ✓ The location, dimensions, and setback distances of all existing permanent structures, improvements and utilities on or within twenty-five feet of the site, and the current or proposed uses of the structures
   - ☑ ✓ The location, dimensions, square footage, building orientation and setback distances of proposed structure, improvements and utilities, and the proposed uses of the structures by square footage
   - ☑ ✓ The location, dimension and names, as appropriate, of all existing and platted streets, other public ways, sidewalks, bike routes and bikeways, pedestrian/bicycle accessways and other pedestrian and bicycle ways, transit street and facilities, neighborhood activity centers, and easements on and within two hundred fifty feet of the boundaries of the site
   - ☑ ✓ The location, dimension and names, as appropriate, of all proposed streets, other public ways, sidewalks, bike routes and bikeways, pedestrian/bicycle accessways and other pedestrian and bicycle ways, transit streets and facilities, neighborhood activity centers, and easements on and within two hundred fifty feet of the boundaries of the site
   - ☑ ✓ All parking, circulation, loading and servicing areas, including the locations of all carpool, vanpool and bicycle parking spaces as required
   - ☑ ✓ Site access points for automobiles, pedestrians, bicycles and transit

- ☑ On-site pedestrian and bicycle circulation
- ☑ Outdoor common areas proposed as open space
- ☑ Total impervious surface created (including buildings and hard ground surfaces)

6. ✓ **Landscaping Plan**
A landscaping plan, drawn to scale, showing the location and types of existing trees (six inches or greater in caliper measured four feet above ground level) and vegetation proposed to be removed and to be retained on the site, the location and design of landscaped areas, the varieties, sizes and spacings of trees and plant materials to be planted on the site, other pertinent landscape features, and irrigation systems required to maintain plant materials.

7. ✓ **Exterior Lighting Plan**
Drawn to scale, showing type, height, and area of illumination.

8. ✓ **Architectural Drawings**
Architectural drawings or sketches, drawn to scale and showing floor plans, elevations accurately reflected to grade, and exterior materials of all proposed structures and other improvements as they will appear on completion of construction.

9. ✓ **Erosion and Sediment Control Plan**
In accordance with the requirements of Chapter 17.47 and the Public Works Erosion and Sediment Control Standards, and a drainage plan developed in accordance with city drainage master plan requirements, Chapter 13.12 and the Public Works Stormwater and Grading Design Standards. The drainage plan shall identify the location of drainage patterns and drainage courses on and within one hundred feet of the boundaries of the site. Where development is proposed within an identified hazard area, these plans shall reflect concerns identified in the hydrological/geological/ geotechnical development impact statement.

10. ✓ **Materials Board**
A materials board, no longer in size than eight and one-half inches by fourteen inches clearly depicting all building materials with specifications as to type, color and texture of exterior materials of proposed structures.

11. ✓ **Pre-Application Conference Summary Sheet**

12. ✓ **Additional Information or Reports** *(If Required in Pre-Application Conference)*

13. ✓ **Summary of the Meeting with the Applicable Neighborhood Association**
(If Required in Chapter 17.50.050)

14. ✓ **Preliminary Storm Calculations** *(If Water Quality Detention is Required)*

15. ✓ **A Current Preliminary Title Report for the Subject Property(ies)**

16. ✓ **Mailing Labels for Owners Within 300 Feet of the Subject Site**
The names and addresses of property owners within 300 feet of the site indicated on the most recent property tax rolls.

17. ✓ **Copies** 3 copies, 3 full size sets of drawings, 1 11x17 set, 1 electronic
~~Twelve (12) copies of all information, reports, and drawings (full-sized and 8.5" by 11") pertaining to this application.~~

18. ✓ **Electronic Version of All Application Materials**

19. ✓ **All Required Application Fees**

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SUMMARY

This Site Plan and Design Review Application code review narrative is provided per the request of Oregon City as stated in the pre-application meeting notes under “Additional Code Sections”. This sectionalso includes narratives requested for other specifically called out sections in the pre-application meeting notes. Other individual narratives or studies for the Site Plan and Design Review Application may apply to the complete application package and are called out where applicable.

The proposed project is a combination of 121 rental apartments and 62 rental live-work units that form a village concept. The site is a cornerstone for possible future expansion of currently un-zoned land around it. This un-zoned land is in the Beavercreek Road Concept Plan area currently under consideration for approval by Oregon City. Our proposed community’s mix of live-work ground floor commercial and regular apartments provides opportunities for meeting the base zoning of the site while also meeting the intent of the un-adopted Beavercreek Road Concept Plan.

SECTION 12.04

- ### 12.04.007 Modifications:

  Where design modifications are requested the applicant has called them out in the appropriate section.

- ### 12.04.010 Construction specifications—Improved streets

  Improved sidewalks along city streets on the plan are designed to city standards

- ### 12.04.020 Construction specifications—Unimproved streets

  N/A - No unimproved streets exist on the submitted plan.

- ### 12.04.025 Street design—Driveway curb cuts

  Driveway curb cuts meet the design standards of the multi-family residential driveway access standards. There is only one driveway access point per frontage off of any existing or proposed public road. These driveways meet the width standards called out in the guidelines of 15 feet minimum and 40 feet maximum.

- ### 12.04.030 Maintenance and repair

  The applicant acknowledges this section and agrees the owner shall maintain and repair the sidewalks.

- **12.04.032 Required sidewalk repair**

  The applicant acknowledges this section.

- **12.04.033 City may do work.**

  The applicant acknowledges this section.

- **12.04.034 Assessment of costs.**

  The applicant acknowledges this section.

- **12.04.040 Streets—Enforcement**

  The applicant acknowledges this section.

- **12.04.050 Retaining walls—Required**

  Retaining walls required to meet the grading concepts of the plan are called out on the grading plans submitted with the application.

- **12.04.060 Retaining walls—Maintenance**

  The applicant acknowledges this section.

- **12.04.070 Removal of sliding dirt.**

  The applicant acknowledges this section.

- **12.04.080 to section 12.04.110 Excavations.**

  The applicant acknowledges these sections.

- **12.04.120 to section 12.04.140 - Obstructions**

  The applicant acknowledges these sections and has not plans to Obstruct the roadways, alleyways or sidewalks once construction of the proposed project is complete.

- **12.04.150 to section 12.04.160 Street and alley vacations.**

  No street or alley vacations are proposed for this permit and plan.

- **12.04.170 to section 12.04.175 Street design**

  Located in the center of the 453 acre area whose future has been carefully studied in the Beavercreek Road Concept Plan any decisions made by the site plan proposed with this application will have multiple ramifications on the future developments for years to come. One of the largest impacts on the future development of the area will be the framework in which they have to plug in to; the largest factor of the framework is of course the street network. The most critical step was determining the number of through-streets to parallel Beavercreek Road between Beavercreek and the planned Central Parkway which would ultimately define block size and developable land areas. We focused on the Oregon City Municipal Code and Beavercreek Road Concept Plan for direction as well as investigating block sizing at a local, state and national level.

  Considering the givens we have to work with, Beavercreek Road as an Arterial Street and Meyers Road as a Collector Street, the first major factor was the minimum street intersection spacing standards outlined in OCMC Chapter 12.04.195. As found in Table 12.04.040 no Local Street or Neighborhood Collector (depending on how the new parallel road will be classified) shall be within 300 feet as measured along Meyers Road. Using this piece of information coupled with an effort to standardize the grid system made the direction rather clear that one parallel road would be the most logical path. With one block dimension defined, further analysis of block sizing was then completed to help inform how many perpendicular cross streets to plan between Meyers Road and Glen Oak Road.

  There is of course a wide range in block sizes as you sample major metropolitan areas across the country; from one of the largest at 1000'x500' in New York to some of the smallest right here in Portland at only 200'x200'. Delving further into how different block sizes function and the feel they lend to the pedestrian environment is quite informative; and by filtering this information by the types of use and other site specific design parameters we can zero in on an effective range to best suit the goals of the Concept Plan.

  After analyzing this information and applying it to our site plan we feel confident that the 340'x440' block size we have proposed provides the needed balance between maximizing pedestrian circulation routes and net developable land areas. The rationale behind a 340'x440' block size is the consistent grid spacing and the flexibility it will lend to the different development zones within the Beavercreek Road Concept Plan. In areas such as the mixed employment zone it is just large enough to allow the buildings to face onto the streets with the use of alleys and interior parking where a smaller block size would limit our ability to meet this code requirement. As the grid extends north to the North Employment Campus it will lend itself to larger building footprints for commercial and business tenants. Connecting to the South in the Main Street and Mixed Use Neighborhoods the same concept as the MEV could be used (building street frontage with interior alleyways and parking concept) with the option to introduce additional local streets creating half-blocks at 220'x340' for the most pedestrian dense shopping districts.

As the timeline for future developments is unknown, the new internal public streets would be dead-end stubs with temporary turn-arounds and signage indicating future extension. The site itself would be linked to the existing transportation network by extending Meyers Road to the North across Beavercreek Road into/through the property. As determined by a traffic impact analysis, one lane aligned with the existing northbound lane will be provided for site ingress with 2 lanes provided for egress at the intersection. All stub roads and site topography are deigned to meet existing grade at the property lines as closely as possible to ensure smooth transition for future developments.

- **12.04.180 Street design**

The new roads proposed within the site fall into two classification categories per Table 12.04.180. The Meyers Road extension is classified as a "Collector" while the internal public streets fall into the "Local" street classification.

Per the "Collector" standards the right of way provided for the Meyers Road extension into what the comprehensive plan identifies as a mixed-use, commercial or public/quasi-public area is 86 feet in width with a pavement width of 64 feet. Three 12 foot travel lanes are provided at the intersection in addition to bike lanes, sidewalk, landscape strip and street parking.

The only variation from the strict interpretation of the table is the proposed sidewalk and landscape strip design we propose for Meyers Road. As noted in Section 12.04.180 the standards provided in table 12.04.180 are the maximum design standards; the deviation we propose is to follow the landscape strip and sidewalk requirements for a collector classified road but the industrial/residential standard of a 5 foot walk with 7.5 foot landscape strip. This modification conforms to the intent of the standards by providing safe and efficient movement of pedestrians, motor vehicles, bicyclists and freight in addition to being complimentary to the surrounding street design in character and scale.

The new internal streets, Street A and Street B, would be dedicated as public roads and would be classified as "Local" streets. Following the standards in the table for the Mixed-use, commercial or public/quasi-public designation the right of way provided for the new internal streets is 62 feet in width. The proposed plan for bicycle and pedestrian access are again a slight deviation from the strict application of the table by utilizing the standards for local road classification but instead the plan designation type of industrial or residential. This option goes above the standards of the Mixed-use, commercial or public/quasi-public designation by providing bike lanes where none are required.

Within the newly created blocks are alley loops that serve the parking areas. The width of the proposed alleys is 24 feet to accommodate 90 degree parking on both sides and would have a right-of-way designated with the same width.

- **12.04.185 Street design—Access control**

The dead end conditions proposed at the north property boundary of the Meyers Road extension and new public street A and Street B at the east property boundary shall have access control granted to the

city per this section. The access control restrictions shall exist until the neighboring properties are developed and the streets are extended to the adjacent properties.

- **12.04.190 Street design—Alignment**

The planned Meyers Road extension across Beavercreek Road is aligned with the centerline of the existing roadway.

- **12.04.194 Traffic sight obstructions**

The site plan and landscape planting plan have been designed to exclude vegetation and built elements exceeding three feet in height within the clear vision area as defined by Section 10.32.020. Required street trees planted along Meyers and Beavercreek Roads will have all branches and foliage removed to a height of eight feet above the grade.

- **12.04.195 Spacing standards**

The Meyers Road extension is classified as a Collector Street with a minimum distance of 100 feet from a street corner to a driveway and between driveways. The dimension from the edge of the Beavercreek Road right of way to the nearest portion of the parking lot driveway access on the north side of the Meyers Road extension is 185 feet; complying with Table 12.04.195.B.

The distance from the intersection of new Local Street A with the Meyers Road extension to the nearest portion of the alley access to the north of building A2 is 58 feet; complying with the 25 foot minimum for local street distances from Table 12.04.195.B.

The intersections listed above represent the shortest distance cases; all other intersections/distances exceed these minimums and are compliant with the standards set forth in Table 12.04.195.B.

- **12.04.199 Pedestrian and bicycle accessways**

Per the definition provided in this section, Pedestrian/bicycle access ways are intended to provide direct, safe and convenient connections where public street connections for automobiles, bicycles and pedestrians are unavailable or where the public street option is unavailable, impractical or inappropriate. As previously covered under the discussion for Section 12.04.170 through 12.04.175 the proposed site plan street grid provides both bike lanes and safe pedestrian ways on both sides of all proposed public streets. The site plan as proposed provides both practical and direct access for both cyclists and pedestrians throughout the site under the three hundred thirty foot interval standard therefore no additional access ways are required or planned for the site.

- **12.04.205 Mobility standards**

See the Transportation Impact Analysis performed for the proposed project submitted as part of this Site Plan and Design Review application.

- **12.04.210 Street design—Intersection angles.**

The Meyers Road extension is planned to be aligned with the centerline of the existing section of road on the south side of Beavercreek Road. The new segment of road is planned to shift 10.5 degrees north beginning at the centerline of Beavercreek Road. The Meyers Road extension to the north will therefore create a 79.5 degree angle at the intersection with Beavercreek Road. The factor that lead to this alignment was the decision to maintain the existing centerline of Meyers Road through the intersection and its interaction with the existing gas line easement to the north of Meyers (at an angle of 77.5 degrees to Beavercreek Road). The intersection angle as shown was necessary in order to accommodate the street alignment and 86 foot road right of way width while avoiding any interference with the existing easement.

All other proposed intersections occur at 90 degree angles and include more than the minimum tangent adjacent to the intersections. Intersection corners are designed with a 28 foot radius (three feet over minimum) to accommodate the turning radius of common fire department equipment.

- **12.04.215 Street design—Off-site street improvements**

Street design improvements along Beavercreek Road are per the concepts asked for in the Beavercreek Road Concept Plan.

- **12.04.220 Street design—Half street**

N/A – The proposed project has no half streets.

- **12.04.225 Street design—Cul-de-sacs and dead-end streets**

The dead-end streets shown on the plan are not permanent dead-end streets. They are designed to be connected to future developments on adjacent parcels at an undetermined time in the future. These temporary dead-end streets are designed with areas that allow for turn around which could be converted to parallel parking spaces once the project's proposed street network is connected to future developments.

- **12.04.230 Street design—Street names**

The applicant will name the two new public cross streets at a later time. Those names will comply with the standards of this section.

- **12.04.235 Street design—Grades and curves**

  All grades and curves on the proposed plan meet the design standards of the City.

- **12.04.240 Street design—Development abutting arterial or collector street**

  The proposed site plan includes live/work residential units abutting an existing arterial street (Beavercreek Road) which are governed by Section 17.54.105 as well as the MUC-1 zoning classification of the site and the associated dimensional standards in Section 17.29.050. The improvements along the north side of Beavercreek will include at a minimum a curb and gutter, an eight foot parking lane, an 8 foot storm drainage swale with street trees and a six foot sidewalk as indicated in Engineering-utilities notes issues with the Pre-application meeting notes dated July 5th, 2013. No further additional requirements have been requested or made required beyond the measures listed above by the decision maker.

- **12.04.245 Street design—Pedestrian and bicycle safety**

  The proposed street designs adequately address pedestrian and bicycle safety by utilizing traffic calming elements such as parallel street parking and marked pedestrian crossings. The decision maker reserves the right to make further comments on the proposed designs.

- **12.04.255 Street design—Alleys**

  Access to private off-street parking and loading facilities are adequately provided for per the driveway design standards. The street network called for in this plan meets the design intent of the Beavercreek Road Concept Plan and does not interfere with the pedestrian experience requested by the MUC-1 zone.

- **12.04.265 Street design—Planter strips**

  All proposed new public streets on the site plan include a minimum five foot wide planting strip adjacent to the curb within the right of way. The tree species have been selected and shall be planted in accordance with Chapter 12.08 to promote and maintain the community tree canopy adjacent to public streets.

- **12.04.270 Standard construction specifications**

  The applicant acknowledges this section and will follow it.

- **12.04.280 Violation—Penalty**

The applicant acknowledges this section.

SECTION 12.08 – STREET TREES

- ### 12.08.015 Street tree planting and maintenance requirements

Along Beavercreek Road, the streetscape has been enhanced with 2 in. caliper Zelkova serrata "Halka spaced approximately every 40 feet. Within the main interior road, Meyers Rd, 3.5 in. caliper Crategus laevigata "Crimson Cloud" trees have been planted approximately every 30 feet.

Interior streetscape trees include 2in. caliper Carpinus getulus 'Fastigiata' planted 30 feet on center, 2in. caliper Pyrus calleryana 'Glen's Form' TM planted every 30 feet on center, and Zelkova serrata "Halka Zel will be planted at interior intersections.

All trees will be irrigated and will require minimal maintenance other than yearly inspection for disease.

- ### 12.08.020 Street tree species selection

No conditions are present that would require the director to specify the species of trees required to be planted.

- ### 12.08.025 General tree maintenance

The applicant acknowledges this section.

- ### 12.08.030 Public property tree maintenance

The applicant acknowledges this section.

- ### 12.08.035 Public tree removal

N/A – No public trees are being removed as part of the applicant's plan.

- ### 12.08.040 Heritage Trees and Groves

N/A - The applicant's submitted application does not consider removal of any Heritatge Trees, as detailed in the Arborist's report.

- **12.08.045 Gifts and funding**

  The applicant acknowledges this section.

- **12.08.050 Violation—Penalty.**

  The applicant acknowledges this section.

13.08 SEWER REGULATIONS

- **13.08.010 Sewer connections—Required**

  The proposed project will be connected to the public sewer system as shown on the plans.

- **13.08.020 Connection required—Notice**

  The applicant acknowledges this section.

- **13.08.030 Privies**

  The applicant has no plans to connect to any systems mentioned in this section. Any septic system that might exist from the original house located on the parcel where the applicant is proposing the project would be properly decommissioned and removed during construction of the new systems.

- **13.08.040 Engineer—Approval required**

  The applicant acknowledges this section and will comply with it.

- **13.08.050 Engineer—Permits.**

  The applicant acknowledges this section and will comply with it.

- **13.08.060 Bond required**

  The applicant acknowledges this section and will comply with it.

- **13.08.070 Acceptance of connection by city**

The applicant acknowledges this section and will comply with it.

- **13.08.080 Notification of engineer**

The applicant acknowledges this section and will comply with it.

- **13.08.090 Connections to existing work**

The applicant acknowledges this section and will comply with it.

- **13.08.100 Barriers**

The applicant acknowledges this section and will comply with it.

- **13.08.110 Condition of fixtures**

N/A – The proposed project is not carrying off animal refuse.

- **13.08.120 Permit revocation**

The applicant acknowledges this section.

- **13.08.130 Development and user charges**

The applicant acknowledges this section.

- **13.08.140 Applications outside city limits.**

N/A – The applicant's project is not outside of city limits.

- **13.08.150 Permit issuance—Connection supervision**

The applicant acknowledges this section and will comply with it.

- **13.08.160 Entry in lien record**

The applicant acknowledges this section.

- **13.08.170 Private connections prohibited**

  The applicant acknowledges this section and will comply with it.

- **13.08.180 Unlawful substances**

  The applicant acknowledges this section.

- **13.08.190 Sanitary requirements**

  N/A – The applicant is not proposing any factories or workshops.

- **13.08.200 Collection**

  The applicant acknowledges this section.

- **13.08.210 STEP systems**

  N/A – The applicant is not proposing any STEP systems.

- **13.08.220 Violation—Penalty**

  The applicant acknowledges this section.

- **13.08.230 Standard construction specifications**

  The applicant acknowledges this section and will comply with it.

SECTION 13.12 – STORM WATER MANAGEMENT

- **13.12.010 Purpose**

  The applicant acknowledges this section and has designed a storm water management system that meets the minimum standards and requirements of this section. These include provisions for mitigating the potential impacts to pre developed hydrologic conditions including increases in runoff flow intensities and impacts to stormwater runoff quality.

- **13.12.020 Adoption of standards**

The applicant acknowledges this section.

- ## 13.12.030 Superceding Oregon City Drainage Master Plan Appendix A

The applicant acknowledges this section.

- ## 13.12.040 Definitions

The applicant acknowledges this section.

- ## 13.12.050 Applicability and exemptions

A. Stormwater Conveyance. The stormwater conveyance requirements of this chapter shall apply to all stormwater systems constructed with any development activity, except as follows:
1. The conveyance facilities are located entirely on one privately owned parcel;
2. The conveyance facilities are privately maintained; and
3. The conveyance facilities receive no stormwater runoff from outside the parcel's property limits.

Those facilities exempted from the stormwater conveyance requirements by the above subsection will remain subject to the requirements of the Oregon Uniform Plumbing Code. Those exempted facilities shall be reviewed by the building official.

APPLICANT RESPONSE TO SECTION*: The proposed project is subject to applicable city stormwater conveyance requirements. Please refer to the stormwater report that is included in this application for additional information.*

B. Stormwater Quantity Control. The stormwater quantity control requirements of this chapter shall apply to the following proposed activities, uses or developments:
1. Activities located wholly or partially within water quality resource areas pursuant to Chapter 17.49 that will result in the creation of more than five hundred square feet of impervious surface within the WQRA or will disturb more than one thousand square feet of existing impervious surface within the WQRA as part of a commercial or industrial redevelopment project. These square footage measurements will be considered cumulative for any given seven-year period;
2. Activities that create more than two thousand square feet of impervious surface, cumulated over any given seven year period; or
3. Redevelopment of a commercial or industrial land use that will disturb more than five thousand square feet of existing impervious surface. This five thousand square foot measurement cumulates over any given seven year period;
4. An exemption to the stormwater quantity control requirements of this chapter will be granted in the following circumstances:
a. The development site discharges to a stormwater quantity control facility approved by the city engineer to receive the developed site runoff after verification that the facility is adequately sized to receive the additional stormwater, or,

b. The development site discharges to one of the following receiving bodies of water: Willamette River, Clackamas River or Abernethy Creek; and either lies within the one hundred year floodplain or is up to ten feet above the design flood elevation as defined in Chapter 17.42

***APPLICANT RESPONSE**: The proposed project is subject to applicable city stormwater quality control requirements. Please refer to the stormwater report that is included in this application for additional information.*

C. Stormwater Quality Control. The stormwater quality control requirements of this chapter shall apply to the following proposed activities, uses or developments:
1. Category A. Activities subject to general water quality requirements of this chapter:
a. The construction of four or more single-family residences;
b. Activities located wholly or partially within water quality resource areas pursuant to Chapter 17.49 that will result in the creation of more than five hundred square feet of impervious surface within the WQRA or will disturb more than one thousand square feet of existing impervious surface within the WQRA as part of a commercial or industrial redevelopment project. These square footage measurements will be considered cumulative for any given seven year period; or
c. Activities that create more than eight thousand square feet of new impervious surface for other than a single-family residential development. This eight thousand square foot measurement will be considered cumulative for any given seven year period;
d. An exemption to the stormwater quantity control requirements of this subsection will be granted if the development site discharges to a stormwater quality control facility approved by the city engineer to receive the developed site runoff after verification that the facility is adequately sized to receive the additional stormwater.
2. Category B. Uses Requiring Additional Management Practices. In addition to any other applicable requirements of this chapter, the following uses are subject to additional management practices as contained in the Public Works Stormwater and Grading Design Standards:
a. Fuel dispensing facilities;
b. Bulk petroleum storage in multiple stationary tanks;
c. Solid waste storage areas for commercial, industrial or multi-family uses;
d. Loading and unloading docks for commercial or industrial uses; or
e. Covered vehicle parking for commercial or industrial uses.
3. Category C. Clackamas River Watershed. In addition to any other applicable requirements of this chapter, any development that creates new waste discharges and whose stormwater runoff may directly or indirectly flow into the Clackamas River is subject to additional requirements associated with Oregon Administrative Rules (OAR) 340-41-470 (Thee Basin Rule).

***APPLICANT RESPONSE**: The proposed project is subject to applicable city stormwater quality control requirements. Please refer to the stormwater report that is included in this application for additional information.*

- **13.12.060 Abrogation and greater restrictions**

The applicant acknowledges this section.

- ## 13.12.070 Severability

The applicant acknowledges this section.

- ## 13.12.080 Submittal requirements

A. Timing and Scope of Required Submittal.
1. Applications subject to the stormwater conveyance requirements of this chapter shall include an engineered drainage plan and design flow calculation report submitted prior to, or contemporaneous with, submittal of an application for a building, land use or other city issued permit.
2. Applications subject to the stormwater quantity and/or Category A quality requirements of this chapter shall include an engineered drainage plan and an engineered drainage report submitted prior to, or contemporaneous with, submittal of an application for a building, land use or other city issued permit.
3. Applications subject to Category B water quality special management practices shall demonstrate compliance with the additional management practices for commercial, industrial and multi-unit dwelling land uses of the Public Works Stormwater and Grading Design Standards as part of the site plan and design review process.
4. Applications subject to Category C water quality requirements for the Clackamas River Watershed are subject to OAR 340-41-470 (Three Basin Rule). No new discharges will be approved until a copy of a current DEQ permit, or written statement from DEQ that none is required, is on file with the city.
B. Required engineered drainage plans, drainage reports, and design flow calculation reports, which contain methods and proposed facilities to manage stormwater conveyance, quantity and/or quality, shall be prepared in compliance with the submittal requirements of the Public Works Stormwater and Grading Design Standards.
C. Each project site, which may be composed of one or more contiguous parcels of land, shall have a separate valid city approved plan and report before proceeding with construction.

APPLICANT RESPONSE: *The preliminary stormwater report is submitted along with the preliminary plans in accordance with the Oregon City Municipal Code (OCMC). Additional details are described in the stormwater report.*

- ## 13.12.090 Approval criteria for engineered drainage plans and drainage report

An engineered drainage plan and/or drainage report shall be approved only upon making the following findings:

A. The plan and report demonstrate how the proposed development and stormwater management facilities will accomplish the purpose statements of this chapter;

APPLICANT RESPONSE: *The purpose statements found in Section 13.12.010 discuss minimizing increases to stormwater runoff, preventing runoff from exceeding downstream capacities, preventing irresponsible discharge of stormwater onto adjacent property, etc. These purpose criteria are reflected in the approval criteria found in this section. As shown on the preliminary utility plan, on-site stormwater is collected and conveyed to a private stormwater facility.*

Stormwater is detained and treated in the stormwater detention facility and then discharged to a culvert located in Beavercreek Rd, which discharges to the existing roadside ditch in Beavercreek road that drains in a northwest direction.

B. The plan and report meet the requirements of the Public Works Stormwater and Grading Design Standards adopted by resolution under Section 13.12.020.

APPLICANT RESPONSE: *The preliminary stormwater report and plans provided with this application meet the requirements of the Public Works Stormwater and Grading standards adopted under Section 13.12.020.*

C. Unless otherwise exempted by Section 13.12.050(B), the plan and report includes adequate stormwater quantity control facilities, so that when the proposed land development activity takes place, peak rates and volumes of runoff:
    1. Do not exceed the capacity of receiving drainage conveyance facilities;

APPLICANT RESPONSE*: The preliminary stormwater report demonstrates that the proposed project does not exceed the capacity of receiving drainage conveyance facilities. This is accomplished with the proposed stormwater facility that includes detention.*

    2. Do not increase the potential for streambank erosion; and

APPLICANT RESPONSE*: The property discharges into a roadside ditch and flows for approximately 1900 feet north along the east edge of Beavercreek Rd. At the Beavercreek Rd/ Loder Rd intersection the ditch flow enters a culvert under Loder Rd and then drains towards the west under Beavercreek Rd where it ultimately contributes to a natural creek approximately 800 ft west of Beavercreek Rd. This discharge point is substantially distant (approximately 2700 feet) from the proposed development. Potential impacts due to an increase in peak stormwater flow rates will be modulated well before it discharges to this creek. The preliminary stormwater report demonstrates that the potential for streambank erosion is not increased. This is achieved by stormwater detention and protecting outfall locations.*

    3. Do not add volume to an off-site closed depression without providing for mitigation.

APPLICANT RESPONSE*: Volume is not added to an off-site closed depression. Therefore, the application satisfies this criterion.*

D. Unless otherwise exempted by Section 13.12.050(C), the proposed development includes:
    1. Adequate stormwater quality control facilities, so that when the proposed land development activity takes place, the temperature and overall pollution level of stormwater runoff is no greater than the water entering. When no water enters a project, then stormwater runoff shall be compared to rain samples; and

APPLICANT RESPONSE*: As illustrated in the preliminary plans and discussed in the preliminary stormwater report, the proposed project includes an adequately sized stormwater quality facility.*

2. Stormwater quality control facilities which:
a. Are in compliance with applicable National Pollutant Discharge Elimination System (NPDES) requirements;

APPLICANT RESPONSE: *An NPDES 1200-C Permit will be obtained prior to construction because the existing ground disturbance will exceed 1 acre. Proper erosion control measures will be provided to ensure erosion or siltation off of the site will not occur.*

b. Minimize the deterioration of existing watercourses, culverts, bridges, dams and other structures; and

APPLICANT RESPONSE*: As illustrated in the preliminary plans and discussed in the preliminary stormwater report, the proposed project is designed to minimize the deterioration of existing watercourses, culverts, bridges, dams, and other structures. This is achieved through stormwater quality, detention, and outfall protection.*

c. Minimize any increase in nonpoint source pollution.

APPLICANT RESPONSE: *As shown on the preliminary stormwater plans and discussed within the preliminary stormwater report, the public stormwater facilities incorporated within the project will minimize the increases in nonpoint source pollution in accordance with city requirements.*

E. The storm drainage design within the proposed development includes provisions to adequately control runoff from all public and private streets and roof, footing, and area drains and ensures future extension of the current drainage system.

APPLICANT RESPONSE: *As shown in the preliminary stormwater plan and discussed in the preliminary stormwater report, the proposed project's stormwater will be collected within storm water system components including curb inlets, and storm laterals prior to being conveyed to the on-site stormwater facility. The project is located at the upper elevation of its containing watershed – no upstream stormwater system extensions are anticipated.*

F. Streambank erosion protection is provided where stormwater, directly or indirectly, discharges to open channels or streams. The post development peak stormwater discharge rate from a development site for the two year, twenty-four hour duration storm event shall not exceed fifty percent of the two year, twenty-four hour predevelopment peak runoff rate.

APPLICANT RESPONSE*: There is no stream bank located in proximity to the subject property. There is a stormwater facility proposed on site, and outfall protection is proposed. Stream bank erosion is not anticipated as a result of the proposed project see 13.12.090. C.2. above.*

G. Specific operation and maintenance measures are proposed that ensure that the proposed stormwater quantity control facilities will be properly operated and maintained.

APPLICANT RESPONSE: *As shown on the preliminary stormwater plans and detailed within the preliminary stormwater report, specific operation and maintenance measures are proposed, that when*

followed, will ensure that the proposed stormwater control facilities will be properly operated and maintained for continued effectiveness.

- **13.12.100 Alternative materials, alternative design and methods of construction**

None at this time.

- **13.12.110 Transfer of engineering responsibility**

The applicant acknowledges this section and will comply by providing written notice to the City per the standards outlined in this section.

- **13.12.120 Standard Construction Specifications**

Not applicable for the Site Plan and Design Review Application.

All construction of public facilities will be in accordance with the most recent addition of the Oregon chapter APWA Standard Specifications for public works construction as adopted and modified by the city of Oregon City.

- **13.12.130 Administrative provisions**

Not applicable for the Site Plan and Design Review Application.

- **13.12.140 Maintenance of public stormwater facilities**

The applicant acknowledges this section. It is not necessary for the Site Plan and Design Review Application but will become relevant during the construction of the project. The applicant will follow these procedures provided they are still in place at the time of the construction.

- **13.12.150 Penalties and enforcement**

The applicant acknowledges this section.

- **13.12.160 Hazardous conditions**

The applicant acknowledges this section.

- **13.12.170 Permits from other jurisdictions**

  All permits from other jurisdictions necessary for the approval of the permitting and construction of the project will be obtained. At the time of submittal of this application it is anticipated that the applicant will eventually require the following permits for construction: DEQ 1200C permit. Clackamas County Construction Permit for Beavercreek Road.

- **13.12.180 Violation—Penalty**

  The applicant acknowledges this section.

17.29 – MUC – Mixed Use Corridor District

- **17.29.010 Designated**

  The proposed development is located in an MUC-1 zone along Beavercreek Road. The proposed project will contain a mix of multi-family residential and live-work uses.

- **17.29.020 Permitted uses—MUC-1 and MUC-2**

  The proposed development is allowed under sub-section N of this section, Residential Units, multi-family. Any of the live-work uses will conform with the uses permitted in this section. The section of this application describing live-work businesses will better elaborate on the types of businesses that may operate in the live-work spaces.

- **17.29.030 Conditional uses—MUC-1 and MUC-2 zones**

  None of the uses in this section are currently envisioned for the development and are not part of this application.

- **17.29.040 Prohibited uses in the MUC-1 and MUC-2 zones**

  None of the uses in this section will be allowed in the live-work portions of the proposed development.

- **17.29.050 Dimensional standards—MUC-1**

  The maximum building height is defined by Section 17.04.550 as:

> ""Height of building" means a vertical distance measured from the average elevation of the finished grade along the street-facing elevation to one-half the vertical distance between the eaves and the highest ridge for a gable, hip or gambrel roof."

The proposed building elevations range from 37 feet to 39 feet from average finished grade to the midpoint of the roof.

The surrounding properties have no current zoning designation and therefore there is no minimum setback required per 17.29.050.C

The distance from the edge of the Beavercreek Road right of way to the buildings is 7'-3". Per Section 17.62.055.D one additional measure will be provided to allow a maximum front yard setback of ten feet; the standard maximum of 5 feet per 17.29.050.E.1 plus one five foot increase. Pedestrian scale lighting has been selected from Section 17.62.055.D to qualify for the five foot increase.

The lot coverage of the proposed site plan is approximately 64% with the landscaped area to exceed the minimum 20% requirement.

- ### 17.29.060 Dimensional standards—MUC-2

Not applicable as we are not in the MUC-2 zone.

- ### 17.29.070 Floor area ratio (FAR)

The project is in an MUC-1 zone and section 17.29.050 does not contain floor area ratio specifications, only dimensional standards, which the project meets.

17.41 Tree Protection Standards

- ### 17.41.010 Protection of trees—Intent

The applicant acknowledges the intent of this section of code to preserve as many existing trees as possible. As part of our application a tree survey is submitted discussing existing trees on the property. It is not feasible to design the project without removing the existing trees. The application planting plan shows that all the trees which have to be removed have been replaced per code by the required multiplier of new trees. This amount of new tree planting is also discussed in the tree survey.

- ### 17.41.020 Tree protection—Applicability

The applicant acknowledges that it must comply with the standards of this section since it is going through a Type II Site Plan and Design Review process.

- **17.41.030 Tree protection—Conflicting code provisions**

  The applicant acknowledges this section.

- **17.41.040 Same—Exemptions**

  This section does not apply to us as we are proposing a new development and not maintenance or pruning of existing trees in a private existing development or farm.

- **17.41.050 Same—Compliance options**

  The applicant is choosing to use Option number 1, mitigation.

- **17.41.060 Tree removal and replanting—Mitigation (Option 1)**

  The applicant has submitted a tree survey including a mitigation plan and report from a certified arborist that outlines the number of trees to be mitigated and the number of trees that will be planted.

- **17.41.060 Tree removal and replanting—Mitigation (Option 1)**

  Our plan is to utilize Choice A and re-plant on our site.

  Pursuant to the project Arborist report (15) trees are to be removed all of which are located within the construction area; (9) trees are recommended for removal for the purpose of construction and (6) are recommended for removal because of poor or hazardous conditions. In accordance with this report (20) are required for mitigation. The proposed landscape plan for the project includes the placement of (237) trees on the property which will exceed this requirement.

- **17.41.075 Alternative mitigation plan**

  The applicant is not utilizing this section.

- **17.41.080 to Section 17.41.125**

  These sections are not applicable. The applicant is not utilizing the Options that these sections of code apply to. The applicant is utilizing Option 1.

- **17.41.130 Regulated tree protection procedures during construction.**

  No trees will be removed that are not shown for removal and mitigation per the enclosed Tree Survey and final approved Site Plan and Design Review permit, without prior written authorization from the Planning Director.

  The applicant's plan includes removing all the standing trees currently on the site so sub-sections B and C of this section of code do not apply.

17.47 – Erosion and Sediment Control

- **17.47.010 Purpose**

  Erosion and sediment control is necessary to ensure that sediment and sediment laden water does not leave the site during any construction activity that exposes native soils. Sediments laden water can seriously effect biological systems with natural riparian areas. The purpose of erosion and sediment control is to protect the natural environment, prevent the loss and transport of top soils and to protect air quality through dust control. Sediment is normally transported by Wind, concentrated stormwater runoff off and by construction equipment that travels into and out of construction areas. For a full description of how erosion and sediment control will be managed for the development see 17.47.070 below

- **17.47.030 Applicability**

  This section applies to our proposed project.

- **17.47.040 Abrogation and greater restrictions**

  The applicant has read and acknowledges this section.

- **17.47.050 Severability**

  The applicant has read and acknowledges this section.

- **17.47.060 Permit required**

  The applicant will obtain all necessary permits for erosion control required by any municipality with jurisdiction over this project prior to the start of construction.

- **17.47.070 Erosion and sediment control plans**

The developer, working with the project civil engineer will prepare Erosion and Sediment control plans (ESCP) and specifications for the development. The plans will provide all the details and best management practices (BMP's) so that the project contractor(s) can insure that sediment laden stormwater runoff does not leave the site during any storm event. Some of these BMP's include silt fence, catch basin filter "socks", straw bale wattles, temporary sediment settling basins, bio filtration bags and plastic covering of temporary stockpile material. BMP's will also ensure that construction equipment will not track sediment on the Beavercreek Road or Meyers Road. BMP's typically used for construction traffic include passive wheel washes and large aggregate construction pads at all ingress/ egress locations.

The project will expose more than 1 acre of the site as part of grading operations. Accordingly, a DEQ 1200 C permit will be obtained by the developer as part of the project.

Erosion and sediment control is a performance responsibility of the project contractor. The plans will ensure that the contractor has an understanding of the erosion control methods and specifications necessary to meet its performance specification and will meet the permitting conditions imposed by the City of Oregon City and the DEQ 1200C permit.

- **17.47.080 Plan implementation**

The applicant acknowledges that all portions of this section will be followed before and during the construction of the proposed development.

- **17.47.090 Plan performance guarantee and security**

The applicant acknowledges that a guarantee will be provided prior to development. The applicant asks that the form of this guarantee be provided by the appropriate City entity.

- **17.47.100 Correction of ineffective measures and enforcement**

The applicant acknowledges this section and understands the City has the power to utilize the methods stated in this section to enforce that the construction of the proposed development conforms with the standards and requirements of the approved Erosion and Sedimentation control plan and the erosion and sedimentation standards of Code section 17.47.

17.50 – Administration and Procedures

- **17.50.010 Purpose**

The applicant is currently planning to obtain the Site Plan and Design Review approval before proceeding with submittal of any concurrent building plans. However, depending on initial feedback and results of the Site Plan and Design Review review process the applicant reserves the right to change our mind and may decide to submit building permit plans to be reviewed concurrently.

- **17.50.030 Summary of the city's decision-making processes**

The applicant is submitting a Site Plan and Design Review application. According to the chart in this section of code this is a Type II process.

- **17.50.040 Development review in overlay districts and for erosion control**

This section does not apply as the proposed development does not fall into any of the zones or categories described here.

- **17.50.050 Preapplication conference**

The applicant held a pre-application conference on July 9th, 2013. The applicant requested a six-month extension to the pre-application conference deadline be allowed as permitted under subsection B of this section of code. No changes to the underlying zoning or building requirements have occurred between the time of the conference and the time of this application. The plan submitted here is also substantially the same to the plan and concept presented at the pre-application conference. The applicant's request for an extension was granted by the planning director.

- **17.50.055 Neighborhood association meeting**

The applicant held a Neighborhood meeting on August 15th. Oregon City provided mailing addresses for all residents within a 300 foot radius of the proposed project site. Notifications of the meeting were mailed to all residents on this list. The Neighborhood association was notified of the meeting via e-mail. E-mail was as approved as a method of notification by the Chairs of the neighborhood association. An exhibit with this application contains information on the notification of the meeting, meeting attendance and meeting comments.

- **17.50.060 Application requirements**

The applicant owns the property where the proposed development will be constructed.

- **17.50.070 Completeness review and one hundred twenty-day rule**

The applicant is aware of the deadlines and procedures for a complete application and for the review process after an application is deemed complete.

- ### 17.50.080 Complete application—Required information

  The applicant has submitted all information requested under this section.

- ### 17.50.090 Public notices

  The applicant is aware of the public notice provision of this Type II application and will follow section 17.50.100 regarding the on-property notification as directed by the City.

- ### 7.50.100 Notice posting requirements

  The applicant will follow the City's lead in posting a sign on the property that will describe notice of the proposed development.

- ### 17.50.110 Assignment of decision-makers

  We are aware the City Planning Director will make the decision on this land use application.

- ### 17.50.120 Quasi-judicial hearing process

  This section does not apply as we are not submitting permits for any land use that would require a Type III or Type IV decision.

- ### 17.50.130 Conditions of approval and notice of decision

  The applicant is aware of and has read this section.

- ### 17.50.140 Performance guarantees

  If conditions of approval require performance guarantees they will be provided per the requirements of this section.

- ### 17.50.150 Covenant with the city

  This section does not apply to us as the application is not a quasi-judicial decision process (Type III or Type IV).

- **17.50.160 Ex parte contact, conflict of interest and bias**

  This section does not apply to us as the application is not a quasi-judicial decision process (Type III or Type IV).

- **17.50.170 Legislative hearing process**

  This section does not apply to us as the application is not a quasi-judicial decision process (Type III or Type IV).

- **17.50.180 Objections to procedure**

  The applicant is aware of the objection procedures and has read this section.

- **17.50.190 Appeals**

  The applicant is aware of the appeals process for a Type II application as explained under this section of code and related sections of ORS.

17.50.200 Expiration of an approval

The applicant is aware that we have two years from final approval of this application to receive building permits for the proposed project.

17.50.210 Extension of an approval

The applicant is aware that we can request extension of an approval per the limitations of this section.

17.50.220 Reapplication limited

The applicant is aware of and has read this section.

17.50.230 Interpretation

The applicant is aware that the more restrictive requirements will apply.

17.50.240 Conformity of permits

The applicant is not aware of any way that we are not in conformance of any provisions of Title 16 and Title 17 and any other permits previously issued by the City for this site and/or this development.

17.50.260 Reconsideration of a final decision

The applicant is aware of its right to request a reconsideration of a ruling by the Planning Director.

17.50.270 Revocation of a previously approved permit

The applicant is aware that it must follow the conditions of the permit or face possible consequences outlined in this section.

17.50.280 Transfer of approval rights

The applicant is aware that the approvals granted here run with the land and can be transferred with a transfer of ownership in the land.

17.50.290 Fees

The applicant has included the application fee for a Type II Site Plan and Design Review Permit.

17.52 – Off-Street Parking and Loading

- ### 17.52.010 Applicability

  This section applies to our project

- ### 17.52.15 Planning commission adjustment of parking standards

  The applicant is not requesting any adjustments from the base parking requirements of the City code.

- ### 17.52.020 Number of automobile spaces required

  The table below includes the proposed unit count by unit type and calculates both the minimum parking and maximum parking numbers per the ratios given in Table 17.52.020:

Unit Type	Quantity	Min. Parking Ratio	Max. Parking Ratio	Min. Stalls	Max. Stalls
Studio Live/Work Stacked Flat Units	11	1	1.5	11	16.5
1-Bed/1-Bath Stacked Flat Units	58	1.25	2	72.5	116
2-Bed/2-Bath Live/Work Stacked Flat Units	15	1.5	2	22.5	30
2-Bed/2-Bath Stacked Flat Units	47	1.5	2	70.5	94
3-Bed/2-Bath Stacked Flat Units	10	1.75	2.5	17.5	25
5-Bed/5-Bath Stacked Flat Units	6	3	5	18	30
Total Stacked Flat Apartment Units	**147**			**212**	**311.5**
3-Bed/2-Bath Live/Work Towhomes	**36**	1.75	2.5	63	90
				min	**max**
Total Units on Site	**183**		**total parking**	**275**	**401.5**

The total parking provided on site is 332 stalls per 183 units for an average of 1.82 stalls per dwelling unit which falls within the range allowed as calculated in the table above.

All proposed stalls meet the dimensional requirements for the type and use of each proposed stall type. On-street parking has been included in the total parking stalls however will not be labeled in any way to restrict their use by the general public.

- ## 17.52.030 Standards for automobile parking

Our group parking areas are accessed by paved driveways that are located in the interest of public safety and in no cases are there groups of more than four parking spaces that would require backing up into public streets. No driveway slopes are greater than 15% and a conceptual drainage plan has been prepared by the civil engineer and submitted as part of this application package.

The proposed site plan includes only 0 degree (parallel) and 90 degree parking stall configurations which meet the dimensional requirements for standard dimension stalls per 17.50.303.D parking standard parking angle space dimensions table.

The proposed project does not include or have uses similar to those listed in line item E of this section and therefore is not subject to the carpool and vanpool parking requirements.

- ## 17.52.040 Bicycle parking standards

Per Table A of this section a minimum of 1 bicycle parking stall is required for every 10 units in Multi-family uses with three or more units with 50% of stalls required to be covered. For 183 proposed units on site, 18 bicycle stalls are required, 9 to be covered. The proposed site plan accounts for bicycle parking for the townhome units to be provided for within the attached garages; leaving the required stalls to be distributed among the stacked flat style buildings (A1-A3 and C1).

The proposed locations are indicated on the site plan at both ends of the buildings A1-A3 as well as at the parking lot side central entrance. Building C1 has a rack located in the plaza in front of the main building entrance. The locations shown represent stationary hoop-style bike racks securely attached to paved surfaces to which residents/visitors would utilize personal locks to store their bikes. The racks located at each end of buildings A1-A3 are positioned under a building cantilever above providing the code required cover.

All bike racks are located in close proximity to building entrances and adjacent to but not in the circulation path for convenience and to avoid conflicts with pedestrian and motor vehicle movement while maintaining direct access to a right of way.

- ### 17.52.060 Parking lot landscaping

All interior and perimeter parking lots have been landscaped per code. All trees selected will be a minimum of 2" caliper in size. All groundcover is spaced a maximum of 16" and no shrubs are spaced more than 4' on center.

- ### 17.52.070 Alternative landscaping plan

Not applicable. We are not utilizing alternative landscaping plans.

- ### 17.52.080 Maintenance

The applicant has read this section and acknowledges it.

- ### 17.52.090 Loading areas

No applicable as we are not proposing any commercial developments.

17.54 – Supplemental Zoning Regulations and Exceptions

- ### 17.54.010 Accessory buildings and uses

No accessory buildings are proposed with the submitted plan for review with the exception of a swimming pool. An in-ground swimming pool is planned between the clubhouse and the east property line. The swimming pool will not be located less than three feet from the property line. A fence no less than four feet in height shall be provided in the final design submittal.

- ## 17.54.020 Projections from buildings

  Buildings have been located on site such that there are no cases where a building projection extends into a required yard.

- ## 17.54.030 Setback exceptions

  The proposed site plan does not include the creation of separate lots; no through-lots exist.

- ## 17.54.060 Seasonal sales

  Acknowledged. The applicant is not planning for either of these types of sales to occur on the site as part of this application.

- ## 17.54.090 Accessory dwelling units

  We do not have any accessory dwelling units on the site.

- ## 17.54.100 Fences

  No fences are planned for the project application.

- ## 17.54.105 Live/work units

  Of the total 183 units on site 62 are proposed to be Live/Work units (36 townhome units and 26 ground floor stacked flat apartment units). As described in the code the Live/Work units were selected for use in the proposed site plan to meet the requirements of the MUC-1 zone and vision of the Concept Plan's mixed employment village by "providing flexibility by combining residential and commercial uses and allowing for commercial uses on the ground floor when the market is ready to support them".

  The proposed unit plans and elevations of the live/work units along with their placement on site meet the code criteria as follows:

  A. All 62 live/work units on site face onto and are clearly visibly from either an existing or new primary street/public way with locations for signage provided individually for each unit. The main front elevation of the live/work space meets the 50% transparency requirement by utilizing a storefront system. Windows are located with the sill between thirteen and thirty inches above the sidewalk and shall not be highly reflective or glare-producing.
  B. The business portion of all 62 live/work units is limited to the ground floor and does not exceed fifty percent of the square footage of the unit. The business area of the units range from 175 to 300 square feet.

C. The 36 townhome units have primary business entrance oriented towards either Beavercreek Road or the Meyers Road extension with alley access for refuse and recycling service and residential parking. The 26 ground floor apartment live/work units have their primary business entrance facing onto the proposed new public streets A and B. The ground floor apartment units do not have alley access but are served by an internal corridor for residential access to and from parking and refuse services located behind the buildings as an alternate means of meeting the intent of separating business and residential functions of the unit.
D. None of the business areas exceed 500 square feet in area on their own, therefore 1 stall per live/work unit is assumed; total 62 stalls. Shared use of the on-street parking is proposed for meeting the parking requirements for the live/work units. 21 on-street parallel stalls along Beavercreek Road would be available exclusively to the live/work units (not included in the overall site parking total as they are located on the existing public street) while the remaining parking needs are proposed to be met through shared use of the on-street parking along the Meyers Road extension and new internal public streets. The on-street parallel parking within the site would not at any time be assigned to residents and the hours of business operation of the live/work units would not materially overlap the residential uses; the primary use hours for the live/work users would occur during the daytime hours while many residents are away.
E. The number of employees shall be limited to five persons at one time.
F. Restrictions on the proposed live/work units shall be recorded as necessary.

17.62 – Site Plan and Design Review

- ## 17.62.050 Standards

A1) Landscape narrative

The landscape plan for this project has been designed to create a pleasing year-round environment for residents and to be an asset to the overall Oregon City community. All proposed plantings have been selected in accordance with the City's requirement in terms of sizing and spacing.

Plantings within the project are diverse in terms of colors, texture, and deciduous/versus evergreen plant material. Interior spaces within the project provide open, multi-use recreation spaces for tenants.

A2. Vehicular Access and Connectivity.

a. With the exception of required on-street parallel parking all proposed parking areas are located internally within the blocks behind buildings and additionally shielded from view off the public way by landscaping. The parking for building C1 is also an exception with parking on one side of the building set off the street and buffered by planted areas.
b. Site ingress is located off of Beavercreek Road by the extension of Meyers Road at the existing intersection. Additional signaling will be added to the intersection with the addition of the fourth leg per the traffic engineers report and recommendations. All internally proposed

intersections provide a distance greater than the minimum requirements for spacing to promote public safety. The turning radius provided for both public streets and alleys provide access for emergency vehicles to all sides of each building.

c. The site is designated as MUC-1 and has provided alleys for access to off-street parking facilities.
d. All vehicular access to parking facilities is from the alley loops.
e. Alleys are provided; standard does not apply.
f. No driveways occur on the site; standard does not apply.
g. Opportunity for connection to future adjacent sites is provided by the public street right of ways provided with the Meyers Road extension and new local Street A and Street B. No additional access easements are proposed at this time.
h. Streets will be dedicated; standard does not apply.
i. All public ways have been designed to comply with pedestrian access requirements.
j. Signage shall be provided at the end of the Meyers Road extension, Street A and Street B where they dead-end at adjacent property lines to inform the public that the dead-end street may be extended in the future.
k. The proposed site plan is larger than 3 acres in area and provides streets as required in Chapter 12.04; see responses under that section for detailed description of proposed street network.
l. Garages are provided only on the townhome buildings. All garages face onto the alleyway and are recessed from the prominent building façade to de-emphasize their presence.
m. No above-grade parking structures proposed; standard does not apply.

A3. With the exception of the high school the surrounding area of the site is predominantly single-family residential construction with traditional northwest vernacular; lap, shingle and board and batten siding with trim and accent features reminiscent of the craftsman style. The proposed building elevations for this project would utilized fiber-cement siding with 2 lap siding reveal depths with board and batten accent areas. A complimentary color palette would enhance the siding types and help integrate and the project into and enhance the community landscape.

a. Project site is not located in any of the four districts listed; standard does not apply.
b. The proposed site has not been identified as being located in a historic area; standard does not apply.

A4) Grading Narrative

The existing site is primarily a grassland which generally slopes toward the northwest at about 6 percent. Per the project geotechnical report the underlying soils consist of approximately 6” of vegetation and topsoil (which is not appropriate for structural fill) underlined by brownish red silt with some clay. An occasional aggregate rock (2 ft (-) diameter has been discovered within the test pits performed on the site. The underlying soils are poorly drained and there could be a moderate risk of expansive soils under moist and saturated conditions.

The grading for the property is shown within the site grading plan included in the development application. The plans shows excavations (cut) toward the south and east side of the development to depths of approximately 6 feet.
The plans shows embankments (fill) toward the north and west side of the development to depths of approximately 6 feet. Other than, the disposal of topsoil strippings, the earthwork volumes generated by total excavation and total embankments is weighted slightly towards more embankments. This earthwork imbalance is expected to be balanced through excess material generated as a result of roadway, building and utility excavations.

Due to the excavation and embankments required for the project, there will be a small amount of retaining walls constructed for the project. These will not exceed 5 feet in height and can mostly be designed as a standard "gravity" wall. All structural wall designs and calculations required for retaining walls will be prepared by a licensed structural engineer and submitted as part of final engineering design.

All grading will be fully protected from erosion through the implementation of a sediment and erosion control plan (see 17.47.010 above)

All embankments will be installed in accordance with the recommendations of the project geotechnical engineer in terms of meeting moisture content goals and relative soil compaction standards that will be required for the structural support of all roadways, buildings, retaining walls and trench backfill.

A5) Not Applicable. We are not in a Geologic Hazard Overlay District

A6) Drainage Narrative: See section 13.12 above and the preliminary drainage report

A7) Please see our earlier discussion of the requirements of Section 17.52 of the Code.

A8. Sidewalks and curbs are proposed on all new internal public roads and alleyways. Please see the site plan and the responses provided to Sections 12.04.170 through .199 above as well as the response to item A9 below for detailed information.

A9. Pedestrian Circulation System.

a. Pathways have been provided from all building entrances directly to the sidewalks located within the required right-of-ways. The Live/Work units in some instances have two pathways provided; one directly to the street with a short run of stairs to accommodate grade changes with a second path following grade providing an accessible route.
b. Pedestrian pathways are provided throughout the site to allow access from any point on the site to all public amenities. All building entries and exits are connected directly to the sidewalk along the street which is used predominantly used to meet this standard.
c. No elevated external stairways or walkways are proposed; standard does not apply.
d. All main building entrances on site are interconnected through the pedestrian walkway system.
e. No adjacent developments exist; standard does not apply.

f. Proposed on-site pedestrian walkways will be hard surfaced and at least five feet wide and be visually distinguishable from adjoining surfaces. Wheel stops will be provided in parking areas where walkways are directly adjacent to parking spaces other than parallel spaces. All pedestrian walkways located along a public street will be separated from the auto travel lane by a minimum five foot landscape buffer. All walkways adjacent to internal parking areas shall be raised above the parking lot by a 6" curb. Pedestrian crossing areas shall be readily distinguishable to alert drivers of the crossing area.

A10) Adequate maintenance of private improvements to the private grounds, including streets, drains and pathways, is planned by the applicant.

A11) Please see our earlier discussion of the requirements of Section 17.41 of the Code

A12) Natural Resources Overlay District – Not Applicable there are no natural resources identified for the property.

A13) The applicant has read this section of code and understands it.

A14) Water and Sewer Narrative

Water Service:

Water service with a separate meter will be provided to each building. A single water meter will be provided to each of the larger multifamily housing units and not an individual meter to each apartment. The community center and the mixed use (commercial/ residential) building north of Meyers Road. A separate meter is also anticipated to serve landscape irrigation purposes.

Where possible all watermains will be looped for two directional water supply and to provide for continuous water service during maintenance or other temporary valve closures. All public watermains will be extended to the property line within the new public roadways for future extension to adjacent properties as they develop. A blow off valve will be provided at the terminal waterline locations.

All water mains proposed with in the development and connecting to existing water mains in Beavercreek Road will be public waterlines designed and constructed in accordance with the City of Oregon City design standards. Where public waterlines are located outside of a dedicated public Right-of-Way, a public utility access and maintenance easement will be recorded for the benefit of Oregon City. The size and location of the easement is to be determined by the City as part of final engineering design.

Water service for domestic and firefighting services is available within Beavercreek Road along the length of the project. There currently exists two watermains in the roadway. The first is a 16" diameter main that is owned by the City of Oregon City. The second is an 8" diameter pipe owned by Clackamas River Water District (CRW). The project is currently located within Oregon City's water district.

Although water is available in Beavercreek rd from the 16" watermain, the available water pressure in that main is approximately 40 psi which is at the low end of the pressure required by the City of Oregon

City. There are a number of solutions to this pressure issue. The final solution will be determined through a collaborative effort between the developer, the City of Oregon City and CRW. The City of Oregon city is currently updating its water master plan. The selected option will need to be informed by the findings that result through that master planned effort. Some of the options under discussion include:

1. Provide a temporary solution until the City constructs a new reservoir that will increase the operating pressure in the 16" main. These temporary solutions include:
    a. Construct a new watermain within Beavercreek Rd that will connect to the outlet side of a CRW booster pump station approximately 800 feet south of the project site. This solution will require an inter-governmental agreement (IGA) between the City of Oregon City and CRW.

    b. Use the 16" main at its current operating pressure and construct booster pump stations where required on the project that will increase domestic use pressure where it is required for 2 and 3 story structures. Preliminary water pressure modeling indicats that dynamic pressure and flow necessary per the fire code to fight fires will be adequate to be served from the existing 16" water main and pressure.

2. Change the water service boundary so that the project can be permanently supplied by CRW.

As already stated, the final solution will be a combination of the above options and result from a collaborative effort between the Developer, the City of Oregon City and CRW.

Sanitary Sewer:

Public sanitary gravity sewer can be provided to all buildings within the development and will be designed to be consistent with City of Oregon City design standards. Where public sewers are located outside of a dedicated public Right-of-Way, a public utility access and maintenance easement will be recorded for the benefit of Oregon City. The size and location of the easement is to be determined by the City as part of final engineering design.

Existing sanitary sewer is available within an existing public utility easement within the Carrington Place sub-division which is contiguous to Beavercreek road. Per the Carrington Place record drawings, the depth to this existing sanitary sewer (flowline) at the terminal manhole is 8.75 feet which is of adequate depth to serve the development.

The City of Oregon City is currently updating its sewer master plan. The new masterplan will establish new or confirm existing sewer sub-basin boundaries. The proposed development is expected to be included in the Glennoak sewer sub-basin but that formal designation is still pending public notification. The master plan will also indicated what downstream capacity problems (if any) exist within the current sub-basin and if any capacity problems will result from the addition of sewer contributions from the proposed development. Finally the new sewer master plan will establish the available capacity of future developments within the Beavercreek Concept master plan area. Some of these future developments will connect to sewer mains installed as part of this proposed development. Accordingly, sewer mains will be extended to the property boundary within new public roadways to

accommodate sewer flows from future developments. Sewer mains will be sized once the sub-basin contribution from future development is determined through the master plan update.

A15. All proposed roadways have been designed to meet the criteria of Chapter 12.04 and the Street, Sidewalk and Public Places requirements of the Oregon City Municipal Code and consistent with the transportation master plan design standards. The impacts of the additional trips generated by the proposed project on the existing infrastructure have been studied in a formal traffic impact analysis which is included in this submittal package. No off-site projects were identified as a result of the traffic impact analysis and all on-site recommendations have been followed and incorporated into the plans.

A16) No public transit structure is currently planned as the site is not currently served by public transit at the perimeter of the site.

A17) The applicant will place all new utility lines underground in this development.

A18) ADA standards are followed in the site design of the proposed development.

A19. MUC-1 zone classification; standard does not apply.

A20. Screening of Mechanical Equipment

a. If mechanical equipment is located on the roof; screening measures complying with this section will be included to fully conceal the equipment with materials used on the primary façade in a way that coordinates with the buildings architectural design.
b. No through-wall mechanical units are planned for this project. If meters are installed in groups on the building's exterior, they will be properly screened from view through the use of plantings or a sight-obscuring enclosure constructed of one of the primary materials used on the primary façade of the building.
c. Any ground mounted above-grade mechanical equipment shall be screened in a way consistent with this code section and as approved by the community development director and utility provider.
d. All currently proposed and future mechanical equipment shall comply with the standards of this section.
e. No solar energy panels, photovoltaic equipment or wind power generating equipment is proposed; section does not apply.

A21. Building Materials

a. Proposed building materials for this project include fiber-cement lap siding and fiber-cement board and batten siding.
b. None of the listed materials are proposed for use with this project.
c. 1. Concrete block may be selected for use in the construction of the trash enclosures. If so they will be the split-face style blocks with a color tint.
   2. No metal siding proposed
   3. No EIFS proposed.

4. All fiber-cement and trim work to be painted prior to completion for full weatherization. All exterior surfaces shall be maintained by the property manager to prevent deterioration.

A22) The applicant has read and understands this section.

- **17.62.055 Institutional and commercial building standards**

Other Sections of this narrative cover all elements of required setbacks for commercial, live-work and residential structures in the MUC-1 zone. Additionally, a separate narrative on live-work units is provided as part of the overall Site Plan and Design Review application.

A. Located within the MUC-1 zone the proposed site plan includes Live/Work units. As such portions of this section will apply to the proposed plans. Per the pre-application conference notes form July 9, 2013 we have been requested to address sub-section D of this section.

A. 1. The proposed site plan has buildings located between 7 and 9 feet from the front property setback. This setback requires the incorporation of one element from the list provided in this section to allow an additional 5 feet of setback for a total of 10 feet. Line item h, enhanced landscaping has been selected and is represented on the landscape plans included with this submittal.

- **17.62.057 Multifamily Standards**

A number of techniques have been utilized in the design of the proposed buildings in order to ensure a high-quality development that is complimentary to the character of the surrounding neighborhoods. The following is a brief description of how each standard has been addressed:

A. The proposed project includes both traditional multi-family residential units as well as Live/work commercial units; the standards of this section apply to our project.
B. See discussion under section for compliance with Section 17.62.050, the following outlines compliance with the remainder of this section.
C. All street-facing ground-floor units (with the exception of the two units of building C1) are live/work units and in combination with the requirements of Section 17.62.055 the average setback of all buildings is seven to nine feet. The setback was chosen to satisfy both the five foot maximum setback of the commercial standards and the twenty foot maximum of this section. An additional five foot setback allowance per Section 17.62.055.D (by incorporating enhanced landscaping of 20 square feet per entrance) allows us the proposed setback distance shown in the submitted plans. We feel the selected setback not only meets the code requirements but also provides the more intimate pedestrian experience while maintaining enough privacy for the residential portion of the units.
D. The buildings have been specifically designed and located on the site to follow the street grid that has been created. The 'front' or prominent architectural façade of all buildings have been oriented towards the nearest public street and includes a variety of architectural features. On the

townhome units a combination of covered porch areas and planting beds provide interest and a visual transition between the public and private space.

The Apartments are much larger structures and use the modulation of the live/work units at street level to break up the mass into a more human scale. The individual entrances to the live/work units are highlighted by their closer proximity to the street as well as the enhanced planting areas around each entrance. The main entrance into the interior corridor of the apartment buildings is centered in the building and is recessed from the street and defined by wider pathways, enhanced planting areas and covered entryway.

The Clubhouse and C1 building employ similar techniques; cover entryways, planting areas and street-facing glazing to provide well-defined building entries that enhance the visual sense of the transition from public to private areas.

E. By designating a block size that allows for all of the parking to be located internally behind the buildings the proposed plan easily provides the required frontage. With the exception of two sections along new public Street A and Street B where required community open space is located (noted in table below) all frontages are exceeded. Frontage has been calculated along Beavercreek Road, the Meyers Road extension, and along new public streets A and B as shown in the table below:

Section 17.62.057.E Multi-Family Standards					
Frontage Segment		**Total Length**	**Building Frontage**	**Percentage**	**Notes**
Beavercreek Road					
	South of Meyers Road	726.69	520.5	71.63%	
	North of Meyers Road	147.6	88.42	59.91%	
Meyers Road					
	South side, Beavercreek to Street A	289.43	185	63.92%	
	South side, Street A to North PL	50.74	44.94	88.57%	
	North side				
Street A					
	South Side, Meyers to Street B	334.65	225.93	67.51%	
	South Side, Street B to East PL	225.42	220.8	97.95%	
	North Side, Meyers to Street B	346.15	275.43	79.57%	
	North Side, Street B to East PL	154.3	35	22.68%	A
Street B					
	South Side, Alley Loop to Street A	189.26	120	63.40%	
	South Side, Street A to East PL	133.87	96.5	72.08%	
	North Side, Alley Loop to Street A	189.26	0	0.00%	A
	North Side, Street A to East PL	188.95	120	63.51%	
Notes					
	A. Required community recreation/open space located within street frontage area.				

F. Pedestrian circulation

1. Pathways have been provided from all building entrances directly to the sidewalks located within the required right-of-ways. The Live/Work units in some instances have two pathways provided; one directly to the street with a short run of stairs to accommodate grade changes with a second path following grade providing an accessible route.
2. Pedestrian pathways are provided throughout the site to allow access from any point on the site to all public amenities. All building entries and exits are connected directly to the sidewalk along the street which is used predominantly used to meet this standard.
3. No elevated external stairways or walkways are proposed; standard does not apply.

Additional discussion of the pedestrian circulation system can be found with the response to Section 17.62.050 Standards, sub-section A.9.

G. All buildings proposed with this site plan are multi-family residential buildings or portions there-of and therefore are required to meet the standards of this section.
    1. A number of elements have been included in the design of the proposed buildings in order to meet the articulation and modulation requirements. The apartment buildings have both vertical and horizontal modulation which contributes to the visual articulation of the ground floor, middle floors and roof line. With the live/work units on the ground floor, a portion of all the units are a full five feet in front of the floor above and neighboring wall sections with distinct window and door appearance which defines this portion of the structure. The middle floors are also vertically modulated in a semi-repetitive way at every 12' structural bay; balconies provide modulations that are deeper and wider than the three foot by 4 foot minimum and are incorporated into the overall massing, not tacked on. The modulation of the upper floors is what allows for a distinctive roof line that is modulated to follow the building below. The roof has been standardized for constructability while still maintaining a symmetrical design that provides breaks in the plane at roughly twenty foot intervals. Gables are located along the roof line to provide additional visual breaks and are paired with the locations of the horizontal modulation of the live/work units at the ground floor to add additional emphasis to these units.

       The Townhomes follow many of the same techniques as the apartments. The ground floor area facing the street of all the units are to function as live/work spaces and have been designed with covered porch structures at the ground floor. These structures extend five feet out beyond the walls behind them and create the distinct visual articulation of the ground floor. The middle floors also include vertical modulation and repetitive window patterns to define this section of the building, and the roof line matches this modulation to create a distinctive roof line; completing the articulation requirements.

    2. The majority of our buildings will be visible from either an existing street or a proposed new public street. The townhome buildings have been designed in three configurations, 3-unit, 4-unit and 6-unit buildings, with the longest being 96'-3" wide and as such meet the requirements of this section.

The apartment buildings do exceed the 120 feet maximum and have been designed to provide the required modulation to break up the continuous building. The buildings have been designed in two wings that meet at the main building entry at the center of the building. At 20 feet deep and 36.5 feet wide this main entry area is what provides the required modulation to break the wings into 120 foot lengths.

3. The proposed rooflines of the buildings are a 6:12 slope throughout the project. By following the vertical modulation of the buildings as described in the previous sub-section the roofline has been visually broken into sections less than 35 feet measured horizontally.

H. The site plan includes a total of 13 proposed buildings comprised of 7 total building types. Three of the buildings are 3-story stacked-flat style buildings that share a similar appearance, the community center and building C1 are unique building types and the remaining 8 buildings are townhomes that are configured as 3-unit, 4-unit, 4-unit/jogged, and 6-unit buildings. Building placement along Beavercreek Road was especially important with the frontage exceeding 700 feet; the multiple townhome configurations were developed and placed strategically to ensure a varied look along this prominent public way.

I. With 183 total units on site the code requirement for unit diversity for this project is four unit types representing a minimum of ten percent of the total units per type. The table below provides the proposed unit counts of the project and demonstrates that in addition to 4 unit types of at least ten percent there are 2 additional unit types for a total of 6 unit types in the project. This does not include the Type A accessible units which would provide additional unit types.

17.62.057.I Multi-Family Standards - Unit Type Diversity		
Unit Type	**Quantity**	**Percentage**
1-Bed/1-Bath Stacked Flat Units	58	**31.69%**
2-Bed/2-Bath Stacked Flat Units	47	**25.68%**
3-Bed/2-Bath Stacked Flat Units	10	5.46%
5-Bed/5-Bath Stacked Flat Units	6	3.28%
Total Stacked Flat Apartment Units	**121**	
Studio Live/Work Stacked Flat Units	11	6.01%
2-Bed/2-Bath Live/Work Stacked Flat Units	15	8.20%
Total Stacked Flat Apartment Live/Work Units	**26**	**14.21%**
3-Bed/2-Bath Live/Work Towhomes	**36**	**19.67%**
Total Units on Site	**183**	

J. The proposed site is located within the MUC-1 zone which allows commercial uses, however is not strictly a commercial district and is not in a neighborhood with an established pattern of raised dwelling units. We have located our buildings within 15 feet of the sidewalks, so with a combination of the requirements happening within our site the application of this standard is

unclear. What we propose as a solution to this section is in part solved by the proposed live/work units at the ground floor. With the Live/work units the spaces at ground level there will not *be a* conversion to commercial use as *the space already is* a commercial use. Because the commercial function of the space is already being meet within the proposed live/work units there is no likelihood of a future commercial tenant requiring 13 foot ceilings. Therefore we are proposing a 10 foot ceiling on all ground floor units to promote the aesthetic look of a commercial use from the exterior while providing a more residential scale to the residential portions of those units. The narrative on live-work units shows that many, if not all, of the commercial businesses that operate in live-work structures do not require 13 foot ceilings as they are not required to have extensive HVAC systems that typically are the reason for 13 foot ceilings in commercial spaces.

K. To meet the required five points for multifamily building materials the proposed buildings have included the following architectural details from the provided list:
    1. Decorative porches on the townhome buildings
    2. Enhanced landscape beds at building entries.
    3. Decorative light fixtures at each building entry
    4. Decorative roof line with multiple gables
    5. Decorative railings on apartment balconies.
    6. Decorative trimwork at ground floor windows and doors.

L. All windows in the project will be detailed to provide the required 2" recess from the façade and will be trimmed with either 4" or 6" trim that will be of a contrasting color to the building base color. Numerous windows and doors face on to the street and as measured at the first floor the transparency is as follows:
    i. Apartments – main entry elevations = 62%
        - side street facing façade = 58%
    ii. Townhomes – street facing façade = 45%

M. The proposed multi-family development is located in a site that is zoned as MUC-1 and therefore does not fall subject to the requirements of the section per item 2. However, common open spaces have been provided to enhance to overall project with common open spaces centrally located to be easily accessible by residents and to create focal points within the site. An open space located halfway along the Beavercreek frontage provides a visual break in the buildings along Beavercreek and is aligned with new Street B to provide a pedestrian link into the site. Further down street B at the intersection with Street A is the major common open space located on the west corner of the intersection. The pool area located to the east of the community center also provides additional community recreation space.

N. The proposed project located in an MUC-1 zone shall comply with the requirements of line item 2 of the section. With 183 proposed units the area for common and private open space required by this section is 50 square feet per dwelling unit, which equals 9,150 square feet. In addition to the private decks of the apartment units common open space has been provided as follows:

Common Open Space	
Beavercreek mid-block open space	3000
Meyers Road North corner open space	3500
Intersection of Street A and Street B open space	7000
Community center pool area and open space	3600
Open space between buildings A1 and T7	2700
Total Common Open Space Provided	**19800**

- ### 17.62.065 Outdoor Lighting

The submitted site lighting plan meets the standards of this section.

- ### 17.62.080 Special Development Standards along Transit Streets

A. Direct and convenient pedestrian access is a key feature of the proposed plan in order to provide access to the businesses utilizing the Live/work units throughout the site. An in-depth discussion of the pedestrian circulation system has been provided under the responses to Sections 17.62.050.A.9 Standards and 17.62.057.F Multifamily standards.

B. While the proposed site does not currently front on any transit routes, the site has been designed to comply with this section because of the future plans to extend a current route down Beavercreek Road to a planned stop at the Meyers Road intersection with potential for further extension south on Beavercreek Road.

C. Proposed townhome buildings T1 through T7 face onto Beavercreek road of which all units are Live/Work units. Each live/work unit has its main entrance oriented toward Beavercreek Road and will be provided with the required entry lighting. Building C1 is also located on Beavercreek Road and has its main entry located off of the open space at the intersection with Meyers Road. Clear access from the transit street to the main building entrance is provided through the open space.

- ### 17.62.085 Refuse and Recycling Standards

A. Trash enclosure locations are indicated on the proposed site plan by the letter 'T'. Four stand-alone trash enclosures are provided, located within close proximity of buildings A1, A2, A3 and C1 respectively. The enclosures will be screened by permanent walls on 3 sides with a gate on the fourth side facing onto the alley loop through which residents and the collection agency will access the bins. The trash enclosures will be designed in a style complimentary to the buildings and are located off the alley aisle as to not interfere with vehicle parking and circulation. Both trash and recycle bins will be provided to meet the estimated demand.

17.65 – Master Plans

N/A – This is not a phased project so this section does not apply.

OREGON CITY
Community Development Department
221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

PA-13-24: Pre-application Conference Planning Staff Advisory Notes
Address: 19896 Beavercreek Road
Date of Pre-Application Conference: July 9, 2013

Review Process
It is expected that the applicant will seek approval of the development through the Site Plan and Design Review application process. This is a Type II process defined in 17.50.030 - Summary of the city's decision-making processes.

If the applicant seeks adjustment of any applicable standards in the applicable zoning code, or wishes to develop the site in phases, a Variance, or else a Master Plan Type III approval from the Planning Commission would be the appropriate application process, with each phase submitted as a subsequent Detailed Development Plan through the Type II process. The Master Plan and Detailed Development Plan process is discussed in Chapter 17.65 - MASTER PLANS.

In either case, whether Type II or Type III, the applicant is entitled to a decision from the city for a decision of approval, approval with conditions or denial within 120 days of deeming the application complete, by state law.

Type II decisions are rendered by the Community Development Director, with appeal on the record to the City Commission, and then onto LUBA.

Type III decisions are rendered by the Planning Commission, with appeal on the record to the City Commission, and then onto LUBA.

Site Plan Comments
The site plan indicates 2 local public streets "A" and "B" that connect to adjacent developable parcels. Oregon City code requires local public street connectivity as well as collector level public street connectivity (aka a "public street grid"). Alley Loops A, B and C will be required to provide public access easements.

The extension of Meyers Road east of Beavercreek Road is designated as a Medium-Term, Likely to be Funded, Industrial Minor Arterial road in Oregon City's latest Transportation System Plan update, soon to be adopted (See http://octransportationplan.org/draftdocument/ Project #D47). Typical ROW width for minor arterial will be 94' but may be superceded through the site plan process by the PRCP. The concept plan defines Meyers Road extension as a Collector Green Street in

the August 2008 final draft of the Beavercreek Road Concept Plan, with a ROW width of 86'. Please see public works comments for more details.

The expansion of Beavercreek Road is designated in the city's draft TSP. The project is on the Likely to be Funded, Major Arterial road with a ROW width of 94' in Oregon City's latest Transportation System Plan update, soon to be adopted (See http://octransportationplan.org/draftdocument/ Projects #D80 and #D81). The BRCP defines this section of Beavercreek Road as a three lane arterial section with a ROW width of 90'. Since a parking lane or parking pockets will also be required abutting the live-work section (consistent with the TSP), the ultimate amount of dedication required is variable. Please see public works comments for more details.

The overall street system appears to do a good job of setting up the framework for the transportation system of the BRCP, and a decent job of anchoring the Main Street as a transit-supportive street.

Live-Work concepts

Please develop an explanation of the live work unit concept and how it accomplishes the vision of the Mixed Employment Village on the formal application. It would be helpful to get formal comments from Tri-Met regarding the development proposal in order to determine whether additional transit stops will be needed on Beavercreek Road or the Meyer's Road extension.

The building layout and orientation appears to meet the intent of the Conditions of Approval of the Zone Change ZC 10-01.

Staff has some questions regarding the first floor live-work concept. For example: will these spaces be developed under commercial building codes? Will they have adequate ceiling height to accommodate commercial use as required by the site plan review code? What kinds of tenants does the applicant anticipate for these areas in order to meet the intent of the mixed employment village? Will the setback area in front of the units be properly treated as a public amenity area, rather than private space? Please elaborate.

Staff anticipates the need for on-street parking on Beavecreek Road. The ultimate street section will require review and approval by both Clackamas County Transportation and Oregon City.

The alley access and parking to the rear and sides of the building appears to meet code.

The specific code sections that need to be addressed are outlined below.

OREGON CITY
Community Development Department
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Approval Criteria to Address in Narrative:

1. Oregon City Municipal Code

Click on the hyperlinks below to see code section.

Chapter 17.50 - ADMINISTRATION AND PROCEDURES

A pre-application conference with the Caufield Neighborhood Association is required for a complete application. Contact Kattie Riggs, Staff Liaison to the Neighborhood Associations, to set up a meeting. Kattie can be reached at (503) 496-1582 or via email kriggs@orcity.org.

- Chapter 17.29 - "MUC"—MIXED-USE CORRIDOR DISTRICT

Staff Comment: Compliance will be determined once a detailed site plan has been submitted and adequacy of the setback area as a public amenity area has been determined. Otherwise a 5' maximum front setback is the standard of the district. May be increased through 17.62.055.D.

Chapter 17.62 - SITE PLAN AND DESIGN REVIEW

- Please respond to all applicable standards

17.62.050 - Standards.

Comments:

A.1. Landscaping: Show detailed landscaping plan with submittal. Show parking lot landscaping (minimum exterior, building buffer and interior requirements).
A.2 Vehicle Access and Connectivity: subsections (a) and (f)
A.3. Building Structures – appears to be met.
A.4. – A.6. Grading, Geologic, Drainage – See Public Works Comments.
A.7. – Parking – See 17.52 below.
A.8. - Sidewalks and Curbs. Compliance to be determined.
A.9. - Pedestrian Circulation. Compliance to be determined.
A.10. – Maintenance. Compliance to be determined.
A.11. – Tree Protection – Compliance to be determined.
A.12. – NROD. Not applicable.
A.13. Compliance to be determined.
A. 14. Water and Sewer - See Dev. Services Comments (Bob C.)
A.15. Adequate ROW and Street Improvements, Level of Service (LOS).

- Comment: Oregon City code requires local public street connectivity as well as collector level public street connectivity (aka a "public street grid"). The public street grid proposed appears to meet the intent of the Beavercreek Road Concept Plan, the City's Street Standards as outlined in the current and proposed Transportation System Plan (currently being updated), and OCMC 12.04.255.

17.62.055 - Institutional and commercial building standards.

OCMC 17.62.055.D.1., cross referenced from OCMC 17.29 MUC-1 above, applies to both the apartment buildings and the commercial building on the site.

D. Relationship of Buildings to Streets and Parking.

1. Buildings shall be placed no farther than five feet from the front property line. A larger front yard setback may be approved through site plan and design review if the setback area incorporates at least one element from the following list for every five feet of increased setback requested:

a. Tables, benches or other approved seating area.

b. Cobbled, patterned or paved stone or enhanced concrete.

c. Pedestrian scale lighting.

d. Sculpture/public art.

e. Fountains/Water feature.

f. At least twenty square feet of landscaping or planter boxes for each tenant facade fronting on the activity area.

g. Outdoor café.

h. Enhanced landscaping or additional landscaping.

i. Other elements, as approved by the community development director, that can meet the intent of this section.

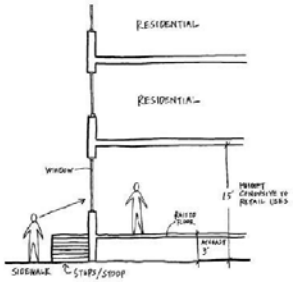
17.62.057 - Multi-family standards.

The current pre-app site plan provides some details with regard to the multi-family standards but further details will be needed at formal submittal time.

A few key sections of these standards are repeated below:

Diversity of unit types. Multifamily buildings with more than seventy-five units are required to provide four unit types representing a minimum of ten percent of the total units per unit type to allow for a range of households and age groups. Unit types are defined as the following: Studio, one-bedroom, two-bedroom and three-bedroom units or an ADA accessible master bedroom and bathroom (ground floor or elevator access).

J. Raised Ground Floor. This is particularly important when dwelling units are within fifteen feet of a sidewalk or common parking area or for buildings in established neighborhoods that have an established pattern with raised dwelling units.



Where ground floor residential uses are permitted on the ground floor in commercial districts, developments shall incorporate a thirteen-foot tall ground floor height to allow future conversion to commercial uses where desirable. Such projects can utilize a false floor thirty-six inches above the ground for residential uses to increase residents' privacy.

- Chapter 17.52 - Off-Street Parking and Loading

Parking lots on the submitted plan are behind or to the side of buildings, per code. The street grid that is proposed does the heavy lifting of facilitating compliance with this requirement. Good job.

Chapter 17.52 also regulates the minimum and maximum amount of required parking, based on the entire site and the specific uses within it, so a clearer table showing parking minimums and maximums as required by code will be needed at formal submittal. One clear way of calculating compliance for the entire site is shown below:

Land Use	Min spaces	Max spaces	Parking Required	Parking Proposed
Multi-Family: Studio	1.00 per unit	1.5 per unit		
Multi-Family: 1 bedroom	1.25 per unit	2.00 per unit		
Multi-Family: 2 bedroom	1.5 per unit	2.00 per unit		
Multi-Family: 3 bedroom	1.75 per unit	2.50 per unit		
Live-Work (not specified in code)				
Office	2.7 per 1000 sf GLA	3.3 / 1000 sf GLA		
Retail	4.1 per 1000 sf GLA	5 / 1000 sf GLA		

Applicant will need to provide a detailed explanation of the amount of parking proposed on site and provide an adequate rationale for the amount of parking provided for land uses not specifically listed in the code.

On-Street Parking

On-street parking can be credited toward off-street parking minimums.

Parking Reduction Allowances / Incentives

Applicants may propose a reduction in the amount of off-street parking required, for transit oriented development, transportation demand management, shared parking, and available on-street parking. We encourage the applicant to review this section to reduce the overall parking.

Staff could not determine at this point whether the overall landscaping, as well as the parking lot landscaping complies with code (i.e. perimeter, interior and building buffer landscaping). There are some zoning incentives for LID treatments written into the design review code that allows pervious and LID type treatments to be credited towards landscaping requirements. At least 10% of the interior of parking lots must be landscaped. A landscape island is required between every 8 parking spaces. The applicant may propose an alternative LID solution for the parking lots, in which case dimensional landscaping standards may be altered.

Chapter 17.41 - TREE PROTECTION STANDARDS

A tree plan is required which indicates the location of all trees on the site with a diameter of 6" DBH or greater. The applicant may select one or more of 4 options for how trees will be protected, removed and / or mitigated if removed from the site.

Chapter 17.65 - MASTER PLANS (If Master Plan with Detailed Development Plan)

If the applicant wishes to develop the site in phases, a Master Plan with a Detailed Development Plan is required. This allows the applicant to phase site development over a 20-year period. This is a Type III Planning Commission review. The Master Plan process also allows the applicant to request specific code adjustments with the Master Plan (like a variance) for approval by the Planning Commission.

2. Conditions of Approval from Zone Change PZ 10-01 / ZC 10-01 – See Attached.

Since the Beavercreek Road Concept Plan has not been adopted yet, the proposed development must meet the intent of the Mixed Employment Village in the Beavercreek Road Concept Plan per the Conditions of Approval attached to the file PZ 10-01 / ZC 10-01.
http://www.orcity.org/sites/default/files/BCReport090908Final.pdf

This parcel was rezoned conditionally in 2010, with the understanding that actual development of the parcel would be complimentary to the realization of the Beavercreek Road Concept Plan as a mixed-use employment area. The preferred land uses would be those that generate long-term employment. The intent of the Mixed Employment Village is as follows:

- Allows a variety of uses in a village-oriented transit hub
- The purpose of the Mixed Employment Village is to provide employment opportunities in an urban, pedestrian friendly and mixed-use setting.
- allows a mix of retail, office, civic and residential uses that make up an active urban district and serve the daily needs of adjacent neighborhoods and Beavercreek Road sub-districts
- 3-5 Stories
- Active Street Level
- Program connections to OCHS and CCC.

Bearing this intent in mind, it would be advisable to design the apartment buildings to support mixed uses, ground floor retail and or office, and live-work opportunities. As required in 17.62.057 - Multi-family standards., subsection (J), a Raised Ground Floor with a thirteen-foot ground floor height is required in order to allow future conversion to commercial areas. Such projects can utilize a false floor thirty-six inches above the ground for residential uses to increase residents' privacy.

3. Transportation

Traffic Impact Analysis is required. Please contact the City's transportation consultant John Replinger for further information, and to determine whether a more detailed Transportation Planning Rule (TPR) analysis is required by ODOT.

ODOT staff will be present at the pre-application conference and so will John Replinger.

Secondly, the parcel is critical to providing transportation contiguity for the remaining re-developable parcels of land which abut the site. The applicant must show how the proposed development plan meets not only the urban design intent for the buildings and uses, but also the conceptual transportation plan embodied in the Beavercreek Road Concept Plan. – Hybrid Plan Circulation Framework.

Please submit the formal Pre-Application Conference Summary (to be obtained from staff following completion of the pre-application conferences) with the Master Plan, Detailed Development Plan, or Site Plan and Design Review Application.

Attachments:

- Pre-application Conference Summary:
  - Public Works Comments
  - Planning Division Comments
- Conditions of Approval from ZC 10-01
- TPR documentation from ZC 10-01

Additional Code Sections

Written responses to the following code sections will be required for a complete application:

⇒ Chapter 12.04 - STREETS, SIDEWALKS AND PUBLIC PLACES
⇒ Chapter 12.08 - PUBLIC AND STREET TREES
⇒ Chapter 13.08 - SEWER REGULATIONS (Requires compliance with Sanitary Sewer Master Plan.)
⇒ Chapter 13.12 - STORMWATER MANAGEMENT
⇒ 13.12.080 - Submittal requirements.
⇒ 13.12.090 - Approval criteria for engineered drainage plans and drainage report.
⇒ Chapter 17.29 - "MUC"—MIXED-USE CORRIDOR DISTRICT
⇒ Chapter 17.41 - TREE PROTECTION STANDARDS
⇒ Chapter 17.47 - EROSION AND SEDIMENT CONTROL
⇒ Chapter 17.50 - ADMINISTRATION AND PROCEDURES
⇒ Chapter 17.52 - Off-Street Parking and Loading
⇒ Chapter 17.54 - SUPPLEMENTAL ZONING REGULATIONS AND EXCEPTIONS (Fences, Hedges and Walls, Accessory Structures, Allowable Projections, etc.)
⇒ Chapter 17.62 - SITE PLAN AND DESIGN REVIEW
  - 17.62.050 - Standards.
  - 17.62.055 - Institutional and commercial building standards. (Live-Work Units)
  - 17.62.057 - Multi-family standards. (Apartments)
  - 17.62.065 - Outdoor lighting.
  - 17.62.080 - Special development standards along transit streets.
  - 17.62.085 - Refuse and recycling standards for commercial, industrial, and multi-family developments.
⇒ Chapter 17.65 - MASTER PLANS (if phasing or zoning adjustments to a master plan are requested)

Responses to Applicant's Specific Questions:

1. Please confirm if there are unpublished conditions to the prior zone change of the property or to the un-adopted provisions of the Beaver Creek Road Concept Plan or conditions that have been put in place since the re-zone was adopted.

Not that we are aware of.

The timing of the city's adoption and implementation of the BRCP is undetermined due to pending decisions on appeals of the regional Metro urban and rural reserves decisions. Contact Tony Konkol, Community Development Director for further details.

2. Please provide guidance or specific criteria as to the study parameters of a Transportation Impact Analysis that will need to be conducted.

3. Please provide guidance or contact with ODOT regarding improvements to Beavercreek Road.

Major issues from a transportation perspective are compliance with the statewide Transportation Planning Rule and the city's transportation system plan. These issues require a thorough scoping of the revised TIS with ODOT, County and City transportation staff. Traffic Impact Analysis is required. Please contact the City's transportation consultant John Replinger for further information.

ODOT staff will be present at the pre-application conference and so will John Replinger.

Beavercreek Road is under County jurisdiction. Previously, our contact with the County has been Ken Kent.



4. SDC Credits, reimbursements.
Please coordinate this though Public Works . Contact is Todd Martinez, P.E., Development Services.

5. Process, Timelines, Notifications, Appeals.
Chapter 17.50 - ADMINISTRATION AND PROCEDURES , provides the code for all of these items. Staff will review these procedures at the Pre-App.

OREGON CITY

Public Works – Development Services

625 Center Street | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7829

PRE-APPLICATION MEETING NOTES
July 5TH, 2013

Project Number: PA 13-24
Project Name: Beavercreek
Meeting Date: July 9th, 2013

GENERAL COMMENTS

1. The Applicant is responsible for this project's compliance with Engineering Policy 00-01. The policy pertains to any land use decision requiring the Applicant to provide any public improvements.
2. The Applicant shall sign a Non-Remonstrance Agreement for the purpose of making sanitary sewer, storm sewer, water or street improvements in the future that benefit the Property and assessing the cost to benefited properties pursuant to the City's capital improvement regulations in effect at the time of such improvement.
3. The Applicant shall provide an Erosion Prevention and Sedimentation Control Plan to the City for approval.
4. All applicable System Development Charges (SDC) shall be due and payable upon building permit issuance.
5. A grading permit shall be obtained from Development Services for the on-site work.

ENGINEERING - UTILITIES

STREETS

1. The existing right-of-way (ROW) on Beavercreek Road is 60-feet, and it is a County street. It is operating as a major arterial. The street improvements include 54-feet of pavement in good condition which includes two bikes lanes, two travel lanes and a medium that is also used as a turn lane. On the south side there curb, a 6 foot planter strip with street trees and a 6 foot sidewalk. There are also street lights on the south side. The north side consists of a shoulder and a storm drainage ditch.

   At a minimum, improvements on the north side will include curb & gutter, a 6 foot sidewalk, a 8 foot parking lane, and an 8 foot storm drainage swale with street trees. The County may require additional improvements.

2. The intersection of Beaver creek Road and Meyers Road currently has three legs as Meyers Road does not extend to the north. There is a traffic light and pedestrian crossing lights. Entering the intersection from the south and west there are turn lanes.

In the proposed configuration with Meyers Road extended through the intersection the traffic signals and lanes striping will need to be modified.

3. The ROW for any new local streets (internal) should meet the requirements of the Beavercreek Road Concept Plan. The ROW would be 62-feet wide. The improvements would consist of two travel lanes, parking on both sides, planter strip and sidewalk on both sides, and curb extensions with flow through stormwater planters at the intersections.

4. The extension of Meyers Road would be to collector street standards per the Beavercreek Road Concept Plan. The ROW would be 86 feet wide. The improvements would consist of two travel lanes, two bike lanes, parking on both sides, planter strip and sidewalk on both sides, curb extensions with flow through stormwater planters at the intersections, and a landscape median. The landscape median may be modified to a turn lane at the intersection of Beavercreek Road.

5. The County may have requirements for the Meyers Road alignment at the intersection of Beavercreek Road. Previously a 50 foot long tangent section at 90-degrees was required.

STORMWATER

6. There are no storm drainage facilities (collection, ponds, treatment, etc) adjacent to the proposed development, but there is a drainage ditch along Beavercreek Road. Both storm detention and treatment will be required. The Beavercreek Road Concept Plan calls for a three tiered approach to storm drainage: LID approaches, greenstreets and finally regional facilities. The proposed development appears to be in alignment with this approach. To verify that this will work, a full storm drainage report per City standards will be required as part of the application that includes infiltration testing.

   It is unclear whether the entire storm drainage can be infiltrated, and it is likely that an overflow will be required. The overflow will need to be defined, and the downstream impacts will need to be evaluated.

WATER

7. There is a 16-inch water line on Beavercreek Road that is served by the Henrici Reservoir. The overflow elevation of the reservoir is 592 feet. There are two pressure zones in the vicinity of the proposed development: the Upper pressure zone and the Fairway Downs pressure zone which is served by a booster pump station near Glen Oak Road. The boundary between the two pressure zones is approximately Meyers Road. It appears that the proposed development is located in an area that would be served by both pressure zones. Per the master plan, a change in the boundary between the two pressure zones is proposed when a future tank is constructed and 12”/16” pipelines are extended.

8. The water distribution system in each pressure zone would need to be looped. Temporary lines may need to be installed to provide looping until additional development occurs. The lines will also need to be located such that they can be extended to serve the rest of the Beavercreek Roan Concept Plan area with the appropriate pressure zone and looping. Development within the Fairway Downs pressure zone may require future tank improvements to provide both the domestic water supply and fire flows due to the existing capacity of the booster pump station.

9. It is unclear that there is sufficient fire flow in both pressure zones for the proposed type of development. The fire flow capacity of the existing system should be verified and compared to the requirements of the Clackamas County Fire District. Improvements may be required. New fire hydrants should be located per the Fire District.

10. New water lines within the development would be either 12 or 8 inches depending upon the location within the distribution system. The 12 inch pipe is needed to form the backbone of the system, and the 8 inch pipe would be used elsewhere.

SANITARY SEWER

11. The applicant has indicated an extension of the sanitary sewer from the end of the Emerson Court cul-de-sac across private property. This is not acceptable if there is a method to provide service that keeps the pipe in the ROW. This can be done on either Meyers Road or Beavercreek Road.

12. The sanitary sewer master plans call for this area to be served by an extension of a 15 inch pipe along Beavercreek Road. The end of the public sanitary sewer is approximately 3,700 feet from the property to the west. It is a 12 inch line just east of Marjorie Lane. There is 8-inch sanitary serves the High School and Community College that is closer, but it is private. There are also CIP improvements required on the public line all the way to Highway 213. If the applicant wishes to connect to the sanitary sewer along Beavercreek Road per the master plan, then a 15 inch pipe will need to be constructed from the property to the end of the public sanitary sewer. Additional CIP improvements may be required depending upon system capacity. The applicant would need to model the existing pipe with the addition of the proposed development. If there are capacity issues, then the CIP projects would need tobe constructed.

13. If the applicant wishes to connect to the sanitary sewer along Meyers Road, then the entire sub-basin would need to be modeled. The additional flow would be from the proposed development and the additional area of the Beavercreek Road Concept Plan area that would discharge to it. The CIP would need to be updated. Per the master plan, approximately 1,300 feet of 10” pipe in Glen Oak Rd and a section just south of Glen Oak Rd need to be replaced with 12” PVC pipe to provide additional sewer

capacity and are required for buildout to prevent overflow conditions. Additional CIP improvements may be required depending upon system capacity. If there are capacity issues due to the proposed development, then the CIP projects would need to be constructed.

14. The pipe within the development will need to be sized for the entire area of the Beavercreek Road Concept Plan area that will flow through the proposed system.

15. The applicant could coordinate additional modeling efforts with Brown & Caldwell. They are in the process of modeling the new Sanitary Sewer Mater Plan for the City. Additional modeling efforts would be funded by the applicant.

Rezoning Ordinance Conditions of Approval

ORDINANCE – Conditions of Approval number 4:

4 Based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known.

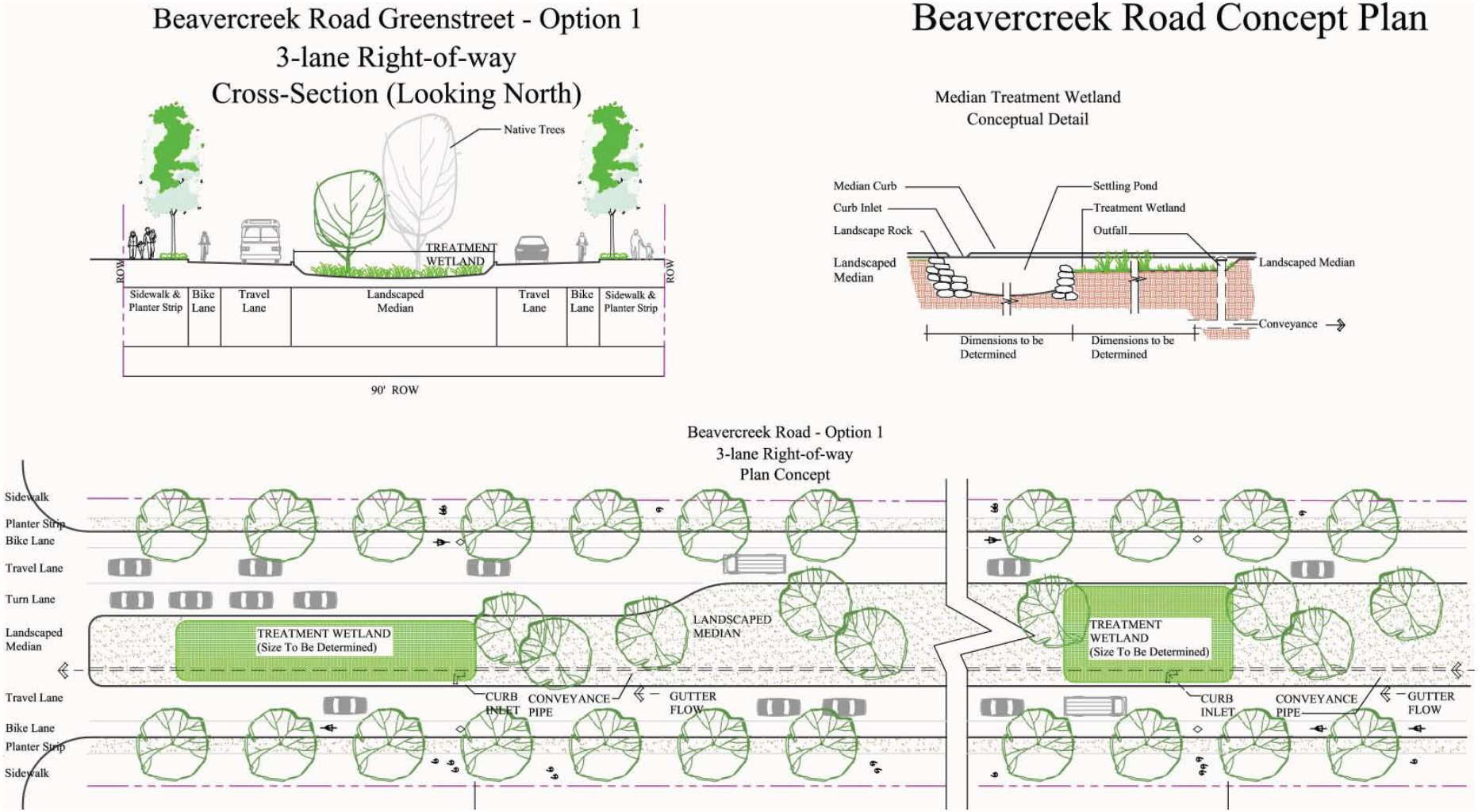


Figure 15 - Beavercreek Road Green Street

OREGON CITY

Public Works

625 Center Street | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7829

Estimate of System Development Charges

Applicant Information

Beavercreek Road, LLC
600 University St, Suite 1708
Seattle, WA 98101
206-535-6248
apt@mlibrantarch.com
PA 13-24

Site Information

Site Address: 19896 Beavercreek Road, Oregon City, OR 97045
Tax Lot No.: 32E10C00800
Lot Area: 423,403 square feet
Zoning Type: Mixed use corridor 1

Land Use Information

Proposed Trans/Bike Ped Category:	Apartment	
Charge Basis:	171	Number of dwelling units
Existing Use: (if applicable)	SF Detached	
Reduction Basis:	-	
Proposed Sanitary Sewer Category:	Multi-family residential (2+ units)	
Charge Basis:	171	Number of dwelling units
Existing Use: (if applicable)	Single-family residential	
Reduction Basis:	-	
Water Category:	No water meter	Size of water meter
Meter Equivalents:	-	
Proposed Parks Category:	Multi-family residence	
Charge Basis:	171	Number of dwelling units

Schedule of Charges

Transportation	**$814,195.06**
Vehicles	799,428.66
Reduction based on mixed-use criteria	0.00
Reduction based on existing use	(7,615.76)
Add-back for existing use in mixed-use area	0.00
Bicycles and pedestrians	22,382.16
Reduction based on existing use	0.00
Sanitary sewer	**$524,782.89**
Oregon City	252,311.27
Reduction based on existing use	(1,844.38)
Tri-City Sanitary District	276,336.00
Reduction based on existing use	(2,020.00)
Stormwater	**$46,941.86**
Oregon City Charge on New Development	47,642.49
Reduction based on existing use	(700.62)
Water	**$0.00**
Oregon City	-
Reduction based on existing use	-
South Fork Water Board	-
Reduction based on existing use	-
Parks	**$479,140.95**
Oregon City	479,140.95
Reduction based on existing use	-
Total SDC and Agency Summary	**$1,865,060.76**
Oregon City	1,590,744.76
South Fork Water Board	-
Tri-City Sanitary District	274,316.00

Prepared by: R. Todd Mark

City Engineer _____

Date: _____

OREGON CITY

Public Works

625 Center Street | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7829

Estimate of System Development Charges

Applicant Information

Beavercreek Road, LLC
600 University St, Suite 1708
Seattle, WA 98101
206-535-6248
0
PA 13-24

Site Information

Site Address: 19896 Beavercreek Road, Oregon City, OR 97045
Tax Lot No.: 32E10C00800
Lot Area: 423,403 square feet
Zoning Type: Mixed use corridor 1

Land Use Information

Proposed Trans/Bike Ped Category:	Condo/Townhouse	
Charge Basis:	36	Number of dwelling units
Existing Use: (if applicable)	SF Detached	
Reduction Basis:	-	
Proposed Sanitary Sewer Category:	Multi-family residential (2+ units)	
Charge Basis:	36	Number of dwelling units
Existing Use: (if applicable)	Single-family residential	
Reduction Basis:	-	
Water Category:	No water meter	Size of water meter
Meter Equivalents:	-	
Proposed Parks Category:	Multi-family residence	
Charge Basis:	36	Number of dwelling units

Schedule of Charges

Transportation	**$145,867.52**
Vehicles	141,155.48
Reduction based on mixed-use criteria	0.00
Reduction based on existing use	0.00
Add-back for existing use in mixed-use area	0.00
Bicycles and pedestrians	4,712.03
Reduction based on existing use	0.00
Sanitary sewer	**$111,294.16**
Oregon City	53,118.16
Reduction based on existing use	0.00
Tri-City Sanitary District	58,176.00
Reduction based on existing use	0.00
Stormwater	**$47,642.49**
Oregon City Charge on New Development	47,642.49
Reduction based on existing use	0.00
Water	**$0.00**
Oregon City	-
Reduction based on existing use	-
South Fork Water Board	-
Reduction based on existing use	-
Parks	**$100,871.78**
Oregon City	100,871.78
Reduction based on existing use	-
Total SDC and Agency Summary	**$405,675.95**
Oregon City	347,499.95
South Fork Water Board	-
Tri-City Sanitary District	58,176.00

Prepared by: R. Todd Mansur

City Engineer _____

Date: _____

OREGON CITY

Public Works

625 Center Street | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7892

Request for Estimate of Non-Residential System Development Charges

Instructions: Provide information about proposed project in boxes, including prior uses of property – if unsure of response, leave corresponding box blank.

Applicant

Name	Anna P. Thompson
Mailing address, line 1	25 Central Way, Suite 210
Mailing address, line 2	Kirkland, WA 98033
Telephone number (numbers only)	425-454-7130
E-mail address	apt@milbrandtarch.com
Building permit number/Planning File Number	PA 13-24
Circle type application type (see page 2 for definitions)	**New Development / Redevelopment / Incremental Development/ Tenant Improvement**
Existing SDC reduction or credit carry forward available? If YES, attach proof	NONE

Site

Site address, line 1	19896 Beavercreek Road
Site address, line 2	Oregon City, OR 97045
Map number (from property tax statement)	32E09D01400
Land area	9.7 ACRES
Zone	MUC 1

Proposed Use

Effective date of SDC estimate	7/9/13
Narrative description (optional)	Mixed use development to include apartments, shared living spaces, and work/live spaces
Proposed land use	MUC 1 – mixed residential/commercial
Building area in square feet	Unknown – 171 Apartments, 36 live/work townhomes
Proposed Size of water meter	unknown
How many seats? (restaurants, bars, taverns, etc.)	NA

Existing Use

Narrative description (optional)	SFR
Existing land use	SFR
Building area in square feet	unknown
Size of water meter	unknown
How many seats? (for restaurants, bars, taverns, etc.)	NA

Application Types	Definition of application type
Incremental Development	Additional construction on a developed lot whose existing structures will remain in place.
New Development	Development on a lot that has not been previously developed.
Redevelopment	Development on a lot that had been previously developed but whose previous structures have been removed.
Tenant Improvement	Construction by a tenant within an existing building.

Estimate Request by: Milbrandt Architects (Anna T.) Date: 7/9/2013
Estimate Due Date: for PA 13-24 meeting 7/9/13

Return completed form to:
Todd Martinez, 625 Center Street, Oregon City OR, 97045
tmartinez@orcity.org

For Internal Use:

SDC estimate provided	No SDC	Review of SDC credit pending

OREGON CITY

Public Works - Development Services

625 Center Street | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7892

CHARGES FOR WATER SERVICE CONNECTIONS

EFFECTIVE 1/2/13

Oregon City Resolution 04-21 (6/2/04)
South Fork Water Board Resolution 04-04 (12/1/04)

Size	Meter Installation Charge*	Meter Unit Equivalent	Oregon City SDC **	South Fork Water Board SDC ***	Total Fee
5/8" x 3/4"	$550	1	$3,374	$1,466	$5,390
3/4"	$600	1.5	$5,061	$2,199	$7,860
1"	$650	2.5	$8,435	$3,665	$12,750
1½ "	$2,298	5	$16,871	$7,329	$26,498
2"	$2,478	8	$26,993	$11,726	$41,197
3"	$3,030	16	$53,987	$23,452	$80,469
4"	$4,204	25	$84,355	$36,644	$125,203
6"	$6,695	50	$168,709	$73,290	$248,694
8"	$13,557	80	$269,935	$117,264	$400,756
10"	$18,696	115	$388,031	$168,566	$575,293

* Excludes service line installation

** OC applied their annual adjustment on 1/2/13 (+3.9%)

*** SFWB applied their annual adjustment on 1/2/13 (+3.9%)

NOTES:

1. For residences required to use a 1" or 1½" meter for residential fire sprinklers, the City and SFWB SDCs for a 5/8 " meter shall be used. Oregon City SDC will be $3374 and SFWB SDC will be $1466 and Installation Charge will be as listed for the actual meter size used.
2. Irrigation meters will pay normal SDC based on size.

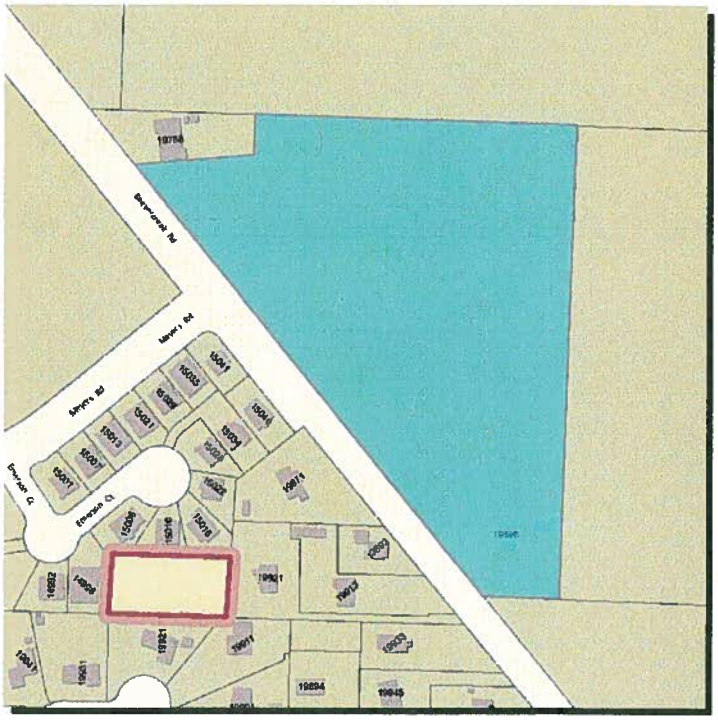
Invokes Res 04-21
SFWB Res 04-04/13-01

Taxlot Detail Report

Taxlot: 3-2E-10C -00800



Overview Map



Taxlot highlighted in blue

Taxlot Information

APN: 3-2E-10C -00800
Alt ID: 00870711
Site Address: 19896 BEAVERCREEK RD
OREGON CITY, OR 97045
Year Built: 1945

Taxpayer Information

Taxpayer: *Suppressed*
Address: *Suppressed*

Reference Information

Parcel Area (acres - approx): 9.7
Parcel Area (sq. ft. - approx): 423,403
Twn/Rng/Sec: 03S 02E 10
Tax Map Reference: 32E10C

Values

Mkt Values as of: 10/10/2012
Land Value (Mkt): $800,000
Building Value (Mkt): $1,500
Exempt Amount: $0
Net Value (Mkt): $801,500
Note: These are Market, NOT Assessed values.
Assessed Value: $224,097

Planning Designations

Zoning: MUC1
- Mixed Use Corridor District

Comprehensive Plan: muc
- Mixed Use - Corridor

Subdivision: NONE
PUD (if known):
Neighborhood Assn: Caufield NA
Urban Renewal District:
Historic District:
Historic Designated Structure? N
In Willamette Greenway? N
In Geologic Hazard? N
In Nat. Res. Overlay District (NROD)? N
In 1996 Floodplain? N

The City of Oregon City makes no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, surveying or navigation purposes. Notification of any errors is appreciated.

Report generated 5/14/2013 9:35 AM

City of Oregon City
PO Box 3040
625 Center St
Oregon City, OR 97045
(503) 657-0891
www.orcity.org

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Region 1 Headquarters
123 NW Flanders Street
Portland, Oregon 97209
(503) 731.8200
FAX (503) 731.8531

July 17, 2013

City of Oregon City
221 Molalla Ave, Suite 200
Oregon City, OR 97045

ODOT Case No: 5274

Subject: PA 13-24: Beavercreek Live/Work Pre-application conference

Attn: Pete Walter, Planner

We have reviewed the applicant's proposal to construct a combination of 3 and 4 apartment homes and live-work units. The site is in the vicinity of OR 213. ODOT has permitting authority for this facility[1] and an interest in ensuring that the proposed land use is compatible with its safe and efficient operation. To ensure compatibility with state standards and requirements, we request the City of Oregon City consider the following.

ODOT Issues and Requirements

ODOT requests that the City include ODOT in the scoping and review of any required traffic impact study (TIS). For the allowed use ODOT is primarily concerned with ensuring the safety and operations of state facilities. Prior to commencing the TIS, the applicant should contact Avi Tayar, P.E., ODOT Region 1 Traffic at 503.731.8221 to obtain ODOT concurrence with the scope of the study.

A zone change has recently been approved for this site and conditions of approval have been issued requiring proportional contribution towards a right turn at the OR 213/Meyers Rd intersection. If the applicant or City choose to revisit these conditions new Transportation Planning Rule (TPR) findings would be required. Generally, this requires a TIS comparing trip generation under the two zoning scenarios.

The analysis should present a comparison between the land use with the highest trip generation rate allowed outright under the proposed zoning/comp plan designation and the land use with the highest trip generation rate allowed outright under the existing zoning/comprehensive plan designation (this is commonly referred to as the "reasonable worst case" traffic analysis). It is important that the applicant's transportation engineer provide the City the opportunity to review and concur with the mix of land uses and square footage they propose to use for the "reasonable worst case" traffic analysis for both existing and proposed zoning prior to commencing the traffic analysis.

[1] OAR 734-051 website: http://arcweb.sos.state.or.us/rules/OARS_700/OAR_734/734_051.html

In this case the “reasonable worst case” land use scenario should be nearly identical to the “reasonable worst case” presented in the prior zone change’s TIS. In addition, alternative mobility standards have yet to be developed for zone changes. Therefore, the analysis would likely come to the similar conclusions and the same recommended conditions of approval for the zone change. ODOT does not recommend revisiting the zone change decision unless the applicant is seeking a different land use designation.

Thank you for providing ODOT the opportunity to participate in the pre-application conference and to comment on the proposal. If you have any questions regarding this matter, please contact me at 503.731.8234.

Sincerely,

Seth Brumley

Seth Brumley
Development Review Planner

C: Avi Tayar, P.E., ODOT Region 1 Traffic

Morgan Holen & Associates LLC
Consulting Arborists and Urban Forest Management
971.409.9354
3 Monroe Parkway, Suite P 220
Lake Oswego, Oregon 97035
morgan.holen@comcast.net

Beavercreek Road – Oregon City, Oregon
Arborist Report and Tree Plan
September 11, 2013

MHA1320

Purpose

This Arborist Report is the tree inventory, protection and mitigation plan for the Beavercreek Road project provided pursuant to City of Oregon City Municipal Code Chapter 17.41. This document describes the existing trees located on the project site, provides arborist recommendations for tree removal during construction, and explains the number of replacement trees required to be planted as mitigation for tree removal. This report is based on observations made by International Society of Arboriculture (ISA) Certified Arborist and Qualified Tree Risk Assessor Morgan Holen (PN-6145A) during a site visit conducted on August 2, 2013.

Scope of Work and Limitations

Morgan Holen & Associates, LLC, was contracted by Evergreen Housing to collect tree inventory data for individual trees measuring six inches and larger in diameter and to develop an arborist report and tree plan for the project. The site is planned for development including apartment buildings and parking lots. A site plan was provided by Evergreen Housing illustrating the location of existing trees and potential construction impacts.

Visual Tree Assessment (VTA) was performed on individual trees located across the site. The enclosed tree inventory data and site plan demonstrate that all trees on site were physically identified. VTA is the standard process developed by the ISA whereby the inspector visually assesses the tree from a distance and up close, looking for defect symptoms and evaluating overall condition and vitality of individual trees. Trees were evaluated in terms of general condition and potential construction impacts. Following the inventory fieldwork, we coordinated with Evergreen Housing to discuss treatment recommendations.

The client may choose to accept or disregard the recommendations contained herein, or seek additional advice. Neither this author nor Morgan Holen & Associates, LLC, have assumed any responsibility for liability associated with the trees on or adjacent to this site.

General Description

The Beavercreek Road project site is located at 19896 South Beavercreek Road in Oregon City, Oregon. The site is primarily a flat undeveloped field with one single family residence in the southern portion of the site which is planned for demolition. The existing trees are generally located around the house and appear to have been planted for landscaping purposes. However, two trees are located along the northern property boundary and these trees appear to be from natural regeneration.

Tree Inventory

A complete description of individual trees is provided in the enclosed tree inventory data. In all, 15 existing trees were inventoried on site including 11 tree species. Two species included on the City of Oregon City's Nuisance Plant List—cutleaf birch (*Betula pendula lacinata*) and English hawthorn (*Crataegus monogyna*)—were identified, accounting for three of the inventoried trees. The inventory also includes: two well-maintained fruit trees (*Malus* spp.); two bigleaf maples (*Acer macrophyllum*) that

have structural defects but appear in fair condition; one blue spruce (*Picea pungens*) and one Norway spruce (*Picea abies*) in generally fair condition; one Douglas-fir (*Pseudotsuga menziesii*) in good condition with no major defects; two Port-Orford-cedars (*Chamaecyparis lawsoniana*) in good condition, but with inherent species limitations including complete susceptibility to Port-Orford-cedar root disease caused by the fungus *Phytophthora lateralis*; one flowering cherry (*Prunus* spp.) tree in decline; one dead spruce (*Picea* spp.); and one Jeffrey pine (*Pinus jeffreyi*) with six codominant leaders attached to the main stem at just three feet above ground level with included bark and an increased probability for failure of one or more codominant leaders which presents a significant risk to people and property.

The enclosed tree inventory data includes a numerical condition rating assigned by the arborists to generally describe the condition of individual trees as follows:

1: Dead / Hazardous
2: Poor Condition
3: Fair Condition
4: Good Condition
5: Excellent Condition

None of the trees rated 5 for excellent condition. Table 1 provides a summary of the count of trees by species and condition rating.

Table 1. Count of Inventoried Trees by Species and Condition – Beavercreek Road Project.

Common Name	Species Name	Condition Rating				Total	%
		1	2	3	4		
apple	*Malus* spp.			2		2	13.33%
bigleaf maple	*Acer macrophyllum*			2		2	13.33%
blue spruce	*Picea pungens*			1		1	6.67%
cherry	*Prunus* spp.		1			1	6.67%
cutleaf birch	*Betula pendula lacinata*		2			2	13.33%
Douglas-fir	*Pseudotsuga menziesii*				1	1	6.67%
English hawthorn	*Crataegus monogyna*		1			1	6.67%
Jeffrey pine	*Pinus jeffreyi*	1				1	6.67%
Norway spruce	*Picea abies*			1		1	6.67%
Port-Orford-cedar	*Chamaecyparis lawsoniana*				2	2	13.33%
spruce	*Picea* spp.	1				1	6.67%
Total		**2**	**4**	**6**	**3**	**15**	**100%**
Percent of Total		**13%**	**27%**	**40%**	**20%**		

Tree Plan and Mitigation

City of Oregon City Municipal Code Chapter 17.41 intends to ensure that new development is designed in order to maximize tree preservation to the greatest extent feasible. Healthy trees located outside of the construction area—defined in section 17.04.230 as rights-of-way, public utility easements, and within the building footprint of a building site for any mixed-use, commercial or industrial development—must be preserved to the greatest extent possible. Unhealthy, hazardous trees and nuisance species are exempt from these regulations.

Nine of the 15 inventoried trees are healthy trees of regulated size, but removal of these trees is necessary for the purposes of site development; the locations of these trees do not allow for sufficient protection during construction. The remaining six trees are of regulated size, but three are invasive nuisance species in poor condition, one is an unhealthy and declining cherry in poor condition, one is a completely dead spruce, and one is a hazardous pine. Note that the hazardous condition of this tree is related to the natural structure of the tree and not the result of intentional action. All 15 trees are recommended for removal and are located within the construction area.

In addition, section 17.41.060 requires tree replacement for the removal of regulated healthy trees that are removed outside of the construction area at a ratio of 1 to 15 trees replanted for each tree removed depending on the size of the tree to be removed and whether or not that tree is located outside of or within the construction area. Replacement trees must be at least 2-inch caliper deciduous trees or 6-foot tall evergreens. Table 2 duplicates Table 17.41.060-1 from the Oregon City Municipal Code. Note that the number of replacement trees required on a development site must be calculated separately from, and in addition to, any required street trees per City of Oregon City Municipal Code section 12.08.

Table 2. Oregon City Tree Replacement Requirements (per OCMC Table 17.41.060-1).

Size of Tree Removed	Number of Tree to be Planted (If removed Outside of construction area)	Number of Tree to be Planted (If removed Within construction area)
6 to 12”	3	1
13 to 18”	6	2
19 to 24”	9	3
25 to 30”	12	4
31”+	15	5

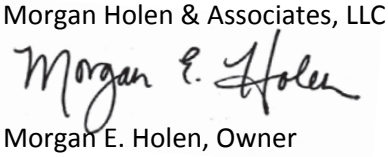
We coordinated with the project team to discuss site plans and grading requirements and to explore alternative construction techniques that might allow sufficient protection for existing healthy trees. All 15 trees are located within the construction area; nine trees are recommended for removal for the purposes of construction and six trees are recommended for removal because of poor or hazardous condition and for the purposes of construction.

The enclosed tree inventory data includes a column indicating the number of required mitigation trees. Replanting with 20 trees is required as mitigation for the removal of nine regulated healthy trees located within the construction area. We recommend replanting with a diverse mix of tree species in the proposed park and open space areas. Species recommendations may be provided upon request. The City’s Code also provides options for the applicant to plant mitigation trees off-site, make a cash payment in-lieu-of replanting, or some combination of replanting and cash payment in order to satisfy the mitigation requirements.

Since none of the existing trees are suitable for preservation with development, tree protection specifications are not provided. While it seems highly unlikely considering the proposed construction and required disturbance area, if any of the existing trees are required to be retained during construction please coordinate with us to provide recommendations for tree protection.

Please contact us if you have questions or need any additional information. Thank you for choosing Morgan Holen & Associates, LLC, to provide consulting arborist services for the Beavercreek Road project.

Thank you,
Morgan Holen & Associates, LLC



Morgan E. Holen, Owner
ISA Certified Arborist, PN-6145A
ISA Tree Risk Assessment Qualified
Forest Biologist

Enclosures: MHA1320 Beavercreek Road – Tree Inventory Data 8-2-13

No.	Common Name	Species Name	DBH[1]	C-Rad[2]	Cond[3]	Invasive Species	Comments	Treatment	Outside (O) or Within (W) Construction	Regulated Healthy Tree	Required Mitigation
101	bigleaf maple	*Acer macrophyllum*	10	12	3	no	codom stems, crown asymmetry	remove	W	yes	1
102	English hawthorn	*Crataegus monogyna*	8	12	2	yes	nuisance species; poor condition	remove	W	no	0
103	bigleaf maple	*Acer macrophyllum*	24	22	3	no	codom @ 4', some included bark	remove	W	yes	3
104	cutleaf birch	*Betula pendula lacinata*	19	20	2	yes	nuisance species; branch decay	remove	W	no	0
105	cutleaf birch	*Betula pendula lacinata*	21	20	2	yes	nuisance species; branch decay	remove	W	no	0
106	blue spruce	*Picea pungens*	18	15	3	no	sweep in upper crown	remove	W	yes	2
107	Norway spruce	*Picea abies*	24	12	3	no	new growth is dead	remove	W	yes	3
108	Port-Orford-cedar	*Chamaecyparis lawsoniana*	18	12	4	no	inherent species limitations	remove	W	yes	2
109	Port-Orford-cedar	*Chamaecyparis lawsoniana*	21	12	4	no	inherent species limitations	remove	W	yes	3
110	Douglas-fir	*Pseudotsuga menziesii*	29	26	4	no	no major defects	remove	W	yes	4
111	cherry	*Prunus* spp.	10	8	2	no	dead branches, progressive decline	remove	W	no	0
112	Jeffrey pine	*Pinus jeffreyi*	59	30	1	no	multiple leaders at 3' (6x24"), included bark, hazardous condition	remove	W	no	0
113	spruce	*Picea* spp.	28	n/a	1	no	dead	remove	W	no	0
114	apple	*Malus* spp.	10	12	3	no	some stem decay, but well maintained	remove	W	yes	1
115	apple	*Malus* spp.	10	12	3	no	well maintained fruit tree	remove	W	yes	1
Total Number of Mitigation Trees Required to be Planted (per Table 17.41.060-1):											**20**

[1]**DBH** is tree diameter measured at 4.5-feet above the ground level, in inches.

[2]**C-Rad** is the average crown radius measured in feet.

[3]**Cond** is an arborist assigned rating to generally describe the condition of individual trees as follows-

1: Dead / Hazardous
2: Poor Condition
3: Fair Condition
4: Good Condition
5: Excellent Condition

Consulting Arborists and Urban Forest Management
3 Monroe Parkway, Suite P220, Lake Oswego, OR 97035
morgan.holen@comcast.net | 971.409.9354

Oregon
John A. Kitzhaber, MD, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE, Ste C
Salem, OR 97301-1266
(503) 986-0690
Fax (503) 986-0793
www.oregonheritage.org

September 20, 2013

Ms. Kelly Moosbrugger
City of Oregon City Planning
PO Box 3040
Oregon City, OR 97045

RE: SHPO Case No. 13-1232
City of Oregon City Development Projs PA 13-23 through PA 13-27 and PA 13-31
FOE/new development
Oregon City Comm Dev
Multiple legals, Oregon City, Clackamas County

Dear Ms. Moosbrugger:

Our office recently received a request to review the proposal for the project referenced above. In checking our statewide cultural resource database, I find that there have been no previous cultural resource surveys completed near the proposed project area. However, the project area lies within an area generally perceived to have a high probability for possessing archaeological sites and/or buried human remains.

While not having sufficient knowledge to predict the likelihood of cultural resources being within your project area, extreme caution is recommended during future ground disturbing activities. ORS 358.905 and ORS 97.740 protect archaeological sites and objects and human remains on state public and private lands in Oregon. If any cultural material is discovered during construction activities, all work should cease immediately until a professional archaeologist can assess the discovery. If your project has a federal nexus (i.e., federal funding, permitting, or oversight) please coordinate with your federal agency representative to ensure that you are in compliance with Section 106 of the NHPA.

If you have any questions about my comments or would like additional information, please feel free to contact our office at your convenience. In order to help us track your project accurately, please be sure to reference the SHPO case number above in all correspondence.

Sincerely,

Matt Diederich, MAIS
SHPO Archaeologist
(503) 986-0577
Matthew.Diederich@state.or.us

Subject: RE: Tribal Notification per OCMC 17.62.040 H(2)
Date: Tuesday, November 19, 2013 1:22:04 PM Pacific Standard Time
From: Pete Walter
To: Andrew Brand

Andrew,

SHPO already commented on the pre-application. Attached is their standard letter. We did not receive any feedback from individual tribes.

Thanks,

Pete

-----Original Message-----
From: Andrew Brand [mailto:andrew@evergreenhd.com]
Sent: Tuesday, November 19, 2013 1:02 PM
To: Pete Walter
Subject: Re: Tribal Notification per OCMC 17.62.040 H(2)

Pete,

Did you have any follow-up on this?

Sincerely,
Andrew Brand

On 11/14/13 8:33 PM, "Andrew Brand" <andrew@evergreenhd.com> wrote:

> Pete,
>
> Thanks for checking on this.
>
> Did the City already send notification to the State Archeological
> representative per section 17.62.040 H(1) as well?
>
> Sincerely,
> Andrew Brand
> Director of Development
> Evergreen Housing Development Group, LLC
> 206-535-6248 x 101 Office
> 206-605-2173 - Cell
>
> On 11/14/13 11:23 AM, "Pete Walter" <pwalter@ci.oregon-city.or.us> wrote:
>
> > Andrew,
> >
> > I believe the city already did this. But I will check tomorrow and if
> > we have not, I'll send the notification.
> > Pete

Sent from my iPhone

On Nov 14, 2013, at 9:33 AM, "Andrew Brand" <andrew@evergreenhd.com<mailto:andrew@evergreenhd.com>> wrote:

Pete,

Can you confirm the requirement of the municipal code section 17.62.040 H(2)? It states that we should get an e-mail from the applicable tribal cultural resource representativeŠ Is there a specific representative/tribe we are to reach out to based on the area of our project? It's vague to me whether we are required to reach out to all the tribes, just a tribe or tribes closest to our site, or if this only applies to us if we are within a specifically designated tribal zone or area determined by the State Historic Preservation Office.

Sincerely,
Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC
206-535-6248 x 101 Office
206-605-2173 - Cell

LIVE-WORK CONCEPTS
FOR THE MIXED-EMPLOYMENT VILLAGE
OF THE BEAVERCREEK ROAD CONCEPT PLAN

INTRODUCTION

Evergreen Housing Development Group is proposing a development at 19896 Beavercreek Road. This proposal includes a mix of residential uses with live-work units on the ground floors of certain buildings and in townhouse units that will be included as part of the development. The Oregon City Planning Department has requested more background information on the live-work concept to understand how live-work units will contribute to the goals of the Mixed-Employment Village portion of the Beavercreek Road Concept Plan.

Per the Beavercreek Road Concept Plan, the Mixed Employment Village (MEV) "allows a mix of retail, office, civic and residential uses that make up an attractive urban district and serve the daily needs of adjacent neighborhoods and Beavercreek Road sub-districts." The live-work concept proposed in the development application meets these criteria in a number of ways. A more detailed look at the goals of a live-work unit and some real life outcomes of live work units can clarify this concept.

WHAT IS A LIVE-WORK UNIT?

Live-work units are residential structures with commercial office and retail capabilities. Most codes where live-work units are formally adopted allow for the use of either IBC or IRC codes with provisions that the units have design features that will facilitate the use of the space for a home business. These design features can include easily convertible rooms to a business use and often have some separation from other rooms to maintain private residential spaces for the owner. These units often have exterior entrances allowing clients or the general public to enter the unit without having to first enter the resident's private space.

Live-work units serve multiple purposes.

- They foster a lively street environment and provide a natural surveillance of a neighborhood.
- They create flexible, affordable workplace options for small businesses looking to save money by consolidating a residential unit with a commercial unit. Affordability can also foster innovation. Less stress in finding affordable and practical work facilities provides more opportunity for small businesses to focus on business.

- They allow for a reduction in vehicle trips both by reducing the amount of commuting done by automobile and by allowing local residents of surrounding neighborhoods to easily access local community businesses.

WHO OCCUPIES A LIVE-WORK UNIT?

Small businesses tend to utilize live-work spaces. They include services such as (but not limited to) chiropractic, massage, pilates, yoga, psychological counseling, marriage counseling, student tutoring and testing. Professional services such as investment management, lawyers, accountants, bookkeepers, insurance, all frequently utilize live/work spaces. Other businesses include the full panoply of retail, service, and general office enterprises allowed by zoning.

Case studies of live-work residents show a diversity of business types all with the overarching desire to be an entrepreneur, connect to one's community and save money by combining the costs of home living and commercial space into one, often less expensive, payment.

A few actual businesses utilizing live-work spaces can be found at the following web pages:

www.mcconnellphoto.com
www.studiofitseattle.com
www.annrossmassage.com

Home page screenshots of the businesses above can be found in appendix A of this report.

IS THIS A NEW CONCEPT?

No. The live-work concept is actually a tried and true concept as old as the city itself. For many centuries, the small shopkeeper lived and raised a family above the store. Beginning as recently as the late 1940's, municipal zoning codes started to segregate commercial and residential uses. These changes in zoning created a separation of the physical locations of living and work, but were not necessarily an enhancement to everyday life in the community.

Recent changes to many zoning codes and building codes now allow for the live-work concept to be brought back to many locations. Our development site is one such place.

WHAT ARE SOME OF THE BENEFITS TO A LIVE-WORK CONCEPT?

- Eliminate the need to commute to work – less cars on the roads

- Provide natural surveillance on the street, enhancing public safety
- Providing a sense of variety along the streetscape and creating a strong neighborhood character and lively streetscape atmosphere.
- Providing affordability to small entrepreneurs and artists looking to stay in the local community.
- Fostering economic growth and diversity through the availability of affordable and flexible space.

WHAT DOES IT LOOK LIKE FROM THE STREET?

Live work units can take various forms depending on the local design requirements of a municipality and the market demands driving the build out and design of each unit. Typically, most live work units more closely resemble street front residential units with subtle cues that give them a more commercial feel. The best way to describe the look of the units is to show some real life examples of live-work units in action.

Issaquah Highlands is a master planned community in the City of Issaquah, Washington, a suburb of Seattle, WA. As part of the planning process the City and the master developers realized the importance for engaged street front environments but also recognized the economic limitations of dedicated ground floor commercial space in zones and neighborhoods that are not fully ready for more intense commercial uses often seen in core downtown areas of major cities. Live-work units became a key concept to the development of the community.

Some live-work spaces are utilized entirely as living spaces or as spaces where the type of business does not need to have street front advertising and some spaces choose to utilize signage to advertise their services. Examples of the street scapes where live-work units exist are below:



Notice the use of window details that serve to differentiate the street front commercial from a typical residential street front use.



Signage can be provided in limited forms to further demonstrate that this is commercial use, not just residential.



Separate doors to the work-space from the exterior define that this space is commercial and differentiated from the private residential space.



Function can fit within various types of form. These frontages have a more unified street front feeling even though the buildings have a vertical occupancy with each unit being a townhouse sharing one large gable roof.



Some live-work townhomes have distinct brownstone styles with walk up entrances to the private residential portion of the building and ground floor entrances for the commercial portion.



Signage in limited forms helps to define the street as a mixed-use commercial and residential environment.

HOW DOES LIVE-WORK FIT INTO ORGEON CITY'S FUTURE FOR BEAVERCREEK?

There are "10 Principals of Sustainable Community Design" noted on page 8 of the Beavercreek Road Concept Plan. The proposed project units complement the goals and the following principals:

- *#1 Mix Land Uses – Promote a mix of land uses that support living wage jobs and a variety of services.*
    - Live-work allows for full flexibility in the use of the space and entrepreneurial endeavors that foster small business growth, not minimum wage jobs.

- *#2 Housing Types – Create a range of housing choices for all ages and incomes.*
    - The project unit mix includes studio, one, two, three and five bedroom units. The five bedroom units will be especially attractive to students on very tight budgets. The studios through three bedroom units will meet the needs of a wide verity of households. The Live-work spaces create the type of dual use environment that allows for a number of users to save money while growing a business in a way that may otherwise not be achievable through a single use ground floor concept.

- *#3 Walk-ability – Make the Neighborhood "walkable" and make services "walk-to-able".*
    - Live-work spaces have their front doors on the sidewalk, promoting an active street environment centered on pedestrian use.
- *#4 Transportation – Provide a range of transportation options using a connected network of streets and paths.*
    - While not directly transportation, live-work units work best in a connected street grid that places importance on connectivity for cars, bikes and pedestrians.

- *#9 Green Buildings – Build compact innovative structures that use less energy and materials.*

    - Combining live and work environments reduces automobile use creating a healthier environment.

Live-Work Concepts for the Mixed Employment Village of the Beavercreek Road Concept Plan meets the following Goals and Objectives as laid out in the plan's Appendix 1 and are summarized in list form below.

Goal 1

Objective 1.1 – Allowing a variety of employment uses…
Objective 1.4 – Encourage neighborhood-oriented and scale mixed-use centers…
Objective 1.6 – Allow the integration of housing and employment uses where practicable.

Goal 2

Objective 2.1 - Allow a variety of employment uses…
Objective 2.3 – Encourage neighborhood-oriented and scaled mixed-use centers…
Objective 2.4 – Encourage environmentally responsible developments…

Goal 3

Objective 3.1 – Allow a variety of employment uses…
Objective 3.3 – Encourage neighborhood-oriented and scaled mixed-use centers…
Objective 3.4 – Allow the integration of housing and employment uses where practicable.

Goal 4

Objective 4.3 – Support locally based and founded employers that provide living wage jobs.

Goal 5

Objective 5.1 – Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished…
Objective 5.2 – Allow a variety of employment uses…

Goal 6

Objective 6.3 – Explore local and regional transit opportunities that will increase non-single occupancy vehicle travel.

Goal 8

Objective 8.1 – Allow a variety of employment uses…

Goal 9

Objective 9.3 – Allow a variety of employment uses…
Objective 9.5 – Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.
Objective 9.6 – Allow the integration of housing and employment uses where practicable.

Finally, Alternative D of the Concept Plan shows this area as a "Live-Work" area.

Overall, there are many more Goals and Objectives that the proposed development will meet. This memo is just concentrating on the live-work aspects of the development.

SUMMARY

The live-work concept provides attractive street front units that enhance the neighborhood and have the capability to provide an active street experience by allowing for a wide variety of uses that will be flexible and accommodate the demands of the marketplace. As the remainder of the parcels in the Beavercreek Concept Plan area develop, these live-work units have the ability to easily change their use to best accommodate the needs and desires of the growing community.

Live-work units "provide employment opportunities in an urban, pedestrian friendly, and mixed-use setting."[1] The uses envisioned by live-work will "serve the daily needs of adjacent neighborhoods"[2] through the types of business shown to be started and maintained in live-work commercial spaces. In addition, these spaces can help alleviate some amount of traffic congestion at peak traffic hours by keeping commutes limited to a walk through a door in your home, instead of getting in one's car to drive to work.

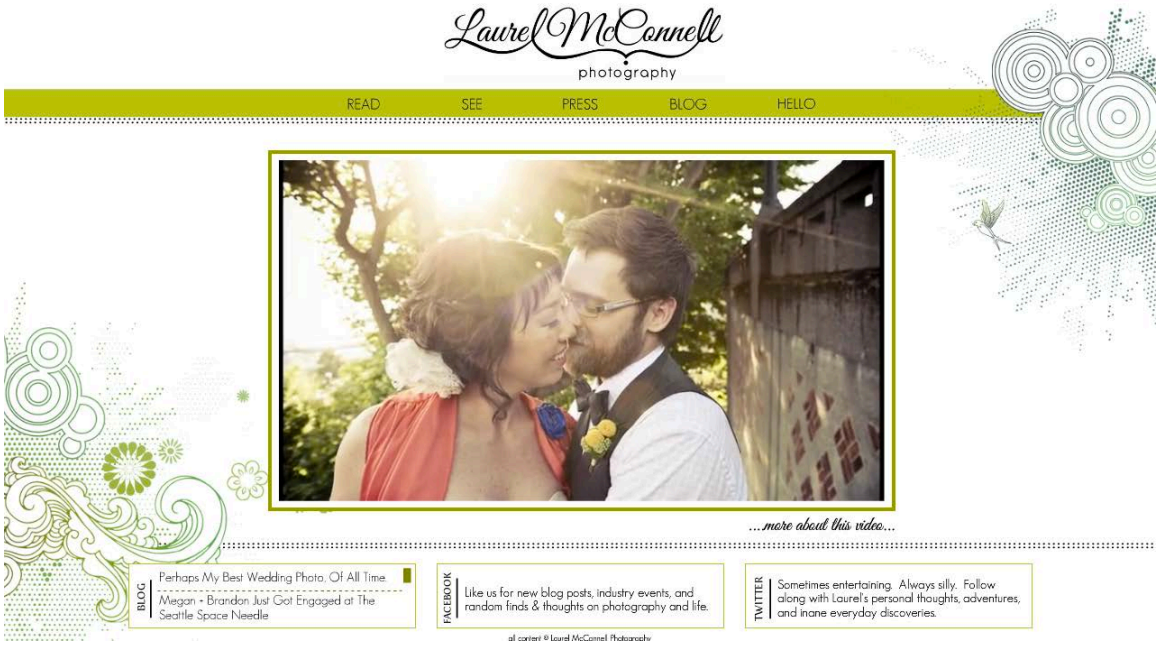
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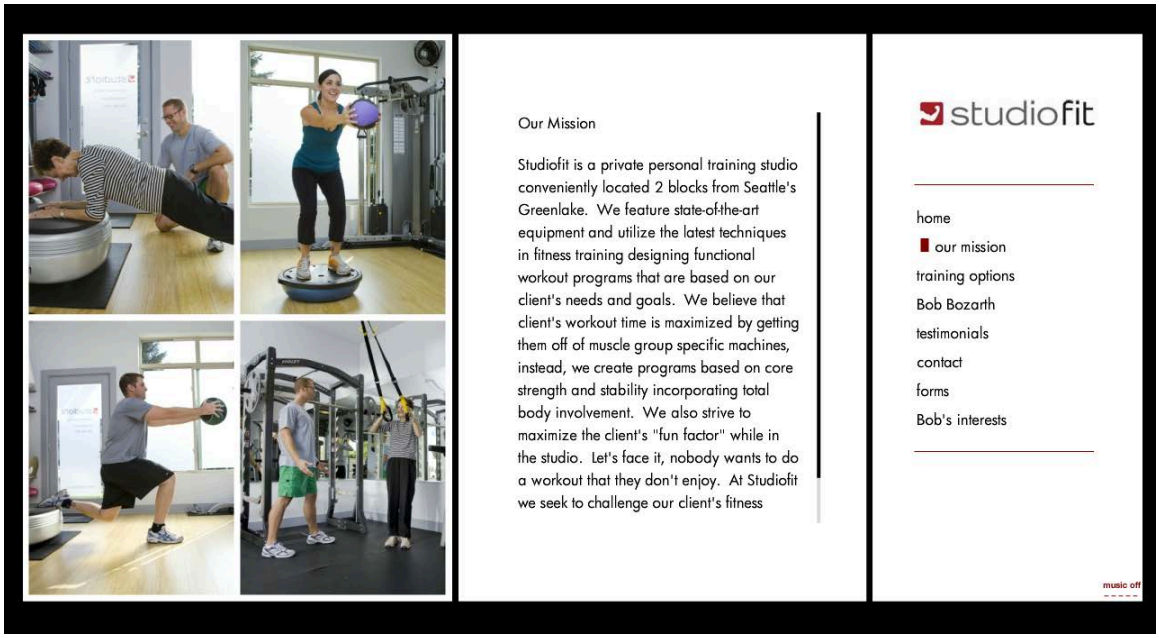
[1] Beavercreek Road Concept Plan, page 18

[2] Beavercreek Road Concept Plan, page 18

APPENDIX A

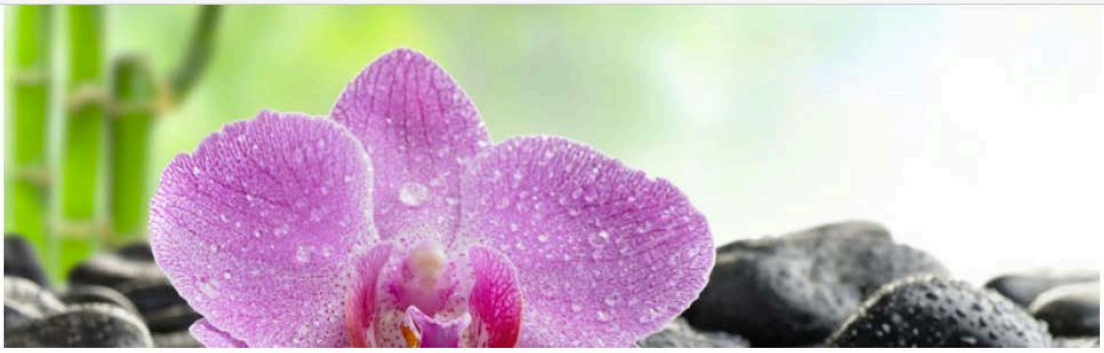
LIVE-WORK BUSINESSES





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610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

December 13, 2013 Project #: 13700

John Replinger, PE
City of Oregon City
221 Molalla Avenue, Suite 200
Oregon City, OR 97045

RE: Traffic Impact Analysis for the Beavercreek Mixed-Use Housing Development – Oregon City, OR

Dear John,

This letter presents the findings of the traffic impact analysis for the proposed Beavercreek Road Mixed-Use Housing Development in Oregon City, Oregon.

Evergreen Housing Development Group, LLC is proposing to develop a mixed-use housing development located east of Beavercreek Road directly across from the Oregon City High School, between S Loder Road and S Glen Oak Road in Oregon City, Oregon. A zone change for this property was prepared in 2010 in which the site was successfully rezoned from *Future Urban* to *Mixed-Use Corridor* (MUC-1) zoning[1]. As such, the proposed development is in compliance with the current zoning of the site. The development proposal includes a total of 183 residential housing units, of which 36 units will be mixed-use live/work townhomes. Additional detail of the proposed development plan is provided later in this report. For the purposes of this traffic analysis, the development is assumed to be built out and occupied by year 2016.

This study concludes that the residential mixed-use development can be constructed while maintaining acceptable traffic operations at the study intersections along OR 213, Beavercreek Road, and the site access. The remainder of this memorandum provides further documentation of the study methodology, findings, and recommendations. A table of contents, list of figures, and list of tables is provided on the next page.

[1] Property also identified as T3S-R2E-10C, tax lot 800

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EXECUTIVE SUMMARY

This study concludes that the residential mixed-use development can be constructed while maintaining acceptable traffic operations at the study intersections along OR 213, Beavercreek Road, and the site access.

Findings

Existing Traffic Operations

- All of the study intersections operate at acceptable levels of service during the weekday a.m. and p.m. peak hours, except the Beavercreek Road/Loder Road intersection. During the weekday a.m. peak hour, this intersection operates at LOS F for the westbound approach.
- Preliminary sight distance measurements indicate that adequate intersection and stopping sight distance is currently available.
- No crash patterns were identified that warrant mitigation recommendations as a result of the traffic impacts of the proposed development.

Proposed Development Plan

- The proposed development includes construction of 183 residential rental units and approximately 378 parking spaces.
- The proposed development is estimated to generate approximately 69 weekday a.m. (22 in / 47 out) and 83 weekday p.m. (46 in / 37 out) peak hour trips.

Year 2016 Total Traffic Operations

- All of the study intersections except the Beavercreek Road/Loder Road intersection are forecast to continue to operate within acceptable levels of service during the weekday a.m. and p.m. peak hours.
- Sufficient sight distance is expected to be available at the site-access upon buildout.

Year 2027 Meyers Road Extension Analysis

- The site traffic impacts are forecast **not** to have a *significant effect*[2] on the long term operations of the future Meyers Road/OR 213 intersection. No capacity-based mitigations are recommended.

Recommendations

The following list summarizes the mitigation measures recommended as part of this proposed development.

- The site access should be designed to accommodate a separate left-turn and a shared through-right lane to exit the site (westbound direction). This is consistent with the Beavercreek Road Concept Plan and the 2013 Transportation System Plan Update for a residential minor arterial.
- No capacity-based mitigation is recommended at the Beavercreek Road/Loder Road intersection as a result of the proposed development traffic impacts.
- No safety-based mitigations are recommended as a result of the proposed development traffic impacts.
- Site-development related landscaping as well as above-ground utilities or signing near the site access points should be located and maintained to ensure adequate sight distance is provided upon buildout.

[2] *Significant effect* defined as an impact on the overall intersection volume-to-capacity ratio of greater than 0.01.

INTRODUCTION

Evergreen Housing Development Group, LLC is proposing to develop a mixed-use housing development located east of Beavercreek Road directly across from the Oregon City High School, between S Loder Road and S Glen Oak Road in Oregon City, Oregon. The proposed development is in compliance with the current zoning of the site and includes 183 residential housing units, of which 36 units will be mixed-use live/work townhomes. Figure 1 illustrates the site vicinity and Figure 2 illustrates the proposed development plan. Figure 2 is preliminary in nature (showing only 177 units) and will be updated to reflect the 183 units analyzed in this report as well as the recommended driveway egress geometry.

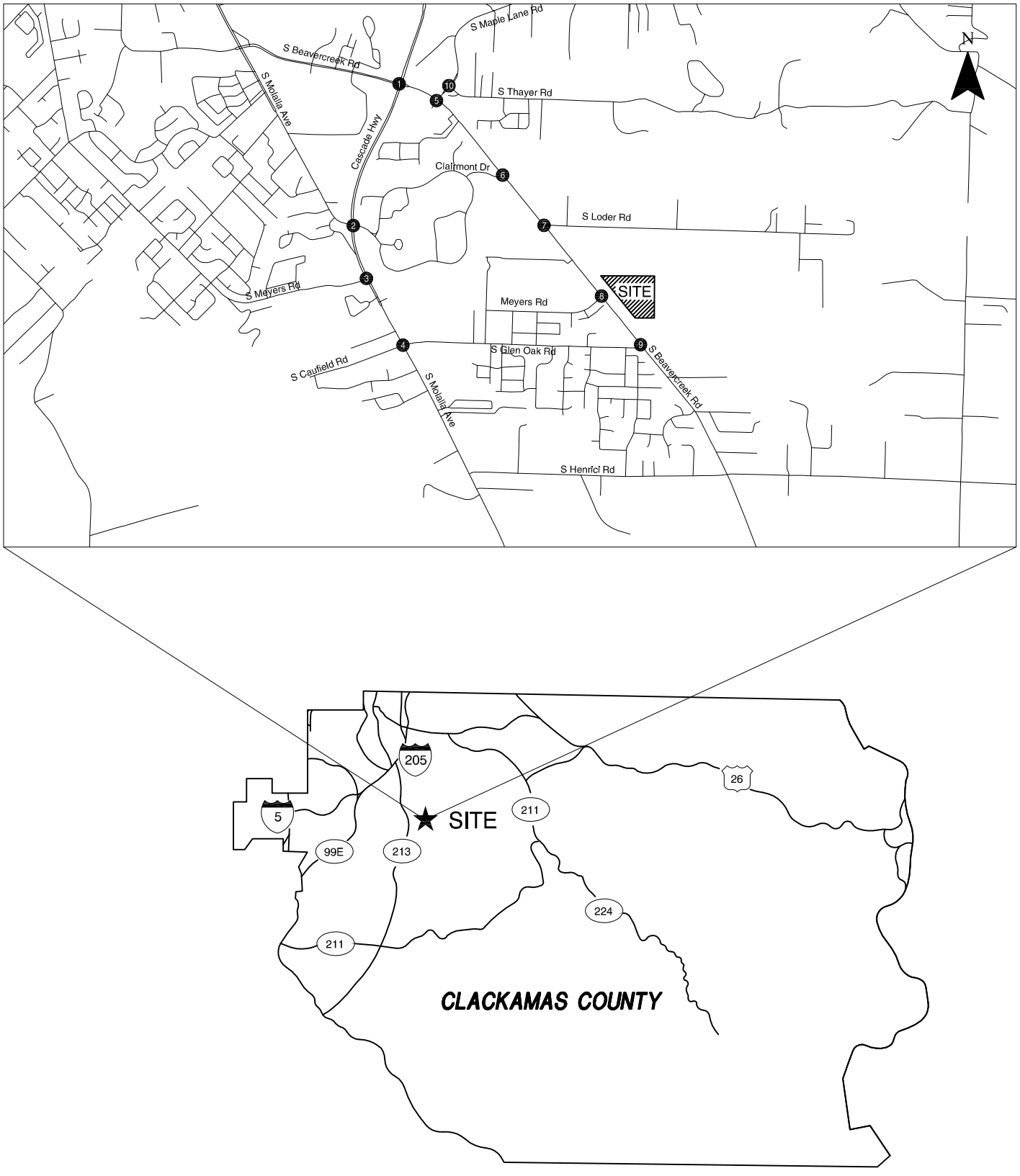
Scope of the Report

This analysis documents the expected transportation-related impacts associated with the proposed development and has been prepared with City of Oregon City direction for a traffic impact analysis. The study intersections and scope of this project were based on consultation with City staff as well as the *2010 Beavercreek Road/Meyers Road Rezone TPR Analysis* (Reference 1). Operational analyses were conducted at the following ten intersections.

- OR 213/Beavercreek Road
- OR 213/Molalla Avenue (Douglas Loop)
- OR 213/Meyers Road
- OR 213/Glen Oak Drive
- Maple Lane Road/Thayer Drive
- Beavercreek Road/Maple Lane Road
- Beavercreek Road/Claymont Drive
- Beavercreek Road/Loder Road
- Beavercreek Road/Meyers Road
- Beavercreek Road/Glen Oak Drive

This report evaluates the following transportation issues:

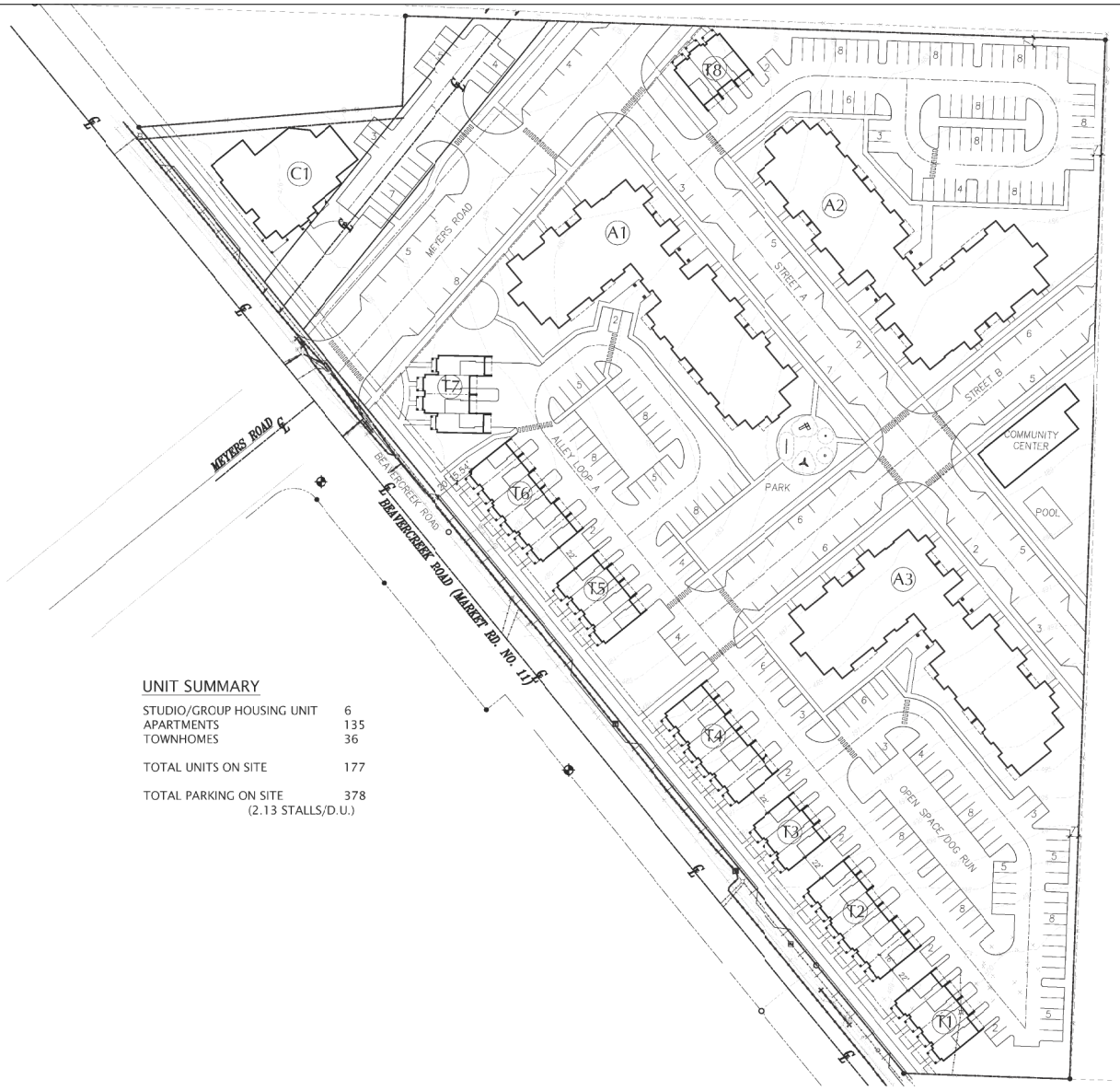
- Year 2013 existing transportation system conditions within the site vicinity during the weekday a.m. and p.m. peak periods;
- Forecast year 2016 background traffic conditions during the weekday a.m. and p.m. peak periods without build-out of the site;
- Trip generation estimates and distribution for the proposed development;
- Forecast year 2016 total traffic conditions during the weekday a.m. and p.m. peak periods with build-out of the site;
- Horizon year 2027 background (no site traffic) and total (includes site traffic) transportation system conditions for the OR 213/Meyers Road intersection during the weekday p.m. peak hour, assuming Meyers Road is completed between OR 213 and Beavercreek Road.



SITE VICINITY MAP
OREGON CITY, OREGON

Figure
1

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SITE PLAN PROVIDED BY MILBRANDT ARCHITECTS ON NOVEMBER 8, 2013

CONCEPTUAL SITE PLAN
OREGON CITY, OREGON

Figure 2

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EXISTING CONDITIONS

The existing conditions analysis identifies the site conditions and current operational and geometric characteristics of roadways within the study area. These conditions will be compared with future conditions later in this report.

The proposed development site and surrounding study area was inventoried in October 2013. At that time, information was collected regarding site conditions, adjacent land uses, existing traffic operations, and transportation facilities in the study area.

Site Conditions and Adjacent Land Uses

The site is located directly east of the Beavercreek Road/Meyers Road intersection, and a fourth leg of the intersection will be constructed as part of the development to provide full access into the site. The parcel of land is approximately 9.7 acres and currently has one single-family residence on the site. The site is appropriately zoned *Mixed-Use Corridor* (MUC-1) and no change to the existing zoning is proposed. Oregon City High School is located to the west on the opposite side of Beavercreek Road, and developed residential neighborhoods are located south of the school. Rural land uses currently exist east of the study site, along with wetland and sensitive lands associated with the Thimble Creek Tributary. Access to the site is proposed via the Beavercreek Road/Meyers Road intersection.

Roadway Facilities

As illustrated in Figure 2, Beavercreek Road borders the site to the west, and the future eastern extension of Meyers Road will bisect the site. Table 1 summarizes the primary roadways within the study area.

Table 1 Existing Transportation Facilities and Roadway Designations

Roadway	Functional Classification	Number of Lanes	Posted Speed (miles per hour)	Sidewalks	Bicycle Lanes	On-Street Parking
Oregon 213	District Highway/Expressway	3-5 Lanes	45	Partial[1]	Yes	No
Beavercreek Road	Major Arterial	2-5 Lanes	35-451	Partial[1]	Partial	No
Molalla Avenue	Major Arterial	3-Lanes	35	Yes	Yes	No
Meyers Road	Collector	3-Lanes	30	Yes	Yes	Yes
Henrici Road	Not classified	2-Lanes	40	No	No	No
Glen Oak Road	Collector	2-Lanes	35	Partial[2]	No	No
Loder Road	Not classified	2-Lanes	25	No	No	No

[1] Beavercreek Road is posted with a 35 mph speed limit between OR 213 and Clairmont Drive and transitions to 45 mph south of Clairmont Drive. A 20 mph school zone is posted along the roadway near the Oregon City High School.

[2] Roadway infrastructure generally exists where frontage improvements have been provided.

Figure 3 illustrates the existing lane configurations and traffic control devices in place at the study intersections.

Pedestrian and Bicycle Facilities

Sidewalks and bicycle lanes are currently provided within the northern portion of the study area where frontage improvements have been completed. There are missing sidewalk and bicycle lane segments along many of the surrounding roadways. Plans for the study area roadways anticipate completion of sidewalk segments as part of future private development and roadway enhancement projects, as well as provision of bicycle lanes in conjunction with roadway upgrades to serve the anticipated urban development. Pedestrian and bicycle facilities are generally not available in the southern portion of the study area.

Crash Data Review

The most recent five years of available crash data at each of the study intersections was provided by the Oregon Department of Transportation (ODOT). The review of intersection crash data does not reveal any safety issues or patterns within the vicinity of the proposed site access. As such, no safety-based mitigation measures were identified as a result of the proposed development. The crash data is summarized in Table 2 below.

Table 2 Crash Data Summary (January 2008 – December 2012)

Intersection	5 Year MEV[1]	Crash Type							Severity			Total Crashes	Crash Rate (per MEV)
		Angle	Turn	Rear End	Head On	Fixed Object	Ped /Bike	Other	PDO[2]	Injury	Fatality		
OR 213/ Beavercreek Rd	101.7	7	10	81	0	1	1	0	40	59	1	100	0.98
OR 213/ Molalla Ave	54.9	1	5	15	0	1	1	1	11	12	1	24	0.44
OR 213/ Meyers Rd	51.1	0	1	19	0	1	0	0	9	12	0	21	0.41
OR 213/ Caufield Rd	44.2	0	1	4	0	1	0	0	2	4	0	6	0.14
Maple Lane Rd/ Beavercreek Rd	51.3	3	5	3	0	0	1	0	5	7	0	12	0.23
Beavercreek Rd/ Clairmont Dr	29.9	0	0	0	0	0	0	0	0	0	0	0	0.00
Beavercreek Rd/ Loder Rd	28.2	0	0	0	0	0	0	0	0	0	0	0	0.00
Beavercreek Rd/ Meyers Rd	26.9	0	0	1	0	0	0	0	0	1	0	1	0.04
Beavercreek Rd/ Glen Oak Rd	23.4	0	3	0	0	0	0	0	2	1	0	3	0.13
Beavercreek Rd/ Thayer Rd	19.0	0	2	0	0	0	1	0	1	2	0	3	0.16

[1] MEV: million entering vehicles
[2] PDO: property damage only

OR 213/Beavercreek Road

As shown in Table 2, over the five-year period there were 100 crashes reported at the OR 213/Beavercreek Road intersection, and 81 of these were rear-end collisions. Of the 81 rear-end collisions, 40 crashes occurred on the east leg of Beavercreek Road (westbound vehicles), 17 involved southbound vehicles, 18 northbound vehicles, and 6 involved eastbound vehicles. Rear-end crashes at this intersection have generally increased over the 5 year period with 3, 9, 20, 25, 24 crashes occurring each year from 2008-2012, in the respective order. Per conversations with ODOT staff, this intersection has been identified as a top five percent safety priority intersection by the 2012 Traffic Safety Priority Index System (SPIS)[3].

While there are currently no short-term or long-term plans for safety improvements at the intersection in the 2013 Oregon City Transportation System Plan, there is a planned operational improvement to extend the dual eastbound left-turn lanes by 200 feet in the next 5 years.

OR 213/Molalla Avenue

There were 24 crashes reported at the OR 213/Molalla Avenue intersection over the five-year period, of which 15 were rear-end collisions. The 15 rear-end collisions were evenly distributed between the 4 legs of the intersection, and with the exception of 2008 in which there were no reported rear-end crashes, there was no significant increase or decrease in rear-end collisions over the time period.

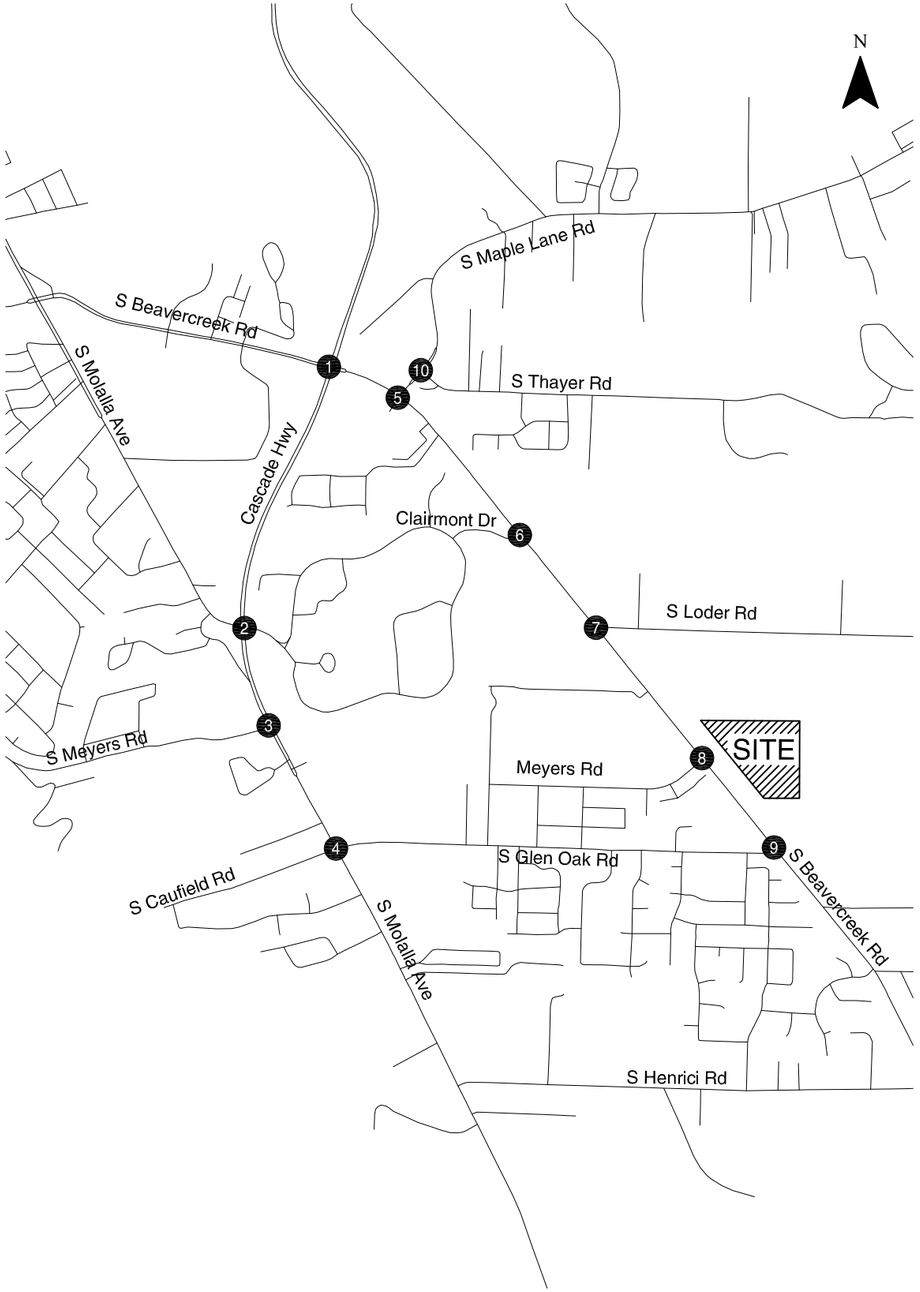
OR 213/Meyers Road

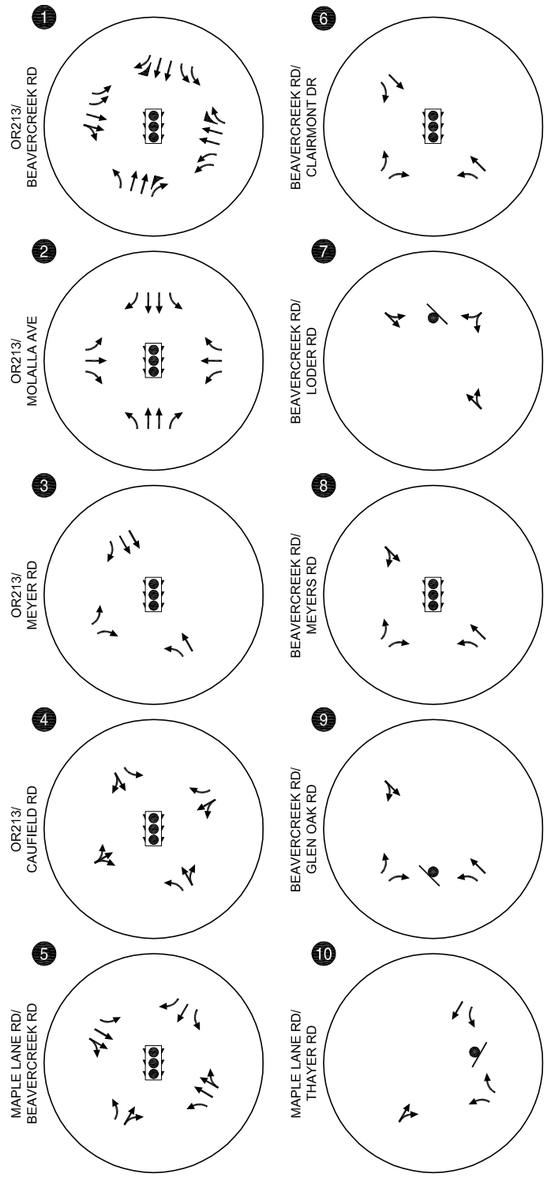
There were 21 crashes reported at the OR 213/Meyers Road intersection over the five-year period, of which 19 were rear-end collisions. Of 19 rear-end collisions, 15 occurred in the south leg of the intersection with northbound vehicles. While there were no rear-end collisions reported in 2008, the years between 2009-2012 experienced 3, 6, 7, and 3 crashes for each year.

Beavercreek Road/Meyers Road

At the proposed location of the site access for the development, one crash was reported at the Beavercreek Road/Meyers Road intersection over the five-year period. With the development of the fourth leg of the intersection, it is recommended that adequate sight distance (discussed in more detail later in the report) is provided and that any foliage or shrubbery be maintained to ensure that sight distance continues to be provided. Based on the existing available sight distance and low number of reported crashes, no safety-based mitigation measures were identified as a result of the proposed development.

[3] The SPIS is a method developed by ODOT for identifying hazardous locations on state highways through consideration of crash frequency, crash rate, and crash severity.





- Stop Sign
- Traffic Signal

EXISTING LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES
OREGON CITY, OREGON

Figure 3

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Within the immediate site vicinity, sidewalks and bicycle lanes are provided on Meyers Road west of Beavercreek Road and along the Oregon City High School site frontage. No sidewalks are provided along the study site frontage or the properties to the north and south of it, though a northbound bicycle lane is provided along Beavercreek Road.

Transit Facilities

No fixed route transit service is currently provided along Beavercreek Road to the site. The nearest transit service is located at Clackamas Community College (CCC) to the north and west of the site. TriMet provides three transit routes to the college (Reference 2). These routes are Route 32: *Oatfield*; Route 33: *McLoughlin*; and, Route 99: *McLoughlin Express*, all of which begin or end their routes at the campus. Each transit line provides service between CCC and downtown Portland, and includes scheduled stops at the Oregon City Transit Center and Milwaukie Transit Center.

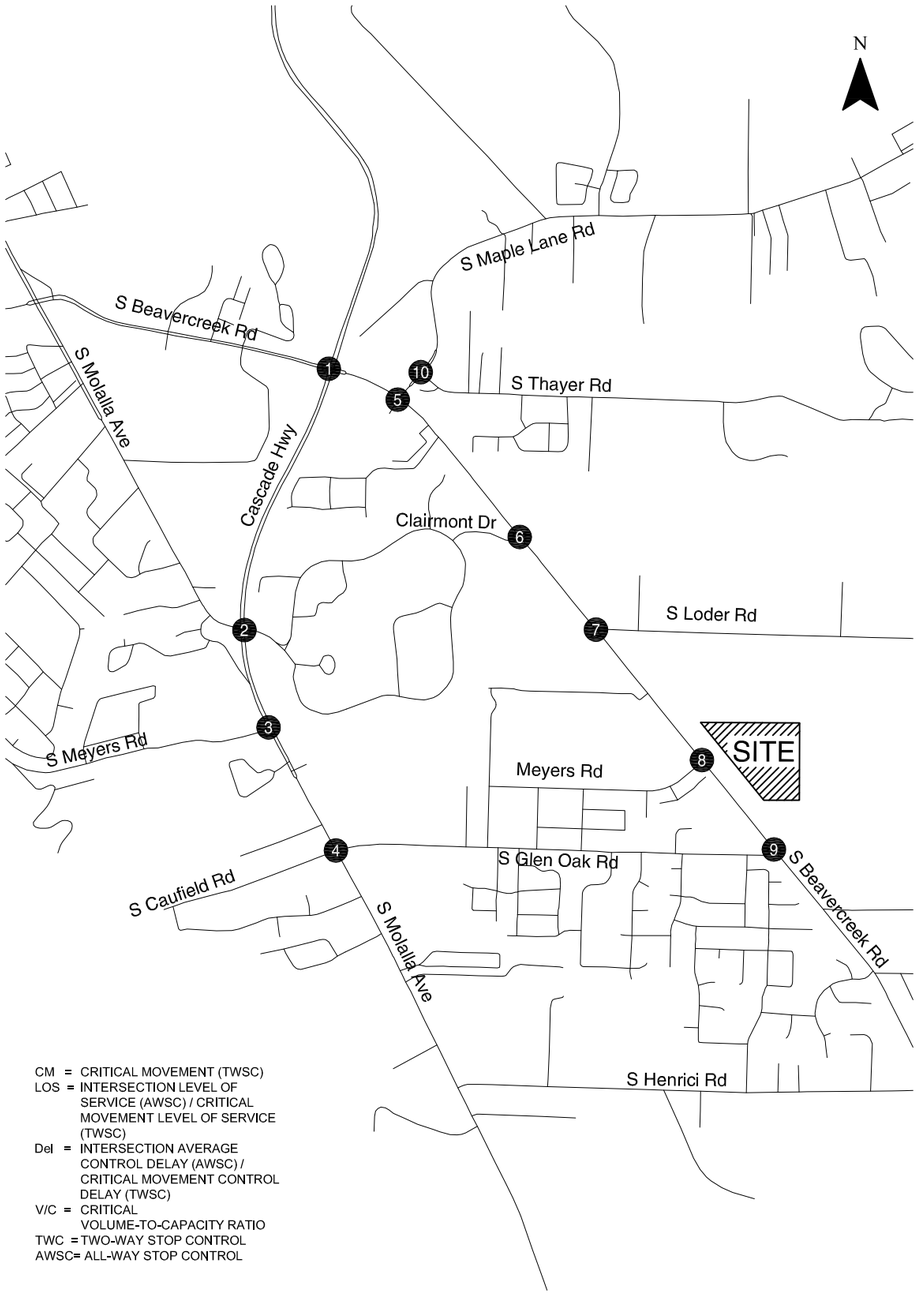
Traffic Volumes and Peak Hour Operations

Manual turning movement counts were obtained for all existing study intersections in October 2013. All counts used in this analysis were conducted on a typical weekday during the morning (7:00 to 9:00 a.m.) and afternoon (4:00 to 6:00 p.m.) peak travel periods. The system-wide morning and evening peak hours were found to occur between 7:00 and 8:00 a.m. and between 5:00 and 6:00 p.m., respectively. Per ODOT requirement for analysis, the existing traffic volumes along OR 213 were seasonally adjusted to the 30th Highest hour Volume (30 HV) consistent with the methodology provided in the *Analysis Procedures Manual* (Reference 3) to arrive at the analysis volumes in this report. Figure 4 provides a summary of the seasonally adjusted year 2013 turning movement counts, which are rounded to the nearest five vehicles per hour for the weekday a.m. and p.m. peak hours. *Attachment "A" contains the traffic count worksheets used in this study.*

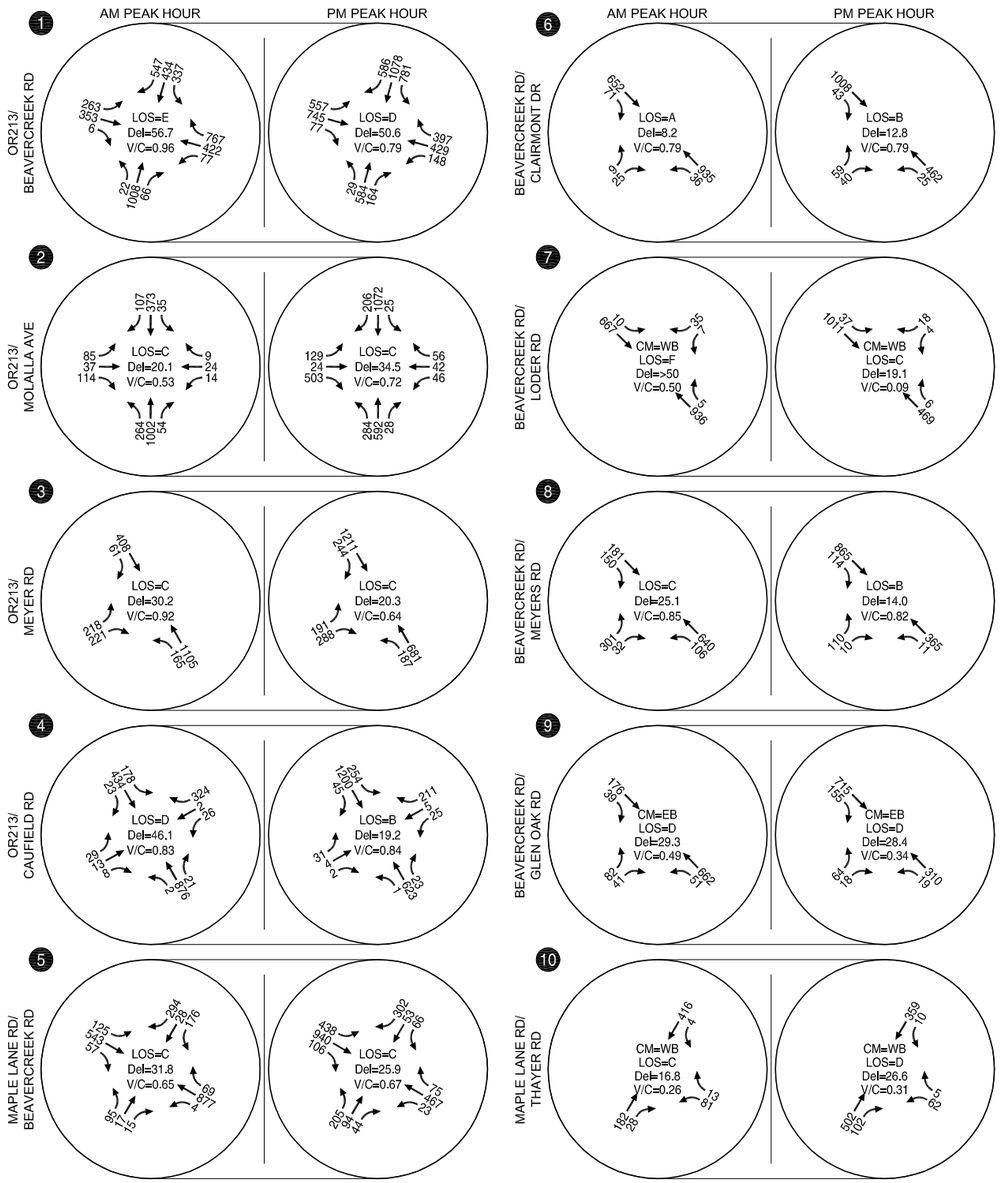
Current Level of Service

All level-of-service analyses described in this report were performed in accordance with the procedures stated in the 2000 *Highway Capacity Manual* (Reference 4). *A description of level of service and the criteria by which they are determined is presented in Attachment "B".* Attachment "B" also indicates how level of service is measured and what is generally considered the acceptable range of level of service.

All intersection level-of-service evaluations used the peak 15-minute flow rate during the weekday a.m. and p.m. peak hours. Using the peak 15-minute flow rate ensures that this analysis is based on a reasonable worst-case scenario. For this reason, the analysis reflects conditions that are only likely to occur for 15 minutes out of each average peak hour. The transportation system will likely operate under conditions better than those described in this report during all other time periods.



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LOS = INTERSECTION LEVEL OF SERVICE (AWSC) / CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSC)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
TWC = TWO-WAY STOP CONTROL
AWSC= ALL-WAY STOP CONTROL



EXISTING TRAFFIC OPERATIONS
WEEKDAY AM & PM PEAK HOURS
OREGON CITY, OREGON

Figure 4

Figure 4 summarizes the level-of-service analysis for the study intersections under the weekday a.m. and p.m. peak hour existing traffic conditions. Intersection performance thresholds vary throughout the study area based on the roadway jurisdiction. Oregon City performance requirements are included within the City's Transportation System Plan (TSP, Reference 5), and identify that a Level of Service (LOS) "D" or higher should be maintained at all signalized intersections along with a volume-to-capacity (V/C) ratio less than 1.0, and Level of Service "E" or better be maintained at unsignalized intersections[4]. ODOT mobility standards included within the *Oregon Highway Plan* (Reference 6) require a volume-to-capacity ratio of less than 0.99 along OR 213 during the 30th highest design hour.

Table 3 presents a summary of the study area intersections, roadway jurisdiction, and relevant performance standards.

Table 3 Summary of Intersection Performance Standards

Intersection	Roadway Jurisdiction	Traffic Control	Performance Standard
OR 213/ Beavercreek Road	ODOT	Signalized	V/C < 0.99
OR 213/ Molalla Avenue	ODOT	Signalized	V/C < 0.99
OR 213/ Meyers Road	ODOT	Signalized	V/C < 0.99
OR 213/ Glen Oak Road	ODOT	Signalized	V/C < 0.99
Thayer Road/ Maple Lane Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Maplelane Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Clairmont Drive	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Loder Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Meyers Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Glen Oak Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Henrici Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0

V/C: Volume-to-Capacity Ratio
LOS: level of service

As shown in Figure 4, all intersections operate within acceptable operations thresholds during the weekday a.m. and p.m. peak hours except the Beavercreek Road/Loder Road intersection. During the weekday a.m. peak hour, this intersection operates at LOS F for the westbound approach. *Attachment "D" includes the level-of-service worksheets under year 2013 existing traffic conditions and the field-observed saturation flow rates at the Beavercreek Road/OR 213 intersection.*

[4] Oregon City standards allow Level of Service "E" or better for the poorest operating approach at unsignalized intersections. If the critical movement serves 20 or fewer peak hour trips, a Level of Service "F." is acceptable.

TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system will operate with buildout of the proposed development. The impact of traffic generated by the proposed development during the typical weekday a.m. and p.m. peak hours was examined as follows:

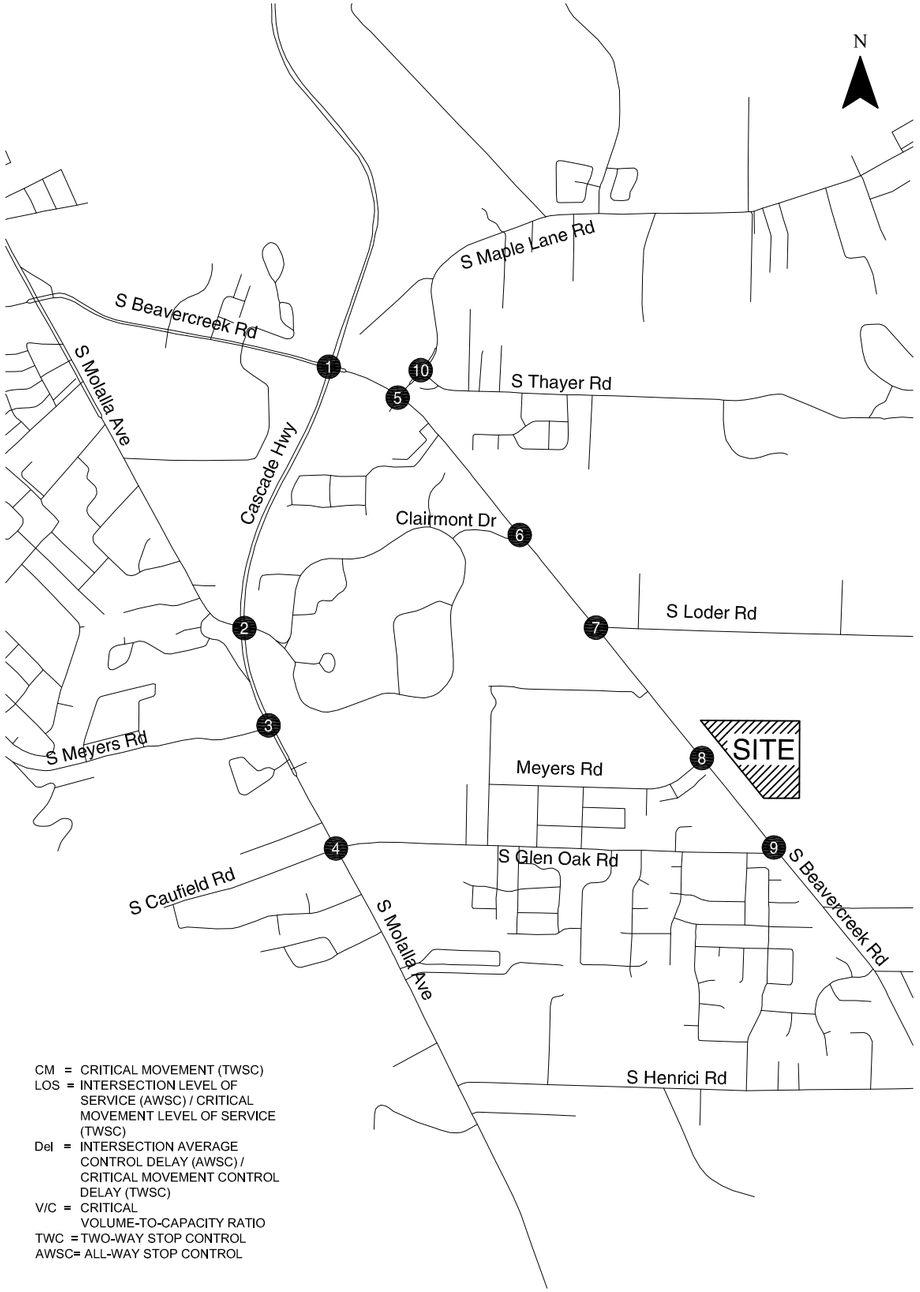
- Planned developments and transportation improvements planned in the site vicinity were identified;
- Year 2016 (build-out year) background traffic conditions (no site traffic) were analyzed at each of the study intersections and site-access points during the weekday a.m. and p.m. peak hours;
- Site-generated trips were estimated for build-out of the site;
- Site trip-distribution patterns were determined based on a review of the existing transportation network and the nature of the proposed development;
- Year 2016 (build-out year) total traffic conditions (with site traffic) were analyzed at each of the study intersections and site-access points during the weekday a.m. and p.m. peak hours;
- Year 2027 horizon year traffic conditions were analyzed at the OR 213/Meyers Road intersection; and,
- Sight distance was reviewed.

Planned Developments and Transportation Improvements

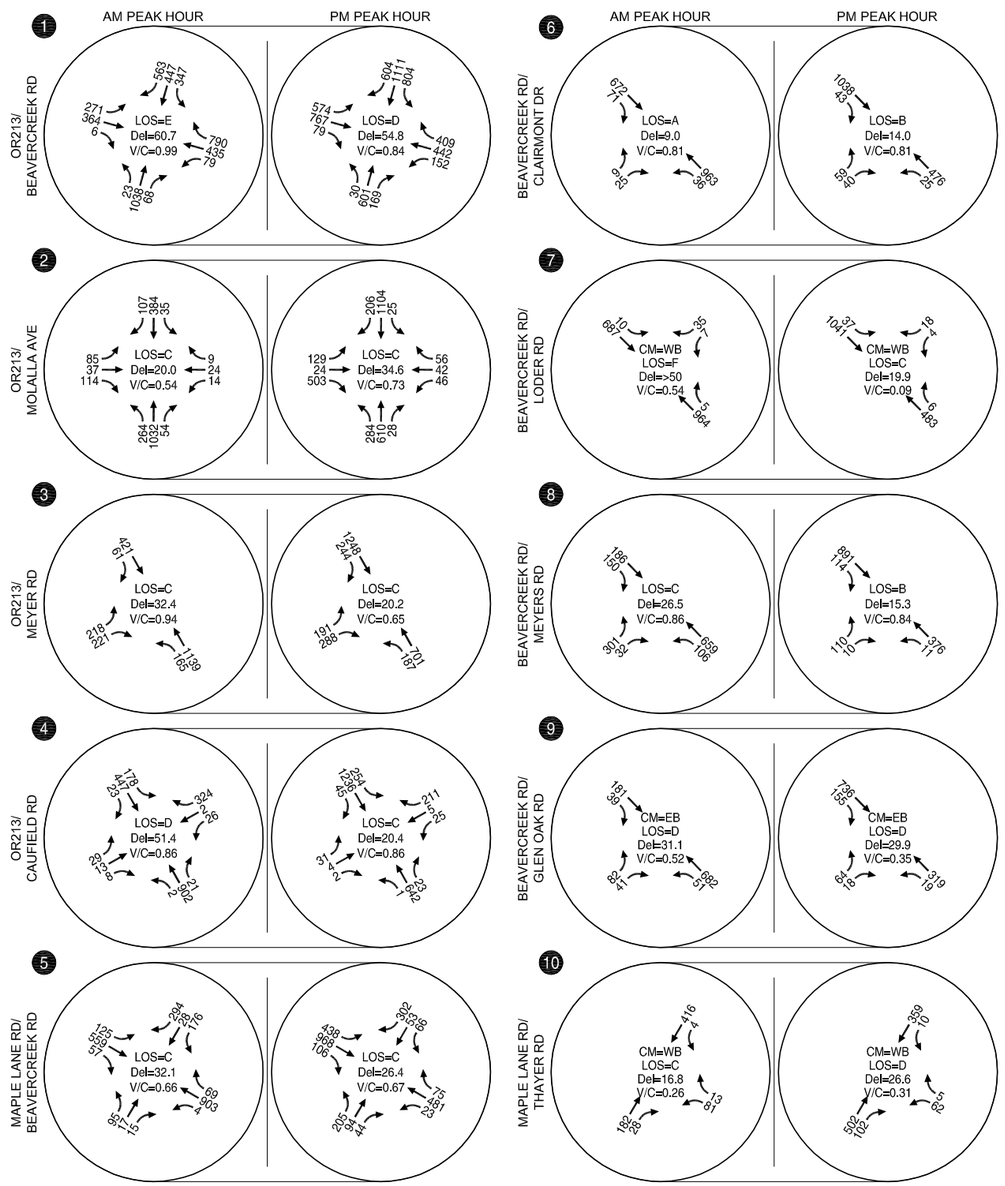
City of Oregon City staff was contacted to identify any in-process developments or transportation improvements that may affect the roadway network in the vicinity of the proposed project. No projects were identified to occur before the buildout year of the proposed development.

Regional Background Traffic Growth

This analysis considers the impact of the proposed development's site-generated trips on the roadway network using future year (2016) traffic volumes. Background traffic growth was developed for both OR 213 and Beavercreek Road per direction from City of Oregon City staff and historical traffic volumes. A review of the recently adopted 2013 TSP (Reference 5) and conversations with City staff confirmed a one-percent annual growth rate for regional growth. This rate was applied to all through and turning movements at the Beavercreek Road/OR 213 intersection and along the Beavercreek Road and OR 213 corridors for through traffic only. The weekday a.m. and p.m. peak hour turning-movement volumes shown in Figure 4 were grown by the one-percent annual rate described above and used to conduct an operational analysis at each study intersection for forecast year 2016. The traffic volumes and results of this analysis are shown in Figure 5.



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TWC = TWO-WAY STOP CONTROL
AWSC= ALL-WAY STOP CONTROL



YEAR 2014 BACKGROUND TRAFFIC OPERATIONS WEEKDAY AM & PM PEAK HOURS OREGON CITY, OREGON

Figure 5

2016 Background Traffic Operations

As shown in Figure 5, all intersections except for the Beavercreek Road/Loder Road intersection (during the weekday a.m. peak hour) are forecast to continue to operate acceptably during the weekday a.m. and p.m. peak hours. The Beavercreek Road/Loder Road intersection continues to operate at LOS F (but under capacity) on the westbound approach. *Attachment "E" includes the level-of-service worksheets under year 2016 background traffic conditions.*

Proposed Development Plan

The proposed development (assumes a 2016 buildout) includes construction of 183 residential rental units and approximately 378 parking spaces. A detailed breakdown of the unit types is provided below.

- Apartment building (three-story elevator-served or walk-up building type): 141 units
- Rental Townhome (live/work): 36 units
- Studio/group housing: 6 units

Figure 2 illustrates the access from Beavercreek Road.

Trip Generation

The trip generation for the proposed site is based on empirical data from the standard reference manual *Trip Generation, 9th Edition,* published by the Institute of Transportation Engineers (ITE) (Reference 7). Table 4 summarizes the estimated site trip generation of the proposed development plan during a typical weekday, as well as typical weekday a.m. and p.m. peak hours.

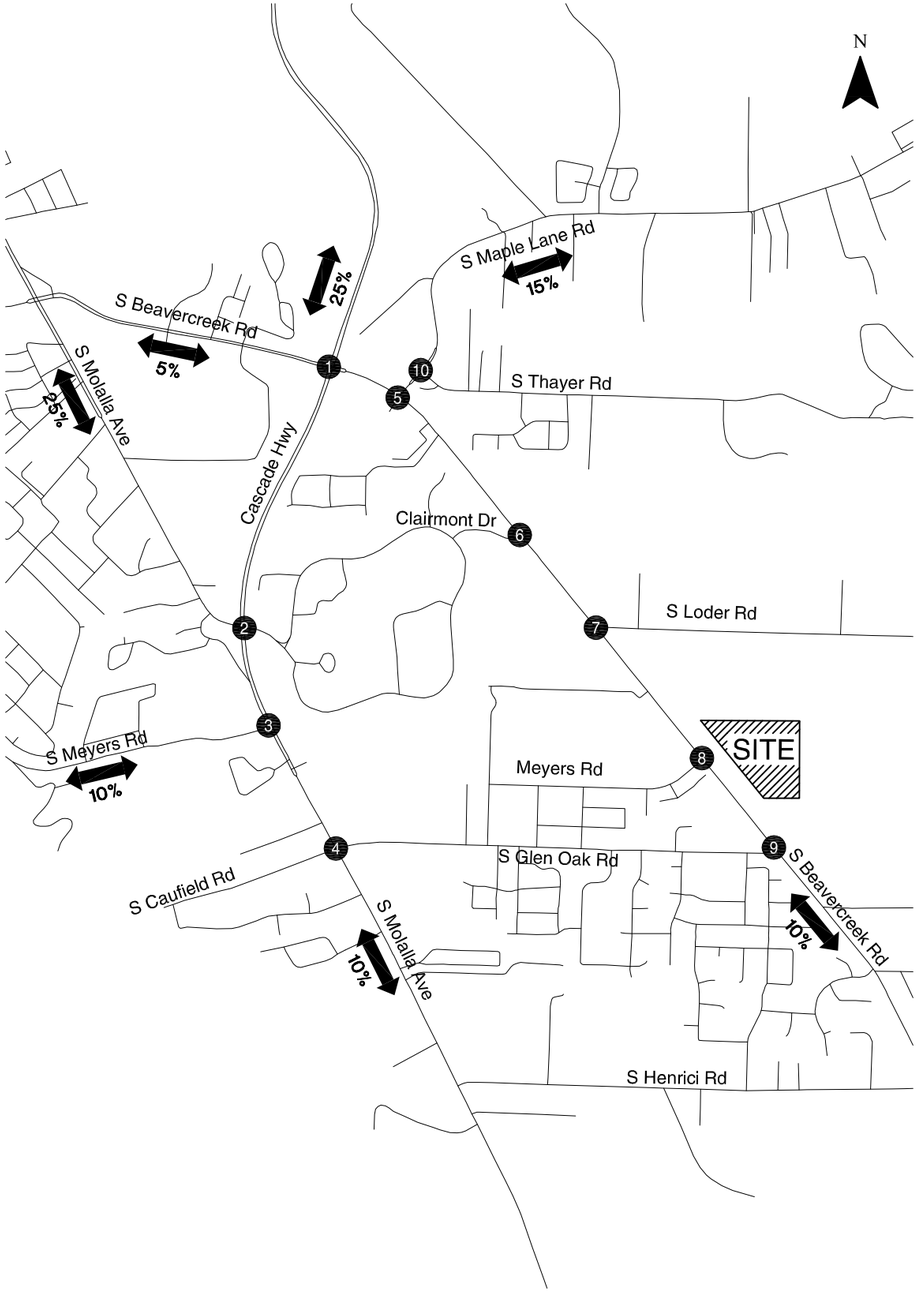
Table 4 Estimated Trip Generation

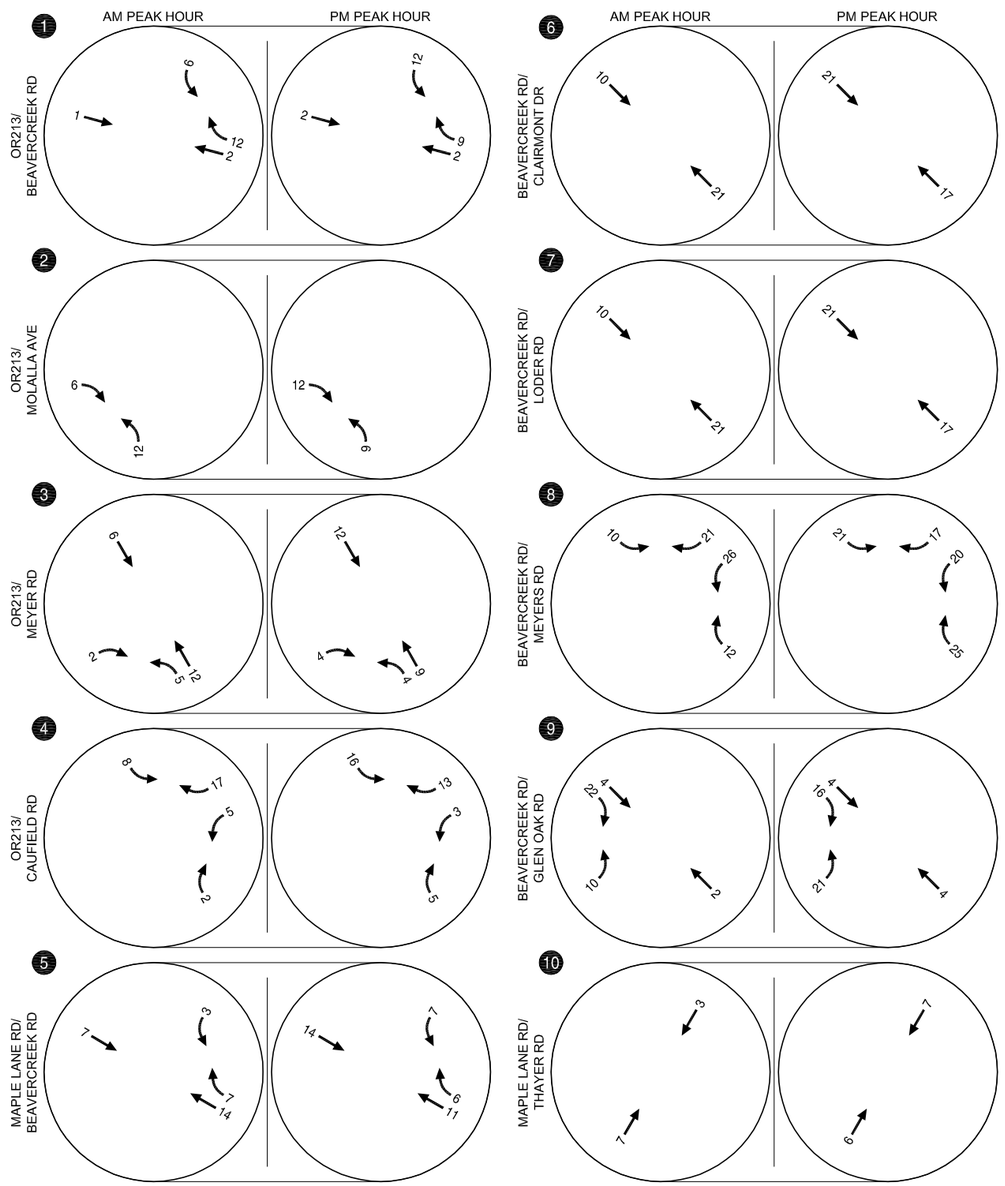
Land Use	Size (units)	Daily Trips[1]	Weekday AM Peak Hour			Weekday PM Peak Hour		
			Total	In	Out	Total	In	Out
Mid-Rise Apartment (ITE Code 223)	147	570[1]	44	14	30	57	33	24
Rental Townhouse (ITE Code 224)	36	260[1]	25	8	17	26	13	13
Total	**183**	**810[1]**	**69**	**22**	**47**	**83**	**46**	**37**

[1] Estimated as 10-times the weekday p.m. peak hour trip generation

Site Trip Distribution/Trip Assignment

The distribution of site-generated trips was determined based on a review of the existing transportation network, current turning movement patterns, and the nature of the proposed development. The estimated trip distribution pattern is shown in Figure 6. The estimated site-generated trips were assigned to the network by distributing the trips shown in Table 4 according to the trip distribution pattern shown in Figure 6. Figure 6 also illustrates the net new site-generated trips that are expected to use the roadway system during the weekday a.m. and p.m. peak hours.





ESTIMATED TRIP DISTRIBUTION PATTERN & SITE-GENERATED TRIPS
WEEKDAY AM & PM PEAK HOURS
OREGON CITY, OREGON

Figure 6

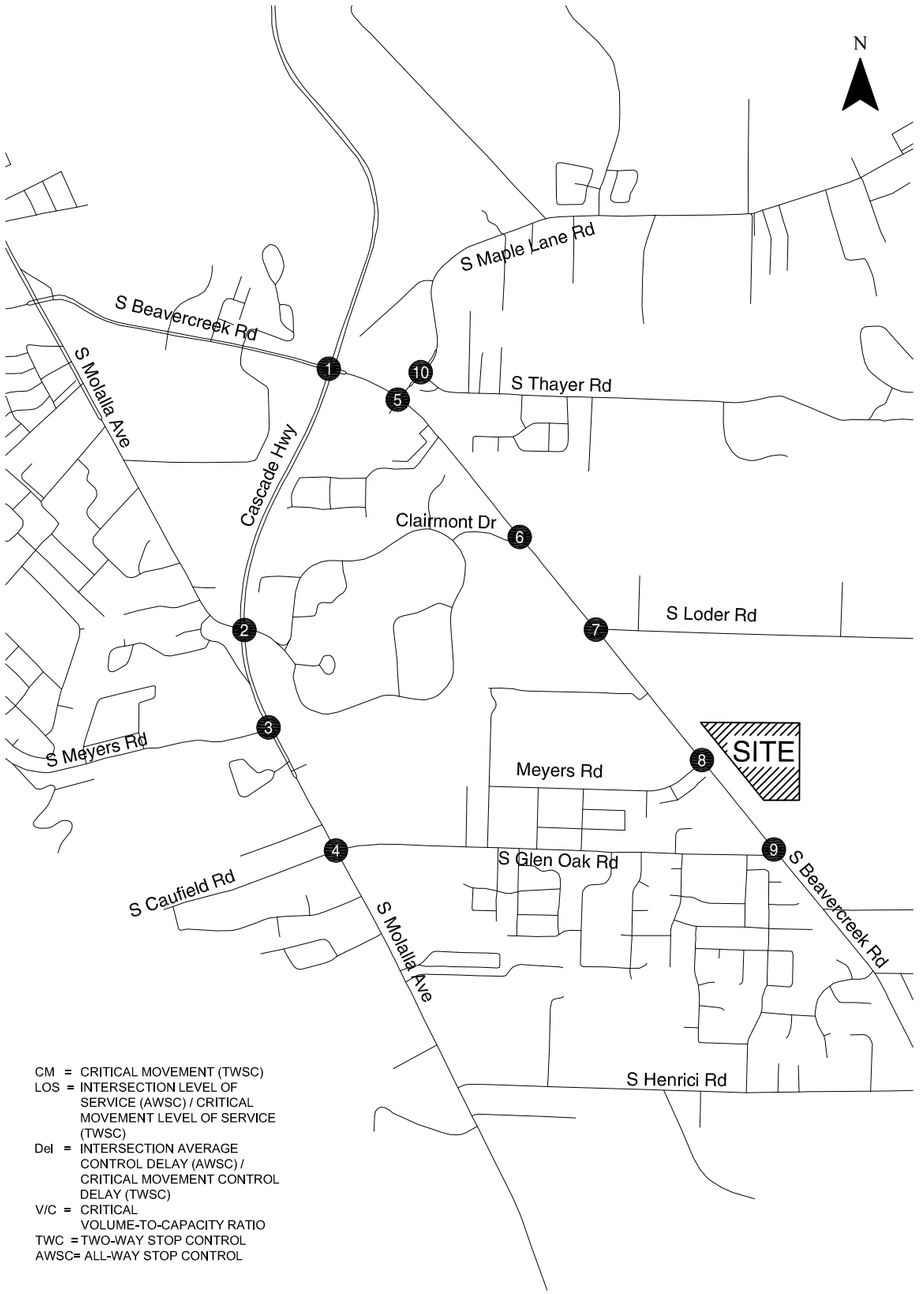
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Year 2016 Total Traffic Conditions

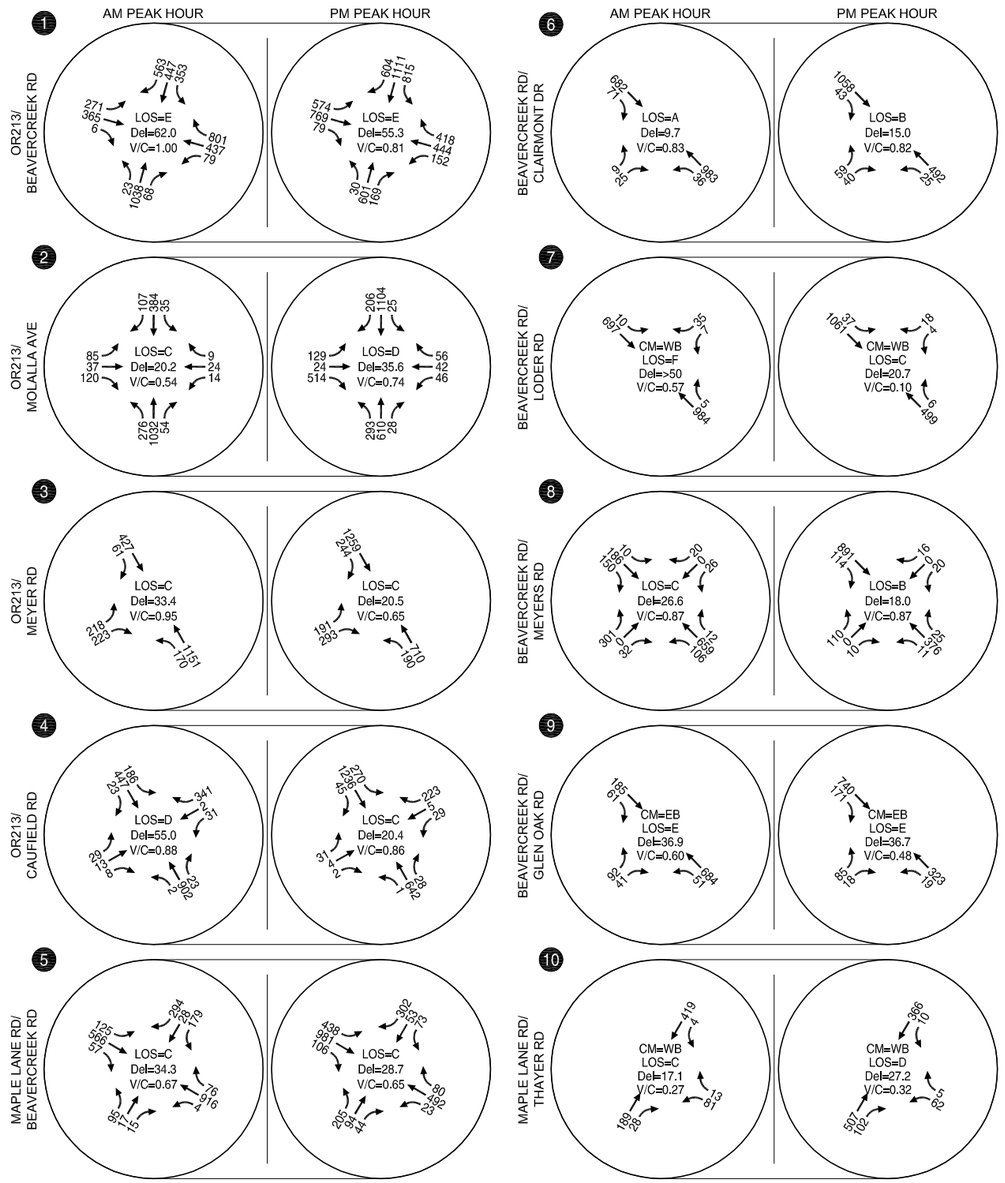
The total traffic conditions analysis forecasts how the study area's transportation system will operate with the traffic generated by the proposed development. As discussed previously, the appropriate growth rate for regional traffic growth was applied. The estimated site-generated traffic (shown in Figure 6) was added to the background traffic volumes (shown in Figure 5) during the weekday a.m. and p.m. peak hours to arrive at the total traffic volumes that are shown in Figure 7.The weekday a.m. and p.m. peak hour turning-movement volumes shown in Figure 7 were used to conduct an operational analysis at each study intersection.

For the proposed site access (east leg of the Meyers Road/Beavercreek Road intersection), the analysis assumes a separate left-turn lane and shared through-right in the westbound direction. A southbound left turn lane into the site is also assumed. This geometry is consistent with the ultimate vision of the Beavercreek Concept Plan, which includes a three-lane green street design for the Meyers Road intersection. The Plan was prepared in 2008 to guide the creation of a complete and sustainable community for the 453 acres annexed into the urban growth boundary between 2002 and 2004 in southeast Oregon City (Reference

The results of this total traffic analysis shown in Figure 7 indicate that all study intersections are forecast to continue to operate acceptably during the weekday a.m. and p.m. peak hours except the Beavercreek Road/Loder Road intersection (during the weekday a.m. peak hour). As shown in Figure 6, no site-generated traffic is anticipated to impact the critical movement (westbound left turn) at the Beavercreek Road/Loder Road intersection. As such, no mitigations associated with the proposed development traffic impact are recommended at this time. *Attachment "F" includes the level-of-service worksheets under year 2016 total traffic conditions.*



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V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
TWC = TWO-WAY STOP CONTROL
AWSC= ALL-WAY STOP CONTROL



YEAR 2014 TOTAL TRAFFIC OPERATIONS
WEEKDAY AM & PM PEAK HOURS
OREGON CITY, OREGON

Figure 7

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OTHER CONSIDERATIONS

The remainder of this report outlines additional considerations related to long-term horizon turn lane needs and sight distance considerations. This material was prepared in compliance with a condition of approval of the 2010 property rezone.

Meyer Road Extension 2027 Horizon Year Analysis

A 2027 horizon year analysis was prepared for the OR 213/Meyers Road intersection to address the planned future Meyers Road extension between OR 213 and Beavercreek Road.

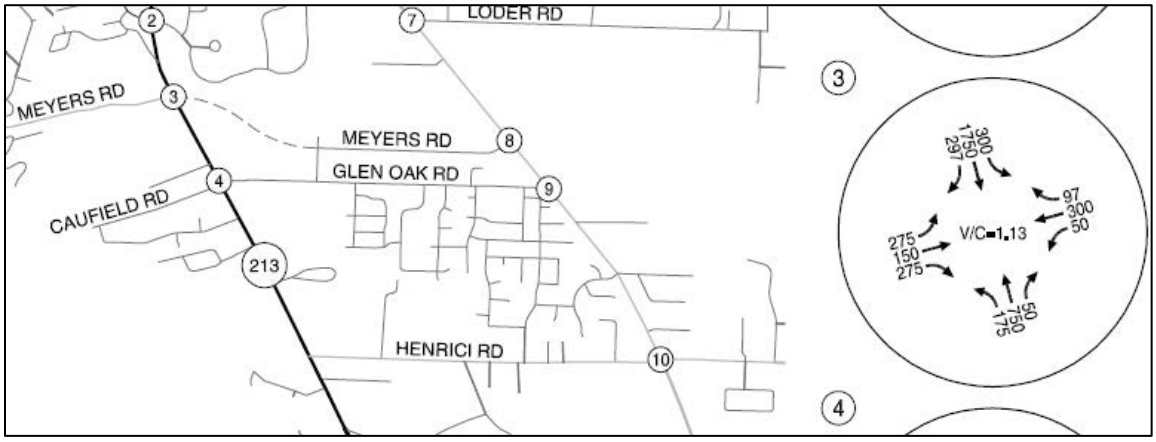
2027 Background Traffic Operations

With the recently-adopted Oregon City TSP (Reference 5), this improvement is considered "reasonably likely" and was previously addressed in the *Beavercreek Road/Meyers Road Rezone Study* (Reference 1). As shown in Figure 10 of the 2010 study, the impact of a rezoned reasonable worst-case development scenario created a "significant impact" at the future four-legged OR 213/Meyers Road intersection. From the 2010 study:

> *Based on direction from ODOT Region 1 staff, the proposed rezone would be determined to significantly impact a study intersection already in failure (defined as having a volume-to-capacity ratio greater than 0.99) if the volume-to-capacity ratio at the intersection increased by more than 0.01. (Reference 1)*

The adopted 2010 study forecasted the OR 213/Meyers Road intersection to operate at a volume-to-capacity ratio of 1.13 without the impact of site-added traffic from a rezone (2027 background traffic conditions are shown in Figure 8 of the study). The following exhibit is an excerpt from the 2010 *Beavercreek Road/Meyers Road Rezone Study (Figure 8)* in which the forecast 2027 volumes at the OR 213/Meyers Road intersection are shown with the Meyers Road extension assumed.

Exhibit 1 Excerpt from Figure 8 of the *2010 Beavercreek Road/Meyers Road Rezone Study (Weekday PM Peak Hour)*



As shown in Exhibit 1, the Beavercreek Road/Meyers Road intersection is forecast to operate at a volume-to-capacity ratio greater than 0.99 during the weekday p.m. peak hour. As such, an increase over the forecast volume-to-capacity ratio of greater than 0.01 would represent a "significant impact" to the intersection and would require mitigation. *Attachment "G" includes the level-of-service worksheets under year 2027 background traffic conditions.*

Proposed Development Site-Added Traffic (183 residential units)

The proposed development (183 residential housing units) site-generated traffic shown in Figure 6 (Intersection #3) was re-routed for the Meyers Road extension consistent with the 2010 Rezone Study methodology. The re-routed volumes were then added to the 2027 background traffic volumes shown in Exhibit 1 to arrive at the forecast 2027 total traffic volumes with the proposed development. These volumes and are summarized in Table 5.

Table 5 Year 2027 Total Volumes at the Beavercreek Road/Meyers Road Intersection

Movement	2027 Background Traffic Volumes	Site Added Traffic (no Meyers Road extension assumed)	Re-routed Site Added Traffic (assumes Meyers Road extension)	2027 Total Traffic Volumes
Northbound Left	175	4	--	175
Northbound Through	750	9	--	750
Northbound Right	50	--	--	50
Southbound Left	300	--	12	312
Southbound Through	1,750	12	--	1,750
Southbound Right	297	--	--	297
Eastbound Left	275	--	--	275
Eastbound Through	150	--	4	154
Eastbound Right	275	4	--	275
Westbound Left	50	--	--	50
Westbound Through	300	--	4	304
Westbound Right	97	--	9	106

2027 Total Traffic Operations (183 residential units)

The 2027 total traffic volumes shown in Table 5 were used to prepare an operational analysis at the Beavercreek Road/Meyers Road intersection. The results of the analysis are provided in Table 6.

Table 6 Year 2027 Total Traffic Conditions, Weekday PM Peak Hour

Intersection	Performance Standard	2027 Base Condition	2027 Condition with Site-Added Traffic	Incremental Impact
OR 213/ Meyers Road	0.99	1.13	1.14	+0.01

As shown in Table 6, the proposed development site-added traffic is forecast to have a one percent impact on the operations of the OR 213/Meyers Road intersection upon buildout of the Meyers Road extension. As such, per the definition provided in the 2010 rezone study (Reference 1), there is no resulting "significant impact" anticipated at this location for the proposed 183-unit development. *Attachment "G" includes the level-of-service worksheets under year 2027 total traffic conditions.*

Sensitivity Analysis (up to 196 residential units)

A sensitivity analysis was prepared for the proposed development to understand the trigger for a "significant impact" at the OR 213/Meyers Road intersection upon buildout of the Meyers Road extension. This sensitivity analysis was prepared in order to address a potential change to the number of units that may result from comments or suggestions from the process of design review. With this analysis, the maximum number of developable units was identified that **would not** trigger a "significant impact" at the OR 213/Meyers Road intersection for year 2027.

The sensitivity analysis consisted of an iterative process in which the number of apartment units was increased incrementally, the site-generated trips were assigned to the OR 213/Meyers Road intersection, and an operations assessment conducted. The sensitivity analysis shows that up to 196 residential units could be constructed on-site without triggering a volume-to-capacity impact greater than 0.01 at the OR 213/Meyers Road intersection upon buildout of the Meyers Road extension for year 2027 traffic volumes. As such, should the number of apartment units fluctuate after the submittal of this report, no additional analysis is required as long as the number of apartments does not exceed 196 units. Additional detail of the unit breakdown, trip generation, and operations summary for the sensitivity analysis is included in *Attachment "H." Attachment "H" also includes the level-of-service worksheets under year 2027 sensitivity analysis total traffic conditions.*

Preliminary Sight Distance Verification

A preliminary sight distance verification was conducted from the proposed access location at the Beavercreek Road/Meyers Road intersection. Based on preliminary investigation, stopping sight distance and intersection sight distance in excess of approximately 450 feet is provided to the north of the access and in excess of approximately 650 feet is provided to the south. Upon development, it is recommended that any existing foliage within the public right-of-way be cleared and/or maintained to maximize the available sight distance upon site development. It is further recommended that any landscaping, above ground utilities or signage associated with the proposed development be located and maintained to ensure that adequate intersection sight distance is continued to be provided.

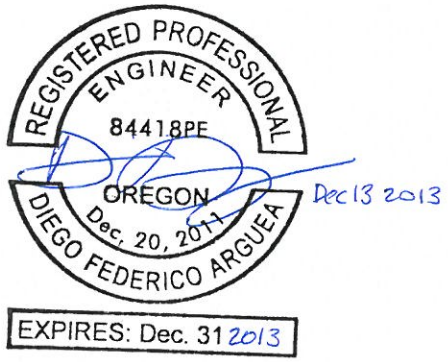
CONCLUSION

Based on the analysis and findings herein, the proposed development can be constructed while maintaining acceptable operations on the adjacent study roadways and intersections. We trust this letter adequately addresses the traffic impacts associated with the proposed Beavercreek Road mixed-use housing development. Please feel free to contact us if you have any questions.

Sincerely,
KITTELSON & ASSOCIATES, INC.

Diego Arguea, P.E.
Senior Engineer

Chris Brehmer, P.E.
Principal Engineer



REFERENCES

1. Kittelson & Associates. *Beavercreek Road/Meyers Road Rezone Transportation Planning Rule (TPR) Analysis.* 2010.
2. TriMet. http://trimet.org/. October 2013.
3. Oregon Department of Transportation. *Analysis Procedures Manual.* April 2010.
4. Transportation Research Board. *Highway Capacity Manual*. 2000.
5. City of Oregon City. *Transportation System Plan Update.* 2013.
6. Oregon Department of Transportation. *1999 Oregon Highway Plan.* March 1999.
7. Institute of Transportation Engineers. *Trip Generation: 9th Edition*. 2012.
8. City of Oregon City. *Beavercreek Road Concept Plan*. August 2008.

ATTACHMENTS

A. Traffic Count Data and Seasonal Adjustment Data

B. Description of Level-of-Service Methods and Criteria

C. Year 2013 Existing Conditions Level-of-Service Worksheets

D. Crash Data

E. Year 2016 Background Conditions Level-of-Service Worksheets

F. Year 2016 Total Conditions Level-of-Service Worksheets

G. Year 2027 Background and Total Traffic Level-of-Service Worksheets (177 residential units)

H. Year 2027 Total Traffic Level-of-Service Worksheets (196 residential units)

Attachment A
Traffic Count Data

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: OR 213 -- S Beavercreek Rd

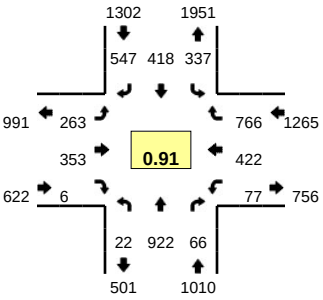
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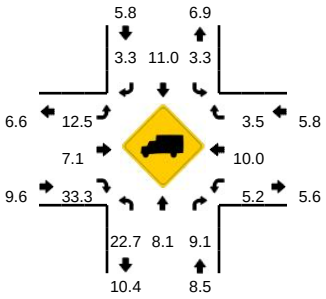
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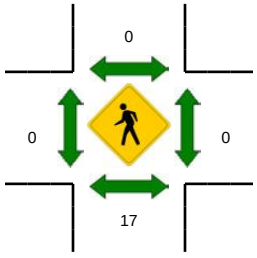
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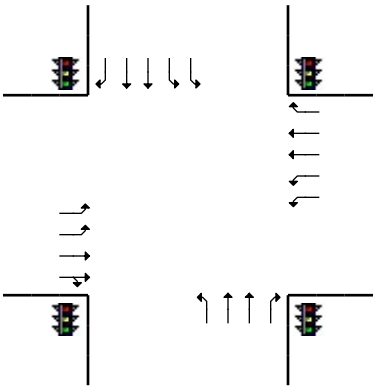
Peak-Hour: 7:00 AM -- 8:00 AM

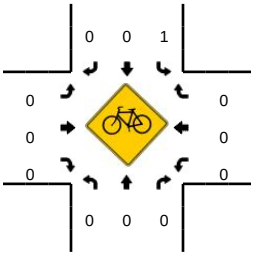
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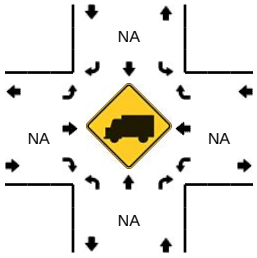


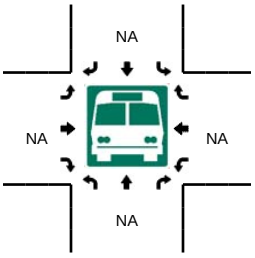












5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				S Beavercreek Rd (Eastbound)				S Beavercreek Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	87	6	0	24	34	52	0	23	29	0	0	4	28	49	0	338	
7:05 AM	0	63	7	0	23	21	28	0	23	43	0	0	4	38	69	0	319	
7:10 AM	0	94	3	0	28	32	39	0	13	18	1	0	2	24	61	0	315	
7:15 AM	0	72	3	0	30	21	26	0	27	38	0	0	9	38	57	0	321	
7:20 AM	0	64	7	0	16	29	40	0	32	53	0	0	13	18	58	0	330	
7:25 AM	5	85	9	0	45	46	45	0	25	45	0	0	6	33	61	0	405	
7:30 AM	2	79	8	0	36	42	41	0	11	31	0	0	5	36	68	0	359	
7:35 AM	1	78	5	0	29	35	57	0	34	25	2	0	2	48	74	0	390	
7:40 AM	5	73	3	0	22	27	40	0	17	16	1	0	5	47	85	0	341	
7:45 AM	3	94	4	0	27	54	50	0	15	21	1	0	5	27	79	0	380	
7:50 AM	0	67	4	0	27	31	62	0	30	20	1	0	16	49	52	0	359	
7:55 AM	4	66	7	0	30	46	67	0	13	14	0	0	6	36	53	0	342	4199
8:00 AM	1	61	8	0	22	52	52	0	26	21	2	0	9	31	40	0	325	4186
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8:10 AM	5	61	6	0	21	31	40	0	17	14	2	0	8	19	43	0	267	4117
8:15 AM	3	73	7	0	23	52	46	0	17	10	0	0	7	23	48	0	309	4105
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8:30 AM	0	76	9	0	18	42	43	0	31	22	0	0	9	22	43	0	315	3955
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8:45 AM	2	42	1	0	34	42	35	0	36	14	0	0	8	32	47	0	293	3705
8:50 AM	5	66	2	0	21	33	33	0	23	21	1	0	6	40	44	0	295	3641
8:55 AM	0	49	7	0	19	48	43	0	27	10	2	0	5	27	29	0	266	3565

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	968	88	0	440	492	572	0	280	404	8	0	52	468	812	0	4616
Heavy Trucks	8	68	8		16	56	28		56	0	4		0	28	32		304
Pedestrians		8				0				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:23 PM

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Method for determining peak hour: Total Entering Volume

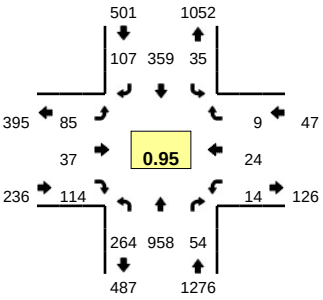
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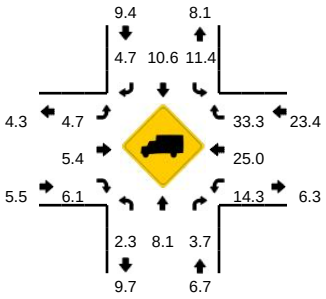
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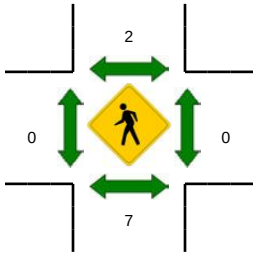
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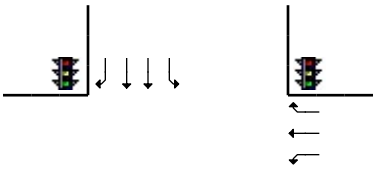
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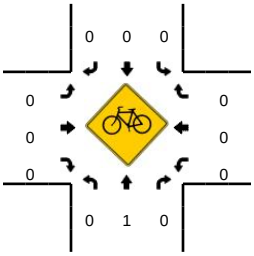


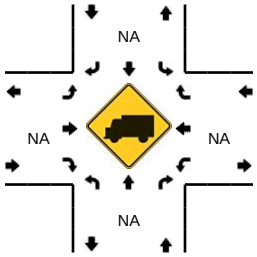


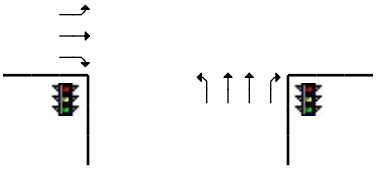
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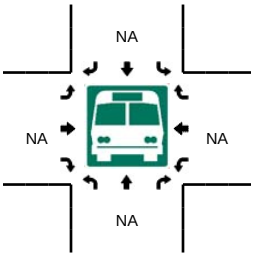












5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				S Molalla Ave/S Douglas Loop (Eastbound)				S Molalla Ave/S Douglas Loop (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	24	97	2	0	4	27	5	0	5	4	8	0	1	2	0	0	179	
7:05 AM	13	82	4	0	1	27	8	0	16	3	5	0	1	3	1	0	164	
7:10 AM	19	70	3	0	4	18	11	0	3	1	9	0	1	0	1	0	140	
7:15 AM	18	76	3	0	0	20	8	0	7	4	13	0	0	3	1	0	153	
7:20 AM	21	93	7	0	2	30	12	0	3	1	7	0	2	1	3	0	182	
7:25 AM	12	73	4	0	4	37	15	0	12	6	11	0	1	2	0	0	177	
7:30 AM	23	99	8	0	4	27	4	0	4	0	9	0	1	2	1	0	182	
7:35 AM	22	80	2	0	2	48	8	0	8	5	6	0	1	2	1	0	185	
7:40 AM	31	83	2	0	2	19	2	0	3	4	7	0	2	3	0	0	158	
7:45 AM	27	69	5	0	5	37	9	0	11	3	15	0	1	3	0	0	185	
7:50 AM	40	72	4	0	2	42	13	0	5	0	10	0	2	0	0	0	190	
7:55 AM	14	64	10	0	5	27	12	0	8	6	14	0	1	3	1	0	165	2060
8:00 AM	24	64	10	0	5	29	13	0	10	7	10	0	0	1	2	0	175	2056
8:05 AM	12	56	0	0	2	50	15	0	11	2	13	0	2	4	0	0	167	2059
8:10 AM	30	68	2	0	6	36	14	0	5	2	15	0	0	0	0	0	178	2097
8:15 AM	6	63	3	0	4	38	15	0	9	6	22	0	1	0	3	0	170	2114
8:20 AM	30	77	2	1	1	29	13	0	3	2	10	0	1	3	0	0	172	2104
8:25 AM	25	52	3	0	1	31	14	0	9	3	11	0	4	6	0	0	159	2086
8:30 AM	23	90	0	0	8	26	9	0	8	2	16	0	1	0	0	0	183	2087
8:35 AM	26	45	0	0	0	38	7	0	9	2	12	0	0	0	1	0	140	2042
8:40 AM	25	72	1	0	4	45	6	0	8	1	14	0	0	0	1	0	177	2061
8:45 AM	12	50	2	0	9	38	11	0	10	1	9	0	0	2	1	0	145	2021
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8:55 AM	24	51	4	0	11	37	8	0	5	0	4	0	0	3	0	0	147	1960

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	228	1008	56	0	40	448	108	0	96	44	104	0	12	24	8	0	2176
Heavy Trucks	4	76	4		8	52	0		0	0	12		0	4	8		168
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

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SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

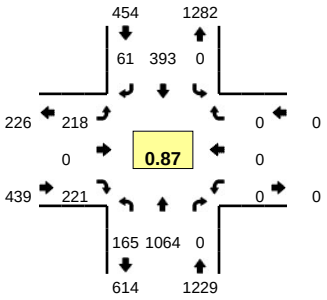
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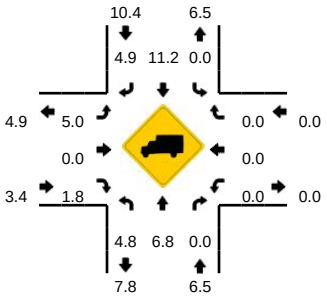
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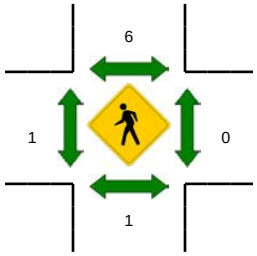
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CITY/STATE: Oregon City, OR

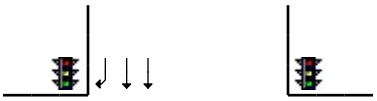
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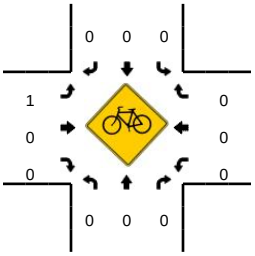
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:15 AM -- 7:30 AM

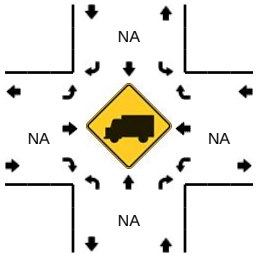


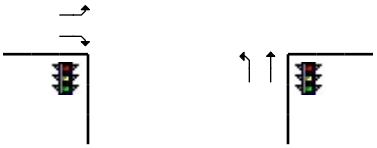


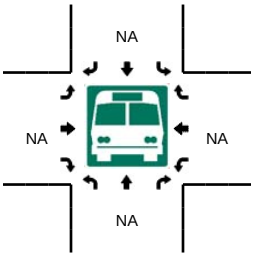












5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				S Meyers Rd (Eastbound)				S Meyers Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	12	87	0	0	0	26	5	0	21	0	16	0	0	0	0	0	167	
7:05 AM	6	83	0	0	0	28	6	0	14	0	13	0	0	0	0	0	150	
7:10 AM	12	80	0	0	0	19	4	0	13	0	19	0	0	0	0	0	147	
7:15 AM	12	96	0	0	0	37	4	0	16	0	34	0	0	0	0	0	199	
7:20 AM	14	94	0	0	0	24	4	0	20	0	34	0	0	0	0	0	190	
7:25 AM	19	98	0	0	0	52	3	0	18	0	32	0	0	0	0	0	222	
7:30 AM	18	83	0	0	0	25	1	0	28	0	21	0	0	0	0	0	176	
7:35 AM	22	99	0	0	0	46	9	0	15	0	12	0	0	0	0	0	203	
7:40 AM	24	85	0	0	0	18	5	0	23	0	10	0	0	0	0	0	165	
7:45 AM	11	101	0	0	0	42	6	0	16	0	6	0	0	0	0	0	182	
7:50 AM	11	82	0	0	0	40	9	0	19	0	12	0	0	0	0	0	173	
7:55 AM	4	76	0	0	0	36	5	0	15	0	12	0	0	0	0	0	148	2122
8:00 AM	12	65	0	0	0	37	4	0	19	0	7	0	0	0	0	0	144	2099
8:05 AM	9	80	0	0	0	47	18	0	14	0	5	0	0	0	0	0	173	2122
8:10 AM	17	67	0	0	0	42	2	0	19	0	8	0	0	0	0	0	155	2130
8:15 AM	11	79	0	0	0	53	9	0	14	0	11	0	0	0	0	0	177	2108
8:20 AM	8	73	0	0	0	44	6	0	26	0	8	0	0	0	0	0	165	2083
8:25 AM	7	65	0	0	0	57	5	0	20	0	6	0	0	0	0	0	160	2021
8:30 AM	13	93	0	0	0	27	6	0	23	0	10	0	0	0	0	0	172	2017
8:35 AM	10	74	0	0	0	54	4	0	16	0	7	0	0	0	0	0	165	1979
8:40 AM	4	55	0	0	0	34	10	0	21	0	14	0	0	0	0	0	138	1952
8:45 AM	6	63	0	0	0	43	4	0	8	0	7	0	0	0	0	0	131	1901
8:50 AM	11	70	0	0	0	31	10	0	21	0	8	0	0	0	0	0	151	1879
8:55 AM	9	73	0	0	0	32	7	0	16	0	5	0	0	0	0	0	142	1873

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	180	1152	0	0	0	452	44	0	216	0	400	0	0	0	0	0	2444
Heavy Trucks	8	52	0		0	52	4		8	0	8		0	0	0		132
Pedestrians		4				0				4				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:23 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

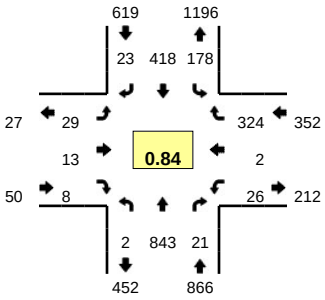
LOCATION: OR 213 -- S Caufield Rd/S Glen Oak Rd

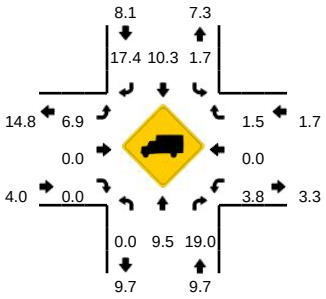
QC JOB #: 11203613

CITY/STATE: Oregon City, OR

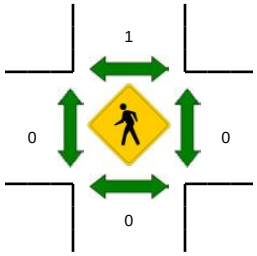
DATE: Thu, Sep 26 2013

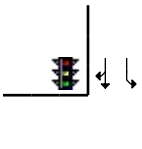
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:25 AM -- 7:40 AM

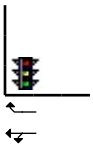


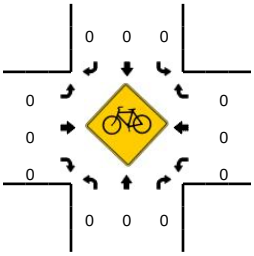


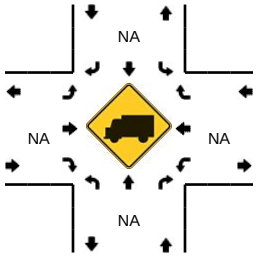
Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

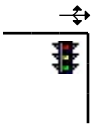




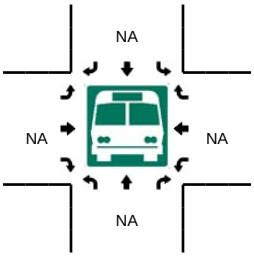












5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				S Caufield Rd/S Glen Oak Rd (Eastbound)				S Caufield Rd/S Glen Oak Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	78	0	0	12	31	1	0	2	1	0	0	2	0	14	0	141	
7:05 AM	0	45	2	0	10	31	2	0	2	0	1	0	3	0	26	0	122	
7:10 AM	0	81	4	0	15	15	3	0	1	0	0	0	0	0	24	0	143	
7:15 AM	0	72	3	0	31	36	0	0	4	1	0	0	2	0	23	0	172	
7:20 AM	1	72	4	0	20	22	3	0	2	1	0	0	4	0	34	0	163	
7:25 AM	1	69	0	0	32	48	5	0	1	4	0	0	1	0	37	0	198	
7:30 AM	0	67	2	0	23	32	3	0	3	5	0	0	3	0	38	0	176	
7:35 AM	0	73	1	0	17	52	0	0	2	1	0	0	0	2	39	0	187	
7:40 AM	0	77	2	0	3	23	2	0	5	0	1	0	6	0	34	0	153	
7:45 AM	0	63	1	0	4	45	0	0	6	0	4	0	1	0	31	0	155	
7:50 AM	0	81	1	0	5	45	2	0	0	0	2	0	1	0	10	0	147	
7:55 AM	0	65	1	0	6	38	2	0	1	0	0	0	3	0	14	0	130	1887
8:00 AM	0	52	1	0	7	34	0	0	4	0	1	0	1	0	11	0	111	1857
8:05 AM	1	68	2	0	9	40	4	0	1	0	0	0	0	0	17	0	142	1877
8:10 AM	1	65	1	0	5	38	3	0	3	0	0	0	0	0	18	0	134	1868
8:15 AM	1	66	0	0	8	56	2	0	2	0	0	0	1	0	13	0	149	1845
8:20 AM	0	69	1	0	2	33	1	0	3	0	0	0	3	0	15	0	127	1809
8:25 AM	0	55	0	0	6	44	4	0	4	1	0	0	1	0	16	0	131	1742
8:30 AM	0	79	0	0	3	36	1	0	3	0	1	0	0	0	13	0	136	1702
8:35 AM	0	56	0	0	9	37	2	0	4	1	0	0	1	0	11	0	121	1636
8:40 AM	0	54	2	0	4	48	1	0	2	0	1	0	0	1	5	0	118	1601
8:45 AM	1	62	0	0	15	40	1	0	1	0	0	0	0	1	13	0	134	1580
8:50 AM	0	67	1	0	6	32	1	0	1	0	0	0	0	0	10	0	118	1551
8:55 AM	0	69	1	0	1	35	3	0	2	0	1	0	0	0	9	0	121	1542

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	836	12	0	288	528	32	0	24	40	0	0	16	8	456	0	2244
Heavy Trucks	0	88	0		0	68	0		0	0	0		0	0	4		160
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:23 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

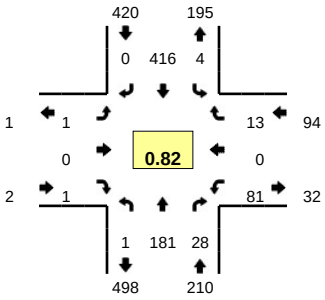
Method for determining peak hour: Total Entering Volume

LOCATION: S Maple Lane Rd -- S Thayer Rd

QC JOB #: 11203611

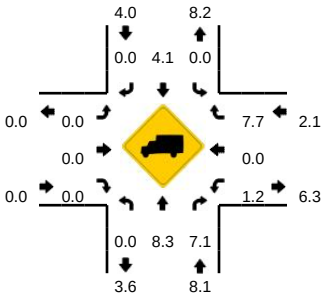
CITY/STATE: Oregon City, OR

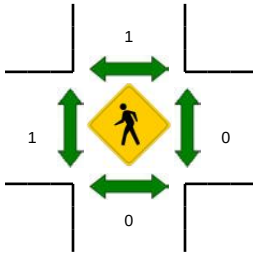
DATE: Thu, Sep 26 2013

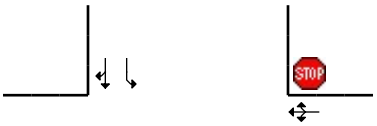


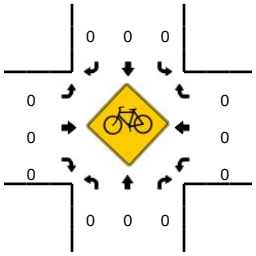
Peak-Hour: 7:00 AM -- 8:00 AM

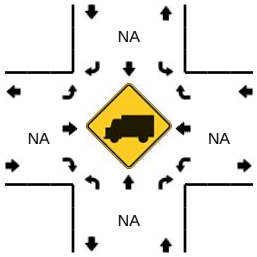
Peak 15-Min: 7:20 AM -- 7:35 AM



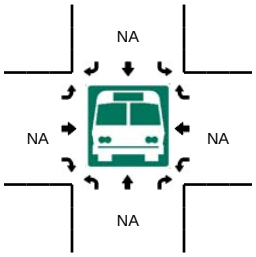












5-Min Count Period Beginning At	S Maple Lane Rd (Northbound)				S Maple Lane Rd (Southbound)				S Thayer Rd (Eastbound)				S Thayer Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	10	2	0	0	40	0	0	0	0	0	0	6	0	0	0	58	
7:05 AM	0	17	2	0	0	17	0	0	0	0	0	0	12	0	0	0	48	
7:10 AM	0	15	1	0	0	33	0	0	0	0	0	0	8	0	1	0	58	
7:15 AM	0	12	1	0	0	38	0	0	0	0	0	0	4	0	2	0	57	
7:20 AM	0	12	0	0	0	54	0	0	0	0	0	0	8	0	0	0	74	
7:25 AM	0	17	4	0	0	43	0	0	0	0	0	0	5	0	1	0	70	
7:30 AM	0	23	1	0	0	45	0	0	0	0	0	0	7	0	2	0	78	
7:35 AM	0	19	2	0	0	33	0	0	0	0	0	0	10	0	3	0	67	
7:40 AM	1	6	4	0	0	30	0	0	0	0	1	0	5	0	1	0	48	
7:45 AM	0	27	2	0	0	21	0	0	0	0	0	0	4	0	3	0	57	
7:50 AM	0	16	6	0	2	34	0	0	1	0	0	0	5	0	0	0	64	
7:55 AM	0	7	3	0	2	28	0	0	0	0	0	0	7	0	0	0	47	726
8:00 AM	0	16	1	0	1	30	0	0	0	0	0	0	4	0	0	0	52	720
8:05 AM	0	19	2	0	3	22	0	0	0	0	0	0	4	0	0	0	50	722
8:10 AM	0	22	2	0	0	26	0	0	0	0	0	0	4	0	0	0	54	718
8:15 AM	0	21	2	0	0	20	0	0	0	0	0	0	8	0	1	0	52	713
8:20 AM	0	21	2	0	0	32	0	0	0	0	0	0	5	0	0	0	60	699
8:25 AM	0	19	1	0	0	30	0	0	0	0	0	0	2	0	0	0	52	681
8:30 AM	0	19	2	0	0	24	0	0	0	0	0	0	12	0	0	0	57	660
8:35 AM	0	29	0	1	0	22	0	0	0	0	0	0	6	0	1	0	59	652
8:40 AM	0	16	2	0	0	31	0	0	0	0	0	0	4	0	0	0	53	657
8:45 AM	0	23	2	0	1	34	0	0	0	0	0	0	10	1	0	0	71	671
8:50 AM	0	15	3	0	0	37	0	0	0	0	0	0	4	0	0	0	59	666
8:55 AM	0	8	0	0	0	28	0	0	0	0	0	0	3	0	0	0	39	658

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	208	20	0	0	568	0	0	0	0	0	0	80	0	12	0	888
Heavy Trucks	0	8	4		0	4	0		0	0	0		4	0	0		20
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:23 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

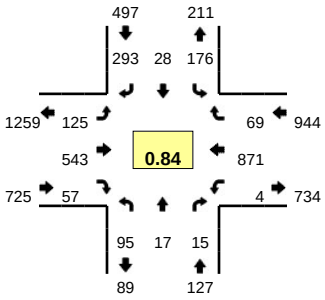
Method for determining peak hour: Total Entering Volume

LOCATION: S Maple Lane Rd -- S Beavercreek Rd

QC JOB #: 11203609

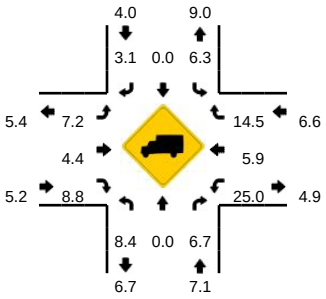
CITY/STATE: Oregon City, OR

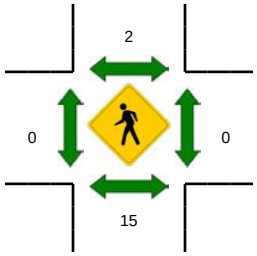
DATE: Thu, Sep 26 2013

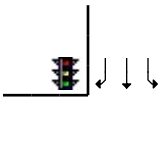


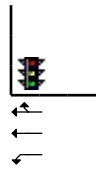
Peak-Hour: 7:00 AM -- 8:00 AM

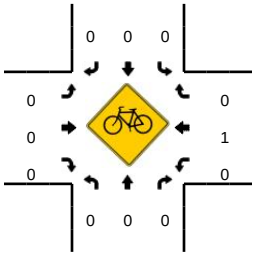
Peak 15-Min: 7:20 AM -- 7:35 AM

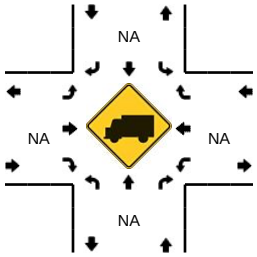


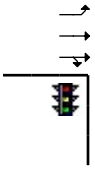


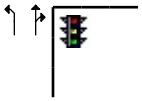


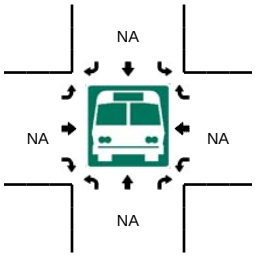












5-Min Count Period Beginning At	S Maple Lane Rd (Northbound)				S Maple Lane Rd (Southbound)				S Beavercreek Rd (Eastbound)				S Beavercreek Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	1	1	0	16	1	28	0	9	32	3	0	1	51	2	0	149	
7:05 AM	4	1	1	0	7	1	19	0	11	47	5	0	0	79	6	0	181	
7:10 AM	9	1	1	0	15	3	23	0	12	51	4	0	0	72	4	0	195	
7:15 AM	10	1	1	0	15	2	18	0	7	56	6	0	0	67	4	0	187	
7:20 AM	3	1	1	0	37	3	34	0	10	46	2	0	0	63	7	0	207	
7:25 AM	6	2	4	0	23	1	19	0	10	77	4	0	1	94	6	0	247	
7:30 AM	10	3	2	0	21	6	26	0	13	62	4	0	1	74	8	0	230	
7:35 AM	11	2	0	0	15	3	27	0	5	36	6	0	0	80	11	0	196	
7:40 AM	11	2	0	0	5	2	19	0	6	35	7	0	0	89	9	0	185	
7:45 AM	9	1	0	0	9	1	22	0	20	41	8	0	1	96	6	0	214	
7:50 AM	11	2	1	0	8	4	30	0	13	28	2	0	0	47	4	0	150	
7:55 AM	7	0	3	0	5	1	28	0	9	32	6	0	0	59	2	0	152	2293
8:00 AM	2	1	2	0	8	0	22	0	10	27	4	0	0	49	5	0	130	2274
8:05 AM	11	1	2	0	3	4	20	0	17	20	3	0	0	50	5	0	136	2229
8:10 AM	7	5	1	0	5	1	26	0	12	25	2	0	0	43	5	0	132	2166
8:15 AM	6	1	0	0	4	0	26	0	13	32	5	0	0	59	8	0	154	2133
8:20 AM	4	4	0	0	4	3	25	0	17	19	1	0	1	49	3	0	130	2056
8:25 AM	13	2	0	0	2	0	33	0	10	27	3	0	0	44	7	0	141	1950
8:30 AM	5	1	0	0	1	2	29	0	11	20	3	0	0	44	10	0	126	1846
8:35 AM	4	2	1	0	12	4	15	0	26	28	6	0	0	38	9	0	145	1795
8:40 AM	12	1	2	0	9	1	24	0	11	18	6	0	1	48	2	0	135	1745
8:45 AM	10	4	4	0	8	1	38	0	16	27	4	0	1	41	3	0	157	1688
8:50 AM	6	1	0	0	6	2	33	0	14	30	4	0	0	46	5	0	147	1685
8:55 AM	12	0	0	0	4	4	24	0	8	13	9	0	1	43	0	0	118	1651

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	76	24	28	0	324	40	316	0	132	740	40	0	8	924	84	0	2736
Heavy Trucks	12	0	4		4	0	8		8	16	8		0	60	12		132
Pedestrians		36				0				0				0			36
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:23 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: S Beavercreek Rd -- Clairmont Dr

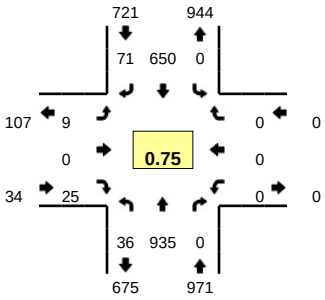
QC JOB #: 11203607

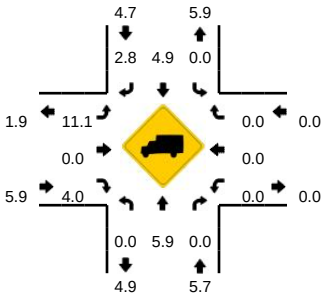
CITY/STATE: Oregon City, OR

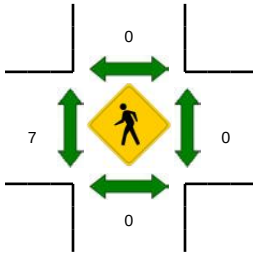
DATE: Thu, Sep 26 2013

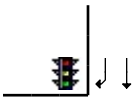
Peak-Hour: 7:00 AM -- 8:00 AM

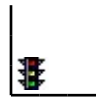
Peak 15-Min: 7:20 AM -- 7:35 AM

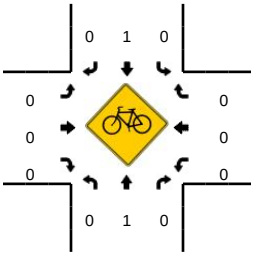


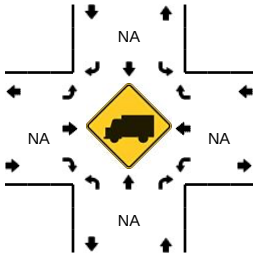


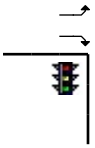




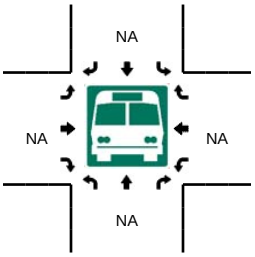












5-Min Count Period Beginning At	S Beavercreek Rd (Northbound)				S Beavercreek Rd (Southbound)				Clairmont Dr (Eastbound)				Clairmont Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	80	0	0	0	42	2	0	1	0	1	0	0	0	0	0	128	
7:05 AM	1	67	0	0	0	53	5	0	0	0	0	0	0	0	0	0	126	
7:10 AM	1	77	0	0	0	61	1	0	1	0	4	0	0	0	0	0	145	
7:15 AM	3	64	0	0	0	72	5	0	0	0	1	0	0	0	0	0	145	
7:20 AM	5	99	0	0	0	83	5	0	0	0	4	0	0	0	0	0	196	
7:25 AM	3	86	0	0	0	95	8	0	1	0	5	0	0	0	0	0	198	
7:30 AM	0	89	0	0	0	82	6	0	1	0	4	0	0	0	0	0	182	
7:35 AM	5	87	0	0	0	47	3	0	2	0	4	0	0	0	0	0	148	
7:40 AM	4	92	0	0	0	37	2	0	1	0	2	0	0	0	0	0	138	
7:45 AM	5	85	0	0	0	26	11	0	1	0	0	0	0	0	0	0	128	
7:50 AM	3	48	0	0	0	27	13	0	0	0	0	0	0	0	0	0	91	
7:55 AM	4	61	0	0	0	25	10	0	1	0	0	0	0	0	0	0	101	1726
8:00 AM	4	34	0	0	0	23	5	0	2	0	1	0	0	0	0	0	69	1667
8:05 AM	5	52	0	0	0	22	3	0	1	0	0	0	0	0	0	0	83	1624
8:10 AM	2	57	0	0	0	18	4	0	0	0	1	0	0	0	0	0	82	1561
8:15 AM	1	59	0	0	0	21	7	0	1	0	1	0	0	0	0	0	90	1506
8:20 AM	1	49	0	0	0	17	7	0	1	0	0	0	0	0	0	0	75	1385
8:25 AM	0	45	0	0	0	22	3	0	0	0	0	0	0	0	0	0	70	1257
8:30 AM	2	35	0	0	0	17	7	0	4	0	1	0	0	0	0	0	66	1141
8:35 AM	0	53	0	0	0	31	3	0	1	0	1	0	0	0	0	0	89	1082
8:40 AM	1	45	0	0	0	23	4	0	3	0	0	0	0	0	0	0	76	1020
8:45 AM	3	42	0	0	0	29	7	0	1	0	0	0	0	0	0	0	82	974
8:50 AM	1	42	0	0	0	23	6	0	2	0	1	0	0	0	0	0	75	958
8:55 AM	0	42	0	0	0	17	5	0	0	0	1	0	0	0	0	0	65	922

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	1096	0	0	0	1040	76	0	8	0	52	0	0	0	0	0	2304
Heavy Trucks	0	44	0		0	24	0		0	0	0		0	0	0		68
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:23 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

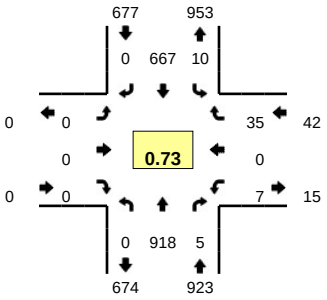
Method for determining peak hour: Total Entering Volume

LOCATION: S Beavercreek Rd -- S Loder Rd

QC JOB #: 11203605

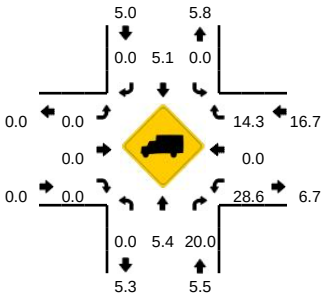
CITY/STATE: Oregon City, OR

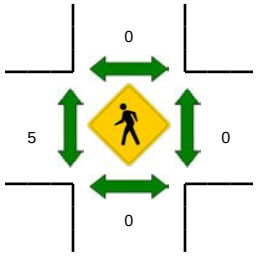
DATE: Thu, Sep 26 2013

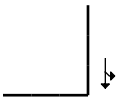


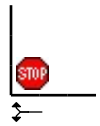
Peak-Hour: 7:00 AM -- 8:00 AM

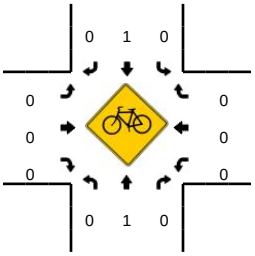
Peak 15-Min: 7:20 AM -- 7:35 AM

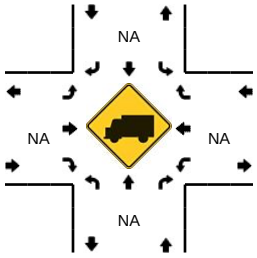




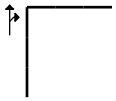


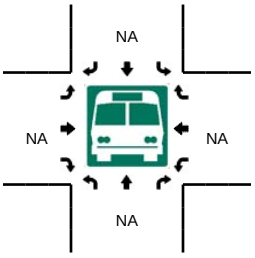












5-Min Count Period Beginning At	S Beavercreek Rd (Northbound)				S Beavercreek Rd (Southbound)				S Loder Rd (Eastbound)				S Loder Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	67	0	0	1	44	0	0	0	0	0	0	1	0	4	0	117	
7:05 AM	0	71	0	0	3	45	0	0	0	0	0	0	1	0	3	0	123	
7:10 AM	0	69	1	0	1	64	0	0	0	0	0	0	0	0	3	0	138	
7:15 AM	0	72	0	0	0	74	0	0	0	0	0	0	0	0	2	0	148	
7:20 AM	0	99	2	0	0	90	0	0	0	0	0	0	1	0	5	0	197	
7:25 AM	0	85	0	0	2	90	0	0	0	0	0	0	1	0	4	0	182	
7:30 AM	0	86	0	0	2	93	0	0	0	0	0	0	0	0	2	0	183	
7:35 AM	0	93	0	0	0	49	0	0	0	0	0	0	2	0	3	0	147	
7:40 AM	0	90	2	0	0	40	0	0	0	0	0	0	1	0	2	0	135	
7:45 AM	0	81	0	0	1	25	0	0	0	0	0	0	0	0	2	0	109	
7:50 AM	0	51	0	0	0	28	0	0	0	0	0	0	0	0	2	0	81	
7:55 AM	0	54	0	0	0	25	0	0	0	0	0	0	0	0	3	0	82	1642
8:00 AM	0	39	0	0	2	21	0	0	0	0	0	0	0	0	4	0	66	1591
8:05 AM	0	57	0	0	0	21	0	0	0	0	0	0	1	0	2	0	81	1549
8:10 AM	0	61	0	0	0	19	0	0	0	0	0	0	0	0	2	0	82	1493
8:15 AM	0	50	1	0	1	21	0	0	0	0	0	0	0	0	2	0	75	1420
8:20 AM	0	50	0	0	1	16	0	0	0	0	0	0	1	0	2	0	70	1293
8:25 AM	0	43	0	0	0	21	0	0	0	0	0	0	0	0	1	0	65	1176
8:30 AM	0	38	2	0	1	18	0	0	0	0	0	0	0	0	1	0	60	1053
8:35 AM	0	51	0	0	0	32	0	0	0	0	0	0	0	0	1	0	84	990
8:40 AM	0	46	0	0	1	22	0	0	0	0	0	0	0	0	0	0	69	924
8:45 AM	0	39	0	0	0	29	0	0	0	0	0	0	0	0	3	0	71	886
8:50 AM	0	44	0	0	1	23	0	0	0	0	0	0	0	0	0	0	68	873
8:55 AM	0	37	0	0	0	16	0	0	0	0	0	0	0	0	0	0	53	844

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1080	8	0	16	1092	0	0	0	0	0	0	8	0	44	0	2248
Heavy Trucks	0	44	0		0	24	0		0	0	0		4	0	8		80
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:23 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

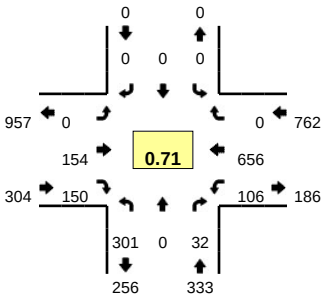
LOCATION: S Beavercreek Rd -- S Meyers Rd

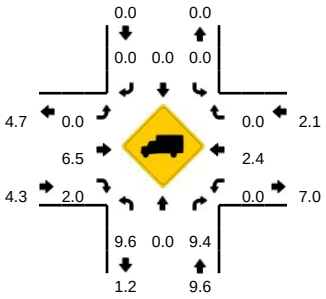
QC JOB #: 11203603

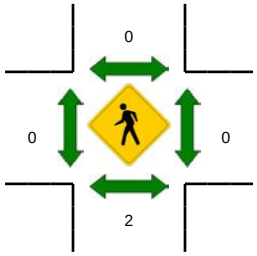
CITY/STATE: Oregon City, OR

DATE: Wed, Oct 02 2013

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:25 AM -- 7:40 AM

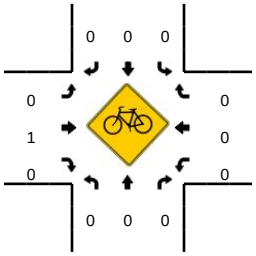


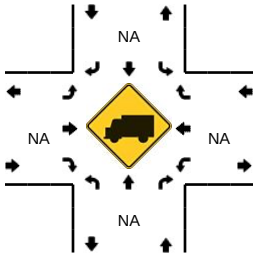


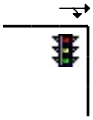




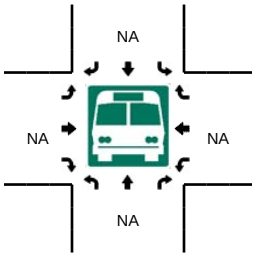












5-Min Count Period Beginning At	S Beavercreek Rd (Northbound)				S Beavercreek Rd (Southbound)				S Meyers Rd (Eastbound)				S Meyers Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	23	0	3	0	0	0	0	0	0	4	5	0	3	45	0	0	83	
7:05 AM	23	0	1	0	0	0	0	0	0	3	6	0	8	55	0	0	96	
7:10 AM	29	0	0	0	0	0	0	0	0	5	17	0	7	48	0	0	106	
7:15 AM	26	0	4	0	0	0	0	0	0	13	11	0	10	46	0	0	110	
7:20 AM	31	0	4	0	0	0	0	0	0	16	18	0	15	36	0	0	120	
7:25 AM	27	0	5	0	0	0	0	0	0	19	28	0	21	58	0	0	158	
7:30 AM	42	0	4	0	0	0	0	0	0	19	25	0	25	52	0	0	167	
7:35 AM	38	0	5	0	0	0	0	0	0	21	28	0	7	71	0	0	170	
7:40 AM	38	0	3	0	0	0	0	0	0	5	6	0	4	58	0	0	114	
7:45 AM	8	0	1	0	0	0	0	0	0	11	3	0	1	67	0	0	91	
7:50 AM	14	0	1	0	0	0	0	0	0	18	2	0	0	55	0	0	90	
7:55 AM	2	0	1	0	0	0	0	0	0	20	1	0	5	65	0	0	94	1399
8:00 AM	6	0	2	0	0	0	0	0	0	19	1	0	0	39	0	0	67	1383
8:05 AM	5	0	0	0	0	0	0	0	0	7	4	0	2	38	0	0	56	1343
8:10 AM	8	0	0	0	0	0	0	0	0	12	2	0	0	40	0	0	62	1299
8:15 AM	5	0	0	0	0	0	0	0	0	11	4	0	0	60	0	0	80	1269
8:20 AM	6	0	0	0	0	0	0	0	0	14	1	0	1	59	0	0	81	1230
8:25 AM	6	0	0	0	0	0	0	0	0	10	2	0	2	39	0	0	59	1131
8:30 AM	4	0	0	0	0	0	0	0	0	17	2	0	0	36	0	0	59	1023
8:35 AM	9	0	0	0	0	0	0	0	0	11	2	0	4	59	0	0	85	938
8:40 AM	15	0	1	0	0	0	0	0	0	22	9	0	1	47	0	0	95	919
8:45 AM	21	0	0	0	0	0	0	0	0	13	2	0	1	44	0	0	81	909
8:50 AM	10	0	2	0	0	0	0	0	0	13	7	0	3	41	0	0	76	895
8:55 AM	9	0	0	0	0	0	0	0	0	18	4	0	1	49	0	0	81	882

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	428	0	56	0	0	0	0	0	0	236	324	0	212	724	0	0	1980
Heavy Trucks	20	0	0		0	0	0		0	8	12		0	4	0		44
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:23 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

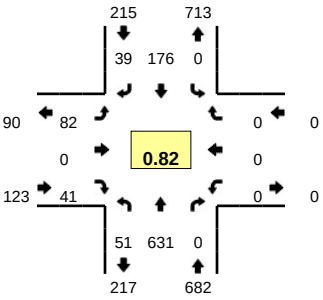
LOCATION: S Beavercreek Rd -- S Glen Oak Rd

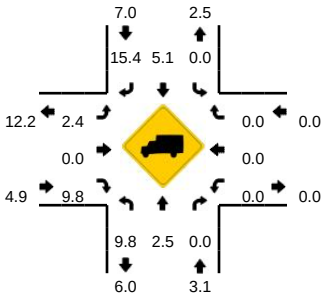
QC JOB #: 11203601

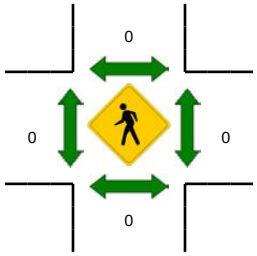
CITY/STATE: Oregon City, OR

DATE: Thu, Sep 26 2013

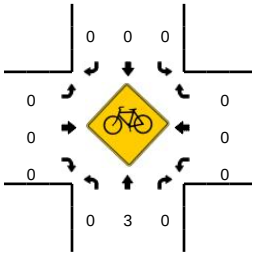
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:25 AM -- 7:40 AM

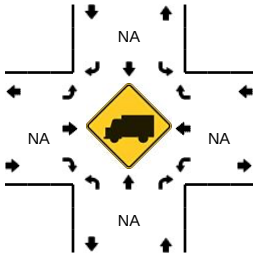


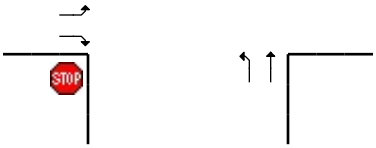


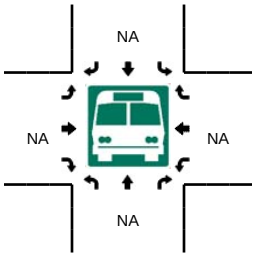












5-Min Count Period Beginning At	S Beavercreek Rd (Northbound)				S Beavercreek Rd (Southbound)				S Glen Oak Rd (Eastbound)				S Glen Oak Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	45	0	0	0	9	1	0	13	0	1	0	0	0	0	0	73	
7:05 AM	2	43	0	0	0	6	1	0	4	0	0	0	0	0	0	0	56	
7:10 AM	4	46	0	0	0	6	1	0	9	0	2	0	0	0	0	0	68	
7:15 AM	2	64	0	0	0	9	4	0	5	0	2	0	0	0	0	0	86	
7:20 AM	3	54	0	0	0	11	7	0	5	0	1	0	0	0	0	0	81	
7:25 AM	10	85	0	0	0	16	3	0	5	0	1	0	0	0	0	0	120	
7:30 AM	2	65	0	0	0	13	2	0	13	0	6	0	0	0	0	0	101	
7:35 AM	4	39	0	0	0	21	9	0	14	0	4	0	0	0	0	0	91	
7:40 AM	2	51	0	0	0	26	5	0	6	0	10	0	0	0	0	0	100	
7:45 AM	4	51	0	0	0	20	1	0	3	0	5	0	0	0	0	0	84	
7:50 AM	7	49	0	0	0	18	4	0	1	0	7	0	0	0	0	0	86	
7:55 AM	7	39	0	0	0	21	1	0	4	0	2	0	0	0	0	0	74	1020
8:00 AM	7	34	0	0	0	19	1	0	2	0	0	0	0	0	0	0	63	1010
8:05 AM	6	47	0	0	0	16	1	0	7	0	0	0	0	0	0	0	77	1031
8:10 AM	3	49	0	0	0	16	1	0	11	0	1	0	0	0	0	0	81	1044
8:15 AM	1	31	0	0	0	17	1	0	7	0	0	0	0	0	0	0	57	1015
8:20 AM	2	37	0	0	0	11	2	0	5	0	2	0	0	0	0	0	59	993
8:25 AM	3	39	0	0	0	14	1	0	4	0	0	0	0	0	0	0	61	934
8:30 AM	1	42	0	0	0	16	2	0	2	0	0	0	0	0	0	0	63	896
8:35 AM	0	32	0	0	0	12	2	0	6	0	0	0	0	0	0	0	52	857
8:40 AM	2	36	0	0	0	18	0	0	4	0	1	0	0	0	0	0	61	818
8:45 AM	4	32	0	0	0	15	2	0	3	0	1	0	0	0	0	0	57	791
8:50 AM	3	36	0	0	0	19	2	0	2	0	2	0	0	0	0	0	64	769
8:55 AM	1	25	0	0	0	12	0	0	6	0	0	0	0	0	0	0	44	739

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	64	756	0	0	0	200	56	0	128	0	44	0	0	0	0	0	1248
Heavy Trucks	4	12	0		0	8	4		4	0	4		0	0	0		36
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:23 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

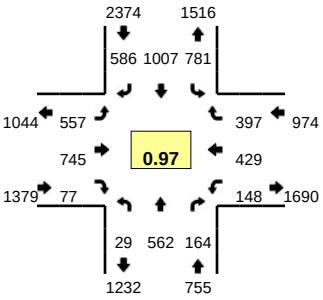
Method for determining peak hour: Total Entering Volume

LOCATION: OR 213 -- S Beavercreek Rd

QC JOB #: 11203620

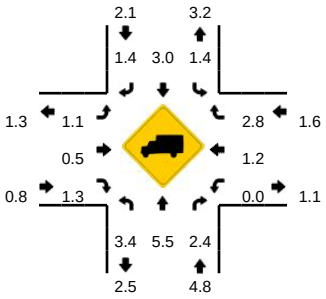
CITY/STATE: Oregon City, OR

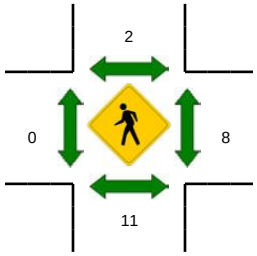
DATE: Wed, Sep 25 2013

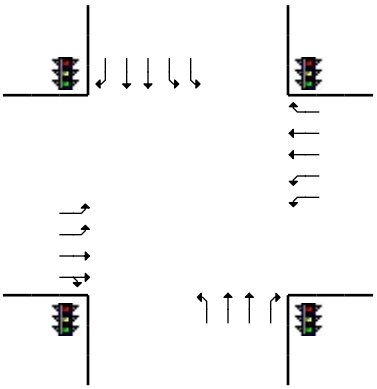


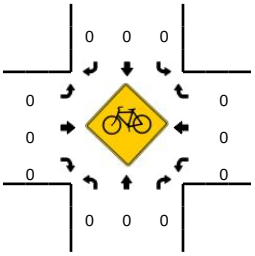
Peak-Hour: 5:00 PM -- 6:00 PM

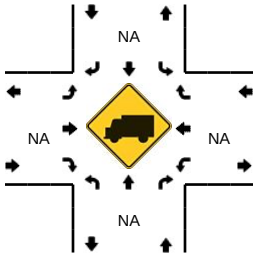
Peak 15-Min: 5:10 PM -- 5:25 PM

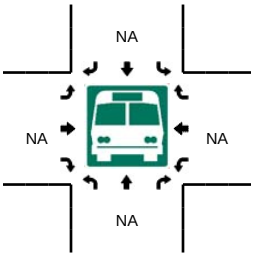












5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				S Beavercreek Rd (Eastbound)				S Beavercreek Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	44	3	0	49	70	36	0	39	53	6	0	12	43	36	0	395	
4:05 PM	2	55	9	0	49	102	48	0	50	54	12	0	10	31	33	1	456	
4:10 PM	5	57	19	0	48	79	59	0	51	39	10	0	11	35	31	0	444	
4:15 PM	1	40	12	0	59	78	55	0	28	44	7	1	8	40	31	0	404	
4:20 PM	2	55	11	0	42	89	75	0	62	55	2	0	14	26	37	0	470	
4:25 PM	4	44	12	0	67	85	44	0	34	50	8	0	8	38	32	0	426	
4:30 PM	5	63	11	0	41	96	53	0	30	48	7	0	9	28	28	0	419	
4:35 PM	1	59	9	0	39	66	47	0	45	57	11	0	11	47	29	0	421	
4:40 PM	4	32	11	0	52	80	60	0	64	70	12	0	7	27	28	0	447	
4:45 PM	6	57	13	0	59	114	52	0	23	42	8	0	15	31	42	0	462	
4:50 PM	4	39	3	0	53	82	70	0	41	62	6	0	7	45	21	0	433	
4:55 PM	3	35	11	0	59	88	59	0	46	57	10	0	8	27	42	0	445	5222
5:00 PM	0	46	12	0	60	110	51	0	47	55	10	0	11	33	23	0	458	5285
5:05 PM	2	47	13	0	50	88	59	0	53	50	6	0	14	40	35	0	457	5286
5:10 PM	0	58	19	0	55	88	54	0	54	65	5	0	9	42	35	0	484	5326
5:15 PM	5	70	16	0	69	77	51	0	50	70	3	0	5	17	36	0	469	5391
5:20 PM	4	52	6	0	79	84	52	0	47	53	9	0	9	30	34	0	459	5380
5:25 PM	3	36	21	0	75	80	46	0	50	56	11	0	18	38	30	0	464	5418
5:30 PM	2	53	9	0	57	79	47	0	44	65	8	0	10	35	29	0	438	5437
5:35 PM	2	42	11	0	65	76	45	0	50	72	5	0	13	41	34	0	456	5472
5:40 PM	2	32	12	0	79	91	47	0	36	57	4	0	14	26	38	0	438	5463
5:45 PM	2	41	12	0	59	96	37	0	53	81	4	0	15	35	44	0	479	5480
5:50 PM	4	29	16	0	95	60	44	0	50	69	4	0	12	40	34	0	457	5504
5:55 PM	3	56	17	0	38	78	53	0	23	52	8	0	18	52	25	0	423	5482

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	720	164	0	812	996	628	0	604	752	68	0	92	356	420	0	5648
Heavy Trucks	0	28	8		12	32	20		8	4	0		0	0	16		128
Pedestrians		12				4				0				16			32
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:26 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

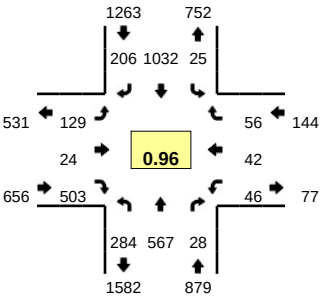
LOCATION: OR 213 -- S Molalla Ave/S Douglas Loop

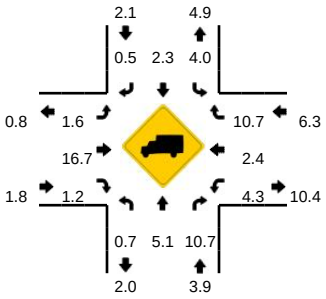
QC JOB #: 11203618

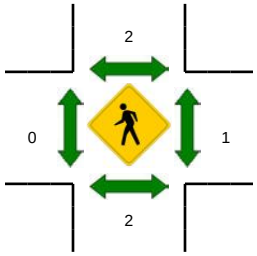
CITY/STATE: Oregon City, OR

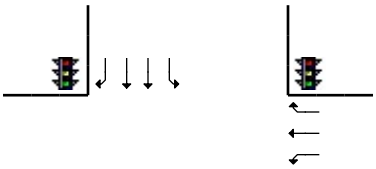
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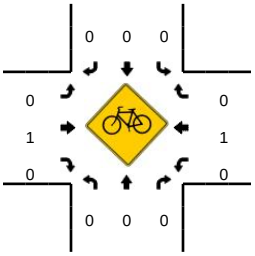
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

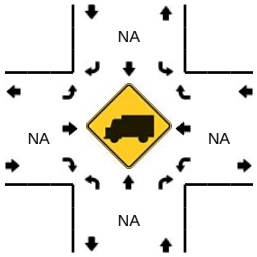


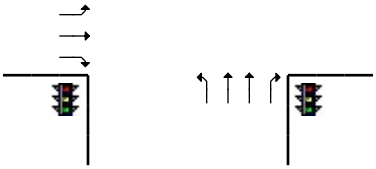


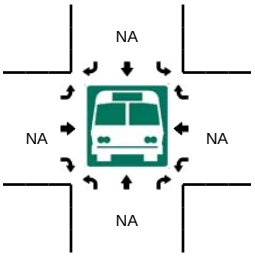












5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				S Molalla Ave/S Douglas Loop (Eastbound)				S Molalla Ave/S Douglas Loop (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	22	48	0	0	1	62	9	0	5	0	44	0	4	3	7	0	205	
4:05 PM	34	37	0	0	4	69	17	0	10	4	30	0	2	3	7	0	217	
4:10 PM	19	59	2	0	0	117	16	0	13	2	39	0	5	2	10	0	284	
4:15 PM	24	53	1	0	3	66	22	0	11	4	41	0	2	2	3	0	232	
4:20 PM	24	26	1	0	1	71	9	0	8	4	49	0	3	2	3	0	201	
4:25 PM	18	46	4	0	2	77	22	0	12	1	33	0	2	3	5	0	225	
4:30 PM	17	57	2	0	1	112	18	0	11	1	32	0	4	3	2	0	260	
4:35 PM	28	61	2	0	0	58	19	0	7	1	43	0	7	6	7	0	239	
4:40 PM	24	38	0	0	3	76	14	0	15	1	51	0	2	13	2	0	239	
4:45 PM	23	52	2	0	3	77	15	0	11	2	32	0	2	3	2	0	224	
4:50 PM	33	38	2	0	2	123	20	0	6	1	35	0	2	4	8	0	274	
4:55 PM	12	12	1	0	0	75	17	0	8	5	40	0	4	6	5	0	185	2785
5:00 PM	19	53	0	0	2	118	17	0	6	0	32	0	11	3	4	0	265	2845
5:05 PM	22	36	3	0	2	83	24	0	9	2	34	0	5	9	5	0	234	2862
5:10 PM	21	46	3	0	0	80	12	0	22	3	52	0	3	7	9	0	258	2836
5:15 PM	24	66	1	0	1	96	16	0	13	0	36	0	6	4	14	0	277	2881
5:20 PM	21	49	1	0	3	68	20	0	9	2	45	0	2	3	5	0	228	2908
5:25 PM	38	44	1	0	2	85	20	0	8	1	51	0	3	1	3	0	257	2940
5:30 PM	16	52	3	0	3	99	17	0	11	1	51	0	2	2	5	0	262	2942
5:35 PM	18	40	3	0	0	85	14	0	9	3	35	0	3	3	6	0	219	2922
5:40 PM	36	43	1	1	1	65	15	0	5	2	48	0	3	3	0	0	223	2906
5:45 PM	20	41	3	0	1	73	23	0	19	6	46	0	3	1	0	0	236	2918
5:50 PM	23	42	6	0	10	99	10	0	9	3	34	0	4	3	3	0	246	2890
5:55 PM	25	55	3	0	0	81	18	0	9	1	39	0	1	3	2	0	237	2942

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	268	592	28	0	12	1036	208	0	176	20	488	0	56	80	112	0	3076
Heavy Trucks	4	28	4		0	40	0		0	4	8		0	0	12		100
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	1	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:26 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

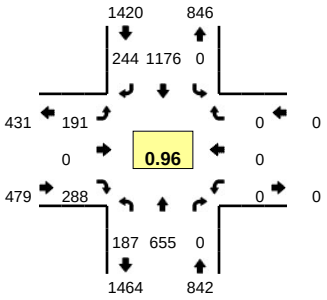
Method for determining peak hour: Total Entering Volume

LOCATION: OR 213 -- S Meyers Rd

CITY/STATE: Oregon City, OR

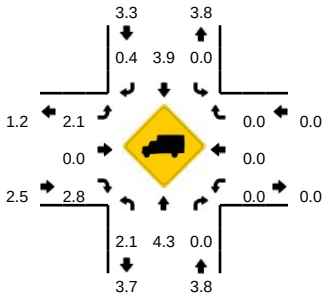
QC JOB #: 11203616

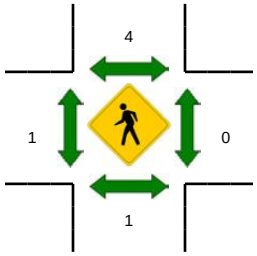
DATE: Wed, Sep 25 2013

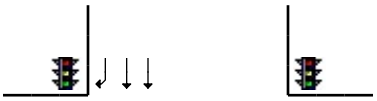


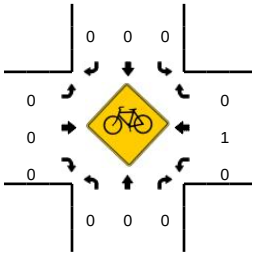
Peak-Hour: 5:00 PM -- 6:00 PM

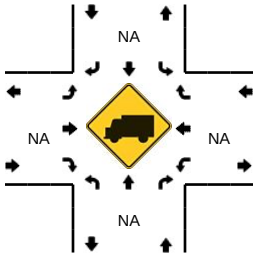
Peak 15-Min: 5:45 PM -- 6:00 PM

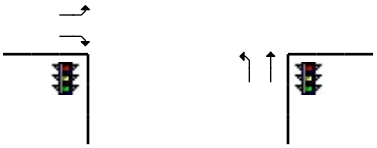


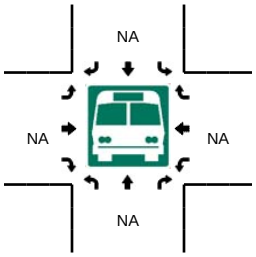












5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				S Meyers Rd (Eastbound)				S Meyers Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	12	56	0	0	0	82	10	0	18	0	13	0	0	0	0	0	191	
4:05 PM	15	78	0	0	0	107	11	0	15	0	15	0	0	0	0	0	241	
4:10 PM	10	68	0	0	0	86	15	0	8	0	20	0	0	0	0	0	207	
4:15 PM	15	62	0	0	0	75	12	0	22	0	33	0	0	0	0	0	219	
4:20 PM	21	55	0	0	0	95	18	0	12	0	13	0	0	0	0	0	214	
4:25 PM	9	57	0	0	0	92	13	0	19	0	12	0	0	0	0	0	202	
4:30 PM	10	54	0	0	0	91	13	0	16	0	20	0	0	0	0	0	204	
4:35 PM	11	66	0	0	0	90	21	0	14	0	19	0	0	0	0	0	221	
4:40 PM	9	59	0	0	0	98	22	0	19	0	21	0	0	0	0	0	228	
4:45 PM	6	57	0	0	0	105	16	0	13	0	14	0	0	0	0	0	211	
4:50 PM	11	49	0	0	0	108	17	0	14	0	14	0	0	0	0	0	213	
4:55 PM	8	59	0	0	0	118	19	0	14	0	18	0	0	0	0	0	236	2587
5:00 PM	10	42	0	0	0	107	21	0	16	0	15	0	0	0	0	0	211	2607
5:05 PM	12	47	0	0	0	89	20	0	20	0	22	0	0	0	0	0	210	2576
5:10 PM	12	67	0	0	0	115	16	0	14	0	17	0	0	0	0	0	241	2610
5:15 PM	9	55	0	0	0	96	9	0	13	0	23	0	0	0	0	0	205	2596
5:20 PM	6	69	0	0	0	111	16	0	19	0	21	0	0	0	0	0	242	2624
5:25 PM	22	51	0	0	0	109	21	0	21	0	23	0	0	0	0	0	247	2669
5:30 PM	5	55	0	0	0	102	23	0	6	0	18	0	0	0	0	0	209	2674
5:35 PM	17	52	0	0	0	105	23	0	19	0	32	0	0	0	0	0	248	2701
5:40 PM	29	56	0	0	0	66	19	0	13	0	30	0	0	0	0	0	213	2686
5:45 PM	22	64	0	0	0	107	22	0	14	0	24	0	0	0	0	0	253	2728
5:50 PM	18	52	0	0	0	91	36	0	14	0	29	0	0	0	0	0	240	2755
5:55 PM	25	45	0	0	0	78	18	0	22	0	34	0	0	0	0	0	222	2741

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	260	644	0	0	0	1104	304	0	200	0	348	0	0	0	0	0	2860
Heavy Trucks	4	40	0		0	60	0		4	0	8		0	0	0		116
Pedestrians		0				4				4				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:26 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

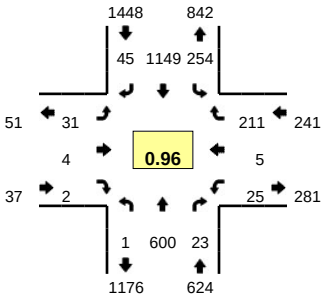
LOCATION: OR 213 -- S Caufield Rd/S Glen Oak Rd

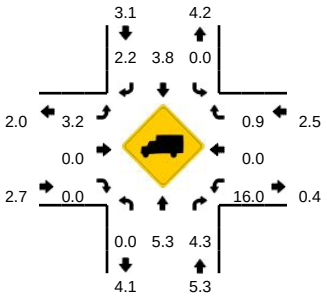
QC JOB #: 11203614

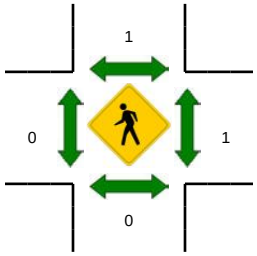
CITY/STATE: Oregon City, OR

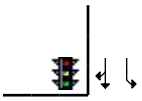
DATE: Wed, Sep 25 2013

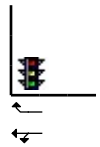
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:35 PM -- 5:50 PM

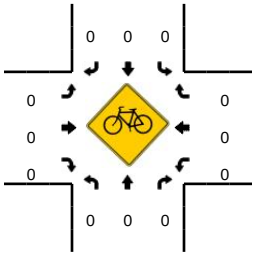


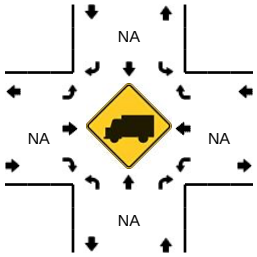


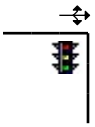




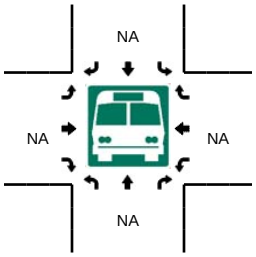












5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				S Caufield Rd/S Glen Oak Rd (Eastbound)				S Caufield Rd/S Glen Oak Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	70	1	0	13	88	2	0	2	0	0	0	0	0	9	0	187	
4:05 PM	1	55	2	0	14	85	2	0	0	0	0	0	3	1	18	0	181	
4:10 PM	0	71	0	0	14	86	4	0	5	0	1	0	1	0	13	0	195	
4:15 PM	1	55	2	0	18	74	5	0	4	0	0	0	7	0	15	0	181	
4:20 PM	1	50	2	0	17	96	2	0	2	0	0	0	3	0	16	0	189	
4:25 PM	0	48	1	0	13	81	4	0	5	0	0	0	2	0	7	0	161	
4:30 PM	1	46	0	0	10	85	3	0	6	0	0	0	1	1	10	0	163	
4:35 PM	0	59	2	0	17	107	1	0	3	0	0	0	0	0	13	0	202	
4:40 PM	0	50	1	0	11	101	1	0	5	0	0	0	1	0	15	0	185	
4:45 PM	0	48	0	0	21	89	7	0	2	0	0	0	0	0	10	0	177	
4:50 PM	0	56	3	0	17	101	4	0	5	0	0	0	0	1	10	0	197	
4:55 PM	0	50	1	0	14	109	3	0	0	0	0	0	3	0	10	0	190	2208
5:00 PM	1	43	0	0	10	88	3	0	2	0	0	0	4	0	8	0	159	2180
5:05 PM	0	60	3	0	20	101	4	0	3	0	0	0	2	1	10	0	204	2203
5:10 PM	0	53	2	0	25	106	2	0	1	0	0	0	0	0	17	0	206	2214
5:15 PM	0	46	0	0	17	91	3	0	1	0	0	0	2	2	12	0	174	2207
5:20 PM	0	62	3	0	25	105	3	0	4	0	0	0	0	0	17	0	219	2237
5:25 PM	0	45	1	0	20	101	4	0	3	0	0	0	2	2	14	0	192	2268
5:30 PM	0	46	3	0	16	98	5	0	3	0	0	0	5	0	12	0	188	2293
5:35 PM	0	47	2	0	27	97	5	0	5	1	1	0	0	0	20	0	205	2296
5:40 PM	0	62	1	0	18	90	5	0	5	0	0	0	3	0	21	0	205	2316
5:45 PM	0	46	5	0	22	96	4	0	3	1	0	0	2	0	26	0	205	2344
5:50 PM	0	44	3	0	24	86	2	0	1	2	1	0	4	0	31	0	198	2345
5:55 PM	0	46	0	0	30	90	5	0	0	0	0	0	1	0	23	0	195	2350

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	620	32	0	268	1132	56	0	52	8	4	0	20	0	268	0	2460
Heavy Trucks	0	56	0		0	36	0		4	0	0		0	0	0		96
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:26 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

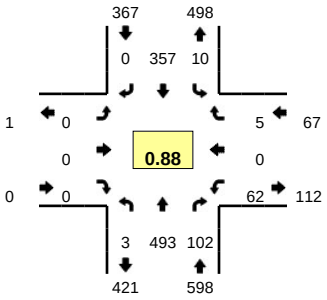
Method for determining peak hour: Total Entering Volume

LOCATION: S Maple Lane Rd -- S Thayer Rd

QC JOB #: 11203612

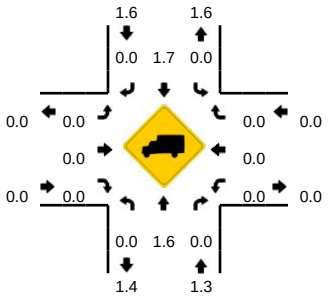
CITY/STATE: Oregon City, OR

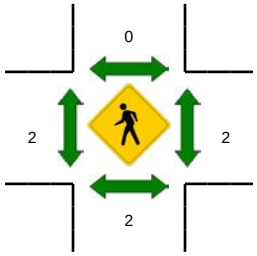
DATE: Wed, Sep 25 2013



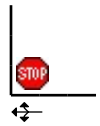
Peak-Hour: 5:00 PM -- 6:00 PM

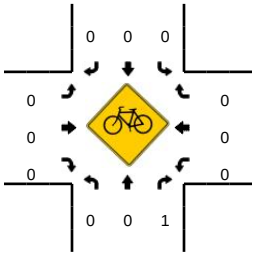
Peak 15-Min: 5:40 PM -- 5:55 PM

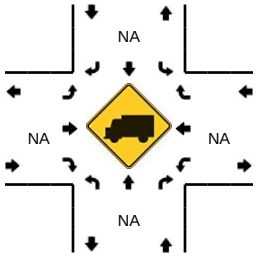


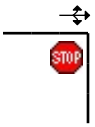


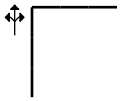


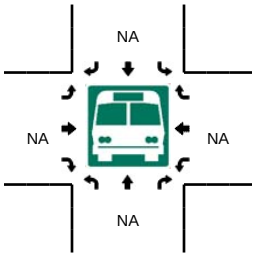












5-Min Count Period Beginning At	S Maple Lane Rd (Northbound)				S Maple Lane Rd (Southbound)				S Thayer Rd (Eastbound)				S Thayer Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	23	7	0	0	38	0	0	0	0	0	0	10	0	0	0	78	
4:05 PM	0	34	3	0	0	33	0	0	0	0	0	0	2	0	0	0	72	
4:10 PM	0	33	8	0	1	29	0	0	0	0	0	0	2	0	0	0	73	
4:15 PM	0	28	8	0	0	25	0	0	0	0	0	0	7	0	0	0	68	
4:20 PM	0	36	8	0	0	32	0	0	0	0	0	0	5	0	0	0	81	
4:25 PM	0	37	8	0	0	33	0	0	0	0	0	0	7	0	0	0	85	
4:30 PM	0	34	5	0	4	29	0	0	0	0	0	0	2	0	0	0	74	
4:35 PM	0	38	5	0	0	28	0	0	0	0	0	0	9	0	0	0	80	
4:40 PM	0	27	6	0	0	34	0	0	0	0	0	0	7	0	0	0	74	
4:45 PM	0	31	6	1	1	33	1	0	0	0	0	0	5	0	0	0	78	
4:50 PM	1	44	5	0	0	22	0	0	0	0	2	0	3	0	1	0	78	
4:55 PM	0	29	10	0	0	15	0	0	0	0	0	0	8	0	0	0	62	903
5:00 PM	0	41	7	0	0	21	0	0	0	0	0	0	3	0	0	0	72	897
5:05 PM	0	38	15	0	0	32	0	0	0	0	0	0	3	0	2	0	90	915
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5:30 PM	0	39	8	0	0	45	0	0	0	0	0	0	5	0	0	0	97	957
5:35 PM	0	32	5	0	2	28	0	0	0	0	0	0	5	0	0	0	72	949
5:40 PM	0	34	19	0	0	43	0	0	0	0	0	0	7	0	0	0	103	978
5:45 PM	0	45	6	0	1	36	0	0	0	0	0	0	7	0	0	0	95	995
5:50 PM	0	49	11	1	2	25	0	0	0	0	0	0	6	0	0	0	94	1011
5:55 PM	0	40	4	0	1	33	0	0	0	0	0	0	5	0	0	0	83	1032

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	512	144	4	12	416	0	0	0	0	0	0	80	0	0	0	1168
Heavy Trucks	0	4	0		0	0	0		0	0	0		0	0	0		4
Pedestrians		8				0				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:26 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

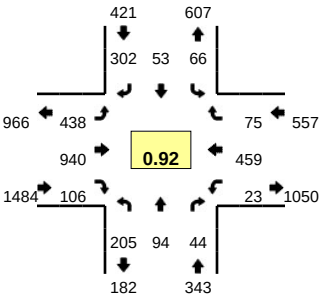
LOCATION: S Maple Lane Rd -- S Beavercreek Rd

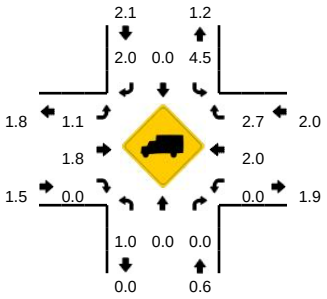
QC JOB #: 11203610

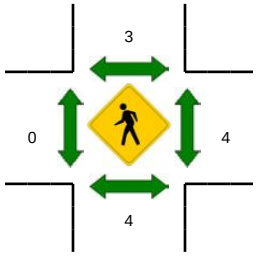
CITY/STATE: Oregon City, OR

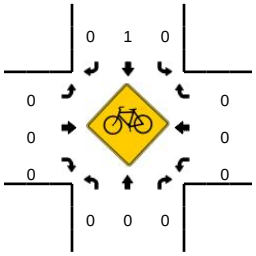
DATE: Wed, Sep 25 2013

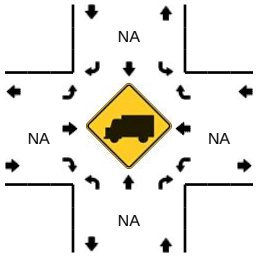
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:40 PM -- 5:55 PM

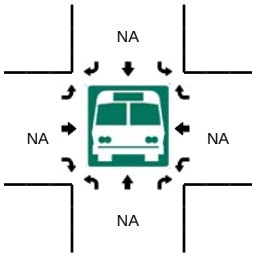












5-Min Count Period Beginning At	S Maple Lane Rd (Northbound)				S Maple Lane Rd (Southbound)				S Beavercreek Rd (Eastbound)				S Beavercreek Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	15	6	4	0	5	10	34	0	14	52	8	0	1	37	5	0	191	
4:05 PM	16	6	1	0	5	2	21	0	29	75	7	0	0	39	7	0	208	
4:10 PM	21	1	2	0	10	7	19	0	28	52	5	0	1	47	5	0	198	
4:15 PM	19	8	6	0	4	4	24	0	27	59	6	0	0	22	2	0	181	
4:20 PM	13	4	3	0	5	2	28	0	34	56	7	0	0	44	11	0	207	
4:25 PM	20	10	3	0	9	6	31	0	26	54	6	0	0	35	6	0	206	
4:30 PM	6	5	7	0	1	2	27	0	34	78	5	0	2	37	2	0	206	
4:35 PM	10	6	6	0	1	2	29	0	34	66	7	0	1	26	4	0	192	
4:40 PM	8	8	2	0	9	7	24	0	21	59	8	0	1	41	0	0	188	
4:45 PM	20	7	2	0	2	7	29	0	40	49	11	0	2	41	3	0	213	
4:50 PM	6	5	6	0	5	5	19	0	34	66	8	0	1	31	6	0	192	
4:55 PM	20	6	3	0	1	2	20	0	21	54	8	0	2	50	4	0	191	2373
5:00 PM	14	13	5	0	3	4	18	0	45	68	9	0	1	34	5	0	219	2401
5:05 PM	15	8	5	0	5	6	23	0	35	73	7	0	2	42	8	0	229	2422
5:10 PM	16	8	1	0	4	2	25	0	40	70	13	0	1	43	5	0	228	2452
5:15 PM	17	7	1	0	5	3	16	0	35	84	14	0	4	40	8	0	234	2505
5:20 PM	21	4	4	0	1	6	21	0	36	66	6	0	1	40	8	0	214	2512
5:25 PM	17	3	6	0	7	7	24	0	35	82	6	0	2	31	8	0	228	2534
5:30 PM	11	9	5	0	8	6	37	0	37	71	9	0	2	28	2	0	225	2553
5:35 PM	19	2	2	0	6	3	19	0	35	97	8	0	1	35	5	0	232	2593
5:40 PM	10	6	6	0	5	3	36	0	35	93	10	0	2	37	8	0	251	2656
5:45 PM	32	12	0	0	7	6	31	0	31	68	8	0	1	46	5	0	247	2690
5:50 PM	21	9	3	0	7	2	22	0	43	93	8	0	6	45	9	0	268	2766
5:55 PM	12	13	6	0	8	5	30	0	31	75	8	0	0	38	4	0	230	2805

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	252	108	36	0	76	44	356	0	436	1016	104	0	36	512	88	0	3064
Heavy Trucks	0	0	0		4	0	4		4	20	0		0	0	0		32
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:26 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

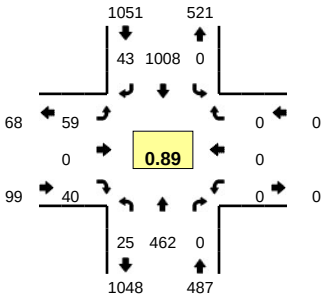
Method for determining peak hour: Total Entering Volume

LOCATION: S Beavercreek Rd -- Clairmont Dr

QC JOB #: 11203608

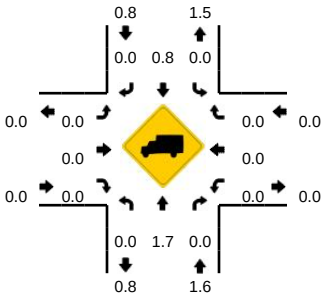
CITY/STATE: Oregon City, OR

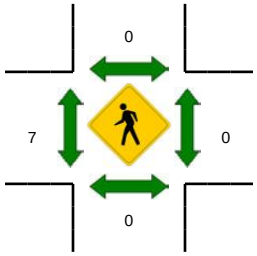
DATE: Wed, Sep 25 2013



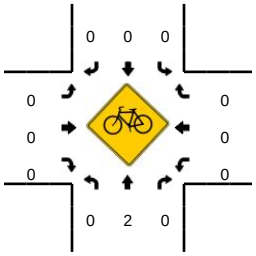
Peak-Hour: 5:00 PM -- 6:00 PM

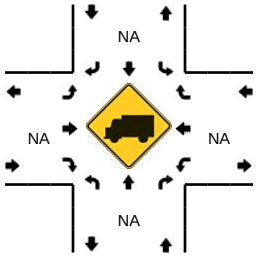
Peak 15-Min: 5:40 PM -- 5:55 PM

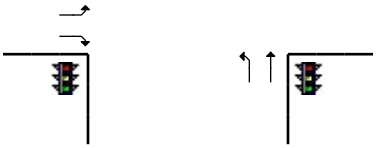


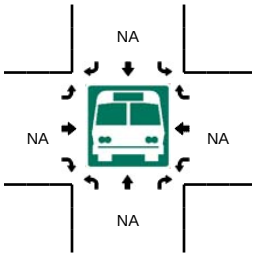












5-Min Count Period Beginning At	S Beavercreek Rd (Northbound)				S Beavercreek Rd (Southbound)				Clairmont Dr (Eastbound)				Clairmont Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	38	0	0	0	66	1	0	5	0	3	0	0	0	0	0	113	
4:05 PM	1	27	0	0	0	71	2	0	2	0	4	0	0	0	0	0	107	
4:10 PM	1	34	0	0	0	66	1	0	4	0	0	0	0	0	0	0	106	
4:15 PM	1	34	0	0	0	65	7	0	3	0	2	0	0	0	0	0	112	
4:20 PM	0	43	0	0	0	61	0	0	7	0	2	0	0	0	0	0	113	
4:25 PM	1	27	0	0	0	56	4	0	9	0	2	0	0	0	0	0	99	
4:30 PM	1	35	0	0	0	63	1	0	5	0	4	0	0	0	0	0	109	
4:35 PM	1	26	0	0	0	83	3	1	6	0	2	0	0	0	0	0	122	
4:40 PM	1	36	0	0	0	71	2	0	5	0	3	0	0	0	0	0	118	
4:45 PM	2	31	0	0	0	53	4	0	4	0	6	0	0	0	0	0	100	
4:50 PM	2	35	0	0	0	71	0	0	7	0	3	0	0	0	0	0	118	
4:55 PM	0	38	0	0	0	63	2	0	13	0	4	0	0	0	0	0	120	1337
5:00 PM	0	33	0	0	0	75	3	0	8	0	5	0	0	0	0	0	124	1348
5:05 PM	2	38	0	0	0	77	3	0	7	0	4	0	0	0	0	0	131	1372
5:10 PM	1	25	0	0	0	73	0	0	10	0	3	0	0	0	0	0	112	1378
5:15 PM	1	43	0	0	0	81	4	0	10	0	3	0	0	0	0	0	142	1408
5:20 PM	0	45	0	0	0	80	2	0	2	0	2	0	0	0	0	0	131	1426
5:25 PM	0	30	0	0	0	95	5	0	1	0	5	0	0	0	0	0	136	1463
5:30 PM	1	32	0	0	0	73	4	0	5	0	1	0	0	0	0	0	116	1470
5:35 PM	11	38	0	0	0	94	5	0	5	0	1	0	0	0	0	0	154	1502
5:40 PM	2	44	0	0	0	94	4	0	3	0	4	0	0	0	0	0	151	1535
5:45 PM	1	52	0	0	0	94	3	0	2	0	3	0	0	0	0	0	155	1590
5:50 PM	1	41	0	0	0	97	7	0	4	0	6	0	0	0	0	0	156	1628
5:55 PM	5	41	0	0	0	75	3	0	2	0	3	0	0	0	0	0	129	1637

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	548	0	0	0	1140	56	0	36	0	52	0	0	0	0	0	1848
Heavy Trucks	0	0	0		0	16	0		0	0	0		0	0	0		16
Pedestrians		0				0				8				0			8
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:26 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

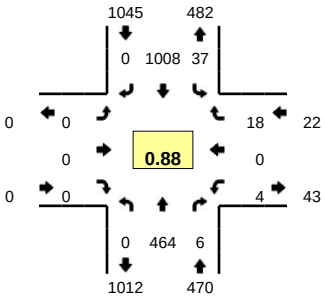
LOCATION: S Beavercreek Rd -- S Loder Rd

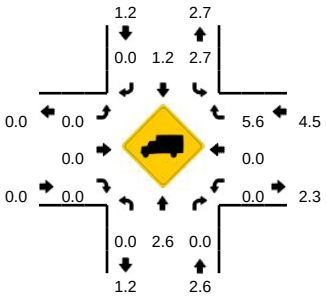
QC JOB #: 11203606

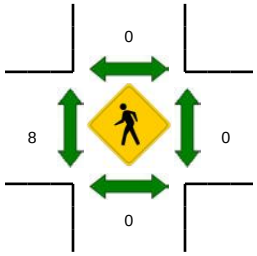
CITY/STATE: Oregon City, OR

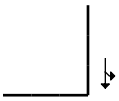
DATE: Wed, Sep 25 2013

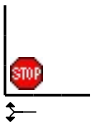
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:40 PM -- 5:55 PM

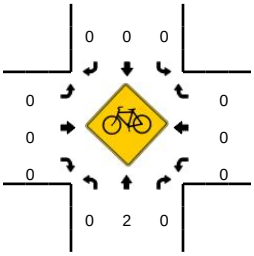


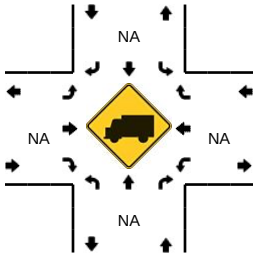




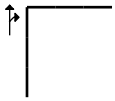


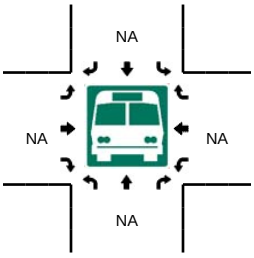












5-Min Count Period Beginning At	S Beavercreek Rd (Northbound)				S Beavercreek Rd (Southbound)				S Loder Rd (Eastbound)				S Loder Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	35	0	0	2	67	0	0	0	0	0	0	0	0	3	0	107	
4:05 PM	0	29	0	0	1	73	0	0	0	0	0	0	0	0	3	0	106	
4:10 PM	0	32	0	0	3	63	0	0	0	0	0	0	0	0	0	0	98	
4:15 PM	0	33	0	0	2	65	0	0	0	0	0	0	1	0	1	0	102	
4:20 PM	0	46	0	0	3	58	0	0	0	0	0	0	0	0	2	0	109	
4:25 PM	0	24	1	0	5	57	0	0	0	0	0	0	0	0	2	0	89	
4:30 PM	0	35	0	0	4	65	0	0	0	0	0	0	0	0	4	0	108	
4:35 PM	0	25	0	0	3	78	0	0	0	0	0	0	0	0	3	0	109	
4:40 PM	0	40	0	0	3	77	0	0	0	0	0	0	0	0	0	0	120	
4:45 PM	0	37	0	0	1	60	0	0	0	0	0	0	2	0	1	0	101	
4:50 PM	0	32	0	0	2	68	0	0	0	0	0	0	0	0	0	0	102	
4:55 PM	0	41	0	0	2	66	0	0	0	0	0	0	0	0	1	0	110	1261
5:00 PM	0	33	0	0	3	80	0	0	0	0	0	0	0	0	1	0	117	1271
5:05 PM	0	30	1	0	3	76	0	0	0	0	0	0	0	0	1	0	111	1276
5:10 PM	0	33	0	0	5	60	0	0	0	0	0	0	0	0	1	0	99	1277
5:15 PM	0	38	1	0	3	93	0	0	0	0	0	0	0	0	3	0	138	1313
5:20 PM	0	42	0	0	2	75	0	0	0	0	0	0	0	0	2	0	121	1325
5:25 PM	0	29	1	0	0	105	0	0	0	0	0	0	3	0	2	0	140	1376
5:30 PM	0	32	1	0	3	76	0	0	0	0	0	0	1	0	1	0	114	1382
5:35 PM	0	49	1	0	3	87	0	0	0	0	0	0	0	0	0	0	140	1413
5:40 PM	0	46	0	0	3	82	0	0	0	0	0	0	0	0	1	0	132	1425
5:45 PM	0	50	1	0	7	99	0	0	0	0	0	0	0	0	2	0	159	1483
5:50 PM	0	45	0	0	2	98	0	0	0	0	0	0	0	0	2	0	147	1528
5:55 PM	0	37	0	0	3	77	0	0	0	0	0	0	0	0	2	0	119	1537

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	564	4	0	48	1116	0	0	0	0	0	0	0	0	20	0	1752
Heavy Trucks	0	4	0		0	20	0		0	0	0		0	0	0		24
Pedestrians		0				0				8				0			8
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:26 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

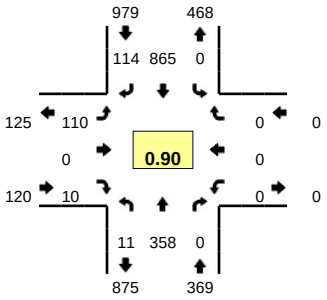
Method for determining peak hour: Total Entering Volume

LOCATION: S Beavercreek Rd -- S Meyers Rd

QC JOB #: 11203604

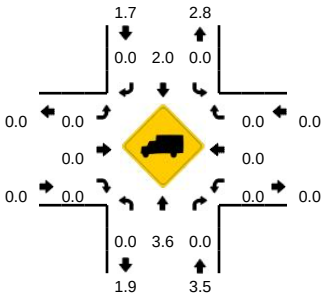
CITY/STATE: Oregon City, OR

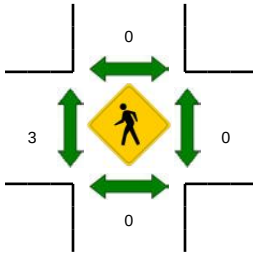
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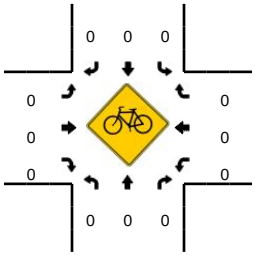
Peak-Hour: 5:00 PM -- 6:00 PM

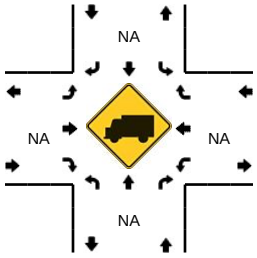
Peak 15-Min: 5:45 PM -- 6:00 PM

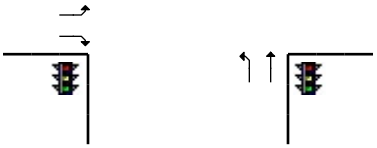


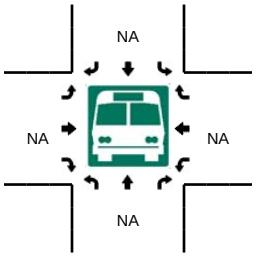












5-Min Count Period Beginning At	S Beavercreek Rd (Northbound)				S Beavercreek Rd (Southbound)				S Meyers Rd (Eastbound)				S Meyers Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	27	0	0	0	50	2	0	7	0	0	0	0	0	0	0	88	
4:05 PM	0	19	0	0	0	60	7	0	11	0	0	0	0	0	0	0	97	
4:10 PM	1	27	0	0	0	44	7	0	8	0	1	0	0	0	0	0	88	
4:15 PM	2	20	0	0	0	67	7	0	10	0	2	0	0	0	0	0	108	
4:20 PM	0	36	0	0	0	53	7	0	10	0	2	0	0	0	0	0	108	
4:25 PM	0	21	0	0	0	47	12	0	2	0	1	0	0	0	0	0	83	
4:30 PM	2	33	0	0	0	63	8	0	3	0	1	0	0	0	0	0	110	
4:35 PM	0	16	0	0	0	62	9	0	7	0	2	0	0	0	0	0	96	
4:40 PM	1	31	0	0	0	53	12	0	9	0	1	0	0	0	0	0	107	
4:45 PM	0	31	0	0	0	56	6	0	5	0	2	0	0	0	0	0	100	
4:50 PM	0	27	0	0	0	61	9	0	5	0	1	0	0	0	0	0	103	
4:55 PM	0	30	0	0	0	49	7	0	9	0	0	0	0	0	0	0	95	1183
5:00 PM	0	25	0	0	0	65	15	0	7	0	0	0	0	0	0	0	112	1207
5:05 PM	0	27	0	0	0	78	2	0	5	0	0	0	0	0	0	0	112	1222
5:10 PM	0	31	0	0	0	64	4	0	1	0	0	0	0	0	0	0	100	1234
5:15 PM	0	37	0	0	0	72	9	0	2	0	1	0	0	0	0	0	121	1247
5:20 PM	0	35	0	0	0	58	3	0	7	0	2	0	0	0	0	0	105	1244
5:25 PM	1	25	0	0	0	93	15	0	6	0	0	0	0	0	0	0	140	1301
5:30 PM	1	28	0	0	0	66	9	0	10	0	1	0	0	0	0	0	115	1306
5:35 PM	0	26	0	0	0	73	11	0	17	0	0	0	0	0	0	0	127	1337
5:40 PM	3	32	0	0	0	69	8	0	16	0	2	0	0	0	0	0	130	1360
5:45 PM	1	34	0	0	0	82	14	0	15	0	0	0	0	0	0	0	146	1406
5:50 PM	2	31	0	0	0	59	13	0	13	0	3	0	0	0	0	0	121	1424
5:55 PM	3	27	0	0	0	86	11	0	11	0	1	0	0	0	0	0	139	1468

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	368	0	0	0	908	152	0	156	0	16	0	0	0	0	0	1624
Heavy Trucks	0	12	0		0	20	0		0	0	0		0	0	0		32
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:26 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

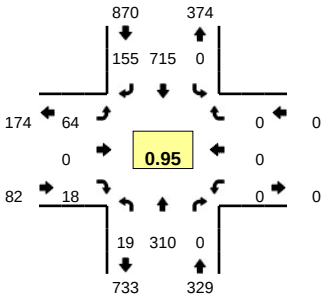
LOCATION: S Beavercreek Rd -- S Glen Oak Rd

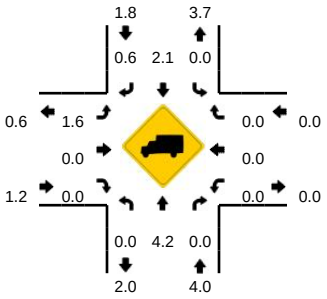
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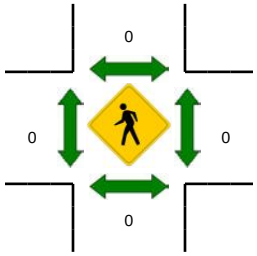
DATE: Wed, Sep 25 2013

Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:35 PM -- 5:50 PM



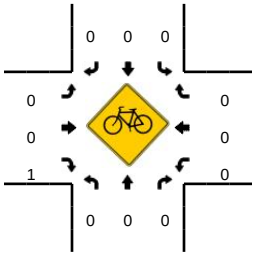


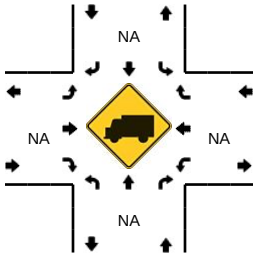
Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

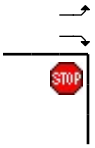


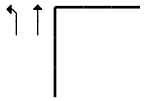


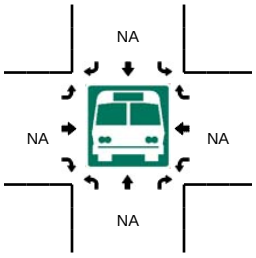












5-Min Count Period Beginning At	S Beavercreek Rd (Northbound)				S Beavercreek Rd (Southbound)				S Glen Oak Rd (Eastbound)				S Glen Oak Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	27	0	0	0	41	13	0	3	0	2	0	0	0	0	0	87	
4:05 PM	0	17	0	0	0	46	11	0	1	0	2	0	0	0	0	0	77	
4:10 PM	1	27	0	0	0	41	6	0	1	0	4	0	0	0	0	0	80	
4:15 PM	4	31	0	0	0	61	6	0	1	0	1	0	0	0	0	0	104	
4:20 PM	5	20	0	0	0	50	9	0	6	0	3	0	0	0	0	0	93	
4:25 PM	0	25	0	0	0	37	10	0	2	0	3	0	0	0	0	0	77	
4:30 PM	2	24	0	0	0	53	6	0	4	0	1	0	0	0	0	0	90	
4:35 PM	0	18	0	0	0	53	13	0	2	0	0	0	0	0	0	0	86	
4:40 PM	3	32	0	0	0	47	10	0	2	0	3	0	0	0	0	0	97	
4:45 PM	0	23	0	0	0	48	6	0	5	0	2	0	0	0	0	0	84	
4:50 PM	3	25	0	0	0	54	12	0	1	0	0	0	0	0	0	0	95	
4:55 PM	1	24	0	0	0	36	10	0	4	0	1	0	0	0	0	0	76	1046
5:00 PM	0	27	0	0	0	54	15	0	4	0	0	0	0	0	0	0	100	1059
5:05 PM	0	20	0	0	0	65	10	0	7	0	0	0	0	0	0	0	102	1084
5:10 PM	0	27	0	0	0	50	12	0	4	0	2	0	0	0	0	0	95	1099
5:15 PM	1	24	0	0	0	67	8	0	11	0	2	0	0	0	0	0	113	1108
5:20 PM	3	30	0	0	0	46	11	0	5	0	3	0	0	0	0	0	98	1113
5:25 PM	1	21	0	0	0	77	14	0	4	0	0	0	0	0	0	0	117	1153
5:30 PM	6	24	0	0	0	55	13	0	3	0	2	0	0	0	0	0	103	1166
5:35 PM	1	22	0	0	0	62	8	0	7	0	1	0	0	0	0	0	101	1181
5:40 PM	1	29	0	0	0	67	11	0	5	0	3	0	0	0	0	0	116	1200
5:45 PM	5	32	0	0	0	58	20	0	4	0	1	0	0	0	0	0	120	1236
5:50 PM	1	29	0	0	0	50	10	0	4	0	1	0	0	0	0	0	95	1236
5:55 PM	0	25	0	0	0	64	23	0	6	0	3	0	0	0	0	0	121	1281

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	332	0	0	0	748	156	0	64	0	20	0	0	0	0	0	1348
Heavy Trucks	0	0	0		0	12	0		0	0	0		0	0	0		12
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/4/2013 1:26 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Attachment B

Description of Level-of-Service Methods and Criteria

LEVEL OF SERVICE CONCEPT

Level of service (level of service) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various Level of Service from A to F.[3]

SIGNALIZED INTERSECTIONS

The six level of service grades are described qualitatively for signalized intersections in Table B1. Additionally, Table B2 identifies the relationship between level of service and average control delay per vehicle. Control delay is defined to include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Using this definition, Level of Service D is generally considered to represent the minimum acceptable design standard.

Table B1
Level of Service Definitions (Signalized Intersections)

Level of Service	Average Delay per Vehicle
A	Very low average control delay, less than 10 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Average control delay is greater than 10 seconds per vehicle and less than or equal to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for a level of service A, causing higher levels of average delay.
C	Average control delay is greater than 20 seconds per vehicle and less than or equal to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Average control delay is greater than 35 seconds per vehicle and less than or equal to 55 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Average control delay is greater than 55 seconds per vehicle and less than or equal to 80 seconds per vehicle. This is usually considered to be the limit of acceptable delay. These high delay values generally (but not always) indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	Average control delay is in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation. It may also occur at high volume/capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such high delay values.

3 Most of the material in this appendix is adapted from the Transportation Research Board, *Highway Capacity Manual*, (2000).

Table B2
Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	≤10.0
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

UNSIGNALIZED INTERSECTIONS

Unsignalized intersections include two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections. The *1997 Highway Capacity Manual* provides new models for estimating control delay at both TWSC and AWSC intersections. A qualitative description of the various service levels associated with an unsignalized intersection is presented in Table B3. A quantitative definition of level of service for unsignalized intersections is presented in Table B4. Using this definition, Level of Service E is generally considered to represent the minimum acceptable design standard.

Table B3
Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Delay per Vehicle to Minor Street
A	• Nearly all drivers find freedom of operation. • Very seldom is there more than one vehicle in queue.
B	• Some drivers begin to consider the delay an inconvenience. • Occasionally there is more than one vehicle in queue.
C	• Many times there is more than one vehicle in queue. • Most drivers feel restricted, but not objectionably so.
D	• Often there is more than one vehicle in queue. • Drivers feel quite restricted.
E	• Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement. • There is almost always more than one vehicle in queue. • Drivers find the delays approaching intolerable levels.
F	• Forced flow. • Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection.

Table B4
Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

It should be noted that the level of service criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the minor street approaches to TWSC intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections than signalized intersections. For these reasons, it is considered that the control delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. **While overall intersection level of service is calculated for AWSC intersections, level of service is only calculated for the minor approaches and the major street left turn movements at TWSC intersections.** No delay is assumed to the major street through movements. For TWSC intersections, the overall intersection level of service remains undefined: level-of-service is only calculated for each minor street lane.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOE's) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th-percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, users may make inappropriate traffic control decisions. The potential for making such inappropriate decisions is likely to be particularly pronounced when the HCM level-of-service thresholds are adopted as legal standards, as is the case in many public agencies.

Attachment C

Year 2013 Existing Conditions
Level-of-Service Worksheets

Beavercreek Mixed-use residential
Project No. 13700

Saturation flow rate review of the Beavercreek/OR 213 intersection during the weekday a.m. peak hour

7:25 a.m. = 2:54:40 time stamp in the video recorded data

WBR Sat flow Study

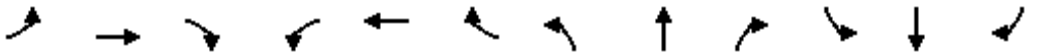
Note that beginning observe time reflects the time in which the fifth vehicle in the queue crosses the stop bar

Beg Observe	End Sat Flow	Green Time	Seconds	No. Veh.	Sat Flow	
2:54:47	*2:55:25*	*00:38.0*	*38*	*16*	*1516*	
2:56:30	*2:56:45*	*00:15.0*	*15*	*7*	*1680*	
2:57:00	*2:57:28*	*00:28.0*	*28*	*13*	*1671*	
2:57:38	*2:57:54*	*00:16.0*	*16*	*7*	*1575*	
2:58:48	*2:58:55*	*00:07.0*	*7*	*4*	*2057*	queue clears after 8 vehicles
2:59:50	*3:00:27*	*00:37.0*	*37*	*15*	*1459*	
3:01:28	*3:01:50*	*00:22.0*	*22*	*10*	*1636*	
3:02:08	*3:02:25*	*00:17.0*	*17*	*8*	*1694*	
3:03:42	*3:03:59*	*00:17.0*	*17*	*8*	*1694*	
3:04:28	*3:04:46*	*00:18.0*	*18*	*9*	*1800*	
3:06:05	*3:06:31*	*00:26.0*	*26*	*13*	*1800*	
3:07:02	*3:07:44*	*00:42.0*	*42*	*19*	*1629*	
3:08:37	*3:09:00*	*00:23.0*	*23*	*12*	*1878*	
3:09:39	*3:10:05*	*00:26.0*	*26*	*14*	*1938*	
				Average =	1716	
				Synchro Sat Flow Adjustment	**2100**	

NBT Sat flow Study

Note that beginning observe time reflects the time in which the fifth vehicle in the queue crosses the stop bar

Beg Observe	End Sat Flow	Green Time	Seconds	No. Veh.	Sat Flow	
2:55:36	*2:55:51*	*00:15.0*	*15*	*9*	*2160*	
2:58:05	*2:58:34*	*00:29.0*	*29*	*18*	*2234*	
3:00:41	*3:01:10*	*00:29.0*	*29*	*14*	*1738*	5 of these vehicles were semis
3:03:03	*3:03:17*	*00:14.0*	*14*	*9*	*2314*	
3:05:28	*3:05:53*	*00:25.0*	*25*	*12*	*1728*	4 of these vehicles were semis/school bus
3:07:53	*3:08:14*	*00:21.0*	*21*	*10*	*1714*	2 of these vehicles were log trucks
3:10:33	*3:10:58*	*00:25.0*	*25*	*16*	*2304*	
				Average =	2028	
				2-lanes =	*4055*	
				Synchro Sat Flow Adjustment	**2305**	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	263	353	6	77	422	767	22	1008	66	337	434	547
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2100	1900	2305	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5		4.5	3.5	4.5	4.5	4.0	4.0	4.5	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3099	3342		3335	3282	1716	1467	4055	1482	3400	3252	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3099	3342		3335	3282	1716	1467	4055	1482	3400	3252	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	289	388	7	85	464	843	24	1108	73	370	477	601
RTOR Reduction (vph)	0	1	0	0	0	15	0	0	51	0	0	257
Lane Group Flow (vph)	289	394	0	85	464	828	24	1108	22	370	477	344
Confl. Peds. (#/hr)			17	17								
Heavy Vehicles (%)	13%	7%	33%	5%	10%	4%	23%	8%	9%	3%	11%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	17.3	28.9		8.4	20.0	64.0	5.1	42.3	42.3	44.0	81.2	81.2
Effective Green, g (s)	18.3	30.9		9.4	22.0	66.0	6.1	45.3	45.3	45.0	84.2	84.2
Actuated g/C Ratio	0.12	0.21		0.06	0.15	0.45	0.04	0.31	0.31	0.31	0.57	0.57
Clearance Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.7	4.7	2.3	4.7	4.7
Lane Grp Cap (vph)	386	702		213	491	770	61	1249	456	1040	1861	898
v/s Ratio Prot	c0.09	0.12		0.03	0.14	c0.33	0.02	c0.27		0.11	0.15	
v/s Ratio Perm						0.15			0.02			0.22
v/c Ratio	0.75	0.56		0.40	0.95	1.07	0.39	0.89	0.05	0.36	0.26	0.38
Uniform Delay, d1	62.2	52.0		66.1	62.0	40.5	68.7	48.5	35.8	39.8	15.8	17.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.1	0.7		0.7	27.1	54.4	2.4	8.4	0.1	0.1	0.1	0.5
Delay (s)	69.3	52.8		66.9	89.0	95.0	71.1	56.9	35.9	39.9	15.9	17.7
Level of Service	E	D		E	F	F	E	E	D	D	B	B
Approach Delay (s)		59.8			91.3			55.9			22.8	
Approach LOS		E			F			E			C	

Intersection Summary			
HCM Average Control Delay	56.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	147.1	Sum of lost time (s)	17.5
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	37	114	14	24	9	264	1002	54	35	373	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.4	3.0	3.0	4.4	3.0	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	1810	1515	1583	1520	1206	1770	3343	1521	1626	3252	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1719	1810	1515	1583	1520	1206	1770	3343	1521	1626	3252	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	39	120	15	25	9	278	1055	57	37	393	113
RTOR Reduction (vph)	0	0	82	0	0	8	0	0	7	0	0	56
Lane Group Flow (vph)	89	39	38	15	25	1	278	1055	50	37	393	57
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	5%	5%	6%	14%	25%	33%	2%	8%	4%	11%	11%	5%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4	5	1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	11.3	10.8	36.4	5.3	4.8	10.1	25.6	79.2	79.2	5.3	58.9	58.9
Effective Green, g (s)	12.3	11.8	38.4	6.3	5.8	12.1	26.6	81.2	81.2	6.3	60.9	60.9
Actuated g/C Ratio	0.10	0.10	0.32	0.05	0.05	0.10	0.22	0.68	0.68	0.05	0.51	0.51
Clearance Time (s)	4.0	5.4	4.0	4.0	5.4	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	3.0	2.3	2.3	2.3	3.0	4.5	4.5	2.3	4.5	4.5
Lane Grp Cap (vph)	176	178	523	83	73	122	392	2262	1029	85	1650	781
v/s Ratio Prot	c0.05	0.02	0.02	0.01	c0.02	0.00	c0.16	c0.32		c0.02	0.12	
v/s Ratio Perm			0.01			0.00			0.03			0.04
v/c Ratio	0.51	0.22	0.07	0.18	0.34	0.01	0.71	0.47	0.05	0.44	0.24	0.07
Uniform Delay, d1	51.0	49.9	28.4	54.4	55.3	48.5	43.1	9.2	6.5	55.1	16.6	15.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.95	1.01	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.4	0.1	0.6	1.6	0.0	2.3	0.1	0.0	2.1	0.3	0.2
Delay (s)	52.3	50.2	28.5	55.0	56.9	48.6	42.7	8.8	6.6	57.2	16.9	15.3
Level of Service	D	D	C	D	E	D	D	A	A	E	B	B
Approach Delay (s)		40.4			54.8			15.5			19.3	
Approach LOS		D			D			B			B	

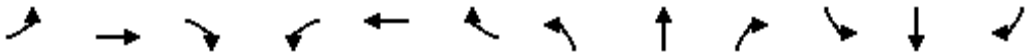
Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



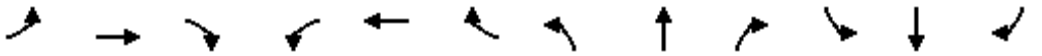
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	218	221	165	1105	408	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1719	1583	1719	1776	3252	1503
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1719	1583	1719	1776	3252	1503
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	251	254	190	1270	469	70
RTOR Reduction (vph)	0	211	0	0	0	29
Lane Group Flow (vph)	251	43	190	1270	469	41
Confl. Peds. (#/hr)	6	1	1			1
Heavy Vehicles (%)	5%	2%	5%	7%	11%	5%
Turn Type		Prot	Prot			Perm
Protected Phases	8	8	1	6	2	
Permitted Phases						2
Actuated Green, G (s)	19.1	19.1	17.9	90.4	68.5	68.5
Effective Green, g (s)	20.1	20.1	18.9	92.4	70.5	70.5
Actuated g/C Ratio	0.17	0.17	0.16	0.77	0.59	0.59
Clearance Time (s)	4.5	4.5	4.0	6.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	2.3	4.5	4.5	4.5
Lane Grp Cap (vph)	288	265	271	1368	1911	883
v/s Ratio Prot	c0.15	0.03	0.11	c0.72	0.14	
v/s Ratio Perm						0.03
v/c Ratio	0.87	0.16	0.70	0.93	0.25	0.05
Uniform Delay, d1	48.7	42.7	47.9	11.1	11.9	10.5
Progression Factor	1.00	1.00	1.00	1.00	0.97	1.20
Incremental Delay, d2	23.5	0.2	7.0	12.3	0.3	0.1
Delay (s)	72.2	42.9	54.9	23.5	11.9	12.7
Level of Service	E	D	D	C	B	B
Approach Delay (s)	57.4			27.6	12.0	
Approach LOS	E			C	B	

Intersection Summary			
HCM Average Control Delay	30.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	13	8	26	2	324	2	876	21	178	434	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	5.0		3.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1731			1749	1548	1805	1733		1770	1709	
Flt Permitted		0.81			0.75	1.00	0.40	1.00		0.06	1.00	
Satd. Flow (perm)		1452			1379	1548	761	1733		103	1709	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	35	15	10	31	2	386	2	1043	25	212	517	27
RTOR Reduction (vph)	0	6	0	0	0	299	0	1	0	0	1	0
Lane Group Flow (vph)	0	54	0	0	33	87	2	1067	0	212	543	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	7%	0%	0%	4%	0%	2%	0%	9%	19%	2%	10%	17%
Turn Type	Perm			Perm		Perm	pm+pt			pm+pt		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		11.3			11.3	11.3	71.0	71.0		97.2	95.2	
Effective Green, g (s)		12.3			12.3	12.3	72.0	72.0		98.2	96.2	
Actuated g/C Ratio		0.10			0.10	0.10	0.59	0.59		0.80	0.79	
Clearance Time (s)		4.5			4.5	4.5	4.0	6.0		4.0	6.0	
Vehicle Extension (s)		2.5			2.5	2.5	2.3	4.5		2.3	4.5	
Lane Grp Cap (vph)		146			139	156	466	1023		441	1348	
v/s Ratio Prot							0.00	c0.62		c0.10	0.32	
v/s Ratio Perm		0.04			0.02	c0.06	0.00			0.28		
v/c Ratio		0.37			0.24	0.56	0.00	1.04		0.48	0.40	
Uniform Delay, d1		51.2			50.5	52.3	10.6	25.0		36.1	4.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.1			0.6	3.7	0.0	40.1		0.5	0.9	
Delay (s)		52.4			51.2	56.0	10.6	65.1		36.6	4.9	
Level of Service		D			D	E	B	E		D	A	
Approach Delay (s)		52.4			55.6			65.0			13.8	
Approach LOS		D			E			E			B	

Intersection Summary			
HCM Average Control Delay	46.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	122.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	543	57	4	877	69	95	17	15	176	28	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	3383		1434	3344		1671	1708		1703	1900	1568
Flt Permitted	0.11	1.00		0.38	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	192	3383		574	3344		1671	1708		1703	1900	1568
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	149	646	68	5	1044	82	113	20	18	210	33	350
RTOR Reduction (vph)	0	4	0	0	3	0	0	15	0	0	0	122
Lane Group Flow (vph)	149	710	0	5	1123	0	113	23	0	210	33	228
Confl. Peds. (#/hr)	2		15	15		2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	7%	4%	9%	25%	6%	14%	8%	0%	7%	6%	0%	3%
Turn Type	pm+pt			pm+pt			Split			Split		pm+ov
Protected Phases	5	2		1	6		3	3		4	4	5
Permitted Phases	2			6								4
Actuated Green, G (s)	78.7	73.3		59.0	58.1		18.6	18.6		21.4	21.4	37.5
Effective Green, g (s)	79.7	74.3		61.0	59.1		19.6	19.6		22.4	22.4	39.5
Actuated g/C Ratio	0.60	0.56		0.46	0.45		0.15	0.15		0.17	0.17	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	5.2		2.3	5.2		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	309	1901		277	1495		248	253		289	322	510
v/s Ratio Prot	c0.06	0.21		0.00	c0.34		c0.07	0.01		c0.12	0.02	c0.06
v/s Ratio Perm	0.23			0.01								0.09
v/c Ratio	0.48	0.37		0.02	0.75		0.46	0.09		0.73	0.10	0.45
Uniform Delay, d1	18.7	16.1		19.2	30.4		51.4	48.6		52.0	46.4	37.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	0.3		0.0	2.7		1.0	0.1		8.3	0.1	0.5
Delay (s)	19.6	16.3		19.3	33.1		52.4	48.7		60.3	46.5	38.0
Level of Service	B	B		B	C		D	D		E	D	D
Approach Delay (s)		16.9			33.0			51.5			46.3	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM Average Control Delay	31.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	132.2	Sum of lost time (s)	10.5
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	9	25	36	935	652	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1626	1553	1804	1792	1810	1568
Flt Permitted	0.95	1.00	0.23	1.00	1.00	1.00
Satd. Flow (perm)	1626	1553	443	1792	1810	1568
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	12	33	48	1247	869	95
RTOR Reduction (vph)	0	31	0	0	0	15
Lane Group Flow (vph)	12	2	48	1247	869	80
Confl. Peds. (#/hr)			7			7
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	11%	4%	0%	6%	5%	3%
Turn Type		Prot	pm+pt			pt+ov
Protected Phases	8	8	1	6	2	2 8
Permitted Phases			6			
Actuated Green, G (s)	4.9	4.9	71.2	71.2	62.5	71.9
Effective Green, g (s)	4.9	4.9	71.2	71.2	62.5	71.9
Actuated g/C Ratio	0.06	0.06	0.84	0.84	0.73	0.84
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	2.3	5.1	5.1	
Lane Grp Cap (vph)	94	89	438	1499	1329	1325
v/s Ratio Prot	c0.01	0.00	0.01	c0.70	0.48	0.05
v/s Ratio Perm			0.09			
v/c Ratio	0.13	0.02	0.11	0.83	0.65	0.06
Uniform Delay, d1	38.1	37.8	4.0	3.7	5.8	1.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.1	4.6	1.6	0.0
Delay (s)	38.5	37.9	4.1	8.3	7.4	1.1
Level of Service	D	D	A	A	A	A
Approach Delay (s)	38.1			8.2	6.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	85.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

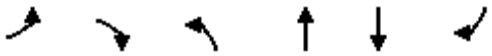
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	7	35	936	5	10	667
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	10	48	1282	7	14	914
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2227	1286			1289	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2227	1286			1289	
tC, single (s)	6.7	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.8	3.4			2.2	
p0 queue free %	75	75			97	
cM capacity (veh/h)	38	189			545	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	58	1289	927
Volume Left	10	0	14
Volume Right	48	7	0
cSH	114	1700	545
Volume to Capacity	0.50	0.76	0.03
Queue Length 95th (ft)	57	0	2
Control Delay (s)	64.8	0.0	0.8
Lane LOS	F		A
Approach Delay (s)	64.8	0.0	0.8
Approach LOS	F		

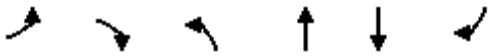
Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	301	32	106	640	181	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5	4.8	4.8	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.94	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1641	1482	1805	1863	1694	
Flt Permitted	0.95	1.00	0.23	1.00	1.00	
Satd. Flow (perm)	1641	1482	435	1863	1694	
Peak-hour factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71
Adj. Flow (vph)	424	45	149	901	255	211
RTOR Reduction (vph)	0	29	0	0	30	0
Lane Group Flow (vph)	424	16	149	901	436	0
Confl. Peds. (#/hr)			2			2
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	10%	9%	0%	2%	6%	2%
Turn Type		Perm	pm+pt			
Protected Phases	8		1	6	2	
Permitted Phases		8	6			
Actuated Green, G (s)	25.2	25.2	38.0	38.0	25.3	
Effective Green, g (s)	25.2	25.2	38.0	38.0	25.3	
Actuated g/C Ratio	0.35	0.35	0.53	0.53	0.35	
Clearance Time (s)	4.0	4.0	4.5	4.8	4.8	
Vehicle Extension (s)	2.5	2.5	2.3	2.0	2.0	
Lane Grp Cap (vph)	574	519	386	983	595	
v/s Ratio Prot	c0.26		0.04	c0.48	0.26	
v/s Ratio Perm		0.01	0.16			
v/c Ratio	0.74	0.03	0.39	0.92	0.73	
Uniform Delay, d1	20.5	15.4	10.9	15.6	20.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.7	0.0	0.4	12.6	4.0	
Delay (s)	25.2	15.4	11.2	28.2	24.4	
Level of Service	C	B	B	C	C	
Approach Delay (s)	24.2			25.8	24.4	
Approach LOS	C			C	C	

Intersection Summary			
HCM Average Control Delay	25.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

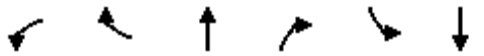
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	82	41	51	662	176	39
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	100	50	62	807	215	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1170	238	262			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1170	238	262			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	51	94	95			
cM capacity (veh/h)	203	781	1257			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	150	62	807	262
Volume Left	100	62	0	0
Volume Right	50	0	0	48
cSH	304	1257	1700	1700
Volume to Capacity	0.49	0.05	0.47	0.15
Queue Length 95th (ft)	64	4	0	0
Control Delay (s)	29.3	8.0	0.0	0.0
Lane LOS	D	A		
Approach Delay (s)	29.3	0.6		0.0
Approach LOS	D			

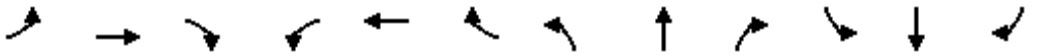
Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	81	13	182	28	4	416
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	99	16	222	34	5	507
Pedestrians						1
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked	0.97	0.97			0.97	
vC, conflicting volume	756	240			256	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730	196			213	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	74	98			100	
cM capacity (veh/h)	376	801			1323	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	115	256	5	507
Volume Left	99	0	5	0
Volume Right	16	34	0	0
cSH	437	1700	1323	1700
Volume to Capacity	0.26	0.15	0.00	0.30
Queue Length 95th (ft)	26	0	0	0
Control Delay (s)	16.8	0.0	7.7	0.0
Lane LOS	C		A	
Approach Delay (s)	16.8	0.0	0.1	
Approach LOS	C			

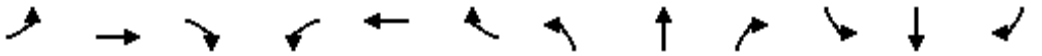
Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	557	745	77	148	429	397	29	584	164	781	1078	586
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5		4.5	3.5	4.5	4.5	4.0	4.0	4.5	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	3510		3502	3574	1559	1752	3406	1549	3467	3505	1599
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3510		3502	3574	1559	1752	3406	1549	3467	3505	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	574	768	79	153	442	409	30	602	169	805	1111	604
RTOR Reduction (vph)	0	4	0	0	0	24	0	0	124	0	0	306
Lane Group Flow (vph)	574	843	0	153	442	385	30	602	45	805	1111	298
Confl. Peds. (#/hr)	2		11	11		2			8	8		
Heavy Vehicles (%)	1%	1%	1%	0%	1%	3%	3%	6%	2%	1%	3%	1%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.7	34.1		10.8	24.2	60.1	4.7	34.2	34.2	35.9	65.4	65.4
Effective Green, g (s)	21.7	36.1		11.8	26.2	62.1	5.7	37.2	37.2	36.9	68.4	68.4
Actuated g/C Ratio	0.16	0.26		0.09	0.19	0.45	0.04	0.27	0.27	0.27	0.49	0.49
Clearance Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.7	4.7	2.3	4.7	4.7
Lane Grp Cap (vph)	543	915		298	676	699	72	915	416	924	1731	790
v/s Ratio Prot	0.17	c0.24		0.04	c0.12	0.15	0.02	0.18		c0.23	c0.32	
v/s Ratio Perm						0.10			0.03			0.19
v/c Ratio	1.06	0.92		0.51	0.65	0.55	0.42	0.66	0.11	0.87	0.64	0.38
Uniform Delay, d1	58.4	49.8		60.6	52.0	28.0	64.8	45.0	38.2	48.5	26.0	21.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	54.6	14.2		0.9	1.9	0.7	2.3	2.2	0.2	8.9	1.1	0.6
Delay (s)	113.0	64.0		61.5	53.9	28.6	67.0	47.2	38.4	57.4	27.0	22.4
Level of Service	F	E		E	D	C	E	D	D	E	C	C
Approach Delay (s)		83.8			44.8			46.1			35.6	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM Average Control Delay	50.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	138.5	Sum of lost time (s)	11.5
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	129	24	503	46	42	56	284	592	28	25	1072	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.4	3.0	3.0	4.4	3.0	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1624	1594	1736	1863	1443	1787	3438	1423	1736	3539	1615
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1624	1594	1736	1863	1443	1787	3438	1423	1736	3539	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	134	25	524	48	44	58	296	617	29	26	1117	215
RTOR Reduction (vph)	0	0	67	0	0	51	0	0	8	0	0	114
Lane Group Flow (vph)	134	25	457	48	44	7	296	617	21	26	1117	101
Confl. Peds. (#/hr)	2		2	2		2			1	1		
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	2%	17%	1%	4%	2%	11%	1%	5%	11%	4%	2%	0%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4	5	1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	15.6	8.0	36.9	14.4	6.8	12.6	28.9	82.4	82.4	5.8	59.3	59.3
Effective Green, g (s)	16.6	9.0	38.9	15.4	7.8	14.6	29.9	84.4	84.4	6.8	61.3	61.3
Actuated g/C Ratio	0.13	0.07	0.30	0.12	0.06	0.11	0.23	0.65	0.65	0.05	0.47	0.47
Clearance Time (s)	4.0	5.4	4.0	4.0	5.4	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	3.0	2.3	2.3	2.3	3.0	4.5	4.5	2.3	4.5	4.5
Lane Grp Cap (vph)	226	112	514	206	112	162	411	2232	924	91	1669	762
v/s Ratio Prot	c0.08	0.02	c0.20	0.03	0.02	0.00	0.17	0.18		0.01	c0.32	
v/s Ratio Perm			0.08			0.00			0.01			0.06
v/c Ratio	0.59	0.22	0.89	0.23	0.39	0.04	0.72	0.28	0.02	0.29	0.67	0.13
Uniform Delay, d1	53.5	57.2	43.5	51.9	58.8	51.5	46.2	9.7	8.1	59.3	26.5	19.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.05	0.87	0.76	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.6	16.9	0.3	1.3	0.1	5.4	0.1	0.0	1.0	2.2	0.4
Delay (s)	56.7	57.8	60.4	52.3	60.1	51.5	53.8	8.6	6.2	60.3	28.7	19.7
Level of Service	E	E	E	D	E	D	D	A	A	E	C	B
Approach Delay (s)		59.5			54.3			22.7			27.9	
Approach LOS		E			D			C			C	

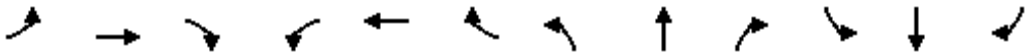
Intersection Summary			
HCM Average Control Delay	34.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



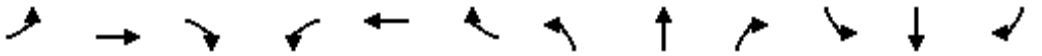
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	191	288	187	681	1211	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1568	1770	1827	3471	1577
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1568	1770	1827	3471	1577
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	199	300	195	709	1261	254
RTOR Reduction (vph)	0	254	0	0	0	86
Lane Group Flow (vph)	199	46	195	709	1261	168
Confl. Peds. (#/hr)	4	1	1			1
Heavy Vehicles (%)	2%	3%	2%	4%	4%	0%
Turn Type		Prot	Prot			Perm
Protected Phases	8	8	1	6	2	
Permitted Phases						2
Actuated Green, G (s)	18.8	18.8	18.9	100.7	77.8	77.8
Effective Green, g (s)	19.8	19.8	19.9	102.7	79.8	79.8
Actuated g/C Ratio	0.15	0.15	0.15	0.79	0.61	0.61
Clearance Time (s)	4.5	4.5	4.0	6.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	2.3	4.5	4.5	4.5
Lane Grp Cap (vph)	270	239	271	1443	2131	968
v/s Ratio Prot	c0.11	0.03	c0.11	0.39	c0.36	
v/s Ratio Perm						0.11
v/c Ratio	0.74	0.19	0.72	0.49	0.59	0.17
Uniform Delay, d1	52.6	48.1	52.4	4.7	15.2	10.9
Progression Factor	1.00	1.00	1.00	1.00	0.77	0.23
Incremental Delay, d2	9.2	0.2	7.9	1.2	0.8	0.3
Delay (s)	61.8	48.3	60.3	5.9	12.6	2.7
Level of Service	E	D	E	A	B	A
Approach Delay (s)	53.7			17.6	11.0	
Approach LOS	D			B	B	

Intersection Summary			
HCM Average Control Delay	20.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	4	2	25	5	211	1	623	23	254	1200	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	5.0		3.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.96			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1762			1608	1563	1805	1799		1805	1818	
Flt Permitted		0.74			0.80	1.00	0.07	1.00		0.32	1.00	
Satd. Flow (perm)		1355			1337	1563	124	1799		607	1818	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	32	4	2	26	5	220	1	649	24	265	1250	47
RTOR Reduction (vph)	0	2	0	0	0	203	0	1	0	0	1	0
Lane Group Flow (vph)	0	36	0	0	31	17	1	672	0	265	1296	0
Confl. Peds. (#/hr)	1					1			1	1		
Heavy Vehicles (%)	3%	0%	0%	16%	0%	1%	0%	5%	4%	0%	4%	2%
Turn Type	Perm			Perm		Perm	pm+pt			pm+pt		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		9.0			9.0	9.0	83.3	83.3		109.5	107.5	
Effective Green, g (s)		10.0			10.0	10.0	84.3	84.3		110.5	108.5	
Actuated g/C Ratio		0.08			0.08	0.08	0.64	0.64		0.84	0.82	
Clearance Time (s)		4.5			4.5	4.5	4.0	6.0		4.0	6.0	
Vehicle Extension (s)		2.5			2.5	2.5	2.3	4.5		2.3	4.5	
Lane Grp Cap (vph)		103			101	118	105	1149		746	1494	
v/s Ratio Prot							0.00	c0.37		0.07	c0.71	
v/s Ratio Perm		c0.03			0.02	0.01	0.01			0.23		
v/c Ratio		0.35			0.31	0.14	0.01	0.59		0.36	0.87	
Uniform Delay, d1		57.9			57.7	57.0	21.7	13.8		9.2	7.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5			1.3	0.4	0.0	2.2		0.2	7.1	
Delay (s)		59.4			59.0	57.4	21.7	15.9		9.4	14.4	
Level of Service		E			E	E	C	B		A	B	
Approach Delay (s)		59.4			57.6			16.0			13.5	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	438	940	106	23	467	75	205	94	44	66	53	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1786	3481		1804	3448		1787	1799		1719	1900	1578
Flt Permitted	0.23	1.00		0.25	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	439	3481		475	3448		1787	1799		1719	1900	1578
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	476	1022	115	25	508	82	223	102	48	72	58	328
RTOR Reduction (vph)	0	4	0	0	8	0	0	10	0	0	0	103
Lane Group Flow (vph)	476	1133	0	25	582	0	223	140	0	72	58	225
Confl. Peds. (#/hr)	3		4	4		3			4	4		
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	1%	2%	0%	0%	2%	3%	1%	0%	0%	5%	0%	2%
Turn Type	pm+pt			pm+pt			Split			Split		pm+ov
Protected Phases	5	2		1	6		3	3		4	4	5
Permitted Phases	2			6								4
Actuated Green, G (s)	65.5	57.8		33.7	30.5		19.1	19.1		10.0	10.0	40.5
Effective Green, g (s)	66.5	58.8		35.7	31.5		20.1	20.1		11.0	11.0	42.5
Actuated g/C Ratio	0.62	0.54		0.33	0.29		0.19	0.19		0.10	0.10	0.39
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	5.2		2.3	5.2		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	663	1893		209	1005		332	335		175	193	671
v/s Ratio Prot	c0.21	0.33		0.00	0.17		c0.12	0.08		c0.04	0.03	0.10
v/s Ratio Perm	c0.23			0.03								0.05
v/c Ratio	0.72	0.60		0.12	0.58		0.67	0.42		0.41	0.30	0.34
Uniform Delay, d1	15.2	16.7		24.6	32.7		40.9	38.8		45.5	45.0	22.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.5	0.8		0.1	1.4		4.8	0.6		1.1	0.6	0.2
Delay (s)	18.7	17.5		24.7	34.0		45.7	39.5		46.7	45.6	23.2
Level of Service	B	B		C	C		D	D		D	D	C
Approach Delay (s)		17.8			33.6			43.2			29.7	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	108.1	Sum of lost time (s)	10.5
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	59	40	25	462	1008	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1805	1615	1805	1863	1881	1615
Flt Permitted	0.95	1.00	0.09	1.00	1.00	1.00
Satd. Flow (perm)	1805	1615	166	1863	1881	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	66	45	28	519	1133	48
RTOR Reduction (vph)	0	40	0	0	0	6
Lane Group Flow (vph)	66	5	28	519	1133	42
Confl. Peds. (#/hr)			7			7
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Turn Type		Prot	pm+pt			pt+ov
Protected Phases	8	8	1	6	2	2 8
Permitted Phases			6			
Actuated Green, G (s)	9.0	9.0	64.4	64.4	57.8	71.3
Effective Green, g (s)	9.0	9.0	64.4	64.4	57.8	71.3
Actuated g/C Ratio	0.11	0.11	0.78	0.78	0.70	0.87
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	2.3	5.1	5.1	
Lane Grp Cap (vph)	197	176	172	1456	1319	1397
v/s Ratio Prot	c0.04	0.00	0.00	c0.28	c0.60	0.03
v/s Ratio Perm			0.12			
v/c Ratio	0.34	0.03	0.16	0.36	0.86	0.03
Uniform Delay, d1	33.9	32.8	13.2	2.7	9.2	0.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.3	0.3	6.4	0.0
Delay (s)	34.7	32.8	13.5	3.1	15.6	0.8
Level of Service	C	C	B	A	B	A
Approach Delay (s)	33.9			3.6	15.0	
Approach LOS	C			A	B	

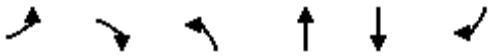
Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	82.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	18	469	6	37	1011
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	5	20	533	7	42	1149
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1769	536			540	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1769	536			540	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	95	96			96	
cM capacity (veh/h)	89	537			1024	

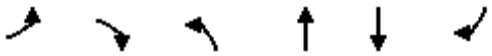
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	25	540	1191
Volume Left	5	0	42
Volume Right	20	7	0
cSH	280	1700	1024
Volume to Capacity	0.09	0.32	0.04
Queue Length 95th (ft)	7	0	3
Control Delay (s)	19.1	0.0	1.4
Lane LOS	C		A
Approach Delay (s)	19.1	0.0	1.4
Approach LOS	C		

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization		93.1%	ICU Level of Service F
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	110	10	11	365	865	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5	4.8	4.8	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1827	1833	
Flt Permitted	0.95	1.00	0.10	1.00	1.00	
Satd. Flow (perm)	1805	1615	183	1827	1833	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	11	12	406	961	127
RTOR Reduction (vph)	0	10	0	0	2	0
Lane Group Flow (vph)	122	1	12	406	1086	0
Confl. Peds. (#/hr)			3			3
Heavy Vehicles (%)	0%	0%	0%	4%	2%	0%
Turn Type		Perm	pm+pt			
Protected Phases	8		1	6	2	
Permitted Phases		8	6			
Actuated Green, G (s)	9.6	9.6	56.5	56.5	51.0	
Effective Green, g (s)	9.6	9.6	56.5	56.5	51.0	
Actuated g/C Ratio	0.13	0.13	0.75	0.75	0.68	
Clearance Time (s)	4.0	4.0	4.5	4.8	4.8	
Vehicle Extension (s)	2.5	2.5	2.3	2.0	2.0	
Lane Grp Cap (vph)	231	207	160	1378	1248	
v/s Ratio Prot	c0.07		0.00	c0.22	c0.59	
v/s Ratio Perm		0.00	0.06			
v/c Ratio	0.53	0.01	0.07	0.29	0.87	
Uniform Delay, d1	30.5	28.5	11.2	2.9	9.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.0	0.1	0.0	6.7	
Delay (s)	32.2	28.5	11.4	2.9	16.0	
Level of Service	C	C	B	A	B	
Approach Delay (s)	31.9			3.2	16.0	
Approach LOS	C			A	B	

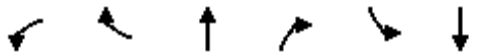
Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	74.9	Sum of lost time (s)	13.6
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	64	18	19	310	715	155
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	67	19	20	326	753	163
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1201	834	916			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1201	834	916			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	66	95	97			
cM capacity (veh/h)	199	371	753			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	86	20	326	916
Volume Left	67	20	0	0
Volume Right	19	0	0	163
cSH	255	753	1700	1700
Volume to Capacity	0.34	0.03	0.19	0.54
Queue Length 95th (ft)	36	2	0	0
Control Delay (s)	28.4	9.9	0.0	0.0
Lane LOS	D	A		
Approach Delay (s)	28.4	0.6		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		



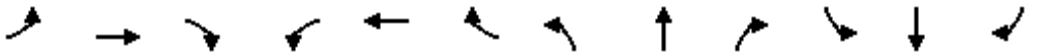
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	62	5	502	102	10	359
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	70	6	570	116	11	408
Pedestrians	2		2			
Lane Width (ft)	12.0		12.0			
Walking Speed (ft/s)	4.0		4.0			
Percent Blockage	0		0			
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked	0.79	0.79			0.79	
vC, conflicting volume	1063	630			688	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	950	406			479	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	99			99	
cM capacity (veh/h)	227	515			868	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	76	686	11	408
Volume Left	70	0	11	0
Volume Right	6	116	0	0
cSH	246	1700	868	1700
Volume to Capacity	0.31	0.40	0.01	0.24
Queue Length 95th (ft)	32	0	1	0
Control Delay (s)	26.6	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	26.6	0.0	0.2	
Approach LOS	D			

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

Attachment D

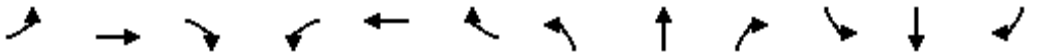
Year 2016 Background Traffic
Level-of-Service Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	271	364	6	79	435	790	23	1038	68	347	447	563
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2100	1900	2305	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5		4.5	3.5	4.5	4.5	4.0	4.0	4.5	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3099	3343		3335	3282	1716	1467	4055	1482	3400	3252	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3099	3343		3335	3282	1716	1467	4055	1482	3400	3252	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	298	400	7	87	478	868	25	1141	75	381	491	619
RTOR Reduction (vph)	0	1	0	0	0	14	0	0	52	0	0	266
Lane Group Flow (vph)	298	406	0	87	478	854	25	1141	23	381	491	353
Confl. Peds. (#/hr)			17	17								
Heavy Vehicles (%)	13%	7%	33%	5%	10%	4%	23%	8%	9%	3%	11%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	17.6	29.1		8.5	20.0	64.0	5.1	42.2	42.2	44.0	81.1	81.1
Effective Green, g (s)	18.6	31.1		9.5	22.0	66.0	6.1	45.2	45.2	45.0	84.1	84.1
Actuated g/C Ratio	0.13	0.21		0.06	0.15	0.45	0.04	0.31	0.31	0.31	0.57	0.57
Clearance Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.7	4.7	2.3	4.7	4.7
Lane Grp Cap (vph)	391	706		215	490	769	61	1244	455	1039	1857	895
v/s Ratio Prot	c0.10	0.12		0.03	0.15	c0.34	0.02	c0.28		0.11	0.15	
v/s Ratio Perm						0.16			0.02			0.23
v/c Ratio	0.76	0.58		0.40	0.98	1.11	0.41	0.92	0.05	0.37	0.26	0.39
Uniform Delay, d1	62.2	52.2		66.2	62.4	40.7	68.8	49.2	35.9	40.0	16.0	17.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.0	0.8		0.7	34.0	67.3	2.6	11.1	0.1	0.1	0.1	0.5
Delay (s)	70.2	53.0		66.9	96.4	107.9	71.4	60.3	36.0	40.1	16.1	18.0
Level of Service	E	D		E	F	F	E	E	D	D	B	B
Approach Delay (s)		60.3			101.6			59.1			23.1	
Approach LOS		E			F			E			C	

Intersection Summary			
HCM Average Control Delay	60.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	147.3	Sum of lost time (s)	17.5
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	37	114	14	24	9	264	1032	54	35	384	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.4	3.0	3.0	4.4	3.0	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	1810	1515	1583	1520	1206	1770	3343	1521	1626	3252	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1719	1810	1515	1583	1520	1206	1770	3343	1521	1626	3252	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	39	120	15	25	9	278	1086	57	37	404	113
RTOR Reduction (vph)	0	0	82	0	0	8	0	0	7	0	0	56
Lane Group Flow (vph)	89	39	38	15	25	1	278	1086	50	37	404	57
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	5%	5%	6%	14%	25%	33%	2%	8%	4%	11%	11%	5%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4	5	1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	11.3	10.8	36.4	5.3	4.8	10.1	25.6	79.2	79.2	5.3	58.9	58.9
Effective Green, g (s)	12.3	11.8	38.4	6.3	5.8	12.1	26.6	81.2	81.2	6.3	60.9	60.9
Actuated g/C Ratio	0.10	0.10	0.32	0.05	0.05	0.10	0.22	0.68	0.68	0.05	0.51	0.51
Clearance Time (s)	4.0	5.4	4.0	4.0	5.4	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	3.0	2.3	2.3	2.3	3.0	4.5	4.5	2.3	4.5	4.5
Lane Grp Cap (vph)	176	178	523	83	73	122	392	2262	1029	85	1650	781
v/s Ratio Prot	c0.05	0.02	0.02	0.01	c0.02	0.00	c0.16	c0.32		c0.02	0.12	
v/s Ratio Perm			0.01			0.00			0.03			0.04
v/c Ratio	0.51	0.22	0.07	0.18	0.34	0.01	0.71	0.48	0.05	0.44	0.24	0.07
Uniform Delay, d1	51.0	49.9	28.4	54.4	55.3	48.5	43.1	9.3	6.5	55.1	16.6	15.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.96	1.03	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.4	0.1	0.6	1.6	0.0	2.1	0.1	0.0	2.1	0.4	0.2
Delay (s)	52.3	50.2	28.5	55.0	56.9	48.6	42.8	9.1	6.7	57.2	17.0	15.3
Level of Service	D	D	C	D	E	D	D	A	A	E	B	B
Approach Delay (s)		40.4			54.8			15.6			19.3	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

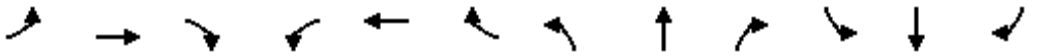


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	218	221	165	1139	421	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1719	1583	1719	1776	3252	1503
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1719	1583	1719	1776	3252	1503
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	251	254	190	1309	484	70
RTOR Reduction (vph)	0	211	0	0	0	29
Lane Group Flow (vph)	251	43	190	1309	484	41
Confl. Peds. (#/hr)	6	1	1			1
Heavy Vehicles (%)	5%	2%	5%	7%	11%	5%
Turn Type		Prot	Prot			Perm
Protected Phases	8	8	1	6	2	
Permitted Phases						2
Actuated Green, G (s)	19.1	19.1	17.9	90.4	68.5	68.5
Effective Green, g (s)	20.1	20.1	18.9	92.4	70.5	70.5
Actuated g/C Ratio	0.17	0.17	0.16	0.77	0.59	0.59
Clearance Time (s)	4.5	4.5	4.0	6.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	2.3	4.5	4.5	4.5
Lane Grp Cap (vph)	288	265	271	1368	1911	883
v/s Ratio Prot	c0.15	0.03	0.11	c0.74	0.15	
v/s Ratio Perm						0.03
v/c Ratio	0.87	0.16	0.70	0.96	0.25	0.05
Uniform Delay, d1	48.7	42.7	47.9	12.1	12.0	10.5
Progression Factor	1.00	1.00	1.00	1.00	0.97	1.18
Incremental Delay, d2	23.5	0.2	7.0	16.0	0.3	0.1
Delay (s)	72.2	42.9	54.9	28.1	11.9	12.5
Level of Service	E	D	D	C	B	B
Approach Delay (s)	57.4			31.5	12.0	
Approach LOS	E			C	B	

Intersection Summary			
HCM Average Control Delay	32.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	13	8	26	2	324	2	902	21	178	447	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	5.0		3.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1731			1749	1548	1805	1734		1770	1710	
Flt Permitted		0.82			0.75	1.00	0.39	1.00		0.06	1.00	
Satd. Flow (perm)		1453			1382	1548	744	1734		104	1710	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	35	15	10	31	2	386	2	1074	25	212	532	27
RTOR Reduction (vph)	0	6	0	0	0	293	0	1	0	0	1	0
Lane Group Flow (vph)	0	54	0	0	33	93	2	1098	0	212	558	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	7%	0%	0%	4%	0%	2%	0%	9%	19%	2%	10%	17%
Turn Type	Perm			Perm		Perm	pm+pt			pm+pt		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		11.4			11.4	11.4	70.9	70.9		97.1	95.1	
Effective Green, g (s)		12.4			12.4	12.4	71.9	71.9		98.1	96.1	
Actuated g/C Ratio		0.10			0.10	0.10	0.59	0.59		0.80	0.79	
Clearance Time (s)		4.5			4.5	4.5	4.0	6.0		4.0	6.0	
Vehicle Extension (s)		2.5			2.5	2.5	2.3	4.5		2.3	4.5	
Lane Grp Cap (vph)		148			140	157	456	1022		441	1347	
v/s Ratio Prot							0.00	c0.63		c0.10	0.33	
v/s Ratio Perm		0.04			0.02	c0.06	0.00			0.28		
v/c Ratio		0.36			0.24	0.59	0.00	1.07		0.48	0.41	
Uniform Delay, d1		51.1			50.4	52.4	10.7	25.0		37.7	4.1	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.1			0.6	4.9	0.0	50.4		0.5	0.9	
Delay (s)		52.2			51.1	57.3	10.7	75.5		38.2	5.0	
Level of Service		D			D	E	B	E		D	A	
Approach Delay (s)		52.2			56.8			75.4			14.1	
Approach LOS		D			E			E			B	

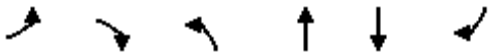
Intersection Summary			
HCM Average Control Delay	51.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	122.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	559	57	4	903	69	95	17	15	176	28	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	3385		1435	3345		1671	1708		1703	1900	1568
Flt Permitted	0.10	1.00		0.37	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	185	3385		564	3345		1671	1708		1703	1900	1568
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	149	665	68	5	1075	82	113	20	18	210	33	350
RTOR Reduction (vph)	0	3	0	0	3	0	0	15	0	0	0	121
Lane Group Flow (vph)	149	730	0	5	1154	0	113	23	0	210	33	229
Confl. Peds. (#/hr)	2		15	15		2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	7%	4%	9%	25%	6%	14%	8%	0%	7%	6%	0%	3%
Turn Type	pm+pt			pm+pt			Split			Split		pm+ov
Protected Phases	5	2		1	6		3	3		4	4	5
Permitted Phases	2			6								4
Actuated Green, G (s)	81.0	75.6		61.3	60.4		18.6	18.6		21.4	21.4	37.5
Effective Green, g (s)	82.0	76.6		63.3	61.4		19.6	19.6		22.4	22.4	39.5
Actuated g/C Ratio	0.61	0.57		0.47	0.46		0.15	0.15		0.17	0.17	0.29
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	5.2		2.3	5.2		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	304	1928		278	1527		244	249		284	316	501
v/s Ratio Prot	c0.06	0.22		0.00	c0.35		c0.07	0.01		c0.12	0.02	c0.06
v/s Ratio Perm	0.24			0.01								0.09
v/c Ratio	0.49	0.38		0.02	0.76		0.46	0.09		0.74	0.10	0.46
Uniform Delay, d1	19.1	15.9		18.9	30.3		52.6	49.7		53.3	47.5	38.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	0.3		0.0	2.7		1.0	0.1		9.1	0.1	0.5
Delay (s)	20.0	16.2		18.9	33.0		53.6	49.9		62.4	47.6	39.2
Level of Service	C	B		B	C		D	D		E	D	D
Approach Delay (s)		16.8			32.9			52.7			47.9	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM Average Control Delay	32.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	134.5	Sum of lost time (s)	10.5
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	9	25	36	963	672	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1626	1553	1805	1792	1810	1568
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1626	1553	421	1792	1810	1568
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	12	33	48	1284	896	95
RTOR Reduction (vph)	0	31	0	0	0	15
Lane Group Flow (vph)	12	2	48	1284	896	80
Confl. Peds. (#/hr)			7			7
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	11%	4%	0%	6%	5%	3%
Turn Type		Prot	pm+pt			pt+ov
Protected Phases	8	8	1	6	2	2 8
Permitted Phases			6			
Actuated Green, G (s)	4.9	4.9	71.4	71.4	62.7	72.1
Effective Green, g (s)	4.9	4.9	71.4	71.4	62.7	72.1
Actuated g/C Ratio	0.06	0.06	0.84	0.84	0.74	0.85
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	2.3	5.1	5.1	
Lane Grp Cap (vph)	93	89	421	1500	1330	1325
v/s Ratio Prot	c0.01	0.00	0.01	c0.72	0.50	0.05
v/s Ratio Perm			0.09			
v/c Ratio	0.13	0.02	0.11	0.86	0.67	0.06
Uniform Delay, d1	38.2	37.9	4.3	4.0	5.9	1.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.1	0.1	5.5	1.8	0.0
Delay (s)	38.6	38.0	4.4	9.5	7.7	1.1
Level of Service	D	D	A	A	A	A
Approach Delay (s)	38.2			9.4	7.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	9.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	85.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

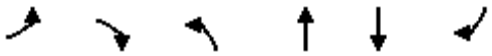
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	7	35	964	5	10	687
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	10	48	1321	7	14	941
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2292	1324			1327	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2292	1324			1327	
tC, single (s)	6.7	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.8	3.4			2.2	
p0 queue free %	72	73			97	
cM capacity (veh/h)	35	180			527	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	58	1327	955
Volume Left	10	0	14
Volume Right	48	7	0
cSH	106	1700	527
Volume to Capacity	0.54	0.78	0.03
Queue Length 95th (ft)	63	0	2
Control Delay (s)	73.6	0.0	0.9
Lane LOS	F		A
Approach Delay (s)	73.6	0.0	0.9
Approach LOS	F		

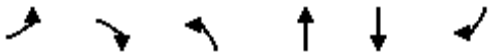
Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	301	32	106	659	186	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5	4.8	4.8	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.94	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1641	1482	1805	1863	1695	
Flt Permitted	0.95	1.00	0.23	1.00	1.00	
Satd. Flow (perm)	1641	1482	436	1863	1695	
Peak-hour factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71
Adj. Flow (vph)	424	45	149	928	262	211
RTOR Reduction (vph)	0	29	0	0	29	0
Lane Group Flow (vph)	424	16	149	928	444	0
Confl. Peds. (#/hr)			2			2
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	10%	9%	0%	2%	6%	2%
Turn Type		Perm	pm+pt			
Protected Phases	8		1	6	2	
Permitted Phases		8	6			
Actuated Green, G (s)	25.3	25.3	38.9	38.9	26.2	
Effective Green, g (s)	25.3	25.3	38.9	38.9	26.2	
Actuated g/C Ratio	0.35	0.35	0.53	0.53	0.36	
Clearance Time (s)	4.0	4.0	4.5	4.8	4.8	
Vehicle Extension (s)	2.5	2.5	2.3	2.0	2.0	
Lane Grp Cap (vph)	569	514	386	993	608	
v/s Ratio Prot	c0.26		0.04	c0.50	0.26	
v/s Ratio Perm		0.01	0.16			
v/c Ratio	0.75	0.03	0.39	0.93	0.73	
Uniform Delay, d1	21.0	15.7	10.9	15.9	20.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.0	0.0	0.4	15.0	3.7	
Delay (s)	26.0	15.8	11.2	30.9	24.0	
Level of Service	C	B	B	C	C	
Approach Delay (s)	25.0			28.1	24.0	
Approach LOS	C			C	C	

Intersection Summary			
HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	82	41	51	682	181	39
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	100	50	62	832	221	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1201	245	268			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1201	245	268			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	48	94	95			
cM capacity (veh/h)	194	775	1250			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	150	62	832	268
Volume Left	100	62	0	0
Volume Right	50	0	0	48
cSH	291	1250	1700	1700
Volume to Capacity	0.52	0.05	0.49	0.16
Queue Length 95th (ft)	69	4	0	0
Control Delay (s)	31.1	8.0	0.0	0.0
Lane LOS	D	A		
Approach Delay (s)	31.1	0.6		0.0
Approach LOS	D			

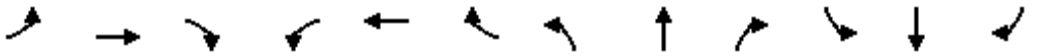
Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	81	13	182	28	4	416
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	99	16	222	34	5	507
Pedestrians						1
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked	0.97	0.97			0.97	
vC, conflicting volume	756	240			256	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	731	197			213	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	74	98			100	
cM capacity (veh/h)	376	801			1323	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	115	256	5	507
Volume Left	99	0	5	0
Volume Right	16	34	0	0
cSH	437	1700	1323	1700
Volume to Capacity	0.26	0.15	0.00	0.30
Queue Length 95th (ft)	26	0	0	0
Control Delay (s)	16.8	0.0	7.7	0.0
Lane LOS	C		A	
Approach Delay (s)	16.8	0.0	0.1	
Approach LOS	C			

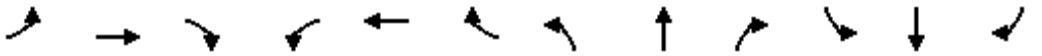
Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	574	767	79	152	442	409	30	601	169	804	1111	604
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5		4.5	3.5	4.5	4.5	4.0	4.0	4.5	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	3510		3502	3574	1559	1752	3406	1549	3467	3505	1599
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3510		3502	3574	1559	1752	3406	1549	3467	3505	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	592	791	81	157	456	422	31	620	174	829	1145	623
RTOR Reduction (vph)	0	4	0	0	0	22	0	0	127	0	0	312
Lane Group Flow (vph)	592	868	0	157	456	400	31	620	47	829	1145	311
Confl. Peds. (#/hr)	2		11	11		2			8	8		
Heavy Vehicles (%)	1%	1%	1%	0%	1%	3%	3%	6%	2%	1%	3%	1%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.5	34.2		11.0	24.7	61.7	4.8	35.1	35.1	37.0	67.3	67.3
Effective Green, g (s)	21.5	36.2		12.0	26.7	63.7	5.8	38.1	38.1	38.0	70.3	70.3
Actuated g/C Ratio	0.15	0.26		0.09	0.19	0.45	0.04	0.27	0.27	0.27	0.50	0.50
Clearance Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.7	4.7	2.3	4.7	4.7
Lane Grp Cap (vph)	529	902		298	678	705	72	922	419	936	1750	798
v/s Ratio Prot	c0.17	c0.25		0.04	c0.13	0.15	0.02	0.18		c0.24	c0.33	
v/s Ratio Perm						0.10			0.03			0.19
v/c Ratio	1.12	0.96		0.53	0.67	0.57	0.43	0.67	0.11	0.89	0.65	0.39
Uniform Delay, d1	59.7	51.6		61.7	53.0	28.4	65.9	45.8	38.6	49.3	26.2	21.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	76.1	21.1		1.1	2.3	0.8	2.4	2.4	0.2	9.9	1.1	0.6
Delay (s)	135.8	72.7		62.8	55.3	29.2	68.3	48.2	38.9	59.3	27.3	22.5
Level of Service	F	E		E	E	C	E	D	D	E	C	C
Approach Delay (s)		98.2			45.8			47.0			36.4	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM Average Control Delay	54.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	129	24	503	46	42	56	284	610	28	25	1104	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.4	3.0	3.0	4.4	3.0	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1624	1594	1736	1863	1443	1787	3438	1423	1736	3539	1615
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1624	1594	1736	1863	1443	1787	3438	1423	1736	3539	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	134	25	524	48	44	58	296	635	29	26	1150	215
RTOR Reduction (vph)	0	0	64	0	0	51	0	0	8	0	0	114
Lane Group Flow (vph)	134	25	460	48	44	7	296	635	21	26	1150	101
Confl. Peds. (#/hr)	2		2	2		2			1	1		
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	2%	17%	1%	4%	2%	11%	1%	5%	11%	4%	2%	0%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4	5	1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	15.6	8.0	37.0	14.4	6.8	12.6	29.0	82.4	82.4	5.8	59.2	59.2
Effective Green, g (s)	16.6	9.0	39.0	15.4	7.8	14.6	30.0	84.4	84.4	6.8	61.2	61.2
Actuated g/C Ratio	0.13	0.07	0.30	0.12	0.06	0.11	0.23	0.65	0.65	0.05	0.47	0.47
Clearance Time (s)	4.0	5.4	4.0	4.0	5.4	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	3.0	2.3	2.3	2.3	3.0	4.5	4.5	2.3	4.5	4.5
Lane Grp Cap (vph)	226	112	515	206	112	162	412	2232	924	91	1666	760
v/s Ratio Prot	c0.08	0.02	c0.21	0.03	0.02	0.00	0.17	0.18		0.01	c0.32	
v/s Ratio Perm			0.08			0.00			0.01			0.06
v/c Ratio	0.59	0.22	0.89	0.23	0.39	0.04	0.72	0.28	0.02	0.29	0.69	0.13
Uniform Delay, d1	53.5	57.2	43.5	51.9	58.8	51.5	46.1	9.8	8.1	59.3	27.0	19.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.04	0.87	0.74	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.6	17.5	0.3	1.3	0.1	5.2	0.1	0.0	1.0	2.4	0.4
Delay (s)	56.7	57.8	61.0	52.3	60.1	51.5	53.3	8.6	6.0	60.3	29.3	19.8
Level of Service	E	E	E	D	E	D	D	A	A	E	C	B
Approach Delay (s)		60.1			54.3			22.3			28.4	
Approach LOS		E			D			C			C	

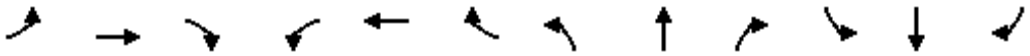
Intersection Summary			
HCM Average Control Delay	34.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



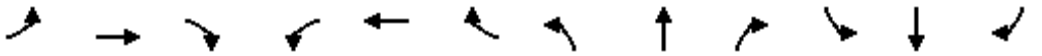
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	191	288	187	701	1248	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1568	1770	1827	3471	1577
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1568	1770	1827	3471	1577
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	199	300	195	730	1300	254
RTOR Reduction (vph)	0	254	0	0	0	83
Lane Group Flow (vph)	199	46	195	730	1300	171
Confl. Peds. (#/hr)	4	1	1			1
Heavy Vehicles (%)	2%	3%	2%	4%	4%	0%
Turn Type		Prot	Prot			Perm
Protected Phases	8	8	1	6	2	
Permitted Phases						2
Actuated Green, G (s)	18.8	18.8	18.9	100.7	77.8	77.8
Effective Green, g (s)	19.8	19.8	19.9	102.7	79.8	79.8
Actuated g/C Ratio	0.15	0.15	0.15	0.79	0.61	0.61
Clearance Time (s)	4.5	4.5	4.0	6.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	2.3	4.5	4.5	4.5
Lane Grp Cap (vph)	270	239	271	1443	2131	968
v/s Ratio Prot	c0.11	0.03	c0.11	0.40	c0.37	
v/s Ratio Perm						0.11
v/c Ratio	0.74	0.19	0.72	0.51	0.61	0.18
Uniform Delay, d1	52.6	48.1	52.4	4.8	15.5	10.9
Progression Factor	1.00	1.00	1.00	1.00	0.76	0.22
Incremental Delay, d2	9.2	0.2	7.9	1.3	0.9	0.3
Delay (s)	61.8	48.3	60.3	6.0	12.7	2.6
Level of Service	E	D	E	A	B	A
Approach Delay (s)	53.7			17.5	11.1	
Approach LOS	D			B	B	

Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	4	2	25	5	211	1	642	23	254	1236	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	5.0		3.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.96			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1762			1608	1563	1805	1799		1805	1819	
Flt Permitted		0.74			0.80	1.00	0.05	1.00		0.31	1.00	
Satd. Flow (perm)		1355			1337	1563	92	1799		583	1819	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	32	4	2	26	5	220	1	669	24	265	1288	47
RTOR Reduction (vph)	0	2	0	0	0	203	0	1	0	0	1	0
Lane Group Flow (vph)	0	36	0	0	31	17	1	692	0	265	1334	0
Confl. Peds. (#/hr)	1					1			1	1		
Heavy Vehicles (%)	3%	0%	0%	16%	0%	1%	0%	5%	4%	0%	4%	2%
Turn Type	Perm			Perm		Perm	pm+pt			pm+pt		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		9.0			9.0	9.0	83.3	83.3		109.5	107.5	
Effective Green, g (s)		10.0			10.0	10.0	84.3	84.3		110.5	108.5	
Actuated g/C Ratio		0.08			0.08	0.08	0.64	0.64		0.84	0.82	
Clearance Time (s)		4.5			4.5	4.5	4.0	6.0		4.0	6.0	
Vehicle Extension (s)		2.5			2.5	2.5	2.3	4.5		2.3	4.5	
Lane Grp Cap (vph)		103			101	118	85	1149		731	1495	
v/s Ratio Prot							0.00	c0.38		0.07	c0.73	
v/s Ratio Perm		c0.03			0.02	0.01	0.01			0.23		
v/c Ratio		0.35			0.31	0.14	0.01	0.60		0.36	0.89	
Uniform Delay, d1		57.9			57.7	57.0	24.9	14.0		9.9	7.9	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5			1.3	0.4	0.0	2.3		0.2	8.5	
Delay (s)		59.4			59.0	57.4	24.9	16.4		10.1	16.4	
Level of Service		E			E	E	C	B		B	B	
Approach Delay (s)		59.4			57.6			16.4			15.3	
Approach LOS		E			E			B			B	

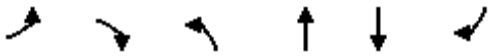
Intersection Summary			
HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	438	968	106	23	481	75	205	94	44	66	53	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1786	3483		1804	3450		1787	1799		1719	1900	1578
Flt Permitted	0.22	1.00		0.24	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	421	3483		461	3450		1787	1799		1719	1900	1578
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	476	1052	115	25	523	82	223	102	48	72	58	328
RTOR Reduction (vph)	0	4	0	0	8	0	0	10	0	0	0	99
Lane Group Flow (vph)	476	1163	0	25	597	0	223	140	0	72	58	229
Confl. Peds. (#/hr)	3		4	4		3			4	4		
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	1%	2%	0%	0%	2%	3%	1%	0%	0%	5%	0%	2%
Turn Type	pm+pt			pm+pt			Split			Split		pm+ov
Protected Phases	5	2		1	6		3	3		4	4	5
Permitted Phases	2			6								4
Actuated Green, G (s)	66.4	58.7		34.1	30.9		19.4	19.4		10.1	10.1	41.1
Effective Green, g (s)	67.4	59.7		36.1	31.9		20.4	20.4		11.1	11.1	43.1
Actuated g/C Ratio	0.62	0.55		0.33	0.29		0.19	0.19		0.10	0.10	0.39
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	5.2		2.3	5.2		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	659	1901		204	1006		333	335		174	193	672
v/s Ratio Prot	c0.21	0.33		0.00	0.17		c0.12	0.08		c0.04	0.03	0.10
v/s Ratio Perm	c0.23			0.04								0.05
v/c Ratio	0.72	0.61		0.12	0.59		0.67	0.42		0.41	0.30	0.34
Uniform Delay, d1	16.2	16.9		24.9	33.2		41.4	39.3		46.1	45.6	23.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.7	0.9		0.2	1.5		4.6	0.6		1.2	0.6	0.2
Delay (s)	19.9	17.8		25.1	34.7		45.9	39.9		47.3	46.2	23.4
Level of Service	B	B		C	C		D	D		D	D	C
Approach Delay (s)		18.4			34.3			43.5			30.1	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	109.4	Sum of lost time (s)	10.5
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	59	40	25	476	1038	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1805	1615	1805	1863	1881	1615
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1805	1615	134	1863	1881	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	66	45	28	535	1166	48
RTOR Reduction (vph)	0	40	0	0	0	6
Lane Group Flow (vph)	66	5	28	535	1166	42
Confl. Peds. (#/hr)			7			7
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Turn Type		Prot	pm+pt			pt+ov
Protected Phases	8	8	1	6	2	2 8
Permitted Phases			6			
Actuated Green, G (s)	9.0	9.0	64.4	64.4	57.8	71.3
Effective Green, g (s)	9.0	9.0	64.4	64.4	57.8	71.3
Actuated g/C Ratio	0.11	0.11	0.78	0.78	0.70	0.87
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	2.3	5.1	5.1	
Lane Grp Cap (vph)	197	176	147	1456	1319	1397
v/s Ratio Prot	c0.04	0.00	0.00	c0.29	c0.62	0.03
v/s Ratio Perm			0.14			
v/c Ratio	0.34	0.03	0.19	0.37	0.88	0.03
Uniform Delay, d1	33.9	32.8	15.2	2.8	9.7	0.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.4	0.3	7.9	0.0
Delay (s)	34.7	32.8	15.5	3.1	17.6	0.8
Level of Service	C	C	B	A	B	A
Approach Delay (s)	33.9			3.7	16.9	
Approach LOS	C			A	B	

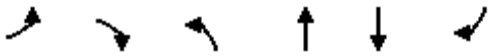
Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	82.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	18	483	6	37	1041
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	5	20	549	7	42	1183
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1819	552			556	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1819	552			556	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	95	96			96	
cM capacity (veh/h)	83	526			1010	

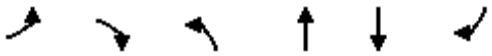
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	25	556	1225
Volume Left	5	0	42
Volume Right	20	7	0
cSH	266	1700	1010
Volume to Capacity	0.09	0.33	0.04
Queue Length 95th (ft)	8	0	3
Control Delay (s)	19.9	0.0	1.5
Lane LOS	C		A
Approach Delay (s)	19.9	0.0	1.5
Approach LOS	C		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	110	10	11	376	891	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5	4.8	4.8	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1827	1834	
Flt Permitted	0.95	1.00	0.08	1.00	1.00	
Satd. Flow (perm)	1805	1615	154	1827	1834	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	11	12	418	990	127
RTOR Reduction (vph)	0	10	0	0	2	0
Lane Group Flow (vph)	122	1	12	418	1115	0
Confl. Peds. (#/hr)			3			3
Heavy Vehicles (%)	0%	0%	0%	4%	2%	0%
Turn Type		Perm	pm+pt			
Protected Phases	8		1	6	2	
Permitted Phases		8	6			
Actuated Green, G (s)	9.6	9.6	56.5	56.5	51.0	
Effective Green, g (s)	9.6	9.6	56.5	56.5	51.0	
Actuated g/C Ratio	0.13	0.13	0.75	0.75	0.68	
Clearance Time (s)	4.0	4.0	4.5	4.8	4.8	
Vehicle Extension (s)	2.5	2.5	2.3	2.0	2.0	
Lane Grp Cap (vph)	231	207	138	1378	1249	
v/s Ratio Prot	c0.07		0.00	c0.23	c0.61	
v/s Ratio Perm		0.00	0.06			
v/c Ratio	0.53	0.01	0.09	0.30	0.89	
Uniform Delay, d1	30.5	28.5	12.6	2.9	9.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.0	0.2	0.0	8.2	
Delay (s)	32.2	28.5	12.7	3.0	17.9	
Level of Service	C	C	B	A	B	
Approach Delay (s)	31.9			3.2	17.9	
Approach LOS	C			A	B	

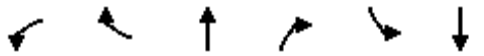
Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	74.9	Sum of lost time (s)	13.6
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	64	18	19	319	736	155
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	67	19	20	336	775	163
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1232	856	938			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1232	856	938			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	65	95	97			
cM capacity (veh/h)	190	360	739			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	86	20	336	938
Volume Left	67	20	0	0
Volume Right	19	0	0	163
cSH	244	739	1700	1700
Volume to Capacity	0.35	0.03	0.20	0.55
Queue Length 95th (ft)	38	2	0	0
Control Delay (s)	29.9	10.0	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	29.9	0.6		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		



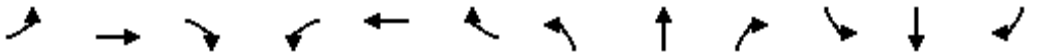
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	62	5	502	102	10	359
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	70	6	570	116	11	408
Pedestrians	2		2			
Lane Width (ft)	12.0		12.0			
Walking Speed (ft/s)	4.0		4.0			
Percent Blockage	0		0			
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked	0.80	0.80			0.80	
vC, conflicting volume	1063	630			688	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	950	406			479	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	99			99	
cM capacity (veh/h)	227	515			868	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	76	686	11	408
Volume Left	70	0	11	0
Volume Right	6	116	0	0
cSH	246	1700	868	1700
Volume to Capacity	0.31	0.40	0.01	0.24
Queue Length 95th (ft)	32	0	1	0
Control Delay (s)	26.6	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	26.6	0.0	0.2	
Approach LOS	D			

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

Attachment E

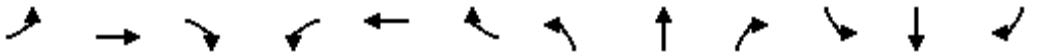
Year 2016 Total Traffic Level-of-Service Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	271	365	6	79	437	802	23	1038	68	353	447	563
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2100	1900	2305	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5		4.5	3.5	4.5	4.5	4.0	4.0	4.5	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3099	3343		3335	3282	1716	1467	4055	1482	3400	3252	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3099	3343		3335	3282	1716	1467	4055	1482	3400	3252	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	298	401	7	87	480	881	25	1141	75	388	491	619
RTOR Reduction (vph)	0	1	0	0	0	14	0	0	52	0	0	266
Lane Group Flow (vph)	298	407	0	87	480	867	25	1141	23	388	491	353
Confl. Peds. (#/hr)			17	17								
Heavy Vehicles (%)	13%	7%	33%	5%	10%	4%	23%	8%	9%	3%	11%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	17.6	29.1		8.5	20.0	64.0	5.1	42.2	42.2	44.0	81.1	81.1
Effective Green, g (s)	18.6	31.1		9.5	22.0	66.0	6.1	45.2	45.2	45.0	84.1	84.1
Actuated g/C Ratio	0.13	0.21		0.06	0.15	0.45	0.04	0.31	0.31	0.31	0.57	0.57
Clearance Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.7	4.7	2.3	4.7	4.7
Lane Grp Cap (vph)	391	706		215	490	769	61	1244	455	1039	1857	895
v/s Ratio Prot	c0.10	0.12		0.03	0.15	c0.34	0.02	c0.28		0.11	0.15	
v/s Ratio Perm						0.16			0.02			0.23
v/c Ratio	0.76	0.58		0.40	0.98	1.13	0.41	0.92	0.05	0.37	0.26	0.39
Uniform Delay, d1	62.2	52.2		66.2	62.4	40.7	68.8	49.2	35.9	40.1	16.0	17.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.0	0.8		0.7	34.9	73.6	2.6	11.1	0.1	0.1	0.1	0.5
Delay (s)	70.2	53.0		66.9	97.3	114.3	71.4	60.3	36.0	40.2	16.1	18.0
Level of Service	E	D		E	F	F	E	E	D	D	B	B
Approach Delay (s)		60.3			105.8			59.1			23.2	
Approach LOS		E			F			E			C	

Intersection Summary			
HCM Average Control Delay	62.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	147.3	Sum of lost time (s)	17.5
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	37	120	14	24	9	276	1032	54	35	384	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.4	3.0	3.0	4.4	3.0	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	1810	1515	1583	1520	1206	1770	3343	1521	1626	3252	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1719	1810	1515	1583	1520	1206	1770	3343	1521	1626	3252	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	39	126	15	25	9	291	1086	57	37	404	113
RTOR Reduction (vph)	0	0	85	0	0	8	0	0	7	0	0	56
Lane Group Flow (vph)	89	39	41	15	25	1	291	1086	50	37	404	57
Confl. Peds. (#/hr)	2		7	7		2						
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	5%	5%	6%	14%	25%	33%	2%	8%	4%	11%	11%	5%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4	5	1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	11.3	10.8	37.1	5.3	4.8	10.1	26.3	79.2	79.2	5.3	58.2	58.2
Effective Green, g (s)	12.3	11.8	39.1	6.3	5.8	12.1	27.3	81.2	81.2	6.3	60.2	60.2
Actuated g/C Ratio	0.10	0.10	0.33	0.05	0.05	0.10	0.23	0.68	0.68	0.05	0.50	0.50
Clearance Time (s)	4.0	5.4	4.0	4.0	5.4	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	3.0	2.3	2.3	2.3	3.0	4.5	4.5	2.3	4.5	4.5
Lane Grp Cap (vph)	176	178	532	83	73	122	403	2262	1029	85	1631	772
v/s Ratio Prot	c0.05	0.02	0.02	0.01	c0.02	0.00	c0.16	c0.32		c0.02	0.12	
v/s Ratio Perm			0.01			0.00			0.03			0.04
v/c Ratio	0.51	0.22	0.08	0.18	0.34	0.01	0.72	0.48	0.05	0.44	0.25	0.07
Uniform Delay, d1	51.0	49.9	28.0	54.4	55.3	48.5	42.8	9.3	6.5	55.1	17.0	15.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.96	1.02	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.4	0.1	0.6	1.6	0.0	2.1	0.1	0.0	2.1	0.4	0.2
Delay (s)	52.3	50.2	28.0	55.0	56.9	48.6	42.6	9.0	6.6	57.2	17.4	15.7
Level of Service	D	D	C	D	E	D	D	A	A	E	B	B
Approach Delay (s)		39.9			54.8			15.8			19.7	
Approach LOS		D			D			B			B	

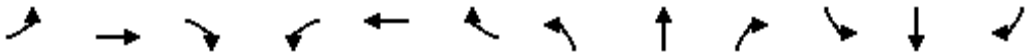
Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



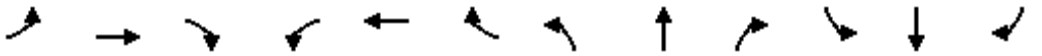
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	218	223	170	1151	427	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1719	1583	1719	1776	3252	1503
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1719	1583	1719	1776	3252	1503
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	251	256	195	1323	491	70
RTOR Reduction (vph)	0	213	0	0	0	29
Lane Group Flow (vph)	251	43	195	1323	491	41
Confl. Peds. (#/hr)	6	1	1			1
Heavy Vehicles (%)	5%	2%	5%	7%	11%	5%
Turn Type		Prot	Prot			Perm
Protected Phases	8	8	1	6	2	
Permitted Phases						2
Actuated Green, G (s)	19.1	19.1	18.2	90.4	68.2	68.2
Effective Green, g (s)	20.1	20.1	19.2	92.4	70.2	70.2
Actuated g/C Ratio	0.17	0.17	0.16	0.77	0.59	0.59
Clearance Time (s)	4.5	4.5	4.0	6.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	2.3	4.5	4.5	4.5
Lane Grp Cap (vph)	288	265	275	1368	1902	879
v/s Ratio Prot	c0.15	0.03	0.11	c0.75	0.15	
v/s Ratio Perm						0.03
v/c Ratio	0.87	0.16	0.71	0.97	0.26	0.05
Uniform Delay, d1	48.7	42.7	47.8	12.4	12.2	10.6
Progression Factor	1.00	1.00	1.00	1.00	0.95	1.12
Incremental Delay, d2	23.5	0.2	7.2	17.6	0.3	0.1
Delay (s)	72.2	42.9	55.0	30.1	11.9	12.0
Level of Service	E	D	D	C	B	B
Approach Delay (s)	57.4			33.3	11.9	
Approach LOS	E			C	B	

Intersection Summary			
HCM Average Control Delay	33.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	13	8	31	2	341	2	902	23	186	447	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	5.0		3.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1731			1748	1548	1805	1733		1770	1710	
Flt Permitted		0.82			0.74	1.00	0.39	1.00		0.06	1.00	
Satd. Flow (perm)		1453			1358	1548	739	1733		105	1710	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	35	15	10	37	2	406	2	1074	27	221	532	27
RTOR Reduction (vph)	0	6	0	0	0	291	0	1	0	0	1	0
Lane Group Flow (vph)	0	54	0	0	39	115	2	1100	0	221	558	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	7%	0%	0%	4%	0%	2%	0%	9%	19%	2%	10%	17%
Turn Type	Perm			Perm		Perm	pm+pt			pm+pt		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		12.1			12.1	12.1	70.2	70.2		96.4	94.4	
Effective Green, g (s)		13.1			13.1	13.1	71.2	71.2		97.4	95.4	
Actuated g/C Ratio		0.11			0.11	0.11	0.58	0.58		0.80	0.78	
Clearance Time (s)		4.5			4.5	4.5	4.0	6.0		4.0	6.0	
Vehicle Extension (s)		2.5			2.5	2.5	2.3	4.5		2.3	4.5	
Lane Grp Cap (vph)		156			146	166	449	1011		441	1337	
v/s Ratio Prot							0.00	c0.63		c0.11	0.33	
v/s Ratio Perm		0.04			0.03	c0.07	0.00			0.29		
v/c Ratio		0.34			0.27	0.69	0.00	1.09		0.50	0.42	
Uniform Delay, d1		50.5			50.0	52.5	11.0	25.4		37.9	4.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			0.7	10.9	0.0	55.4		0.5	1.0	
Delay (s)		51.4			50.8	63.4	11.0	80.8		38.4	5.3	
Level of Service		D			D	E	B	F		D	A	
Approach Delay (s)		51.4			62.3			80.7			14.7	
Approach LOS		D			E			F			B	

Intersection Summary			
HCM Average Control Delay	55.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	122.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	566	57	4	917	76	95	17	15	179	28	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	3385		1434	3341		1671	1708		1703	1900	1568
Flt Permitted	0.10	1.00		0.37	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	169	3385		558	3341		1671	1708		1703	1900	1568
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	149	674	68	5	1092	90	113	20	18	213	33	350
RTOR Reduction (vph)	0	4	0	0	3	0	0	15	0	0	0	123
Lane Group Flow (vph)	149	738	0	5	1179	0	113	23	0	213	33	227
Confl. Peds. (#/hr)	2		15	15		2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	7%	4%	9%	25%	6%	14%	8%	0%	7%	6%	0%	3%
Turn Type	pm+pt			pm+pt			Split			Split		pm+ov
Protected Phases	5	2		1	6		3	3		4	4	5
Permitted Phases	2			6								4
Actuated Green, G (s)	83.1	77.6		63.6	62.6		21.8	21.8		21.6	21.6	37.6
Effective Green, g (s)	84.1	78.6		65.6	63.6		22.8	22.8		22.6	22.6	39.6
Actuated g/C Ratio	0.60	0.56		0.47	0.45		0.16	0.16		0.16	0.16	0.28
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	5.2		2.3	5.2		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	286	1900		274	1518		272	278		275	307	483
v/s Ratio Prot	c0.06	0.22		0.00	c0.35		c0.07	0.01		c0.13	0.02	c0.06
v/s Ratio Perm	0.25			0.01								0.09
v/c Ratio	0.52	0.39		0.02	0.78		0.42	0.08		0.77	0.11	0.47
Uniform Delay, d1	21.2	17.2		19.8	32.2		52.6	49.7		56.3	50.1	41.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	0.3		0.0	3.1		0.8	0.1		12.3	0.1	0.5
Delay (s)	22.5	17.5		19.9	35.3		53.4	49.8		68.5	50.2	42.0
Level of Service	C	B		B	D		D	D		E	D	D
Approach Delay (s)		18.4			35.2			52.5			52.0	
Approach LOS		B			D			D			D	

Intersection Summary			
HCM Average Control Delay	34.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	9	25	36	984	682	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1626	1553	1805	1792	1810	1568
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1626	1553	410	1792	1810	1568
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	12	33	48	1312	909	95
RTOR Reduction (vph)	0	31	0	0	0	15
Lane Group Flow (vph)	12	2	48	1312	909	80
Confl. Peds. (#/hr)			7			7
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	11%	4%	0%	6%	5%	3%
Turn Type		Prot	pm+pt			pt+ov
Protected Phases	8	8	1	6	2	2 8
Permitted Phases			6			
Actuated Green, G (s)	4.9	4.9	71.4	71.4	62.7	72.1
Effective Green, g (s)	4.9	4.9	71.4	71.4	62.7	72.1
Actuated g/C Ratio	0.06	0.06	0.84	0.84	0.74	0.85
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	2.3	5.1	5.1	
Lane Grp Cap (vph)	93	89	412	1500	1330	1325
v/s Ratio Prot	c0.01	0.00	0.01	c0.73	0.50	0.05
v/s Ratio Perm			0.09			
v/c Ratio	0.13	0.02	0.12	0.87	0.68	0.06
Uniform Delay, d1	38.2	37.9	4.5	4.2	6.0	1.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.1	0.1	6.5	1.9	0.0
Delay (s)	38.6	38.0	4.6	10.7	7.9	1.1
Level of Service	D	D	A	B	A	A
Approach Delay (s)	38.2			10.5	7.3	
Approach LOS	D			B	A	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	85.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

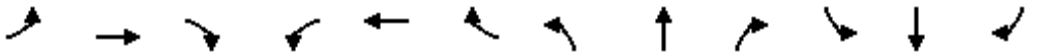
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	7	35	985	5	10	697
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	10	48	1349	7	14	955
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2335	1353			1356	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2335	1353			1356	
tC, single (s)	6.7	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.8	3.4			2.2	
p0 queue free %	70	72			97	
cM capacity (veh/h)	32	173			514	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	58	1356	968
Volume Left	10	0	14
Volume Right	48	7	0
cSH	100	1700	514
Volume to Capacity	0.57	0.80	0.03
Queue Length 95th (ft)	67	0	2
Control Delay (s)	80.7	0.0	0.9
Lane LOS	F		A
Approach Delay (s)	80.7	0.0	0.9
Approach LOS	F		

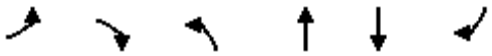
Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	301	0	32	26	0	21	106	659	12	10	186	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.5	4.8		4.8	4.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1641	1482		1805	1615		1805	1858		1805	1683	
Flt Permitted	0.95	1.00		0.73	1.00		0.24	1.00		0.15	1.00	
Satd. Flow (perm)	1641	1482		1383	1615		453	1858		279	1683	
Peak-hour factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Adj. Flow (vph)	424	0	45	37	0	30	149	928	17	14	262	211
RTOR Reduction (vph)	0	30	0	0	20	0	0	1	0	0	29	0
Lane Group Flow (vph)	424	15	0	37	10	0	149	944	0	14	444	0
Confl. Peds. (#/hr)							2					2
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	10%	0%	9%	0%	0%	0%	0%	2%	0%	0%	6%	2%
Turn Type	Prot			Perm			pm+pt			Perm		
Protected Phases	8!	4			8!		1	6			2	
Permitted Phases				8			6			2		
Actuated Green, G (s)	25.2	25.2		25.2	25.2		39.9	39.9		27.2	27.2	
Effective Green, g (s)	25.2	25.2		25.2	25.2		39.9	39.9		27.2	27.2	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.54	0.54		0.37	0.37	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.5	4.8		4.8	4.8	
Vehicle Extension (s)	2.5	3.0		2.5	2.5		2.3	2.0		2.0	2.0	
Lane Grp Cap (vph)	560	505		472	551		395	1003		103	619	
v/s Ratio Prot	c0.26	0.01			0.01		0.04	c0.51			0.26	
v/s Ratio Perm				0.03			0.16			0.05		
v/c Ratio	0.76	0.03		0.08	0.02		0.38	0.94		0.14	0.72	
Uniform Delay, d1	21.6	16.2		16.5	16.1		10.7	15.9		15.5	20.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.5	0.0		0.1	0.0		0.4	16.0		0.2	3.3	
Delay (s)	27.2	16.2		16.5	16.2		11.0	31.9		15.8	23.4	
Level of Service	C	B		B	B		B	C		B	C	
Approach Delay (s)		26.1			16.4			29.0			23.1	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	8.8
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

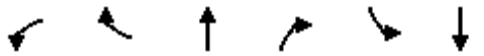
! Phase conflict between lane groups.
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	92	41	51	684	185	61
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	112	50	62	834	226	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1221	263	300			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1221	263	300			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	40	93	95			
cM capacity (veh/h)	188	757	1217			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	162	62	834	300
Volume Left	112	62	0	0
Volume Right	50	0	0	74
cSH	272	1217	1700	1700
Volume to Capacity	0.60	0.05	0.49	0.18
Queue Length 95th (ft)	88	4	0	0
Control Delay (s)	36.9	8.1	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	36.9	0.6		0.0
Approach LOS	E			

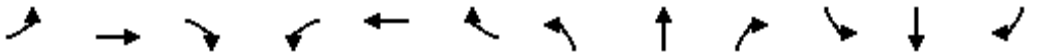
Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	81	13	189	28	4	419
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	99	16	230	34	5	511
Pedestrians						1
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked	0.97	0.97			0.97	
vC, conflicting volume	768	249			265	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	742	204			220	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	73	98			100	
cM capacity (veh/h)	370	793			1314	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	115	265	5	511
Volume Left	99	0	5	0
Volume Right	16	34	0	0
cSH	429	1700	1314	1700
Volume to Capacity	0.27	0.16	0.00	0.30
Queue Length 95th (ft)	27	0	0	0
Control Delay (s)	17.1	0.0	7.8	0.0
Lane LOS	C		A	
Approach Delay (s)	17.1	0.0	0.1	
Approach LOS	C			

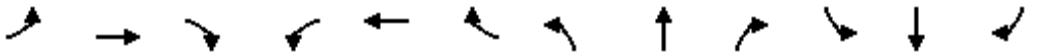
Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	574	769	79	152	444	418	30	601	169	816	1111	604
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5		4.5	3.5	4.5	4.5	4.0	4.0	4.5	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	3510		3502	3574	1559	1752	3406	1549	3467	3505	1599
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3510		3502	3574	1559	1752	3406	1549	3467	3505	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	592	793	81	157	458	431	31	620	174	841	1145	623
RTOR Reduction (vph)	0	4	0	0	0	22	0	0	127	0	0	311
Lane Group Flow (vph)	592	870	0	157	458	409	31	620	47	841	1145	312
Confl. Peds. (#/hr)	2		11	11		2			8	8		
Heavy Vehicles (%)	1%	1%	1%	0%	1%	3%	3%	6%	2%	1%	3%	1%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.5	34.2		11.0	24.7	62.2	4.8	35.2	35.2	37.5	67.9	67.9
Effective Green, g (s)	21.5	36.2		12.0	26.7	64.2	5.8	38.2	38.2	38.5	70.9	70.9
Actuated g/C Ratio	0.15	0.26		0.08	0.19	0.45	0.04	0.27	0.27	0.27	0.50	0.50
Clearance Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.7	4.7	2.3	4.7	4.7
Lane Grp Cap (vph)	527	899		297	675	708	72	920	418	944	1757	802
v/s Ratio Prot	0.17	c0.25		0.04	c0.13	0.16	0.02	0.18		c0.24	c0.33	
v/s Ratio Perm						0.11			0.03			0.20
v/c Ratio	1.12	0.97		0.53	0.68	0.58	0.43	0.67	0.11	0.89	0.65	0.39
Uniform Delay, d1	60.0	52.0		62.0	53.4	28.6	66.2	46.0	38.8	49.4	26.1	21.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	77.7	22.1		1.1	2.3	0.9	2.4	2.4	0.2	10.4	1.1	0.6
Delay (s)	137.7	74.1		63.1	55.7	29.4	68.6	48.5	39.1	59.9	27.2	22.4
Level of Service	F	E		E	E	C	E	D	D	E	C	C
Approach Delay (s)		99.8			46.0			47.2			36.6	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM Average Control Delay	55.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	141.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	129	24	515	46	42	56	293	610	28	25	1104	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.4	3.0	3.0	4.4	3.0	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1624	1594	1736	1863	1443	1787	3438	1423	1736	3539	1615
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1624	1594	1736	1863	1443	1787	3438	1423	1736	3539	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	134	25	536	48	44	58	305	635	29	26	1150	215
RTOR Reduction (vph)	0	0	64	0	0	51	0	0	8	0	0	114
Lane Group Flow (vph)	134	25	472	48	44	7	305	635	21	26	1150	101
Confl. Peds. (#/hr)	2		2	2		2			1	1		
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	2%	17%	1%	4%	2%	11%	1%	5%	11%	4%	2%	0%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4	5	1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	15.6	8.0	37.2	14.4	6.8	12.6	29.2	82.4	82.4	5.8	59.0	59.0
Effective Green, g (s)	16.6	9.0	39.2	15.4	7.8	14.6	30.2	84.4	84.4	6.8	61.0	61.0
Actuated g/C Ratio	0.13	0.07	0.30	0.12	0.06	0.11	0.23	0.65	0.65	0.05	0.47	0.47
Clearance Time (s)	4.0	5.4	4.0	4.0	5.4	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	3.0	2.3	2.3	2.3	3.0	4.5	4.5	2.3	4.5	4.5
Lane Grp Cap (vph)	226	112	517	206	112	162	415	2232	924	91	1661	758
v/s Ratio Prot	c0.08	0.02	c0.21	0.03	0.02	0.00	0.17	0.18		0.01	c0.32	
v/s Ratio Perm			0.08			0.00			0.01			0.06
v/c Ratio	0.59	0.22	0.91	0.23	0.39	0.04	0.73	0.28	0.02	0.29	0.69	0.13
Uniform Delay, d1	53.5	57.2	43.7	51.9	58.8	51.5	46.2	9.8	8.1	59.3	27.1	19.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.04	0.86	0.75	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.6	20.4	0.3	1.3	0.1	5.8	0.1	0.0	1.0	2.4	0.4
Delay (s)	56.7	57.8	64.2	52.3	60.1	51.5	53.9	8.6	6.1	60.3	29.5	19.9
Level of Service	E	E	E	D	E	D	D	A	A	E	C	B
Approach Delay (s)		62.5			54.3			22.8			28.6	
Approach LOS		E			D			C			C	

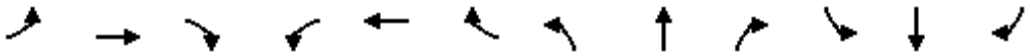
Intersection Summary			
HCM Average Control Delay	35.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



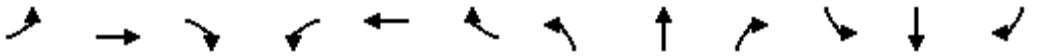
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	191	292	191	710	1260	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1568	1770	1827	3471	1577
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1568	1770	1827	3471	1577
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	199	304	199	740	1312	254
RTOR Reduction (vph)	0	258	0	0	0	83
Lane Group Flow (vph)	199	46	199	740	1312	171
Confl. Peds. (#/hr)	4	1	1			1
Heavy Vehicles (%)	2%	3%	2%	4%	4%	0%
Turn Type		Prot	Prot			Perm
Protected Phases	8	8	1	6	2	
Permitted Phases						2
Actuated Green, G (s)	18.8	18.8	19.1	100.7	77.6	77.6
Effective Green, g (s)	19.8	19.8	20.1	102.7	79.6	79.6
Actuated g/C Ratio	0.15	0.15	0.15	0.79	0.61	0.61
Clearance Time (s)	4.5	4.5	4.0	6.0	6.0	6.0
Vehicle Extension (s)	2.3	2.3	2.3	4.5	4.5	4.5
Lane Grp Cap (vph)	270	239	274	1443	2125	966
v/s Ratio Prot	c0.11	0.03	c0.11	0.41	c0.38	
v/s Ratio Perm						0.11
v/c Ratio	0.74	0.19	0.73	0.51	0.62	0.18
Uniform Delay, d1	52.6	48.1	52.3	4.8	15.7	11.0
Progression Factor	1.00	1.00	1.00	1.00	0.77	0.24
Incremental Delay, d2	9.2	0.2	8.3	1.3	0.9	0.3
Delay (s)	61.8	48.4	60.7	6.1	13.1	2.9
Level of Service	E	D	E	A	B	A
Approach Delay (s)	53.7			17.7	11.4	
Approach LOS	D			B	B	

Intersection Summary			
HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	4	2	28	5	224	1	642	28	270	1236	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	5.0		3.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.96			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1762			1603	1563	1805	1797		1805	1819	
Flt Permitted		0.74			0.79	1.00	0.05	1.00		0.30	1.00	
Satd. Flow (perm)		1354			1321	1563	93	1797		576	1819	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	32	4	2	29	5	233	1	669	29	281	1288	47
RTOR Reduction (vph)	0	2	0	0	0	215	0	1	0	0	1	0
Lane Group Flow (vph)	0	36	0	0	34	18	1	697	0	281	1334	0
Confl. Peds. (#/hr)	1					1			1	1		
Heavy Vehicles (%)	3%	0%	0%	16%	0%	1%	0%	5%	4%	0%	4%	2%
Turn Type	Perm			Perm		Perm	pm+pt			pm+pt		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		9.2			9.2	9.2	83.1	83.1		109.3	107.3	
Effective Green, g (s)		10.2			10.2	10.2	84.1	84.1		110.3	108.3	
Actuated g/C Ratio		0.08			0.08	0.08	0.64	0.64		0.84	0.82	
Clearance Time (s)		4.5			4.5	4.5	4.0	6.0		4.0	6.0	
Vehicle Extension (s)		2.5			2.5	2.5	2.3	4.5		2.3	4.5	
Lane Grp Cap (vph)		105			102	121	85	1145		725	1492	
v/s Ratio Prot							0.00	c0.39		0.08	c0.73	
v/s Ratio Perm		c0.03			0.03	0.01	0.01			0.25		
v/c Ratio		0.34			0.33	0.15	0.01	0.61		0.39	0.89	
Uniform Delay, d1		57.7			57.7	56.8	25.3	14.2		10.6	8.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.4			1.4	0.4	0.0	2.4		0.2	8.6	
Delay (s)		59.2			59.1	57.3	25.3	16.6		10.8	16.6	
Level of Service		E			E	E	C	B		B	B	
Approach Delay (s)		59.2			57.5			16.6			15.6	
Approach LOS		E			E			B			B	

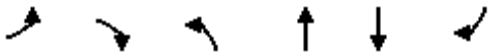
Intersection Summary			
HCM Average Control Delay	20.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	438	982	106	23	492	81	205	94	44	73	53	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	3484		1804	3446		1787	1799		1719	1900	1578
Flt Permitted	0.22	1.00		0.24	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	406	3484		454	3446		1787	1799		1719	1900	1578
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	476	1067	115	25	535	88	223	102	48	79	58	328
RTOR Reduction (vph)	0	4	0	0	8	0	0	10	0	0	0	96
Lane Group Flow (vph)	476	1178	0	25	615	0	223	140	0	79	58	232
Confl. Peds. (#/hr)	3		4	4		3			4	4		
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	1%	2%	0%	0%	2%	3%	1%	0%	0%	5%	0%	2%
Turn Type	pm+pt			pm+pt			Split			Split		pm+ov
Protected Phases	5	2		1	6		3	3		4	4	5
Permitted Phases	2			6								4
Actuated Green, G (s)	68.2	60.5		35.3	32.1		19.6	19.6		10.7	10.7	42.3
Effective Green, g (s)	69.2	61.5		37.3	33.1		20.6	20.6		11.7	11.7	44.3
Actuated g/C Ratio	0.62	0.55		0.33	0.30		0.18	0.18		0.10	0.10	0.40
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	5.2		2.3	5.2		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	653	1913		202	1018		329	331		180	198	673
v/s Ratio Prot	c0.21	0.34		0.00	0.18		c0.12	0.08		c0.05	0.03	0.10
v/s Ratio Perm	c0.24			0.04								0.05
v/c Ratio	0.73	0.62		0.12	0.60		0.68	0.42		0.44	0.29	0.34
Uniform Delay, d1	17.3	17.2		25.3	33.8		42.6	40.4		47.1	46.3	23.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.8	0.9		0.2	1.6		5.0	0.6		1.2	0.6	0.2
Delay (s)	21.1	18.1		25.4	35.4		47.6	41.1		48.3	46.9	23.9
Level of Service	C	B		C	D		D	D		D	D	C
Approach Delay (s)		19.0			35.0			45.0			30.9	
Approach LOS		B			D			D			C	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	112.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	59	40	25	493	1059	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1805	1615	1805	1863	1881	1615
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1805	1615	122	1863	1881	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	66	45	28	554	1190	48
RTOR Reduction (vph)	0	40	0	0	0	6
Lane Group Flow (vph)	66	5	28	554	1190	42
Confl. Peds. (#/hr)			7			7
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Turn Type		Prot	pm+pt			pt+ov
Protected Phases	8	8	1	6	2	2 8
Permitted Phases			6			
Actuated Green, G (s)	9.0	9.0	64.4	64.4	57.8	71.3
Effective Green, g (s)	9.0	9.0	64.4	64.4	57.8	71.3
Actuated g/C Ratio	0.11	0.11	0.78	0.78	0.70	0.87
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	2.3	5.1	5.1	
Lane Grp Cap (vph)	197	176	138	1456	1319	1397
v/s Ratio Prot	c0.04	0.00	0.01	c0.30	c0.63	0.03
v/s Ratio Perm			0.15			
v/c Ratio	0.34	0.03	0.20	0.38	0.90	0.03
Uniform Delay, d1	33.9	32.8	16.7	2.8	10.0	0.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.4	0.4	9.4	0.0
Delay (s)	34.7	32.8	17.2	3.2	19.4	0.8
Level of Service	C	C	B	A	B	A
Approach Delay (s)	33.9			3.8	18.7	
Approach LOS	C			A	B	

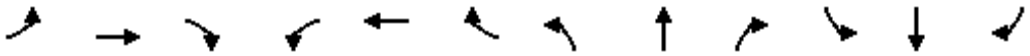
Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	82.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	18	500	6	37	1062
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	5	20	568	7	42	1207
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1862	572			575	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1862	572			575	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	94	96			96	
cM capacity (veh/h)	78	512			993	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	25	575	1249
Volume Left	5	0	42
Volume Right	20	7	0
cSH	254	1700	993
Volume to Capacity	0.10	0.34	0.04
Queue Length 95th (ft)	8	0	3
Control Delay (s)	20.7	0.0	1.5
Lane LOS	C		A
Approach Delay (s)	20.7	0.0	1.5
Approach LOS	C		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		

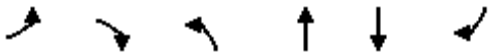


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	0	10	20	0	17	11	376	25	21	891	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.5	4.8			4.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1805	1615		1805	1615		1805	1814			1833	
Flt Permitted	0.95	1.00		0.75	1.00		0.22	1.00			0.99	
Satd. Flow (perm)	1805	1615		1426	1615		427	1814			1813	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	0	11	22	0	19	12	418	28	23	990	127
RTOR Reduction (vph)	0	10	0	0	17	0	0	1	0	0	2	0
Lane Group Flow (vph)	122	1	0	22	2	0	12	445	0	0	1138	0
Confl. Peds. (#/hr)							3					3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	2%	0%
Turn Type	Prot			Perm			pm+pt			Perm		
Protected Phases	8!	4			8!		1	6			2	
Permitted Phases				8			6			2		
Actuated Green, G (s)	9.6	9.6		9.6	9.6		55.0	55.0			49.6	
Effective Green, g (s)	9.6	9.6		9.6	9.6		55.0	55.0			49.6	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.75	0.75			0.68	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.5	4.8			4.8	
Vehicle Extension (s)	2.5	3.0		2.5	2.5		2.3	2.0			2.0	
Lane Grp Cap (vph)	236	211		187	211		337	1359			1225	
v/s Ratio Prot	c0.07	0.00			0.00		0.00	c0.25				
v/s Ratio Perm				0.02			0.03				c0.63	
v/c Ratio	0.52	0.01		0.12	0.01		0.04	0.33			0.93	
Uniform Delay, d1	29.7	27.8		28.2	27.8		4.1	3.1			10.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.4	0.0		0.2	0.0		0.0	0.1			12.0	
Delay (s)	31.2	27.8		28.4	27.8		4.2	3.1			22.3	
Level of Service	C	C		C	C		A	A			C	
Approach Delay (s)		30.9			28.1			3.1			22.3	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	73.4	Sum of lost time (s)	13.6
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

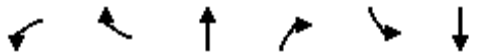
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	85	18	19	323	740	171
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	89	19	20	340	779	180
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1249	869	959			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1249	869	959			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	52	95	97			
cM capacity (veh/h)	186	354	725			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	108	20	340	959
Volume Left	89	20	0	0
Volume Right	19	0	0	180
cSH	225	725	1700	1700
Volume to Capacity	0.48	0.03	0.20	0.56
Queue Length 95th (ft)	60	2	0	0
Control Delay (s)	36.7	10.1	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	36.7	0.6		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	62	5	508	102	10	366
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	70	6	577	116	11	416
Pedestrians	2		2			
Lane Width (ft)	12.0		12.0			
Walking Speed (ft/s)	4.0		4.0			
Percent Blockage	0		0			
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked	0.80	0.80			0.80	
vC, conflicting volume	1078	637			695	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	969	415			488	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	99			99	
cM capacity (veh/h)	222	509			862	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	76	693	11	416
Volume Left	70	0	11	0
Volume Right	6	116	0	0
cSH	240	1700	862	1700
Volume to Capacity	0.32	0.41	0.01	0.24
Queue Length 95th (ft)	33	0	1	0
Control Delay (s)	27.4	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	27.4	0.0	0.2	
Approach LOS	D			

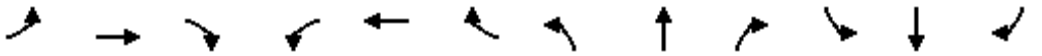
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

Attachment F

Year 2027 Background and Total Traffic Level-of-Service Worksheets (183 residential units)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	150	275	50	300	97	175	750	50	300	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		4.0	3.5		3.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1657		1770	1795		1770	1812		1770	3471	1577
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1657		1770	1795		1770	1812		1770	3471	1577
Peak-hour factor, PHF	0.96	0.95	0.96	0.95	0.95	0.95	0.96	0.96	0.95	0.95	0.96	0.96
Adj. Flow (vph)	286	158	286	53	316	102	182	781	53	316	1823	309
RTOR Reduction (vph)	0	49	0	0	9	0	0	2	0	0	0	90
Lane Group Flow (vph)	286	395	0	53	409	0	182	832	0	316	1823	219
Confl. Peds. (#/hr)	4		1				1					1
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	4%	2%	2%	4%	0%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	17.0	38.3		4.0	25.3		10.0	50.2		19.0	59.2	59.2
Effective Green, g (s)	18.0	38.3		4.0	26.3		11.0	52.2		19.0	61.2	61.2
Actuated g/C Ratio	0.14	0.29		0.03	0.20		0.08	0.40		0.15	0.47	0.47
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	3.0	2.3		3.0	2.3		2.3	4.5		3.0	4.5	4.5
Lane Grp Cap (vph)	245	488		54	363		150	728		259	1634	742
v/s Ratio Prot	c0.16	0.24		0.03	c0.23		0.10	0.46		c0.18	c0.53	
v/s Ratio Perm												0.14
v/c Ratio	1.17	0.81		0.98	1.13		1.21	1.14		1.22	1.12	0.29
Uniform Delay, d1	56.0	42.5		63.0	51.9		59.5	38.9		55.5	34.4	21.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	110.3	9.2		115.3	86.4		142.1	80.3		128.7	61.1	1.0
Delay (s)	166.3	51.6		178.2	138.3		201.6	119.2		184.2	95.5	22.1
Level of Service	F	D		F	F		F	F		F	F	C
Approach Delay (s)		96.6			142.8			133.9			97.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	110.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	109.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	154	275	50	304	106	175	750	50	312	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		4.0	3.5		3.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1659		1770	1790		1770	1812		1770	3471	1577
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1659		1770	1790		1770	1812		1770	3471	1577
Peak-hour factor, PHF	0.96	0.95	0.96	0.95	0.95	0.95	0.96	0.96	0.95	0.95	0.96	0.96
Adj. Flow (vph)	286	162	286	53	320	112	182	781	53	328	1823	309
RTOR Reduction (vph)	0	48	0	0	10	0	0	2	0	0	0	90
Lane Group Flow (vph)	286	400	0	53	422	0	182	832	0	328	1823	219
Confl. Peds. (#/hr)	4		1				1					1
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	4%	2%	2%	4%	0%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	17.0	38.3		4.0	25.3		10.0	50.2		19.0	59.2	59.2
Effective Green, g (s)	18.0	38.3		4.0	26.3		11.0	52.2		19.0	61.2	61.2
Actuated g/C Ratio	0.14	0.29		0.03	0.20		0.08	0.40		0.15	0.47	0.47
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	3.0	2.3		3.0	2.3		2.3	4.5		3.0	4.5	4.5
Lane Grp Cap (vph)	245	489		54	362		150	728		259	1634	742
v/s Ratio Prot	c0.16	0.24		0.03	c0.24		0.10	0.46		c0.19	c0.53	
v/s Ratio Perm												0.14
v/c Ratio	1.17	0.82		0.98	1.17		1.21	1.14		1.27	1.12	0.29
Uniform Delay, d1	56.0	42.6		63.0	51.9		59.5	38.9		55.5	34.4	21.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	110.3	9.9		115.3	101.0		142.1	80.3		146.9	61.1	1.0
Delay (s)	166.3	52.5		178.2	152.8		201.6	119.2		202.4	95.5	22.1
Level of Service	F	D		F	F		F	F		F	F	C
Approach Delay (s)		96.8			155.6			133.9			100.5	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	112.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	110.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Attachment G

Year 2027 Total Traffic Level-of-Service Worksheets (196 residential uunits)

196 RESIDENTIAL UNITS SENSITIVITY ANALYSIS

Additional detail of the unit breakdown, trip generation, and operations summary for the sensitivity analysis is included is provided below.

Table G-1 Estimated Trip Generation (Sensitivity Analysis for 196 units)

Land Use	Size (units)	Daily Trips[1]	Weekday AM Peak Hour			Weekday PM Peak Hour		
			Total	In	Out	Total	In	Out
Mid-Rise Apartment (ITE Code 223)	160	620[1]	48	15	33	62	36	26
Rental Townhouse (ITE Code 224)	36	260[1]	25	8	17	26	13	13
Total	**196**	**880[1]**	**73**	**23**	**50**	**88**	**49**	**39**

[1] Estimated as 10-times the weekday p.m. peak hour trip generation

Table G-2 Year 2027 Total Traffic Volumes at the Beavercreek Road/Meyers Road Intersection (Sensitivity Analysis for 196 units)

Movement	2027 Background Traffic Volumes	Site Added Traffic (no Meyers Road extension assumed)	Re-routed Site Added Traffic (assumes Meyers Road extension)	2027 Total Traffic Volumes
Northbound Left	175	4	--	175
Northbound Through	750	10	--	750
Northbound Right	50	--	--	50
Southbound Left	300	--	12	312
Southbound Through	1,750	12	--	1,750
Southbound Right	297	--	--	297
Eastbound Left	275	--	--	275
Eastbound Through	150	--	5	155
Eastbound Right	275	5	--	275
Westbound Left	50	--	--	50
Westbound Through	300	--	4	304
Westbound Right	97	--	10	107

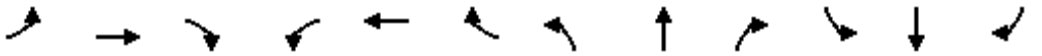
The 2027 sensitivity analysis total traffic volumes shown in Table G-2 were used to prepare an operational analysis at the Beavercreek Road/Meyers Road intersection. The results of the sensitivity analysis are provided in Table G-3.

Table G-3 Year 2027 Total Traffic Conditions, Weekday PM Peak Hour (Sensitivity Analysis for 196 units)

Intersection	Performance Standard	2027 Base Condition	2027 Condition with Site-Added Traffic	Incremental Impact
OR 213/ Meyers Road	0.99	1.13	1.14	+0.01

As shown in Table G-3, the proposed development could increase the number of mid-rise apartments from 141 units to 160 units (for a total of up to 196 units) without having a greater than one percent impact on the operations of the OR 213/Meyers Road intersection upon buildout of the Meyers Road extension, thus not triggering a "significant impact" with up to 196 units.

Additional level-of-service worksheets are provided on the following page in support of the 196-unit analysis shown above.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	304	107	175	750	50	312	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		4.0	3.5		3.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1660		1770	1790		1770	1812		1770	3471	1577
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1660		1770	1790		1770	1812		1770	3471	1577
Peak-hour factor, PHF	0.96	0.95	0.96	0.95	0.95	0.95	0.96	0.96	0.95	0.95	0.96	0.96
Adj. Flow (vph)	286	163	286	53	320	113	182	781	53	328	1823	309
RTOR Reduction (vph)	0	47	0	0	9	0	0	2	0	0	0	90
Lane Group Flow (vph)	286	402	0	53	424	0	182	832	0	328	1823	219
Confl. Peds. (#/hr)	4		1				1					1
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	4%	2%	2%	4%	0%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	17.0	39.3		4.0	26.3		10.0	49.2		19.0	58.2	58.2
Effective Green, g (s)	18.0	39.3		4.0	27.3		11.0	51.2		19.0	60.2	60.2
Actuated g/C Ratio	0.14	0.30		0.03	0.21		0.08	0.39		0.15	0.46	0.46
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	3.0	2.3		3.0	2.3		2.3	4.5		3.0	4.5	4.5
Lane Grp Cap (vph)	245	502		54	376		150	714		259	1607	730
v/s Ratio Prot	c0.16	0.24		0.03	c0.24		0.10	0.46		c0.19	c0.53	
v/s Ratio Perm												0.14
v/c Ratio	1.17	0.80		0.98	1.13		1.21	1.17		1.27	1.13	0.30
Uniform Delay, d1	56.0	41.7		63.0	51.4		59.5	39.4		55.5	34.9	21.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	110.3	8.3		115.3	85.3		142.1	89.3		146.9	68.8	1.1
Delay (s)	166.3	50.1		178.2	136.7		201.6	128.7		202.4	103.7	22.8
Level of Service	F	D		F	F		F	F		F	F	C
Approach Delay (s)		95.3			141.2			141.8			106.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	116.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	110.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

EVERGREEN HOUSING
DEVELOPMENT GROUP

July 18, 2013

Caufield Neighborhood Association
Mike Mermelstein – Co-Chair and Land Use Chair – Mike1376@aol.com
Larry Hanlon – Co-Chair – larryhanlon@hotmail.com
Gary Davis – Secretary – Davisgj2@comcast.net

Delivery Via e-mail

RE: Notice of Planned Development at 19896 S Beavercreek Rd, Oregon City, OR

Dear Caufield Neighborhood Association,

This letter is being set to you as Notification of a planned new construction project at 19896 S. Beavercreek Road, as required under section 17.50.055 of the Oregon City Municipal Code. Mike Mermelstein stated that e-mail notification could be used in place of certified mail.

Attached is background on the project concept and some preliminary design of that concept.

Mike Mermelstein and I spoke about the required public meeting and the lack of availability for me to present at your July 23, 2013 meeting. Due to the full schedule of your July 23, 2013 meeting and the lack of other planned meetings until October of this year it was decided that I should set up a separate meeting for the public to listen to our concept, ask questions and provide feedback.

I will send a separate notice about our planned public meeting to all of you and also to the neighbors within 300 feet of our proposed development. I am hoping to have the meeting at the Beavercreek Cooperative Telephone building in mid-August after 6:00pm. I will be in touch with exact details.

If you have any questions in the mean time please contact me via phone or e-mail.

Sincerely,

Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC
206-535-6248 x 101
andrew@evergreenhd.com

CC: Kattie Riggs – City Liason to the Citizen Involvement Committee – kriggs@orcity.org

EVERGREEN HOUSING
DEVELOPMENT GROUP

July 18, 2013

Caufield Neighborhood Association
Mike Mermelstein – Co-Chair and Land Use Chair – Mike1376@aol.com
Larry Hanlon – Co-Chair – larryhanlon@hotmail.com
Gary Davis – Secretary – Davisgj2@comcast.net

Delivery Via e-mail

RE: Notice of Planned Development at 19896 S Beavercreek Rd, Oregon City, OR

Dear Caufield Neighborhood Association,

This letter is being set to you as Notification of a planned new construction project at 19896 S. Beavercreek Road, as required under section 17.50.055 of the Oregon City Municipal Code. Mike Mermelstein stated that e-mail notification could be used in place of certified mail.

Attached is background on the project concept and some preliminary design of that concept.

Mike Mermelstein and I spoke about the required public meeting and the lack of availability for me to present at your July 23, 2013 meeting. Due to the full schedule of your July 23, 2013 meeting and the lack of other planned meetings until October of this year it was decided that I should set up a separate meeting for the public to listen to our concept, ask questions and provide feedback.

I will send a separate notice about our planned public meeting to all of you and also to the neighbors within 300 feet of our proposed development. I am hoping to have the meeting at the Beavercreek Cooperative Telephone building in mid-August after 6:00pm. I will be in touch with exact details.

If you have any questions in the mean time please contact me via phone or e-mail.

Sincerely,

Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC
206-535-6248 x 101
andrew@evergreenhd.com

CC: Kattie Riggs – City Liason to the Citizen Involvement Committee – kriggs@orcity.org

19896 S. Beavercreek Road Proposed Development
Community Meeting

August 15, 2013

Clackamas Community College
19600 Molalla Ave
Room 229
Oregon City, OR 97045

Meeting Agenda:

6:15pm Meeting Begins.

- Introduction from Andrew Brand, Director of Development for Evergreen Housing Development Group, LLC
- If size of audience permits, introductions of those in attendance from the community (Please sign in).

6:25pm Project Overview

- General overview of the project including uses, design and project timeline as currently known.

6:40pm Q&A. General discussions *

Meeting Adjourns when Q&A is complete.

*Comments can also be made on the comment sheets available near the sign-in sheet. These can be left anonymously. Or, you can request follow-up.

Additional questions for the developer about this project can be directed to:

Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC
600 University St, Suite 1708
Seattle, WA 98101
andrew@evergreenhd.com
206-535-6248 x 101

EVERGREEN HOUSING
DEVELOPMENT GROUP

July 18, 2013

Caufield Neighborhood Association
Mike Mermelstein – Co-Chair and Land Use Chair – Mike1376@aol.com
Larry Hanlon – Co-Chair – larryhanlon@hotmail.com
Gary Davis – Secretary – Davisgj2@comcast.net

Delivery Via e-mail

RE: Notice of Planned Development at 19896 S Beavercreek Rd, Oregon City, OR

Dear Caufield Neighborhood Association,

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CC: Kattie Riggs – City Liason to the Citizen Involvement Committee – kriggs@orcity.org

MILBRANDT ARCHITECTS

June 12, 2013

Proposed Development for Beavercreek Road, LLC.

Narrative:

The site plan presented for your consideration today will create the initial focal point for the vibrant and sustainable community to be of Beavercreek. Located at the intersection of Beavercreek Road and Meyers Road our project is likely to be the first community built in the area falling under the yet to be approved Beavercreek Road Concept Plan. Being first comes with both opportunity and responsibility. It is just as crucial to provide desirable, market-supported design solutions for the subject site as it is to consider how the site may inform the future development of the greater community.

Located at 19896 Beavercreek Road, within the Mixed Employment Village, the focus of our study is a 9.59 Acre site to the east of Beavercreek Road that will include an extension of Meyers Road and will serve as one of the main points of entry for this dynamic area to be. This document, and the associated exhibits, will illustrate how the proposed plan is consistent with the objectives of the Beavercreek Road Concept Plan and the Oregon City Municipal Code and Comprehensive Plan. The proposed plan provides a strong foundation needed to ensure the future of the Mixed Employment Village development and surrounding areas.

With the exception of the gas line easement and Meyers Road running through the northwest section, the site is comprised of entirely unconstrained land. What would seem to be a great positive element can in fact at times prove to have the opposite affect; clouding the vision of a design team, causing them to lose the big picture by focusing only on the potential within their own legal boundary lines. Through a careful study of the intents of the applicable codes and concept plans as well as plans previously proposed by others, we are now proposing a plan that we believe will not only meet the goals for our site, but will extend beyond our property lines to influence and provide a positive framework for neighboring developments to plug in to.

CIRCULATION

Before revisiting the building typology, we first need to demonstrate that we will provide a strong plan for circulation in the context of the overall future street network, including all forms of transportation; bicycle, pedestrian, transit and vehicular. The most critical initial transportation plan element is determining the number of through-streets to parallel Beavercreek Road between Beavercreek and the Central Parkway. This will ultimately define block size and developable land areas throughout the Mixed Employment Village and beyond. To consider and inform this issue, we focused on the Oregon City

Municipal Code and Beavercreek Road Concept Plan for direction as well as investigating block sizing at a local, state and national level.

Considering the givens we have to work with, Beavercreek Road as an Arterial Street and Meyers Road as a Collector Street, the first major factor was the minimum street intersection spacing standards outlined in OCMC Chapter 12.04.195. As found in Table 12.04.040, no Local Street or Neighborhood Collector (depending on how the new parallel road will be classified) shall be within 300 feet from Beavercreek Road as measured along Meyers Road. Using this piece of information coupled with an effort to standardize the grid system made the direction rather clear that one parallel road would be the most logical path. With one block dimension defined, further analysis of block sizing was then completed to help inform how many perpendicular cross streets to plan between Meyers Road and Glen Oak Road.

There is, of course, a wide range in block sizes as you sample major metropolitan areas across the country; from one of the largest at 1000'x500' in New York to some of the smallest right here in Portland at only 200'x200'. Delving further into how different block sizes function and the feel they lend to the pedestrian environment is quite informative; and by filtering this information by the types of use and other site specific design parameters we can zero in on an effective range to best suit the goals of the Concept Plan.

After analyzing this information and applying it to our site plan, we feel confident that the 340'x440' block size we have proposed provides the needed balance between maximizing pedestrian circulation routes and reasonably dimensioned net developable land areas. The rationale behind a 340'x440' block size is that the consistent grid spacing it provides will lend flexibility to the different development zones within the Beavercreek Road Concept Plan. In areas such as the Mixed Employment Village Zone, it is just large enough to allow buildings to face onto the streets with the use of alleys and interior parking where a smaller block size would limit the ability to meet this code requirement. As the grid extends to the north to the North Employment Campus, it will lend itself to larger building footprints for commercial and business tenants. Connecting to the South in the Main Street and Mixed Use Neighborhoods the same concept as the MEV could be used (building street frontage with interior alleyways and parking concept) with the option to introduce additional local streets creating half-blocks at 220'x340' for the most pedestrian dense shopping districts.

BUILT ENVIRONMENT

Once we establish a suitable public street grid pattern, we are able to then focus in on the requirements of the code as they relate to the built environment. Starting with what will serve as the gateway to the Mixed Employment Village and the greater Beavercreek community, the north corner of the Meyers Road intersection would be home to a three-story mixed-use building with parking and a public open space/plaza element at the corner. The building itself is proposed to include a ground floor sundries-type market with four housing units above. As an alternative to the typical studio unit these units would be comprised of five bedrooms that share a common living/kitchen space; a unique unit type in the area

which would provide a lower cost option to students of the community college or any community resident looking for an affordable single occupant living option. The enhanced pedestrian space located within the existing gasline easement would be dedicated to serve as the first link between the existing community to the southwest and the extensive trail and open space network planned within the Beavercreek Road Concept Plan.

Framing the entrance on the east corner and extending down Beavercreek Road to the southeast are three-story live/work townhome units. By incorporating elements from OCMC Chapter 17.62.055D, these live/work townhomes will achieve an attractive street presence while at the same time providing an enlarged buffer along Beavercreek Road to promote a safer, yet more active employment and pedestrian environment. To further enhance the pedestrian network along Beavercreek Road a pedestrian plaza is planned to break up the building mass and provide connections into the proposed site.

To promote the same kind of employment opportunity and engaging, active, street life along the new interior Local Streets we have planned to meet the standards of the Neighborhood Greenstreet as outlined in the Beavercreek Road Concept Plan; providing lanes dedicated to vehicles, bicycles and sidewalks buffered by parallel parking lanes and plantings. Lining these Local Streets would be three to four story apartment buildings with direct street access to the ground floor live/work units along Streets A and B. Set close to the street, the Apartment buildings along with the proposed park and community center will draw people into the site by creating a vibrant and active internal local street intersection.

The community center would house both leasing and management functions for the community while providing recreation opportunities with a pool and exercise center. To meet the height requirements of the concept plan a second and third floor are planned above the community center that would add an additional four housing units similar to the units at the northeast corner of Meyers road and Beavercreek road (four 5-bedroom units).

We believe that by planning for the good of the greater community, the plan we present here for your consideration today helps establish the strong foundation needed for a thriving employment, street and pedestrian network in the Beavercreek community to be. With further design development, an attractive street presence with hidden parking clusters, incorporating green building and site strategies, will bring this piece of the pedestrian-oriented Mixed Employment Village community as envisioned by the Beavercreek Road Concept Plan to life.

The following is a list of specific items we hope City staff can provide pointed feedback on, in addition to the design considerations above.

1. Please confirm if there are unpublished conditions to the prior zone change of the property or to the un-adopted provisions of the Beaver Creek Road Concept Plan or conditions that have been put in place since the re-zone was adopted.

2. Please provide guidance or specific criteria as to the study parameters of a Transportation Impact Analysis that will need to be conducted (if indeed required by the City) for this project.

3. Please provide guidance or contacts with ODOT who may be in control of decisions regarding requirements for improving Beavercreek Road as part of our project in order for our team to coordinate TIA, design and permit items.

4. Given that much of our project will include streets that will eventually be considered connectors to other parts of the Beavercreek sub-area, please provide any guidance about latecomer fees, SDC credits or public facility dedication SDC credits that may apply to our proposal.

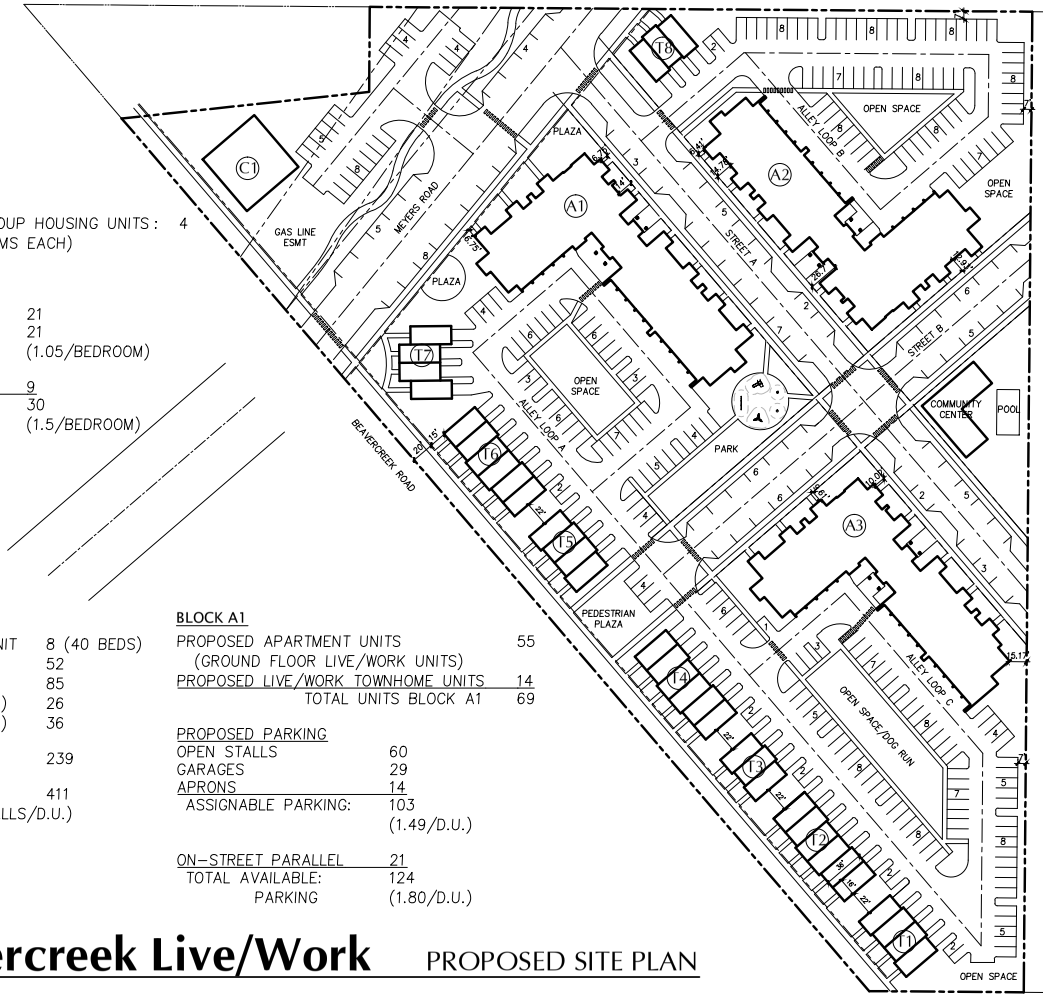
5. As we are new to working with Oregon City we would appreciate pointed feedback about the process and steps for permitting this project, including any time periods for public notification, code required public meetings (if any) and appeal timelines.

Sincerely,



Anna P. Thompson

Milbrandt Architects
Project Manager



BLOCK C1

PROPOSED STUDENT/GROUP HOUSING UNITS: 4
(5 RENTABLE BEDROOMS EACH)

PROPOSED PARKING	
OPEN STALLS	21
ASSIGNABLE PARKING:	21
	(1.05/BEDROOM)
ON-STREET PARALLEL	9
TOTAL AVAILABLE:	30
PARKING	(1.5/BEDROOM)

UNIT TYPE

STUDIO/GROUP HOUSING UNIT	8 (40 BEDS)
1 BED/1 BATH	52
2 BED/2 BATH	85
2 BED/2 BATH (LIVE/WORK)	26
3 BED/2 BATH (LIVE/WORK)	36
TOTAL RENTABLE UNITS	239
TOTAL PARKING	411
	(1.72 STALLS/D.U.)

BLOCK A1

PROPOSED APARTMENT UNITS	55
(GROUND FLOOR LIVE/WORK UNITS)	
PROPOSED LIVE/WORK TOWNHOME UNITS	14
TOTAL UNITS BLOCK A1	69

PROPOSED PARKING	
OPEN STALLS	60
GARAGES	29
APRONS	14
ASSIGNABLE PARKING:	103
	(1.49/D.U.)
ON-STREET PARALLEL	21
TOTAL AVAILABLE:	124
PARKING	(1.80/D.U.)

BLOCK A2

PROPOSED APARTMENT UNITS	55
(GROUND FLOOR LIVE/WORK UNITS)	
PROPOSED LIVE/WORK TOWNHOME UNITS	3
TOTAL UNITS BLOCK A1	58

PROPOSED PARKING	
OPEN STALLS	72
GARAGES	18
APRONS	3
ASSIGNABLE PARKING:	93
	(1.60/D.U.)
ON-STREET PARALLEL	13
TOTAL AVAILABLE:	106
PARKING	(1.82/D.U.)

COMMUNITY CENTER

PROPOSED STUDENT/GROUP HOUSING UNITS: 4
(5 RENTABLE BEDROOMS EACH)

ON-STREET PARALLEL	21
TOTAL AVAILABLE:	21
PARKING	(1.05/BEDROOM)

BLOCK A3

PROPOSED APARTMENT UNITS	53
(GROUND FLOOR LIVE/WORK UNITS)	
PROPOSED LIVE/WORK TOWNHOME UNITS	19
TOTAL UNITS BLOCK A1	72

PROPOSED PARKING	
OPEN STALLS	77
GARAGES	34
APRONS	19
ASSIGNABLE PARKING:	130
	(1.80/D.U.)

Beavercreek Live/Work

PROPOSED SITE PLAN

1:100

H:\1239\SITE_PLAN.DWG

Milbrandt Architects, Inc., P.S.
25 Central Way, Suite 210, Kirkland, Washington 98033 Phone: 425-454-7130 Fax: 425-658-1208 Website: http://www.milbrandtarch.com

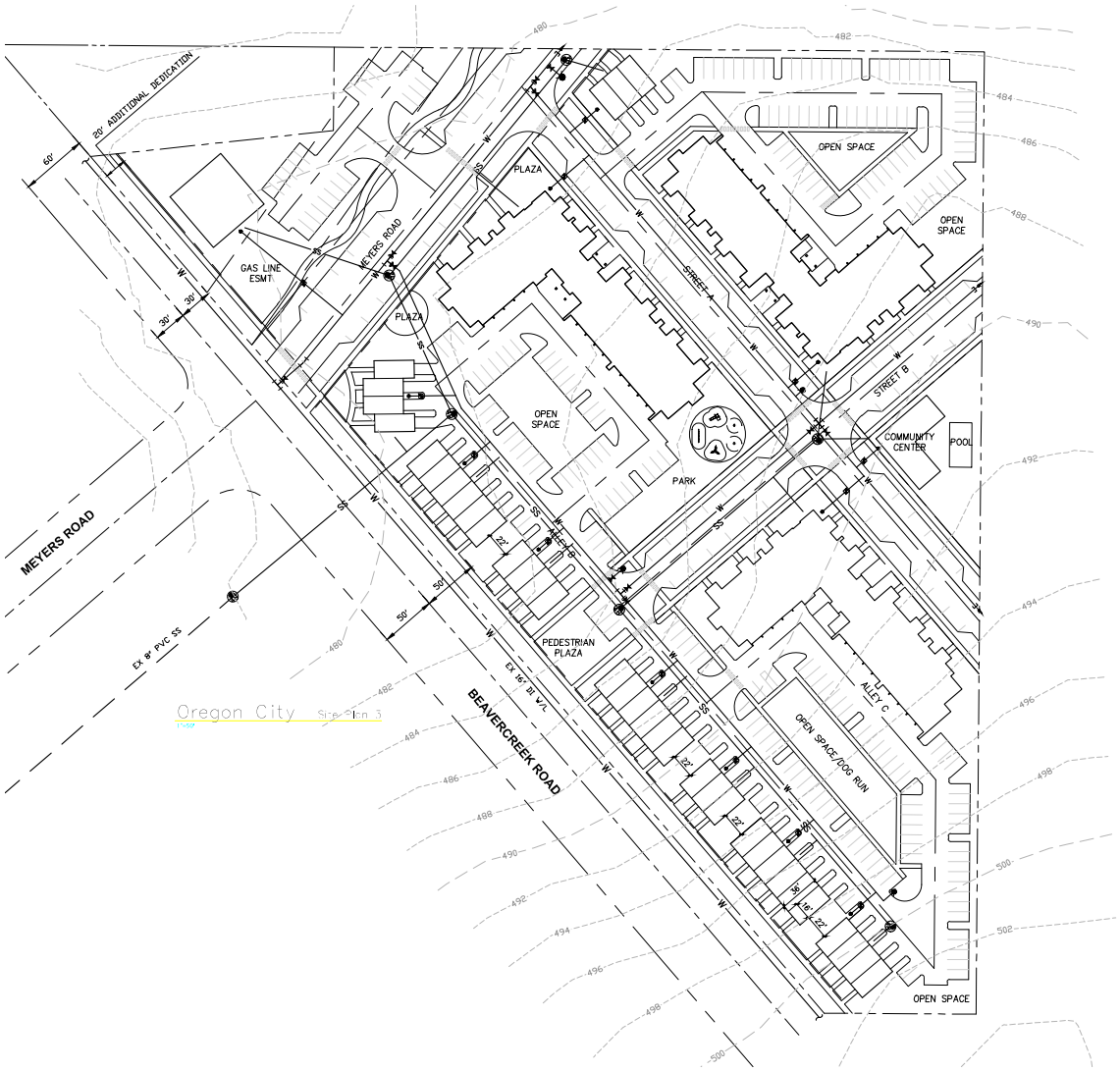
Beavercreek Live/Work
Oregon City, Oregon
Beavercreek Road, LLC

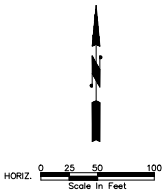
Proposed Site Plan
Live/Work Townhome & Apartment Development

Scale:	Drawn By:	Date:	Date Plotted:
1 : 100	APT	06-10-2013	6-10-13

Sheet No.: **A1**

Job No.: **12-39**





PRELIMINARY

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PLOT TIME: 5/24/2013 5:57 PM
USER NAME: ANDREW REITER
XREFS:

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DRAWN	AAR				
CHECKED	BDL				
SYM	REVISION	DATE	BY	APP'D	

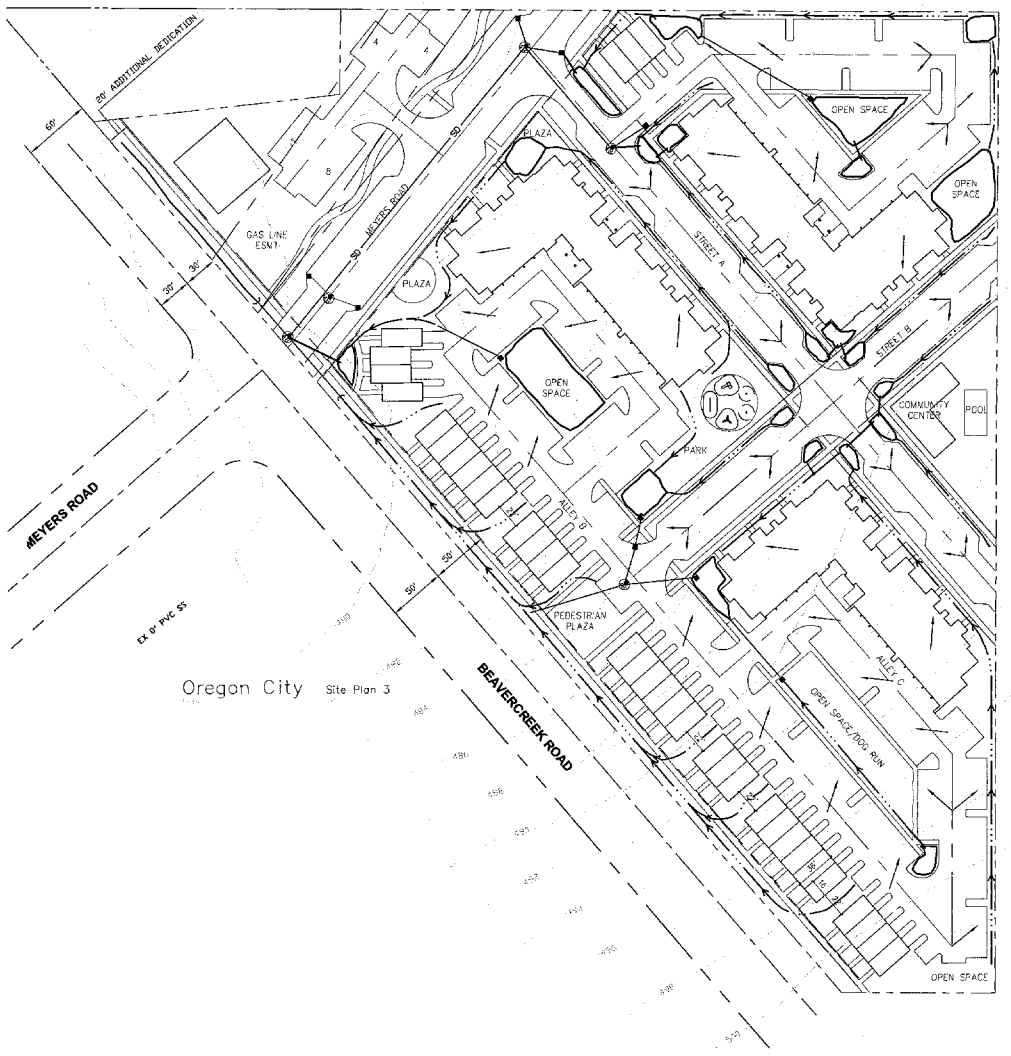
PACE
An Engineering Services Company
5000 Meadows Road, Suite 345
Lake Oswego, OR 97035
p. 503.597.3222 | f. 503.597.7655
Civil | Structural | Planning | Survey
pacenglis.com

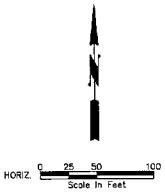
BEAVERCREEK
OREGON CITY, OREGON

PLOT DATE: 5/24/13
SCALE: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"

UTILITY PLAN

JOB NUMBER 12815
DWG NAME: UTILITY PLAN
SHEET 1 OF 1





####

PRELIMINARY

DESIGNED AAR						
DRAWN AAR						
CHECKED BDL						
SYM	REVISION	DATE	BY	APP'D		

PACE
An Engineering Services Company

6000 Meadows Road, Suite 345
Lake Oswego, OR 97035
p. 503.597.3222 | f. 503.597.7655
Civil | Structural | Planning | Survey
pacenginc.com

BEAVERCREEK
OREGON CITY, OREGON

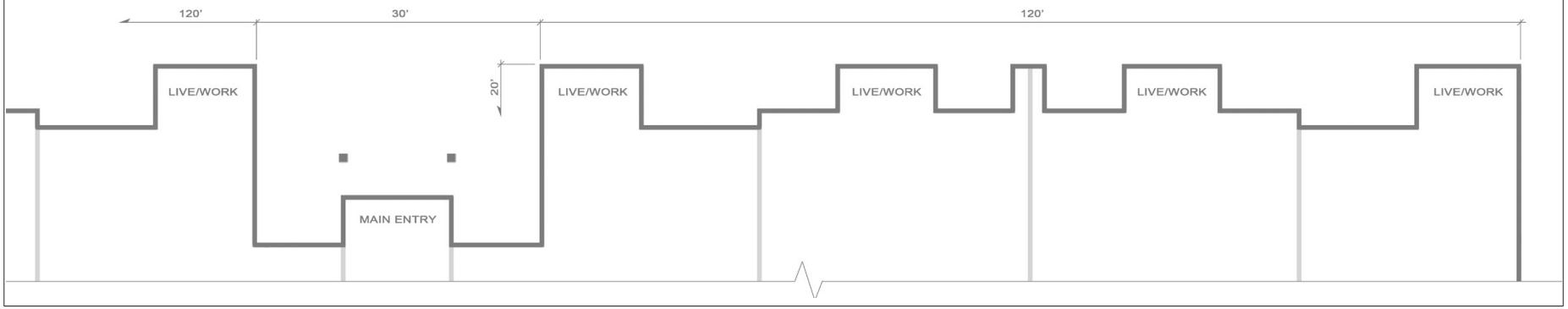
PLOT DATE: 5/##/13
SCALE: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"

STORM DRAINAGE PLAN

JOB NUMBER 12815
DWG NAME: BEAVERCREEK DRAIN
SHEET 1 OF 1

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PLOT TIME: 5/28/2013 4:14 PM
USER NAME: BRIAN CEE
XREF FILES: ########





Milbrandt Architects, Inc., P.S.
25 Central Way, Suite 210, Kirkland, Washington 98033 Phone: 425-454-7130 Fax: 425-658-1208 Website: http://www.milbrandtarch.com

Beavercreek Live/Work

Oregon City, Oregon

Beavercreek Road, LLC

Conceptual Building Elevation

Apartment Building - Scheme A

Scale:	Drawn By:	Date:	Date Plotted:
NTS	APT	06-10-2013	-

Sheet No.: **A4**

Job No.: **12-39**



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Beavercreek Live/Work

Oregon City, Oregon

Beavercreek Road, LLC

Conceptual Building Elevation

Apartment Building - Scheme B

Scale:	Drawn By:	Date:	Date Plotted:
NTS	APT	06-10-2013	-

Sheet No.: **A5**

Job No.: **12-39**



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25 Central Way, Suite 210, Kirkland, Washington 98033 Phone: 425-454-7130 Fax: 425-658-1208 Website: http://www.milbrandtarch.com

Beavercreek Live/Work

Oregon City, Oregon

Beavercreek Road, LLC

Conceptual Building Elevation

Apartment Building - Scheme B

Scale:	Drawn By:	Date:	Date Plotted:
NTS	APT	06-10-2013	-

Sheet No.: **A6**

Job No.: 12-39



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25 Central Way, Suite 210, Kirkland, Washington 98033 Phone: 425-454-7130 Fax: 425-658-1208 Website: http://www.milbrandtarch.com

Beavercreek Live/Work

Oregon City, Oregon

Beavercreek Road, LLC

Conceptual Building Elevation

Live/Work Townhomes

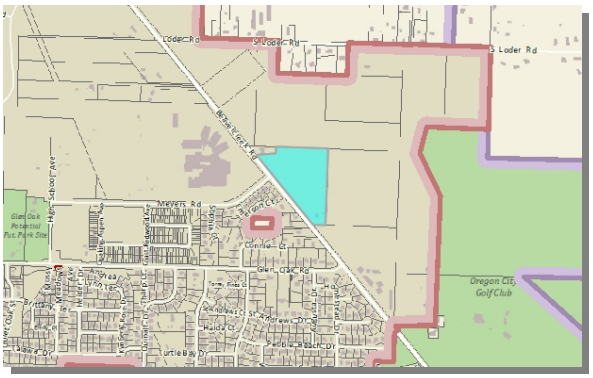
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NTS	APT	07-09-2013	-

Sheet No.: **A7**

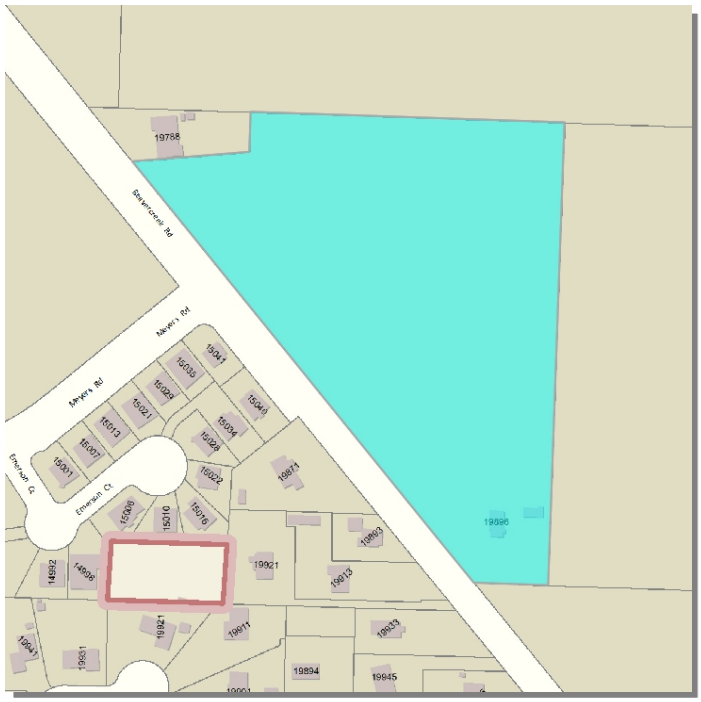
Job No.: **12-39**

Taxlot Detail Report

Taxlot: 3-2E-10C -00800



Overview Map



Taxlot highlighted in blue

Taxlot Information

APN: 3-2E-10C -00800
Alt ID: 00870711
Site Address: 19896 BEAVERCREEK RD
OREGON CITY, OR 97045
Year Built: 1945

Taxpayer Information

Taxpayer: *Suppressed*
Address: *Suppressed*

Reference Information

Parcel Area (acres - approx): 9.7
Parcel Area (sq. ft. - approx): 423,403
Twn/Rng/Sec: 03S 02E 10
Tax Map Reference: 32E10C

Values

Mkt Values as of: 10/10/2012
Land Value (Mkt): $800,000
Building Value (Mkt): $1,500
Exempt Amount: $0
Net Value (Mkt): $801,500
Note: These are Market, NOT Assessed values.
Assessed Value: $224,097

Planning Designations

Zoning: MUC1
- Mixed Use Corridor District

Comprehensive Plan: muc
- Mixed Use - Corridor

Subdivision: NONE
PUD (if known):
Neighborhood Assn: Caufield NA
Urban Renewal District:
Historic District:
Historic Designated Structure? N
In Willamette Greenway? N
In Geologic Hazard? N
In Nat. Res. Overlay District (NROD)? N
In 1996 Floodplain? N

The City of Oregon City makes no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, surveying or navigation purposes. Notification of any errors is appreciated.

Report generated 5/14/2013 9:35 AM

City of Oregon City
PO Box 3040
625 Center St
Oregon City, OR 97045
(503) 657-0891
www.orcity.org

EVERGREEN HOUSING
DEVELOPMENT GROUP

July 29, 2013

Caufield Neighborhood Association
Via – email

NOTICE OF PUBLIC MEETING TO DISCUSS A NEW DEVELOPMENT PROPOSAL AT 19896 S. BEAVERCREEK ROAD.

Dear Neighbor,

I'm writing to invite you to a public meeting in room #229 of McLaughlin Hall on the Clackamas Community College campus on August 15, 2013 at 6:15 pm.

19600 Molalla Ave
McLaughlin Hall
Room 229
Oregon City, OR 97045

This meeting is for you to learn about a new 239-unit market rate multi-family development proposed for the 9.59-acre vacant parcel located at 19896 S. Beavercreek Road in Oregon City. At this meeting you will have the opportunity to learn more about this proposed development, ask questions and provide comments.

Sincerely,

Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC

Subject: Re: Notice of New Development Proposal
Date: Friday, July 19, 2013 10:34:15 AM Pacific Daylight Time
From: Gary K Davis
To: Andrew Brand

I am in receipt of your proposed development for 19896 S Beavercreek Road.
Gary Davis

From: "Andrew Brand" <andrew@evergreenhd.com>
To: Mike1376@aol.com, larryhanlon@hotmail.com, Davisgj2@comcast.net
Cc: "Kattie Riggs" <kriggs@ci.oregon-city.or.us>
Sent: Friday, July 19, 2013 10:18:26 AM
Subject: Notice of New Development Proposal

Mike, Larry and Gary,

Attached is a PDF with Notification and background information on a new development we are proposing and exploring at 19896 S Beavercreek Road.

The attached information should answer a number of your questions but I suspect there will be much more to discuss. I will send out a separate notice about a meeting time and place.

Please confirm receipt of this e-mail and the attachment. It is a 5.8MB file. I want to ensure that it reaches you.

Sincerely,

Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC
600 University St, Suite 1708
Seattle, WA 98101
206-535-6248 x 101
andrew@evergreenhd.com

Subject: RE: Notice of New Development Proposal
Date: Friday, July 26, 2013 11:04:56 AM Pacific Daylight Time
From: Larry Hanlon
To: Andrew Brand
CC: davisgj2@comcast.net, mike1376@aol.com

Good Morning Andrew, Yes I recd your Notice and we reviewed it at our neighborhood meeting. Mike will be in touch with you. Larry

---

From: andrew@evergreenhd.com
To: Mike1376@aol.com; larryhanlon@hotmail.com; Davisgj2@comcast.net
CC: kriggs@ci.oregon-city.or.us
Subject: Notice of New Development Proposal
Date: Fri, 19 Jul 2013 17:18:26 +0000

Mike, Larry and Gary,

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Seattle, WA 98101
206-535-6248 x 101
andrew@evergreenhd.com

19896 Beavercreek Road Development Concept Meeting

SIGN IN SHEET

August 15, 2013

	NAME	ADDRESS	PHONE	E-MAIL
1	Jason Oppeland	15016 Emerson Ct	503-317-8408	froshove@yahoo.com
2	Valerie Cay	9943 SE Linwood Milwauk	503 477 3398	cay.valerie@yahoo
3	Barbara Broadbent	19288 Beavercreek Rd	503-518-7754	
4	Thomas Broadbent	19288 Beavercreek Rd	503-518-7754	journalwriter23@hotmail.com
5	Wendy Carter	15035 Emerson	503-515-8300	wshfish@aol.com
6	Matthew Johnson	15844 S. Leland Rd	503.632.7754	N/A
7	Wayne & LaVerne Bauer	19921 Connie Ct	503-655-7361	
8	Mike & Judy Fernandez	15028 Emerson Ct	503-578-2450	
9	Jeff Wiedemann	15022 Emerson Ct	503-515-9958	jeffreydw@gmail.com
10	Gary Davis	20102 Kimberly Rose Oc	503-387-5400	davisgj2@comcast.net

19896 Beavercreek Road
August 15, 2013
Neighborhood Meeting

Comment Sheet for the Developer's Files

Please write your comments or questions about the project below. If you would like a follow-up to you question please include a phone number or e-mail where we can reach you.

Canfield Neighborhood Association concerns:

1) Impact on overcrowded schools.
2) Traffic flow excesses on Beavercreek Rd.
3) Parking spilling out onto streets
4) Heights of apartments going to four stories.
5) Lack of dedicated storefront areas on ground level.
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7) Adequate spaces in roadway for school buses
8) Consistency with future development of Beavercreek Plan

19896 Beavercreek Road
August 15, 2013
Neighborhood Meeting

Comment Sheet for the Developer's Files

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- How do you plan to address the additional parking needs?
- Traffic is our biggest concern, with the High school during hours of use we need to be able to access our house.
- With the addition of college "housing" we who live close to the ~~the~~ New units are concerned with the possibility of additional crime -
- we are also Concerned about our Property Values declining further.
-

Valerie Cay
503 477 3398
Cay.Valerie@yahoo.com

19896 Beavercreek Road
August 15, 2013
Neighborhood Meeting

Comment Sheet for the Developer's Files

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- Not 4 Stories please!
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- Please make higher end to keep area nice no low income/sec 8
- Not a play grand on the N side by house

19896 Beavercreek Road
August 15, 2013
Neighborhood Meeting

Comment Sheet for the Developer's Files

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Fun fact - You do know there are coyotes on that land!?!

19896 Beavercreek Road
August 15, 2013
Neighborhood Meeting

Comment Sheet for the Developer's Files

Please write your comments or questions about the project below. If you would like a follow-up to you question please include a phone number or e-mail where we can reach you.

Wish these could be townhomes or rowhouses SOLD not rented

Concerned about apartments with 4-5 college kids per unit

Very concerned about increased traffic - How long will turn lane be so Beavercreek does not back up with turn lane over flow

Wendy Carter wshfish@aol.com

EVERGREEN HOUSING
DEVELOPMENT GROUP

19896 S. Beavercreek Road Proposed Development
Community Meeting

August 15, 2013

Clackamas Community College
19600 Molalla Ave
Room 229
Oregon City, OR 97045

Meeting Agenda:

6:15pm Meeting Begins.

- Introduction from Andrew Brand, Director of Development for Evergreen Housing Development Group, LLC
- If size of audience permits, introductions of those in attendance from the community (Please sign in).

6:25pm Project Overview

- General overview of the project including uses, design and project timeline as currently known.

6:40pm Q&A. General discussions *

Meeting Adjourns when Q&A is complete.

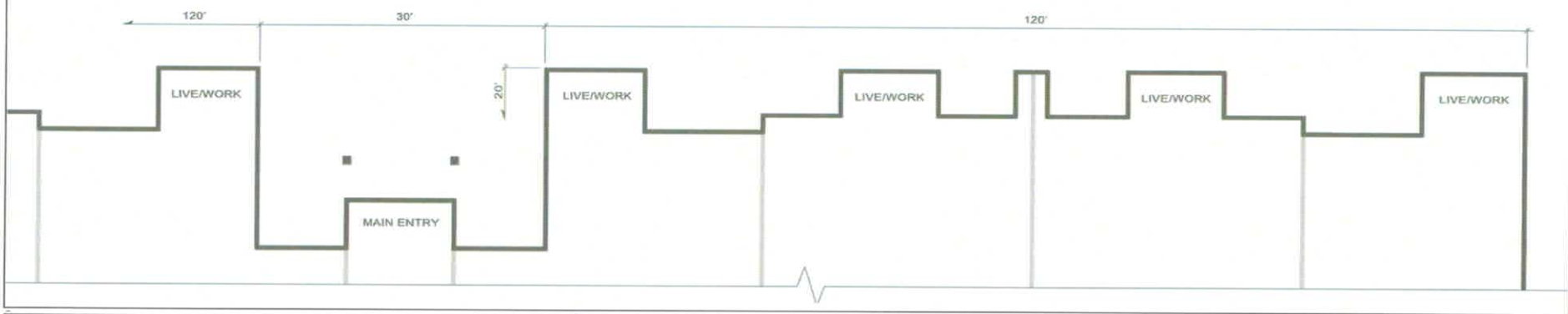
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Additional questions for the developer about this project can be directed to:

Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC
600 University St, Suite 1708
Seattle, WA 98101
andrew@evergreenhd.com
206-535-6248 x 101


Community College
High School
Proposed Development Site
S Thayer Rd
Marjorie Ln
213
Google earth
© 2013 Google
N





presented at meeting but not a hand-out

Milbrandt Architects, Inc., P.S.
25 Central Way, Suite 210, Kirkland, Washington 98033 Phone: 425-454-7130 Fax: 425-658-1208 Website: http://www.milbrandtarch.com

Beavercreek Live/Work
Oregon City, Oregon
Beavercreek Road, LLC

Conceptual Building Elevation
Apartment Building - Scheme A

Scale:	Drawn By:	Date:	Date Plotted:
NTS	APT	06-10-2013	-

Sheet No.: **A4**
Job No.: 12-39



Presented at meeting but not a hand-out

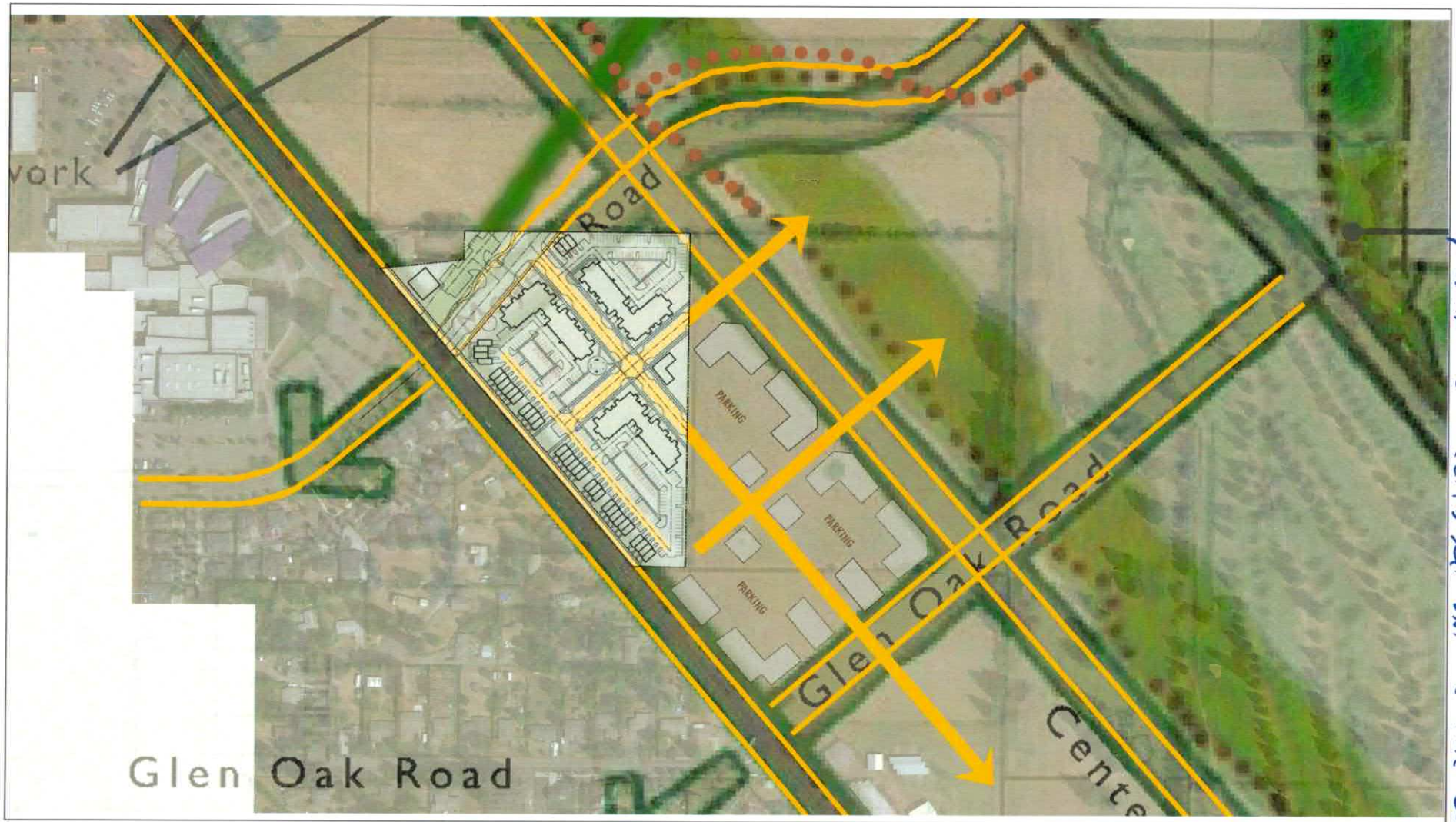
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Beavercreek Live/Work
Oregon City, Oregon
Beavercreek Road, LLC

Conceptual Building Elevation
Apartment Building - Scheme B

Scale	Drawn By	Date	Date Plotted
NTS	APT	06-10-2013	-

Sheet No.: **A5**
Job No.: 12-39



presented at meeting but not a hand-out.

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25 Central Way, Suite 210, Kirkland, Washington 98033 Phone: 425-454-7130 Fax: 425-658-1208 Website: http://www.milbrandtarch.com

Beavercreek Live/Work
Oregon City, Oregon
Beavercreek Road, LLC

Conceptual Building Elevation
Apartment Building - Scheme B

Scale:	Drawn by:	Date:	Date Plotted:
NTS	APT	06-10-2013	-

Sheet No.: A6
Job No.: 12-39

Subject: Re: 19896 Beavercreek Road Community Meeting Notes
Date: Friday, August 16, 2013 10:26:03 PM Pacific Daylight Time
From: mike1376@aol.com
To: Andrew Brand

I am responding as requested that I received the email regarding 19896 Beavercreek Road in Oregon City.

Unfortunately I was unable to attend the meeting. I cannot support the project because it is creating high density populations around the Oregon City High School and Clackamas College.

Mike Mermelstein
Co-Chairman Caufield Neighborhood Association

Sent from my iPhone

On Aug 16, 2013, at 4:08 PM, Andrew Brand <andrew@evergreenhd.com> wrote:

> Kattie,
> Attached is a PDF with the sign-in sheet, comment sheets and agenda with presentation materials from the community meeting we held on the evening of August 15th at the Clackamas Community College for our proposed development at 19896 Beavercreek Road.
> Gary Davis from the Caufield Neighborhood Association was able to attend. Larry and Mike, the co-chairs were not in attendance due to other conflicts.
> Gary Davis summarized the concerns of the Neighborhood Association on the comment sheet headed "Caufield Neighborhood Association Concerns:".
> I recognize all these concerns and will remain aware of them as we finalize our concept for the site in anticipation of our project permit submissions. Share this information with anyone from the City you think should be made aware of these notes.
> Finally, please confirm receipt of this e-mail and the attached PDF and let me know if you need any additional information.
> Sincerely,
> Andrew Brand
> Director of Development
> Evergreen Housing Development Group, LLC
> 600 University St, Suite 1708
> Seattle, WA 98101
> 206-535-6248 x 101
> andrew@evergreenhd.com
> <Meeting Sign-in Comments and Materials 130815.pdf>

Subject: Re: Notice of New Development Proposal
Date: Friday, July 19, 2013 10:34:15 AM Pacific Daylight Time
From: Gary K Davis
To: Andrew Brand

I am in receipt of your proposed development for 19896 S Beavercreek Road.
Gary Davis

From: "Andrew Brand" <andrew@evergreenhd.com>
To: Mike1376@aol.com, larryhanlon@hotmail.com, Davisgj2@comcast.net
Cc: "Kattie Riggs" <kriggs@ci.oregon-city.or.us>
Sent: Friday, July 19, 2013 10:18:26 AM
Subject: Notice of New Development Proposal

Mike, Larry and Gary,

Attached is a PDF with Notification and background information on a new development we are proposing and exploring at 19896 S Beavercreek Road.

The attached information should answer a number of your questions but I suspect there will be much more to discuss. I will send out a separate notice about a meeting time and place.

Please confirm receipt of this e-mail and the attachment. It is a 5.8MB file. I want to ensure that it reaches you.

Sincerely,

Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC
600 University St, Suite 1708
Seattle, WA 98101
206-535-6248 x 101
andrew@evergreenhd.com

Subject: RE: Notice of New Development Proposal
Date: Friday, July 26, 2013 11:04:56 AM Pacific Daylight Time
From: Larry Hanlon
To: Andrew Brand
CC: davisgj2@comcast.net, mike1376@aol.com

Good Morning Andrew, Yes I recd your Notice and we reviewed it at our neighborhood meeting. Mike will be in touch with you. Larry

---

From: andrew@evergreenhd.com
To: Mike1376@aol.com; larryhanlon@hotmail.com; Davisgj2@comcast.net
CC: kriggs@ci.oregon-city.or.us
Subject: Notice of New Development Proposal
Date: Fri, 19 Jul 2013 17:18:26 +0000

Mike, Larry and Gary,

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Evergreen Housing Development Group, LLC
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Seattle, WA 98101
206-535-6248 x 101
andrew@evergreenhd.com

19896 S. Beavercreek Road Proposed Development
Community Meeting

August 15, 2013

Clackamas Community College
19600 Molalla Ave
Room 229
Oregon City, OR 97045

Meeting Agenda:

6:15pm Meeting Begins.

- Introduction from Andrew Brand, Director of Development for Evergreen Housing Development Group, LLC
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- General overview of the project including uses, design and project timeline as currently known.

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Director of Development
Evergreen Housing Development Group, LLC
600 University St, Suite 1708
Seattle, WA 98101
andrew@evergreenhd.com
206-535-6248 x 101

19896 Beavercreek Road Development Concept Meeting

SIGN IN SHEET

August 15, 2013

	NAME	ADDRESS	PHONE	E-MAIL
1	Jason Oppeland	15016 Emerson Ct	503-317-8408	froshove@yahoo.com
2	Valerie Cay	9943 SE Linwood Milwauk	503 477 3398	cay.valerie@yahoo
3	Barbara Broadbent	19288 Beavercreek Rd	503-518-7754	
4	Thomas Broadbent	19288 Beavercreek Rd	503-518-7754	journalwriter23@hotmail.com
5	Wendy Carter	15035 Emerson	503-515-8300	wshfish@aol.com
6	Matthew Johnson	15844 S. Leland Rd	503.632.7754	N/A
7	Wayne & LaVerne Bauer	19921 Connie Ct	503-655-7361	
8	Mike & Judy Fernandez	15028 Emerson Ct	503-578-2450	
9	Jeff Wiedemann	15022 Emerson Ct	503-515-9958	jeffreydw@gmail.com
10	Gary Davis	20102 Kimberly Rose Oc	503-387-5400	davisgj2@comcast.net

19896 Beavercreek Road
August 15, 2013
Neighborhood Meeting

Comment Sheet for the Developer's Files

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19896 Beavercreek Road
August 15, 2013
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19896 Beavercreek Road
August 15, 2013
Neighborhood Meeting

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EVERGREEN HOUSING
DEVELOPMENT GROUP

19896 S. Beavercreek Road Proposed Development
Community Meeting

August 15, 2013

Clackamas Community College
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Room 229
Oregon City, OR 97045

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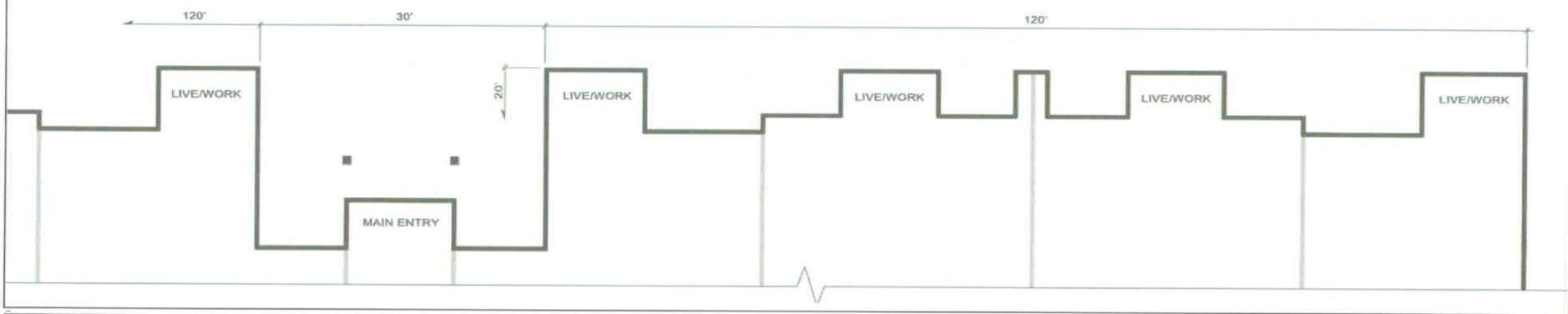
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andrew@evergreenhd.com
206-535-6248 x 101


Community College
High School
Proposed Development Site
S Thayer Rd
Marjorie Ln
213
Google earth
© 2013 Google
N





presented at meeting but not a hand-out

Milbrandt Architects, Inc., P.S.
25 Central Way, Suite 210, Kirkland, Washington 98033 Phone: 425-454-7130 Fax: 425-658-1208 Website: http://www.milbrandtarch.com

Beavercreek Live/Work
Oregon City, Oregon
Beavercreek Road, LLC

Conceptual Building Elevation
Apartment Building - Scheme A

Scale:	Drawn By:	Date:	Date Plotted:
NTS	APT	06-10-2013	-

Sheet No.: **A4**
Job No.: 12-39



Presented at meeting but not a hand-out

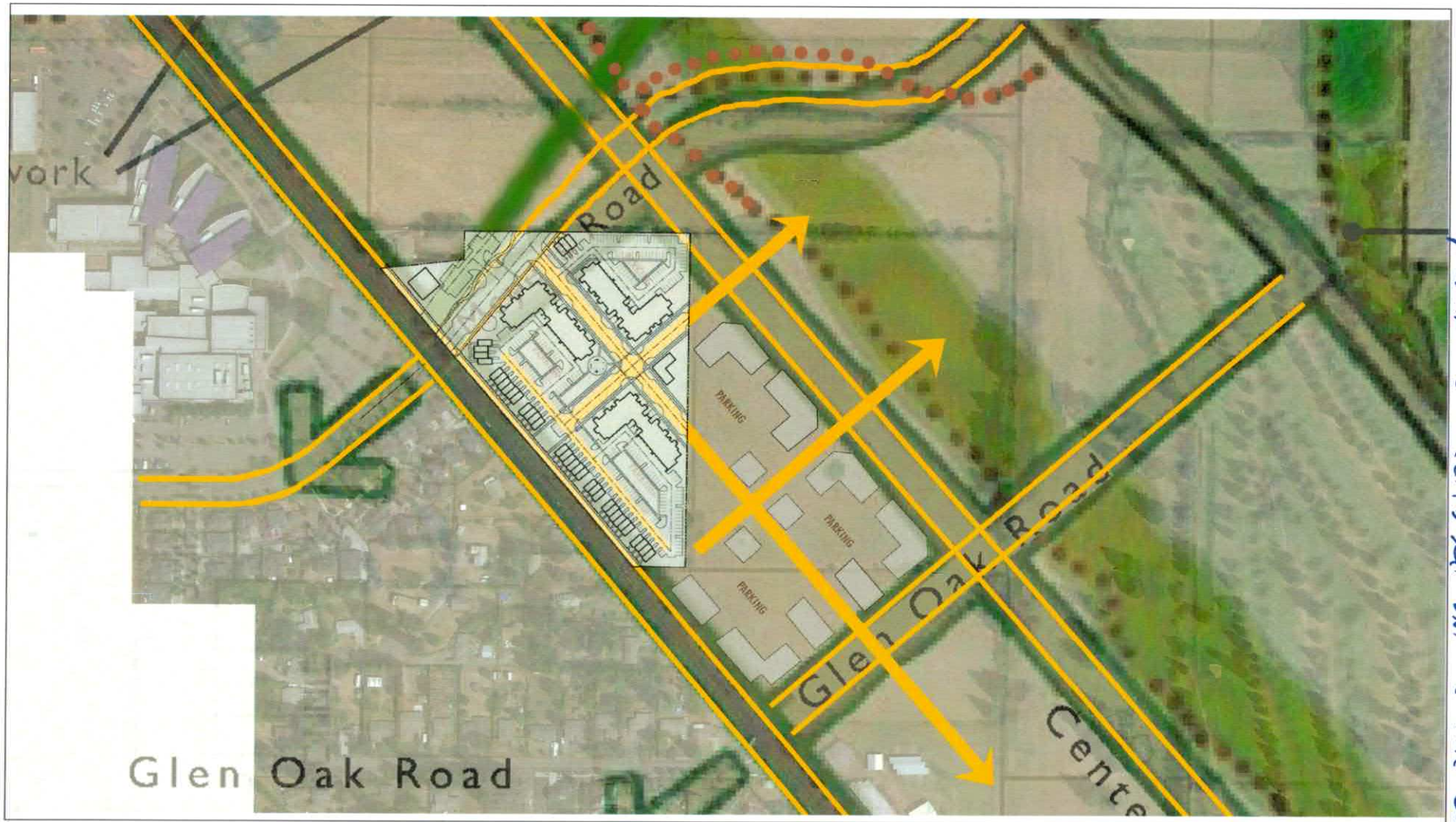
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Beavercreek Live/Work
Oregon City, Oregon
Beavercreek Road, LLC

Conceptual Building Elevation
Apartment Building - Scheme B

Scale	Drawn By	Date	Date Plotted
NTS	APT	06-10-2013	-

Sheet No.: **A5**
Job No.: 12-39



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Oregon City, Oregon
Beavercreek Road, LLC

Conceptual Building Elevation
Apartment Building - Scheme B

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Sheet No.: A6
Job No.: 12-39

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Co-Chairman Caufield Neighborhood Association

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> Director of Development
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> 600 University St, Suite 1708
> Seattle, WA 98101
> 206-535-6248 x 101
> andrew@evergreenhd.com
> <Meeting Sign-in Comments and Materials 130815.pdf>

EVERGREEN HOUSING
DEVELOPMENT GROUP

July 29, 2013

Caufield Neighborhood Association
Via – email

NOTICE OF PUBLIC MEETING TO DISCUSS A NEW DEVELOPMENT PROPOSAL AT 19896 S. BEAVERCREEK ROAD.

Dear Neighbor,

I'm writing to invite you to a public meeting in room #229 of McLaughlin Hall on the Clackamas Community College campus on August 15, 2013 at 6:15 pm.

19600 Molalla Ave
McLaughlin Hall
Room 229
Oregon City, OR 97045

This meeting is for you to learn about a new 239-unit market rate multi-family development proposed for the 9.59-acre vacant parcel located at 19896 S. Beavercreek Road in Oregon City. At this meeting you will have the opportunity to learn more about this proposed development, ask questions and provide comments.

Sincerely,

Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC

EVERGREEN HOUSING
DEVELOPMENT GROUP

July 18, 2013

Caufield Neighborhood Association
Mike Mermelstein – Co-Chair and Land Use Chair – Mike1376@aol.com
Larry Hanlon – Co-Chair – larryhanlon@hotmail.com
Gary Davis – Secretary – Davisgj2@comcast.net

Delivery Via e-mail

RE: Notice of Planned Development at 19896 S Beavercreek Rd, Oregon City, OR

Dear Caufield Neighborhood Association,

This letter is being set to you as Notification of a planned new construction project at 19896 S. Beavercreek Road, as required under section 17.50.055 of the Oregon City Municipal Code. Mike Mermelstein stated that e-mail notification could be used in place of certified mail.

Attached is background on the project concept and some preliminary design of that concept.

Mike Mermelstein and I spoke about the required public meeting and the lack of availability for me to present at your July 23, 2013 meeting. Due to the full schedule of your July 23, 2013 meeting and the lack of other planned meetings until October of this year it was decided that I should set up a separate meeting for the public to listen to our concept, ask questions and provide feedback.

I will send a separate notice about our planned public meeting to all of you and also to the neighbors within 300 feet of our proposed development. I am hoping to have the meeting at the Beavercreek Cooperative Telephone building in mid-August after 6:00pm. I will be in touch with exact details.

If you have any questions in the mean time please contact me via phone or e-mail.

Sincerely,

Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC
206-535-6248 x 101
andrew@evergreenhd.com

CC: Kattie Riggs – City Liason to the Citizen Involvement Committee – kriggs@orcity.org

MILBRANDT ARCHITECTS

June 12, 2013

Proposed Development for Beavercreek Road, LLC.

Narrative:

The site plan presented for your consideration today will create the initial focal point for the vibrant and sustainable community to be of Beavercreek. Located at the intersection of Beavercreek Road and Meyers Road our project is likely to be the first community built in the area falling under the yet to be approved Beavercreek Road Concept Plan. Being first comes with both opportunity and responsibility. It is just as crucial to provide desirable, market-supported design solutions for the subject site as it is to consider how the site may inform the future development of the greater community.

Located at 19896 Beavercreek Road, within the Mixed Employment Village, the focus of our study is a 9.59 Acre site to the east of Beavercreek Road that will include an extension of Meyers Road and will serve as one of the main points of entry for this dynamic area to be. This document, and the associated exhibits, will illustrate how the proposed plan is consistent with the objectives of the Beavercreek Road Concept Plan and the Oregon City Municipal Code and Comprehensive Plan. The proposed plan provides a strong foundation needed to ensure the future of the Mixed Employment Village development and surrounding areas.

With the exception of the gas line easement and Meyers Road running through the northwest section, the site is comprised of entirely unconstrained land. What would seem to be a great positive element can in fact at times prove to have the opposite affect; clouding the vision of a design team, causing them to lose the big picture by focusing only on the potential within their own legal boundary lines. Through a careful study of the intents of the applicable codes and concept plans as well as plans previously proposed by others, we are now proposing a plan that we believe will not only meet the goals for our site, but will extend beyond our property lines to influence and provide a positive framework for neighboring developments to plug in to.

CIRCULATION

Before revisiting the building typology, we first need to demonstrate that we will provide a strong plan for circulation in the context of the overall future street network, including all forms of transportation; bicycle, pedestrian, transit and vehicular. The most critical initial transportation plan element is determining the number of through-streets to parallel Beavercreek Road between Beavercreek and the Central Parkway. This will ultimately define block size and developable land areas throughout the Mixed Employment Village and beyond. To consider and inform this issue, we focused on the Oregon City

Municipal Code and Beavercreek Road Concept Plan for direction as well as investigating block sizing at a local, state and national level.

Considering the givens we have to work with, Beavercreek Road as an Arterial Street and Meyers Road as a Collector Street, the first major factor was the minimum street intersection spacing standards outlined in OCMC Chapter 12.04.195. As found in Table 12.04.040, no Local Street or Neighborhood Collector (depending on how the new parallel road will be classified) shall be within 300 feet from Beavercreek Road as measured along Meyers Road. Using this piece of information coupled with an effort to standardize the grid system made the direction rather clear that one parallel road would be the most logical path. With one block dimension defined, further analysis of block sizing was then completed to help inform how many perpendicular cross streets to plan between Meyers Road and Glen Oak Road.

There is, of course, a wide range in block sizes as you sample major metropolitan areas across the country; from one of the largest at 1000'x500' in New York to some of the smallest right here in Portland at only 200'x200'. Delving further into how different block sizes function and the feel they lend to the pedestrian environment is quite informative; and by filtering this information by the types of use and other site specific design parameters we can zero in on an effective range to best suit the goals of the Concept Plan.

After analyzing this information and applying it to our site plan, we feel confident that the 340'x440' block size we have proposed provides the needed balance between maximizing pedestrian circulation routes and reasonably dimensioned net developable land areas. The rationale behind a 340'x440' block size is that the consistent grid spacing it provides will lend flexibility to the different development zones within the Beavercreek Road Concept Plan. In areas such as the Mixed Employment Village Zone, it is just large enough to allow buildings to face onto the streets with the use of alleys and interior parking where a smaller block size would limit the ability to meet this code requirement. As the grid extends to the north to the North Employment Campus, it will lend itself to larger building footprints for commercial and business tenants. Connecting to the South in the Main Street and Mixed Use Neighborhoods the same concept as the MEV could be used (building street frontage with interior alleyways and parking concept) with the option to introduce additional local streets creating half-blocks at 220'x340' for the most pedestrian dense shopping districts.

BUILT ENVIRONMENT

Once we establish a suitable public street grid pattern, we are able to then focus in on the requirements of the code as they relate to the built environment. Starting with what will serve as the gateway to the Mixed Employment Village and the greater Beavercreek community, the north corner of the Meyers Road intersection would be home to a three-story mixed-use building with parking and a public open space/plaza element at the corner. The building itself is proposed to include a ground floor sundries-type market with four housing units above. As an alternative to the typical studio unit these units would be comprised of five bedrooms that share a common living/kitchen space; a unique unit type in the area

which would provide a lower cost option to students of the community college or any community resident looking for an affordable single occupant living option. The enhanced pedestrian space located within the existing gasline easement would be dedicated to serve as the first link between the existing community to the southwest and the extensive trail and open space network planned within the Beavercreek Road Concept Plan.

Framing the entrance on the east corner and extending down Beavercreek Road to the southeast are three-story live/work townhome units. By incorporating elements from OCMC Chapter 17.62.055D, these live/work townhomes will achieve an attractive street presence while at the same time providing an enlarged buffer along Beavercreek Road to promote a safer, yet more active employment and pedestrian environment. To further enhance the pedestrian network along Beavercreek Road a pedestrian plaza is planned to break up the building mass and provide connections into the proposed site.

To promote the same kind of employment opportunity and engaging, active, street life along the new interior Local Streets we have planned to meet the standards of the Neighborhood Greenstreet as outlined in the Beavercreek Road Concept Plan; providing lanes dedicated to vehicles, bicycles and sidewalks buffered by parallel parking lanes and plantings. Lining these Local Streets would be three to four story apartment buildings with direct street access to the ground floor live/work units along Streets A and B. Set close to the street, the Apartment buildings along with the proposed park and community center will draw people into the site by creating a vibrant and active internal local street intersection.

The community center would house both leasing and management functions for the community while providing recreation opportunities with a pool and exercise center. To meet the height requirements of the concept plan a second and third floor are planned above the community center that would add an additional four housing units similar to the units at the northeast corner of Meyers road and Beavercreek road (four 5-bedroom units).

We believe that by planning for the good of the greater community, the plan we present here for your consideration today helps establish the strong foundation needed for a thriving employment, street and pedestrian network in the Beavercreek community to be. With further design development, an attractive street presence with hidden parking clusters, incorporating green building and site strategies, will bring this piece of the pedestrian-oriented Mixed Employment Village community as envisioned by the Beavercreek Road Concept Plan to life.

The following is a list of specific items we hope City staff can provide pointed feedback on, in addition to the design considerations above.

1. Please confirm if there are unpublished conditions to the prior zone change of the property or to the un-adopted provisions of the Beaver Creek Road Concept Plan or conditions that have been put in place since the re-zone was adopted.

2. Please provide guidance or specific criteria as to the study parameters of a Transportation Impact Analysis that will need to be conducted (if indeed required by the City) for this project.

3. Please provide guidance or contacts with ODOT who may be in control of decisions regarding requirements for improving Beavercreek Road as part of our project in order for our team to coordinate TIA, design and permit items.

4. Given that much of our project will include streets that will eventually be considered connectors to other parts of the Beavercreek sub-area, please provide any guidance about latecomer fees, SDC credits or public facility dedication SDC credits that may apply to our proposal.

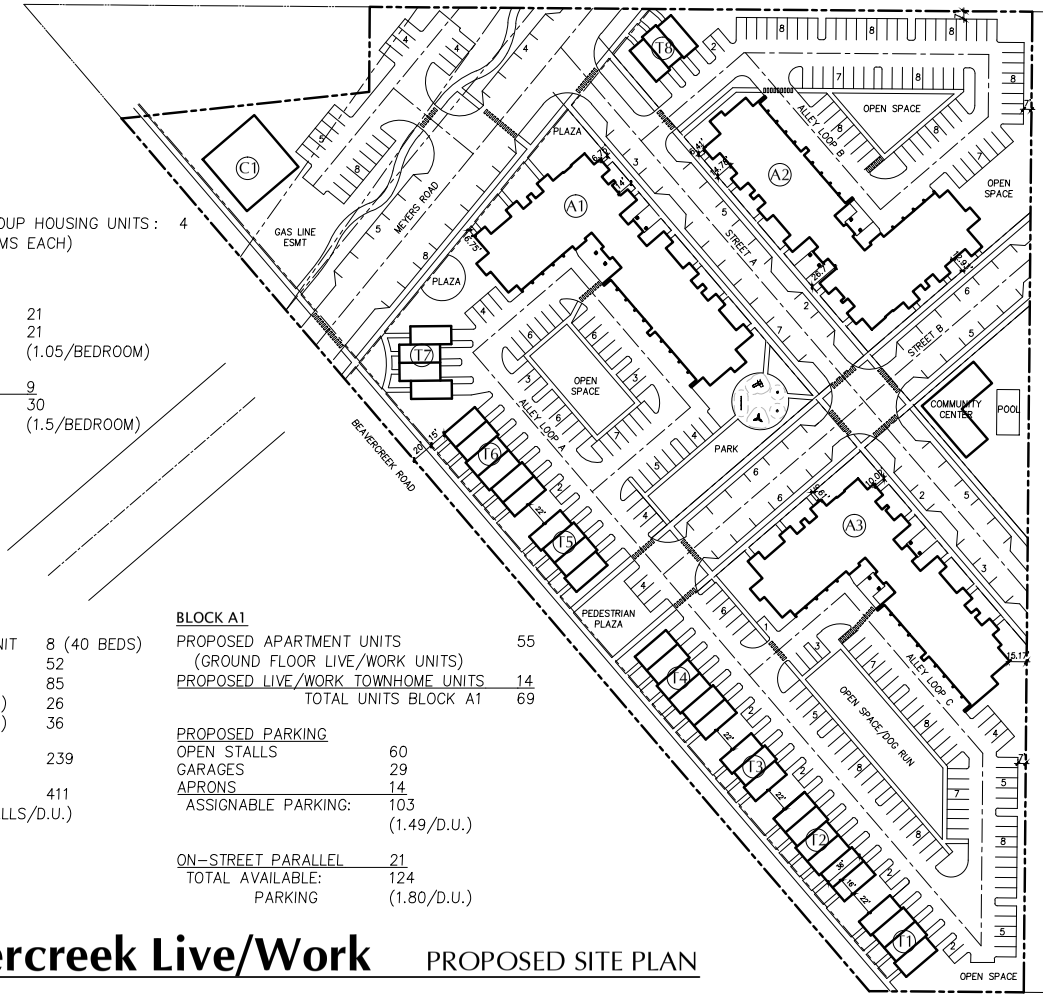
5. As we are new to working with Oregon City we would appreciate pointed feedback about the process and steps for permitting this project, including any time periods for public notification, code required public meetings (if any) and appeal timelines.

Sincerely,



Anna P. Thompson

Milbrandt Architects
Project Manager



BLOCK C1

PROPOSED STUDENT/GROUP HOUSING UNITS: 4
(5 RENTABLE BEDROOMS EACH)

PROPOSED PARKING	
OPEN STALLS	21
ASSIGNABLE PARKING:	21
	(1.05/BEDROOM)
ON-STREET PARALLEL	9
TOTAL AVAILABLE:	30
PARKING	(1.5/BEDROOM)

UNIT TYPE

STUDIO/GROUP HOUSING UNIT	8 (40 BEDS)
1 BED/1 BATH	52
2 BED/2 BATH	85
2 BED/2 BATH (LIVE/WORK)	26
3 BED/2 BATH (LIVE/WORK)	36
TOTAL RENTABLE UNITS	239
TOTAL PARKING	411
	(1.72 STALLS/D.U.)

BLOCK A1

PROPOSED APARTMENT UNITS	55
(GROUND FLOOR LIVE/WORK UNITS)	
PROPOSED LIVE/WORK TOWNHOME UNITS	14
TOTAL UNITS BLOCK A1	69

PROPOSED PARKING	
OPEN STALLS	60
GARAGES	29
APRONS	14
ASSIGNABLE PARKING:	103
	(1.49/D.U.)
ON-STREET PARALLEL	21
TOTAL AVAILABLE:	124
PARKING	(1.80/D.U.)

BLOCK A2

PROPOSED APARTMENT UNITS	55
(GROUND FLOOR LIVE/WORK UNITS)	
PROPOSED LIVE/WORK TOWNHOME UNITS	3
TOTAL UNITS BLOCK A1	58

PROPOSED PARKING	
OPEN STALLS	72
GARAGES	18
APRONS	3
ASSIGNABLE PARKING:	93
	(1.60/D.U.)
ON-STREET PARALLEL	13
TOTAL AVAILABLE:	106
PARKING	(1.82/D.U.)

COMMUNITY CENTER

PROPOSED STUDENT/GROUP HOUSING UNITS: 4
(5 RENTABLE BEDROOMS EACH)

ON-STREET PARALLEL	21
TOTAL AVAILABLE:	21
PARKING	(1.05/BEDROOM)

BLOCK A3

PROPOSED APARTMENT UNITS	53
(GROUND FLOOR LIVE/WORK UNITS)	
PROPOSED LIVE/WORK TOWNHOME UNITS	19
TOTAL UNITS BLOCK A1	72

PROPOSED PARKING	
OPEN STALLS	77
GARAGES	34
APRONS	19
ASSIGNABLE PARKING:	130
	(1.80/D.U.)

Beavercreek Live/Work

PROPOSED SITE PLAN

1:100

H:\1239\SITE_PLAN.DWG

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25 Central Way, Suite 210, Kirkland, Washington 98033 Phone: 425-454-7130 Fax: 425-658-1208 Website: http://www.milbrandtarch.com

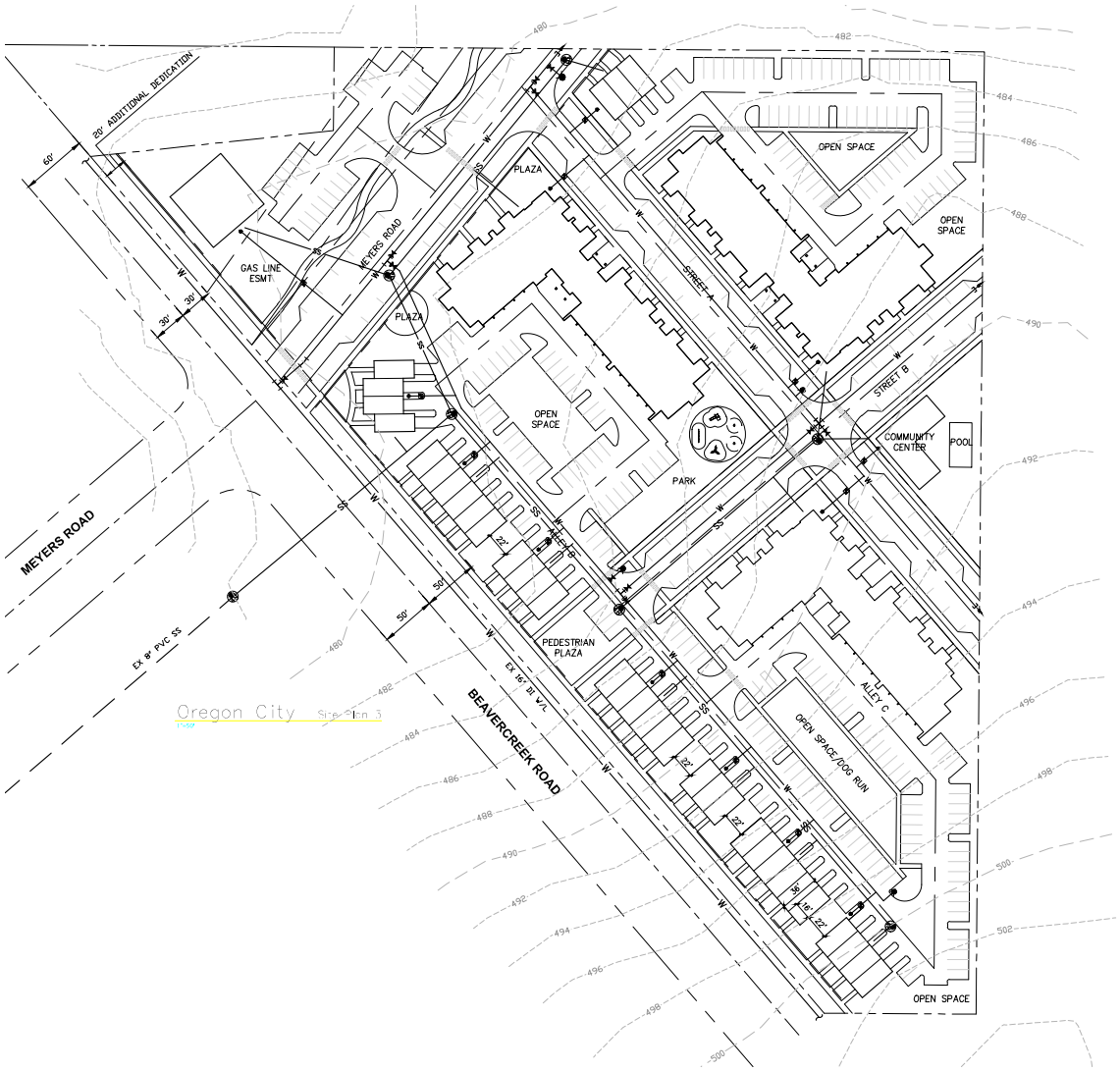
Beavercreek Live/Work
Oregon City, Oregon
Beavercreek Road, LLC

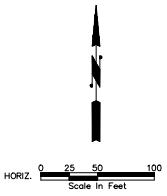
Proposed Site Plan
Live/Work Townhome & Apartment Development

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Sheet No.: **A1**

Job No.: **12-39**





PRELIMINARY

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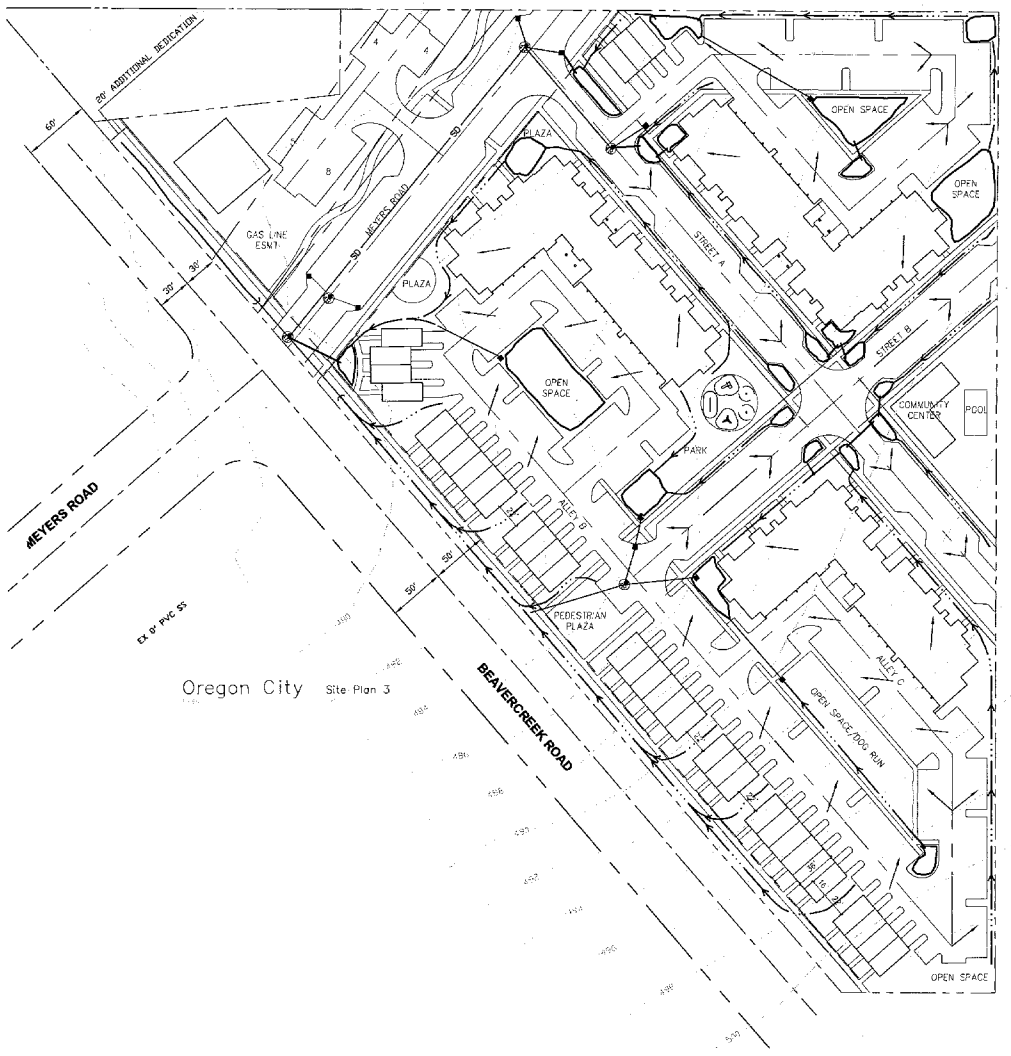
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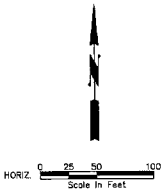
BEAVERCREEK
OREGON CITY, OREGON

PLOT DATE: 5/24/13
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UTILITY PLAN

JOB NUMBER 12815
DWG NAME: UTILITY PLAN
SHEET 1 OF 1





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PRELIMINARY

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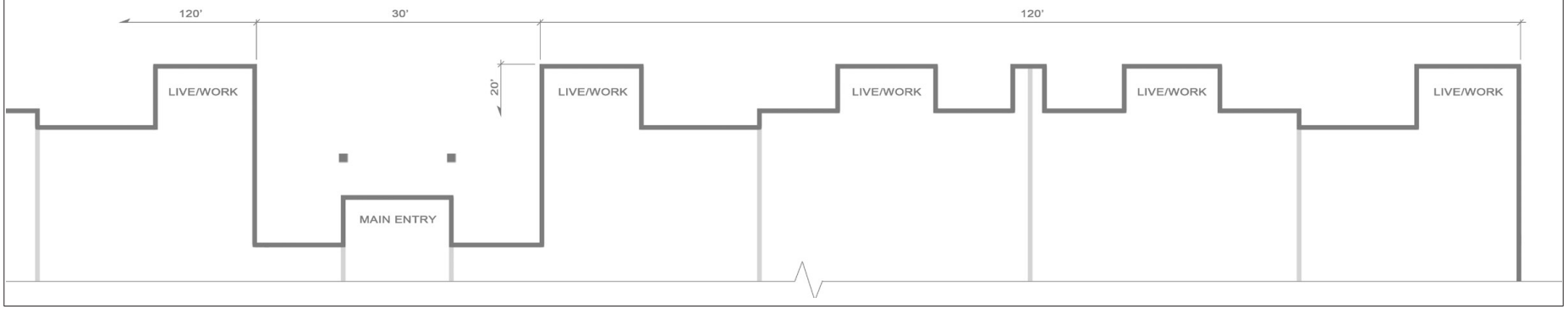
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STORM DRAINAGE PLAN

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DWG NAME: BEAVERCREEK DRAIN
SHEET 1 OF 1

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XREF FILES: ########





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Beavercreek Live/Work

Oregon City, Oregon

Beavercreek Road, LLC

Conceptual Building Elevation

Apartment Building - Scheme A

Scale:	Drawn By:	Date:	Date Plotted:
NTS	APT	06-10-2013	-

Sheet No.: **A4**

Job No.: **12-39**



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Beavercreek Live/Work

Oregon City, Oregon

Beavercreek Road, LLC

Conceptual Building Elevation

Apartment Building - Scheme B

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NTS	APT	06-10-2013	-

Sheet No.: **A5**

Job No.: **12-39**



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Beavercreek Live/Work

Oregon City, Oregon

Beavercreek Road, LLC

Conceptual Building Elevation

Apartment Building - Scheme B

Scale:	Drawn By:	Date:	Date Plotted:
NTS	APT	06-10-2013	-

Sheet No.: **A6**

Job No.: 12-39



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Beavercreek Live/Work

Oregon City, Oregon

Beavercreek Road, LLC

Conceptual Building Elevation

Live/Work Townhomes

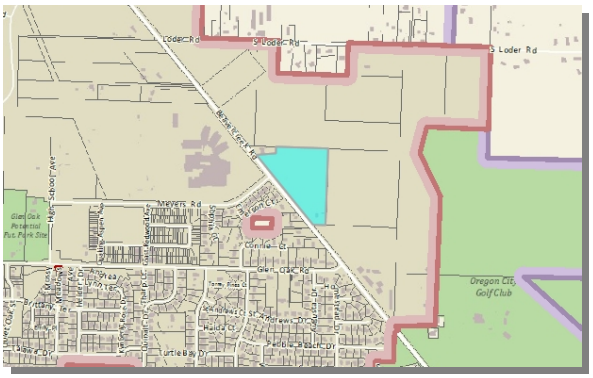
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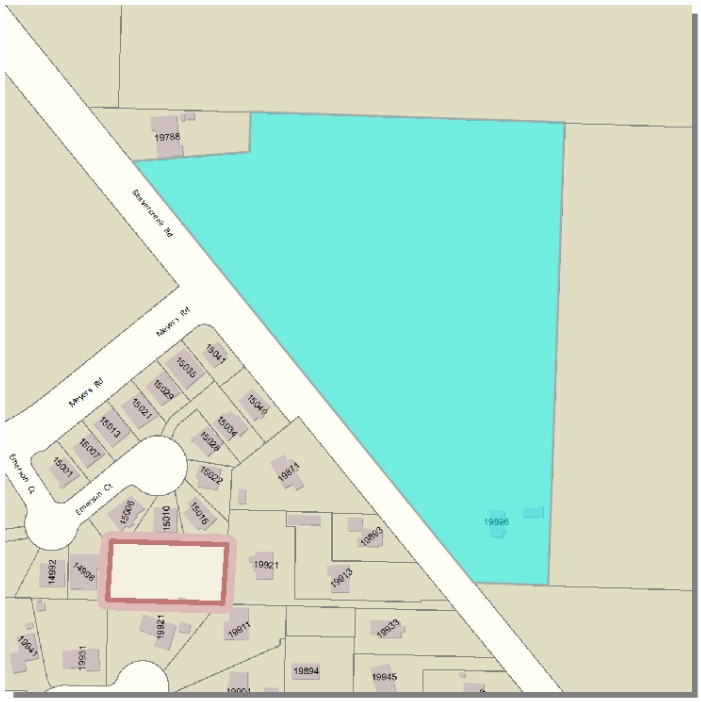
Job No.: **12-39**

Taxlot Detail Report

Taxlot: 3-2E-10C -00800



Overview Map



Taxlot highlighted in blue

Taxlot Information

APN: 3-2E-10C -00800
Alt ID: 00870711
Site Address: 19896 BEAVERCREEK RD
OREGON CITY, OR 97045
Year Built: 1945

Taxpayer Information

Taxpayer: *Suppressed*
Address: *Suppressed*

Reference Information

Parcel Area (acres - approx): 9.7
Parcel Area (sq. ft. - approx): 423,403
Twn/Rng/Sec: 03S 02E 10
Tax Map Reference: 32E10C

Values

Mkt Values as of: 10/10/2012
Land Value (Mkt): $800,000
Building Value (Mkt): $1,500
Exempt Amount: $0
Net Value (Mkt): $801,500
Note: These are Market, NOT Assessed values.
Assessed Value: $224,097

Planning Designations

Zoning: MUC1
- Mixed Use Corridor District

Comprehensive Plan: muc
- Mixed Use - Corridor

Subdivision: NONE
PUD (if known):
Neighborhood Assn: Caufield NA
Urban Renewal District:
Historic District:
Historic Designated Structure? N
In Willamette Greenway? N
In Geologic Hazard? N
In Nat. Res. Overlay District (NROD)? N
In 1996 Floodplain? N

The City of Oregon City makes no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, surveying or navigation purposes. Notification of any errors is appreciated.

Report generated 5/14/2013 9:35 AM

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625 Center St
Oregon City, OR 97045
(503) 657-0891
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ENGINEERS PLANNERS SURVEYORS

PRELIMINARY STORMWATER DESIGN REPORT

BEAVERCREEK LIVE/WORK DEVELOPMENT

Prepared For:
City of Oregon City, Oregon

January, 2014

Contact Person:
Brian D. Lee, PE
503.597.3222
brianl@paceengrs.com

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APPENDIX 2 - PRE-DEVELOPED SITE HYDROGRAPHS AND FLOW DETAILS

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PRELIMINARY STORMWATER REPORT
BEAVERCREEK LIVE/WORK DEVELOPMENT

1.0 PURPOSE OF REPORT

The purpose of this report is to documentation of the criteria for which the stormwater facility for this site was designed to meet, the sources of information upon which the analysis is based, the design methodology, and the results of the analysis.

2.0 PROJECT LOCATION/DESCRIPTION

The proposed development is on approximately 9.59 acres located at 19896 Beavercreek Road in Oregon City, 97045.

The property is located within the Southeast one-quarter of section 10, township 3 South, Range 2 East, Willamette Meridian, City of Oregon City, Clackamas County, Oregon. It is also identified as Tax Lot 800, Clackamas County Assessor's Map No. 3S2E-10C.

Stormwater from the site is proposed to be routed to a stormwater detention and water quality facility that will be constructed under common landscape areas at the low end of the property – See the preliminary site plan, grading plan and drainage utility plan for design details.

3.0 REGULATORY DESIGN CRITERIA

3.1 STORMWATER QUANTITY MANAGEMENT CRITERIA

The allowable stormwater discharge rate for the development must not exceed its pre-developed state. See Table 4.0 for a summary of discharges calculated using the SBUA method.

The design storms are based on the standard SCS Type 1A rainfall distribution with a 24- hour distribution and a total depth of 2.6" (2-year), 3.1" (5-year), 3.4" (10-year), 4.0" (25-year), and 4.5" (100-year).

3.2 STORMWATER QUALITY MANAGEMENT CRITERIA

The required stormwater quality management criteria are summarized below:

Ownership and Maintenance

Water quality for the development will be installed as a privately maintained system. The system will treat storm water from private building site areas and for public roadways. Accordingly, the developer will provide the City of Oregon City an access easement to maintain these private storm water quality facilities should it become necessary. Otherwise the operation and ownership of storm water quality facilities will be the responsibility of the developer. A

operations and management manual for the storm water facilities will be provide to the City during final engineering design and before the issuance of building permits.

Water Quality Design Storm

The water quality design storm is 1/3 of the SCS 2-year / 24-hour design storm (0.87").

Proposed Water Quality Treatment Methods.

The water quality treatment will be achieved with the use of stormwater quality filter cartridges that are a product of Contech industries. Filter Cartridges will be installed in specific manholes and catch basins in accordance with the manufactures sizing recommendations. The net result will achieve the treatment of the design storm as discussed above.

3.3 FLOOD PLAIN

There are no flood plains shown on the Flood Insurance Rate Map (FIRM) produced by the Federal Emergency Management Agency (FEMA).

4.0 SUMMARY OF STORMWATER DETENTION RESULTS

Design Storm	Target Release Rate Pre-Developed Conditions	Release Rate **Without** the Proposed Stormwater Detention Facilities – Post Development	Release Rate **With** the Proposed Stormwater Detention Facilities – Post Development
2-year	3.47	4.43	3.18
5-year	4.58	5.43	3.71
10-year	5.25	6.03	4.05
25-year	6.62	7.25	6.55

5.0 SOURCES OF INFORMATION AND DESIGN METHODOLOGY

The Santa Barbara Urban Hydrograph (SBUH) Method was used for the stormwater analysis. This method utilizes the SCS Type 1A 24-hour storm. HydroCAD software aided in the analysis. References are cited at the end of the report.

6.0 DESIGN PARAMETERS

6.1 DESIGN STORM

See Section 3.0 above

6.1.1 STORMWATER DETENTION FACILITY DESIGN

All of the flow results in stormwater summary Table 4.0 are incorporated in the detention tank sizing and analysis. The flow results stated in the table reflect the maximum flows released from the flow control manhole at the outlet of the tank. The detention tank consists for 3 – 60" diameter pipes, each 125 feet long for a total of 375 feet of storage.

6.1.2 INLET AND CONDUIT SIZING

The stormwater inlets (catch basins) for the site are placed according to the grading (at all low points in grade and other necessary locations) and will adequately handle the stormwater for the site. Oversized catch basin curb inlets will be placed at all low points to increase flow capacity that may be diminished seasonally due to deciduous trees. The distance between catch basins is generally less than 100 feet.

The stormwater pipes will be sized from the SBUH method to adequately convey up to the 25-year storm event (gravity flow). Flows above the 25 year event (e.g. a 100 year event) will flow through the systems using a combination of gravity flow and hydraulic surcharging (HGL above the top of pipe but 6 inches or more below the rim elevations of catch basins.

6.2 PRE-DEVELOPED SITE TOPOGRAPHY AND LAND USE

6.2.1 SITE TOPOGRAPHY

The site slopes to the north and west with slopes generally equal to or less than 6%.

6.2.2 EXISTING LAND USE

There is an existing home and barn at the southeast uppermost elevation of the site – generally the site is an open field that was previously cultivated..

6.2.3 PRE-DEVELOPED INPUT PARAMETERS

The input parameters are shown for the pre-developed sub catchment (basin) in the appendices.

6.3 SOIL TYPE

Below about 6" of topsoil, the soils consist mostly of silt with various traces of clay, sand and gravel. Occasional boulders were encountered from preliminary geotechnical site investigations. These soils are characterized as having a low stormwater infiltration potential. Within the depth of test pits observed on the site to depths of 15 plus feet, now groundwater was encountered. Per the City of Oregon City Stormwater and Grading Design Standards, these soils belong to Hydrologic soil group "C".

6.4 POST-DEVELOPED SITE TOPOGRAPHY AND LAND USE

6.4.1 SITE TOPOGRAPHY

The post-developed site topography will be altered from the pre-developed site topography to allow for the construction of streets, multifamily housing, live/work housing, a community center and a small commercial building. Surface cuts and fills may exceed 6 feet respectively. Please see the preliminary grading plans.

6.4.2 LAND USE

The current zoning on the property is MUC-1. See the development application for specific land uses and proposed improvements.

6.4.3 POST-DEVELOPED INPUT PARAMETERS

The input parameters are shown for the post-development subcatchment (basin) and detention tank in the appendices. The calculation method for determination of impervious area was to take 20% of the site and assume it was landscaped (pervious) and the remaining 80% as developed (impervious).

6.5 DESCRIPTION OF OFF-SITE CONTRIBUTORY BASINS

There are no off-site contributing areas. The development is located at the highest reaches of its containing watershed.

7.0 CALCULATION METHODOLOGY

7.1 PROPOSED STORMWATER CONDUIT SIZING AND INLET SPACING

The proposed stormwater pipes will be sized during final engineering from the SBUH method and will adequately convey the 25-year storm event (gravity flow). Flows above the 25 year event (e.g. a 100 year event) will flow through the systems using a combination of gravity flow and hydraulic surcharging (HGL above the top of pipe but 6 inches or more below the rim elevations of catch basins.

7.2 PROPOSED STORMWATER QUANTITY CONTROL (DETENTION) FACILITY DESIGN

The input parameters are shown for the subcatchment (basin) and the tanl in the appendices. They are determined by topographic survey information, aerial photos and contours, design, and analysis. The hydrographs were created with HydroCAD software.

7.3 PROPOSED STORMWATER QUALITY CONTROL FACILITY DESIGN

Half of the water quality design storm (1/3 of the 2-year storm) flow rate will be used to determine the type and quantity of cartridges for the water quality catch basins and manholes.

7.4 ENERGY DISSIPATER CALCULATIONS

Rip-rap will be placed at the inlet and outlet of the discharge to the roadside ditch along Beavercreek Road to act as an energy dissipater. The required rip-rap size shall be a minimum of Class 100.

7.5 DOWNSTREAM ANALYSIS

This site is located in the CAUFIELD Basin (designated in the City's Drainage Master Plan). Per *City of Oregon City Public Works Stormwater and Grading Design Standards (November 17, 1999),* the 10-year storm event is used for downstream analysis when the contributing drainage area is less than 40 acres The stormwater discharge from the on-site tank (post-developed condition) will discharge into the existing drainage way, as it currently does (pre-developed condition). The release (peak stormwater runoff) rates from the on-site detention pond for the 2, 5, 10 and 25 year storm events are less or approximately the same as the existing peak stormwater runoff rates for the same storm events at the existing outfall location. Therefore, the proposed development will not have any measurable increase in flow rates on the existing downstream conveyance systems during design storm events.

7.6 CULVERT ANALYSIS

No culverts are proposed on the site.

8.0 STORMWATER QUANTITY CONTROL FACILITY OPERATION

The control manhole will operate on gravity flow and will not reuire and operational control. Regular, routine maintenance to ensure that the orifices are clear of debris, the pipes are clear of sediment, and the outfall is not eroding the roadside ditch..

The grading and compaction guidelines from the *City of Oregon City Public Works Stormwater and Grading Design Standards (November 17, 1999)* shall be adhered to the maximum extent possible.

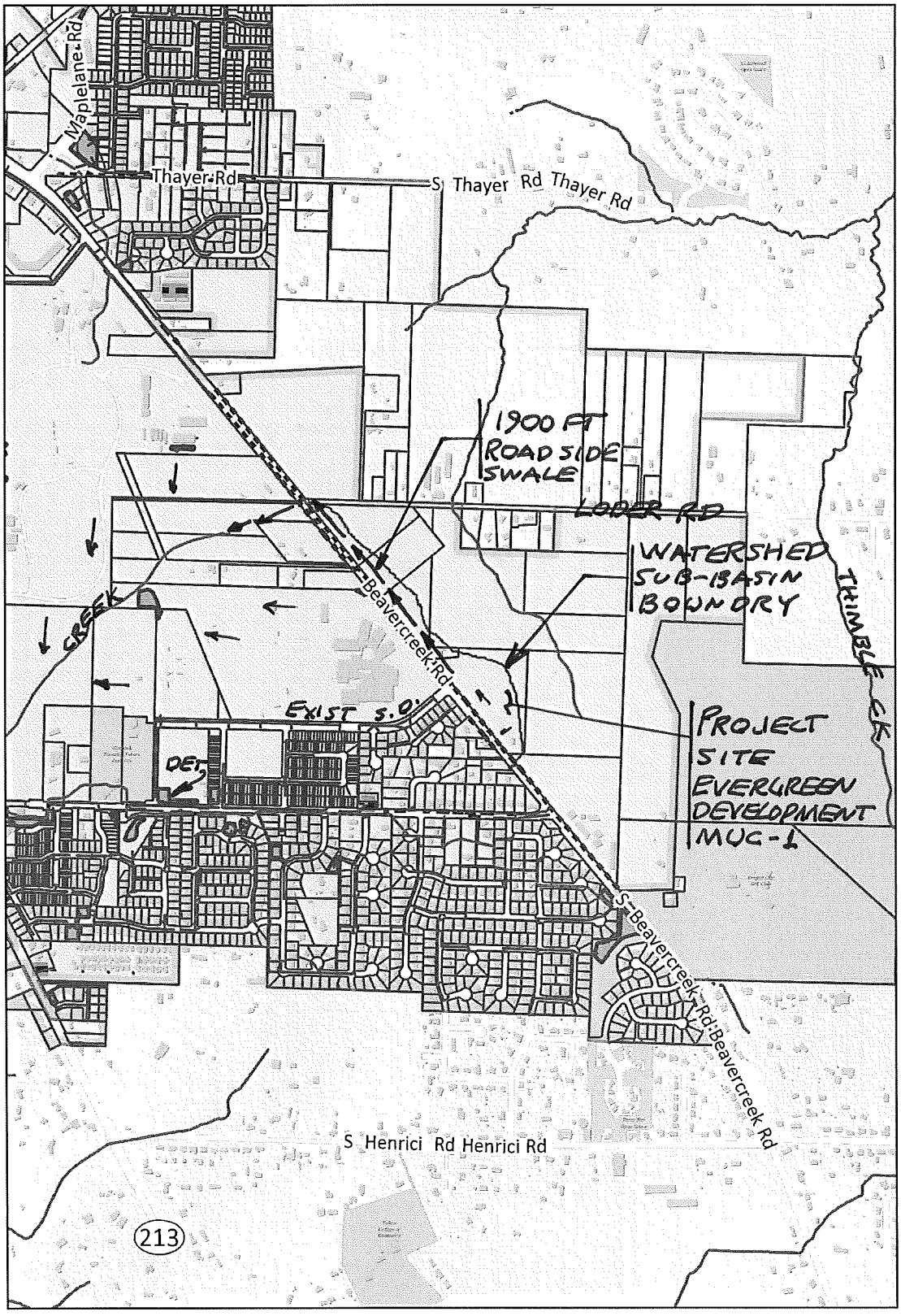
9.0 STORMWATER QUALITY CONTROL FACILITY OPERATION

The stormwater for the site will be routed through a series of water quality catch basins, pipes, and manholes. The catch basins will be sumped and the manholes will have treatment processes that through gravitational settling and biological processes and hydraulic residence time, water quality treatment will be achieved.

10.0 STORMWATER DETENTION POND SAFEGUARDS

Calculations for the 100-year storm event were done to size the emergency overflow. The stormwater tank emergency overflow pipe designed to adequately handle this storm event. If the outlet structure becomes plugged or for some other reason cannot convey the stormwater, then the stormwater will overflow through this emergency overflow. A channel lined with rip-rap will serve as an overflow to release stormwater in the event that the outlet structure is plugged. The emergency overflows are sized to accommodate the flows from the 100-year storm (assuming the outlet structure is plugged).

Oregon City GIS Map

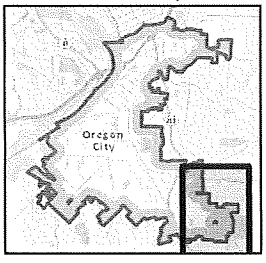


Legend

- Streams
  - Above Ground
  - Below Ground
- Taxlots
- Unimproved ROW
- Storm Conduits (City Owned)
  - Pipe
  - Culvert
  - Ditch
  - Detention Tank
- Storm Ponds
  - Pond
  - Swale
  - Man-Made Wetland
- City Limits
- UGB

Notes

Overview Map



The City of Oregon City makes no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, surveying or navigation purposes. Notification of any errors is appreciated.

N

0 1,246 Feet

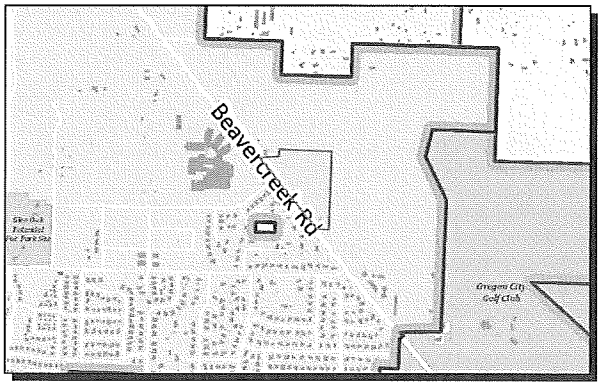
1: 14,948

City of Oregon City
PO Box 3040
625 Center St
Oregon City
OR 97045
(503) 657-0891
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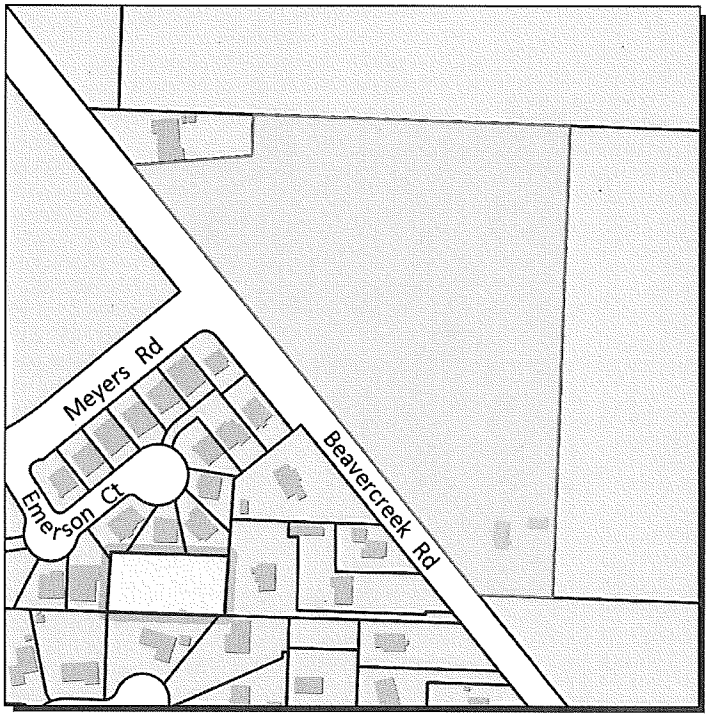
Map created 1/7/2014

Taxlot Detail Report

Taxlot: 3-2E-10C -00800



Overview Map



Taxlot highlighted in blue

Taxlot Information

APN: 3-2E-10C -00800

Alt ID: 00870711

Site Address: 19896 BEAVERCREEK RD
OREGON CITY, OR 97045

Year Built: 1945

Taxpayer Information

Taxpayer: *Suppressed*

Address: *Suppressed*

Reference Information

Parcel Area (acres - approx): 9.7

Parcel Area (sq. ft. - approx): 423,403

Twn/Rng/Sec: 03S 02E 10

Tax Map Reference: 32E10C

Values

Mkt Values as of: 10/10/2012

Land Value (Mkt): $800,000

Building Value (Mkt): $1,500

Exempt Amount: $0

Net Value (Mkt): $801,500

Note: These are Market, NOT Assessed values.

Assessed Value: $224,097

Planning Designations

Zoning: MUC1
- Mixed Use Corridor District

Comprehensive Plan: muc
- Mixed Use - Corridor

Subdivision: NONE

PUD (if known):

Neighborhood Assn: Caufield NA

Urban Renewal District:

Historic District:

Historic Designated Structure? N

In Willamette Greenway? N

In Geologic Hazard? N

In Nat. Res. Overlay District (NROD)? N

In 1996 Floodplain? N

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Report generated 12/19/2013 12:57 PM

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PO Box 3040
625 Center St
Oregon City, OR 97045
(503) 657-0891
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PRE

Subcat Reach Pond Link

Routing Diagram for BeaverCreek Road.PRE
Prepared by Hewlett-Packard Company, Printed 1/7/2014
HydroCAD® 10.00 s/n 05225 © 2013 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.450	79	50-75% Grass cover, Fair, HSG C (1S)
9.090	90	Fallow, crop residue, Poor, HSG C (1S)
0.050	98	Unconnected roofs, HSG C (1S)
9.590	**90**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
9.590	HSG C	1S
0.000	HSG D	
0.000	Other	
9.590		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.450	0.000	0.000	0.450	50-75% Grass cover, Fair	1S
0.000	0.000	9.090	0.000	0.000	9.090	Fallow, crop residue, Poor	1S
0.000	0.000	0.050	0.000	0.000	0.050	Unconnected roofs	1S
0.000	**0.000**	**9.590**	**0.000**	**0.000**	**9.590**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=9.590 ac 0.52% Impervious Runoff Depth>1.32"
Flow Length=900' Slope=0.0650 '/' Tc=9.8 min CN=89/98 Runoff=3.47 cfs 1.059 af

Total Runoff Area = 9.590 ac Runoff Volume = 1.059 af Average Runoff Depth = 1.32"
99.48% Pervious = 9.540 ac 0.52% Impervious = 0.050 ac

Summary for Subcatchment 1S: PRE

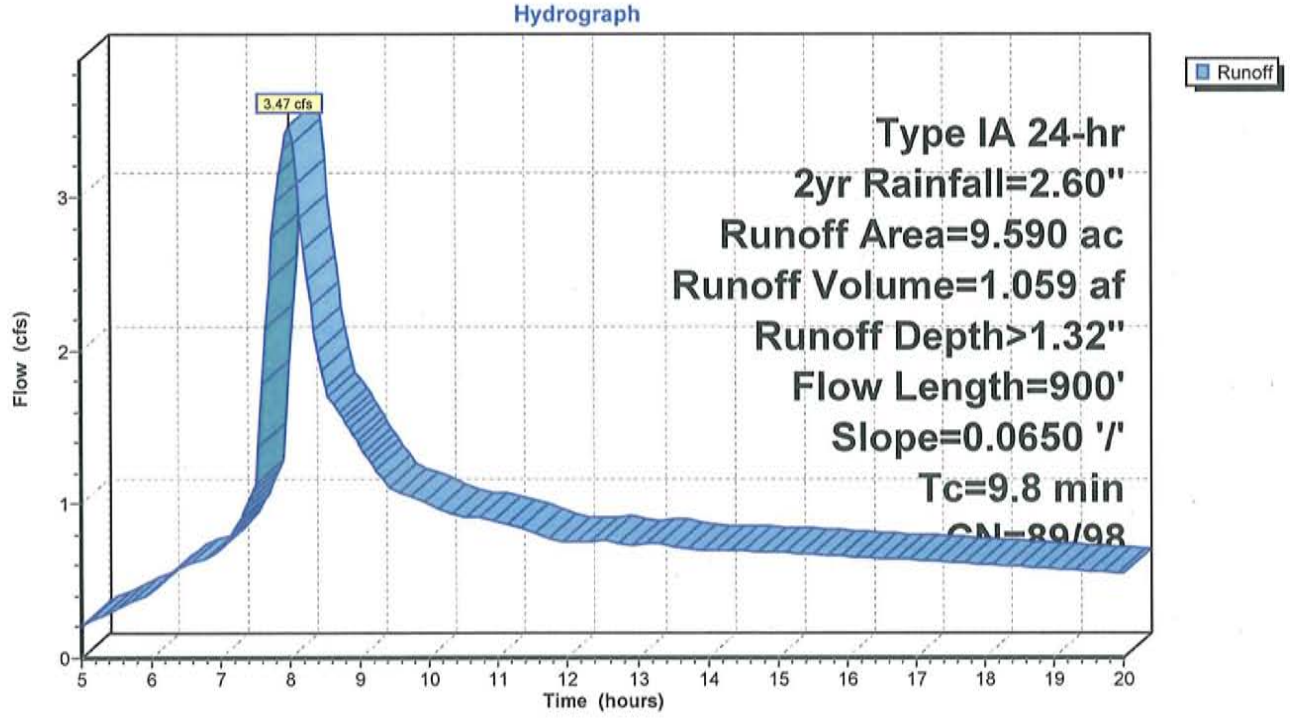
Runoff = 3.47 cfs @ 7.99 hrs, Volume= 1.059 af, Depth> 1.32"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2yr Rainfall=2.60"

Area (ac)	CN	Description
0.050	98	Unconnected roofs, HSG C
0.450	79	50-75% Grass cover, Fair, HSG C
9.090	90	Fallow, crop residue, Poor, HSG C
9.590	90	Weighted Average
9.540	89	99.48% Pervious Area
0.050	98	0.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	300	0.0650	0.74		**Sheet Flow, Grass Field** Fallow n= 0.050 P2= 2.60"
2.8	300	0.0650	1.78		**Shallow Concentrated Flow, Shallow Flow** Short Grass Pasture Kv= 7.0 fps
0.2	300	0.0650	24.21	242.08	**Channel Flow, Ditch** Area= 10.0 sf Perim= 6.0' r= 1.67' n= 0.022 Earth, clean & straight
9.8	900	Total			

Subcatchment 1S: PRE



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=9.590 ac 0.52% Impervious Runoff Depth>1.71"
Flow Length=900' Slope=0.0650 '/' Tc=9.8 min CN=89/98 Runoff=4.58 cfs 1.365 af

Total Runoff Area = 9.590 ac Runoff Volume = 1.365 af Average Runoff Depth = 1.71"
99.48% Pervious = 9.540 ac 0.52% Impervious = 0.050 ac

Summary for Subcatchment 1S: PRE

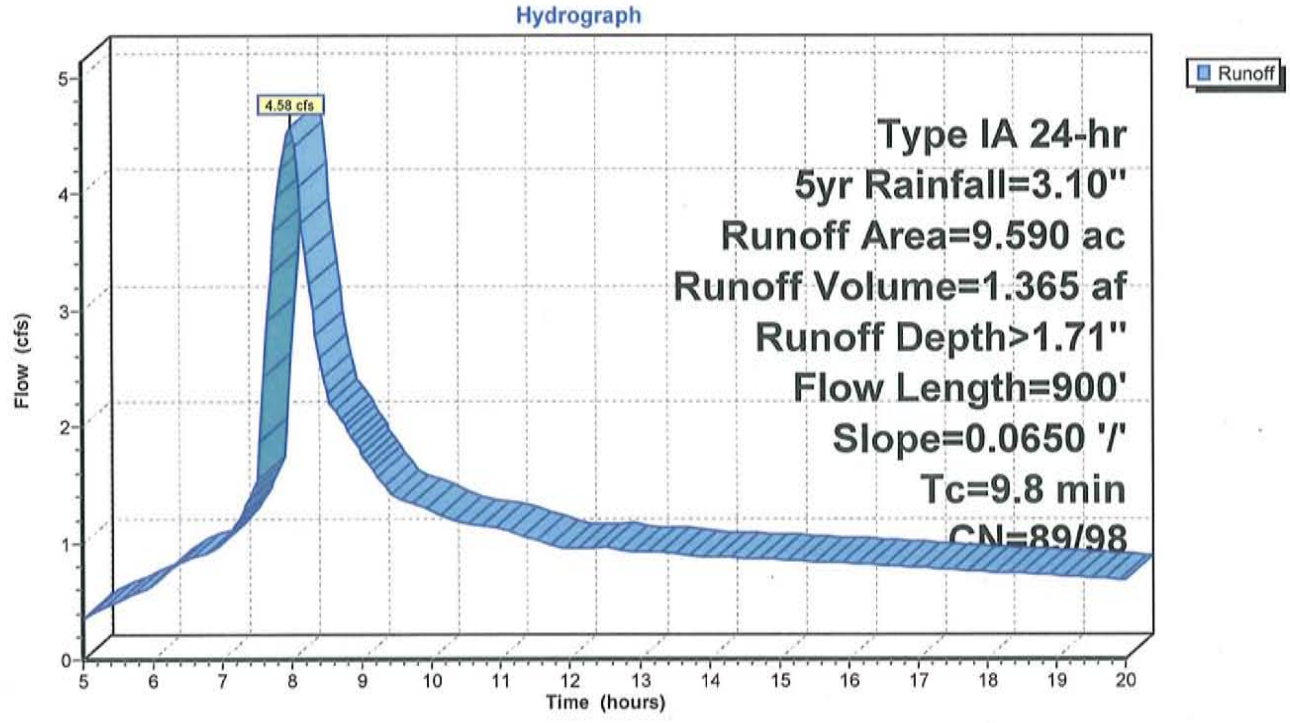
Runoff = 4.58 cfs @ 7.99 hrs, Volume= 1.365 af, Depth> 1.71"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5yr Rainfall=3.10"

Area (ac)	CN	Description
0.050	98	Unconnected roofs, HSG C
0.450	79	50-75% Grass cover, Fair, HSG C
9.090	90	Fallow, crop residue, Poor, HSG C
9.590	90	Weighted Average
9.540	89	99.48% Pervious Area
0.050	98	0.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	300	0.0650	0.74		**Sheet Flow, Grass Field** Fallow n= 0.050 P2= 2.60"
2.8	300	0.0650	1.78		**Shallow Concentrated Flow, Shallow Flow** Short Grass Pasture Kv= 7.0 fps
0.2	300	0.0650	24.21	242.08	**Channel Flow, Ditch** Area= 10.0 sf Perim= 6.0' r= 1.67' n= 0.022 Earth, clean & straight
9.8	900	Total			

Subcatchment 1S: PRE



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=9.590 ac 0.52% Impervious Runoff Depth>1.94"
Flow Length=900' Slope=0.0650 '/' Tc=9.8 min CN=89/98 Runoff=5.25 cfs 1.551 af

Total Runoff Area = 9.590 ac Runoff Volume = 1.551 af Average Runoff Depth = 1.94"
99.48% Pervious = 9.540 ac 0.52% Impervious = 0.050 ac

Summary for Subcatchment 1S: PRE

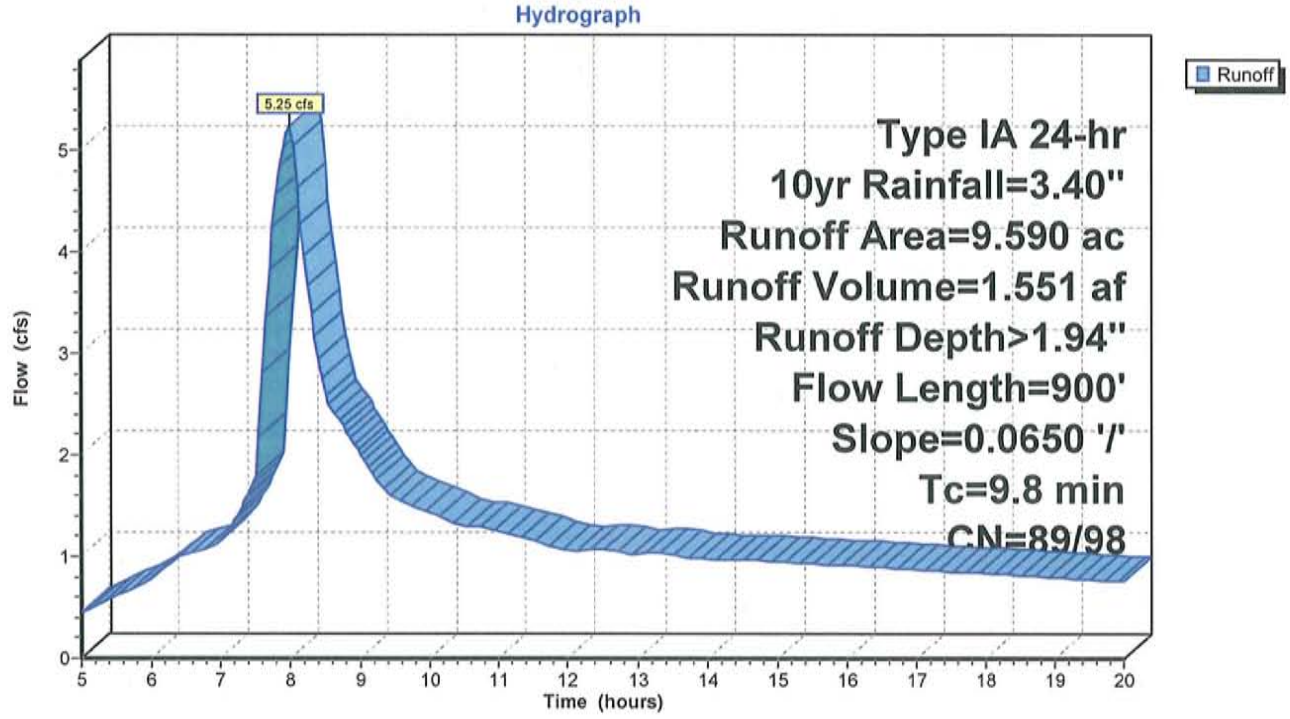
Runoff = 5.25 cfs @ 7.99 hrs, Volume= 1.551 af, Depth> 1.94"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10yr Rainfall=3.40"

Area (ac)	CN	Description
0.050	98	Unconnected roofs, HSG C
0.450	79	50-75% Grass cover, Fair, HSG C
9.090	90	Fallow, crop residue, Poor, HSG C
9.590	90	Weighted Average
9.540	89	99.48% Pervious Area
0.050	98	0.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	300	0.0650	0.74		**Sheet Flow, Grass Field** Fallow n= 0.050 P2= 2.60"
2.8	300	0.0650	1.78		**Shallow Concentrated Flow, Shallow Flow** Short Grass Pasture Kv= 7.0 fps
0.2	300	0.0650	24.21	242.08	**Channel Flow, Ditch** Area= 10.0 sf Perim= 6.0' r= 1.67' n= 0.022 Earth, clean & straight
9.8	900	Total			

Subcatchment 1S: PRE



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=9.590 ac 0.52% Impervious Runoff Depth>2.41"
Flow Length=900' Slope=0.0650 '/' Tc=9.8 min CN=89/98 Runoff=6.62 cfs 1.927 af

Total Runoff Area = 9.590 ac Runoff Volume = 1.927 af Average Runoff Depth = 2.41"
99.48% Pervious = 9.540 ac 0.52% Impervious = 0.050 ac

Summary for Subcatchment 1S: PRE

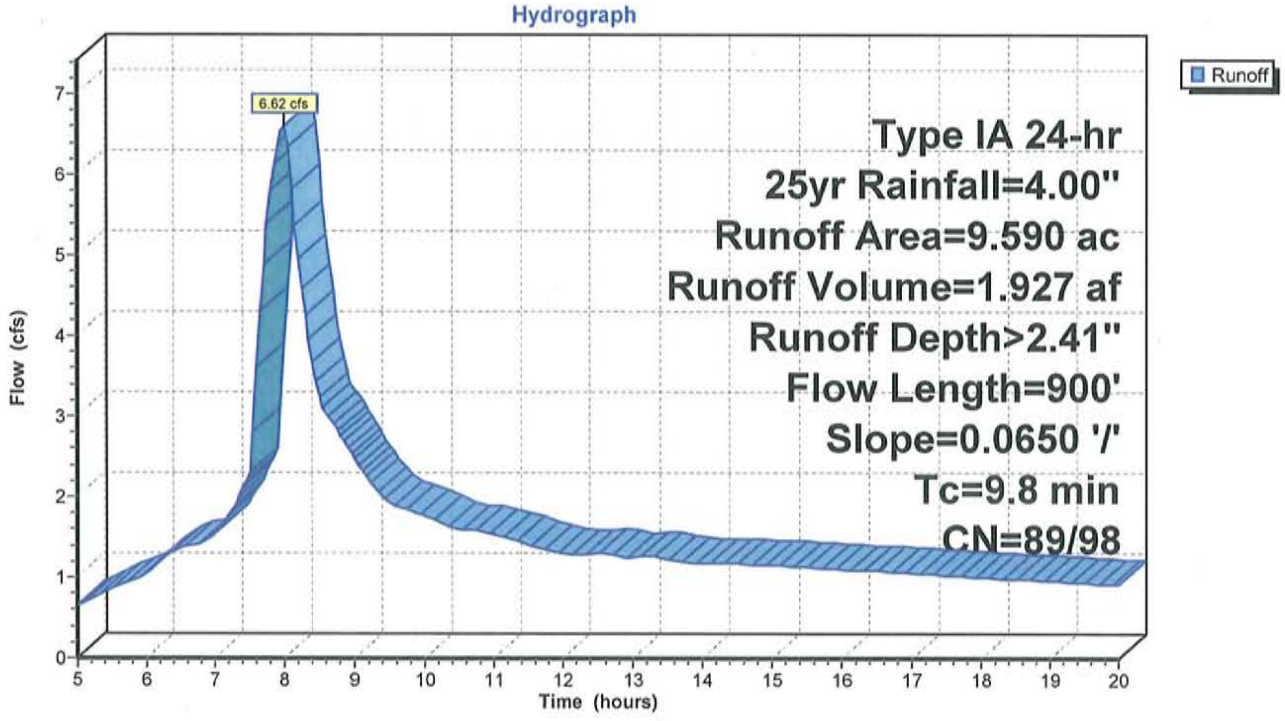
Runoff = 6.62 cfs @ 7.99 hrs, Volume= 1.927 af, Depth> 2.41"

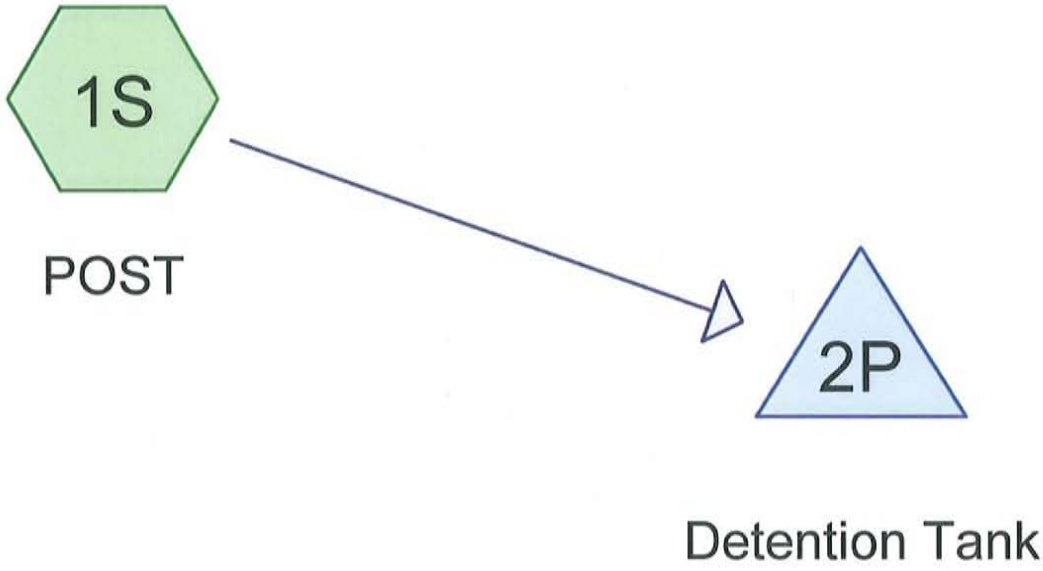
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25yr Rainfall=4.00"

Area (ac)	CN	Description
0.050	98	Unconnected roofs, HSG C
0.450	79	50-75% Grass cover, Fair, HSG C
9.090	90	Fallow, crop residue, Poor, HSG C
9.590	90	Weighted Average
9.540	89	99.48% Pervious Area
0.050	98	0.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	300	0.0650	0.74		**Sheet Flow, Grass Field** Fallow n= 0.050 P2= 2.60"
2.8	300	0.0650	1.78		**Shallow Concentrated Flow, Shallow Flow** Short Grass Pasture Kv= 7.0 fps
0.2	300	0.0650	24.21	242.08	**Channel Flow, Ditch** Area= 10.0 sf Perim= 6.0' r= 1.67' n= 0.022 Earth, clean & straight
9.8	900	Total			

Subcatchment 1S: PRE





Subcat Reach Pond Link

Routing Diagram for BeaverCreek Road.POST
Prepared by Hewlett-Packard Company, Printed 1/7/2014
HydroCAD® 10.00 s/n 05225 © 2013 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.920	79	50-75% Grass cover, Fair, HSG C (1S)
7.670	98	Paved parking, HSG C (1S)
9.590	**94**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
9.590	HSG C	1S
0.000	HSG D	
0.000	Other	
9.590		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	1.920	0.000	0.000	1.920	50-75% Grass cover, Fair	1S
0.000	0.000	7.670	0.000	0.000	7.670	Paved parking	1S
0.000	**0.000**	**9.590**	**0.000**	**0.000**	**9.590**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1S	0.00	0.00	500.0	0.0600	0.010	12.0	0.0	0.0
2	2P	100.50	98.00	50.0	0.0500	0.010	36.0	0.0	0.0

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: POST Runoff Area=9.590 ac 79.98% Impervious Runoff Depth>2.07"
Flow Length=850' Tc=14.1 min CN=79/98 Runoff=4.43 cfs 1.651 af

Pond 2P: Detention Tank Peak Elev=103.10' Storage=0.089 af Inflow=4.43 cfs 1.651 af
Outflow=3.18 cfs 1.645 af

Total Runoff Area = 9.590 ac Runoff Volume = 1.651 af Average Runoff Depth = 2.07"
20.02% Pervious = 1.920 ac 79.98% Impervious = 7.670 ac

Summary for Subcatchment 1S: POST

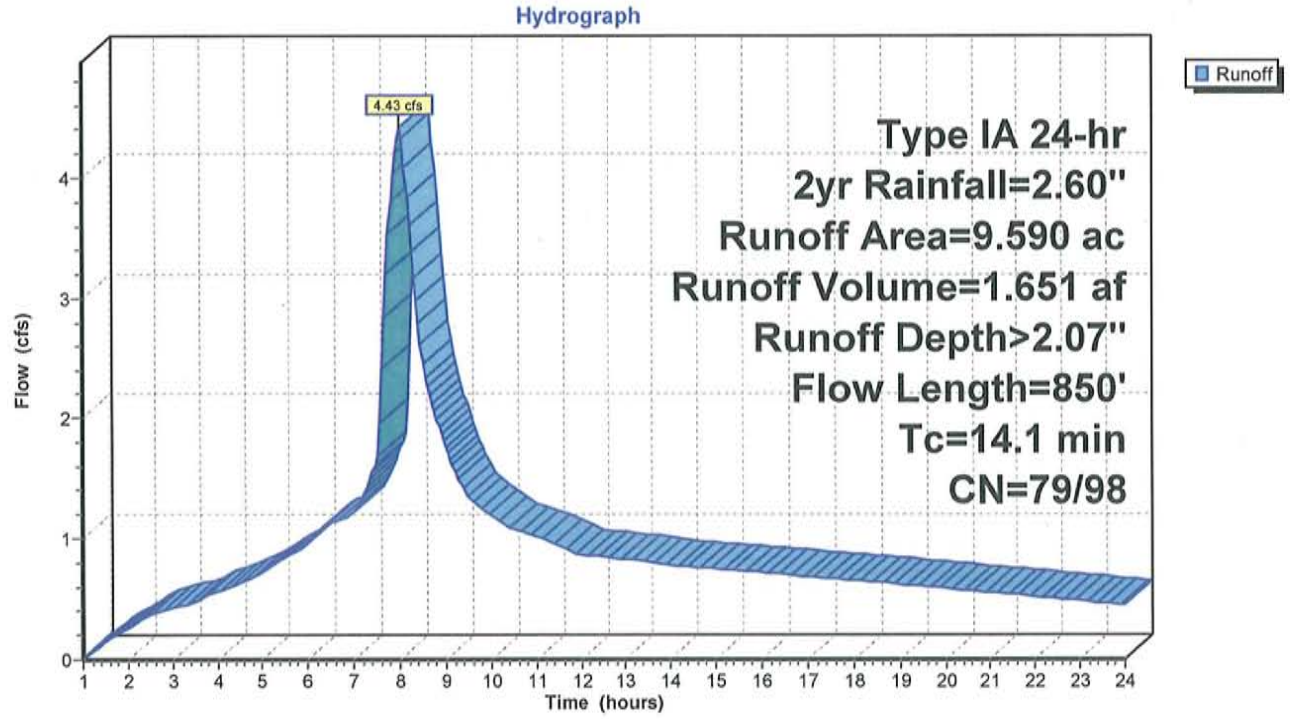
Runoff = 4.43 cfs @ 8.00 hrs, Volume= 1.651 af, Depth> 2.07"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2yr Rainfall=2.60"

Area (ac)	CN	Description
1.920	79	50-75% Grass cover, Fair, HSG C
7.670	98	Paved parking, HSG C
9.590	94	Weighted Average
1.920	79	20.02% Pervious Area
7.670	98	79.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 1S: POST



Summary for Pond 2P: Detention Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 9.590 ac, 79.98% Impervious, Inflow Depth > 2.07" for 2yr event
Inflow = 4.43 cfs @ 8.00 hrs, Volume= 1.651 af
Outflow = 3.18 cfs @ 8.30 hrs, Volume= 1.645 af, Atten= 28%, Lag= 18.3 min
Primary = 3.18 cfs @ 8.30 hrs, Volume= 1.645 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 103.10' @ 8.30 hrs Surf.Area= 0.043 ac Storage= 0.089 af

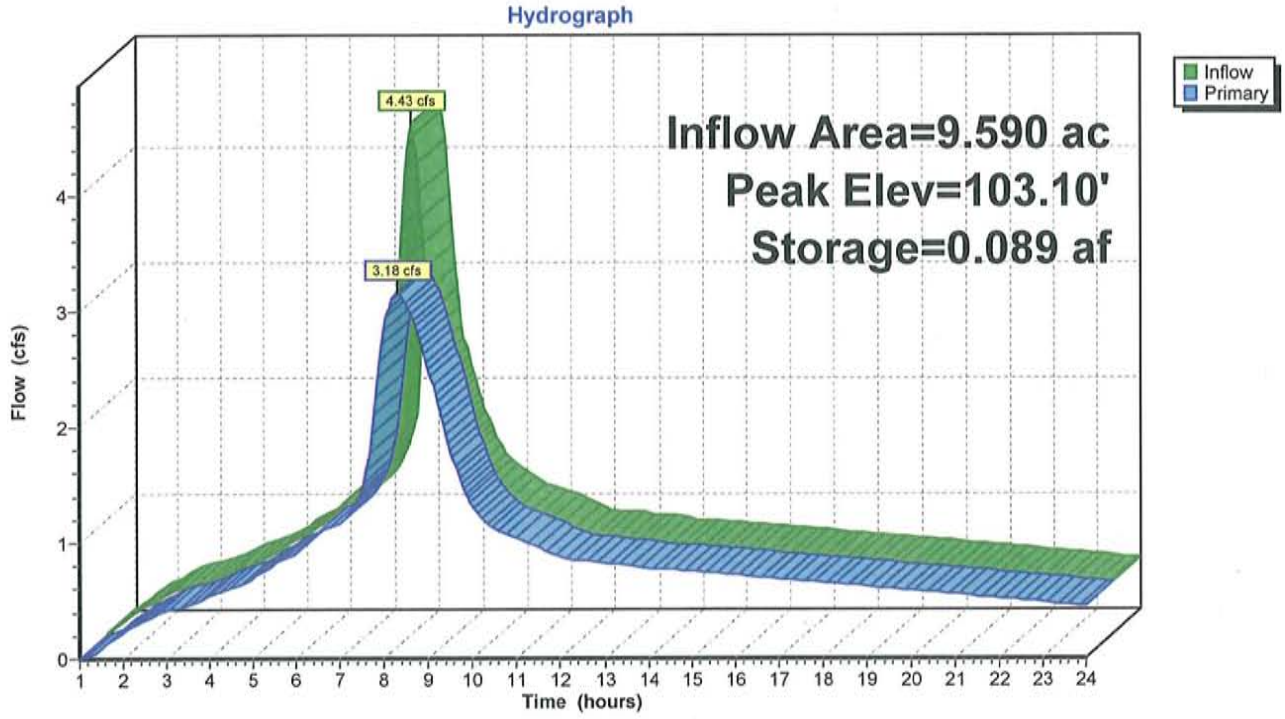
Plug-Flow detention time= 10.7 min calculated for 1.642 af (99% of inflow)
Center-of-Mass det. time= 8.1 min (701.7 - 693.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.50'	0.169 af	**60.0" Round CMP_Round 60"** x 3 L= 125.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.50'	**36.0" Round CMP_Round 36"** L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.50' / 98.00' S= 0.0500 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf
#2	Device 1	100.50'	**9.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	105.00'	**16.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.18 cfs @ 8.30 hrs HW=103.10' (Free Discharge)
└─**1=CMP_Round 36"** (Passes 3.18 cfs of 35.79 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 3.18 cfs @ 7.19 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Detention Tank



Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: POST Runoff Area=9.590 ac 79.98% Impervious Runoff Depth>2.53"
Flow Length=850' Tc=14.1 min CN=79/98 Runoff=5.43 cfs 2.024 af

Pond 2P: Detention Tank Peak Elev=103.92' Storage=0.123 af Inflow=5.43 cfs 2.024 af
Outflow=3.71 cfs 2.018 af

Total Runoff Area = 9.590 ac Runoff Volume = 2.024 af Average Runoff Depth = 2.53"
20.02% Pervious = 1.920 ac 79.98% Impervious = 7.670 ac

Summary for Subcatchment 1S: POST

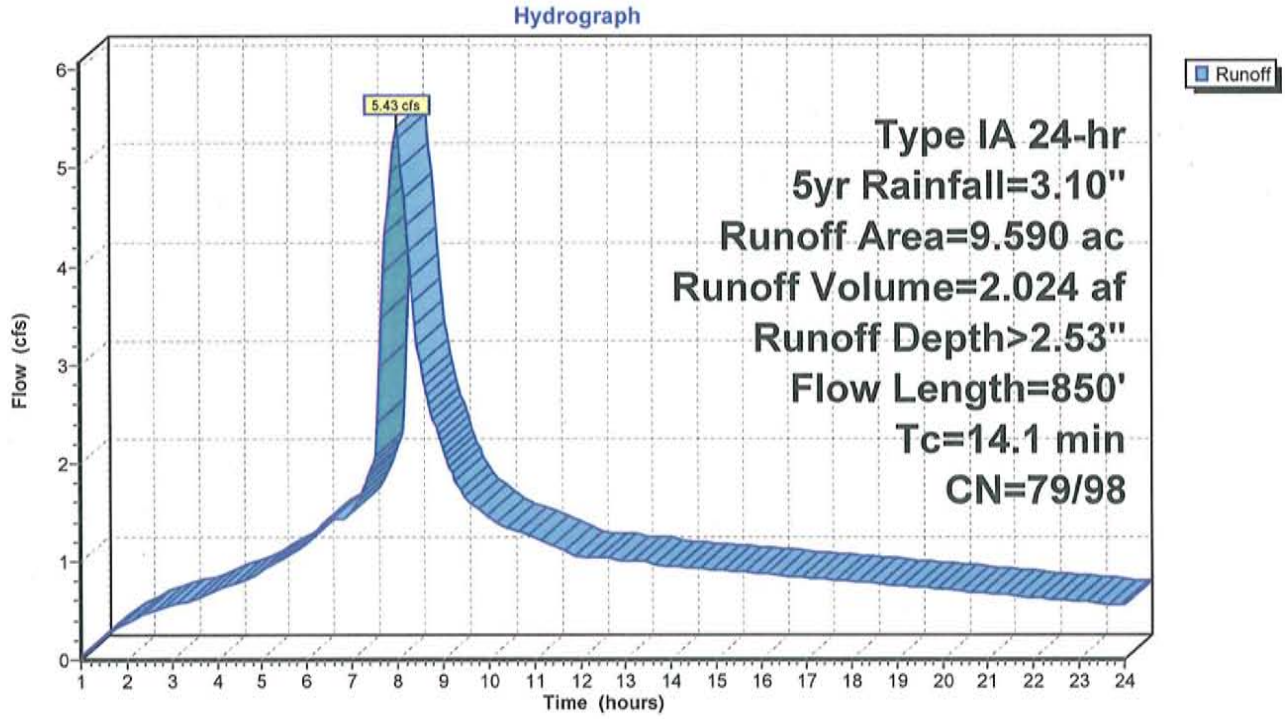
Runoff = 5.43 cfs @ 8.00 hrs, Volume= 2.024 af, Depth> 2.53"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5yr Rainfall=3.10"

Area (ac)	CN	Description
1.920	79	50-75% Grass cover, Fair, HSG C
7.670	98	Paved parking, HSG C
9.590	94	Weighted Average
1.920	79	20.02% Pervious Area
7.670	98	79.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 1S: POST



Summary for Pond 2P: Detention Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 9.590 ac, 79.98% Impervious, Inflow Depth > 2.53" for 5yr event
Inflow = 5.43 cfs @ 8.00 hrs, Volume= 2.024 af
Outflow = 3.71 cfs @ 8.34 hrs, Volume= 2.018 af, Atten= 32%, Lag= 20.4 min
Primary = 3.71 cfs @ 8.34 hrs, Volume= 2.018 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 103.92' @ 8.34 hrs Surf.Area= 0.040 ac Storage= 0.123 af

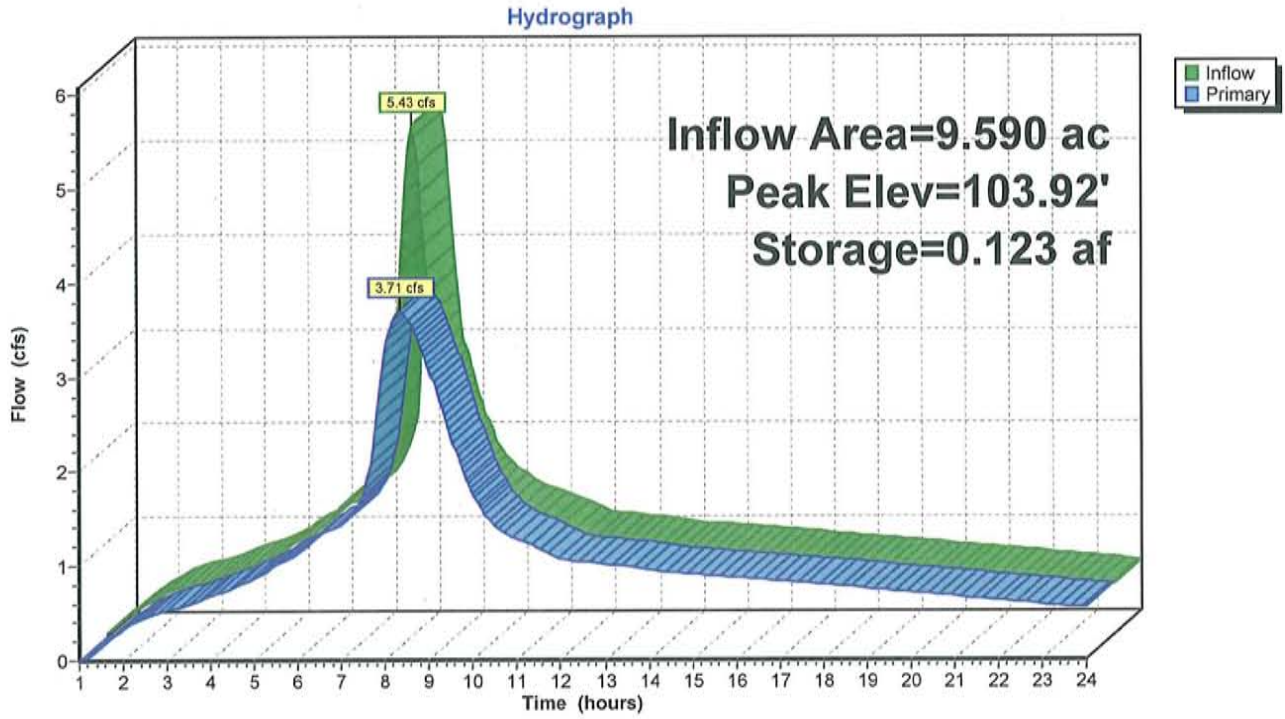
Plug-Flow detention time= 11.7 min calculated for 2.017 af (100% of inflow)
Center-of-Mass det. time= 9.2 min (698.1 - 688.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.50'	0.169 af	**60.0" Round CMP_Round 60"** x 3 L= 125.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.50'	**36.0" Round CMP_Round 36"** L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.50' / 98.00' S= 0.0500 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf
#2	Device 1	100.50'	**9.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	105.00'	**16.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.71 cfs @ 8.34 hrs HW=103.92' (Free Discharge)
└─**1=CMP_Round 36"** (Passes 3.71 cfs of 47.10 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 3.71 cfs @ 8.40 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Detention Tank



Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: POST Runoff Area=9.590 ac 79.98% Impervious Runoff Depth>2.82"
Flow Length=850' Tc=14.1 min CN=79/98 Runoff=6.03 cfs 2.250 af

Pond 2P: Detention Tank Peak Elev=104.50' Storage=0.145 af Inflow=6.03 cfs 2.250 af
Outflow=4.05 cfs 2.243 af

Total Runoff Area = 9.590 ac Runoff Volume = 2.250 af Average Runoff Depth = 2.82"
20.02% Pervious = 1.920 ac 79.98% Impervious = 7.670 ac

Summary for Subcatchment 1S: POST

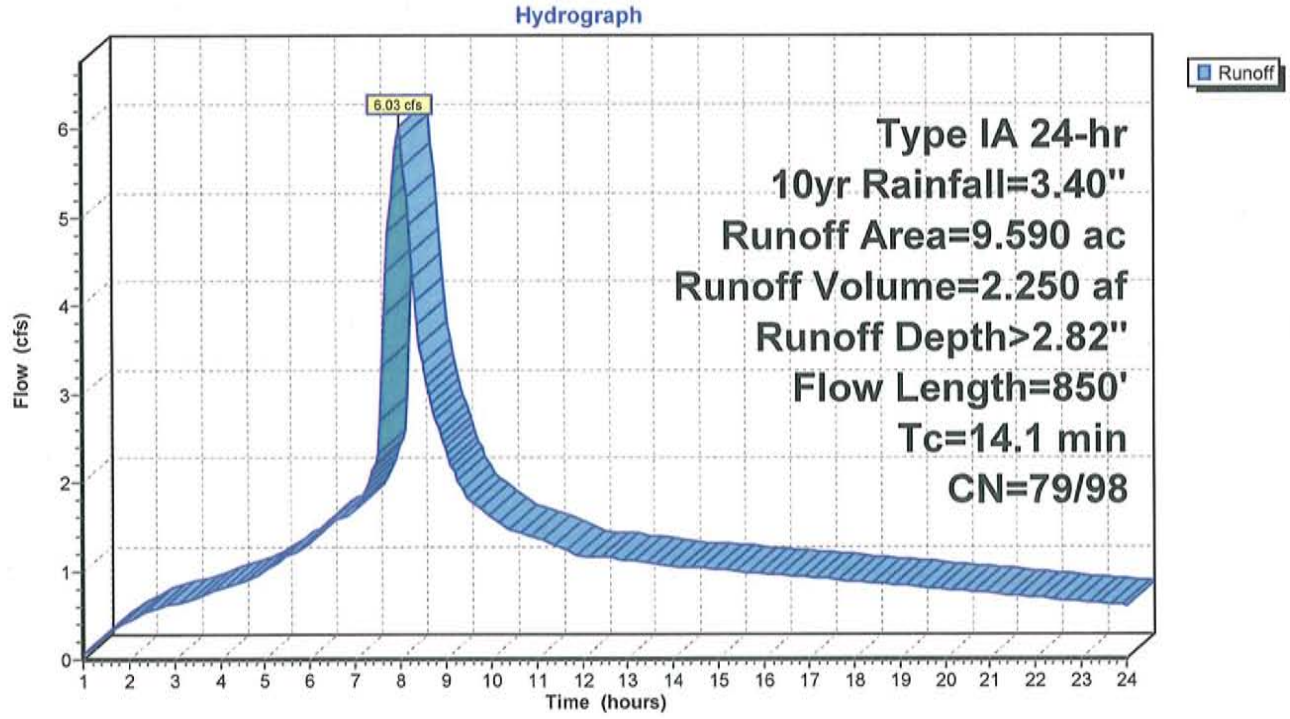
Runoff = 6.03 cfs @ 8.00 hrs, Volume= 2.250 af, Depth> 2.82"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10yr Rainfall=3.40"

Area (ac)	CN	Description
1.920	79	50-75% Grass cover, Fair, HSG C
7.670	98	Paved parking, HSG C
9.590	94	Weighted Average
1.920	79	20.02% Pervious Area
7.670	98	79.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 1S: POST



Summary for Pond 2P: Detention Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 9.590 ac, 79.98% Impervious, Inflow Depth > 2.82" for 10yr event
Inflow = 6.03 cfs @ 8.00 hrs, Volume= 2.250 af
Outflow = 4.05 cfs @ 8.35 hrs, Volume= 2.243 af, Atten= 33%, Lag= 21.2 min
Primary = 4.05 cfs @ 8.35 hrs, Volume= 2.243 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 104.50' @ 8.35 hrs Surf.Area= 0.034 ac Storage= 0.145 af

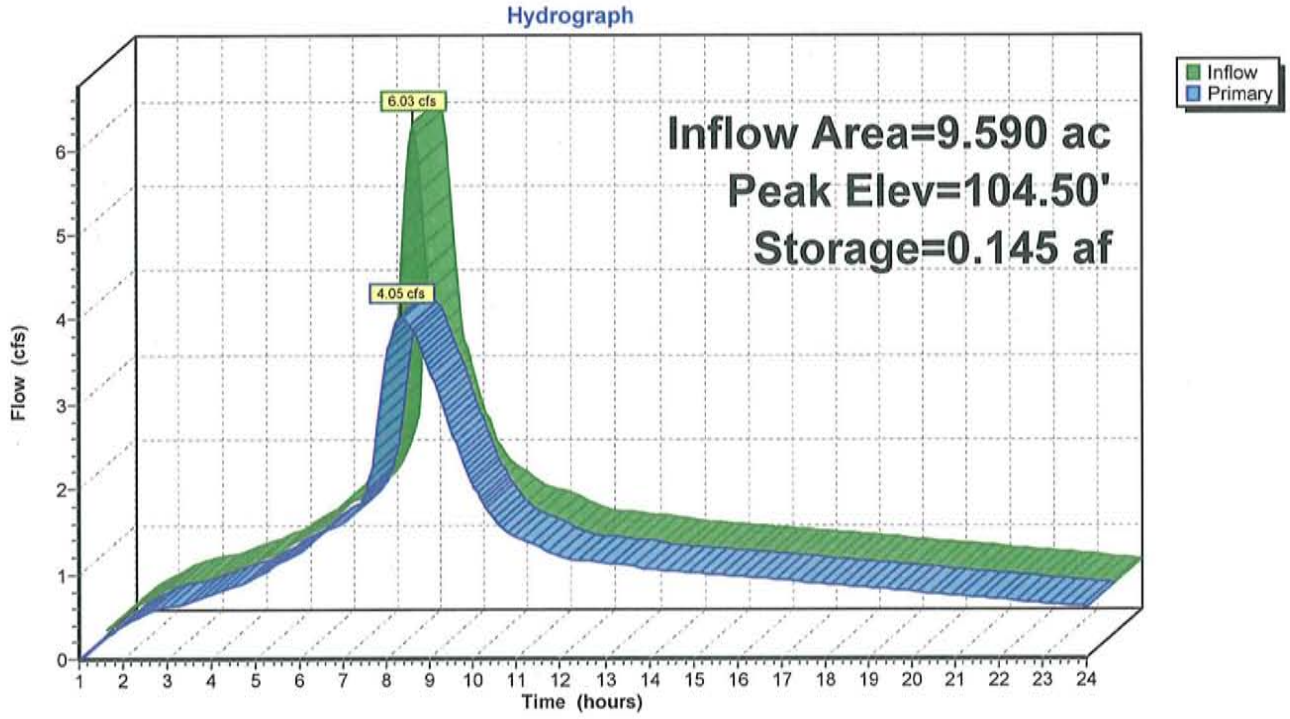
Plug-Flow detention time= 12.4 min calculated for 2.243 af (100% of inflow)
Center-of-Mass det. time= 9.9 min (696.6 - 686.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.50'	0.169 af	**60.0" Round CMP_Round 60"** x 3 L= 125.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.50'	**36.0" Round CMP_Round 36"** L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.50' / 98.00' S= 0.0500 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf
#2	Device 1	100.50'	**9.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	105.00'	**16.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.05 cfs @ 8.35 hrs HW=104.50' (Free Discharge)
└─**1=CMP_Round 36"** (Passes 4.05 cfs of 53.79 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 4.05 cfs @ 9.16 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Detention Tank



Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: POST Runoff Area=9.590 ac 79.98% Impervious Runoff Depth>3.39"
Flow Length=850' Tc=14.1 min CN=79/98 Runoff=7.25 cfs 2.706 af

Pond 2P: Detention Tank Peak Elev=105.29' Storage=0.167 af Inflow=7.25 cfs 2.706 af
Outflow=6.55 cfs 2.697 af

Total Runoff Area = 9.590 ac Runoff Volume = 2.706 af Average Runoff Depth = 3.39"
20.02% Pervious = 1.920 ac 79.98% Impervious = 7.670 ac

Summary for Subcatchment 1S: POST

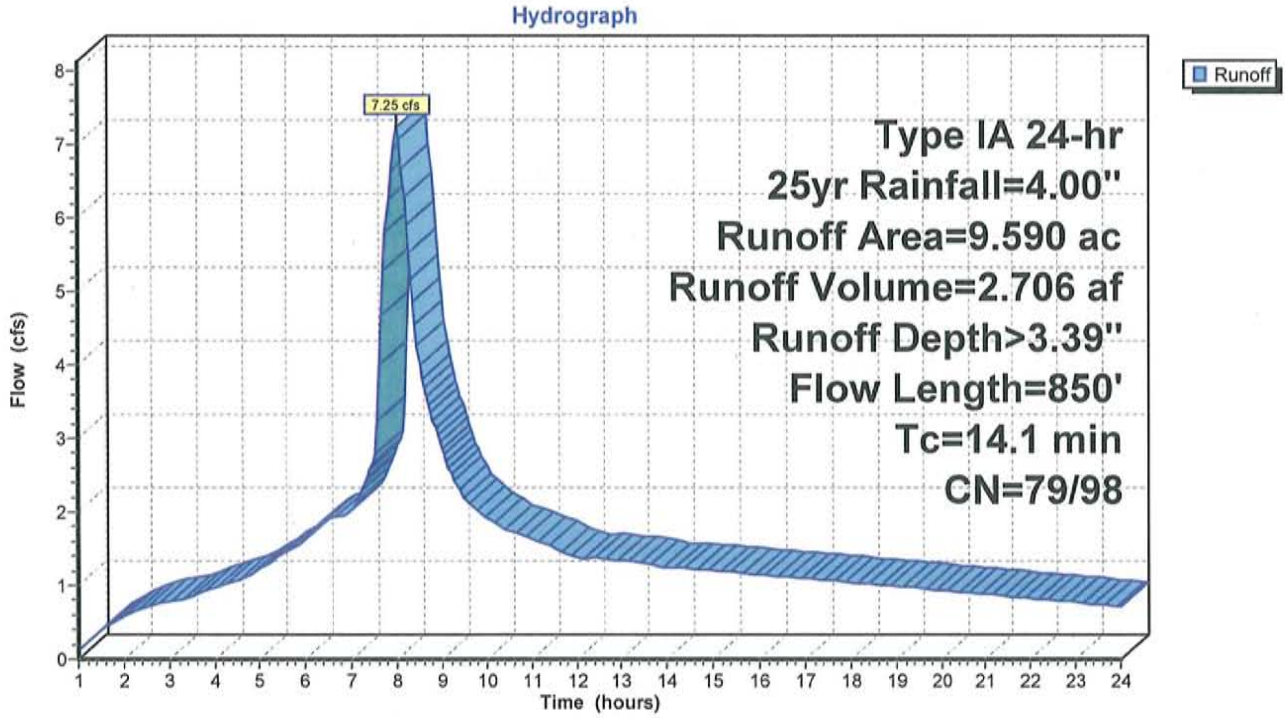
Runoff = 7.25 cfs @ 8.00 hrs, Volume= 2.706 af, Depth> 3.39"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25yr Rainfall=4.00"

Area (ac)	CN	Description
1.920	79	50-75% Grass cover, Fair, HSG C
7.670	98	Paved parking, HSG C
9.590	94	Weighted Average
1.920	79	20.02% Pervious Area
7.670	98	79.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 1S: POST



Summary for Pond 2P: Detention Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 9.590 ac, 79.98% Impervious, Inflow Depth > 3.39" for 25yr event
Inflow = 7.25 cfs @ 8.00 hrs, Volume= 2.706 af
Outflow = 6.55 cfs @ 8.16 hrs, Volume= 2.697 af, Atten= 10%, Lag= 9.7 min
Primary = 6.55 cfs @ 8.16 hrs, Volume= 2.697 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 105.29' @ 8.16 hrs Surf.Area= 0.017 ac Storage= 0.167 af

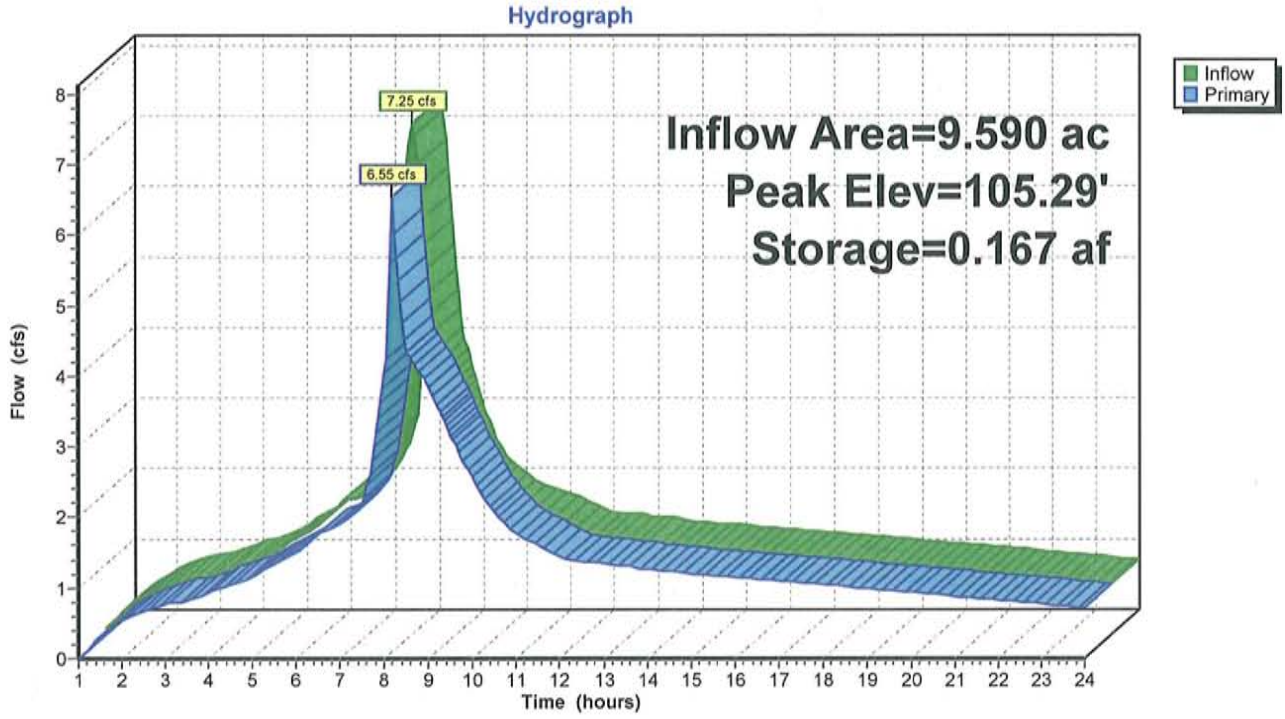
Plug-Flow detention time= 13.2 min calculated for 2.697 af (100% of inflow)
Center-of-Mass det. time= 10.7 min (693.6 - 682.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.50'	0.169 af	**60.0" Round CMP_Round 60"** x 3 L= 125.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.50'	**36.0" Round CMP_Round 36"** L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.50' / 98.00' S= 0.0500 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf
#2	Device 1	100.50'	**9.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	105.00'	**16.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

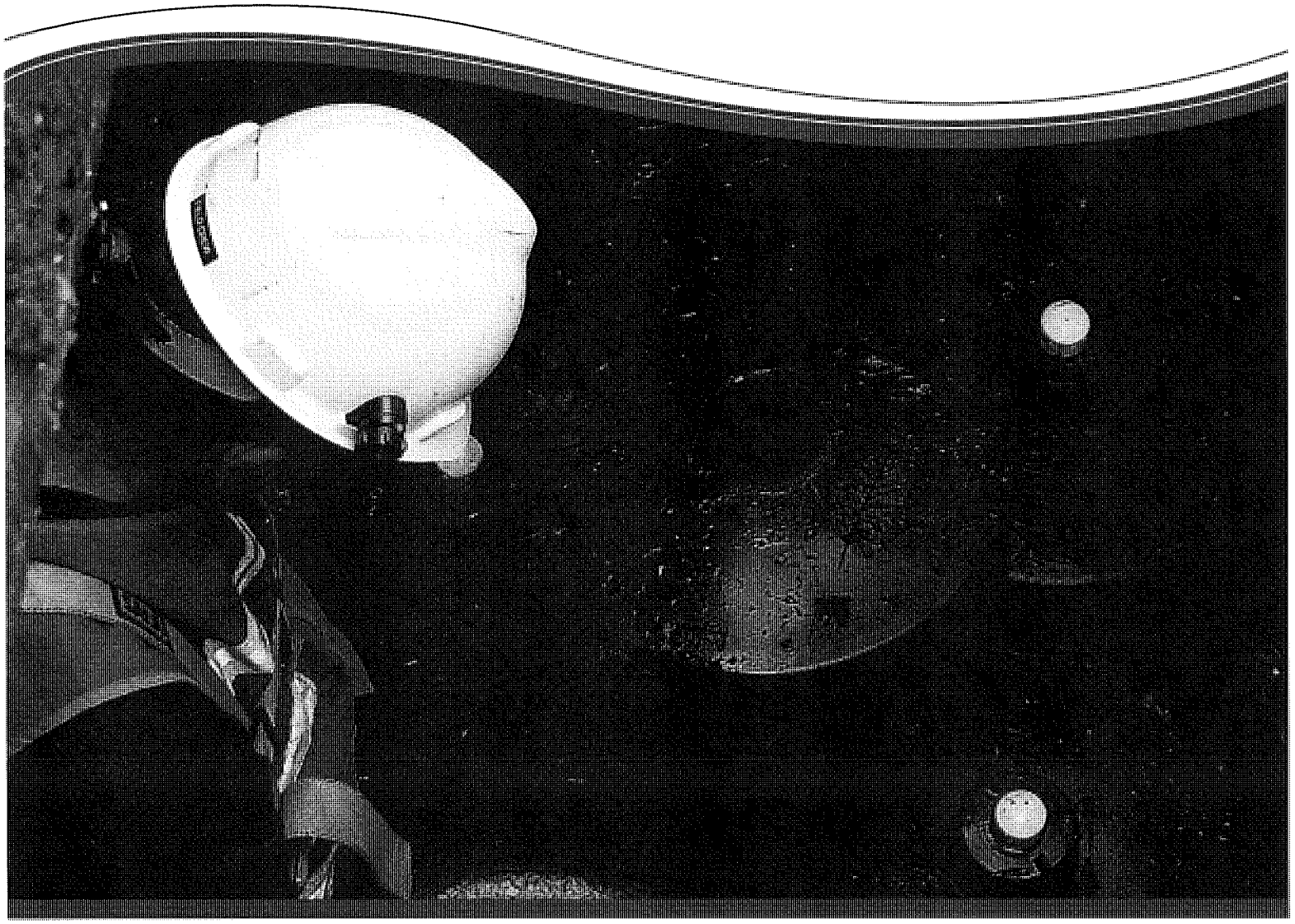
Primary OutFlow Max=6.45 cfs @ 8.16 hrs HW=105.28' (Free Discharge)
└─**1=CMP_Round 36"** (Passes 6.45 cfs of 61.61 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 4.46 cfs @ 10.10 fps)
  └─**3=Orifice/Grate** (Weir Controls 1.99 cfs @ 1.72 fps)

Pond 2P: Detention Tank



CONTECH
CONSTRUCTION PRODUCTS INC.

StormFilter Inspection and Maintenance Procedures



The Stormwater Management StormFilter®

Maintenance Guidelines

The primary purpose of the Stormwater Management StormFilter® is to filter out and prevent pollutants from entering our waterways. Like any effective filtration system, periodically these pollutants must be removed to restore the StormFilter to its full efficiency and effectiveness.

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site. Maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms. It is a good practice to inspect the system after major storm events.

Maintenance Procedures

Although there are likely many effective maintenance options, we believe the following procedure is efficient and can be implemented using common equipment and existing maintenance protocols. A two step procedure is recommended as follows:

1. Inspection

Inspection of the vault interior to determine the need for maintenance.

2. Maintenance

Cartridge replacement

Sediment removal

Inspection and Maintenance Timing

At least one scheduled inspection should take place per year with maintenance following as warranted.

First, an inspection should be done before the winter season. During the inspection the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, a maintenance (replacement of the filter cartridges and removal of accumulated sediments) should be performed during periods of dry weather.



In addition to these two activities, it is important to check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation that may be caused by localized erosion in the drainage area. It may be necessary to adjust the inspection/ maintenance schedule depending on the actual operating conditions encountered by the system. In general, inspection activities can be conducted at any time, and maintenance should occur, if warranted, in late summer to early fall when flows into the system are not likely to be present.

Maintenance Frequency

The primary factor controlling timing of maintenance of the StormFilter is sediment loading.

A properly functioning system will remove solids from water by trapping particulates in the porous structure of the filter media inside the cartridges. The flow through the system will naturally decrease as more and more particulates are trapped. Eventually the flow through the cartridges will be low enough to require replacement. It may be possible to extend the usable span of the cartridges by removing sediment from upstream trapping devices on a routine as-needed basis in order to prevent material from being re-suspended and discharged to the StormFilter treatment system.

Site conditions greatly influence maintenance requirements. StormFilter units located in areas with erosion or active construction may need to be inspected and maintained more often than those with fully stabilized surface conditions.

The maintenance frequency may be adjusted as additional monitoring information becomes available during the inspection program. Areas that develop known problems should be inspected more frequently than areas that demonstrate no problems, particularly after major storms. Ultimately, inspection and maintenance activities should be scheduled based on the historic records and characteristics of an individual StormFilter system or site. It is recommended that the site owner develop a database to properly manage StormFilter inspection and maintenance programs.

Prior to the development of the maintenance database, the following maintenance frequencies should be followed:

Inspection

One time per year

After major storms

Maintenance

As needed, based on results of inspection (The average maintenance lifecycle is approximately 1-3 years)

Per Regulatory requirement

In the event of a chemical spill

Frequencies should be updated as required. The recommended initial frequency for inspection is one time per year. StormFilter units should be inspected after major storms.

Sediment removal and cartridge replacement on an as needed basis is recommended unless site conditions warrant.

Once an understanding of site characteristics has been established, maintenance may not be needed for one to three years, but inspection is warranted and recommended annually.

Inspection Procedures

The primary goal of an inspection is to assess the condition of the cartridges relative to the level of visual sediment loading as it relates to decreased treatment capacity. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Construction Products immediately.

To conduct an inspection:

Important: Inspection should be performed by a person who is familiar with the operation and configuration of the StormFilter treatment unit.

1. If applicable, set up safety equipment to protect and notify surrounding vehicle and pedestrian traffic.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.



3. Open the access portals to the vault and allow the system vent.
4. Without entering the vault, visually inspect the inside of the unit, and note accumulations of liquids and solids.
5. Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the flow of water per drainage pipe. Record all observations. Digital pictures are valuable for historical documentation.
6. Close and fasten the access portals.
7. Remove safety equipment.
8. If appropriate, make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
9. Discuss conditions that suggest maintenance and make decision as to weather or not maintenance is needed.

Maintenance Decision Tree

The need for maintenance is typically based on results of the inspection. The following Maintenance Decision Tree should be used as a general guide. (Other factors, such as Regulatory Requirements, may need to be considered)



1. Sediment loading on the vault floor.
   a. If >4" of accumulated sediment, maintenance is required.
2. Sediment loading on top of the cartridge.
   a. If >1/4" of accumulation, maintenance is required.
3. Submerged cartridges.
   a. If >4" of static water in the cartridge bay for more that 24 hours after end of rain event, maintenance is required.
4. Plugged media.
   a. If pore space between media granules is absent, maintenance is required.
5. Bypass condition.
   a. If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges), maintenance is required.
6. Hazardous material release.
   a. If hazardous material release (automotive fluids or other) is reported, maintenance is required.
7. Pronounced scum line.
   a. If pronounced scum line (say ≥ 1/4" thick) is present above top cap, maintenance is required.
8. Calendar Lifecycle.
   a. If system has not been maintained for 3 years maintenance is required.

Assumptions

- No rainfall for 24 hours or more
- No upstream detention (at least not draining into StormFilter)
- Structure is online
- Outlet pipe is clear of obstruction
- Construction bypass is plugged

Maintenance

Depending on the configuration of the particular system, maintenance personnel will be required to enter the vault to perform the maintenance.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows is occurring.

Replacement cartridges can be delivered to the site or customers facility. Information concerning how to obtain the replacement cartridges is available from CONTECH Construction Products.

Warning: In the case of a spill, the maintenance personnel should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Construction Products immediately.

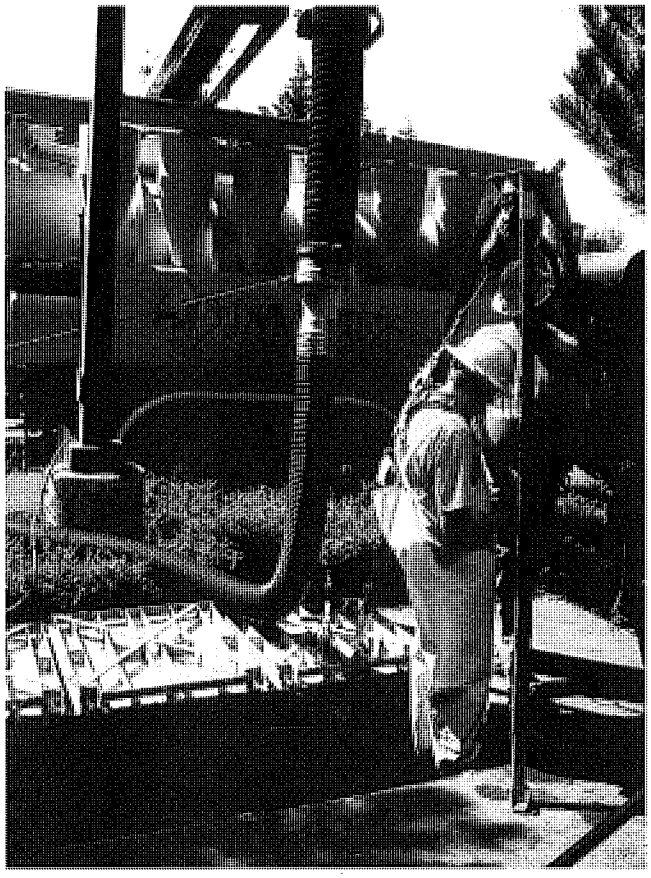
To conduct cartridge replacement and sediment removal maintenance:

1. If applicable, set up safety equipment to protect maintenance personnel and pedestrians from site hazards.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors (access portals) to the vault and allow the system to vent.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:

Method 1:

A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Unscrew (counterclockwise rotations) each filter cartridge from the underdrain connector. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact CONTECH Construction Products for suggested attachment devices.



Important: Note that cartridges containing leaf media (CSF) do not require unscrewing from their connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and could be capped during the maintenance activity to prevent sediments from entering the underdrain manifold.

B. Remove the used cartridges (up to 250 lbs. each) from the vault.

Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner unless CONTECH Construction Products performs the maintenance activities and damage is not related to discharges to the system.

C. Set the used cartridge aside or load onto the hauling truck.

D. Continue steps a through c until all cartridges have been removed.

Method 2:

A. Enter the vault using appropriate confined space protocols.

B. Unscrew the cartridge cap.

C. Remove the cartridge hood screws (3) hood and float.

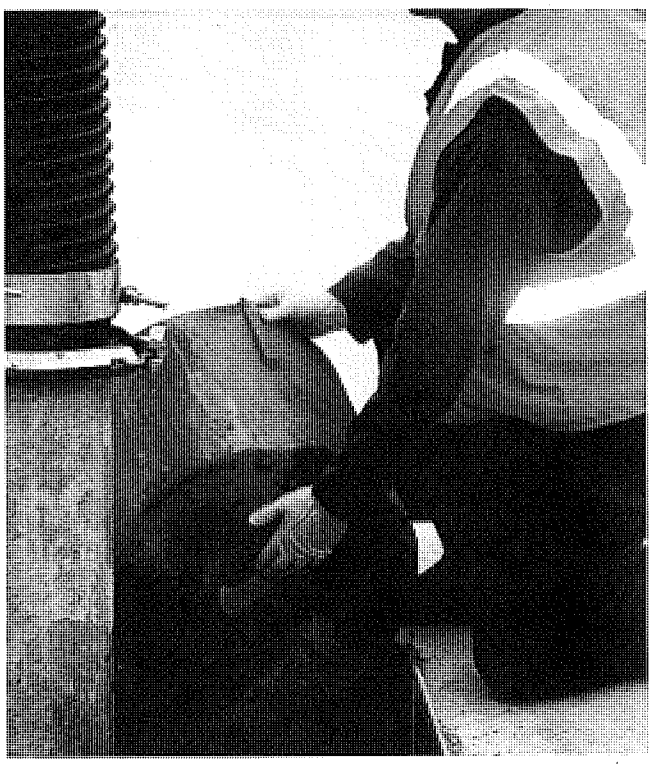
D. At location under structure access, tip the cartridge on its side.

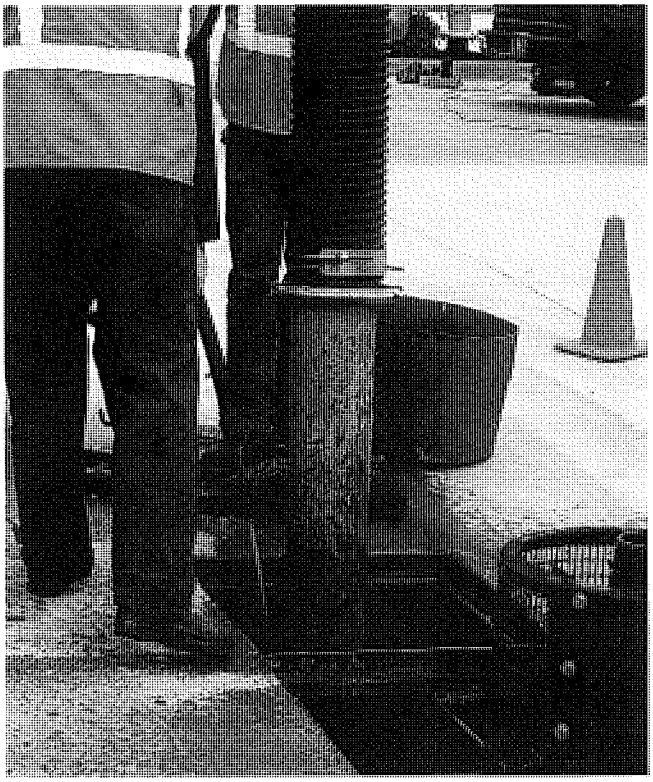
Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

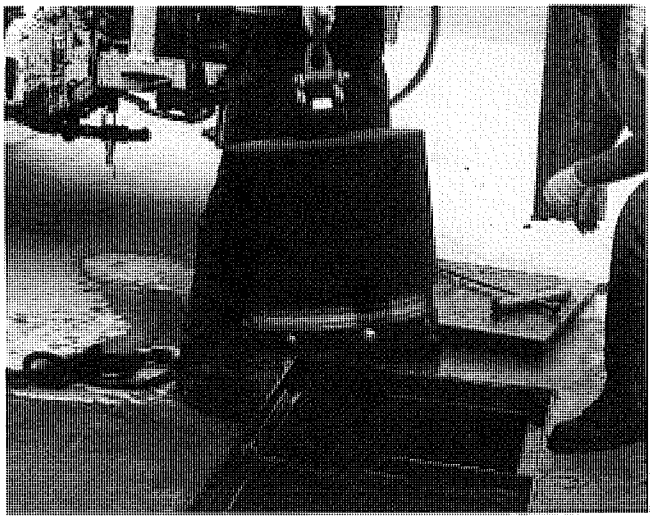
D. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.

E. Set the empty, used cartridge aside or load onto the hauling truck.

F. Continue steps a through e until all cartridges have been removed.







8. Remove accumulated sediment from the floor of the vault and from the forebay. This can most effectively be accomplished by use of a vacuum truck.
9. Once the sediments are removed, assess the condition of the vault and the condition of the connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude about 1" above the floor of the vault. Lightly wash down the vault interior.
   a. Replace any damaged connectors.
10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Once again, take care not to damage connections.
11. Close and fasten the door.
12. Remove safety equipment.
13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used empty cartridges to CONTECH Construction Products.

Related Maintenance Activities -

Performed on an as-needed basis

StormFilter units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

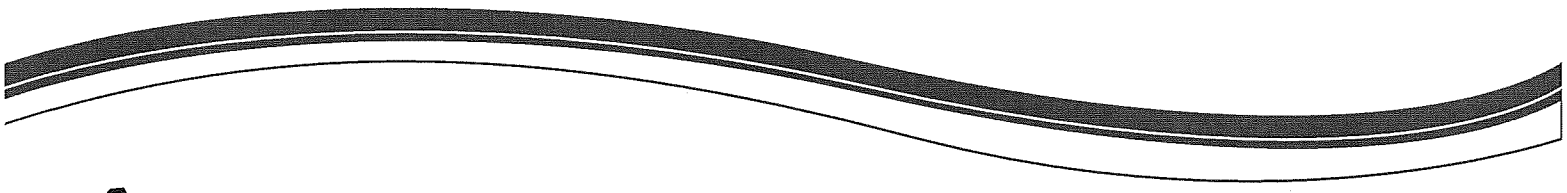
In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.



RECYCLED PAPER

CONTECH CONSTRUCTION PRODUCTS INC.
800.338.1122
www.contech-cpi.com

Support

- Drawings and specifications are available at contechstormwater.com.
- Site-specific design support is available from our engineers.

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CONTECH Construction Products Inc. provides site solutions for the civil engineering industry. CONTECH's portfolio includes bridges, drainage, sanitary sewer, stormwater and earth stabilization products. For information on other CONTECH division offerings, visit contech-cpi.com or call 800.338.1122

Nothing in this catalog should be construed as an expressed warranty or an implied warranty of merchantability or fitness for any particular purpose. See the CONTECH standard quotation or acknowledgement for applicable warranties and other terms and conditions of sale.

The product(s) described may be protected by one or more of the following US patents: 5,322,629; 5,624,576; 5,707,527; 5,759,415; 5,788,848; 5,985,157; 6,027,639; 6,350,374; 6,406,218; 6,641,720; 6,511,595; 6,649,048; 6,991,114; 6,998,038; 7,186,058; related foreign patents or other patents pending.

Inspection Report

Date: _____ Personnel: _____

Location: _____ System Size: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

Sediment Thickness in Forebay: _____ Date: _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Estimated Flow from Drainage Pipes (if available): _____

Cartridges Submerged: Yes ☐ No ☐ Depth of Standing Water: _____

StormFilter Maintenance Activities (check off if done and give description)

☐ Trash and Debris Removal: _____

☐ Minor Structural Repairs: _____

☐ Drainage Area Report _____

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

Items Needing Further Work: _____

Owners should contact the local public works department and inquire about how the department disposes of their street waste residuals.

Other Comments:

_____

_____

_____

_____

_____

_____

_____

_____

Review the condition reports from the previous inspection visits.

StormFilter Maintenance Report

Date: _____ Personnel: _____

Location: _____ System Size: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

List Safety Procedures and Equipment Used: _____

_____

_____

System Observations

Months in Service:

Oil in Forebay: Yes ☐ No ☐

Sediment Depth in Forebay: _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Drainage Area Report

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

StormFilter Cartridge Replacement Maintenance Activities

Remove Trash and Debris: Yes ☐ No ☐ Details: _____

Replace Cartridges: Yes ☐ No ☐ Details: _____

Sediment Removed: Yes ☐ No ☐ Details: _____

Quantity of Sediment Removed (estimate?):

Minor Structural Repairs: Yes ☐ No ☐ Details: _____

Residuals (debris, sediment) Disposal Methods: _____

Notes:

_____

_____

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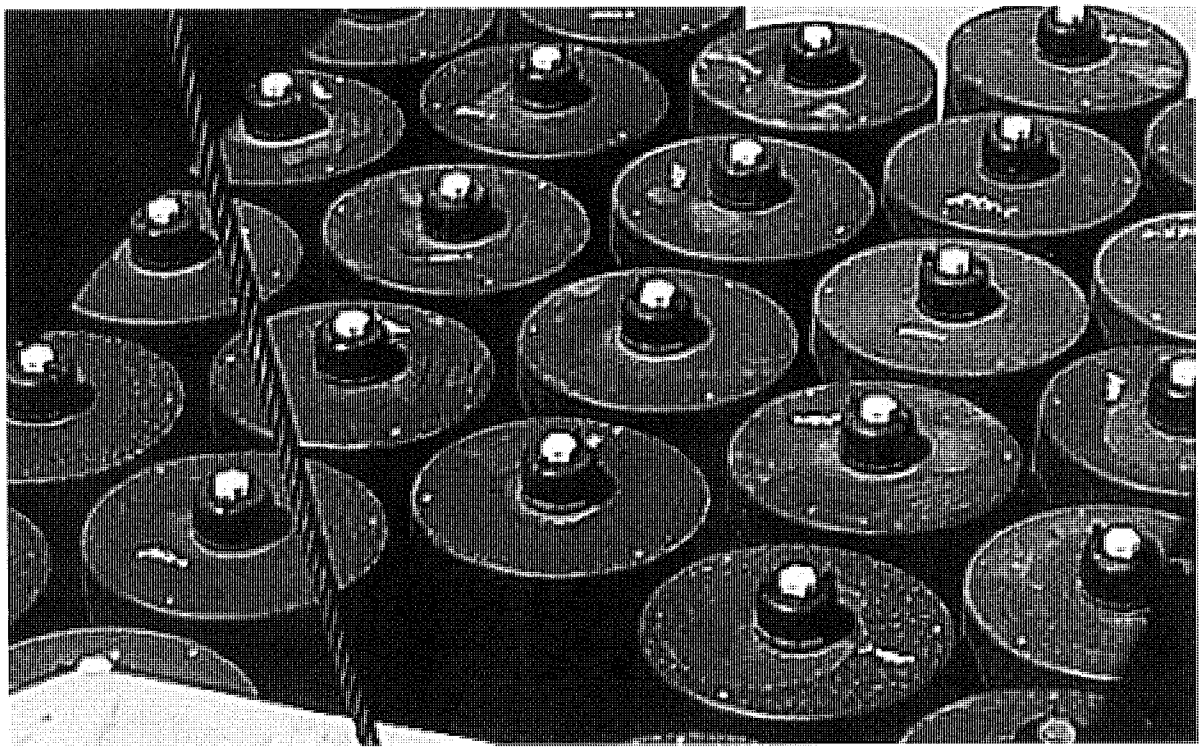
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CONTECH®
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StormFilter

Configuration Guide



The Stormwater Management
StormFilter®

The Stormwater Management StormFilter®

The Stormwater Management StormFilter® (StormFilter) is a passive, flow-through, stormwater filtration system. The system is comprised of one or more structures that house rechargeable, media-filled cartridges which trap particulates and adsorb materials such as dissolved metals, hydrocarbons, and nutrients in polluted runoff.

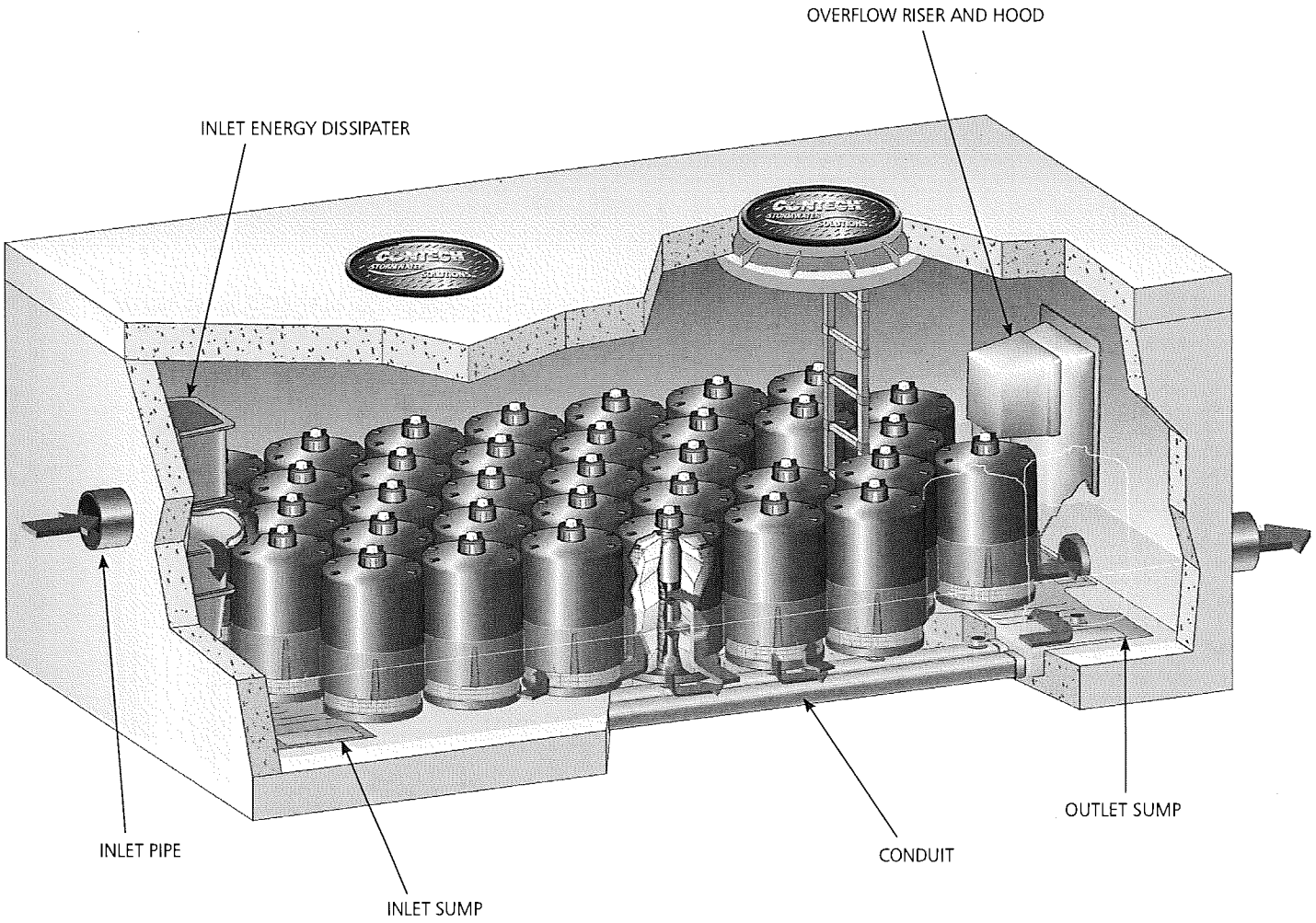
The StormFilter system comes in a variety of configurations and sizes to meet any site need. A variety of filter media is available and can be customized for each site to remove the desired pollutants.

Basic Design

The StormFilter is sized to treat the peak flow of a water quality design storm. The peak flow or WQv is determined from calculations based on the contributing watershed hydrology and from a design storm magnitude set by the local stormwater management agency. The StormFilter system is modular and each unit is designed with the number of cartridges required to meet the peak design flow rate, WQv or cap.

The flow rate through each filter cartridge is set to meet the jurisdictional performance requirements, allowing control over the amount of contact time between the influent and the filter media. The maximum flow rate through each cartridge can be adjusted, between 0.26 gpm/ft² and 2 gpm/ft² of surface area, using a calibrated restrictor disc at the base of each filter cartridge. Adjustments to the cartridge flow rate will affect the number of cartridges required to treat the peak flow or WQv.

Please contact your local CONTECH representative for site-specific design assistance.



Basic Operation

Priming System Function

The system is designed to siphon stormwater runoff through the StormFilter cartridge. Stormwater enters a StormFilter cartridge, percolates horizontally through the cartridge's filter media and collects in the center tube where the float valve is in a closed (downward) position.

As water passes through the filter media and into the cartridge's center tube, the air in the cartridge is displaced by the water and purged from beneath the filter hood through the one-way check valve located in the cap. Once the center tube is filled with water, there is enough buoyant force to open the float valve and allow the treated water in the center tube to flow into the under-drain manifold. This causes the check valve to close, initiating a siphon that draws polluted water throughout the full surface area and volume of the filter. Thus, the entire filter cartridge is used to filter water throughout the duration of the storm, regardless of the water surface elevation in the unit. This siphon continues until the water surface elevation drops to the elevation of the hood's scrubbing regulators, and the float returns to a closed position. Utilizing the hydraulic potential in the cartridge, the scrubbing regulators cause the filter surface to be clean of attached sediments thus extending the filter's operational life.

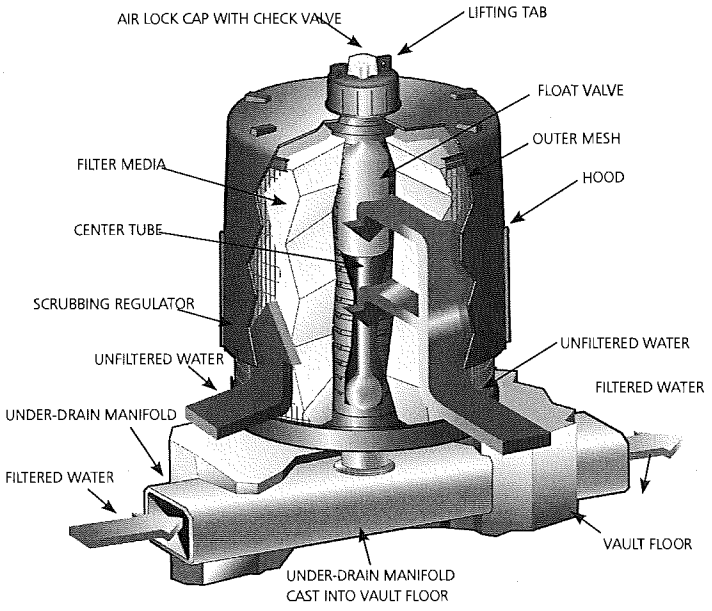
Flow and Valve Control

The filtration rate through a typical StormFilter cartridge can be adjusted so that it has a maximum flow rate of 2 gpm/ft² at the design driving head. The flow rate is individually controlled for each cartridge by a restrictor disc located at the connection point between the cartridge and the under-drain manifold. Consisting of a simple orifice disc of a specific diameter, the flow rate through the cartridges can be adjusted to a level that coincides with your treatment requirements by using a disc with the appropriate orifice diameter.

A reduction in flow rate affects the performance of the StormFilter system with regards to both sediment and soluble pollutants. For solids, Stokes' Law predicts the movement of sediment in a fluid and it has been proven that a reduction in the flow velocity through the system will facilitate increased settling and capture of sediments. In addition, some media types have the ability to remove soluble pollutants through chemical processes, like ion exchange. A reduction in the flow velocity through the StormFilter cartridge will increase the contact time between the stormwater and the media, thereby increasing the removal efficiency by increasing the time for a chemical process to take place.

Media type can be changed, but flow rate adjustment requires engineering consultation to ensure hydraulic demands are satisfied.

Through routine maintenance, a media filtration system can adjust the media type to target or update the system to treating specific pollutants, new TMDLs, or changing pollutants of concern. The media change out can provide a long-term solution to changing regulatory requirements.



StormFilter Configurations

The StormFilter technology can be configured to meet your unique site requirements.

Downstream Treatment Configurations

Conventional stormwater treatment involves collecting, conveying and treating stormwater runoff with an end of pipe treatment system before discharging off-site. StormFilter configurations suitable for these applications are listed below and can be engineered to treat a wide range of flows.

Vault/Manhole

The Vault/Manhole consists of one or more precast concrete structures ranging from 48" manholes to 8' x 24' vaults. The largest unit treats water quality design flows up to 3.75 cfs, and can be placed in series or in parallel to treat higher flows if needed.

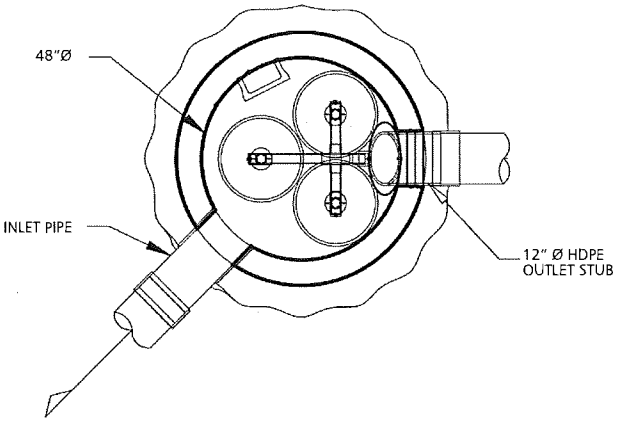
A Vault/Manhole configuration can be installed online or offline from storm system, where the unit has internal overflow bypass. These systems can also be installed offline, where high flows are bypassed around the treatment system and there is no internal overflow. However, if detention, pretreatment, or bypassing is required, it can be installed offline of the storm system.

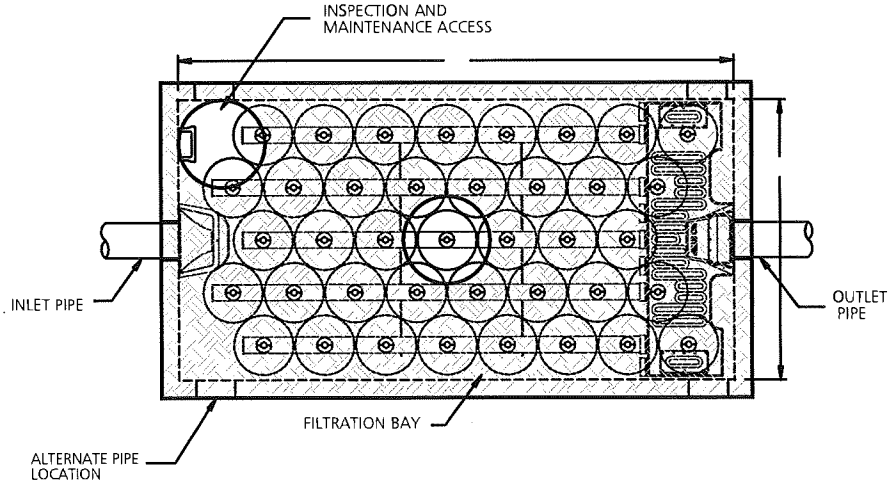
Basic Operation

Vault/Manhole systems are housed in either a vault or manhole. Stormwater first enters the structure through the inlet pipe where it is directed through the energy dissipator. This gently spreads the flow to minimize re-suspension of previously captured pollutants.

Once in the filtration area, the stormwater begins to pond and percolate horizontally through the media contained in the filter cartridges. After passing through the media, treated water that has collected in the cartridge center tube is directed into the outlet sump by an under-drain manifold. The treated water in the outlet sump is then discharged through the outlet pipe.

Precast StormFilter systems have an internal bypass capability from 1.0 cfs to 2.0 cfs, depending upon the size of the system. If peaks flows to the system exceed 2.0 cfs, an offline high flow bypass is needed.





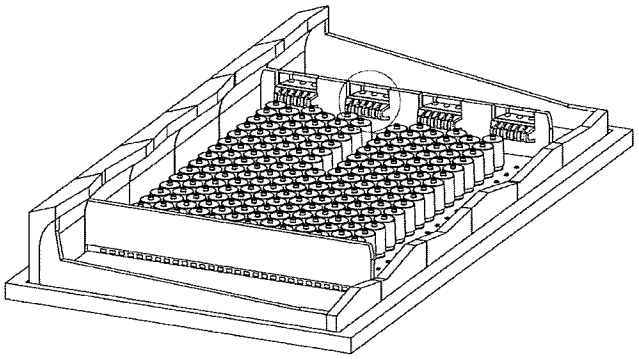
Vault/Manhole StormFilter

High Flow StormFilter

High Flow StormFilter systems can be designed within a variety of structures to meet local requirements and streamline installation. These systems are designed for large sites and large flows. Too big for standard precast structures, they are usually built from precast components that are assembled on site. The High Flow StormFilter is available in several configurations: CON/SPAN®, Panel Vaults, Box Culverts, or Cast-In-Place.

Basic Operation

The High Flow StormFilter design has the same basic configuration and components as the Precast StormFilter but operates on a larger scale.



High Flow StormFilter

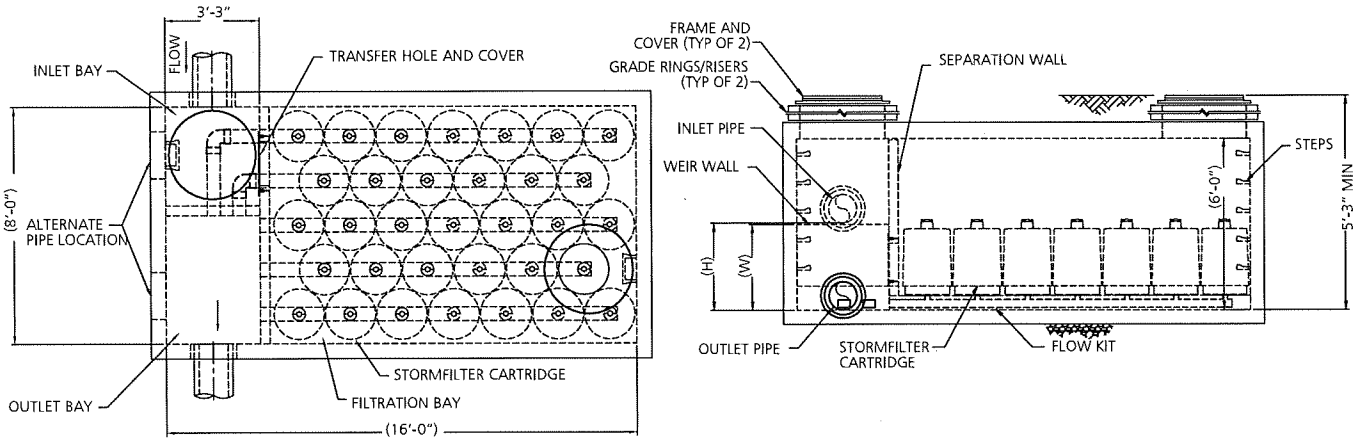
Peak Diversion StormFilter

The Peak Diversion StormFilter includes a treatment chamber and offline by-pass capability in one precast vault. Sizes range from 8'x11" to 8'x24" in most areas. Larger units can treat up to 2.5 cfs depending on cartridge height and the approved flow rate of regulatory jurisdiction. The integrated off-line bypass eliminates upstream flow splitters, downstream junction structures, and additional piping to save space and reduce the overall foot print. This lowers materials and installation cost while reducing potential conflicts with right of way (ROW) boundaries and utilities.

Basic Operation

Stormwater enters the structure through one or two inlet pipes into the inlet bay and low flows are directed to the filtration bay through a transfer opening. Once in the filtration area, the stormwater begins to pond and percolate horizontally through the media contained in the filter cartridges. After passing through the media, treated water that has collected in the cartridge center tube is directed into the outlet bay by an under-drain manifold. The treated water in the outlet sump is then discharged through the outlet pipe.

During large storm events greater than the treatment capacity, peak flows are diverted across the overflow weir directly to the outlet. Even during high flows the cartridges are still operating and water is entering the filtration bay from the inlet bay. This continuous flow into the filter bay helps ensure pollutants can not be washed out during high flow events.



Peak Diversion StormFilter

Volume StormFilter

The Volume StormFilter is designed to meet volume-based regulations where a specific water quality volume (WQv) must be captured and treated. In addition to the treatment, the structure can be sized to capture all or a portion of the WQv.

Restrictor discs inside each cartridge can be used to control the discharge rate from the system. The size of the disc is calibrated to provide the design filtration rate at a live storage depth. Because of these discs (and the airlock cap with a one way vent) water can be impounded above the cartridges in the treatment bay.

Structures range in size from a 48" manhole to CON/SPAN sections with a 24' x 10' cross section built to length. In many cases smaller structures are combined with outboard storage, such as pipe, to provide the WQv storage.

The Volume StormFilter can be designed with or without an internal bypass. If peak flows to the system exceed the internal bypass, or external bypass. If peak flows to the system exceed the internal bypass, or external bypass is required, a high flow bypass is needed. The system can also be installed online or offline and uses a traffic-bearing lid.

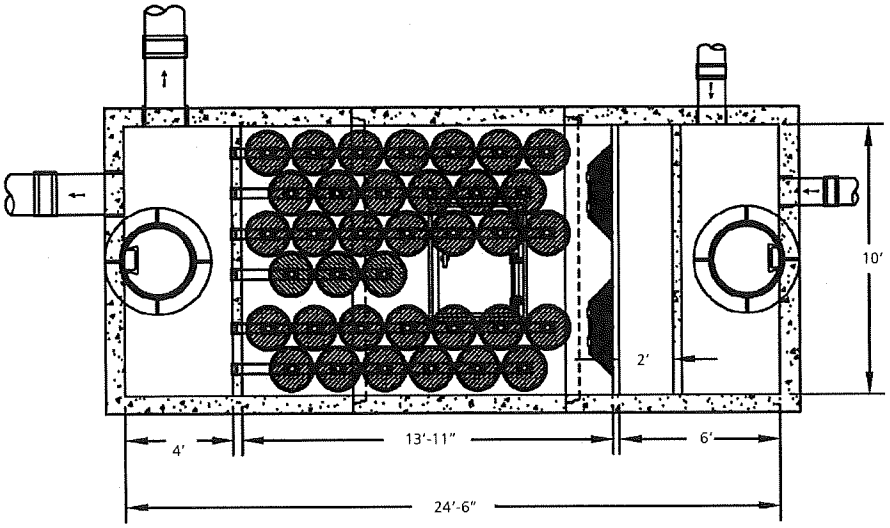
Basic Operation

The Volume StormFilter is typically configured in one of two ways.

A three bay system that incorporates internal storage for the WQv and includes: the storage bay, the filtration bay, and the outlet bay. Water first enters the storage bay (a portion of which includes dead storage) which facilitates pretreatment (gravity separation) and storage of the WQv. The stormwater is then directed into the filtration bay for full treatment and additional storage. The storage bay can be designed with a baffle to trap floatables, oils, and surface scum. Cartridges in the filtration bay treat the stormwater and control the discharge rate. Once in the filtration bay, the stormwater percolates horizontally through the media contained in the filter cartridges. After passing through the cartridge, treated water is directed to the outlet bay by an under-drain manifold where it is discharged through an outlet pipe.

A two bay, precast vault bases system similar to the Vault StormFilter where pretreatment and live storage are provided upstream.

Providing WQv storage in an outboard storage facility such as storage pipe provides the versatility to meet most footprint and elevation requirements.



Volume StormFilter

Upstream Treatment Configurations

Low Impact Design (LID) involves managing runoff close to the source using small, decentralized system. The following suite of StormFilter configurations are easily incorporated on sites where LID site design is recommended. These low-cost, lowdrop, point-of-entry systems also work well when you have a compact drainage area.

CatchBasin StormFilter

The CatchBasin StormFilter (CBSF) consists of a multi-chamber steel, concrete, or plastic catch basin unit that contains up to four StormFilter cartridges. The steel CBSF is offered both as a standard and as a deep unit.

The CBSF is installed flush with the finished grade and is applicable for small drainage areas from roadways and parking lots, and retrofit applications. It can also be fitted with an inlet pipe for roof leaders or similar applications.

The CBSF unit treats water quality design flows up to 0.20 cfs, coupled with an internal weir overflow capacity of 1.0 cfs for the standard steel and concrete units and 1.8 cfs for the deep steel units. Non-traffic rated plastic CBSF units have an internal weir overflow capacity of 0.5 cfs.

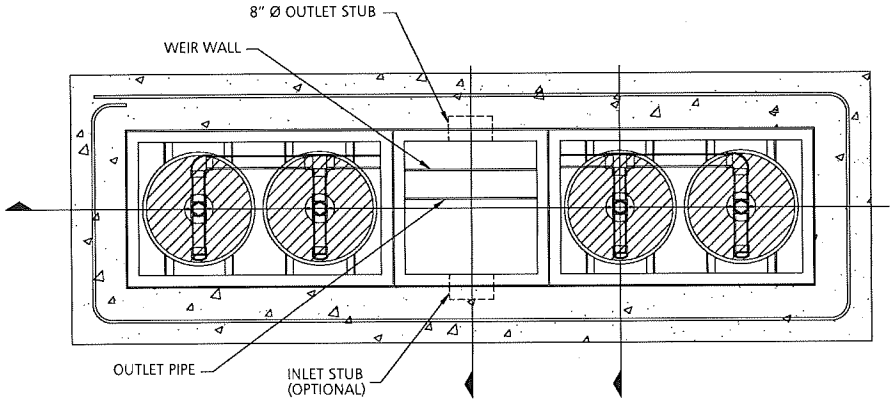
Basic Operation

The CBSF acts as the primary receiver of runoff, similar to a standard, grated catch basin. The steel and concrete CBSF units each have an H-20 rated, traffic-bearing lid that allows the filter to be installed in parking lots and take up no land area. Plastic CBSF units can be used in landscaped areas and for other non-traffic bearing applications.

The CBSF consists of a sumped inlet chamber and cartridge chamber(s). Runoff enters the sumped inlet chamber either by sheet flow from a paved surface or from an inlet pipe discharging directly to the unit. The inlet chamber's internal baffle traps debris and floating oil, and houses an overflow weir. Heavier solids settle into the deep sump, while lighter solids and soluble pollutants are directed under the baffle and into the cartridge chamber through a port between the baffle and the overflow weir. Once in the cartridge chamber, polluted water ponds and percolates horizontally through the media in the filter cartridges. Treated water collects in the cartridge's center tube from where it is directed by an under-drain manifold to the outlet pipe on the downstream side of the overflow weir and discharged.

When flows into the CBSF exceed the water quality design value, excess water spills over the overflow weir, bypassing the cartridge bay, and discharges to the outlet pipe.

The CBSF is particularly useful where small flows are being treated or for sites that are flat and have little available hydraulic head to spare. The unit is ideal for applications in which standard catch basins are to be used. Both water quality and catchment issues can be resolved with the use of the CBSF.



CatchBasin StormFilter

Curb Inlet StormFilter

The Curb Inlet StormFilter consists of a precast concrete vault ranging from 6'x8' to 8'x16' in size. These units can treat water quality design flows up to 1.2 cfs. The system is installed online and includes an internal offline overflow bypass around the filtration chamber. The internal bypass capability is based on depth of the structure. The standard bypass capacity is 15 cfs but is larger for deeper units. A traffic-bearing lid is placed underneath the median or sidewalk adjacent to the roadway.

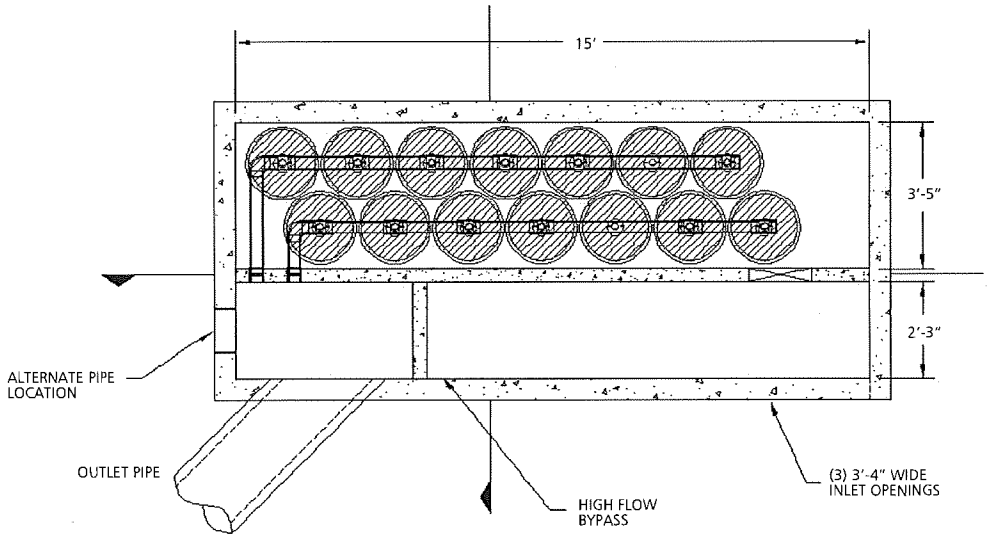
Basic Operation

The Curb Inlet StormFilter is composed of three bays: the inlet bay, the filtration bay, and the outlet bay. Stormwater enters the inlet bay through the curb inlet opening. The design flow is directed through a transfer opening to the filtration bay for full treatment.

Once in the filtration bay, the stormwater percolates horizontally through the media in the filter cartridges to the center tube. Treated water in the cartridge center tube is directed into the outlet bay by an under-drain manifold and discharged through the outlet pipe. Outlet pipes can be placed parallel, perpendicular, or up to 45° to the roadway. Overflow is directed over a weir wall between the inlet bay and the outlet bay, bypassing the filtration bay leaving accumulated pollutants undisturbed.

Curb Inlet Openings

Every Curb Inlet StormFilter is designed to meet local regulations governing the geometry of the curb inlet. This can be accomplished in two ways. One way is with an integrated face plate – the vault lid includes the face plate which is tied into the curb. Another way is with a cast-in-place face plate – the entire face plate is constructed by the contractor pouring the curb. Curb inlet openings can be 4', 7', or 10' in length.



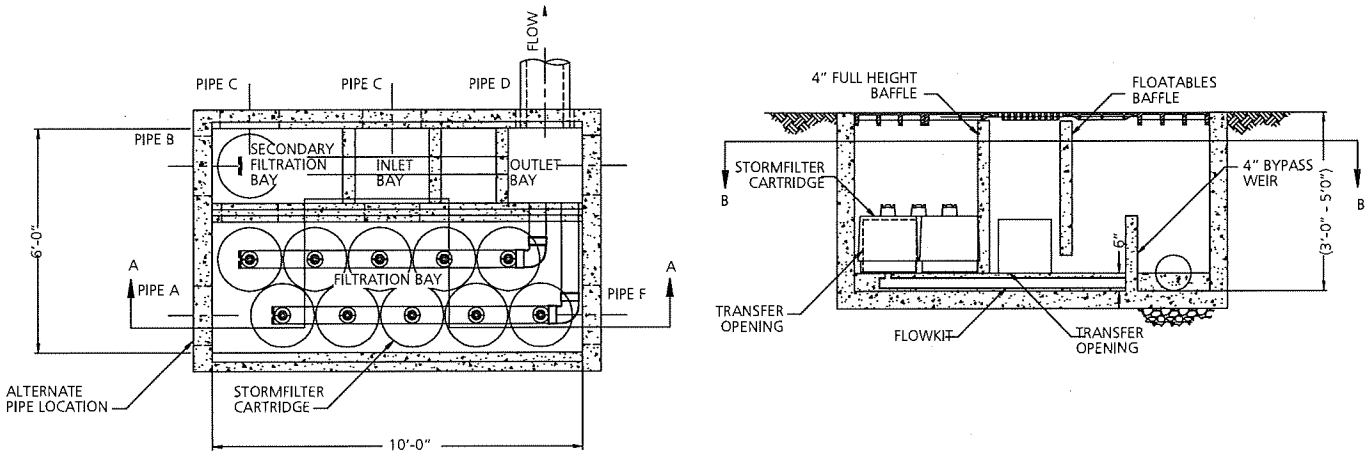
Curb Inlet StormFilter

Linear Grate StormFilter

The Linear Grate StormFilter is a precast vault that acts as the primary receiver of runoff, similar to a standard grated catch basin. The unit has H-20 rated traffic bearing lids that allow the filter to be installed under parking lots. The system consists of an inlet bay, filtration bay, and an outlet bay. Providing treatment as it enters the conveyance system reduces the overall head loss because the vertical drop from the finished grade into the conveyance system is also used to provide hydraulic pressure on the filter cartridges.

Basic Operation

Runoff enters the inlet bay by sheet flow from a paved surface or from an inlet pipe discharging directly to the unit. The inlet bay's internal baffle traps debris and floating oil and denser pollutants are directed into the filtration bay. Once in the cartridge chamber, polluted water ponds and percolates through a radial media filter cartridge. Treated water collects in the cartridge's center tube where it is directed by an underdrain manifold to the outlet pipe on the downstream side of the overflow weir. When flow rates exceed the water quality design value, excess water spills across the overflow weir, bypassing the cartridge bay and proceed directly to the outlet pipe. The integrated offline bypass ensures pollutants captured in the filtration bay are not washed downstream during peak flow events.



Linear Grate StormFilter

Grated Inlet Openings

The number of inlet grates and the size of the inlet bay are designed to capture the peak flow rates from the drainage area. The remaining area is devoted to the filtration bay and the outlet bay which are covered with removable plates for access during maintenance. The entire inlet bay, filtration bay, and outlet bay can be opened at one time allowing full access. In many cases, due to the shallow nature of the design, confined space entry is not required for maintenance.

Linear StormFilter

The Linear StormFilter consists of one or two precast concrete channels that are 10' or 20' in length and 2' 9" in width.

The Linear StormFilter is installed flush with the finished grade, functioning similar to a catch basin or trench drain. The top of the unit has either covers or doors for easy access. The Linear StormFilter is typically installed online like the precast StormFilter.

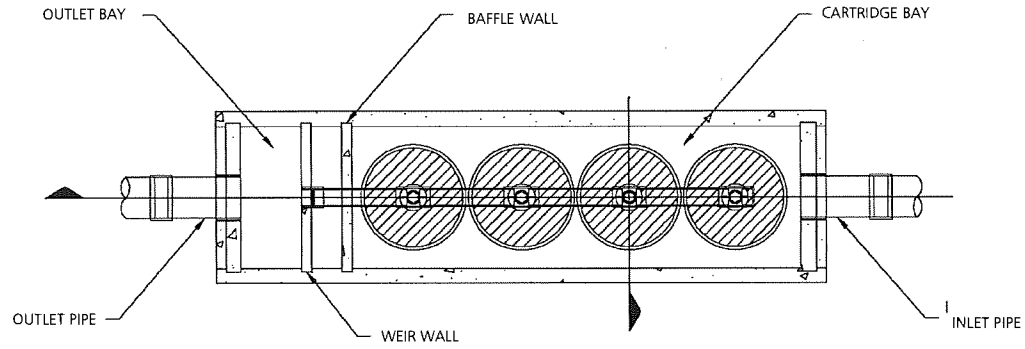
The Linear StormFilter unit treats water quality design flows up to 0.27 cfs.

Basic Operation

The Linear StormFilter can be installed either as the primary receiver of runoff, similar to a grated catch basin, or with an inlet stub and doors to receive runoff collected upstream.

The system is equipped with an internal overflow weir to ensure that there is no local flooding for storm events in excess of the design treatment flow. Maintenance costs for the unit are typically less because there are no confined space entry requirements, and access is quick and easy.

The Linear StormFilter is particularly useful where small flows are being treated or where the site is very flat and there is little available hydraulic head to spare.



Linear StormFilter

Infiltration Configuration

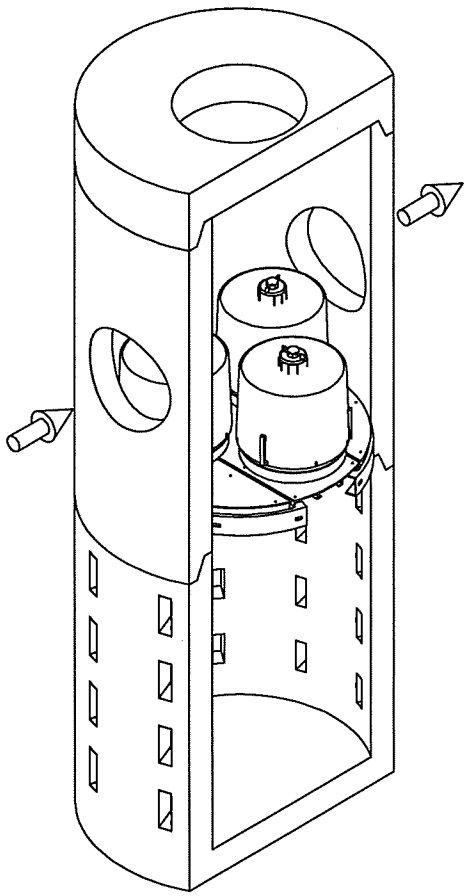
Dry Well StormFilter

The Dry Well StormFilter provides treatment, infiltration and groundwater protection in a single structure. The system is designed to treat conveyed flow or sheet flow from small drainages. Multiple units can be installed to treat any size site. Because it provides treatment and infiltration in a single unit, the total number of structures and the amount of pipe required for the stormwater system are reduced.

The Dry Well StormFilter system is available in 48", 60" and 72-" pre-cast manhole top sections that are designed to be stacked on top of dry well infiltration risers. The StormFilter portion of the unit arrives fully assembled and ready to install, including an integrated concrete deck for the StormFilter cartridges. The system can also be retrofitted into existing 48" manhole dry wells.

Basic Operation

Stormwater enters the dry well unit through one or more entry pipes or channels at its top. It then percolates through the media in the StormFilter cartridge to the center tube. Treated water in the cartridge center tube is discharged to the infiltration section below, and then infiltrates into the surrounding soils through a number of small exit openings at the sides and bottom.



DryWell StormFilter

Roof Runoff Treatment Configuration

Downspout StormFilter

The Downspout StormFilter is an aboveground configuration that can be easily integrated into existing gutter systems to eliminate pollution from rooftop runoff. It typically occupies 2.5' x 5' footprint, and can fit most downspout configurations and sizes. Each unit holds two StormFilter cartridges, and single- and dual-stage options are available. It treats up to 14,000 square feet of rooftop area per dual-cartridge system.

StormFilter Cartridges

There are three cartridge heights available for StormFilter systems: 27", 18", and Low Drop. The most economical is the 27" tall cartridge. It can treat the highest flow rate per cartridge, which creates the smallest system with the lowest installed cost. The 27" cartridge requires 3.05' of driving head to operate. For sites with less driving head available, the 18" cartridge is the next best option. Lower flow rates per cartridge increase the footprint of the overall system but only 2.3' of driving head is required. For sites with very limited drop, the Low Drop cartridge only requires 1.8" of driving head.

Cartridge Flow Rates

Cartridge Type	Hydraulic Drop	Treatment Capacity (gpm)	
		1 gpm/ft2	2 gpm/ft2
StormFilter 27"	3.05'	11.25	22.5
StormFilter 18"	2.30'	7.5	15
StormFilter Low Drop	1.80'	5	10

StormFilter Media

The removal of site-specific pollutants can be maximized with the variety of filtration media available. In many cases, different media types can be combined so as to target a wide spectrum of pollutants. This ability to combine and use various media types allows the system to be easily adjusted to meet ever-changing site conditions and increasingly stringent regulatory requirements.

PhosphoSorb™



PhosphoSorb, a lightweight media comprised of Perlite (a heat-expanded volcanic rock) and activated alumina, removes total phosphorus (TP) by absorbing dissolved-P and filtering particulate-P simultaneously. The Perlite provides the capability to remove suspended solids while the activated alumina absorbs soluble phosphorus absorption.

PhosphoSorb is composed of a slightly finer gradation than the field proven ZPG™ (Zeolite, Perlite, Granular Activated Carbon) media and will provide equivalent - or even better - removal of suspended solids. Initial field tests have indicated an increase in the TSS removal efficiency up to 10% over the field-proven ZPG media. The StormFilter with ZPG media has already received a General Use Level Designation for basic treatment in the State of Washington.

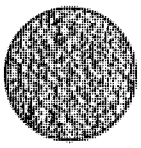
Perlite



Perlite is a natural, volcanic ash, similar in composition to glass and similar in appearance to pumice. To use perlite as a filter medium, it must first go through a heating process to yield a lightweight, multicellular, expanded form. This expanded form has a coarse texture, very low-density, high surface area, and stable, inert chemistry, all of which make perlite an excellent physical filtration medium.

Perlite has proven to be our media of choice for sediment and oil removal. The multicellular nature of expanded perlite is the key to its excellent ability to trap sediments and adsorb oil. The coarse texture of the expanded perlite creates a bed of material with a very high porosity, which allows perlite to have the highest sediment and oil storage capacity of all of the available media options.

Zeolite

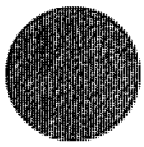


The term zeolite defines a family of both natural and synthetic, hydrous aluminosilicate materials with a highly porous mineral matrix that holds light, alkali metal cations (ideally sodium ions).

Zeolite has the ability to use a cation exchange reaction that removes other cations such as zinc, copper, lead, and ammonia from water. In the cation exchange reaction, the light metal cations in the zeolite matrix are displaced by the heavier metal cations, such as copper, in the water.

The zeolite used in our system is clinoptilolite, which has a cation exchange capacity (CEC) of approximately 100 to 220 meq/100 g. Clinoptilolite has inert characteristics that make it an excellent metals removal media option when CSF media cannot be used. It can be combined with other media such as GAC and perlite when metals are not of exclusive concern.

CSF® Leaf Media



CSF Leaf Media is a patented filtration media composed of composted deciduous leaves originating from the City of Portland, Oregon. CONTECH Stormwater Solutions purchases the mature, stable, deciduous leaf compost and then processes it into an odorless, pelletized compost product with physical and chemical characteristics desirable for stormwater filtration.

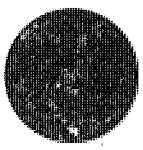
The patented compost process creates a material with excellent flow-through characteristics and stability in water. Not only do CSF Leaf Media consist of 100% recycled, all natural materials, but it also provides good removal of sediments and excellent removal of a wide range of toxic contaminants.

CSF Leaf Media provides the multitude of beneficial water treatment properties typical of soil in a form that is compatible with the compact, modular, media-based design of the StormFilter system. In addition to the physical filtration provided by the granular nature of the CSF Leaf Media, the complex chemistry of the compost also provides chemical filtration as well.

Sediment and total nutrients are removed through physical filtration. Oil, complexed metals, and anthropogenic organic contaminants such as herbicides and pesticides are removed through adsorption, the physical partitioning of organic compounds, such as pesticides, to carbon-rich materials, such as the compost.

Soluble metals are removed by cation exchange, as well as by complexation of metal ions to the organic chelating agents present in compost. CSF Leaf Media is an excellent, cost-effective, all-purpose media that epitomizes the potential value of recycled materials.

GAC



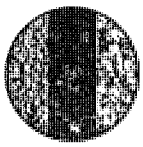
GAC (Granular Activated Carbon) is a widely accepted water filtration media used for the removal of organic compounds. It consists of pure carbon (originating from coal or charcoal) whose micro-porous structure has been enhanced through steam or acid "activation."

The high carbon content and porous nature of GAC accounts for its excellent ability to remove organic compounds through adsorption. Since adsorption is the physical partitioning of organic compounds to high carbon surfaces, the "activation" of the carbon (which creates GAC) endows it with an enormous surface area upon which adsorption can take place.

In situations where anthropogenic organic contaminants are of exclusive concern, GAC media provide the highest level of stormwater treatment compared to other available media options. However, because it is not very often the case that anthropogenic organic contaminants are of exclusive concern, GAC is usually combined with another media such as perlite or zeolite for the treatment of additional contaminants.

Combination of GAC with perlite constitutes the most cost-effective configuration, as the effectiveness of GAC is drastically reduced if it is coated with high concentrations of heavy oil or sediment, which can restrict access via surface pores to the interior of the GAC granules.

ZPG™ (Zeolite, Perlite, GAC blend)



This proprietary blend of zeolite, perlite, and granular activated carbon media is used to provide an alternative for CSF media for installations where leaf media cannot be used.

Laboratory and Field Testing

The StormFilter system is designed to meet the most stringent regulatory requirements. The field-proven performance of the StormFilter has led to hundreds of regulatory agency approvals nationwide as a standalone BMP.

The Stormwater Management StormFilter® is the first manufactured BMP to receive stand-alone approval through field testing and satisfying the total suspended solids treatment requirements in Washington and New Jersey.

Log on to www.contechstormwater.com/stormfilter to view the following reports in full.

Field Monitoring Reports

Field Proven Performance of the StormFilter using the Technology Assessment Protocol - Ecology (TAPE) and Technology Acceptance Reciprocity Partnership (TARP) Tier II Protocol

1. Washington
   a. Washington State Department of Ecology General Use Level Designation for Basic Treatment
   b. Technical Evaluator Engineering Report (TEER). Gary Minton, Ph.D., P.E.
2. New Jersey
   a. New Jersey State Department of Environmental Protection Final Certification
   b. New Jersey Corporation for Advanced Technology (NJCAT) Field Verification Report

Laboratory Reports

Total Suspended Solids (TSS) Removal Using Different Particle Size Distributions with the Stormwater Management StormFilter.

Influences on TSS removal efficiency

Influence of analytical method, data summarization method, and particle size on total suspended solids (TSS) removal efficiency of the StormFilter

StormFilter removal efficiency with coarse/fine perlite media

Evaluation of the removal of silt loam TSS using coarse/fine perlite at 28 L/min (7.5 gpm).

StormFilter removal efficiency with ZPG media

Evaluation of the removal of SIL-CO-SIL 106 using ZPG media at 28 L/min (7.5 gpm)

StormFilter removal efficiency with coarse perlite

Evaluation of the removal of sandy loam TSS using coarse perlite at 57 L/min (15 gpm)

Support

- Drawings and specifications are available at contechstormwater.com.
- Site-specific design support is available from CONTECH Stormwater Design Engineers.

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CONTECH CONSTRUCTION PRODUCTS INC.

RECYCLED PAPER

After recording return to:

_____
_____
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_____

MAINTENANCE COVENANT AND ACCESS EASEMENT

THIS MAINTENANCE COVENANT AND ACCESS EASEMENT ("Agreement") is made this ____ day of _____, 1999, between _____, a _____ ("Developer"), and the CITY OF OREGON CITY, a municipal corporation of the State of Oregon formed pursuant to ORS Chapter 457 (the "City").

RECITALS

A. Developer is the owner and developer of certain real property located in the City of Oregon City, Clackamas County, Oregon, legally described on Exhibit A attached hereto and commonly known as _____ (the "Development").

B. The City's Community Development Department ("CDD") has approved construction plans submitted by Developer for the Development. The Development contains on-site stormwater facilities as described in the approved construction plans (together with any other stormwater facilities that may hereafter be constructed on the Development, the "Stormwater Facilities").

C. To protect future lot owners in the Development, owners of neighboring property, and their property, CDD has required that Developer enter into this Agreement as a condition to CDD's approval of construction plans and the final plat for the Development.

AGREEMENT

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the City and Developer agree as follows:

1. **Covenant to Maintain and Repair**. Developer shall, at its sole expense, itself or through qualified independent contractors, at all times maintain the Stormwater Facilities in good working order, condition and repair, clear of all debris, and in compliance with all applicable state and local rules, regulations, and guidelines (including those adopted from time to time by the CDD or the City and including the City's Stormwater and Grading Design Standards). Developer shall notify CDD in writing of the person responsible for compliance with Developer's obligations under this covenant ("Developer Designee"), and of any change in the Developer Designee. Developer expressly agrees that the Developer Designee shall have the authority to bind Developer, its successors and assigns with respect to the matters described in this Agreement.

2. **Failure to Perform Covenant; Easement.** If the City determines that Developer is not in compliance with the covenant described in Section 1, except in the case of emergency, the City or its designee shall give the Developer Designee written notice to perform the maintenance and/or repair work

specified in the notice. If such work is not performed to the City's satisfaction within seven (7) days after the date of such notice, Developer hereby grants to the City, CDD, their employees, independent contractors and designees the right to enter the Development to perform any and all work required to bring the Stormwater Facilities into compliance with Section 1.

If the City determines that Developer is not in compliance with the covenant in Section 1 and determines that there exists or will likely exist an emergency on or about the Development with respect to the Stormwater Facilities, Developer hereby grants to the City, CDD, their employees, independent contractors and designees the right to enter the Development to perform any and all work required to bring the Stormwater Facilities into compliance with Section 1, and in such case the City shall use reasonable efforts to notify the Developer Designee prior to entering the Development. Notwithstanding the above, the work performed may consist only of cleaning and repairing the Stormwater Facilities to their original condition and standards.

Developer hereby grants the City, CDD, their employees, independent contractors and designees a nonexclusive easement for ingress and egress over, across and under the Development for the purposes described above in this Section 2 and from time to time at the City's sole discretion to inspect, sample, and monitor components of the Stormwater Facilities and discharges therefrom.

DEVELOPER, FOR ITSELF AND ITS SUCCESSORS AND ASSIGNS (INCLUDING ALL OWNERS OF LOTS IN THE DEVELOPMENT), AGREES THAT NONE OF THE CITY, CDD, THEIR EMPLOYEES, INDEPENDENT CONTRACTORS AND/OR DESIGNEES SHALL HAVE ANY OBLIGATION TO EXERCISE THEIR RIGHTS UNDER THIS SECTION 2 OR TO PERFORM ANY MAINTENANCE OR REPAIR OF THE STORMWATER FACILITIES, AND THAT NONE OF THEM SHALL HAVE ANY LIABILITY TO DEVELOPER OR ANY OF DEVELOPER'S SUCCESSORS OR ASSIGNS (INCLUDING OWNERS OF LOTS IN THE DEVELOPMENT) IN CONNECTION WITH THE EXERCISE OR NONEXERCISE OF SUCH RIGHTS, THE MAINTENANCE OR REPAIR OF THE STORMWATER FACILITIES, OR THE FAILURE TO PERFORM THE SAME.

3. **Reimbursement**. If the City exercises its right to enter the Development pursuant to Section 2 (to include inspection, sampling, and monitoring), Developer shall reimburse the City for all of its costs and expenses incurred in connection therewith within thirty (30) days after receipt of an invoice. If Developer fails to pay the invoiced amount within such period, such amount shall thereafter accrue interest at a per annum rate equal to the prime rate of U.S. Bank (or its successor) plus five percent (5%). Such amount, together with interest, shall be a lien on the Development (and each of the lots contained therein) which may be foreclosed in accordance with ORS Chapter 88. If the Development is owned by more than one person (i.e., multiple lot owners), each such owner shall be jointly and severally liable for payment of the amounts provided for in this Section 3.

4. **Indemnification**. Developer agrees to indemnify, defend (with legal counsel reasonably acceptable to the City), and hold harmless the City, CDD, their employees, independent contractors and designees harmless from and against any liability, losses, costs, expenses (including reasonable attorney fees), claims or suits arising from Developer's failure to perform its obligations under this Agreements or the exercise of the City, CDD, or their employees, independent contractors or designees of their rights under Section 2.

5. **Run with the Land**. The parties' rights and obligations contained herein shall run with the land and inure to the benefit of, and shall be binding upon, the City and Developer and their respective successors and assigns (including, without limitation, subsequent owners of lots in the Development and any homeowner's association owning common areas in the Development).

6. **Attorney Fees.** If legal action is commenced in connection with this Agreement, the prevailing party in such action shall be entitled to recover its reasonable attorney fees and costs incurred in the trial court and in the appeal therefrom. The term "action" shall be deemed to include action commenced in the bankruptcy courts of the United States and any other court of general or limited jurisdiction.

7. **Assignment**. The obligations of Developer (and subsequent owners of lots in the Development) under this Agreement may not be assigned except (a) in connection with the sale of the property owned by such person (in which case the transferee will be deemed to assume such obligations), and (b) with the prior written consent of the City, to a homeowner's association that owns and maintains the common areas of the Development.

8. **Authority.** If Developer is an entity, the individual executing this Agreement on behalf of Developer represents and warrants to the City that he or she has the full power and authority to do so and that Developer has full right and authority to enter into this Agreement and perform its obligations under this Agreement.

IN WITNESS WHEREOF, Developer and the City have executed this instrument on the date first written above.

DEVELOPER:

_____

By: _____
Its: _____

THE CITY:

CITY OF OREGON CITY

By: _____
Title: _____

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was acknowledged before me on _____, by _____ as _____ of the City of Oregon City.

_____
Notary Public for Oregon
My Commission Expires _____

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was acknowledged before me on _____ by _____.

_____
Notary Public for _____
My Commission Expires _____

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Clackamas County Area, Oregon

Beavercreek Live/Work



January 7, 2014

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,180 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 7, Aug 20, 2012

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 8, 2010—Sep 4, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Clackamas County Area, Oregon (OR610)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
45B	Jory silty clay loam, 2 to 8 percent slopes	11.0	100.0%
Totals for Area of Interest		**11.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Clackamas County Area, Oregon

45B—Jory silty clay loam, 2 to 8 percent slopes

Map Unit Setting

Elevation: 250 to 1,200 feet
Mean annual precipitation: 50 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Jory and similar soils: 90 percent

Description of Jory

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Base slope, interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 10.1 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability classification (irrigated): 2e
Land capability (nonirrigated): 2e
Hydrologic Soil Group: C

Typical profile

0 to 13 inches: Silty clay loam
13 to 60 inches: Silty clay

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Oregon City Live/Work

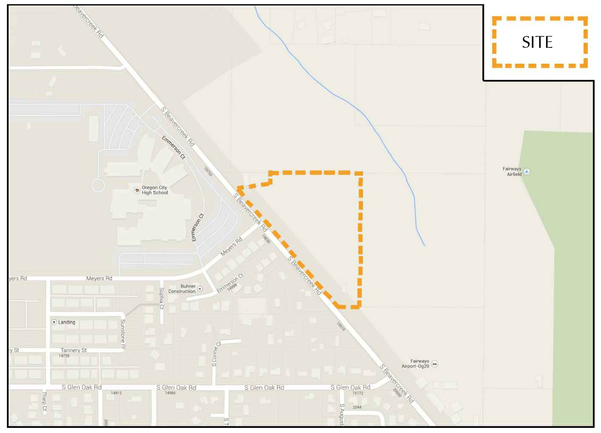
A 183-Unit Live/Work Apartment and Townhome Development

Oregon City, Oregon

Evergreen Housing Development Group

PROJECT TEAM

Owner/Developer	Evergreen Housing Development Group 600 University Street, Suite 1708 Seattle, WA 986101 (206) 535-6248
Architect:	Milbrandt Architects, P.C. 25 Central Way Suite 210 Kirkland, WA 98033 (425) 454-7130
Civil Engineer:	Pace Engineering 5000 Meadows Road Lake Oswego, OR 97035 (503) 597-3222
Landscape Architect:	Shapiro Didway Landscape Architects 1204 SE Water Avenue Portland, OR 97214 (503) 232-0520



VICINITY MAP
N.I.S.

LIST OF DRAWINGS

Cover	Cover Sheet	
A1	Architectural Site Plan	
A2	Typical Apartment Building	First Floor Plan
A3	Typical Apartment Building	Upper Floor Plan
A4	6-Plex Townhome Building	Floor Plans
A5	4-Plex Townhome Building	Floor Plans
A6	3-Plex Townhome Buildings	Floor Plans
A7	Building C1	Floor Plans
A8	Community Center	Floor Plans
E1	Typical Apartment Building	Exterior Elevations
E2	Typical Apartment Building	Exterior Elevations
E3	6-Plex Townhome Building	Exterior Elevations
E4	4-Plex Townhome Building	Exterior Elevations
E5	3-Plex Townhome Buildings	Exterior Elevations
E6	Building C1	Exterior Elevations
E7	Building C1	Exterior Elevations
E8	Community Center	Exterior Elevations
C1	Site Plan	
C2	Grading Plan	
C3	Storm Drainage Plan	
C4	Water and Sewer Plan	
L101	Landscape Plan - Section 1	
L102	Landscape Plan - Section 2	
L103	Landscape Plan - Section 3	
L201	Landscape Details	

Parking Calculation

Unit Type	Quantity	Min. Parking Ratio	Max. Parking Ratio	Min. Stalls	Max. Stalls
Studio Live/Work Stacked Flat Units	11	1	1.5	11	16.5
1-Bed/1-Bath Stacked Flat Units	58	1.25	2	72.5	116
2-Bed/2-Bath Live/Work Stacked Flat Units	15	1.5	2	22.5	30
2-Bed/2-Bath Stacked Flat Units	47	1.5	2	70.5	94
3-Bed/2-Bath Stacked Flat Units	10	1.75	2.5	17.5	25
5-Bed/5-Bath Stacked Flat Units	6	3	5	18	30
Total Stacked Flat Apartment Units	147			212	311.5
3-Bed/2-Bath Live/Work Towhomes	36	1.75	2.5	63	90
				min	max
Total Units on Site	183		total parking	275	401.5

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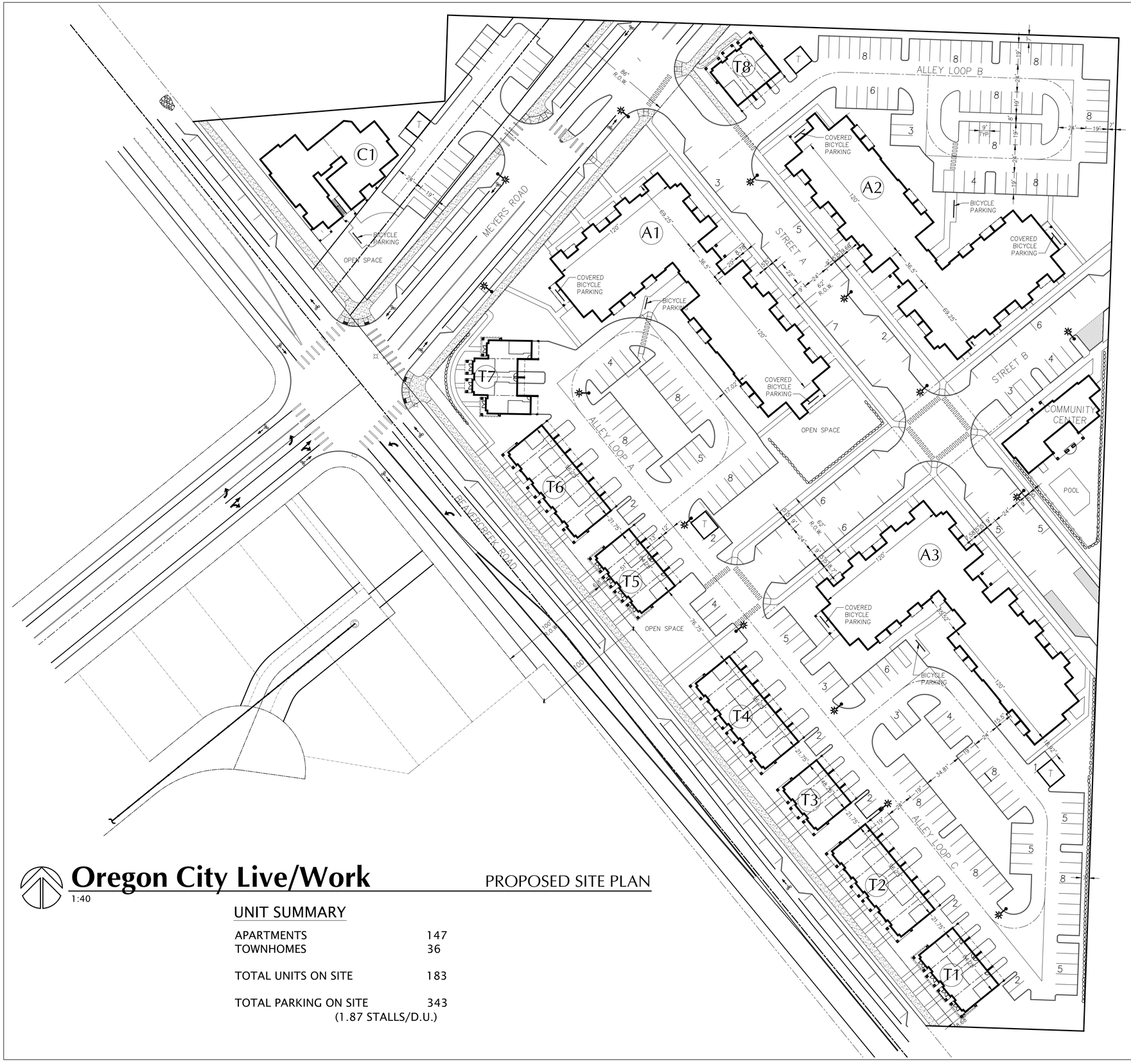
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A Live/Work Apartment and Townhome Community
Oregon City, Oregon
Evergreen Housing Development Group

Cover Sheet

Scale:	Drawn By:	Date:	Date Plotted:
NTS	APT	01-14-14	1-13-14

Sheet No.: **COVER**
Job No.: **12-39**



Oregon City Live/Work

1:40

PROPOSED SITE PLAN

UNIT SUMMARY

APARTMENTS	147
TOWNHOMES	36
TOTAL UNITS ON SITE	183
TOTAL PARKING ON SITE	343
(1.87 STALLS/D.U.)	

SITE BREAKDOWN

BLOCK A1

PROPOSED APARTMENT UNITS (GROUND FLOOR LIVE/WORK UNITS)	48
PROPOSED LIVE/WORK TOWNHOME UNITS	14
TOTAL UNITS BLOCK A1	62

PROPOSED PARKING	
OPEN STALLS	48
GARAGES	14
APRONS	13
ASSIGNABLE PARKING: 75 (1.21/D.U.)	
ON-STREET PARALLEL	24
TOTAL AVAILABLE: PARKING	99 (1.60/D.U.)

BLOCK A2

PROPOSED APARTMENT UNITS (GROUND FLOOR LIVE/WORK UNITS)	48
PROPOSED LIVE/WORK TOWNHOME UNITS	3
TOTAL UNITS BLOCK A1	51

PROPOSED PARKING	
OPEN STALLS	69
GARAGES	3
APRONS	0
ASSIGNABLE PARKING: 72 (1.41/D.U.)	
ON-STREET PARALLEL	13
TOTAL AVAILABLE: PARKING	85 (1.67/D.U.)

BLOCK A3

PROPOSED APARTMENT UNITS (GROUND FLOOR LIVE/WORK UNITS)	45
PROPOSED LIVE/WORK TOWNHOME UNITS	19
TOTAL UNITS BLOCK A1	64

PROPOSED PARKING	
OPEN STALLS	72
GARAGES	19
APRONS	19
ASSIGNABLE PARKING: 110 (1.72/D.U.)	
ON-STREET PARALLEL	11
TOTAL AVAILABLE: PARKING	121 (1.89/D.U.)

COMMUNITY CENTER

ON-STREET HEAD-IN PARKING	7
ON-STREET PARALLEL	5
TOTAL AVAILABLE:	12

BLOCK C1

PROPOSED APARTMENT UNITS (5-BED UNITS)	6

PROPOSED PARKING	
OPEN STALLS	17
ASSIGNABLE PARKING:	17 (2.83/D.U.)
ON-STREET PARALLEL	9
TOTAL AVAILABLE: PARKING	26 (4.33/D.U.)

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No.	Date

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Site Plan

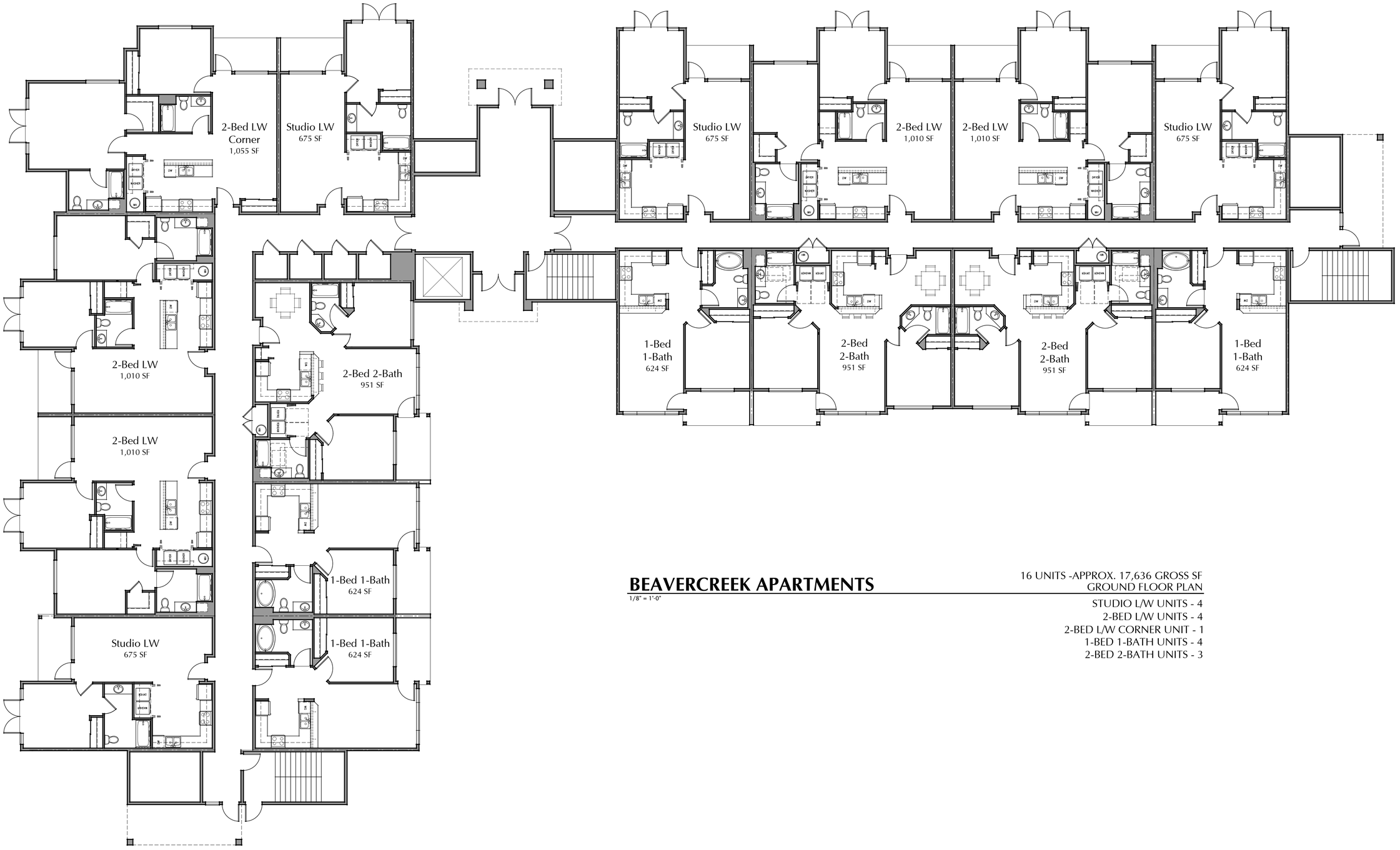
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Oregon City Live/Work
A Live/Work Apartment and Townhome Development
Oregon City, Oregon
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Job No.: 12-39
Sheet No.: A1

Sheet Order: A B U F R E S D BE

LAYOUT1 - SITE PLAN.DWG



BEAVERCREEK APARTMENTS

1/8" = 1'-0"

16 UNITS -APPROX. 17,636 GROSS SF
GROUND FLOOR PLAN

STUDIO L/W UNITS - 4
2-BED L/W UNITS - 4
2-BED L/W CORNER UNIT - 1
1-BED 1-BATH UNITS - 4
2-BED 2-BATH UNITS - 3

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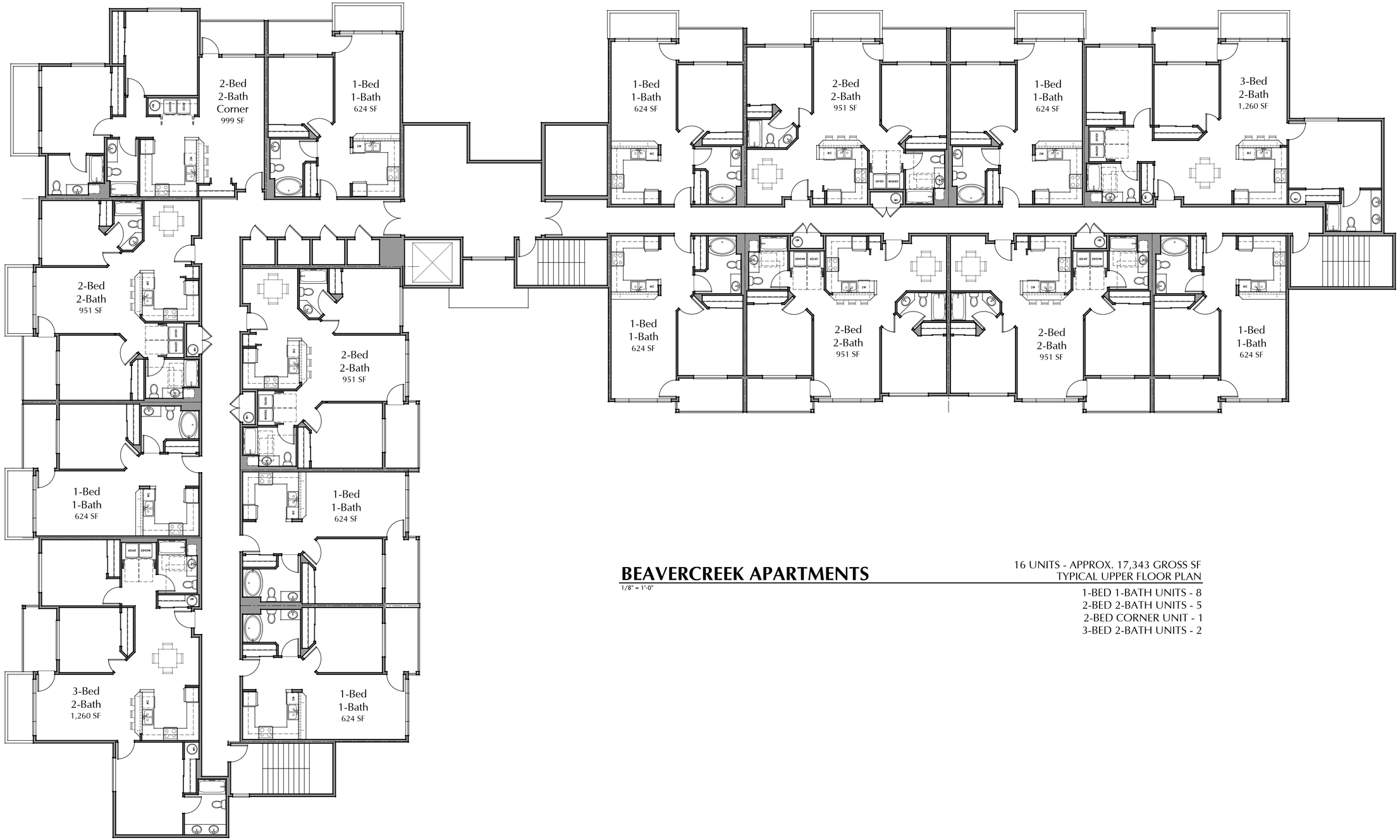
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Typical Apartment Building
First Floor Plan

Scale:	Drawn By:	Date:	Date Plotted:
1/8" = 1'-0"	APT	01-14-14	1-13-14

Sheet No.: **A2**

Job No.: **12-39**



BEAVERCREEK APARTMENTS

1/8" = 1'-0"

16 UNITS - APPROX. 17,343 GROSS SF
TYPICAL UPPER FLOOR PLAN

1-BED 1-BATH UNITS - 8
2-BED 2-BATH UNITS - 5
2-BED CORNER UNIT - 1
3-BED 2-BATH UNITS - 2

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Oregon City, Oregon

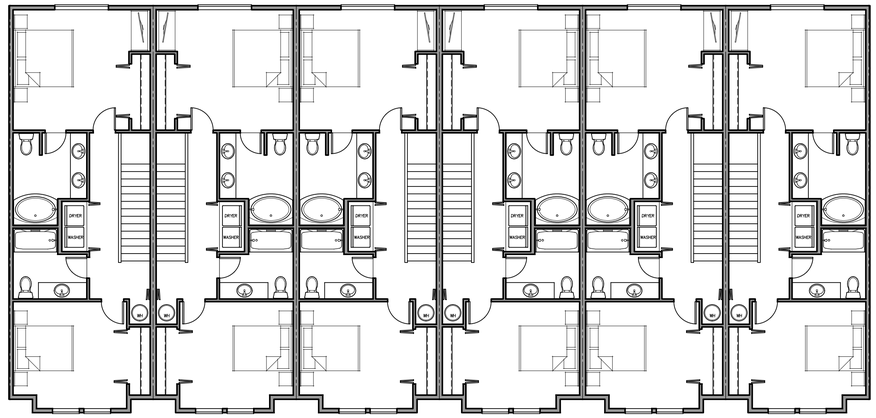
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Typical Apartment Building
Upper Floor Plans

Scale:	Drawn By:	Date:	Date Plotted:
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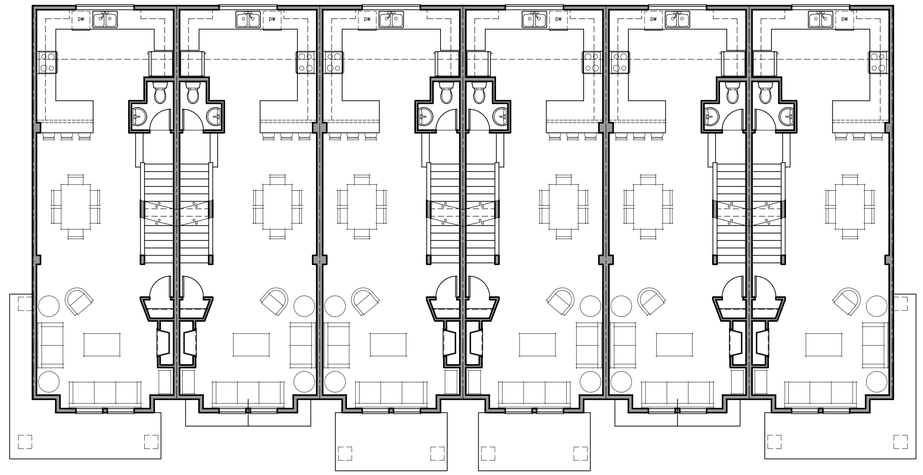
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Job No.: **12-39**



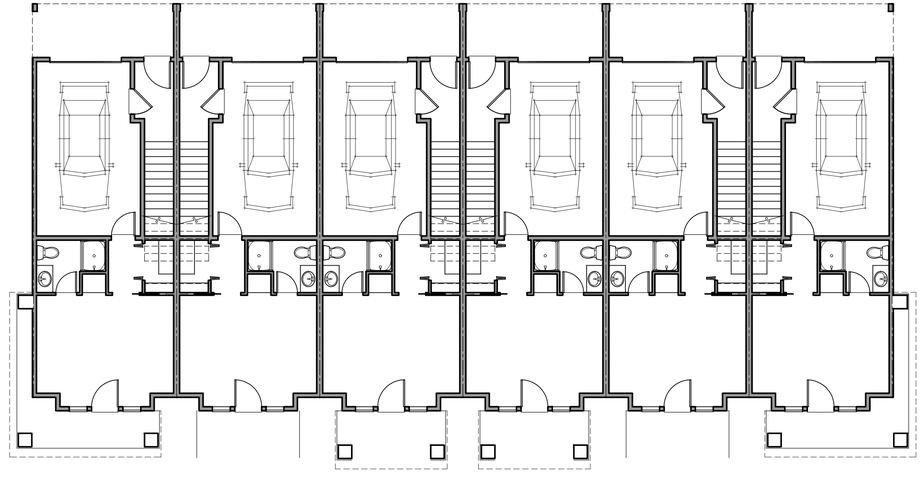
6-PLEX TOWNHOME — UPPER LEVEL PLAN

1/8" = 1'-0"



6-PLEX TOWNHOME — MIDDLE LEVEL PLAN

1/8" = 1'-0"



6-PLEX TOWNHOME — LOWER LEVEL PLAN

1/8" = 1'-0"

H:\1239\6-PLEX TOWNHOME.DWG

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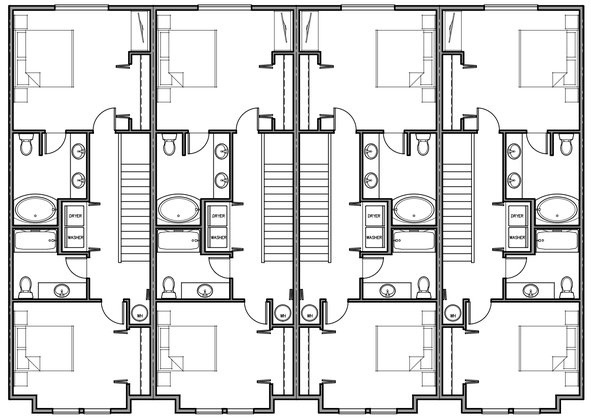
6-Plex Townhome Building

Floor Plans

Scale:	Drawn By:	Date:	Date Plotted:
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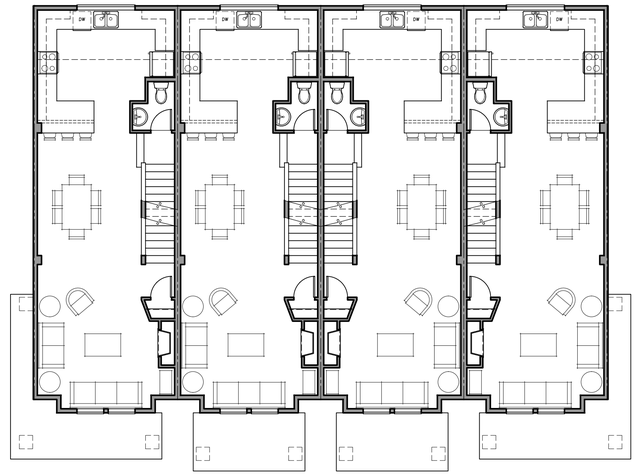
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Job No.: **12-39**



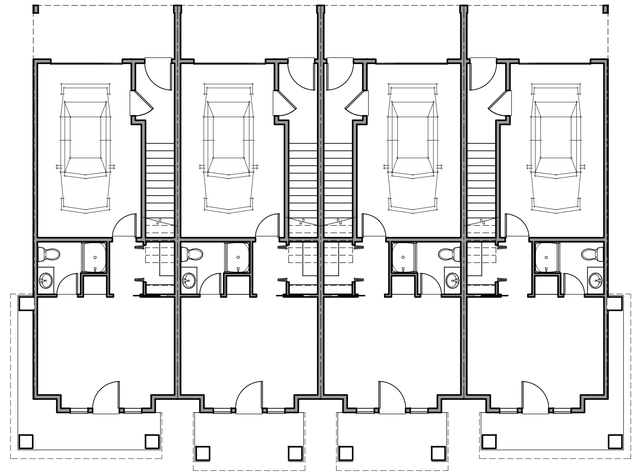
4-PLEX TOWNHOME — UPPER LEVEL PLAN

1/8" = 1'-0"



4-PLEX TOWNHOME — MIDDLE LEVEL PLAN

1/8" = 1'-0"



4-PLEX TOWNHOME — LOWER LEVEL PLAN

1/8" = 1'-0"

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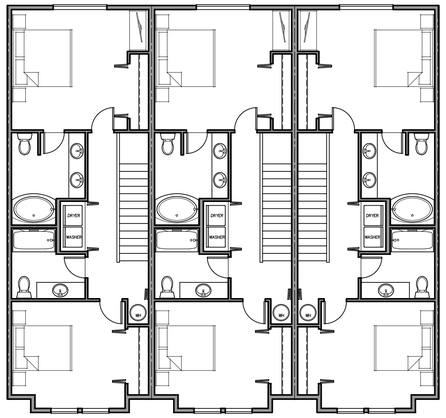
4-Plex Townhome Building

Floor Plans

Scale:	Drawn By:	Date:	Date Plotted:
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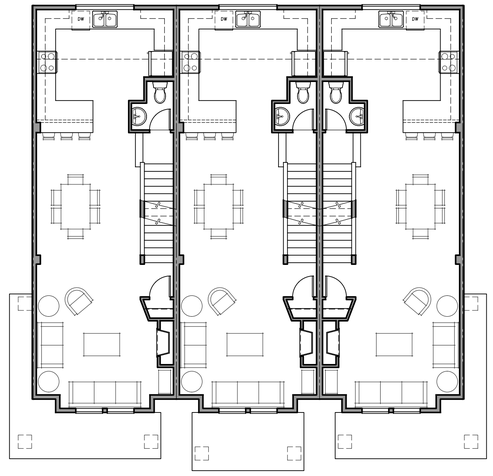
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Job No.: 12-39



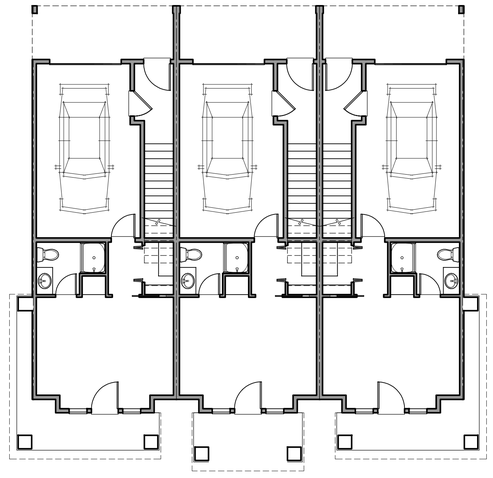
3-PLEX TOWNHOME UPPER LEVEL PLAN

1/8" = 1'-0"



3-PLEX TOWNHOME MIDDLE LEVEL PLAN

1/8" = 1'-0"



3-PLEX TOWNHOME LOWER LEVEL PLAN

1/8" = 1'-0"

H:\1239\6-PLEX TOWNHOME.DWG

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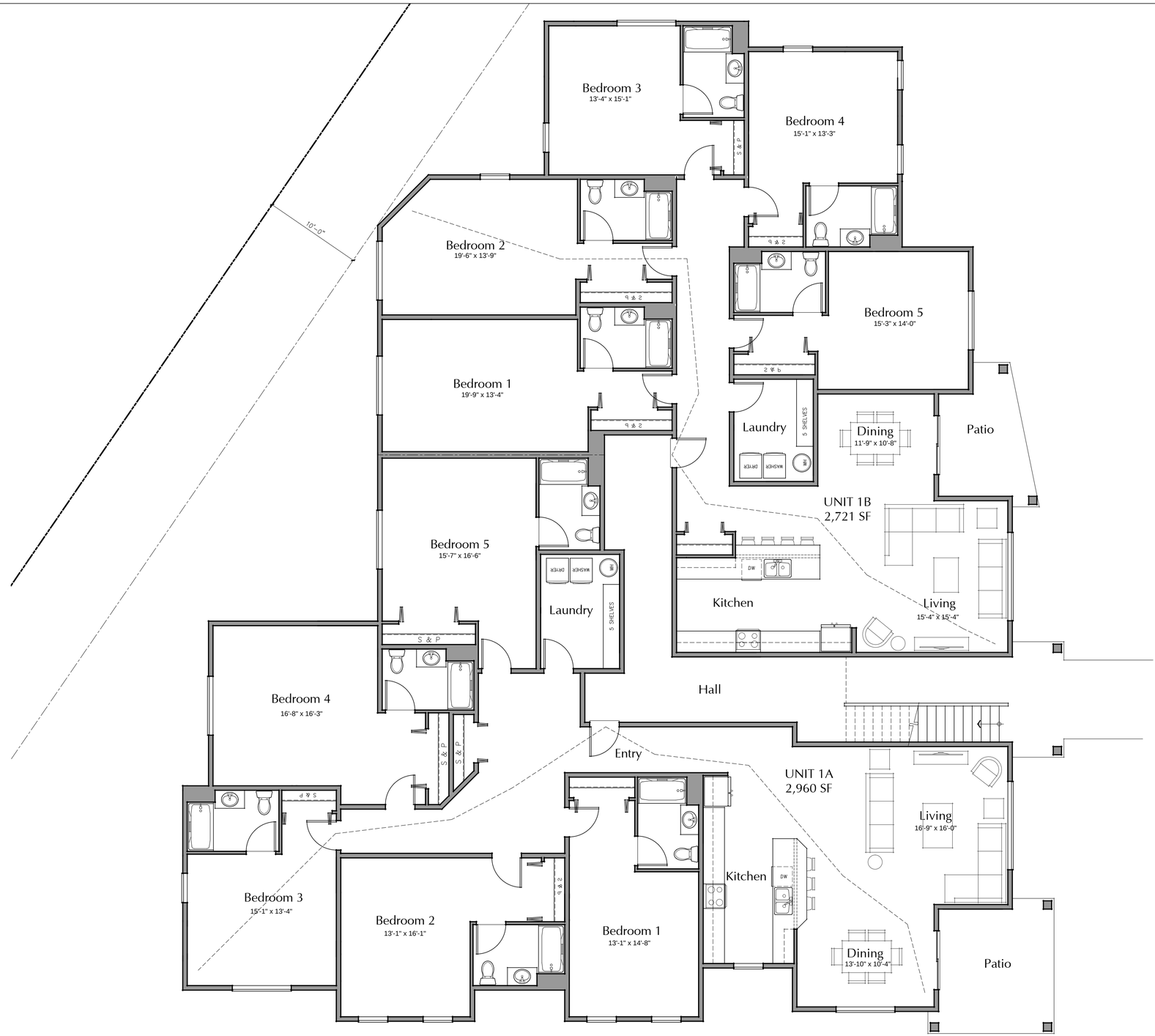
3-Plex Townhome Building

Floor Plans

Scale:	Drawn By:	Date:	Date Plotted:
1/8" = 1'-0"	APT	01-14-14	1-13-14

Sheet No.: **A6**

Job No.: 12-39



BUILDING C1

3/16" = 1'-0"

LOWER LEVEL PLAN

H: \12.39\GROUP UNIT.DWG

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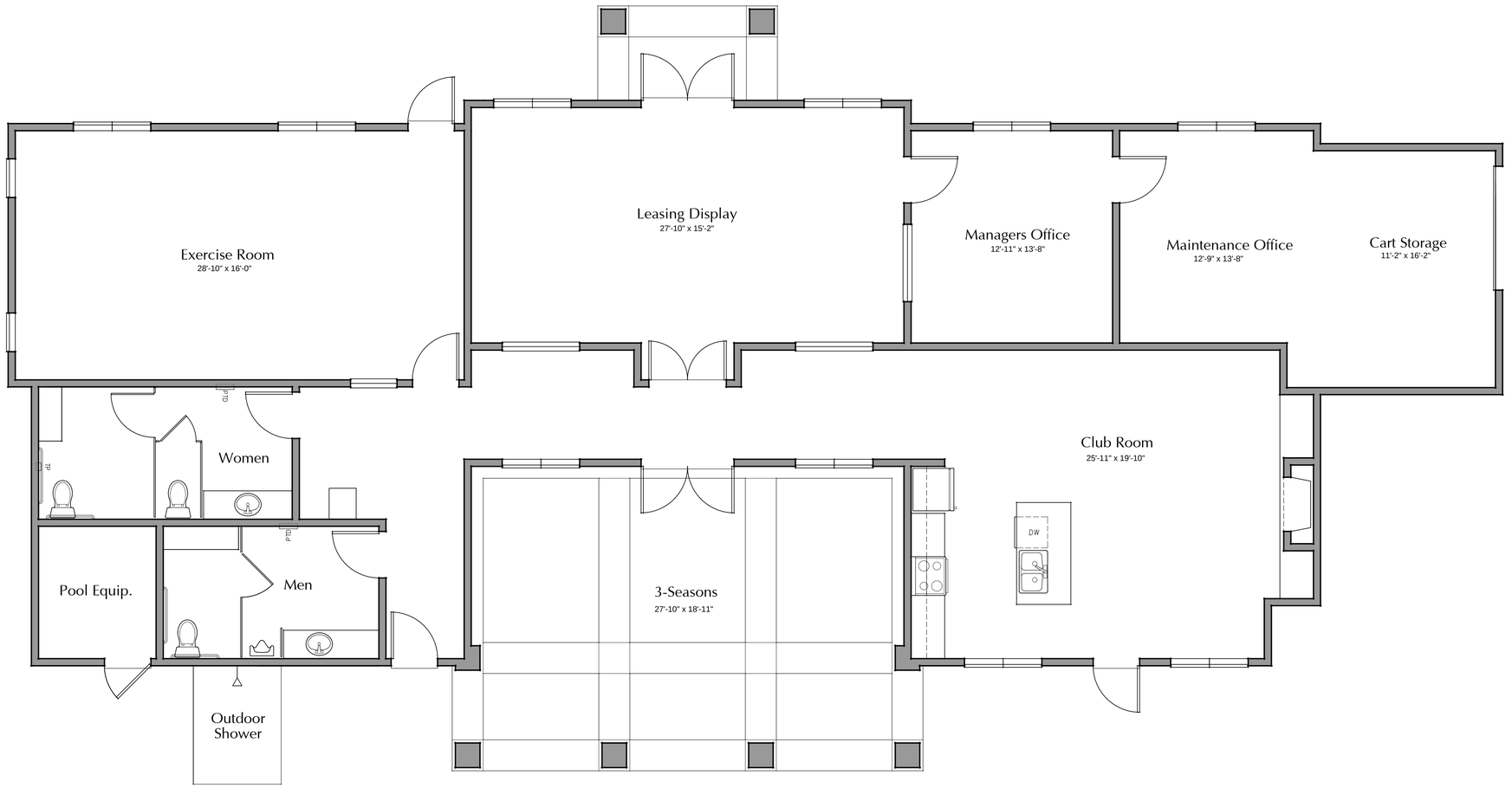
Building C1

Proposed Floor Plans

Scale:	Drawn By:	Date:	Date Plotted:
3/16" = 1'-0"	APT	01-14-14	1-13-14

Sheet No.: **A7**

Job No.: **12-39**



COMMUNITY CENTER

1/4" = 1'-0"

2,717 SF
FIRST FLOOR PLAN

H: \12.39\CLUBHOUSE.DWG

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Community Center
Proposed Floor Plan

Scale:	Drawn By:	Date:	Date Plotted:
1/4" = 1'-0"	APT	01-14-14	1-13-14

Sheet No.: **A8**

Job No.: **12-39**



TYPICAL APARTMENT BUILDING

1/8" = 1'-0"

FRONT/STREET-FACING ELEVATION



TYPICAL APARTMENT BUILDING

1/8" = 1'-0"

SIDE/STREET-FACING ELEVATION



TYPICAL APARTMENT BUILDING

1/8" = 1'-0"

SIDE/END ELEVATION

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Typical Apartment Building

Exterior Elevations

Scale:	Drawn By:	Date:	Date Plotted:
1/8" = 1'-0"	APT	01-14-14	1-13-14

Sheet No.: **E1**

Job No.: 12-39



TYPICAL APARTMENT BUILDING

1/8" = 1'-0"

FRONT/ALLEY-FACING ELEVATION



TYPICAL APARTMENT BUILDING

1/8" = 1'-0"

SIDE/ALLEY-FACING ELEVATION



TYPICAL APARTMENT BUILDING

1/8" = 1'-0"

FRONT/END ELEVATION

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Typical Apartment Building

Exterior Elevations

Scale:	Drawn By:	Date:	Date Plotted:
1/8" = 1'-0"	APT	01-14-14	1-13-14

Sheet No.: **E2**

Job No.: 12-39



6-PLEX TOWNHOME BUILDING
FRONT ELEVATION

3/16" = 1'-0"



TYPICAL TOWNHOME BUILDING
SIDE ELEVATION

3/16" = 1'-0"



6-PLEX TOWNHOME BUILDING
REAR ELEVATION

3/16" = 1'-0"

H:\12.39\6-PLEX_TOWNHOME.DWG

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6-Plex Townhome Building
Exterior Elevations

Scale:	Drawn By:	Date:	Date Plotted:
3/16" = 1'-0"	APT	01-14-14	1-13-14

Sheet No.: **E3**

Job No.: 12-39



4-PLEX TOWNHOME BUILDING
FRONT ELEVATION

3/16" = 1'-0"



TYPICAL TOWNHOME BUILDING
SIDE ELEVATION

3/16" = 1'-0"



4-PLEX TOWNHOME BUILDING
REAR ELEVATION

3/16" = 1'-0"

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Oregon City Live/Work

A Live/Work Apartment and Townhome Community

Oregon City, Oregon

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4-Plex Townhome Building
Exterior Elevations

Scale:	Drawn By:	Date:	Date Plotted:
3/16" = 1'-0"	APT	01-14-14	1-13-14

Sheet No.: **E4**

Job No.: **12-39**



3-PLEX TOWNHOME BUILDING — FRONT ELEVATION

3/16" = 1'-0"



TYPICAL TOWNHOME BUILDING — SIDE ELEVATION

3/16" = 1'-0"



3-PLEX TOWNHOME BUILDING — REAR ELEVATION

3/16" = 1'-0"

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3-Plex Townhome Building

Exterior Elevations

Scale:	Drawn By:	Date:	Date Plotted:
3/16" = 1'-0"	APT	01-14-14	1-13-14

Sheet No.: **E5**

Job No.: **12-39**



BUILDING C1
3/16" = 1'-0"

SOUTH/MEYERS ROAD - ENTRY ELEVATION



BUILDING C1
3/16" = 1'-0"

WEST/BEAVERCREEK ROAD ELEVATION

H:\1239\GROUP_UNIT.DWG

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Oregon City, Oregon

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Building C1

Proposed South and West Exterior Elevations

Scale:	Drawn By:	Date:	Date Plotted:
3/16" = 1'-0"	APT	01-14-14	1-13-14

Sheet No.: **E6**

Job No.: 12-39



BUILDING C1

3/16" = 1'-0"

EAST/PARKING LOT ELEVATION



BUILDING C1

3/16" = 1'-0"

NORTH ELEVATION

H: \1239\GROUP_UNIT.DWG

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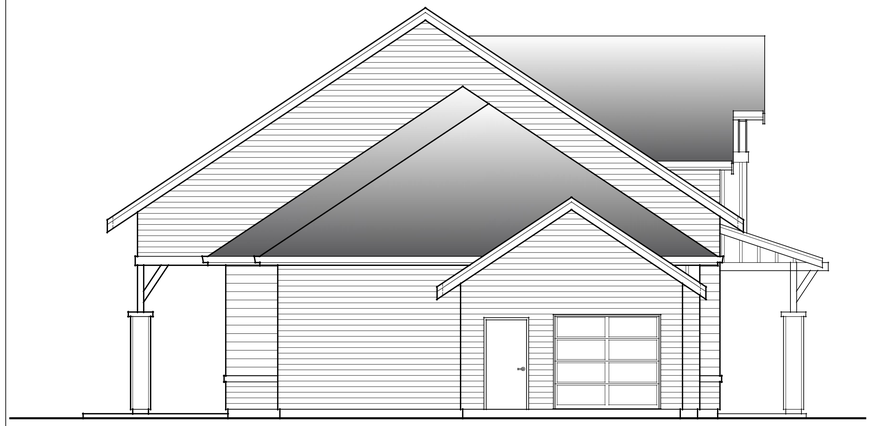
Building C1

Proposed East and North Exterior Elevations

Scale:	Drawn By:	Date:	Date Plotted:
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Sheet No.: **E7**

Job No.: **12-39**



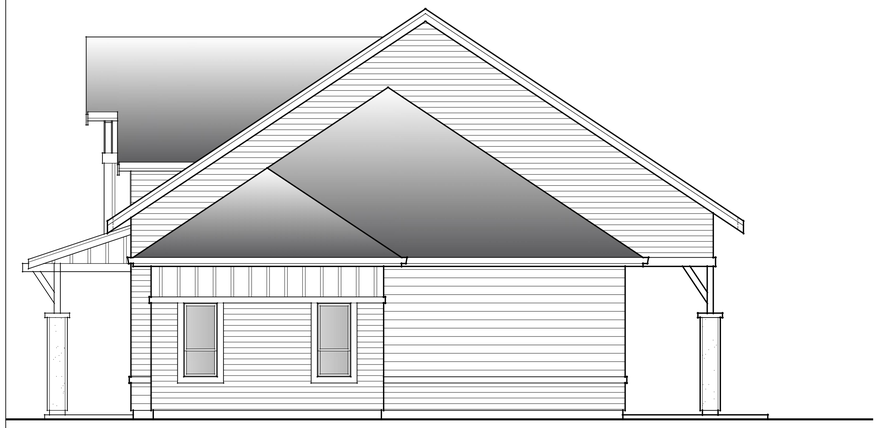
COMMUNITY CENTER
3/16" = 1'-0"

SIDE/NORTH-FACING ELEVATION



COMMUNITY CENTER
3/16" = 1'-0"

FRONT/STREET B FACING ELEVATION



COMMUNITY CENTER
3/16" = 1'-0"

SIDE/STREET A FACING ELEVATION



COMMUNITY CENTER
3/16" = 1'-0"

REAR/POOL ELEVATION

H:\1239\CLUBHOUSE.DWG

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Oregon City Live/Work

A Live/Work Apartment and Townhome Community

Oregon City, Oregon

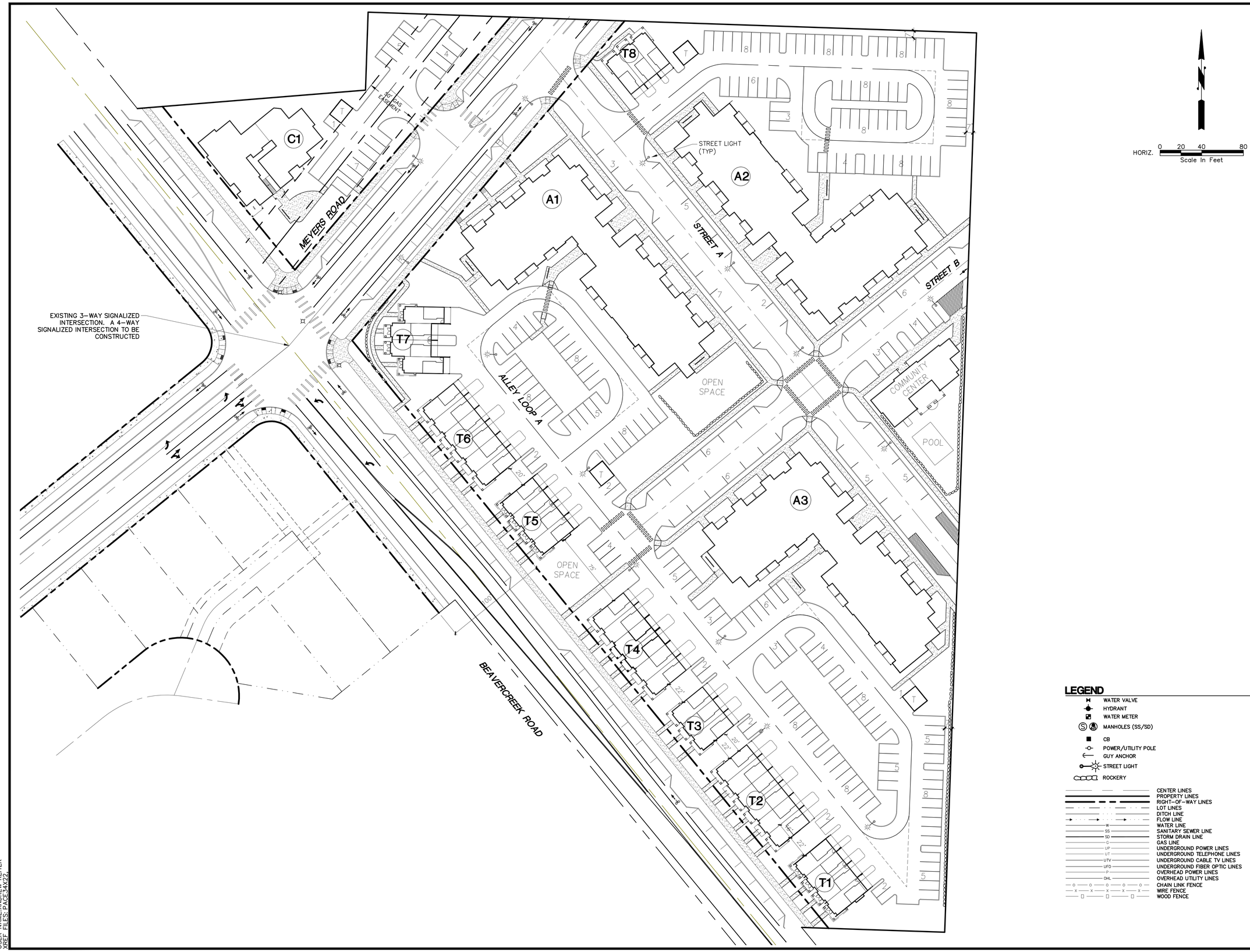
Evergreen Housing Development Group

Community Center
Proposed Exterior Elevations

Scale:	Drawn By:	Date:	Date Plotted:
3/16" = 1'-0"	APT	01-14-14	1-13-14

Sheet No.: **E8**

Job No.: 12-39



LEGEND

- WATER VALVE
- HYDRANT
- WATER METER
- MANHOLES (SS/SD)
- CB
- POWER/UTILITY POLE
- GUY ANCHOR
- STREET LIGHT
- ROCKERY
- CENTER LINES
- PROPERTY LINES
- RIGHT-OF-WAY LINES
- LOT LINES
- DITCH LINE
- FLOW LINE
- W — WATER LINE
- SS — SANITARY SEWER LINE
- SD — STORM DRAIN LINE
- G — GAS LINE
- UP — UNDERGROUND POWER LINES
- UT — UNDERGROUND TELEPHONE LINES
- UTV — UNDERGROUND CABLE TV LINES
- UFO — UNDERGROUND FIBER OPTIC LINES
- P — OVERHEAD POWER LINES
- OHL — OVERHEAD UTILITY LINES
- CHAIN LINK FENCE
- WIRE FENCE
- WOOD FENCE

SYM	REVISION	DATE

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14,788
OREGON
JANUARY 23, 1990
ANDREW A. REITER
EXPIRES: 12/31/2014

SITE PLAN

A LIVE/WORK APARTMENT AND TOWNHOME DEVELOPMENT

19896 BEAVERCREEK RD.
OREGON CITY, OR

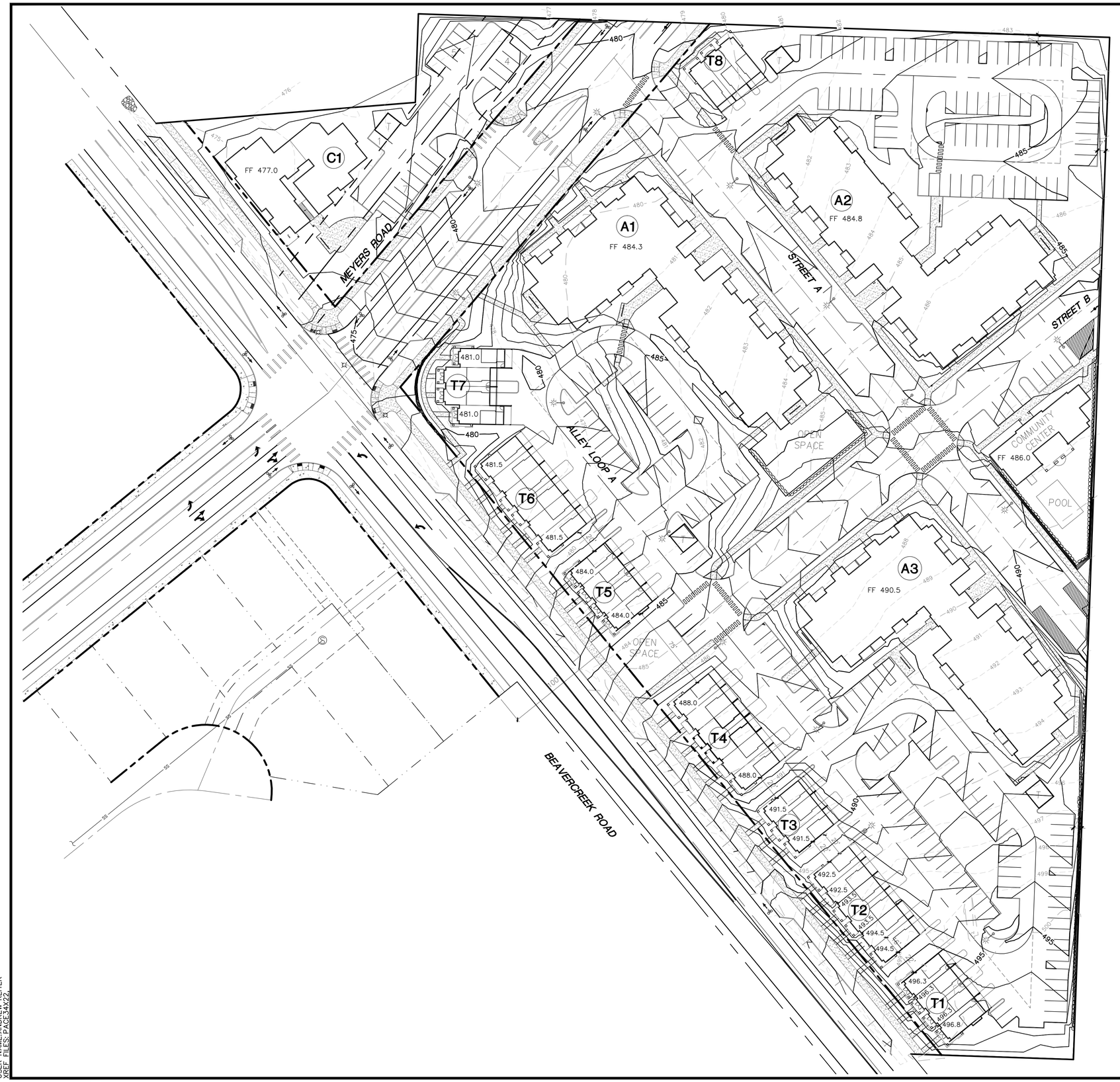
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DESIGNED BY:	CHECKED BY:
AAR	DP

JOB NUMBER
13869

DWG NAME:
C1 SITE PLAN

SHEET C1 OF 4

FILE NAME: P:\P13\13869 - EVERGREEN HOUSING - BEAVERCREEK ROAD\CAD\SHEETS\C1 SITE PLAN.DWG
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PLOT TIME: 1/9/2014 11:54 AM
USER NAME: ANDREW REITER
XREF FILES: PACE34x22



LEGEND

- WATER VALVE
- HYDRANT
- WATER METER
- MANHOLES (SS/SD)
- CB
- POWER/UTILITY POLE
- GUY ANCHOR
- STREET LIGHT
- ROCKERY

- CENTER LINES
- PROPERTY LINES
- RIGHT-OF-WAY LINES
- LOT LINES
- DITCH LINE
- FLOW LINE
- W — WATER LINE
- SS — SANITARY SEWER LINE
- SD — STORM DRAIN LINE
- G — GAS LINE
- UP — UNDERGROUND POWER LINES
- UT — UNDERGROUND TELEPHONE LINES
- UTV — UNDERGROUND CABLE TV LINES
- UFO — UNDERGROUND FIBER OPTIC LINES
- OHP — OVERHEAD POWER LINES
- OHL — OVERHEAD UTILITY LINES
- CHAIN LINK FENCE
- WIRE FENCE
- WOOD FENCE

DATE | REVISION | SYM

PACE
An Engineering Services Company
5000 Meadows Road
Lake Oswego, Oregon 97035
p. 503.597.3222 | f. 503.597.7655
Civil | Structural | Planning | Survey
paceengrs.com

REGISTERED PROFESSIONAL ENGINEER
14,788
OREGON
JANUARY 23, 1980
ANDREW A. REITER
EXPIRES: 12/31/2014

GRADING PLAN

A LIVE/WORK APARTMENT AND TOWNHOME DEVELOPMENT

19896 BEAVERCREEK RD.
OREGON CITY, OR

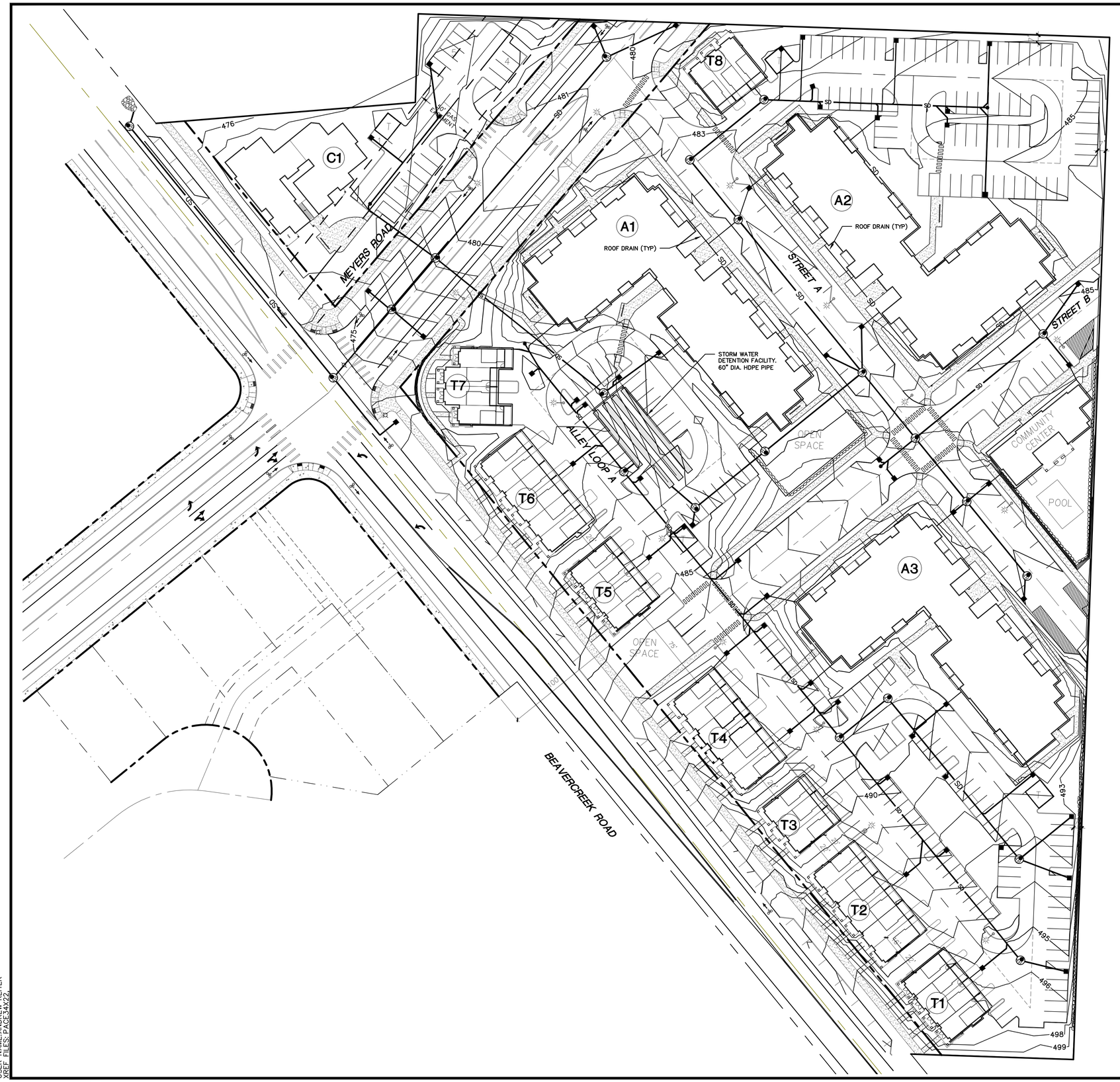
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DESIGNED BY:	CHECKED BY:
AAR	DP

JOB NUMBER
13869

DWG NAME:
C2 GRADING PLAN

SHEET C2 OF 4

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SAVE TIME: 1/9/2014 3:37:42 PM
PLOT TIME: 1/14/2014 11:54 AM
USER NAME: ANDREW REITER
XREF FILES: PACE34x22



LEGEND

- WATER VALVE
- HYDRANT
- WATER METER
- MANHOLES (SS/SD)
- CB
- POWER/UTILITY POLE
- GUY ANCHOR
- STREET LIGHT
- ROCKERY

- CENTER LINES
- PROPERTY LINES
- RIGHT-OF-WAY LINES
- LOT LINES
- DITCH LINE
- FLOW LINE
- W — WATER LINE
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- SD — STORM DRAIN LINE
- G — GAS LINE
- UP — UNDERGROUND POWER LINES
- UT — UNDERGROUND TELEPHONE LINES
- UTV — UNDERGROUND CABLE TV LINES
- UFO — UNDERGROUND FIBER OPTIC LINES
- P — OVERHEAD POWER LINES
- OHL — OVERHEAD UTILITY LINES
- CHAIN LINK FENCE
- WIRE FENCE
- WOOD FENCE

DD SET

DATE | REVISION | SYM

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REGISTERED PROFESSIONAL ENGINEER
14,788
OREGON
JANUARY 23, 1990
ANDREW A. REITER
EXPIRES: 12/31/2014

STORM DRAINAGE PLAN

A LIVE/WORK APARTMENT AND TOWNHOME DEVELOPMENT

19896 BEAVERCREEK RD.
OREGON CITY, OR

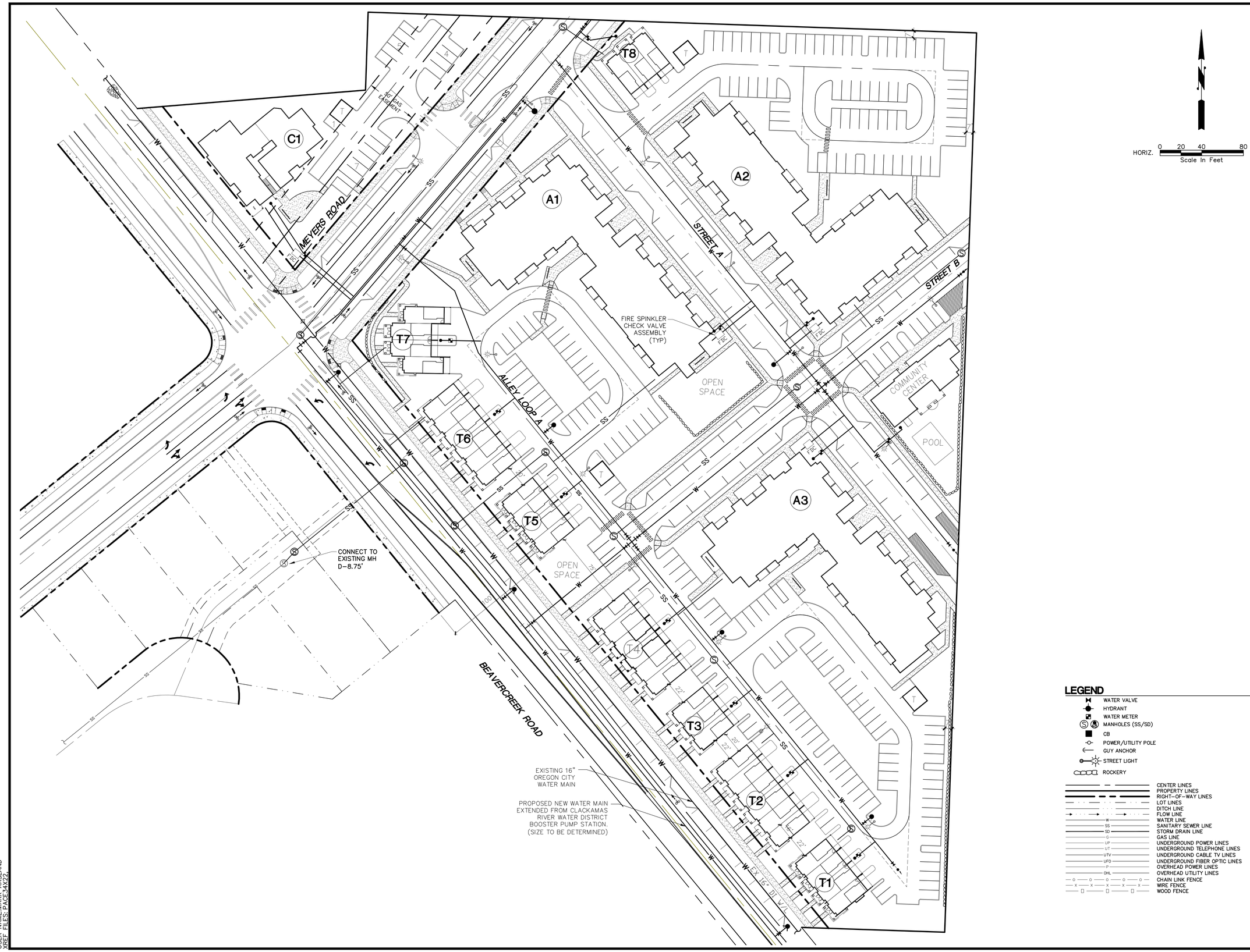
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1"=40'	1/08/14
DESIGNED BY: AAR	CHECKED BY: DP

JOB NUMBER **13869**

DWG NAME: C3 STORM DRAINAGE

SHEET C3 OF 4

FILE NAME: P:\P13\13869 - EVERGREEN HOUSING - BEAVERCREEK ROAD\CAD\SHEETS\C3 STORM DRAINAGE.DWG
SAVE TIME: 1/9/2014 3:58:58 PM
PLOT TIME: 1/14/2014 11:54 AM
USER NAME: ANDREW REITER
XREF FILES: PACE34x22



LEGEND

- WATER VALVE
- HYDRANT
- WATER METER
- MANHOLES (SS/SD)
- CB
- POWER/UTILITY POLE
- GUY ANCHOR
- STREET LIGHT
- ROCKERY

- CENTER LINES
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- UFO — UNDERGROUND FIBER OPTIC LINES
- P — OVERHEAD POWER LINES
- OHL — OVERHEAD UTILITY LINES
- CHAIN LINK FENCE
- WIRE FENCE
- WOOD FENCE

DATE	REVISION	SYM

PACE
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Civil | Structural | Planning | Survey
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REGISTERED PROFESSIONAL ENGINEER
14,758
OREGON
JANUARY 23, 2009
ANDREW A. REITER
EXPIRES: 12/31/2014

WATER AND SEWER PLAN

A LIVE/WORK APARTMENT AND TOWNHOME DEVELOPMENT

19896 BEAVERCREEK RD.
OREGON CITY, OR

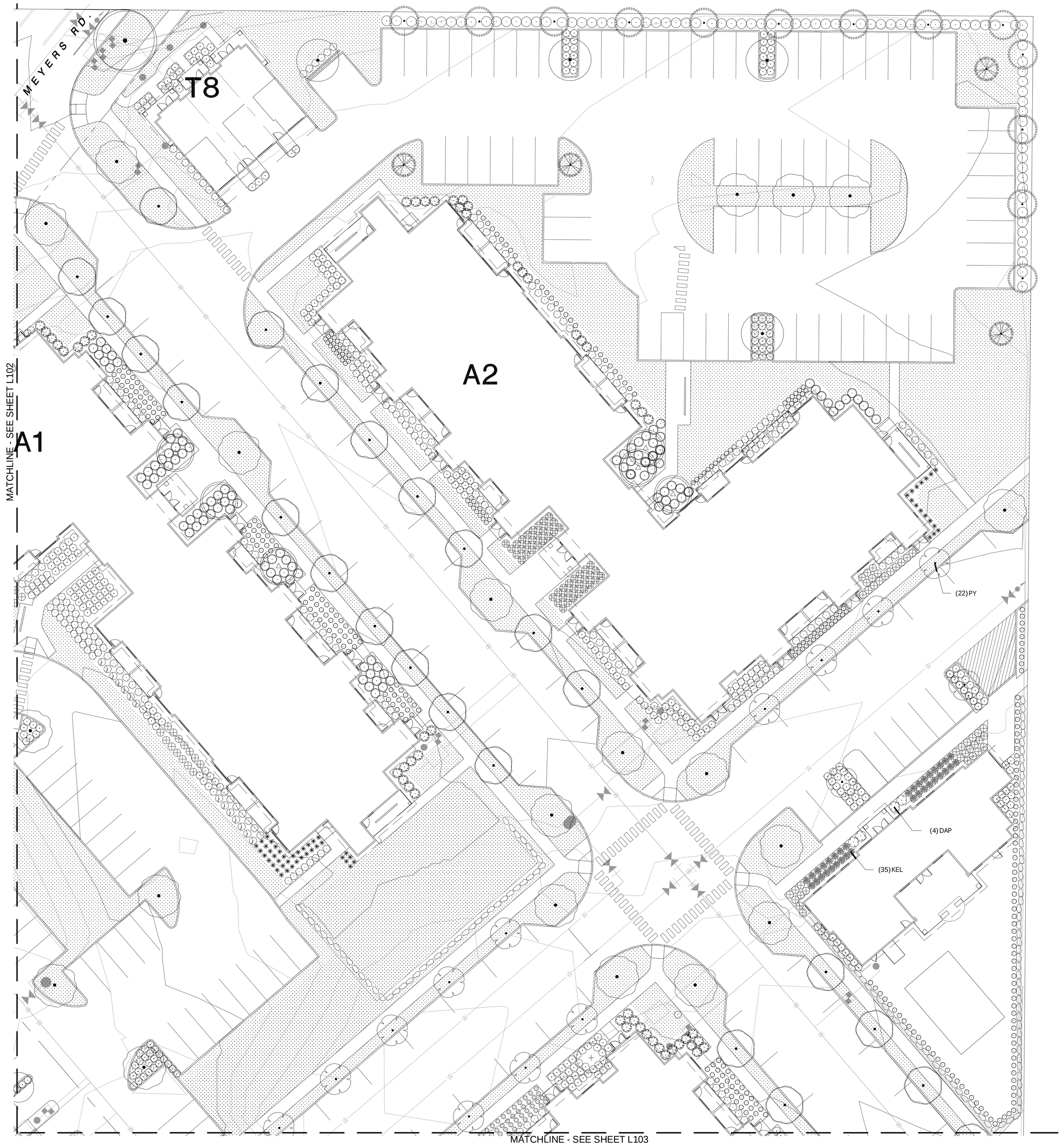
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1"=40'	1/08/14
DESIGNED BY: AAR	CHECKED BY: DP

JOB NUMBER
13869

DWG NAME:
C4 WATER & SEWER PLAN

SHEET C4 OF 4

FILE NAME: \\O-DATASVR2\PROJECT_DOCS\P13\13869 - EVERGREEN HOUSING - BEAVERCREEK ROAD\CAD\SHEETS\C4 WATER & SEWER PLAN.DWG
SAVE TIME: 1/9/2014 3:59:23 PM
PLOT TIME: MAR/2014 11:04 AM
USER NAME: AAR, AND
XREF FILES: PACE34x22



PLANT SCHEDULE

TREES	BOTANICAL NAME	CONT	CAL	SIZE	QTY
△	ACER CIRCINATUM `PACIFIC FIRE`	-		6` HGT.	6
•	ACER GRISEUM	B & B	2"CAL		4
•	CALOCEDRUS DECURRENS	B & B		6` HGT.	3
•	CARPINUS BETULUS `FASTIGIATA`	B & B	2"CAL		43
•	CRATAEGUS LAEVIGATA `CRIMSON CLOUD`	B & B	3.5"CAL		17
•	FRAXINUS ORNUS	B & B	2"CAL		12
•	FRAXINUS OXYCARPA	B & B	2"CAL		31
•	PRUNUS SARGENTII `COLUMNARIS`	B & B	2"CAL		13
•	PYRUS CALLERYANA `GLEN`S FORM` TM	B & B	2"CAL		22
+	QUERCUS ROBUR `FASTIGIATA`	B & B	2"CAL		15
•	SEQUOIA SEMPERVIRENS	B & B		6` HGT.	8
•	ZELKOVA SERRATA `HALKA`	B & B	2"CAL		23

SHRUBS	BOTANICAL NAME	CONT	QTY
✳	CALAMAGROSTIS X ACUTIFLORA `KARL FOERSTER`	1 GAL	199
○	CAREX MORROWII `AUREA-VARIEGATA`	1 GAL	227
⊙	CHOISYA DUMOSA	1 GAL	28
✺	CORNUS SERICEA `KELSEYI`	1 GAL	35
◦	COTONEASTER DAMMERI `LOWFAST`	1 GAL	438
⊙	DAPHNE TRANSATLANTICA SUMMER ICE	1 GAL	4
⬡	EUONYMUS JAPONICUS `MICROPHYLLA`	1 GAL	374
⊙	HELICTOTRICHON SEMPERVIRENS	1 GAL	68
⊙	HYDRANGEA QUERCIFOLIA	1 GAL	76
⬡	MAHONIA AQUIFOLIUM `COMPACTA`	1 GAL	208
⊙	NANDINA DOMESTICA `GULF STREAM` TM	1 GAL	349
⬠	PENNISETUM ALOPECUROIDES `HAMELN`	1 GAL	510
◑	POTENTILLA FRUTICOSA `ABBOTSWOOD`	1 GAL	71
⊕	PRUNUS LAUROCERASUS `OTTO LUYKEN`	1 GAL	123
⊙	SARCOCOCCA HOOKERANA HUMILIS	1 GAL	79
⊙	SARCOCOCCA RUSCIFOLIA	1 GAL	135
⊙	THUJA OCCIDENTALIS `EMERALD`	4 FT.	192
⊕	VIBURNUM DAVIDII	1 GAL	87
⊙	VIBURNUM TINUS `SPRING BOUQUET` COMPACTUM	1 GAL	84

SYMBOL	DESCRIPTION
1	0-1/4" COMPACTED GRAVEL
2	BENCH

Note: An automatic irrigation syste will be provided

0 20 40 60 feet

SCALE: 1" = 20'

NORTH

PREPARED BY

SDLA
SHAPIRO DIDWAY
LANDSCAPE ARCHITECTS
1204 SE WATER AVE. • PORTLAND, OR 97214 • 503.232.0520

PROFESSIONAL LICENSE

REGISTERED 382 Stephen L Shapiro STEVEN L. SHAPIRO OREGON LANDSCAPE ARCHITECT

PROJECT

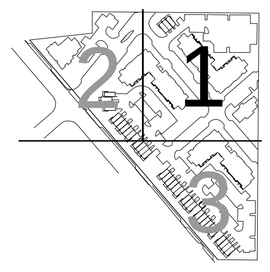
OREGON CITY LIVE/WORK

A LIVE/WORK APARTMENT AND TOWNHOME DEVELOPMENT

19896 BEAVERCREEK RD. OREGON CITY, OR

DRAWING LOG

KEY MAP



DRAWING PHASE

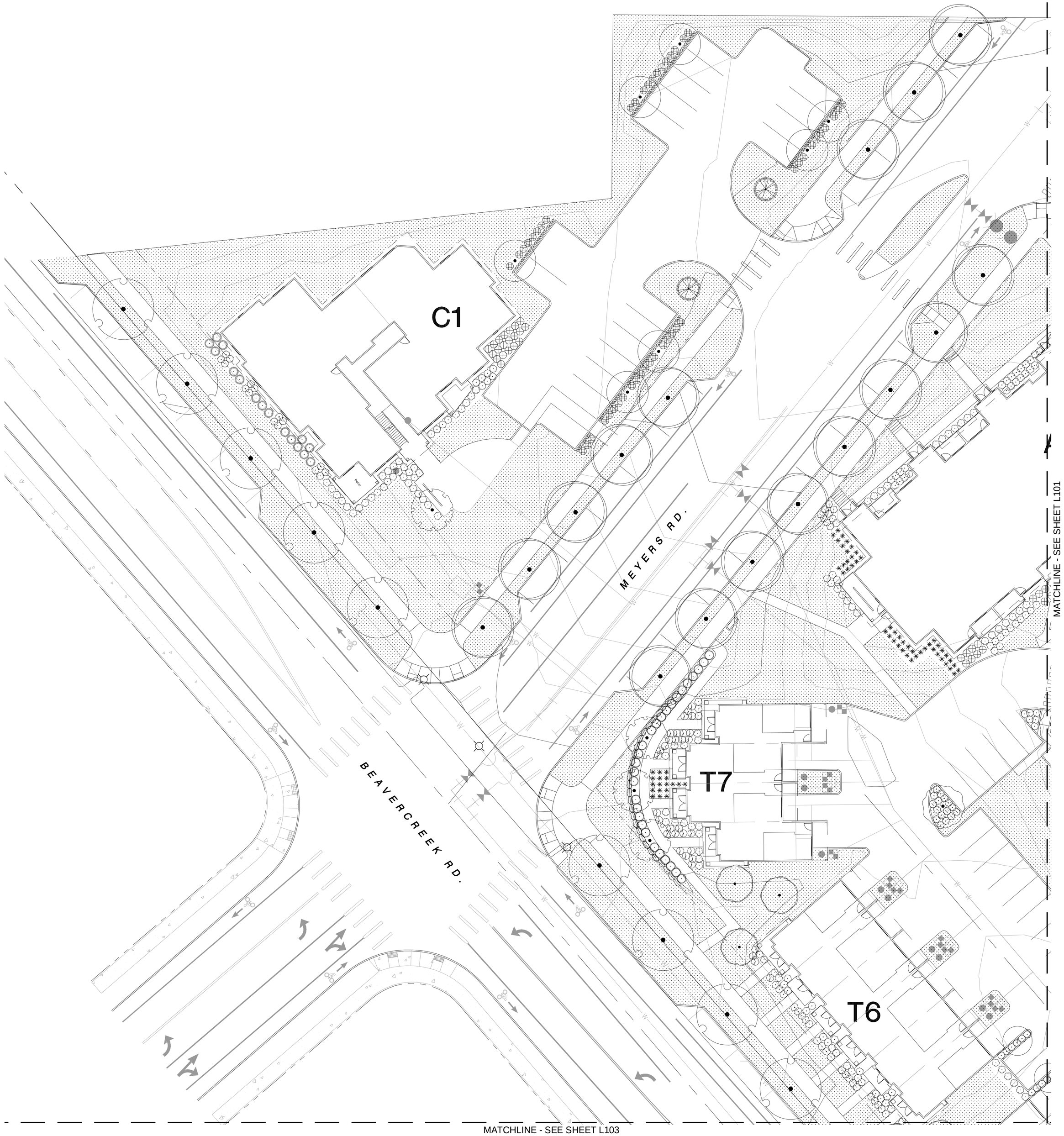
sheet title

LANDCAPE PLAN

sheet number

L101

1.14.2014



PLANT SCHEDULE

TREES	BOTANICAL NAME	CONT	CAL	SIZE
△	ACER CIRCINATUM `PACIFIC FIRE`	-		6` HGT.
•	ACER GRISEUM	B & B	2"CAL	
•	CALOCEDRUS DECURRENS	B & B		6` HGT.
•	CARPINUS BETULUS `FASTIGIATA`	B & B	2"CAL	
•	CRATAEGUS LAEVIGATA `CRIMSON CLOUD`	B & B	3.5"CAL	
•	FRAXINUS ORNUS	B & B	2"CAL	
•	FRAXINUS OXYCARPA	B & B	2"CAL	
•	PRUNUS SARGENTII `COLUMNARIS`	B & B	2"CAL	
•	PYRUS CALLERYANA `GLEN`S FORM` TM	B & B	2"CAL	
+	QUERCUS ROBUR `FASTIGIATA`	B & B	2"CAL	
•	SEQUOIA SEMPERVIRENS	B & B		6` HGT.
•	ZELKOVA SERRATA `HALKA`	B & B	2"CAL	

SHRUBS	BOTANICAL NAME	CONT
✳	CALAMAGROSTIS X ACUTIFLORA `KARL FOERSTER`	1 GAL
○	CAREX MORROWII `AUREA-VARIEGATA`	1 GAL
○	CHOISYA DUMOSA	1 GAL
✺	CORNUS SERICEA `KELSEYI`	1 GAL
◦	COTONEASTER DAMMERI `LOWFAST`	1 GAL
○	DAPHNE TRANSATLANTICA SUMMER ICE	1 GAL
○	EUONYMUS JAPONICUS `MICROPHYLLA`	1 GAL
⊙	HELICTOTRICHON SEMPERVIRENS	1 GAL
○	HYDRANGEA QUERCIFOLIA	1 GAL
⬡	MAHONIA AQUIFOLIUM `COMPACTA`	1 GAL
⊙	NANDINA DOMESTICA `GULF STREAM` TM	1 GAL
⊙	PENNISETUM ALOPECUROIDES `HAMELN`	1 GAL
◔	POTENTILLA FRUTICOSA `ABBOTSWOOD`	1 GAL
⊕	PRUNUS LAUROCERASUS `OTTO LUYKEN`	1 GAL
⊛	SARCOCOCCA HOOKERANA HUMILIS	1 GAL
⊙	SARCOCOCCA RUSCIFOLIA	1 GAL
○	THUJA OCCIDENTALIS `EMERALD`	4 FT.
⊕	VIBURNUM DAVIDII	1 GAL
⊙	VIBURNUM TINUS `SPRING BOUQUET` COMPACTUM	1 GAL

SYMBOL	DESCRIPTION
1	0-1/4" COMPACTED GRAVEL
2	BENCH

Note: An automatic irrigation syste will be provided

0 20 40 60 feet

SCALE: 1" = 20'

NORTH

PREPARED BY

SDLA
SHAPIRO DIDWAY
LANDSCAPE ARCHITECTS
1204 SE WATER AVE. • PORTLAND, OR 97214 • 503.232.0520

PROFESSIONAL LICENSE

REGISTERED 382 STEVEN L. SHAPIRO OREGON LANDSCAPE ARCHITECT

PROJECT

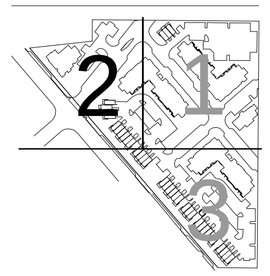
OREGON CITY LIVE/WORK

A LIVE/WORK APARTMENT AND TOWNHOME DEVELOPMENT

19896 BEAVERCREEK RD. OREGON CITY, OR

DRAWING LOG

KEY MAP



DRAWING PHASE

sheet title

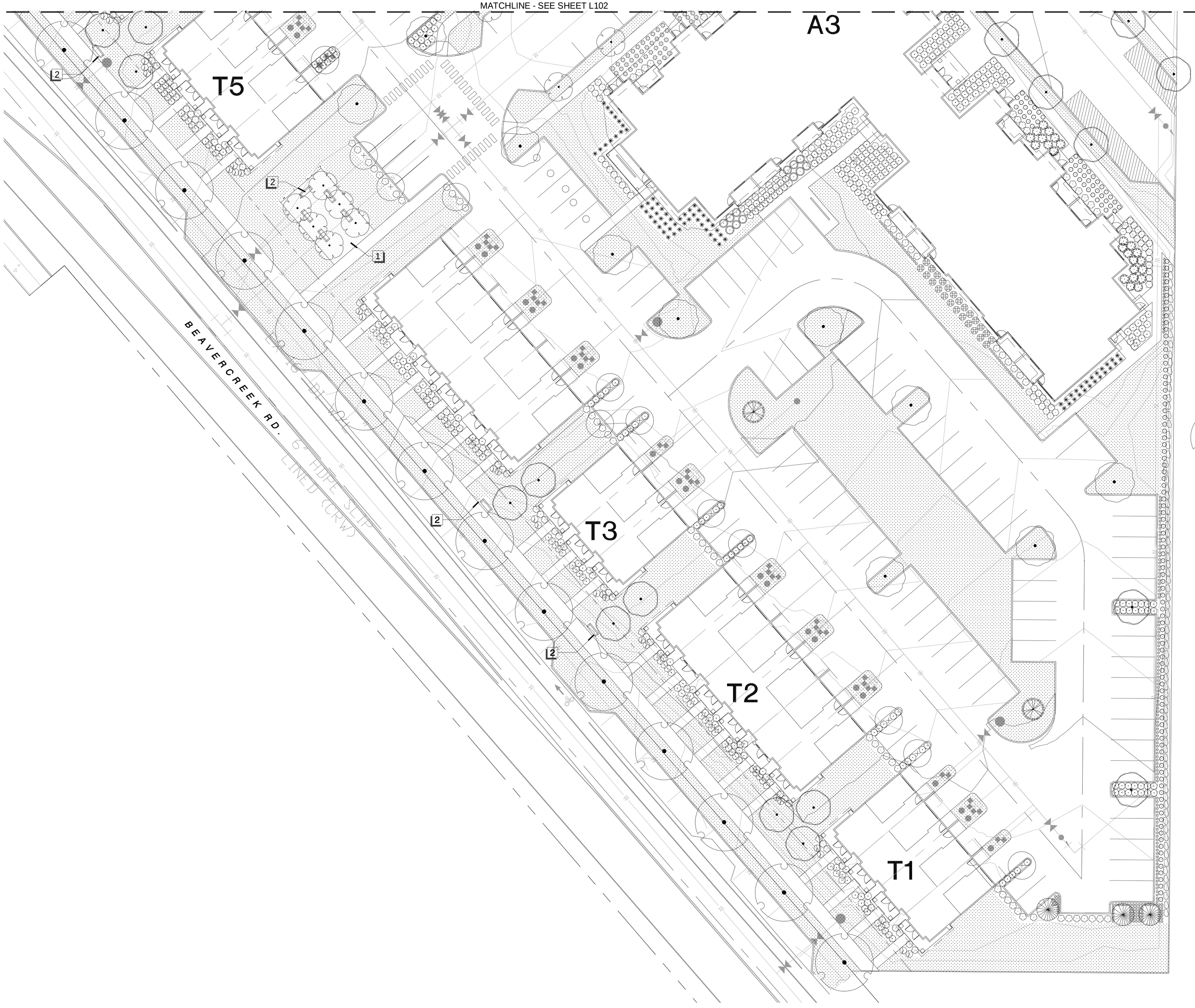
LANDCAPE PLAN

sheet number

L102

1.14.2014

MATCHLINE - SEE SHEET L102



PLANT SCHEDULE

TREES	BOTANICAL NAME
	ACER CIRCINATUM `PACIFIC FIRE`
	ACER GRISEUM
	CALOCEDRUS DECURRENS
	CARPINUS BETULUS `FASTIGIATA`
	CRATAEGUS LAEVIGATA `CRIMSON CLOUD`
	FRAXINUS ORNUS
	FRAXINUS OXYCARPA
	PRUNUS SARGENTII `COLUMNARIS`
	PYRUS CALLERYANA `GLEN`S FORM` TM
	QUERCUS ROBUR `FASTIGIATA`
	SEQUOIA SEMPERVIRENS
	ZELKOVA SERRATA `HALKA`

SHRUBS	BOTANICAL NAME
	CALAMAGROSTIS X ACUTIFLORA `KARL FOERSTER`
	CAREX MORROWII `AUREA-VARIEGATA`
	CHOISYA DUMOSA
	CORNUS SERICEA `KELSEYI`
	COTONEASTER DAMMERI `LOWFAST`
	DAPHNE TRANSATLANTICA SUMMER ICE
	EUONYMUS JAPONICUS `MICROPHYLLA`
	HELICTOTRICHON SEMPERVIRENS
	HYDRANGEA QUERCIFOLIA
	MAHONIA AQUIFOLIUM `COMPACTA`
	NANDINA DOMESTICA `GULF STREAM` TM
	PENNISETUM ALOPECUROIDES `HAMELN`
	POTENTILLA FRUTICOSA `ABBOTSWOOD`
	PRUNUS LAUROCERASUS `OTTO LUYKEN`
	SARCOCOCCA HOOKERANA HUMILIS
	SARCOCOCCA RUSCIFOLIA
	THUJA OCCIDENTALIS `EMERALD`
	VIBURNUM DAVIDII
	VIBURNUM TINUS `SPRING BOUQUET` COMPACTUM

SYMBOL	DESCRIPTION
1	0-1/4" COMPACTED GRAVEL
2	BENCH

Note: An automatic irrigation syste will be provided

0 20 40 60 feet

SCALE: 1" = 20'

NORTH

PREPARED BY

SDLA
SHAPIRO DIDWAY
LANDSCAPE ARCHITECTS
1204 SE WATER AVE. • PORTLAND, OR 97214 • 503.232.0520

PROFESSIONAL LICENSE

REGISTERED
382
Stephen L. Shapiro
STEVEN L. SHAPIRO
OREGON
LANDSCAPE ARCHITECT

PROJECT

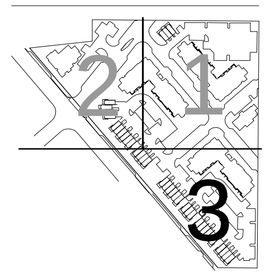
OREGON CITY LIVE/WORK

A LIVE/WORK APARTMENT AND TOWNHOME DEVELOPMENT

19896 BEAVERCREEK RD. OREGON CITY, OR

DRAWING LOG

KEY MAP



DRAWING PHASE

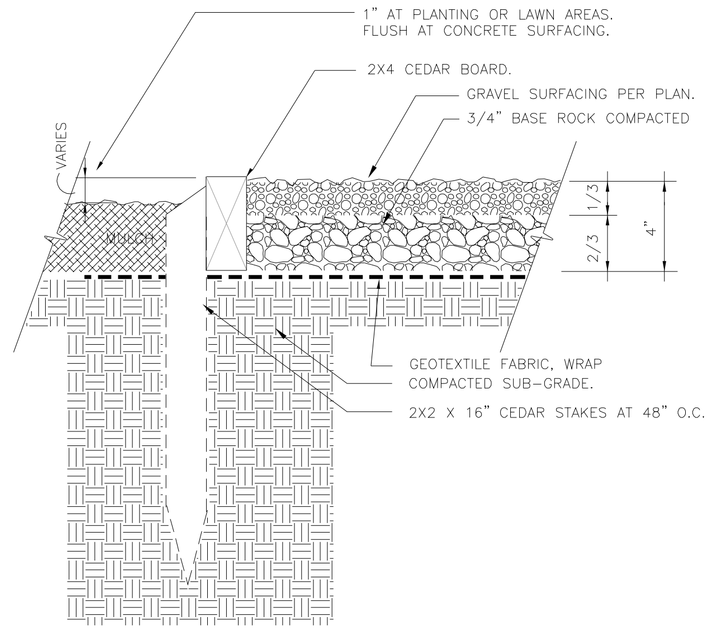
sheet title

LANDCAPE PLAN

sheet number

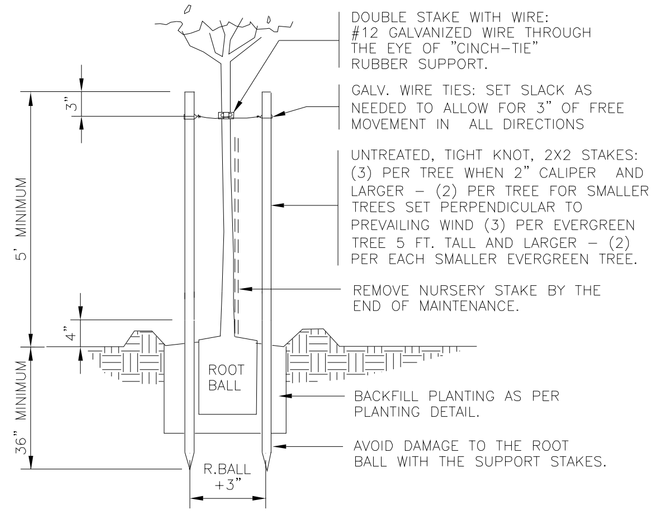
L103

1.14.2014

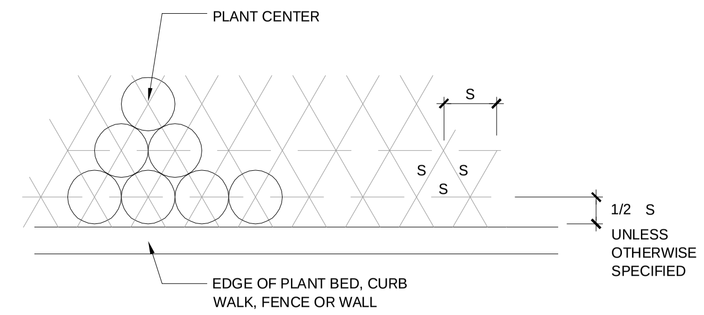


5 WOOD EDGE AT GRAVEL SURFACING

3" = 1'-0" 32 1543-01



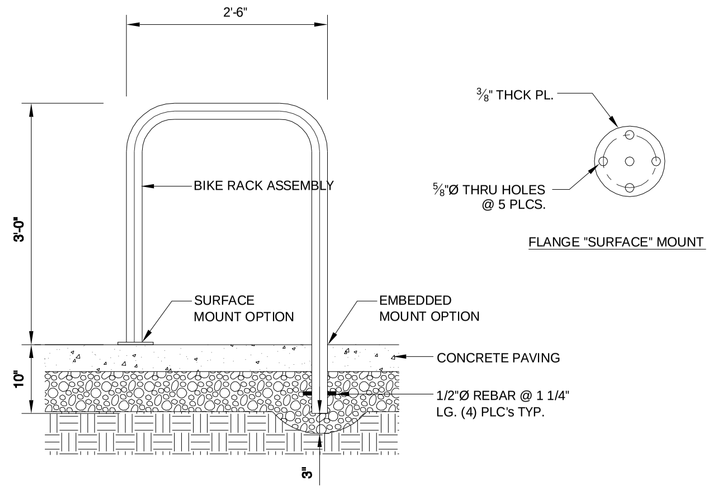
STAKING DETAIL



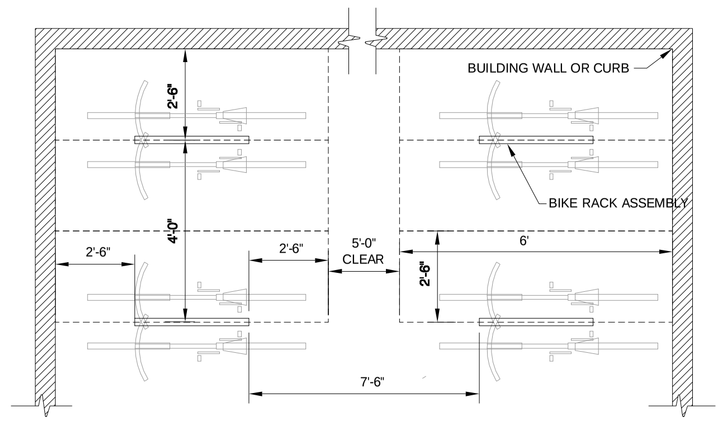
S = SPACING ON CENTER (O.C.) AS SHOWN ON PLANS

1 GROUNDCOVER SPACING

1/2" = 1'-0" 32 9333.83-01



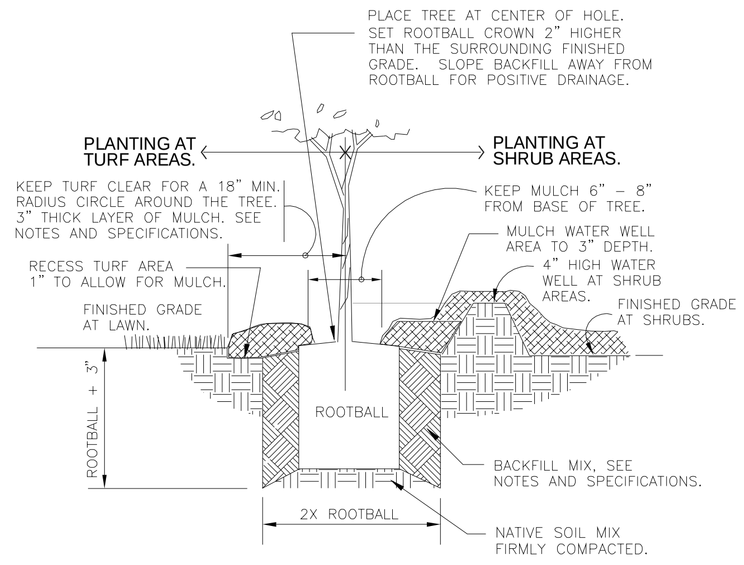
NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.



PLACEMENT AND SPACING GUIDE
NOT TO SCALE

6 BIKE RACK

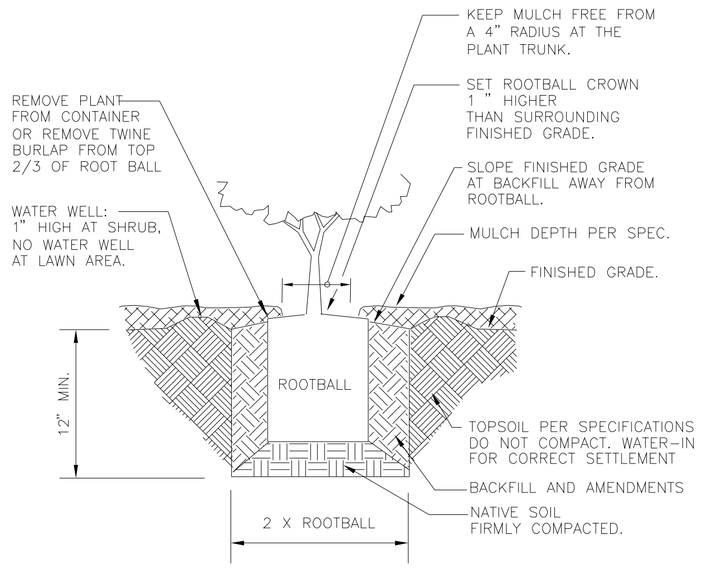
3/4" = 1'-0" 12 9313-04



PLANT PIT DETAIL

3 TREE PLANTING DOUBLE STAKE

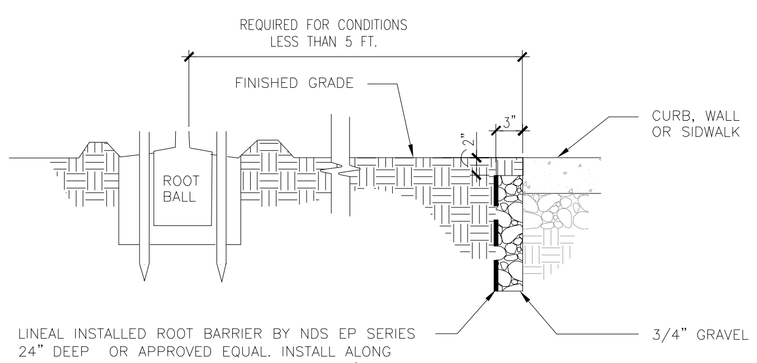
1" = 1'-0" 32 9343.19-03



NOTE: CHECK ROOTBALL FOR PRESENCE OF ROOT FLARE AT BASE OF TRUNK. REMOVE EXCESS SOIL OVER ROOT FLARE AND ADJUST DEPTH OF PLANTING HOLE TO ACCOMODATE REDUCED ROOTBALL DEPTH IF NEEDED. ROOT FLARE MUST BE VISIBLE ABOVE MULCH/SOIL/ROOTBALL.

2 SHRUB PLANTING

1" = 1'-0" 32 9333.13-01



LINEAL INSTALLED ROOT BARRIER BY NDS EP SERIES 24" DEEP OR APPROVED EQUAL. INSTALL ALONG SIDEWALK AND CURB FOR TREES PLANTED 5' OR CLOSER TO HARDSCAPE (MEASURED FROM BASE OF TRUNK). REFER TO DRAWINGS TO DETERMINE LENGTH OF MATERIAL REQUIRED. IF LENGTHS ARE NOT SPECIFIED REFER TO MANUFACTURER'S RECOMMENDATIONS

4 TREE ROOT BARRIER - LINEAR

1" = 1'-0" 32 9416-01

PREPARED BY

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LANDSCAPE ARCHITECTS
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STEVEN L. SHAPIRO
OREGON
LANDSCAPE ARCHITECT

PROJECT

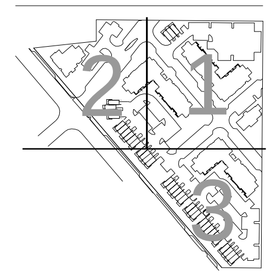
OREGON CITY
LIVE/WORK

A LIVE/WORK
APARTMENT AND
TOWNHOME
DEVELOPMENT

19896 BEAVERCREEK
RD. OREGON CITY, OR

DRAWING LOG

KEY MAP



DRAWING PHASE

sheet title

LANDCAPE
DETAILS

sheet number

L201

1.14.2014

HORIZ. 0 20 40 80
Scale In Feet

LEGEND

- 5 FOOT CANDLES
- 2.5 FOOT CANDLES
- 1 FOOT CANDLES
- 0.5 FOOT CANDLES
- 0.2 FOOT CANDLES
- 0.1 FOOT CANDLES

SYM	REVISION	DATE

PACE
An Engineering Advocacy Company
5000 Meadows Road
Lake Oswego, Oregon 97035
p. 503.597.3222 | f. 503.597.7655
Civil | Structural | Planning | Survey
paceengrs.com

PRELIMINARY

SITE LIGHTING

A LIVE/WORK APARTMENT AND TOWNHOME DEVELOPMENT

19896 BEAVERCREEK RD.
OREGON CITY, OR

SCALE:	DATE:
1"=40'	1/08/14
DESIGNED BY:	CHECKED BY:
AAR	DP

JOB NUMBER
13869

DWG NAME:
C5 SITE LIGHTING

SHEET C5 OF 4

FILE NAME: P:\P13\13869 - EVERGREEN HOUSING - BEAVERCREEK ROAD\CAD\SHEETS\C5 SITE LIGHTING.DWG
SAVE TIME: 1/21/2014 5:40:32 PM
PLOT TIME: 1/21/2014 5:42 PM
USER NAME: ANDREW REITER
XREF FILES: PACE34X22.



CSX2 LED
LED Area Luminaire

Catalog Number

Notes

Type

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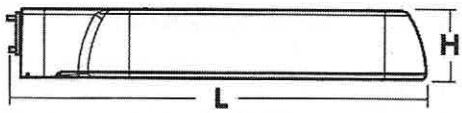
Introduction

The Contour® Series luminaires offer traditional square dayforms with softened edges for a versatile look that complements many applications.

The CSX2 combines the latest in LED technology with the familiar aesthetic of the Contour® Series for stylish, high-performance illumination that lasts. It is ideal for replacing traditional metal halide in area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Specifications

EPA:	1.2 ft² (0.11 m²)
Length:	35-3/8" (89.7 cm)
Width:	18-1/2" (46.9cm)
Height:	5-7/8" (14.9 cm)
Weight (max):	59 lbs (26.8 kg)



Ordering Information

EXAMPLE: CSX2 LED 120C 1000 40K T5M MVOLT SPA DDBXD

CSX2 LED 120C

Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting	Options	Finish (required)
CSX2 LED	120C 120 LEDs	700 700 mA 1000 1000 mA (1 A)	40K 4000K 50K 5000K	T2M Type II T3M Type III T4M Type IV T5M Type V TFTM Forward throw	MVOLT [1] 120 [1] 208 [1] 240 [1] 277 [1] 347 480	**Shipped included** SPA Square pole mounting RPA Round pole mounting **Shipped Separately** [2] SPUMBA Square pole universal mounting adaptor RPUMBA Round pole universal mounting adaptor	**Shipped installed** PER NEMA twist-lock receptacle only (no controls) DCR Dimmable and controllable via ROAM® (no controls) [3] DMG 0-10V dimming driver (no controls) [4] HS House-side shield [2] SF Single fuse (120, 277, 347V) [5] DF Double fuse (208, 240, 480V) [5] DS Dual switching [6,7] WTB Utility terminal block [8] UT Utility terminal block and closing screws [8] BL30 Bi-level switched dimming, 30% [7,9] BL50 Bi-level switched dimming, 50% [7,9] **Shipped separately** [2] VG Vandal guard BS Bird-deterrant spikes	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Accessories

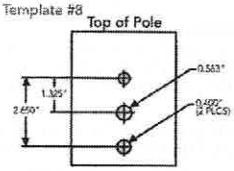
Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [10]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [10]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [10]
SC U	Shorting cap [10]
SPUMBA DDBXD U	Square pole universal mounting bracket adaptor (specify finish)
RPUMBA DDBXD U*	Round pole universal mounting bracket adaptor (specify finish)
CSX2HS U	House-side shields (includes 4 shields)
CSX2VG U	Vandal guard accessory
CSX2BS U	Bird-deterrent spikes accessory

For more control options, visit DTL and ROAM.

Drilling

Template #8



CSX2 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles.

DM19AS	Single unit
DM29AS	2 at 90° *
DM28AS	2 at 180°
DM39AS	3 at 90° *
DM49AS	4 at 90° *
DM32AS	3 at 120° **

Example: SSA 20 4C DM19AS DDBXD

** Round pole requires 3.25" O.D. minimum.*

*** For round pole mounting (RPA) only.*

Tenon Mounting Slipfitter**

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	N/A	N/A	N/A	N/A
2-7/8"	AST25-190	AST25-280	N/A	AST25-320	N/A	N/A
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

NOTES

1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options).
2. Also available as a separate accessory; see Accessories information at left.
3. Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net.
4. Not available with 347 or 480V.
5. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
6. Provides 50% dimming capability via two independent drivers, each operating half the luminaire. N/A with PER, DCR, DMG, WTB or UT.
7. Requires an additional switched line.
8. Not available with BL30 or BL50.
9. Dimming driver standard. MVOLT only. Not available with WTB, UT or DCR.
10. Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item. For 1000mA 347V or 480V PER, must order DLL127F 1.5 JU Photocell - SSL twist-lock (120-277V) as the receptacle is wired after the stepdown transformer.

LITHONIA LIGHTING

One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	40K (4000K, 70 CRI)					50K (5000K, 67 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
120C (120 LEDs)	700 mA	120C 700 --K	268W	T2M	26,094	3	0	4	97	28,107	3	0	4	105
				T3M	27,757	3	0	4	104	29,897	3	0	4	112
				T4M	27,658	3	0	4	103	29,792	3	0	5	111
				T5M	28,025	5	0	4	105	30,186	5	0	4	113
				TFTM	28,304	3	0	4	106	30,487	3	0	4	114
	1000 mA	120C 1000 --K	416W	T2M	34,700	4	0	4	83	37,406	4	0	5	90
				T3M	36,910	4	0	5	89	39,789	4	0	5	96
				T4M	36,780	3	0	5	88	39,649	4	0	5	95
				T5M	37,267	5	0	4	90	40,174	5	0	5	97
				TFTM	37,638	3	0	5	90	40,574	3	0	5	98

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	1.00
40°C	104°F	0.99

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **CSX2 LED 120C platform in a 25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.94	0.90	0.83

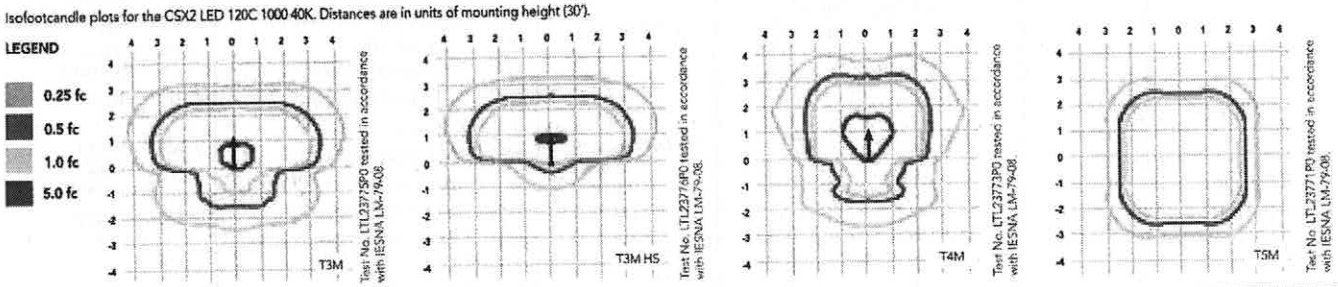
Electrical Load

Number of LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
120C	700	268W	2.643	1.511	1.318	1.159	0.923	0.674
	1000	416W	4.135	2.397	2.111	1.886	1.527	1.210

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's CSX2 homepage.

Isofootcandle plots for the CSX2 LED 120C 1000 40K. Distances are in units of mounting height (30').



FEATURES & SPECIFICATIONS

INTENDED USE
The Contour Series LED area luminaire is ideal for streets, walkways, parking lots, and surrounding areas that call for high-performance LED lighting in a transitional dayform.

CONSTRUCTION
Single-piece die cast housing has a unique flow-through design that allows for optimized thermal management through convective cooling. A metallic screen covers the top of the housing, preventing debris build-up while allowing natural cleaning of the heat sinks. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver(s) and electronics are thermally isolated from the light engines, ensuring long life. Housing is completely sealed against moisture and environmental contaminants.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling.

OPTICS
Precision-molded acrylic lenses provide optimal luminaire spacing and improved uniformity. Lenses are indexed to the circuit board to ensure consistent optical alignment and delivering repeatable photometric performance. Light engines are available in standard 4000K (70 CRI) or optional 5000K (67 CRI) configurations. The CSX2 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engines consist of 120 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (100,000 hrs at 40°C, L70). Class 1 electronic driver designed to have a power factor >90%, THD <20%, with an expected life of 100,000 hours with <1% failure rate. Easily-serviceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION
Integral arm provides easy installation to a pole and assists in alignment and leveling. Secure connection withstands up to 2.0 G vibration load rating per ANSI C136.31. The CSX2 utilizes the AERIS™ series pole drilling pattern for SPA and RPA options.

LISTINGS
CSA Certified to U.S. and Canadian standards. Light engines are IP66 rated. Luminaire is IP65 rated. **U.S. Patent No. D632830. U.S. Patent No. D653,382 S.**

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY
Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.

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Visual - Template Tool

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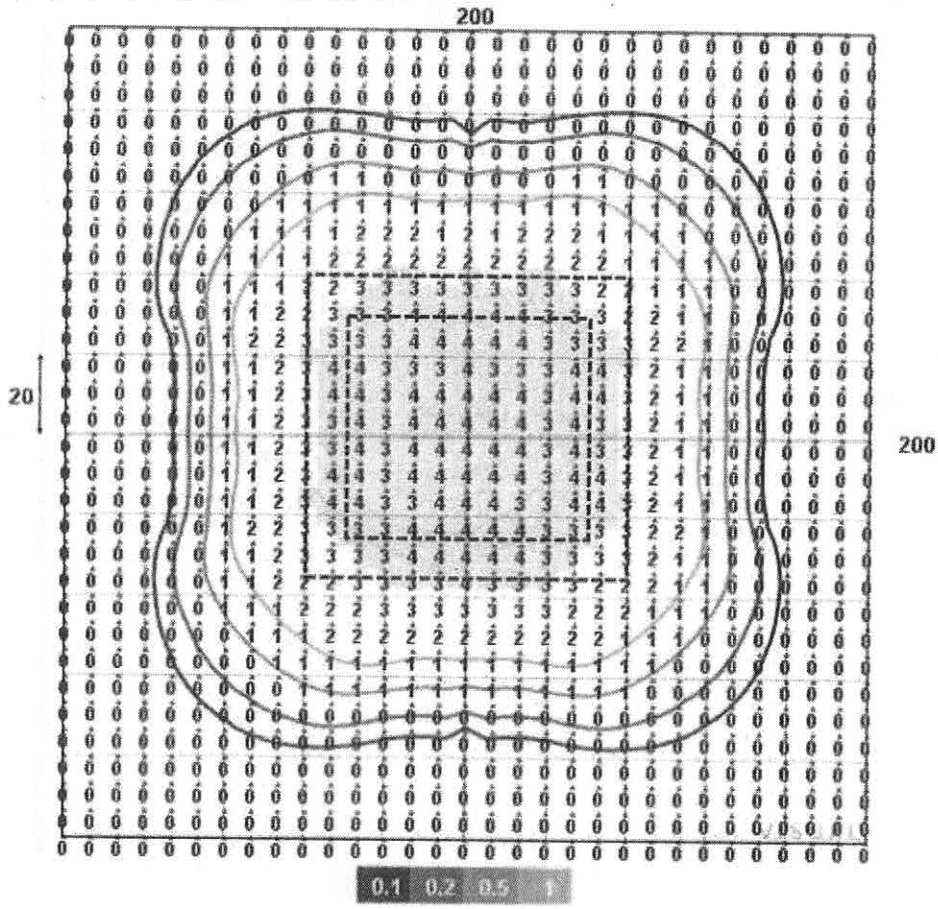
Design Information

Tuesday, January 21, 2014

Project
Description

Name
Company
Phone
Email

[E] - CSX2 LED 120C 1000 40K T5M



[E] - CSX2 LED 120C 1000 40K T5M MVOLT



Manufacturer		Lithonia Lighting Configuration	Single
Lamp Lumens	37267	Orientation	Single
Lamp Quantity	1	Mounting Height	20
Light Loss Factor	1	Arm Length	1
Input Power	416	Tilt	0
Max Illuminance	4	Area > 3fc	5400

These lighting calculation results are for general informational purposes only and are provided without warranty as to accuracy, completeness, reliability or otherwise. Results are based on user provided data and data provided from publicly available sources; actual field conditions may affect calculated output. Visit www.Visual-3D.com .

Visual - Template Tool

AcuityBrands.

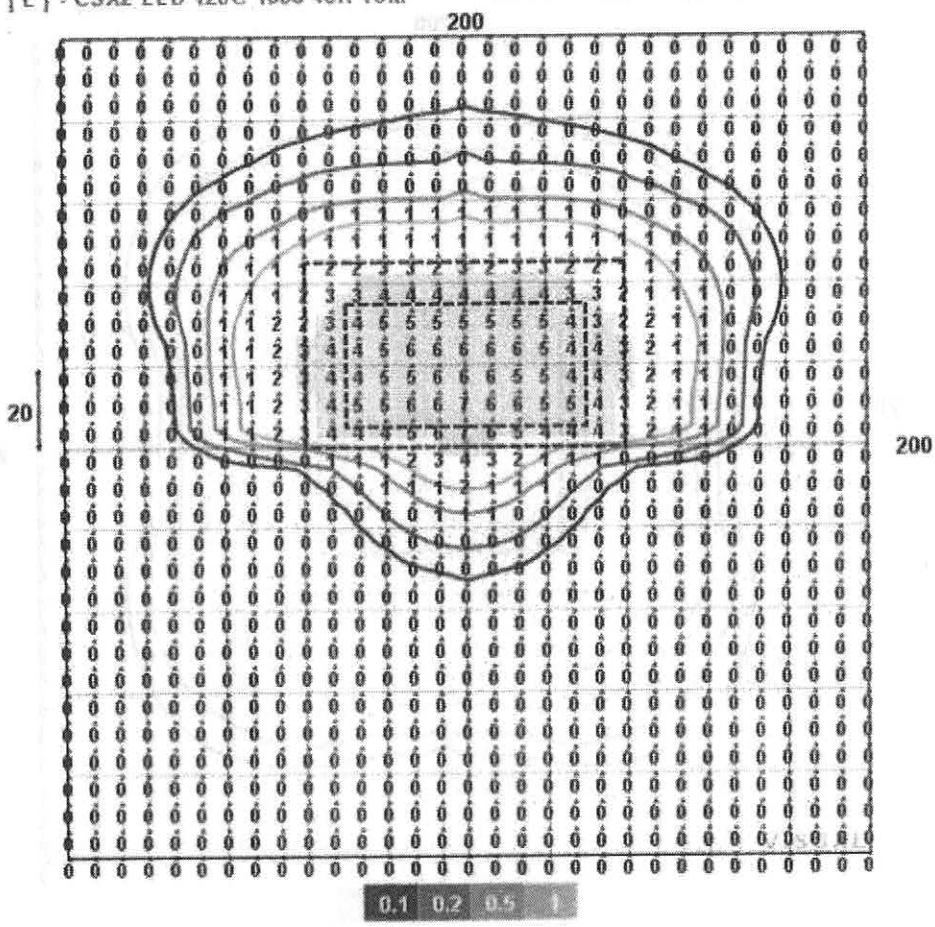
Tuesday, January 21, 2014

Design Information

Project
Description

Name
Company
Phone
Email

[E] - CSX2 LED 120C 1000 40K T5M



[E] - CSX2 LED 120C 1000 40K T5M MVOLT HS



Manufacturer	Lithonia Lighting Configuration		Single
Lamp Lumens	23604	Orientation	Single
Lamp Quantity	1	Mounting Height	20
Light Loss Factor	1	Arm Length	1
Input Power	416	Tilt	0
Max Illuminance	7	Area > 3fc	3100

These lighting calculation results are for general informational purposes only and are provided without warranty as to accuracy, completeness, reliability or otherwise. Results are based on user provided data and data provided from publicly available sources; actual field conditions may affect calculated output. Visit www.Visual-3D.com .



D-Series Size 1
LED Area Luminaire

Catalog Number

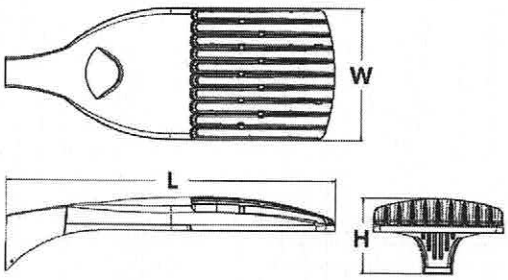
Notes

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Specifications

EPA:	1.2 ft² (0.11 m²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height:	7-1/2" (19.0 cm)
Weight (max):	27 lbs (12.2 kg)



Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment.

The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing 100 – 400W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

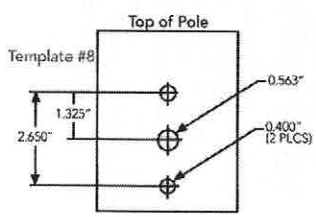
Ordering Information

EXAMPLE: DSX1 LED 60C 1000 40K T3M MVOLT SPA DDBXD

DSX1 LED

Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting	Control options	Other options	Finish (required)
DSX1 LED	**Forward optics** 30C 30 LEDs (one engine) 40C 40 LEDs (two engines) 60C 60 LEDs (two engines) **Rotated optics** 60C 60 LEDs (two engines)	530 530 mA 700 700 mA 1000 1000 mA (1 A)	30K 3000K (80 CRI min.) 40K 4000K (70 CRI min.)[1] 50K 5000K (67 CRI)	T1S Type I short T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short T5S Type V short T5M Type V medium T5W Type V wide	MVOLT[2] 120[2] 208[2] 240[2] 277[2] 347[3] 480[3]	**Shipped included** SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor[4] RPUMBA Round pole universal mounting adaptor[4]	**Shipped installed** PER NEMA twist-lock receptacle only (no controls)[5] DMG 0-10V dimming driver (no controls)[6] DCR Dimmable and controllable via ROAM® (no controls)[7] DS Dual switching[8,9] PIR Motion sensor, 8-15' mounting height[10] PIRH Motion sensor, 15-30' mounting height[10] BL30 Bi-level switched dimming, 30%[6,8,11] BL50 Bi-level switched dimming, 50%[6,8,11]	**Shipped installed** HS House-side shield[12] WTB Utility terminal block[13] SF Single fuse (120, 277, 347V)[14] DF Double fuse (208, 240, 480V)[14] TLS Tool-less entry trigger latch[15] L90 Left rotated optics[16] R90 Right rotated optics[16]	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Drilling



DSX1 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles, per the table below.

DM19AS	Single unit	DM29AS	2 at 90°*
DM28AS	2 at 180°	DM39AS	3 at 90°*
DM49AS	4 at 90°*	DM32AS	3 at 120° **

Example: SSA 20 4C DM19AS DDBXD

Visit Lithonia Lighting's POLES CENTRAL to see our wide selection of poles, accessories and educational tools.

**Round pole top must be 3.25" O.D. minimum.*
***For round pole mounting (RPA) only*

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V)[17]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V)[17]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V)[17]
SC U	Shorting cap[17]
DSX1HS 30C U	House-side shield for 30 LED unit
DSX1HS 40C U	House-side shield for 40 LED unit
DSX1HS 60C U	House-side shield for 60 LED unit
PUMBA DDBXD U*	Square and round pole universal mounting bracket adaptor (specify finish)

For more control options, visit DTL and ROAM online.

Tenon Mounting Slipfitter**

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	N/A	N/A	N/A	N/A
2-7/8"	AST25-190	AST25-280	N/A	AST25-320	N/A	N/A
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-380	AST35-490

NOTES

1. Configured with 4000K (40K) provides the shortest lead times. Consult factory for 3000K (30K) and 5000K (50K) lead times.
2. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options).
3. Not available with single board, 530mA product (30C 530). N/A with 1000 mA. Not available with DMG, DCR, BL30, BL50, WTB, or TLS.
4. Available as a separate combination accessory: PUMBA (finish) U.
5. Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Not available with DS option.
6. Not available with 347 or 480V.
7. Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net. N/A with BL30, BL50, DS, TLS, PIR or PIRH.
8. Requires 40C or 60C. Provides 50/50 luminaire operation via two independent drivers on two separate circuits. N/A with PER, DCR, WTB, PIR, or PIRH.
9. Requires an additional switched circuit.
10. PIR specifies the SensorSwitch SBR-10-ODP control; PIRH specifies the SensorSwitch SBR-6-ODP control; see Motion Sensor Guide for details. Dimming driver standard. Not available with DCR.
11. Dimming driver standard. MVOLT only. Not available with DCR or WTB.
12. Also available as a separate accessory; see Accessories information.
13. WTB not available with BL30, BL50, DS, PIR or PIRH. N/A 347v or 480v.
14. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
15. With TLS option, the luminaire is no longer IP65 rated. Not available with BL30, BL50, DCR, PIR or PIRH. N/A 347v or 480v.
16. Available with 60 LEDs (60C option) only.
17. Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item from Acuity Brands Control.

LITHONIA LIGHTING
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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/-10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	30K (3000K, 80 minimum CRI)					40K (4000K, 70 minimum CRI)					50K (5000K, 67 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
30C (30 LEDs)	700 mA	30C 700 --K	68 W	T1S	5,290	1	0	1	78	6,524	2	0	2	96	7,053	2	0	2	104
				T2S	5,540	1	0	1	81	6,833	2	0	2	100	7,387	2	0	2	109
				T2M	5,360	1	0	2	79	6,611	2	0	2	97	7,147	2	0	2	105
				T3S	5,479	1	0	1	81	6,757	1	0	2	99	7,305	2	0	2	107
				T3M	5,452	1	0	2	80	6,724	2	0	2	99	7,269	2	0	2	107
				T4M	5,461	1	0	2	80	6,736	2	0	2	99	7,282	2	0	2	107
				TFTM	5,378	1	0	2	79	6,633	1	0	2	98	7,171	1	0	2	105
				T5VS	5,708	2	0	0	84	7,040	3	0	0	104	7,611	3	0	1	112
				T5S	5,639	2	0	0	83	6,955	2	0	0	102	7,519	3	0	0	111
				T5M	5,710	3	0	1	84	7,042	3	0	1	104	7,613	3	0	2	112
				T5W	5,551	3	0	1	82	6,847	3	0	2	101	7,401	3	0	2	109
	1000 mA	30C 1000 --K	105 W	T1S	7,229	2	0	2	69	9,168	2	0	2	87	9,874	2	0	2	94
				T2S	7,572	2	0	2	72	9,603	2	0	2	91	10,342	2	0	2	98
				T2M	7,325	2	0	2	70	9,291	2	0	2	88	10,005	2	0	3	95
				T3S	7,488	2	0	2	71	9,496	2	0	2	90	10,227	2	0	2	97
				T3M	7,451	2	0	2	71	9,450	2	0	2	90	10,177	2	0	2	97
				T4M	7,464	2	0	2	71	9,467	2	0	2	90	10,195	2	0	2	97
				TFTM	7,351	1	0	2	70	9,323	2	0	2	89	10,040	2	0	3	96
				T5VS	7,801	3	0	1	74	9,894	3	0	1	94	10,655	3	0	1	101
				T5S	7,803	3	0	2	74	9,774	3	0	1	93	10,526	3	0	1	100
				T5M	7,707	3	0	0	73	9,897	3	0	2	94	10,658	4	0	2	102
				T5W	7,586	3	0	2	72	9,621	4	0	2	92	10,363	4	0	2	99
40C (40 LEDs)	700 mA	40C 700 --K	89 W	T1S	6,876	2	0	2	77	8,639	2	0	2	97	9,345	2	0	2	105
				T2S	7,202	2	0	2	81	9,049	2	0	2	102	9,788	2	0	2	110
				T2M	6,968	2	0	2	78	8,755	2	0	2	98	9,469	2	0	3	106
				T3S	7,122	2	0	2	80	8,948	2	0	2	101	9,679	2	0	2	109
				T3M	7,088	2	0	2	80	8,905	2	0	2	100	9,632	2	0	2	108
				T4M	7,100	2	0	2	80	8,920	2	0	2	100	9,649	2	0	2	108
				TFTM	6,992	1	0	2	79	8,785	2	0	2	99	9,502	2	0	2	107
				T5VS	7,421	3	0	0	83	9,323	3	0	1	105	10,085	3	0	1	113
				T5S	7,331	2	0	0	82	9,210	3	0	1	103	9,962	3	0	1	112
				T5M	7,423	3	0	2	83	9,326	3	0	2	105	10,087	4	0	2	113
				T5W	7,216	3	0	2	81	9,066	4	0	2	102	9,807	4	0	2	110
	1000 mA	40C 1000 --K	138 W	T1S	9,521	2	0	2	69	11,970	2	0	2	87	12,871	3	3	0	93
				T2S	9,972	2	0	2	72	12,558	3	0	3	91	13,481	3	0	3	98
				T2M	9,648	2	0	3	70	12,149	3	0	3	88	13,043	3	0	3	95
				T3S	9,862	2	0	2	71	12,418	2	0	2	90	13,331	2	0	2	97
				T3M	9,814	2	0	2	71	12,358	3	0	3	90	13,267	3	0	3	96
				T4M	9,831	2	0	2	71	12,379	2	0	3	90	13,290	2	0	3	96
				TFTM	9,681	2	0	2	70	12,191	2	0	3	88	13,087	2	0	3	95
				T5VS	10,275	3	0	1	74	12,937	3	0	1	94	13,890	4	0	1	101
				T5S	10,150	3	0	1	74	12,782	3	0	1	93	13,721	3	0	1	99
				T5M	10,278	4	0	2	74	12,942	4	0	2	94	13,894	4	0	2	101
				T5W	9,991	4	0	2	72	12,582	4	0	2	91	13,507	4	0	2	98
60C (60 LEDs)	700 mA	60C 700 --K	131 W	T1S	10,226	2	0	2	78	12,871	3	0	3	98	13,929	3	0	3	106
				T2S	10,711	2	0	2	82	13,481	3	0	3	103	14,589	3	0	3	111
				T2M	10,363	2	0	3	79	13,043	3	0	3	100	14,115	3	0	3	108
				T3S	10,592	2	0	2	81	13,331	2	0	2	102	14,427	3	0	3	110
				T3M	10,541	2	0	2	80	13,267	3	0	3	101	14,357	3	0	3	110
				T4M	10,559	2	0	2	81	13,290	2	0	3	101	14,382	3	0	3	110
				TFTM	10,398	2	0	3	79	13,087	2	0	3	100	14,163	2	0	3	108
				T5VS	11,036	3	0	1	84	13,890	4	0	4	106	15,032	4	0	1	115
				T5S	10,902	3	0	1	83	13,721	3	0	1	105	14,849	4	0	1	113
				T5M	11,039	4	0	2	84	13,894	4	0	2	106	15,036	4	0	2	115
				T5W	10,732	4	0	2	82	13,507	4	0	2	103	14,617	4	0	2	112
	1000 mA	60C 1000 --K	209 W	T1S	14,017	3	0	3	67	17,632	3	0	3	84	19,007	3	0	3	91
				T2S	14,681	3	0	3	70	18,467	3	0	3	88	19,908	3	0	3	95
				T2M	14,204	3	0	3	68	17,867	3	0	3	85	19,260	3	0	3	92
				T3S	14,518	3	0	3	69	18,262	3	0	3	87	19,687	3	0	3	94
				T3M	14,448	3	0	3	69	18,173	3	0	4	87	19,591	3	0	4	94
				T4M	14,473	3	0	3	69	18,205	3	0	3	87	19,625	3	0	4	94
				TFTM	14,253	2	0	3	68	17,928	3	0	4	86	19,326	3	0	4	92
				T5VS	15,127	4	0	1	72	19,028	4	0	1	91	20,512	4	0	1	98
				T5S	14,943	4	0	1	71	18,797	4	0	1	90	20,263	4	0	1	97
				T5M	15,131	4	0	2	72	19,033	4	0	2	91	20,517	5	0	3	98
				T5W	14,710	4	0	2	70	18,503	5	0	3	89	19,946	5	0	3	95

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Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	**77°F**	**1.00**
30°C	86°F	1.00
40°C	104°F	0.99

Electrical Load

Number of LEDs	Drive Current (mA)	System Watts	Current (A) 120	208	240	277	347	480
30	530	52	0.52	0.30	0.26	0.23	—	—
	700	68	0.68	0.39	0.34	0.30	0.24	0.17
	1000	105	1.03	0.59	0.51	0.45	—	—
40	530	68	0.67	0.39	0.34	0.29	0.23	0.17
	700	89	0.89	0.51	0.44	0.38	0.31	0.22
	1000	138	1.35	0.78	0.67	0.58	—	—
60	530	99	0.97	0.56	0.48	0.42	0.34	0.24
	700	131	1.29	0.74	0.65	0.56	0.45	0.32
	1000	209	1.98	1.14	0.99	0.86	—	—

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

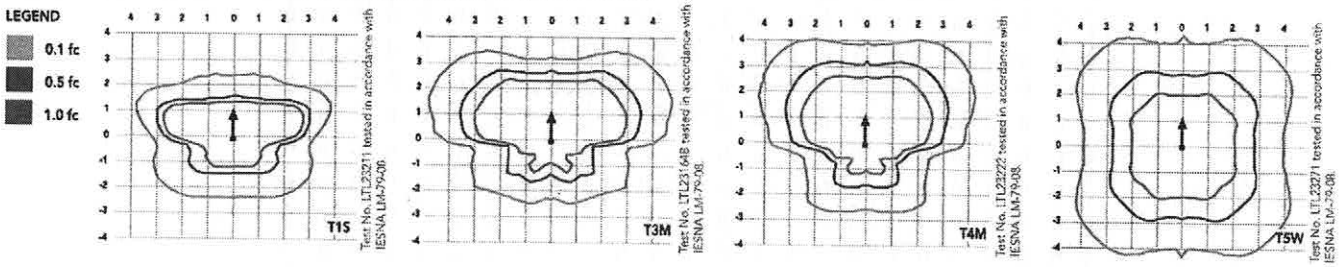
To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	DSX1 LED 60C 1000			
	1.0	0.95	0.93	0.88
	DSX1 LED 60C 700			
	1.0	0.99	0.98	0.96

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Area Size 1 homepage.

Isofootcandle plots for the DSX1 LED 60C 1000 40K. Distances are in units of mounting height (20').



FEATURES & SPECIFICATIONS

INTENDED USE
The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION
Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver is mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (1.2 ft²) for optimized pole wind loading.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS
Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 4000K (70 minimum CRI) or optional 3000K (80 minimum CRI) or 5000K (67 CRI) configurations. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine configurations consist of 30, 40 or 60 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L96/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV or 6kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION
Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 1 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 1 utilizes the AERIS™ series pole drilling pattern. Optional terminal block, tool-less entry, and NEMA photocontrol receptacle are also available.

LISTINGS
CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY
Five-year limited warranty. Full warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Specifications subject to change without notice.

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Visual - Template Tool

AcuityBrands.

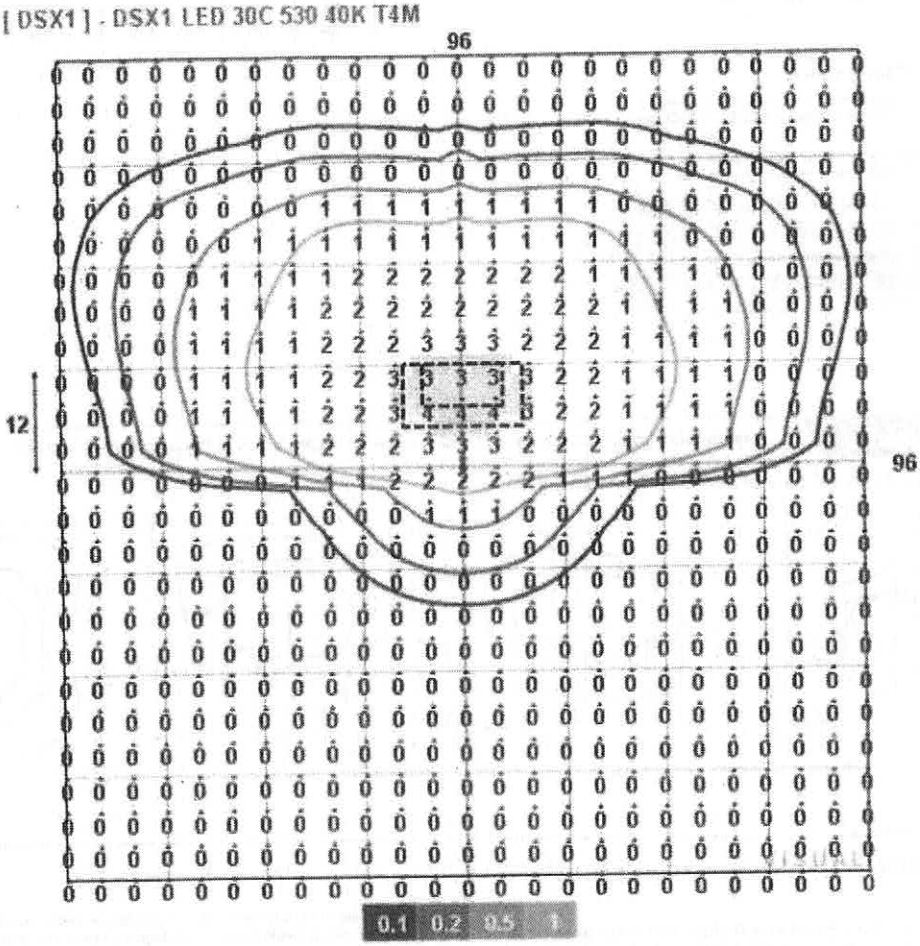
Tuesday, January 21, 2014

Design Information

Project
Description

Name
Company
Phone
Email

[DSX1] - DSX1 LED 30C 530 40K T4M



[DSX1] - DSX1 LED 30C 530 40K T4M MVOLT HS



Manufacturer		Lithonia Lighting Configuration	Single
Lamp Lumens	3872	Orientation	Single
Lamp Quantity	1	Mounting Height	12
Light Loss Factor	1	Arm Length	1
Input Power	52	Tilt	0
Max Illuminance	4	Area > 3fc	127

These lighting calculation results are for general informational purposes only and are provided without warranty as to accuracy, completeness, reliability or otherwise. Results are based on user provided data and data provided from publicly available sources; actual field conditions may affect calculated output. Visit www.Visual-3D.com .



D-Series Size 2
LED Wall Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements

d"series

Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 76% in energy savings over comparable 400W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

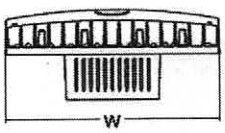
Specifications

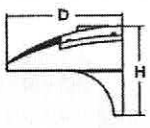
Luminaire

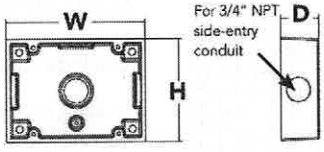
Width:	18-1/2" (47.0 cm)	**Weight:**	21 lbs (9.5 kg)
Depth:	10" (25.4 cm)		
Height:	7-5/8" (19.4 cm)		

Back Box (BBW)

Width:	5-1/2" (14.0 cm)	**BBW Weight:**	1 lbs (0.5 kg)
Depth:	1-1/2" (3.8 cm)		
Height:	4" (10.2 cm)		







Ordering Information

EXAMPLE: DSXW2 LED 30C 700 40K T3M MVOLT DDBTXD

DSXW2 LED

Series	LEDs	Drive Current	Color temperature	Distribution	Voltage	Mounting	Control Options	Other Options	Finish *(required)*
DSXW2 LED	20C 20 LEDs (two engines) 30C 30 LEDs (three engines)	350 350 mA 530 530 mA 700 700 mA 1000 1000 mA (1 A)	30K 3000K 40K 4000K 50K 5000K	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium	MVOLT[1] 120[1] 208[1] 240[1] 277[1] 347[2] 480[2]	**Shipped included** (blank) Surface mounting bracket **Shipped separately[3]** BBW Surface-mounted back box (for conduit entry)	**Shipped installed** PE Photoelectric cell, button type[4] PER NEMA twist-lock receptacle only (no controls) DMG 0-10V dimming driver (no controls) DCR Dimmable and controllable via ROAM® (no controls)[5] PIRH 180° motion/ambient light sensor, 15-30' mtg ht[6]	**Shipped installed** SF Single fuse (120, 277, 347V)[7] DF Double fuse (208, 240, 480V)[7] HS House-side shield[3] SPD Separate surge protection[9] **Shipped separately** BSW Bird-deterrent spikes[3] WG Wire guard[3] VG Vandal guard[3]	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

NOTES

1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
2. Available with 30 LED/700mA options only (DSXW2 LED 30C 700).
3. Also available as a separate accessory; see Accessories information.
4. Photocontrol (PE) requires 120, 208, 240 or 277 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
5. Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net.
6. Specifies the Sensor Switch SBR-6-ODP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard.
7. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
8. Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.
9. See the electrical section on page 2 for more details.

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V)[1]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V)[1]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V)[1]
SC U	Shorting cap[1]
DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXW2WG U	Wire guard accessory
DSXW2VG U	Vandal guard accessory
DSXW2BBW DDBXD U	Back box accessory (specify finish)

LITHONIA LIGHTING

One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	40K (4000K, 70 CRI)					50K (5000K, 65 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
20C (20 LEDs)	530	20C 530 --K	36 W	T2S	3,533	1	0	1	98	3,860	1	0	1	107
				T2M	3,437	1	0	1	95	3,755	1	0	1	104
				T3S	3,489	1	0	1	97	3,811	1	0	1	106
				T3M	3,545	1	0	2	98	3,873	1	0	2	108
				T4M	3,498	1	0	1	97	3,822	1	0	1	106
				TFTM	3,495	1	0	1	97	3,819	1	0	1	106
	700	20C 700 --K	47 W	T2S	4,371	1	0	1	93	4,776	1	0	1	102
				T2M	4,252	1	0	1	90	4,647	1	0	2	99
				T3S	4,316	1	0	1	92	4,716	1	0	1	100
				T3M	4,386	1	0	2	93	4,793	1	0	2	102
				T4M	4,328	1	0	1	92	4,729	1	0	2	101
				TFTM	4,324	1	0	1	92	4,725	1	0	2	101
	1000	20C 1000 --K	73 W	T2S	5,914	1	0	1	81	6,462	1	0	1	89
				T2M	5,754	1	0	2	79	6,287	2	0	2	86
				T3S	5,839	1	0	1	80	6,380	1	0	2	87
				T3M	5,935	1	0	2	81	6,484	1	0	2	89
				T4M	5,855	1	0	2	80	6,398	1	0	2	88
				TFTM	5,851	1	0	2	80	6,393	1	0	2	88
30C (30 LEDs)	530	30C 530 --K	54 W	T2S	5,280	1	0	1	98	5,769	1	0	1	107
				T2M	5,137	1	0	2	95	5,613	1	0	2	104
				T3S	5,214	1	0	1	97	5,696	1	0	1	105
				T3M	5,298	1	0	2	98	5,789	1	0	2	107
				T4M	5,228	1	0	2	97	5,712	1	0	2	106
				TFTM	5,223	1	0	2	97	5,707	1	0	2	106
	700	30C 700 --K	71 W	T2S	6,513	1	0	1	92	7,118	2	0	2	100
				T2M	6,337	2	0	2	89	6,925	2	0	2	98
				T3S	6,431	1	0	2	91	7,028	1	0	2	99
				T3M	6,536	1	0	2	92	7,143	2	0	3	101
				T4M	6,449	1	0	2	91	7,047	1	0	2	99
				TFTM	6,444	1	0	2	91	7,042	1	0	2	99
	1000	30C 1000 --K	109 W	T2S	8,697	2	0	2	80	9,501	2	0	2	87
				T2M	8,462	2	0	2	78	9,244	2	0	2	85
				T3S	8,588	1	0	2	79	9,381	2	0	2	86
				T3M	8,728	2	0	3	80	9,534	2	0	3	87
				T4M	8,611	1	0	2	79	9,407	2	0	2	86
				TFTM	8,604	2	0	2	79	9,399	2	0	2	86

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	1.00
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the DSXW2 LED 30C 1000 platform in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.95	0.92	0.87

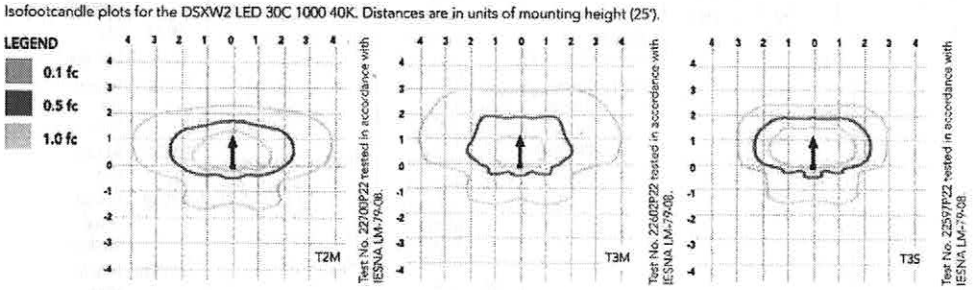
Electrical Load

LEDs	Drive Current (mA)	System Watts	Current (A) 120	208	240	277	347	480
20C	350	25 W	0.23	0.13	0.12	0.10	-	-
	530	36 W	0.33	0.19	0.17	0.14	-	-
	700	47 W	0.44	0.25	0.22	0.19	-	-
	1000	73 W	0.68	0.39	0.34	0.29	-	-
30C	350	36 W	0.33	0.19	0.17	0.14	-	-
	530	54 W	0.50	0.29	0.25	0.22	-	-
	700	71 W	0.66	0.38	0.33	0.28	0.23	0.16
	1000	109 W	1.01	0.58	0.50	0.44	-	-

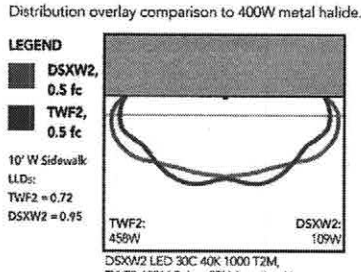
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Wall Size 2 homepage.

Isofootcandle plots for the DSXW2 LED 30C 1000 40K. Distances are in units of mounting height (25').



Distribution overlay comparison to 400W metal halide.



DSXW2 LED 30C 40K 1000 T2M, TWF2 400M Pulse, 25' Mounting Ht

FEATURES & SPECIFICATIONS

INTENDED USE
The energy savings, long life and easy-to-install design of the D-Series Wall Size 2 make it the smart choice for building-mounted doorway and pathway illumination for nearly any facility.

CONSTRUCTION
Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65).

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in textured and non-textured finishes.

OPTICS
Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifically to building mounted applications. Light engines are available in 3000K (80 min. CRI), 4000K (70 min. CRI) or 5000K (65 min. CRI) configurations.

ELECTRICAL
Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L87/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and a minimum 2.5KV surge rating. When ordering the SPD option, a separate surge protection device is installed within the luminaire which meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION
Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS
CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY
Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.

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Visual - Template Tool

AcuityBrands.

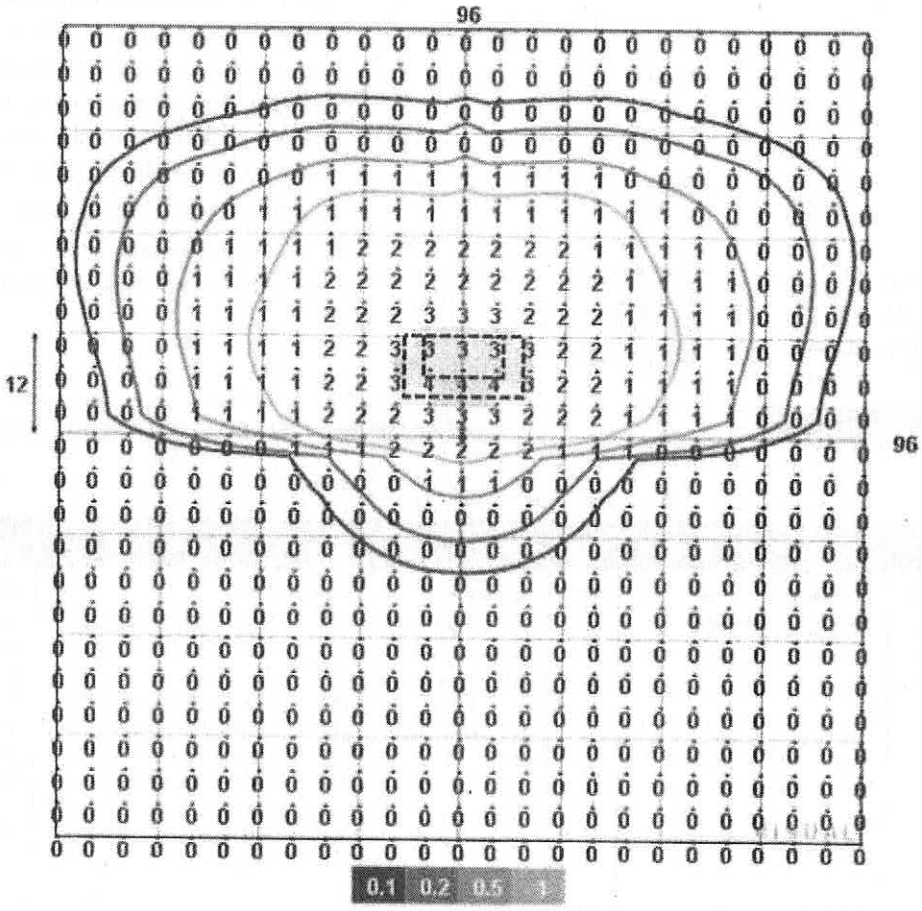
Design Information

Tuesday, January 21, 2014

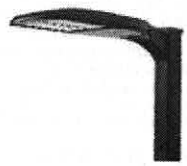
Project
Description

Name
Company
Phone
Email

[DSX1] - DSX1 LED 30C 530 40K T4M



[DSX1] - DSX1 LED 30C 530 40K T4M MVOLT HS



Manufacturer	Lithonia Lighting	Configuration	Single
Lamp Lumens	3872	Orientation	Single
Lamp Quantity	1	Mounting Height	12
Light Loss Factor	1	Arm Length	1
Input Power	52	Tilt	0
Max Illuminance	4	Area > 3fc	127

These lighting calculation results are for general informational purposes only and are provided without warranty as to accuracy, completeness, reliability or otherwise. Results are based on user provided data and data provided from publicly available sources; actual field conditions may affect calculated output. Visit www.Visual-3D.com .

WSQ LED
Architectural Wall Sconce

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements



Inverted available with WLU option only.

Introduction

The classic Architectural Wall Sconce is now available with the latest in LED technology. The result is a long-life, maintenance-free product with typical energy savings of 75% compared to metal halide versions. The integral battery backup option provides emergency egress lighting, without the use of a back-box or remote gear, so installations maintain their aesthetic integrity.

The WSQ LED is ideal for replacing existing 50 – 175W metal halide wall-mounted products. The expected service life is 20+ years of nighttime use.

Specifications

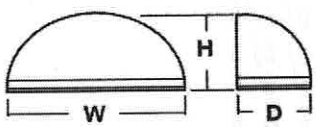
Luminaire

Height: 7-1/4" (18.4 cm)

Width: 16-1/4" (41.3 cm)

Depth: 9-1/8" (23.2 cm)

Weight: 17 lbs (7.7 kg)

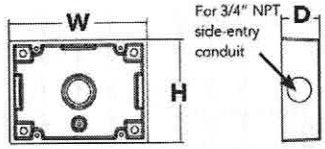


Optional Back Box (BBW)

Height: 4" (10.2 cm)

Width: 5-1/2" (14.0 cm)

Depth: 1-1/2" (3.8 cm)



Ordering Information

EXAMPLE: WSQ LED 2 10A700/40K SR3 MVOLT DDBTXD

WSQ LED							
Series	**Light Engines**	**Performance Package**	**Distribution**	**Voltage**	**Mounting**	**Options**[1]	**Finish** *(required)*
WSQ LED	1 One engine (10 LEDs) 2 Two engines (20 LEDs)	**700 mA options:** 10A700/40K 4000K	SR2 Type II SR3 Type III SR4 Type IV	MVOLT[1] 120[1] 208[1] 240[1] 277[1] 347 480	**Shipped included** (blank) Surface mount **Shipped separately**[2] BBW Surface-mounted back box UT5 Uptilt 5 degrees	**Shipped installed** PE Photoelectric cell, button type[4,5] SF Single fuse (120, 277, 347V)[4] DF Double fuse (208, 240, 480V)[4] DMG 0-10V dimming driver (no controls) ELCW Emergency battery backup[5] WLU Wet location door for up orientation[7] PIR Motion/ambient light sensor[8] **Shipped separately** VG Vandal guard WG Wire guard	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

Emergency Battery Operation

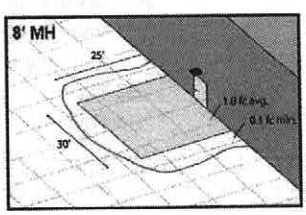
The emergency battery backup (ELCW option) is integral to the luminaire - no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product.

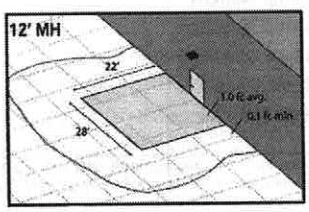
All ELCW configurations include an independent secondary driver with an integral relay to immediately detect AC power loss. Dual light engines are wired in parallel so both engines operate in emergency mode and provide additional component redundancy. These design features meet various interpretations of NFPA 70/NEC 2008 - 700.16

The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time supply power is lost, per International Building Code Section 1006 and NFPA 101 Life Safety Code Section 7.9, provided luminaires are mounted at an appropriate height and illuminate an open space with no major obstructions.

The examples at right show illuminance of 1 fc average and 0.1 fc minimum of the single-engine Type IV product in emergency mode.

WST LED 1 10A700/40K SR4 MVOLT ELCW
10' x 10' Gridlines
8' and 12' Mounting Height





NOTES

1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with photocell (PE option) or fusing (SF, DF options).
2. May also be ordered separately as an accessory. Ex: **WSBBW DDBXD U. Must specify finish.**
3. Must be ordered with fixture; cannot be field installed.
4. Not available with MVOLT option. Button photocell (PE) can be ordered with a dedicated voltage option. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
5. Not available with 480V option. Not available with motion/ambient light sensor (PIR).
6. Integral battery pack is rated for -20° to 60°C operating temperature. ELCW warranty is 3-year period. Not available with 347V or 480V. Not available with WLU.
7. WLU not available with PIR or ELCW.
8. **Specifies the** SensorSwitch SFD-7-ODP control (photocell included); see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard. Not available with WLU, VG or WG.

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%.

Light Engines	Drive Current (mA)	Performance Package	System Watts (MVOLT[1])	Dist. Type	40K (4000K, 70 CRI)				
					Nominal Lumens	B	U	G	LPW
1 (10 LEDs)	700	10A700/--K	24W	SR2	2,005	1	0	1	84
				SR3	2,029	1	0	1	84
				SR4	1,959	1	0	1	82
2 (20 LEDs)	700	10A700/--K	47W	SR2	3,944	1	0	1	84
				SR3	4,028	1	0	1	86
				SR4	3,851	1	0	1	82

1 See electrical load chart for 347/480V system watts.

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.10
10°C	50°F	1.06
20°C	68°F	1.02
25°C	77°F	1.00
30°C	86°F	0.98
40°C	104°F	0.92

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **WSQ LED 2 10A700 platform in a 25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.94	0.88	0.77

Electrical Load

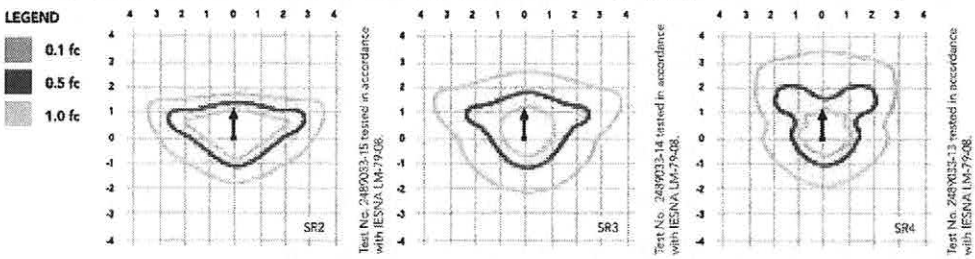
Light Engines	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
1	700	24W	0.24	0.14	0.12	0.1	-	-
		29W[1]	-	-	-	-	0.09	0.07
2	700	47W	0.44	0.27	0.23	0.20	-	-
		53W[1]	-	-	-	-	0.17	0.12

1 Higher wattage is due to electrical losses from step-down transformer.

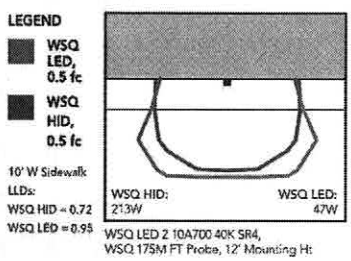
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's WSQ LED homepage.

Isofootcandle plots for the WSQ LED 2 10A700/40K SR2, SR3, and SR4. Distances are in units of mounting height (12').



Distribution overlay comparison to 175W metal halide.



WSQ LED 2 10A700 40K SR4, WSQ 175M PT Probe, 12' Mounting Ht

FEATURES & SPECIFICATIONS

INTENDED USE
The classic architectural shape of the WSQ LED was designed for applications such as hospitals, schools, malls, restaurants, and commercial buildings. The long life LEDs and driver make this luminaire nearly maintenance-free.

CONSTRUCTION
The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP65 rating for the luminaire.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS
Precision-molded acrylic lenses are engineered for superior distribution, uniformity, and spacing in wall-mount applications. Light engines are 4000K (70 CRI). The WSQ LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal core circuit board and integral aluminum heat sinks to maximize heat dissipation and promote long life (100,000 hrs at 25°C, L77). Class 2 electronic driver has a power factor >90%, THD <20%. Easily-serviceable surge protection device meets a minimum Category B (per ANSI/IEEE C62.41.2).

INSTALLATION
A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections. The integral bubble level on the mounting plate provides assistance for level placement on every installation.

LISTINGS
CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated and suitable for wet locations when mounted with the lenses down. WLU option offers wet location listing in "up" orientation. Rated for -30°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY
Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.

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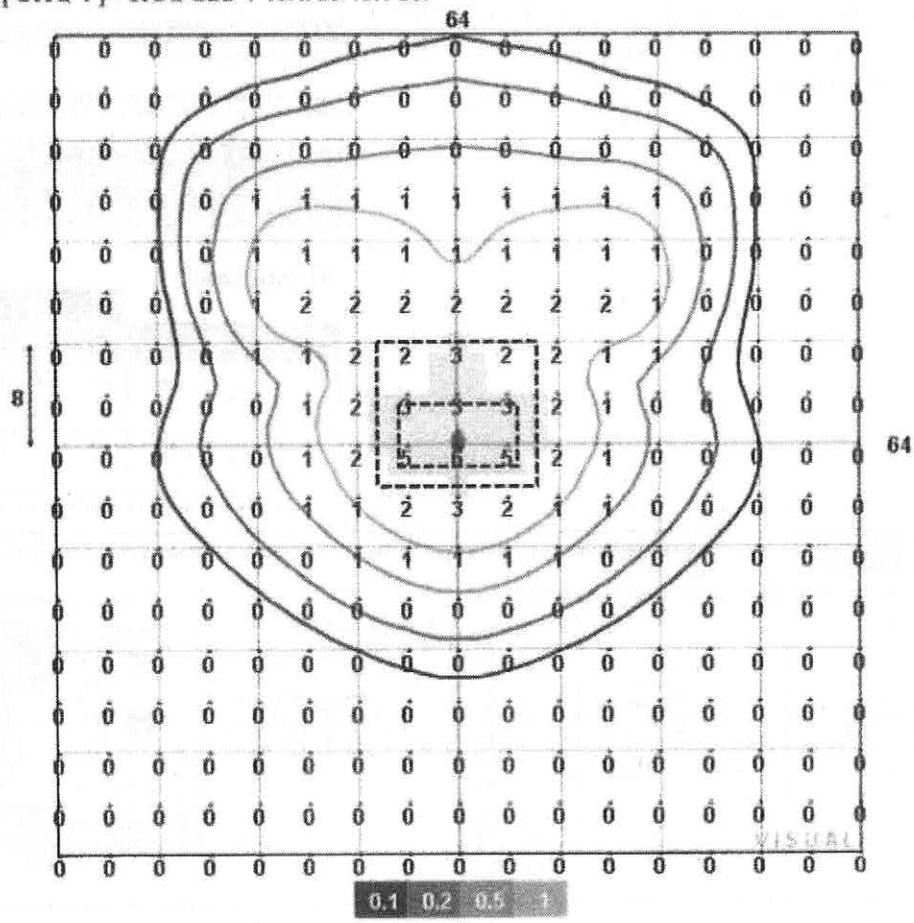
Tuesday, January 21, 2014

Design Information

Project
Description

Name
Company
Phone
Email

[SWQ 1] - WSQ LED 1 10A700/40K SR



[SWQ 1] - WSQ LED 1 10A700/40K SR4 MVOLT



Manufacturer	Lithonia Lighting Configuration		Single
Lamp Lumens	1943 Orientation		Single
Lamp Quantity	1 Mounting Height		8
Light Loss Factor	1 Arm Length		1
Input Power	24.2 Tilt		0
Max Illuminance	7 Area > 3fc		108

These lighting calculation results are for general informational purposes only and are provided without warranty as to accuracy, completeness, reliability or otherwise. Results are based on user provided data and data provided from publicly available sources; actual field conditions may affect calculated output. Visit www.Visual-3D.com .



CSX2 LED
LED Area Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements

Specifications

EPA: 1.2 ft² (0.11 m²)

Length: 35-3/8" (89.7 cm)

Width: 18-1/2" (46.9cm)

Height: 5-7/8" (14.9 cm)

Weight (max): 59 lbs (26.8 kg)



Introduction

The Contour® Series luminaires offer traditional square dayforms with softened edges for a versatile look that complements many applications.

The CSX2 combines the latest in LED technology with the familiar aesthetic of the Contour® Series for stylish, high-performance illumination that lasts. It is ideal for replacing traditional metal halide in area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Ordering Information

EXAMPLE: CSX2 LED 120C 1000 40K T5M MVOLT SPA DDBXD

CSX2 LED **120C**

Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting	Options	Finish (required)
CSX2 LED	120C 120 LEDs	700 700 mA 1000 1000 mA (1 A)	40K 4000K 50K 5000K	T2M Type II T3M Type III T4M Type IV T5M Type V TFTM Forward throw	MVOLT [1] 120 [1] 208 [1] 240 [1] 277 [1] 347 480	**Shipped included** SPA Square pole mounting RPA Round pole mounting **Shipped Separately** [2] SPUMBA Square pole universal mounting adaptor RPUMBA Round pole universal mounting adaptor	**Shipped installed** PER NEMA twist-lock receptacle only (no controls) DCR Dimmable and controllable via ROAM® (no controls) [3] DMG 0-10V dimming driver (no controls) [4] HS House-side shield [2] SF Single fuse (120, 277, 347V) [5] DF Double fuse (208, 240, 480V) [5] DS Dual switching [6,7] WTB Utility terminal block [7] UT Utility terminal block and closing screws [8] BL30 Bi-level switched dimming, 30% [7,9] BL50 Bi-level switched dimming, 50% [7,9] **Shipped separately** [2] VG Vandal guard BS Bird-deterrant spikes	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Accessories

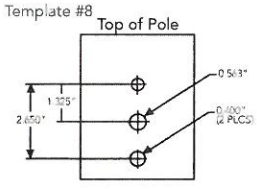
Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [10]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [10]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [10]
SC U	Shorting cap [10]
SPUMBA DDBXD U	Square pole universal mounting bracket adaptor (specify finish)
RPUMBA DDBXD U*	Round pole universal mounting bracket adaptor (specify finish)
CSX2HS U	House-side shields (includes 4 shields)
CSX2VG U	Vandal guard accessory
CSX2BS U	Bird-deterrent spikes accessory

For more control options, visit DTL and ROAM.

Drilling

Template #8



CSX2 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles.

DM19AS Single unit
DM29AS 2 at 90° *
DM28AS 2 at 180°
DM39AS 3 at 90° *
DM49AS 4 at 90° *
DM32AS 3 at 120° **

Example: SSA 20 4C DM19AS DDBXD

** Round pole requires 3.25" O.D. minimum.*
*** For round pole mounting (RPA) only.*

Tenon Mounting Slipfitter**

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	N/A	N/A	N/A	N/A
2-7/8"	AST25-190	AST25-280	N/A	AST25-320	N/A	N/A
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

NOTES

1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options).
2. Also available as a separate accessory; see Accessories information at left.
3. Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net.
4. Not available with 347 or 480V.
5. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
6. Provides 50% dimming capability via two independent drivers, each operating half the luminaire. N/A with PER, DCR, DMG, WTB or UT.
7. Requires an additional switched line.
8. Not available with BL30 or BL50.
9. Dimming driver standard. MVOLT only. Not available with WTB, UT or DCR.
10. Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item. For 1000mA 347V or 480V PER, must order DLL127F 1.5 JU Photocell - SSL twist-lock (120-277V) as the receptacle is wired after the stepdown transformer.

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	40K (4000K, 70 CRI)					50K (5000K, 67 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
120C (120 LEDs)	700 mA	120C 700 --K	268W	T2M	26,094	3	0	4	97	28,107	3	0	4	105
				T3M	27,757	3	0	4	104	29,897	3	0	4	112
				T4M	27,658	3	0	4	103	29,792	3	0	5	111
				T5M	28,025	5	0	4	105	30,186	5	0	4	113
				TFTM	28,304	3	0	4	106	30,487	3	0	4	114
	1000 mA	120C 1000 --K	416W	T2M	34,700	4	0	4	83	37,406	4	0	5	90
				T3M	36,910	4	0	5	89	39,789	4	0	5	96
				T4M	36,780	3	0	5	88	39,649	4	0	5	95
				T5M	37,267	5	0	4	90	40,174	5	0	5	97
				TFTM	37,638	3	0	5	90	40,574	3	0	5	98

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	**77°F**	**1.00**
30°C	86°F	1.00
40°C	104°F	0.99

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **CSX2 LED 120C** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.94	0.90	0.83

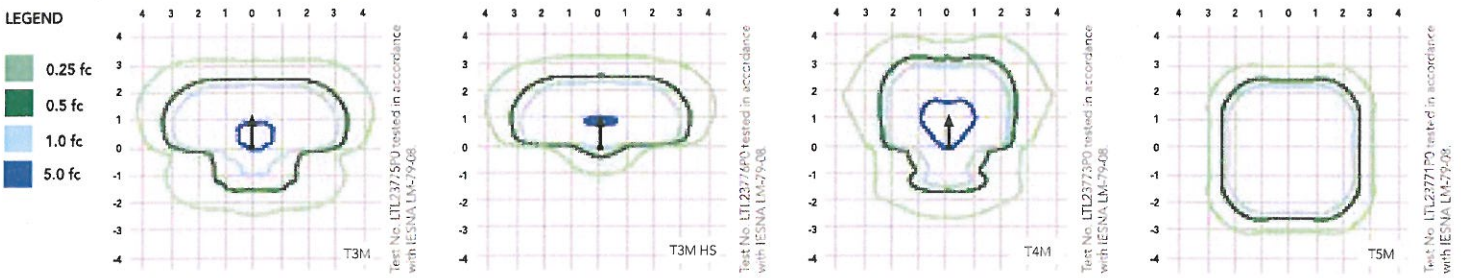
Electrical Load

Number of LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
120C	700	268W	2.643	1.511	1.318	1.159	0.923	0.674
	1000	416W	4.135	2.397	2.111	1.886	1.527	1.210

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's CSX2 homepage.

Isofootcandle plots for the CSX2 LED 120C 1000 40K. Distances are in units of mounting height (30').



FEATURES & SPECIFICATIONS

INTENDED USE

The Contour Series LED area luminaire is ideal for streets, walkways, parking lots, and surrounding areas that call for high-performance LED lighting in a transitional dayform.

CONSTRUCTION

Single-piece die cast housing has a unique flow-through design that allows for optimized thermal management through convective cooling. A metallic screen covers the top of the housing, preventing debris build-up while allowing natural cleaning of the heat sinks. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver(s) and electronics are thermally isolated from the light engines, ensuring long life. Housing is completely sealed against moisture and environmental contaminants.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling.

OPTICS

Precision-molded acrylic lenses provide optimal luminaire spacing and improved uniformity. Lenses are indexed to the circuit board to ensure consistent optical alignment and delivering repeatable photometric performance. Light engines are available in standard 4000K (70 CRI) or optional 5000K (67 CRI) configurations. The CSX2 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engines consist of 120 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (100,000 hrs at 40°C, L70). Class 1 electronic driver designed to have a power factor >90%, THD <20%, with an expected life of 100,000 hours with <1% failure rate. Easily-serviceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION

Integral arm provides easy installation to a pole and assists in alignment and leveling. Secure connection withstands up to 2.0 G vibration load rating per ANSI C136.31. The CSX2 utilizes the AERIS™ series pole drilling pattern for SPA and RPA options.

LISTINGS

CSA Certified to U.S. and Canadian standards. Light engines are IP66 rated. Luminaire is IP65 rated. **U.S. Patent No. D632830. U.S. Patent No. D653,382 S.**

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.

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Visual - Template Tool

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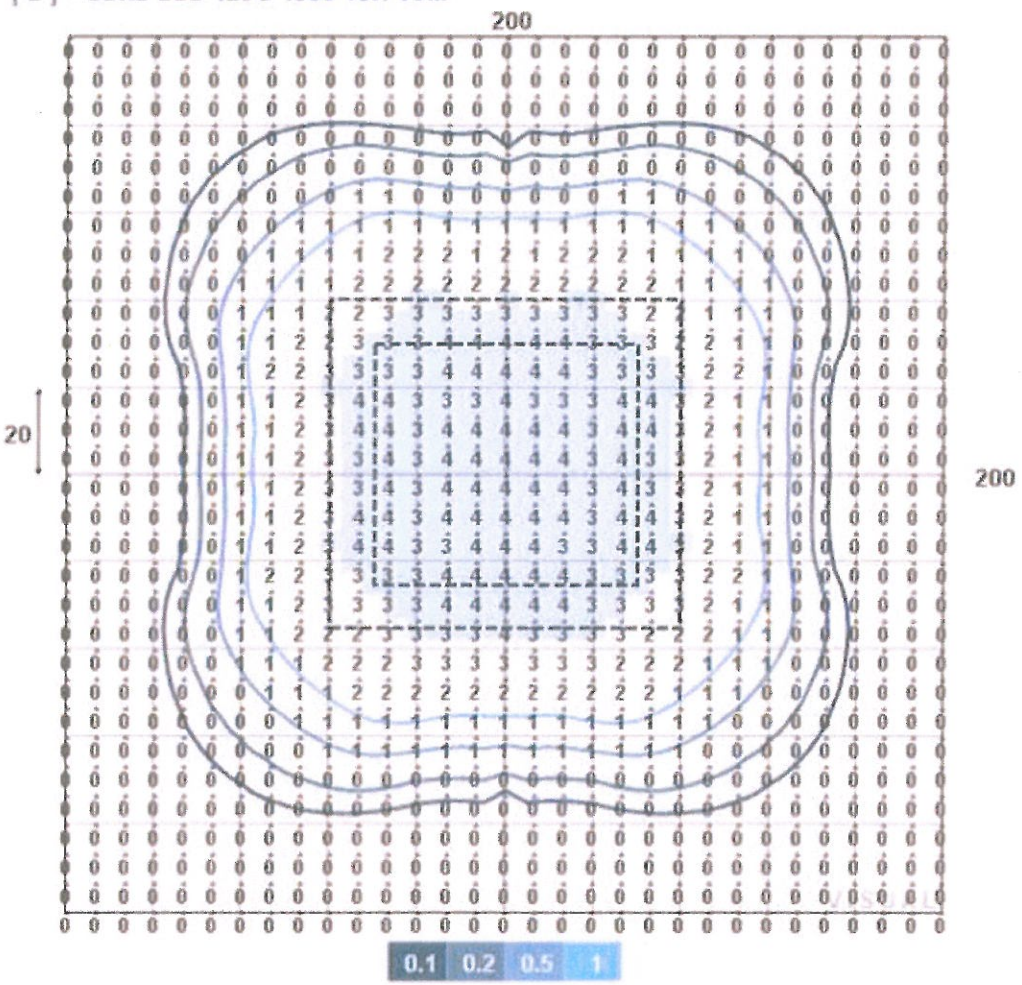
Tuesday, January 21, 2014

Design Information

Project
Description

Name
Company
Phone
Email

[E] - CSX2 LED 120C 1000 40K T5M



[E] - CSX2 LED 120C 1000 40K T5M MVOLT



Manufacturer	Lithonia Lighting Configuration		Single
Lamp Lumens	37267	Orientation	Single
Lamp Quantity	1	Mounting Height	20
Light Loss Factor	1	Arm Length	1
Input Power	416	Tilt	0
Max Illuminance	4	Area > 3fc	5400

These lighting calculation results are for general informational purposes only and are provided without warranty as to accuracy, completeness, reliability or otherwise. Results are based on user provided data and data provided from publicly available sources; actual field conditions may affect calculated output. Visit www.Visual-3D.com .

Visual - Template Tool

AcuityBrands.

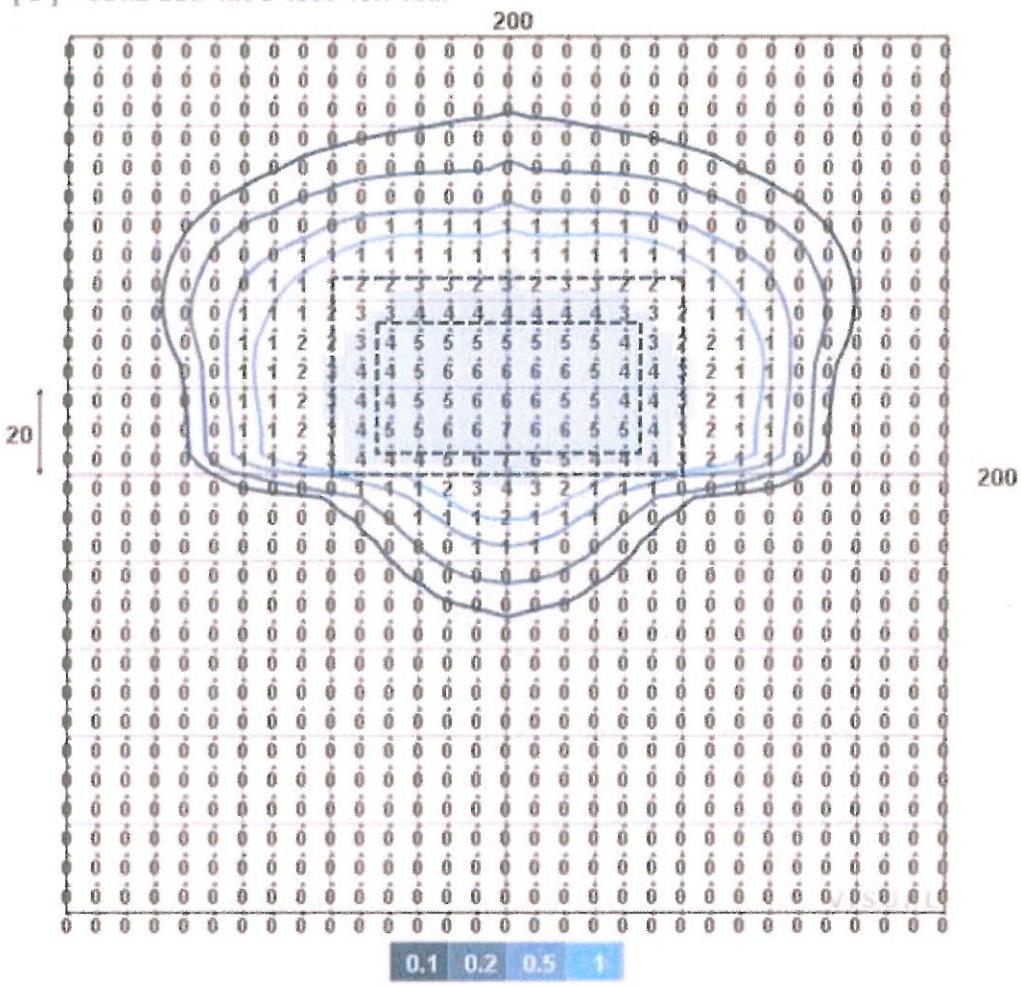
Tuesday, January 21, 2014

Design Information

Project
Description

Name
Company
Phone
Email

[E] - CSX2 LED 120C 1000 40K T5M



[E] - CSX2 LED 120C 1000 40K T5M MVOLT HS



Manufacturer	Lithonia Lighting	Configuration	Single
Lamp Lumens	23604	Orientation	Single
Lamp Quantity	1	Mounting Height	20
Light Loss Factor	1	Arm Length	1
Input Power	416	Tilt	0
Max Illuminance	7	Area > 3fc	3100

These lighting calculation results are for general informational purposes only and are provided without warranty as to accuracy, completeness, reliability or otherwise. Results are based on user provided data and data provided from publicly available sources; actual field conditions may affect calculated output. Visit www.Visual-3D.com .



D-Series Size 1
LED Area Luminaire

Catalog Number

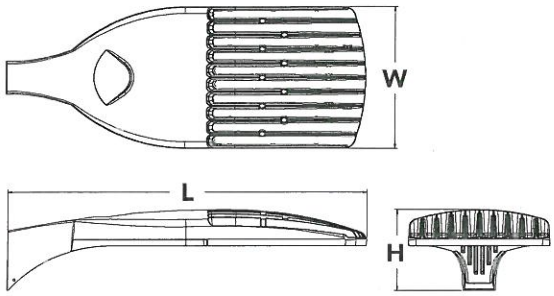
Notes

Type

Hit the tab key or mouse over the page to see all interactive elements

Specifications

EPA:	1.2 ft² (0.11 m²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height:	7-1/2" (19.0 cm)
Weight (max):	27 lbs (12.2 kg)



Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment.

The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing 100 – 400W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

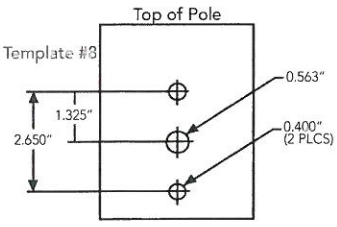
Ordering Information

EXAMPLE: DSX1 LED 60C 1000 40K T3M MVOLT SPA DDBXD

DSX1 LED

Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting	Control options	Other options	Finish (required)
DSX1 LED	**Forward optics** 30C 30 LEDs (one engine) 40C 40 LEDs (two engines) 60C 60 LEDs (two engines) **Rotated optics** 60C 60 LEDs (two engines)	530 530 mA 700 700 mA 1000 1000 mA (1 A)	30K 3000K (80 CRI min.) 40K 4000K (70 CRI min.)[1] 50K 5000K (67 CRI)	T1S Type I short T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short T5S Type V short T5M Type V medium T5W Type V wide	MVOLT[2] 120[2] 208[2] 240[2] 277[2] 347[3] 480[3]	**Shipped included** SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor[4] RPUMBA Round pole universal mounting adaptor[4]	**Shipped installed** PER NEMA twist-lock receptacle only (no controls)[5] DMG 0-10V dimming driver (no controls)[6] DCR Dimmable and controllable via ROAM® (no controls)[7] DS Dual switching[8,9] PIR Motion sensor, 8-15' mounting height[10] PIRH Motion sensor, 15-30' mounting height[10] BL30 Bi-level switched dimming, 30%[6,8,11] BL50 Bi-level switched dimming, 50%[6,8,11]	**Shipped installed** HS House-side shield[12] WTB Utility terminal block[13] SF Single fuse (120, 277, 347V)[14] DF Double fuse (208, 240, 480V)[14] TLS Tool-less entry trigger latch[15] L90 Left rotated optics[16] R90 Right rotated optics[16]	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Drilling



DSX1 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles, per the table below.

DM19AS	Single unit	**DM29AS**	2 at 90°*
DM28AS	2 at 180°	**DM39AS**	3 at 90°*
DM49AS	4 at 90°*	**DM32AS**	3 at 120° **

Example: SSA 20 4C DM19AS DDBXD

Visit Lithonia Lighting's POLES CENTRAL to see our wide selection of poles, accessories and educational tools.

**Round pole top must be 3.25" O.D. minimum.*
***For round pole mounting (RPA) only.*

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V)[17]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V)[17]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V)[17]
SC U	Shorting cap[17]
DSX1HS 30C U	House-side shield for 30 LED unit
DSX1HS 40C U	House-side shield for 40 LED unit
DSX1HS 60C U	House-side shield for 60 LED unit
PUMBA DDBXD U*	Square and round pole universal mounting bracket adaptor (specify finish)

For more control options, visit DTL and ROAM online.

Tenon Mounting Slipfitter **

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	N/A	N/A	N/A	N/A
2-7/8"	AST25-190	AST25-280	N/A	AST25-320	N/A	N/A
4"	AST35-160	AST35-290	AST35-290	AST35-320	AST35-390	AST35-490

NOTES

1. Configured with 4000K (40K) provides the shortest lead times. Consult factory for 3000K (30K) and 5000K (50K) lead times.
2. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options).
3. Not available with single board, 530mA product (30C 530). N/A with 1000 mA. Not available with DMG, DCR, BL30, BL50, WTB, or TLS.
4. Available as a separate combination accessory: PUMBA (finish) U.
5. Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Not available with DS option.
6. Not available with 347 or 480V.
7. Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net. N/A with BL30, BL50, DS, TLS, PIR or PIRH.
8. Requires 40C or 60C. Provides 50/50 luminaire operation via two independent drivers on two separate circuits. N/A with PER, DCR, WTB, PIR, or PIRH.
9. Requires an additional switched circuit.
10. PIR specifies the SensorSwitch SBR-10-ODP control; PIRH specifies the SensorSwitch SBR-6-ODP control; see Motion Sensor Guide for details.Dimming driver standard. Not available with DCR.
11. Dimming driver standard. MVOLT only. Not available with DCR or WTB.
12. Also available as a separate accessory; see Accessories information.
13. WTB not available with BL30, BL50, DS, PIR or PIRH. N/A 347v or 480v.
14. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
15. With TLS option, the luminaire is no longer IP65 rated. Not available with BL30, BL50, DCR, PIR or PIRH. N/A 347v or 480v.
16. Available with 60 LEDs (60C option) only.
17. Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item from Acuity Brands Control.

LITHONIA LIGHTING

One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/-10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	30K (3000K, 80 minimum CRI)					40K (4000K, 70 minimum CRI)					50K (5000K, 67 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
30C (30 LEDs)	700 mA	30C 700 --K	68 W	T1S	5,290	1	0	1	78	6,524	2	0	2	96	7,053	2	0	2	104
				T2S	5,540	1	0	1	81	6,833	2	0	2	100	7,387	2	0	2	109
				T2M	5,360	1	0	2	79	6,611	2	0	2	97	7,147	2	0	2	105
				T3S	5,479	1	0	1	81	6,757	1	0	2	99	7,305	2	0	2	107
				T3M	5,452	1	0	2	80	6,724	2	0	2	99	7,269	2	0	2	107
				T4M	5,461	1	0	2	80	6,736	2	0	2	99	7,282	2	0	2	107
				TFTM	5,378	1	0	2	79	6,633	1	0	2	98	7,171	1	0	2	105
				T5VS	5,708	2	0	0	84	7,040	3	0	0	104	7,611	3	0	1	112
				T5S	5,639	2	0	0	83	6,955	2	0	0	102	7,519	3	0	0	111
				T5M	5,710	3	0	1	84	7,042	3	0	1	104	7,613	3	0	2	112
				T5W	5,551	3	0	1	82	6,847	3	0	2	101	7,401	3	0	2	109
	1000 mA	30C 1000 --K	105 W	T1S	7,229	2	0	2	69	9,168	2	0	2	87	9,874	2	0	2	94
				T2S	7,572	2	0	2	72	9,603	2	0	2	91	10,342	2	0	2	98
				T2M	7,325	2	0	2	70	9,291	2	0	2	88	10,005	2	0	3	95
				T3S	7,488	2	0	2	71	9,496	2	0	2	90	10,227	2	0	2	97
				T3M	7,451	2	0	2	71	9,450	2	0	2	90	10,177	2	0	2	97
				T4M	7,464	2	0	2	71	9,467	2	0	2	90	10,195	2	0	2	97
				TFTM	7,351	1	0	2	70	9,323	2	0	2	89	10,040	2	0	3	96
				T5VS	7,801	3	0	1	74	9,894	3	0	1	94	10,655	3	0	1	101
				T5S	7,803	3	0	2	74	9,774	3	0	1	93	10,526	3	0	1	100
				T5M	7,707	3	0	0	73	9,897	3	0	2	94	10,658	4	0	2	102
				T5W	7,586	3	0	2	72	9,621	4	0	2	92	10,363	4	0	2	99
40C (40 LEDs)	700 mA	40C 700 --K	89 W	T1S	6,876	2	0	2	77	8,639	2	0	2	97	9,345	2	0	2	105
				T2S	7,202	2	0	2	81	9,049	2	0	2	102	9,788	2	0	2	110
				T2M	6,968	2	0	2	78	8,755	2	0	2	98	9,469	2	0	3	106
				T3S	7,122	2	0	2	80	8,948	2	0	2	101	9,679	2	0	2	109
				T3M	7,088	2	0	2	80	8,905	2	0	2	100	9,632	2	0	2	108
				T4M	7,100	2	0	2	80	8,920	2	0	2	100	9,649	2	0	2	108
				TFTM	6,992	1	0	2	79	8,785	2	0	2	99	9,502	2	0	2	107
				T5VS	7,421	3	0	0	83	9,323	3	0	1	105	10,085	3	0	1	113
				T5S	7,331	2	0	0	82	9,210	3	0	1	103	9,962	3	0	1	112
				T5M	7,423	3	0	2	83	9,326	3	0	2	105	10,087	4	0	2	113
				T5W	7,216	3	0	2	81	9,066	4	0	2	102	9,807	4	0	2	110
	1000 mA	40C 1000 --K	138 W	T1S	9,521	2	0	2	69	11,970	2	0	2	87	12,871	3	3	0	93
				T2S	9,972	2	0	2	72	12,558	3	0	3	91	13,481	3	0	3	98
				T2M	9,648	2	0	3	70	12,149	3	0	3	88	13,043	3	0	3	95
				T3S	9,862	2	0	2	71	12,418	2	0	2	90	13,331	2	0	2	97
				T3M	9,814	2	0	2	71	12,358	3	0	3	90	13,267	3	0	3	96
				T4M	9,831	2	0	2	71	12,379	2	0	3	90	13,290	2	0	3	96
				TFTM	9,681	2	0	2	70	12,191	2	0	3	88	13,087	2	0	3	95
				T5VS	10,275	3	0	1	74	12,937	3	0	1	94	13,890	4	0	1	101
				T5S	10,150	3	0	1	74	12,782	3	0	1	93	13,721	3	0	1	99
				T5M	10,278	4	0	2	74	12,942	4	0	2	94	13,894	4	0	2	101
				T5W	9,991	4	0	2	72	12,582	4	0	2	91	13,507	4	0	2	98
60C (60 LEDs)	700 mA	60C 700 --K	131 W	T1S	10,226	2	0	2	78	12,871	3	0	3	98	13,929	3	0	3	106
				T2S	10,711	2	0	2	82	13,481	3	0	3	103	14,589	3	0	3	111
				T2M	10,363	2	0	3	79	13,043	3	0	3	100	14,115	3	0	3	108
				T3S	10,592	2	0	2	81	13,331	2	0	2	102	14,427	3	0	3	110
				T3M	10,541	2	0	2	80	13,267	3	0	3	101	14,357	3	0	3	110
				T4M	10,559	2	0	2	81	13,290	2	0	3	101	14,382	3	0	3	110
				TFTM	10,398	2	0	3	79	13,087	2	0	3	100	14,163	2	0	3	108
				T5VS	11,036	3	0	1	84	13,890	4	0	4	106	15,032	4	0	1	115
				T5S	10,902	3	0	1	83	13,721	3	0	1	105	14,849	4	0	1	113
				T5M	11,039	4	0	2	84	13,894	4	0	2	106	15,036	4	0	2	115
				T5W	10,732	4	0	2	82	13,507	4	0	2	103	14,617	4	0	2	112
	1000 mA	60C 1000 --K	209 W	T1S	14,017	3	0	3	67	17,632	3	0	3	84	19,007	3	0	3	91
				T2S	14,681	3	0	3	70	18,467	3	0	3	88	19,908	3	0	3	95
				T2M	14,204	3	0	3	68	17,867	3	0	3	85	19,260	3	0	3	92
				T3S	14,518	3	0	3	69	18,262	3	0	3	87	19,687	3	0	3	94
				T3M	14,448	3	0	3	69	18,173	3	0	4	87	19,591	3	0	4	94
				T4M	14,473	3	0	3	69	18,205	3	0	3	87	19,625	3	0	4	94
				TFTM	14,253	2	0	3	68	17,928	3	0	4	86	19,326	3	0	4	92
				T5VS	15,127	4	0	1	72	19,028	4	0	1	91	20,512	4	0	1	98
				T5S	14,943	4	0	1	71	18,797	4	0	1	90	20,263	4	0	1	97
				T5M	15,131	4	0	2	72	19,033	4	0	2	91	20,517	5	0	3	98
				T5W	14,710	4	0	2	70	18,503	5	0	3	89	19,946	5	0	3	95

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Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	**77°F**	**1.00**
30°C	86°F	1.00
40°C	104°F	0.99

Electrical Load

Number of LEDs	Drive Current (mA)	System Watts	Current (A) 120	208	240	277	347	480
30	530	52	0.52	0.30	0.26	0.23	—	—
	700	68	0.68	0.39	0.34	0.30	0.24	0.17
	1000	105	1.03	0.59	0.51	0.45	—	—
40	530	68	0.67	0.39	0.34	0.29	0.23	0.17
	700	89	0.89	0.51	0.44	0.38	0.31	0.22
	1000	138	1.35	0.78	0.67	0.58	—	—
60	530	99	0.97	0.56	0.48	0.42	0.34	0.24
	700	131	1.29	0.74	0.65	0.56	0.45	0.32
	1000	209	1.98	1.14	0.99	0.86	—	—

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

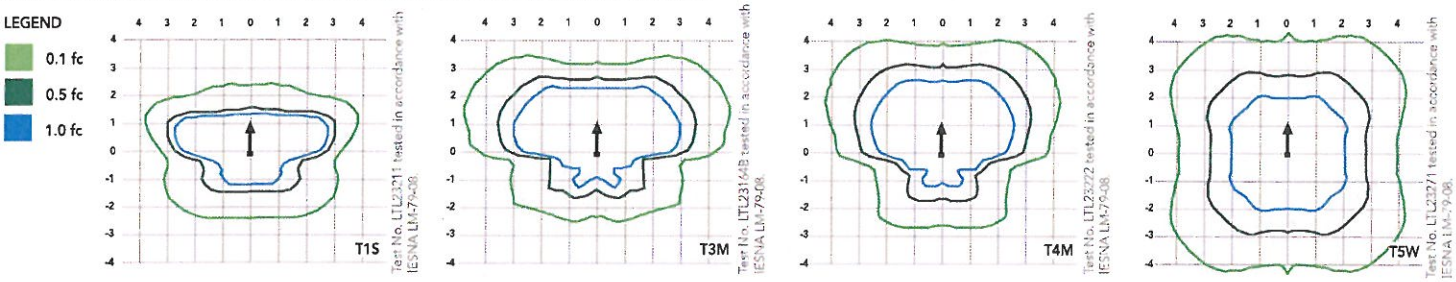
To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	DSX1 LED 60C 1000			
	1.0	0.95	0.93	0.88
	DSX1 LED 60C 700			
	1.0	0.99	0.98	0.96

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Area Size 1 homepage.

Isofootcandle plots for the DSX1 LED 60C 1000 40K. Distances are in units of mounting height (20').



FEATURES & SPECIFICATIONS

INTENDED USE
The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION
Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver is mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (1.2 ft²) for optimized pole wind loading.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS
Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 4000K (70 minimum CRI) or optional 3000K (80 minimum CRI) or 5000K (67 CRI) configurations. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine configurations consist of 30, 40 or 60 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L96/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV or 6kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION
Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 1 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 1 utilizes the AERIS™ series pole drilling pattern. Optional terminal block, tool-less entry, and NEMA photocontrol receptacle are also available.

LISTINGS
CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY
Five-year limited warranty. Full warranty terms located at:
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Specifications subject to change without notice.

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Visual - Template Tool

AcuityBrands.

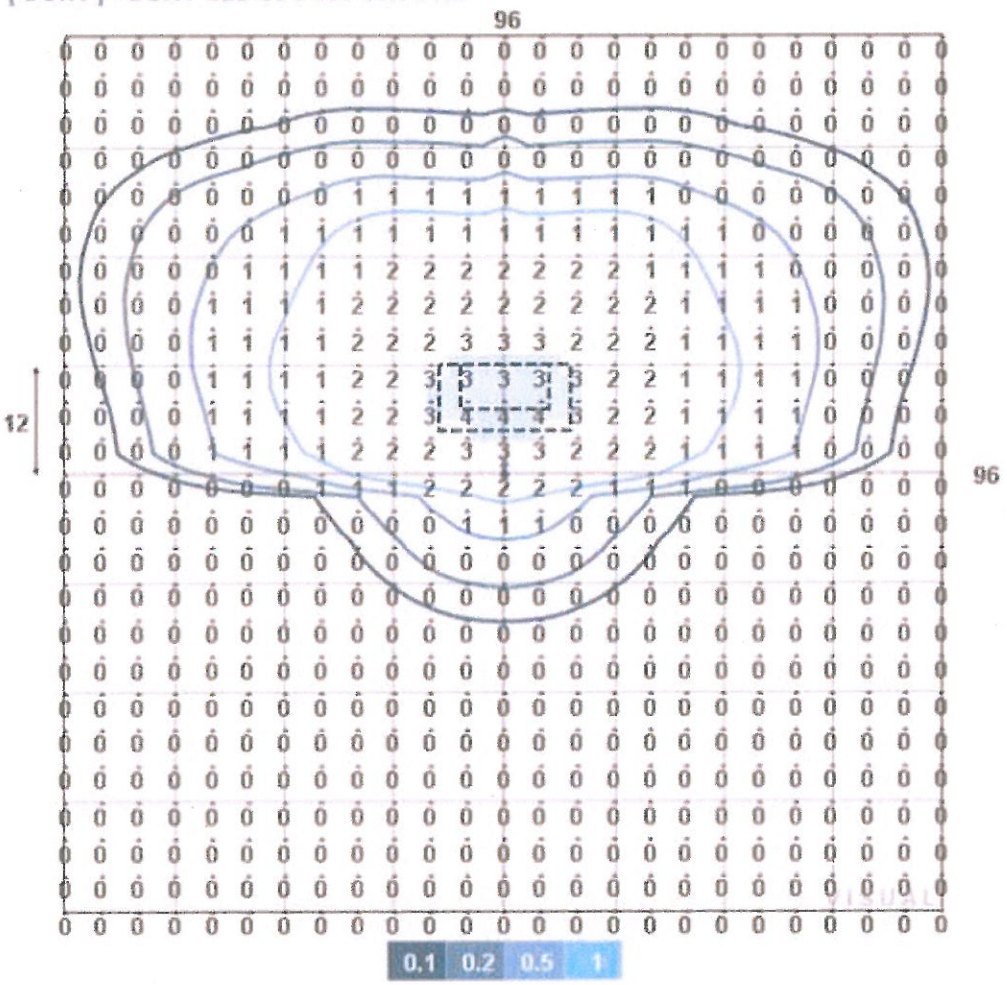
Tuesday, January 21, 2014

Design Information

Project
Description

Name
Company
Phone
Email

[DSX1] - DSX1 LED 30C 530 40K T4M



[DSX1] - DSX1 LED 30C 530 40K T4M MVOLT HS



Manufacturer		Lithonia Lighting Configuration	Single
Lamp Lumens	3872	Orientation	Single
Lamp Quantity	1	Mounting Height	12
Light Loss Factor	1	Arm Length	1
Input Power	52	Tilt	0
Max Illuminance	4	Area > 3fc	127

These lighting calculation results are for general informational purposes only and are provided without warranty as to accuracy, completeness, reliability or otherwise. Results are based on user provided data and data provided from publicly available sources; actual field conditions may affect calculated output. Visit www.Visual-3D.com .



D-Series Size 2
LED Wall Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements

d-series

Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 76% in energy savings over comparable 400W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

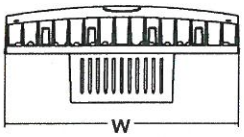
Specifications

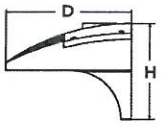
Luminaire

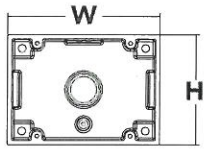
Width:	18-1/2" (47.0 cm)	**Weight:**	21 lbs (9.5 kg)
Depth:	10" (25.4 cm)		
Height:	7-5/8" (19.4 cm)		

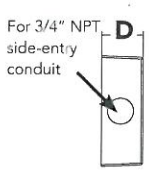
Back Box (BBW)

Width:	5-1/2" (14.0 cm)	**BBW Weight:**	1 lbs (0.5 kg)
Depth:	1-1/2" (3.8 cm)		
Height:	4" (10.2 cm)		









Ordering Information

EXAMPLE: DSXW2 LED 30C 700 40K T3M MVOLT DDBTXD

DSXW2 LED

Series	LEDs	Drive Current	Color temperature	Distribution	Voltage	Mounting	Control Options	Other Options	Finish *(required)*
DSXW2 LED	20C 20 LEDs (two engines) 30C 30 LEDs (three engines)	350 350 mA 530 530 mA 700 700 mA 1000 1000 mA (1 A)	30K 3000K 40K 4000K 50K 5000K	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium	MVOLT[1] 120[1] 208[1] 240[1] 277[1] 347[2] 480[2]	**Shipped included** (blank) Surface mounting bracket **Shipped separately[3]** BBW Surface-mounted back box (for conduit entry)	**Shipped installed** PE Photoelectric cell, button type[4] PER NEMA twist-lock receptacle only (no controls) DMG 0-10V dimming driver (no controls) DCR Dimmable and control-labie via ROAM® (no controls)[5] PIRH 180° motion/ ambient light sensor, 15-30' mtg ht[6]	**Shipped installed** SF Single fuse (120, 277, 347V)[7] DF Double fuse (208, 240, 480V)[7] HS House-side shield[3] SPD Separate surge protection[9] **Shipped separately** BSW Bird-deterrent spikes[3] WG Wire guard[3] VG Vandal guard[3]	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

NOTES

1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
2. Available with 30 LED/700mA options only (DSXW2 LED 30C 700).
3. Also available as a separate accessory; see Accessories information.
4. Photocontrol (PE) requires 120, 208, 240 or 277 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
5. Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net.
6. Specifies the Sensor Switch SBR-6-ODP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard.
7. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
8. Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.
9. See the electrical section on page 2 for more details.

Accessories

Ordered and shipped separately

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V)[8]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V)[8]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V)[8]
SC U	Shorting cap[4]
DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXW2WG U	Wire guard accessory
DSXW2VG U	Vandal guard accessory
DSXW2BBW DDBXD U	Back box accessory **(specify finish)**

LITHONIA LIGHTING

One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	40K (4000K, 70 CRI)					50K (5000K, 65 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
20C (20 LEDs)	530	20C 530 --K	36 W	T2S	3,533	1	0	1	98	3,860	1	0	1	107
				T2M	3,437	1	0	1	95	3,755	1	0	1	104
				T3S	3,489	1	0	1	97	3,811	1	0	1	106
				T3M	3,545	1	0	2	98	3,873	1	0	2	108
				T4M	3,498	1	0	1	97	3,822	1	0	1	106
				TFTM	3,495	1	0	1	97	3,819	1	0	1	106
	700	20C 700 --K	47 W	T2S	4,371	1	0	1	93	4,776	1	0	1	102
				T2M	4,252	1	0	1	90	4,647	1	0	2	99
				T3S	4,316	1	0	1	92	4,716	1	0	1	100
				T3M	4,386	1	0	2	93	4,793	1	0	2	102
				T4M	4,328	1	0	1	92	4,729	1	0	2	101
				TFTM	4,324	1	0	1	92	4,725	1	0	2	101
	1000	20C 1000 --K	73 W	T2S	5,914	1	0	1	81	6,462	1	0	1	89
				T2M	5,754	1	0	2	79	6,287	2	0	2	86
				T3S	5,839	1	0	1	80	6,380	1	0	2	87
				T3M	5,935	1	0	2	81	6,484	1	0	2	89
				T4M	5,855	1	0	2	80	6,398	1	0	2	88
				TFTM	5,851	1	0	2	80	6,393	1	0	2	88
30C (30 LEDs)	530	30C 530 --K	54 W	T2S	5,280	1	0	1	98	5,769	1	0	1	107
				T2M	5,137	1	0	2	95	5,613	1	0	2	104
				T3S	5,214	1	0	1	97	5,696	1	0	1	105
				T3M	5,298	1	0	2	98	5,789	1	0	2	107
				T4M	5,228	1	0	2	97	5,712	1	0	2	106
				TFTM	5,223	1	0	2	97	5,707	1	0	2	106
	700	30C 700 --K	71 W	T2S	6,513	1	0	1	92	7,118	2	0	2	100
				T2M	6,337	2	0	2	89	6,925	2	0	2	98
				T3S	6,431	1	0	2	91	7,028	1	0	2	99
				T3M	6,536	1	0	2	92	7,143	2	0	3	101
				T4M	6,449	1	0	2	91	7,047	1	0	2	99
				TFTM	6,444	1	0	2	91	7,042	1	0	2	99
	1000	30C 1000 --K	109 W	T2S	8,697	2	0	2	80	9,501	2	0	2	87
				T2M	8,462	2	0	2	78	9,244	2	0	2	85
				T3S	8,588	1	0	2	79	9,381	2	0	2	86
				T3M	8,728	2	0	3	80	9,534	2	0	3	87
				T4M	8,611	1	0	2	79	9,407	2	0	2	86
				TFTM	8,604	2	0	2	79	9,399	2	0	2	86

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	**77°F**	**1.00**
30°C	86°F	1.00
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **DSXW2 LED 30C 1000** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.95	0.92	0.87

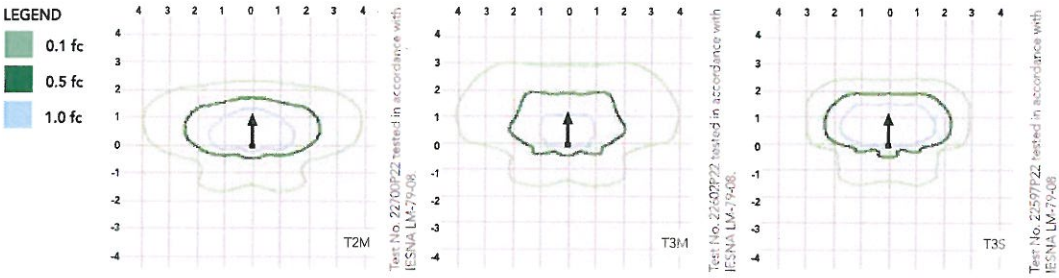
Electrical Load

LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
20C	350	25 W	0.23	0.13	0.12	0.10	-	-
	530	36 W	0.33	0.19	0.17	0.14	-	-
	700	47 W	0.44	0.25	0.22	0.19	-	-
	1000	73 W	0.68	0.39	0.34	0.29	-	-
30C	350	36 W	0.33	0.19	0.17	0.14	-	-
	530	54 W	0.50	0.29	0.25	0.22	-	-
	700	71 W	0.66	0.38	0.33	0.28	0.23	0.16
	1000	109 W	1.01	0.58	0.50	0.44	-	-

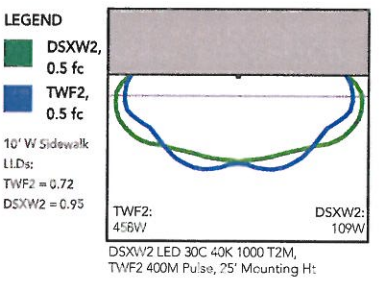
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Wall Size 2 homepage.

Isofootcandle plots for the DSXW2 LED 30C 1000 40K. Distances are in units of mounting height (25').



Distribution overlay comparison to 400W metal halide.



DSXW2 LED 30C 40K 1000 T2M, TWF2 400M Pulse, 25' Mounting Ht

FEATURES & SPECIFICATIONS

INTENDED USE

The energy savings, long life and easy-to-install design of the D-Series Wall Size 2 make it the smart choice for building-mounted doorway and pathway illumination for nearly any facility.

CONSTRUCTION

Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65).

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifically to building mounted applications. Light engines are available in 3000K (80 min. CRI), 4000K (70 min. CRI) or 5000K (65 min. CRI) configurations.

ELECTRICAL

Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L87/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and a minimum 2.5KV surge rating. When ordering the SPD option, a separate surge protection device is installed within the luminaire which meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION

Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS

CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

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Visual - Template Tool

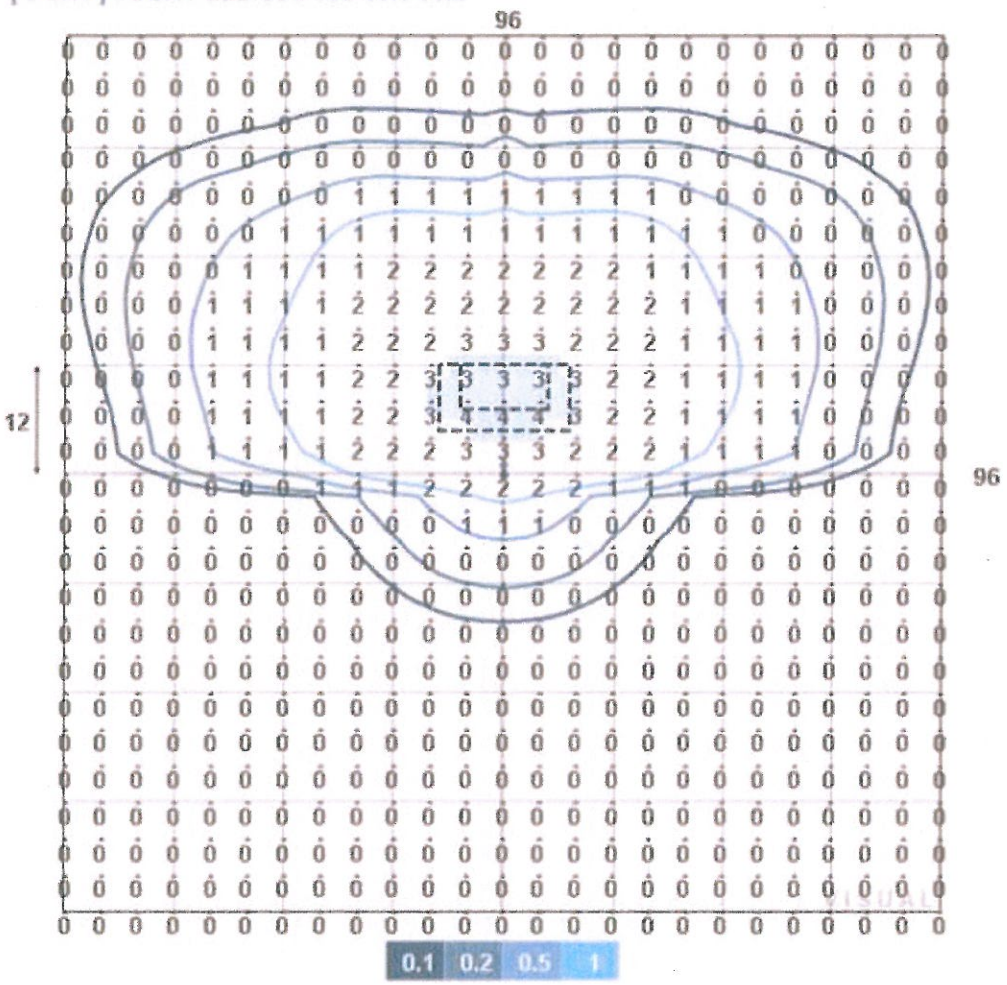
Tuesday, January 21, 2014

Design Information

Project
Description

Name
Company
Phone
Email

[DSX1] - DSX1 LED 30C 530 40K T4M



[DSX1] - DSX1 LED 30C 530 40K T4M MVOLT HS



Manufacturer	Lithonia Lighting	Configuration	Single
Lamp Lumens	3872	Orientation	Single
Lamp Quantity	1	Mounting Height	12
Light Loss Factor	1	Arm Length	1
Input Power	52	Tilt	0
Max Illuminance	4	Area > 3fc	127

These lighting calculation results are for general informational purposes only and are provided without warranty as to accuracy, completeness, reliability or otherwise. Results are based on user provided data and data provided from publicly available sources; actual field conditions may affect calculated output. Visit www.Visual-3D.com .



Inverted available with WLU option only.

WSQ LED
Architectural Wall Sconce

Catalog Number

Notes

Type

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Introduction

The classic Architectural Wall Sconce is now available with the latest in LED technology. The result is a long-life, maintenance-free product with typical energy savings of 75% compared to metal halide versions. The integral battery backup option provides emergency egress lighting, without the use of a back-box or remote gear, so installations maintain their aesthetic integrity.

The WSQ LED is ideal for replacing existing 50 – 175W metal halide wall-mounted products. The expected service life is 20+ years of nighttime use.

Specifications

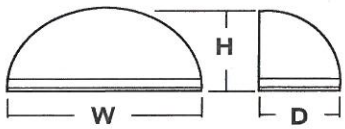
Luminaire

Height: 7-1/4" (18.4 cm)

Width: 16-1/4" (41.3 cm)

Depth: 9-1/8" (23.2 cm)

Weight: 17 lbs (7.7 kg)

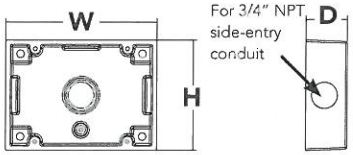


Optional Back Box (BBW)

Height: 4" (10.2 cm)

Width: 5-1/2" (14.0 cm)

Depth: 1-1/2" (3.8 cm)



Ordering Information

EXAMPLE: WSQ LED 2 10A700/40K SR3 MVOLT DDBTXD

WSQ LED

Series	Light Engines	Performance Package	Distribution	Voltage	Mounting	Options[3]	Finish *(required)*
WSQ LED	1 One engine (10 LEDs) 2 Two engines (20 LEDs)	**700 mA options:** 10A700/40K 4000K	SR2 Type II SR3 Type III SR4 Type IV	MVOLT[1] 120[1] 208[1] 240[1] 277[1] 347 480	**Shipped included** (blank) Surface mount **Shipped separately**[2] BBW Surface-mounted back box UT5 Uplift 5 degrees	**Shipped installed** PE Photoelectric cell, button type[4,5] SF Single fuse (120, 277, 347V)[4] DF Double fuse (208, 240, 480V)[4] DMG 0-10V dimming driver (no controls) ELCW Emergency battery backup[6] WLU Wet location door for up orientation[7] PIR Motion/ambient light sensor[8] **Shipped separately** VG Vandal guard WG Wire guard	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

Emergency Battery Operation

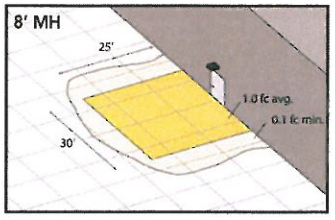
The emergency battery backup (ELCW option) is integral to the luminaire - no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product.

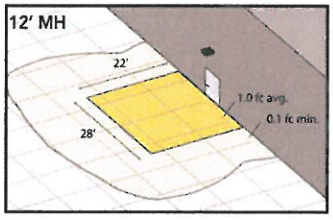
All ELCW configurations include an independent secondary driver with an integral relay to immediately detect AC power loss. Dual light engines are wired in parallel so both engines operate in emergency mode and provide additional component redundancy. These design features meet various interpretations of NFPA 70/NEC 2008 - 700.16

The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time supply power is lost, per International Building Code Section 1006 and NFPA 101 Life Safety Code Section 7.9, provided luminaires are mounted at an appropriate height and illuminate an open space with no major obstructions.

The examples at right show illuminance of 1 fc average and 0.1 fc minimum of the single-engine Type IV product in emergency mode.

WST LED 1 10A700/40K SR4 MVOLT ELCW
10' x 10' Gridlines
8' and 12' Mounting Height





NOTES

1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with photocell (PE option) or fusing (SF, DF options).
2. May also be ordered separately as an accessory. Ex: WSBBW DDBXD U. Must specify finish.
3. Must be ordered with fixture; cannot be field installed.
4. Not available with MVOLT option. Button photocell (PE) can be ordered with a dedicated voltage option. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
5. Not available with 480V option. Not available with motion/ambient light sensor (PIR).
6. Integral battery pack is rated for -20° to 60°C operating temperature. ELCW warranty is 3-year period. Not available with 347V or 480V. Not available with WLU.
7. WLU not available with PIR or ELCW.
8. Specifies the SensorSwitch SFD-7-ODP control (photocell included); see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard. Not available with WLU, VG or WG.

LITHONIA LIGHTING
One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com
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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%.

Light Engines	Drive Current (mA)	Performance Package	System Watts (MVOLT[1])	Dist. Type	40K (4000K, 70 CRI)				
					Nominal Lumens	B	U	G	LPW
1 (10 LEDs)	700	10A700/--K	24W	SR2	2,005	1	0	1	84
				SR3	2,029	1	0	1	84
				SR4	1,959	1	0	1	82
2 (20 LEDs)	700	10A700/--K	47W	SR2	3,944	1	0	1	84
				SR3	4,028	1	0	1	86
				SR4	3,851	1	0	1	82

1 See electrical load chart for 347/480V system watts.

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.10
10°C	50°F	1.06
20°C	68°F	1.02
25°C	**77°F**	**1.00**
30°C	86°F	0.98
40°C	104°F	0.92

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **WSQ LED 2 10A700** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.94	0.88	0.77

Electrical Load

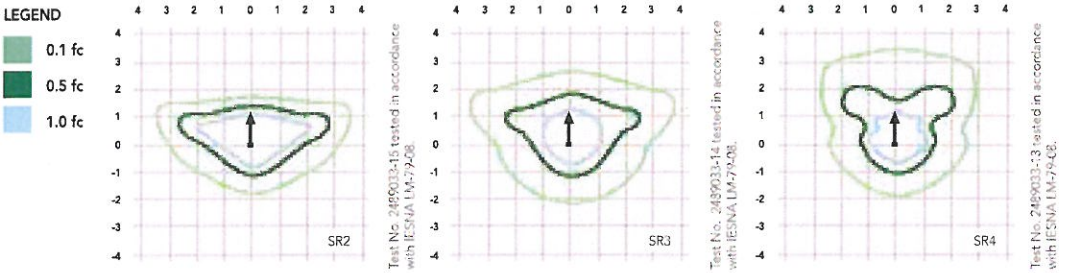
Light Engines	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
1	700	24W	0.24	0.14	0.12	0.1	-	-
		29W[1]	-	-	-	-	0.09	0.07
2	700	47W	0.44	0.27	0.23	0.20	-	-
		53W[1]	-	-	-	-	0.17	0.12

1 Higher wattage is due to electrical losses from step-down transformer.

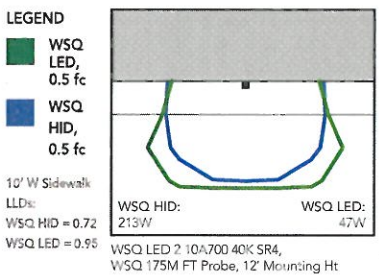
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's WSQ LED homepage.

Isofootcandle plots for the WSQ LED 2 10A700/40K SR2, SR3, and SR4. Distances are in units of mounting height (12').



Distribution overlay comparison to 175W metal halide.



WSQ LED 2 10A700 40K SR4, WSQ 175M FT Probe, 12' Mounting Ht

FEATURES & SPECIFICATIONS

INTENDED USE

The classic architectural shape of the WSQ LED was designed for applications such as hospitals, schools, malls, restaurants, and commercial buildings. The long life LEDs and driver make this luminaire nearly maintenance-free.

CONSTRUCTION

The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP65 rating for the luminaire.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS

Precision-molded acrylic lenses are engineered for superior distribution, uniformity, and spacing in wall-mount applications. Light engines are 4000K (70 CRI). The WSQ LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal core circuit board and integral aluminum heat sinks to maximize heat dissipation and promote long life (100,000 hrs at 25°C, L77). Class 2 electronic driver has a power factor >90%, THD <20%. Easily-serviceable surge protection device meets a minimum Category B (per ANSI/IEEE C62.41.2).

INSTALLATION

A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections. The integral bubble level on the mounting plate provides assistance for level placement on every installation.

LISTINGS

CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated and suitable for wet locations when mounted with the lenses down. WLU option offers wet location listing in "up" orientation. Rated for -30°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.

LITHONIA LIGHTING

One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com

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Rev. 12/09/13

Visual - Template Tool

AcuityBrands.

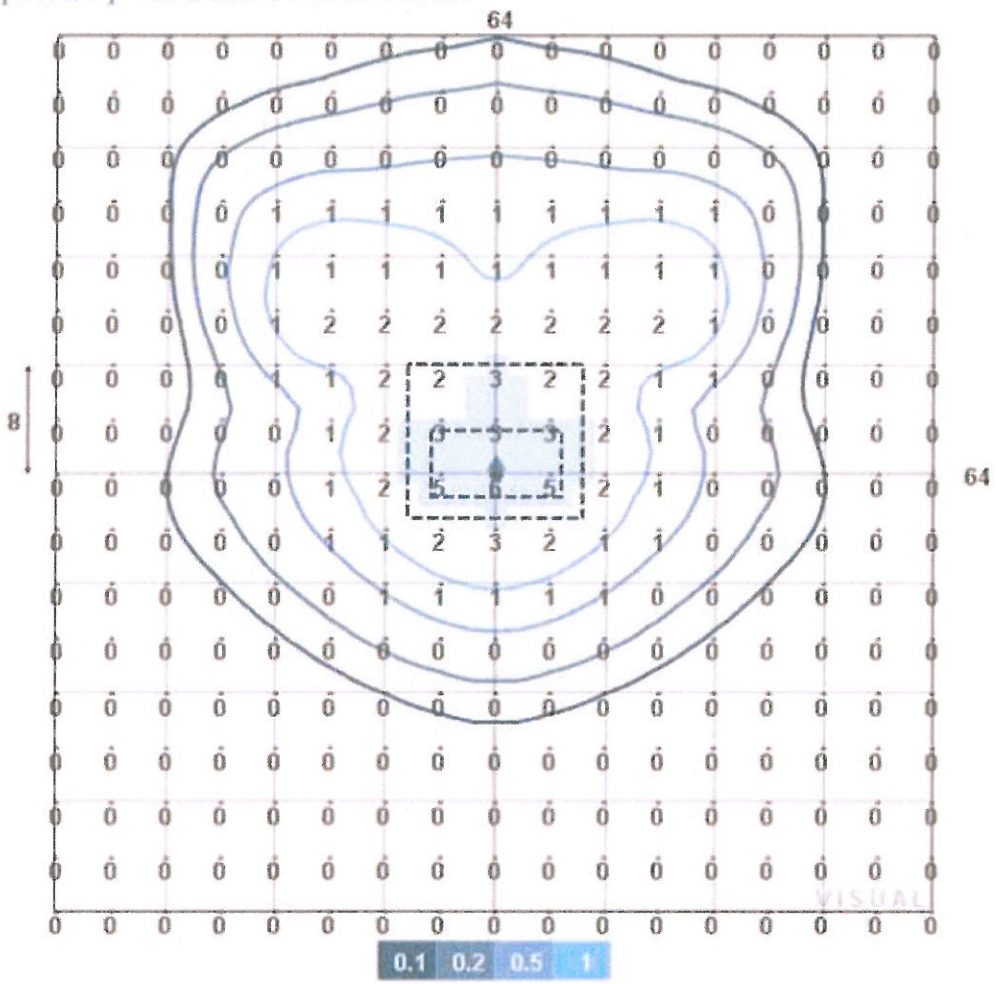
Tuesday, January 21, 2014

Design Information

Project
Description

Name
Company
Phone
Email

[SWQ 1] - WSQ LED 1 10A700/40K SR



[SWQ 1] - WSQ LED 1 10A700/40K SR4 MVOLT



Manufacturer	Lithonia Lighting	Configuration	Single
Lamp Lumens	1943	Orientation	Single
Lamp Quantity	1	Mounting Height	8
Light Loss Factor	1	Arm Length	1
Input Power	24.2	Tilt	0
Max Illuminance	7	Area > 3fc	108

These lighting calculation results are for general informational purposes only and are provided without warranty as to accuracy, completeness, reliability or otherwise. Results are based on user provided data and data provided from publicly available sources; actual field conditions may affect calculated output. Visit www.Visual-3D.com .



1. Foothills (SW7514)
   7" Reveal Fiber-Cement
   Lap Siding

2. Dry Dock (SW7502)
   5" Reveal Fiber-Cement
   Lap Siding

3. Barcelona Beige (SW7530)
   Wood and Composite Trim
   Fiber-Cement Smooth Board
   Column Wrap

4. Black Fox (SW7020)
   Fiber-Cement Board & Batten

5. Charcoal Grey
   Composite Roof Shingles

Milbrandt Architects
25 Central Way, Ste 210
Kirkland, Washington 98033
P: 425.454.7130 F: 425.858.1208
Web: www.milbrandtarch.com

COLOR SCHEME 1

OREGON CITY LIVE/WORK - APARTMENTS





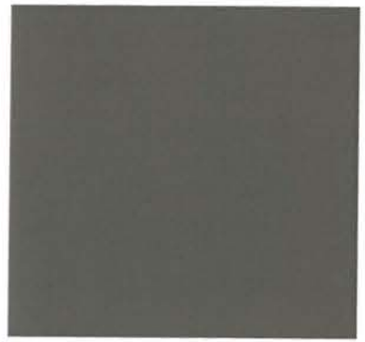
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2. Dry Dock (SW7502)
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   Lap Siding



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   Wood and Composite Trim
   Fiber-Cement Smooth Board
   Column Wrap



4. Black Fox (SW7020)
   Fiber-Cement Board & Batten



5. Charcoal Grey
   Composite Roof Shingles

Milbrandt Architects
25 Central Way, Ste 210
Kirkland, Washington 98033
P: 425.454.7130 F: 425.656.1208
Web: www.milbrandtarch.com

COLOR SCHEME 1

OREGON CITY LIVE/WORK - TOWNHOMES



1. Messanger Bag (SW7740)
   7" Reveal Fiber-Cement
   Lap Siding

2. Herbal Wash (SW7739)
   5" Reveal Fiber-Cement
   Lap Siding

3. Sage Green Light (SW2851)
   Wood and Composite Trim
   Fiber-Cement Smooth Board
   Column Wrap

4. Muddled Basil (SW7745)
   Fiber-Cement Board & Batten

5. Charcoal Grey
   Composite Roof Shingles

Milbrandt Architects
25 Central Way, Ste 210
Kirkland, Washington 98033
P. 425.454.7730 F. 425.658.1708
Web: www.milbrandtarch.com

COLOR SCHEME 2

OREGON CITY LIVE/WORK - APARTMENTS



1. Messanger Bag (SW7740)
   7" Reveal Fiber-Cement
   Lap Siding

2. Herbal Wash (SW7739)
   5" Reveal Fiber-Cement
   Lap Siding

3. Sage Green Light (SW2851)
   Wood and Composite Trim
   Fiber-Cement Smooth Board
   Column Wrap

4. Muddled Basil (SW7745)
   Fiber-Cement Board & Batten

5. Charcoal Grey
   Composite Roof Shingles

Milbrandt Architects
25 Central Way, Ste 210
Kirkland, Washington 98033
P: 425.454.7130 F: 425.453.7388
Web: www.milbrandtarch.com

COLOR SCHEME 2

OREGON CITY LIVE/WORK - TOWNHOMES





1. Colonial Revival Stone (SW2827)
   7" Reveal Fiber-Cement
   Lap Siding



2. Stone Lion (SW7507)
   5" Reveal Fiber-Cement
   Lap Siding



3. Brevity Brown (SW6068)
   Wood and Composite Trim
   Fiber-Cement Smooth Board
   Column Wrap



4. Arresting Auburn (SW6034)
   Fiber-Cement Board & Batten



5. Charcoal Grey
   Composite Roof Shingles

Milbrandt Architects
25 Central Way, Ste 210
Kirkland, Washington 98033
P: 425.454.7130 F: 425.658.1706
Web: www.milbrandtarchs.com

COLOR SCHEME 3

OREGON CITY LIVE/WORK - APARTMENTS



1. Colonial Revival Stone (SW2827)
   7" Reveal Fiber-Cement
   Lap Siding

2. Stone Lion (SW7507)
   5" Reveal Fiber-Cement
   Lap Siding

3. Brevity Brown (SW6068)
   Wood and Composite Trim
   Fiber-Cement Smooth Board
   Column Wrap

4. Arresting Auburn (SW6034)
   Fiber-Cement Board & Batten

5. Charcoal Grey
   Composite Roof Shingles

Milbrandt Architects
25 Central Way, Ste 210
Kirkland, Washington 98033
P: 425.454.7130 F: 425.658.1208
Web: www.milbrandtarch.com

COLOR SCHEME 3

OREGON CITY LIVE/WORK - TOWNHOMES

EVERGREEN HOUSING
DEVELOPMENT GROUP

June 11, 2014

Pete Walter, AICP
Oregon City
Community Development – Planning
221 Molalla Ave, Suite 200
Oregon City, OR 97045

RE: Submittal of Items to Address the Notice of Incompleteness for project SP 14-01

Dear Mr. Walter,

Enclosed are revised submittal items and a narrative of revisions and responses based on the comments in the Notice of Incompleteness dated February 20, 2014 for our project at 19896 Beavercreek Road.

This package encompasses all the items listed as missing from the February 20, 2014 notice.

Please continue your completeness review and let me know if there are other items necessary for a complete application.

Sincerely,

Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC

Andrew Brand
Beavercreek Road LLC
600 University St, Suite 1708
Seattle, WA 98101

June 10, 2014

Pete Walter
Oregon City – Planning Department
221 Molalla Ave, Suite 200
Oregon City, OR 97045

Project SP 14-01: Site Plan and Design Review
Applicant Response to Notice of Incompleteness Dated February 20, 2014

GENERAL RESPONSE COMMENTS AND NOTES:

In the notice of incompleteness sent on February 20th, 2014 Public Works comments related to preliminary stormwater design and the angle of the intersection at Beavercreek Road and the proposed new Meyers extension necessitated a change in the site plans. The main difference is that building T8 is now removed and a stormwater detention pond is in its place. The total number of units went down from 183 to 180 units. Also, the intersection at Meyer's Way and Beavercreek Road is now an 80 degree angle.

RESPONSE TO PLANNING COMMENTS

17.62.040 A – Site Plans – Plans Required

Items 1, 2, 5, 7, 8, 9, 10, 15 and 16.
Newly submitted civil sheets now show all information requested

17.62.040 B – Landscape Plans

A plan showing the location of all existing trees is provided. Since all trees are to be removed during construction existing trees are not shown on the landscape site plan. The Landscape plans do now show the count of trees and both the base level of trees needed plus the extra "mitigation" trees planted to account for the removal of trees currently on the site. The Arborists report submitted with the application calculated the quantity of mitigation trees required.

Plans also now show the percentage of landscaped area; the Percentage of Interior, Perimeter and Parking Lot Landscaping exceeding minimum code requirements.

17.62.040 C – Architectural Drawings

Elevations of buildings are now accurately reflected to grade and all elevations are represented, not just representative elevations.

Bicycle Parking is shown and calculated on Architectural Plans

Refuse and Recycling plans and designs are more detailed on Architectural Plans.

RESPONSE TO PUBLIC WORK COMMENTS

1. 12.04.180

Street Sections are now included with the plans. The Deviation requested is described in the original application Narrative and relates to adding bicycle lanes where none are currently shown in City Code. The result of our requested deviations actually creates better transportation alternatives by creating bicycle lanes where none are requested per the table in section 12.04.180

2. 12.04.180

Emergency vehicles turning and maneuvering details are now shown on the civil plans in the private parking lot areas we are calling alleys for notation purposes only. These are not public alleys.

3. 12.04.215

The plans now have greater detail on the Beavercreek Improvements. Our improvements would include building out from the edge of the current road improvements along our property line to create a section of roadway with a single Travel Lane, a bicycle lane, a parking lane and a sidewalk. Between the parking lane and the sidewalk there may or may not be a storm water swale depending on the interactions and approval of the City and the County, as Beavercreek Road is currently a County roadway.

4. 12.04.255

Applicant believes that public works intended to reference Code Section 12.04.245 when asking for a description of the curbs. A response to the curbing, as requested, is below.

To promote a safe and efficient pedestrian circulation path throughout the site all street intersections and pedestrian crossings were designed to provide as short a crosswalk distance as possible. This was done by eliminating street parking as you approach the intersection and in turn extending the planter strip and sidewalk into the street pavement area to the back of the drive aisle. These curb extensions increase the visibility of the pedestrians and encourage motorists to drive slower

through the subject area by providing a stronger visual cue of a pedestrian crossing ahead. While the curb extensions are provided primarily for the benefit of the pedestrians, the traffic calming that is encouraged by the curb extensions will also result in a safer intersection for motorists.

5. 12.04.260

The site plan has an extensive network of sidewalks and bicycle lanes to promote walking and bicycling as alternative forms of transit. The Meyers Road extension and the Beavercreek Road improvements all include public sidewalk and public bicycle lane improvements. Streets A and B provide public sidewalks. No TriMet stops are within one mile of the project according to TriMets maps and route system plans. The nearest Transit Street is located to the north of the subject site at the Community College. To access these stations residents of the proposed project can utilize the bicycle lanes in the proposed project site and the lanes along Beavercreek Road.

6. 13.12.050B

REVISED APPLICANT RESPONSE: The proposed project is subject to applicable City stormwater quantity control requirements. Please refer to the revised stormwater report that is included with this Notice of Incompleteness Response for additional information.

7. 17.62.050 A4

The referenced Geotechnical report is included as part of this response.

8. 17.62.050 A4

Any walls that are supporting a public street will be built to City Engineering Standards.

9. 17.62.050 A14

The sanitary sewer design has been studied in an analysis from PACE Engineering dated August 12, 2013, which is now included with this Response. The applicant did not initially include this analysis as the applicant believed the City of Oregon City was performing its own sewer analysis with an element that would have included the study required per Public Work's Note #13 on the official City Pre-Application Meeting Notes dated July 9, 2013. This connection to the Glenn Oak basin was also contemplated in the Project parcel's Re-zone documents in 2010 and the Annexation documents in 2008.

10. 17.62.050 A14

The Applicant and Public Works have participated in conversations with Clackamas River Water District (CRW) about an agreement between CRW and Oregon City for water service to this project. This is a viable option. The City Annexation documents in 2008 stated that adequate water services would be available to the Project site. Since the City cannot provide adequate water services on its own system the proposed system that utilizes excess capacity of the CRW system is a viable alternative, which the Applicant believes the City should pursue in good faith to provide necessary services as contemplated in the Annexation and Rezone documents.

11. Stormwater Report

The stormwater report has been updated to address items a through h.

12. 13. 14.

The storm report and plan for detention have been modified to address Public Works' comments #12, 13 and 14.

15.

The proposed "alleys" shown on the plan are not public alleys. They are private parking areas labeled with the term alley for internal notation purposes. The updated stormwater plan splits the public detention systems from the private systems as described in the updated plans and stormwater report.

16.

The Applicant will design the termination of Meyers Road to the north such that the point of termination will be supported through a wall, or with the permission of the neighboring property owner an easement could be obtained allowing grading on the neighboring property to be adjusted to support the street termination until at such time the street is further extended to the north. The applicant requests that the exact method utilized be a condition of the building permit issuance.

17.

The Applicant will connect to the existing lines in Beavercreek Road (either CRW or Oregon City lines, depending on the final IGA negotiated with CRW and Oregon City). These lines are on the north side of Beavercreek Road. Any connections to those lines by parcels on the south side of Beavercreek Road would need to be made by those developments as part of their development proposals. Any requirements to upgrade water systems beyond that required by Code for the Applicant's project will be compensated through SDC credits or other methods to compensate for the cost of the Applicant's work not required by code for the Project.

18.

The water line at the end of the southern alley parking area is now shown as looped between buildings T1 and T2 back to the main line in Beavercreek Road.

19.

Any requirements to size water mains larger than what is required by Code for the Applicant's Project will be compensated to the Project through SDC credits or other methods of compensation to offset costs incurred by the Applicant.

20.

The Applicant is pursuing the option of connecting to the existing sanitary sewer line in Carrington Place. If that easement is not wide enough to accommodate the sewer pipe then the Applicant will pursue connecting to the pipe on Meyers Road.

21.

The Applicant has corrected this "typo". Sanitary sewer lines are available to all buildings shown on the site plan.

22.

The Applicant will extend sanitary sewer lines to the end of Street B to facilitate future development. Street A and Street B both connect to the same parcel so only one extension is necessary. Given the topography of the site and the neighboring parcels the developer finds it highly unlikely for developments that would extend Street B to actually utilize this sanitary sewer connection. SDC credits or other forms of compensation will be provided to the Applicant for this work to offset the costs that are beyond the developer's Code required responsibility.

23.

The Applicant has legitimate engineering concerns about how projects on the South side of Beavercreek Road would connect to a sewer line that is designed to drain to the South side of Beavercreek Road. The applicant is not required to provide sanitary sewer services for future developments. Any requirements to have the applicant provide sewer lines above the code requirements and code needs for the Applicant's project will be off-set through SDC credits or other forms of compensation.

24. APPLICANT RESPONSE TO "Items that are provided, but public works does not support as shown"

1. The "alleys" shown on the plans are not public streets. They are parking lots. Per Section 12.04.255 the site has other permanent provisions for private access to off street parking. These loops do not need to be public alleys.

2. The site plan has been revised to shown the intersection angle as 80 degrees. The Applicant believes the standard to deviate from the 90 degree intersection is sufficient. The Topography of this site is both natural and man-made. The natural topography would have the roadway maintain a most even elevation by following a non-90 degree route, along a line close to what we show on our plans. The Man-made topography includes a gas line easement through the site that necessitates an 80-degree intersection angle. Without this 80-degree angle optimal block sizes (as described in response to Code Sections 12.04.170 to 12.04.175) would not be possible. It is this optimal block size that is highly critical for setting the cornerstone of the future Beavercreek Road Concept Plan area.

3. A revised stormwater system is now shown on the plans which creates a stormwater detention pond for public roadways and some of the private parking lots. Underground piping is utilized under a private parking lot to detain water from the private portions of the site. A revised stormwater report discusses the split between public and private facilities and capacities of the systems.

ENGINEERS PLANNERS SURVEYORS

PRELIMINARY STORMWATER DESIGN REPORT

BEAVERCREEK LIVE/WORK DEVELOPMENT

Prepared For:
City of Oregon City, Oregon

June, 2014

Contact Person:
Brian D. Lee, PE
503.597.3222
brianl@paceengrs.com

PACE
An Engineering Services Company

PRELIMINARY STORMWATER DESIGN REPORT

BEAVERCREEK LIVE/WORK DEVELOPMENT

Prepared For:
City of Oregon City, Oregon

June, 2014

Contact Person:
Brian D. Lee, PE
503.597.3222
brianl@paceengrs.com

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PRELIMINARY STORMWATER REPORT
BEAVERCREEK LIVE/WORK DEVELOPMENT

1.0 PURPOSE OF REPORT

The purpose of this report is to documentation of the criteria for which the stormwater facility for this site was designed to meet, the sources of information upon which the analysis is based, the design methodology and the results of the analysis.

2.0 PROJECT LOCATION/DESCRIPTION

The proposed development is on approximately 9.59 acres located at 19896 Beavercreek Road in Oregon City, 97045. Also included in analysis is the area up to the centerline of Beavercreek road both in the pre-existing conditions and post development conditions.

The property is located within the Southeast one-quarter of section 10, township 3 South, Range 2 East, Willamette Meridian, City of Oregon City, Clackamas County, Oregon. It is also identified as Tax Lot 800, Clackamas County Assessor's Map No. 3S2E-10C.

Stormwater from the site is proposed to be routed to both a stormwater detention/water quality facility (in a separate tract) and an underground detention/infiltration chamber facility that will be constructed under common landscape areas at the low end of the property – See the preliminary site plan, grading plan and drainage utility plan for design details. The intent is that the runoff from the public streets (and 2 parking areas) will go into the pond that can be maintained by the City and the private streets (and remainder of the parking areas) will drain into the underground detention/infiltration chambers and be maintained by the property owner.

3.0 REGULATORY DESIGN CRITERIA

3.1 STORMWATER QUANTITY MANAGEMENT CRITERIA

As outlined in Chapter 4 of the City of Oregon City Stormwater and Grading Design standards the required stormwater quantity management criteria are summarized below:

- The post-development peak stormwater discharge rate from the site for the two-year, 24-hour duration design storm event shall at no time exceed half the pre-development peak stormwater runoff rate for the same design storm event.
- The post-development peak stormwater discharge rate from the site for the five-year, 24-hour duration design storm event shall at no time exceed the pre-development peak stormwater runoff rate for the same design storm event.
- The post-development peak stormwater discharge rate from the site for the 25-year, 24-hour duration design storm event shall at no time exceed the pre-development peak stormwater runoff rate for the ten-year, 24-hour duration design storm event.

The design storms are based on the standard SCS Type 1A rainfall distribution with a 24-hour distribution and a total depth of 2.6" (2-year), 3.1" (5-year), 3.4" (10-year), 4.0" (25-year), 4.4 (50-year) and 4.5" (100-year).

3.2 STORMWATER QUALITY MANAGEMENT CRITERIA

Ownership and Maintenance

Water quality for the development will be both a private and a publically maintained system. The private system will treat the runoff from the private streets and the commercial development and will be maintained by the property owners. The public system will treat the runoff from the public roadways, both internal and along Beavercreek Road. Accordingly, the developer will provide the City of Oregon City an access easement to maintain the public storm water quality facilities should it become necessary. Otherwise the operation and ownership of storm water quality facilities will be the responsibility of the developer. An operations and management manual for the storm water facilities will be provide to the City during final engineering design and before the issuance of building permits.

Water Quality Design Storm

The water quality design storm is 1/3 of the SCS 2-year / 24-hour design storm (0.87").

Proposed Water Quality Treatment Methods.

The water quality treatment will be achieved with several types of treatment. The main treatment will be by the use of stormwater quality filter cartridges that are a product of ConTech industries. Filter Cartridges will be installed in the water quality manholes (x2) in accordance with the manufactures sizing recommendations. The other type of treatment is a vegetative swale along Beavercreek Road. This facility will be similar to the North side of Beavercreek Road between Fir Street and Molalla Avenue. The net result will achieve the treatment of the design storm as discussed above.

3.3 FLOOD PLAIN

There are no flood plains shown on the Flood Insurance Rate Map (FIRM) produced by the Federal Emergency Management Agency (FEMA).

4.0 SUMMARY OF STORMWATER DETENTION RESULTS

Design Storm	Release Rate Pre-Developed Conditions (CFS)	Allowable Release Rate - Post Development (CFS)	Actual Release Rate – Post Development (CFS)
2-year	3.67	1.84	1.6
5-year	4.83	4.83	2.32
10-year	5.53	NA	NA
25-year	6.95	5.53	3.70

5.0 SOURCES OF INFORMATION AND DESIGN METHODOLOGY

The Santa Barbara Urban Hydrograph (SBUH) Method was used for the stormwater analysis. This method utilizes the SCS Type 1A 24-hour storm. HydroCAD software aided in the analysis. References are cited at the end of the report.

6.0 DESIGN PARAMETERS

6.1 DESIGN STORM

See Section 3.0 above. The Tc calculated for the Pre-Existing conditions 12.4 minutes. The pathway goes from the far corner of the lot, 300 feet of sheet flow across a grassy field, then 300 feet of shallow concentrated flow over grass pasture, then 400 along the roadside ditch all with slopes form 3.5% to 5.5%. The Tc for the Post Development conditions was calculated to be 14.1 minutes. The pathway is 100 feet of sheet slow across a grassy landscape area, then 250 feet of sheet flow across a parking area, then 500 feet through the storm pipe/ditch all with slopes from 2%-2.5% for the overland flow to 6% slope in the pipe/ditch. Under typical conditions the Tc for the Pre-developed condition would be longer than the Post-developed conditions. But this particular development the Post-condition is just a little longer that the Pre-condition due to changing of the slopes from 3.5%-4% to 2%-2.5% of the main flow path.

6.1.1 STORMWATER DETENTION FACILITY DESIGN

All of the flow results in stormwater summary Table 4.0 are incorporated in the detention pond and underground chamber sizing and analysis. The flow results stated in the table reflect the maximum flows released as seen in the roadside ditch along Beavercreek road.

6.1.2 INLET AND CONDUIT SIZING

The stormwater inlets (catch basins) for the site are placed according to the grading at all low points in grade and other necessary locations) and will adequately handle the stormwater for the site. Oversized catch basin curb inlets will be placed at all low points to increase flow capacity

that may be diminished seasonally due to deciduous trees. The distance between catch basins is generally less than 100 feet.

The stormwater pipes will be sized from the SBUH method to adequately convey up to the 25-year storm event (gravity flow). Flows above the 25 year event (e.g. a 100 year event) will flow through the systems using a combination of gravity flow and hydraulic surcharging (HGL above the top of pipe but 6 inches or more below the rim elevations of catch basins.

6.2 PRE-DEVELOPED SITE TOPOGRAPHY AND LAND USE

6.2.1 SITE TOPOGRAPHY

The site slopes to the north and west with slopes generally equal to or less than 6%.

6.2.2 EXISTING LAND USE

There is an existing home and barn at the southeast uppermost elevation of the site – generally the site is an open field that was previously cultivated.

6.2.3 PRE-DEVELOPED INPUT PARAMETERS

The input parameters are shown for the pre-developed sub catchment (basin) in the appendices.

6.3 SOIL TYPE

Below about 6" of topsoil, the soils consist mostly of silt with various traces of clay, sand and gravel. Occasional boulders were encountered from preliminary geotechnical site investigations. These soils are characterized as having a low stormwater infiltration potential. Within the depth of test pits observed on the site to depths of 15 plus feet, no groundwater was encountered. Per the City of Oregon City Stormwater and Grading Design Standards, these soils belong to Hydrologic soil group "C".

6.4 POST-DEVELOPED SITE TOPOGRAPHY AND LAND USE

6.4.1 SITE TOPOGRAPHY

The post-developed site topography will be altered from the pre-developed site topography to allow for the construction of streets, multifamily housing, live/work housing, a community center and a small commercial building. Surface cuts and fills may exceed 6 feet respectively. Please see the preliminary grading plans.

6.4.2 LAND USE

The current zoning on the property is MUC-1. See the development application for specific land uses and proposed improvements.

6.4.3 POST-DEVELOPED INPUT PARAMETERS

The input parameters are shown for the post-development subcatchment (basin) and detention pond and underground chambers in the appendices. The calculation method for determination of impervious area was to use AutoCAD and calculate areas of roof, concrete walk, asphalt, and landscape areas.

6.5 DESCRIPTION OF OFF-SITE CONTRIBUTORY BASINS

There are no off-site contributing areas. The development is located at the highest reaches of its containing watershed.

7.0 CALCULATION METHODOLOGY

7.1 PROPOSED STORMWATER CONDUIT SIZING AND INLET SPACING

The proposed stormwater pipes will be sized during final engineering from the SBUH method and will adequately convey the 25-year storm event (gravity flow). Flows above the 25 year event (e.g. a 100 year event) will flow through the systems using a combination of gravity flow and hydraulic surcharging (HGL above the top of pipe but 6 inches or more below the rim elevations of catch basins.

7.2 PROPOSED STORMWATER QUANTITY CONTROL (DETENTION) FACILITY DESIGN

The input parameters are shown for the subcatchments (basins) and the pond and underground chamber dimensions are shown in the appendices. They are determined by topographic survey information, aerial photos and contours, design, and analysis. The hydrographs were created with HydroCAD software.

7.3 PROPOSED STORMWATER QUALITY CONTROL FACILITY DESIGN

Half of the water quality design storm (1/3 of the 2-year storm) flow rate will be used to determine the type and quantity of cartridges for the water quality catch basins and manholes.

7.4 ENERGY DISSIPATER CALCULATIONS

Rip-rap will be placed at the inlet and outlet of the discharge to the roadside ditch along Beavercreek Road to act as an energy dissipater. The required rip-rap size shall be a minimum of Class 100.

7.5 DOWNSTREAM ANALYSIS

This site is located in the CAUFIELD Basin (designated in the City's Drainage Master Plan). Per *City of Oregon City Public Works Stormwater and Grading Design Standards (November 17,*

1999), the 10-year storm event is used for downstream analysis when the contributing drainage area is less than 40 acres The stormwater discharge from the on-site tank (post-developed condition) will discharge into the existing drainage way, as it currently does (pre-developed condition). The release (peak stormwater runoff) rates from the on-site detention pond for the 2, 5, 10 and 25 year storm events are less than the existing peak stormwater runoff rates for the same storm events at the existing outfall location. Therefore, the proposed development will not have any measurable increase in flow rates on the existing downstream conveyance systems during design storm events.

7.6 CULVERT ANALYSIS

No culverts are proposed on the site.

8.0 STORMWATER QUANTITY CONTROL FACILITY OPERATION

The control manhole will operate on gravity flow and will not require any operational control. Regular, routine maintenance to ensure that the orifices are clear of debris, the pipes are clear of sediment, and the outfall is not eroding the roadside ditch..

The grading and compaction guidelines from the *City of Oregon City Public Works Stormwater and Grading Design Standards (November 17, 1999)* shall be adhered to the maximum extent possible.

9.0 STORMWATER QUALITY CONTROL FACILITY OPERATION

The stormwater for the site will be routed through a series of water quality catch basins, pipes, and manholes. The catch basins will be sumped and the manholes will have treatment processes that through gravitational settling and biological processes and hydraulic residence time, water quality treatment will be achieved.

10.0 STORMWATER DETENTION POND SAFEGUARDS

Calculations for the 100-year storm event were done to size the emergency overflow. The pond and underground chambers will have an overflow pipe designed to adequately handle this storm event. If the outlet structure becomes plugged or for some other reason cannot convey the stormwater, then the stormwater will overflow through this emergency overflow. A channel lined with rip-rap will serve as an overflow to release stormwater in the event that the outlet structure is plugged. The emergency overflows are sized to accommodate the flows from the 100-year storm (assuming the outlet structure is plugged).

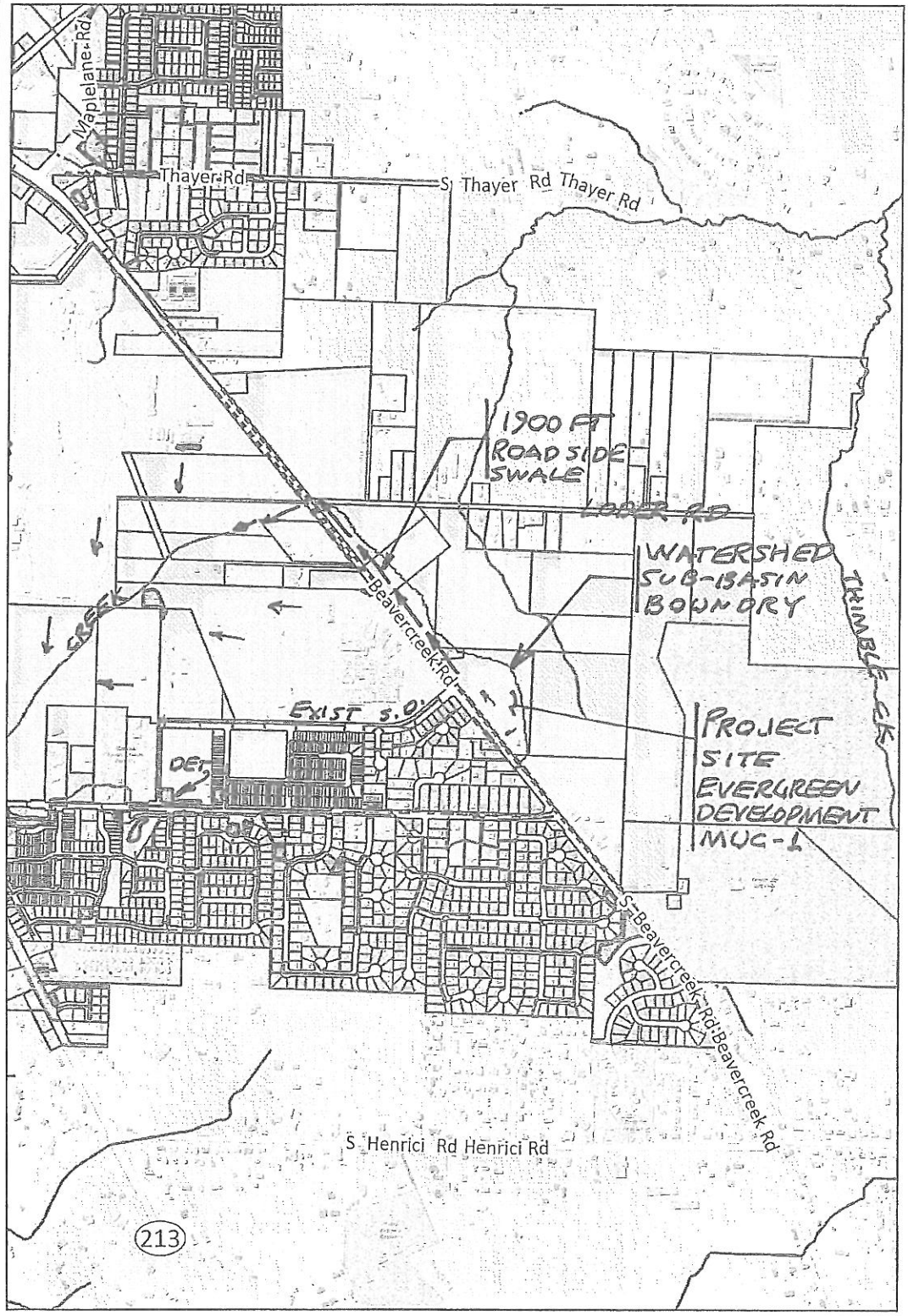
BEAVERCREEK ROAD
LIVE/WORK DEVELOPMENT

PRELIMINARY STORMWATER DESIGN REPORT
MAY 2014

Appendix 1

Vicinity Map

Oregon City GIS Map

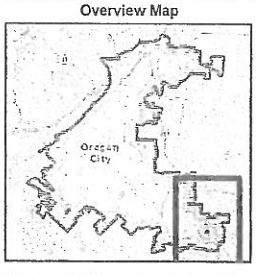


Legend

- Streams
  - Above Ground
  - Below Ground
- Taxlots
- Unimproved ROW
- Storm Conduits (City Owned)
  - Pipe
  - Culvert
  - Ditch
  - Detention Tank
- Storm Ponds
  - Pond
  - Swale
  - Man-Made Wetland
- City Limits
- UGB

Notes

Overview Map



The City of Oregon City makes no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, surveying or navigation purposes. Notification of any errors is appreciated.

N

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1: 14,948

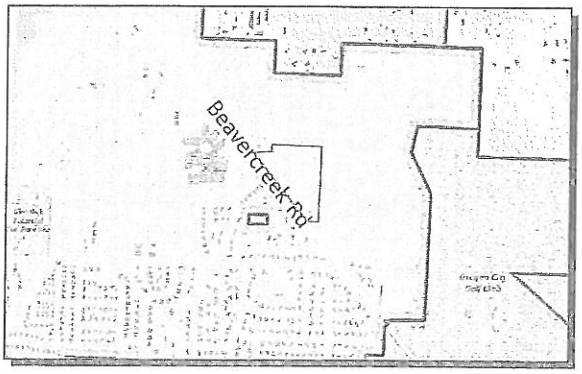
City of Oregon City
PO Box 3040
625 Center St
Oregon City
OR 97045
(503) 657-0891
www.orcity.org

OREGON CITY

Map created 1/7/2014

Taxlot Detail Report

Taxlot: 3-2E-10C -00800



Overview Map



Taxlot highlighted in blue

Taxlot Information

APN: 3-2E-10C -00800
Alt ID: 00870711
Site Address: 19896 BEAVERCREEK RD
OREGON CITY, OR 97045
Year Built: 1945

Taxpayer Information

Taxpayer: *Suppressed*
Address: *Suppressed*

Reference Information

Parcel Area (acres - approx): 9.7
Parcel Area (sq. ft. - approx): 423,403
Twn/Rng/Sec: 03S 02E 10
Tax Map Reference: 32E10C

Values

Mkt Values as of: 10/10/2012
Land Value (Mkt): $800,000
Building Value (Mkt): $1,500
Exempt Amount: $0
Net Value (Mkt): $801,500
Note: These are Market, NOT Assessed values.
Assessed Value: $224,097

Planning Designations

Zoning: MUC1
- Mixed Use Corridor District

Comprehensive Plan: muc
- Mixed Use - Corridor

Subdivision: NONE
PUD (if known):
Neighborhood Assn: Caufield NA
Urban Renewal District:
Historic District:
Historic Designated Structure? N
In Willamette Greenway? N
In Geologic Hazard? N
In Nat. Res. Overlay District (NROD)? N
In 1996 Floodplain? N

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Report generated 12/19/2013 12:57 PM

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PO Box 3040
625 Center St
Oregon City, OR 97045
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BEAVERCREEK ROAD
LIVE/WORK DEVELOPMENT

PRELIMINARY STORMWATER DESIGN REPORT
MAY 2014

Appendix 2

Pre-Developed Site Hydrographs and Flow Details



PRE

Subcat Reach Pond Link

Routing Diagram for BeaverCreek Road.PRE,BC.Road
Prepared by Hewlett-Packard Company, Printed 5/20/2014
HydroCAD® 10.00 s/n 05225 © 2013 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.450	79	50-75% Grass cover, Fair, HSG C (1S)
0.380	74	>75% Grass cover, Good, HSG C (1S)
9.090	90	Fallow, crop residue, Poor, HSG C (1S)
0.380	98	Paved roads w/curbs & sewers, HSG C (1S)
0.050	98	Unconnected roofs, HSG C (1S)
10.350	**89**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
10.350	HSG C	1S
0.000	HSG D	
0.000	Other	
10.350		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchmer Numbers
0.000	0.000	0.450	0.000	0.000	0.450	50-75% Grass cover, Fair	1S
0.000	0.000	0.380	0.000	0.000	0.380	>75% Grass cover, Good	1S
0.000	0.000	9.090	0.000	0.000	9.090	Fallow, crop residue, Poor	1S
0.000	0.000	0.380	0.000	0.000	0.380	Paved roads w/curbs & sewers	1S
0.000	0.000	0.050	0.000	0.000	0.050	Unconnected roofs	1S
0.000	**0.000**	**10.350**	**0.000**	**0.000**	**10.350**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=10.350 ac 4.15% Impervious Runoff Depth>1.34"
Flow Length=1,000' Tc=12.4 min CN=89/98 Runoff=3.67 cfs 1.160 af

Total Runoff Area = 10.350 ac Runoff Volume = 1.160 af Average Runoff Depth = 1.34"
95.85% Pervious = 9.920 ac 4.15% Impervious = 0.430 ac

Summary for Subcatchment 1S: PRE

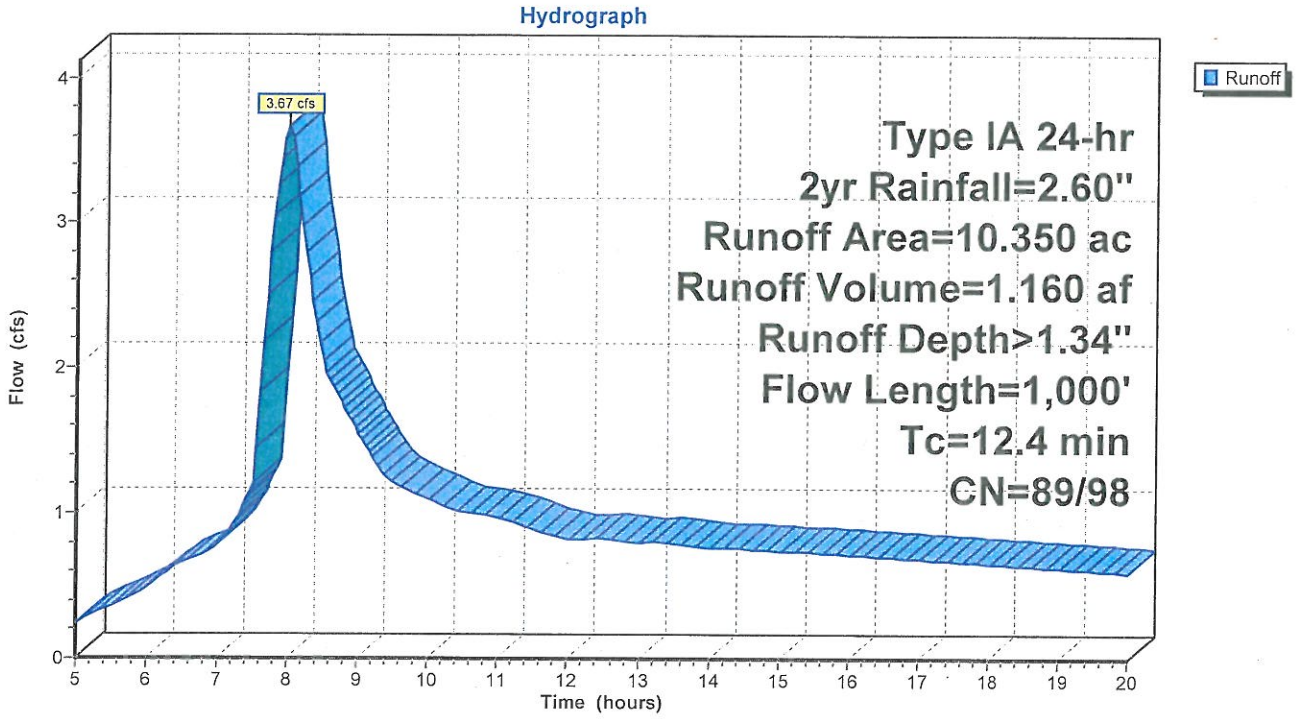
Runoff = 3.67 cfs @ 8.00 hrs, Volume= 1.160 af, Depth> 1.34"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2yr Rainfall=2.60"

Area (ac)	CN	Description
0.380	74	>75% Grass cover, Good, HSG C
0.380	98	Paved roads w/curbs & sewers, HSG C
0.050	98	Unconnected roofs, HSG C
0.450	79	50-75% Grass cover, Fair, HSG C
9.090	90	Fallow, crop residue, Poor, HSG C
10.350	89	Weighted Average
9.920	89	95.85% Pervious Area
0.430	98	4.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	300	0.0350	0.58		**Sheet Flow, Grass Field** Fallow n= 0.050 P2= 2.60"
3.4	300	0.0450	1.48		**Shallow Concentrated Flow, Shallow Flow** Short Grass Pasture Kv= 7.0 fps
0.3	400	0.0550	22.27	222.68	**Channel Flow, Ditch** Area= 10.0 sf Perim= 6.0' r= 1.67' n= 0.022 Earth, clean & straight
12.4	1,000	Total			

Subcatchment 1S: PRE



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=10.350 ac 4.15% Impervious Runoff Depth>1.73"
Flow Length=1,000' Tc=12.4 min CN=89/98 Runoff=4.83 cfs 1.490 af

Total Runoff Area = 10.350 ac Runoff Volume = 1.490 af Average Runoff Depth = 1.73"
95.85% Pervious = 9.920 ac 4.15% Impervious = 0.430 ac

Summary for Subcatchment 1S: PRE

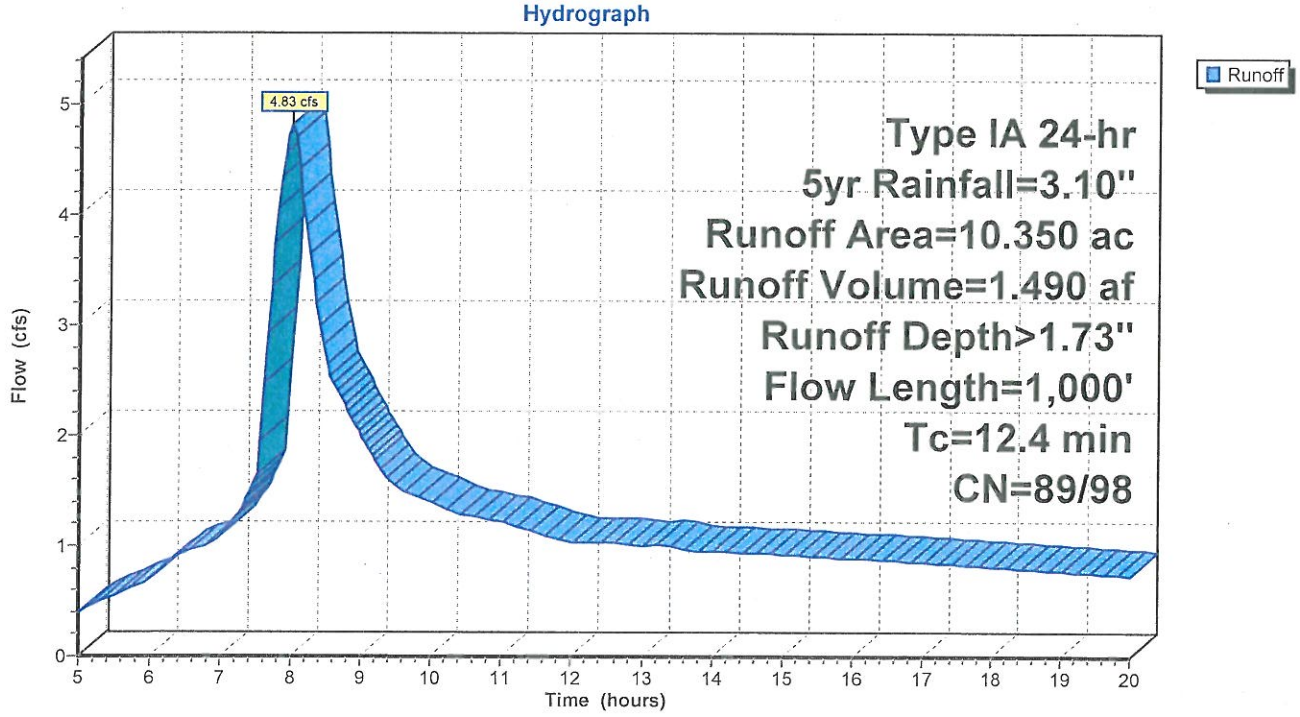
Runoff = 4.83 cfs @ 8.00 hrs, Volume= 1.490 af, Depth> 1.73"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5yr Rainfall=3.10"

Area (ac)	CN	Description
0.380	74	>75% Grass cover, Good, HSG C
0.380	98	Paved roads w/curbs & sewers, HSG C
0.050	98	Unconnected roofs, HSG C
0.450	79	50-75% Grass cover, Fair, HSG C
9.090	90	Fallow, crop residue, Poor, HSG C
10.350	89	Weighted Average
9.920	89	95.85% Pervious Area
0.430	98	4.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	300	0.0350	0.58		**Sheet Flow, Grass Field** Fallow n= 0.050 P2= 2.60"
3.4	300	0.0450	1.48		**Shallow Concentrated Flow, Shallow Flow** Short Grass Pasture Kv= 7.0 fps
0.3	400	0.0550	22.27	222.68	**Channel Flow, Ditch** Area= 10.0 sf Perim= 6.0' r= 1.67' n= 0.022 Earth, clean & straight
12.4	1,000	Total			

Subcatchment 1S: PRE



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=10.350 ac 4.15% Impervious Runoff Depth>1.96"
Flow Length=1,000' Tc=12.4 min CN=89/98 Runoff=5.53 cfs 1.691 af

Total Runoff Area = 10.350 ac Runoff Volume = 1.691 af Average Runoff Depth = 1.96"
95.85% Pervious = 9.920 ac 4.15% Impervious = 0.430 ac

Summary for Subcatchment 1S: PRE

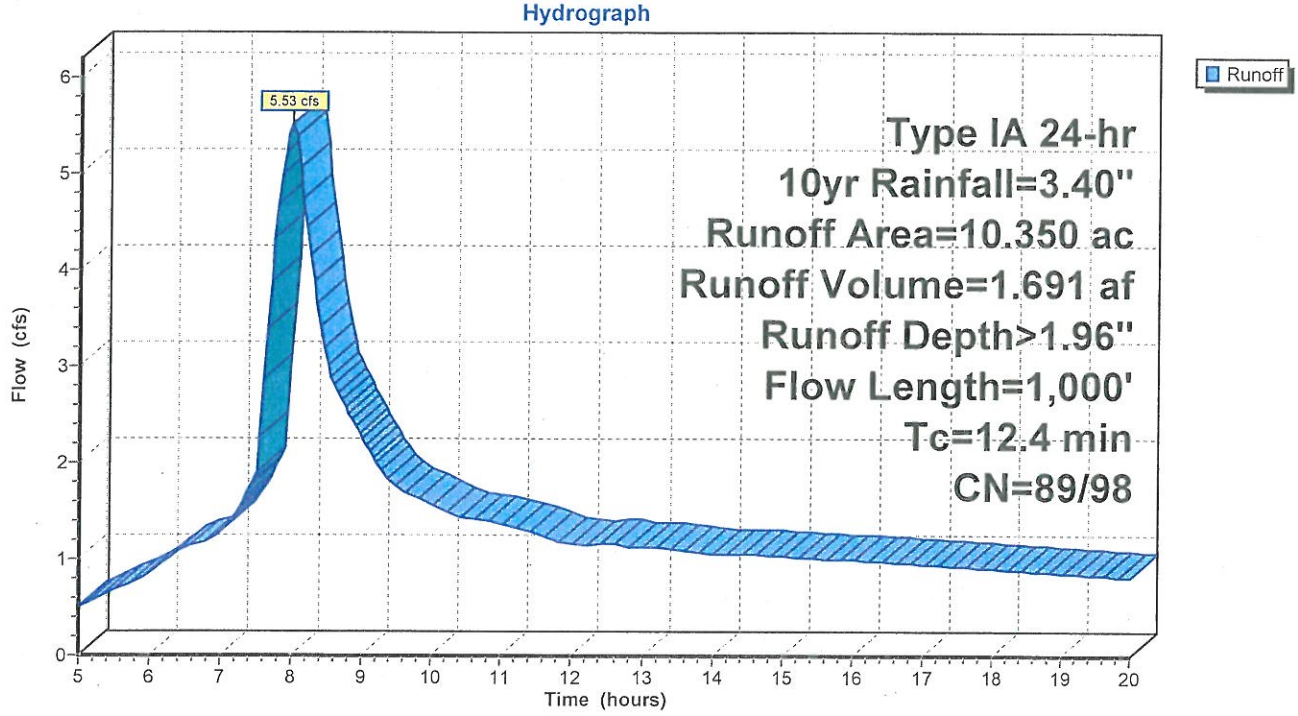
Runoff = 5.53 cfs @ 8.00 hrs, Volume= 1.691 af, Depth> 1.96"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10yr Rainfall=3.40"

Area (ac)	CN	Description
0.380	74	>75% Grass cover, Good, HSG C
0.380	98	Paved roads w/curbs & sewers, HSG C
0.050	98	Unconnected roofs, HSG C
0.450	79	50-75% Grass cover, Fair, HSG C
9.090	90	Fallow, crop residue, Poor, HSG C
10.350	89	Weighted Average
9.920	89	95.85% Pervious Area
0.430	98	4.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	300	0.0350	0.58		**Sheet Flow, Grass Field** Fallow n= 0.050 P2= 2.60"
3.4	300	0.0450	1.48		**Shallow Concentrated Flow, Shallow Flow** Short Grass Pasture Kv= 7.0 fps
0.3	400	0.0550	22.27	222.68	**Channel Flow, Ditch** Area= 10.0 sf Perim= 6.0' r= 1.67' n= 0.022 Earth, clean & straight
12.4	1,000	Total			

Subcatchment 1S: PRE



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=10.350 ac 4.15% Impervious Runoff Depth>2.43"
Flow Length=1,000' Tc=12.4 min CN=89/98 Runoff=6.95 cfs 2.097 af

Total Runoff Area = 10.350 ac Runoff Volume = 2.097 af Average Runoff Depth = 2.43"
95.85% Pervious = 9.920 ac 4.15% Impervious = 0.430 ac

Summary for Subcatchment 1S: PRE

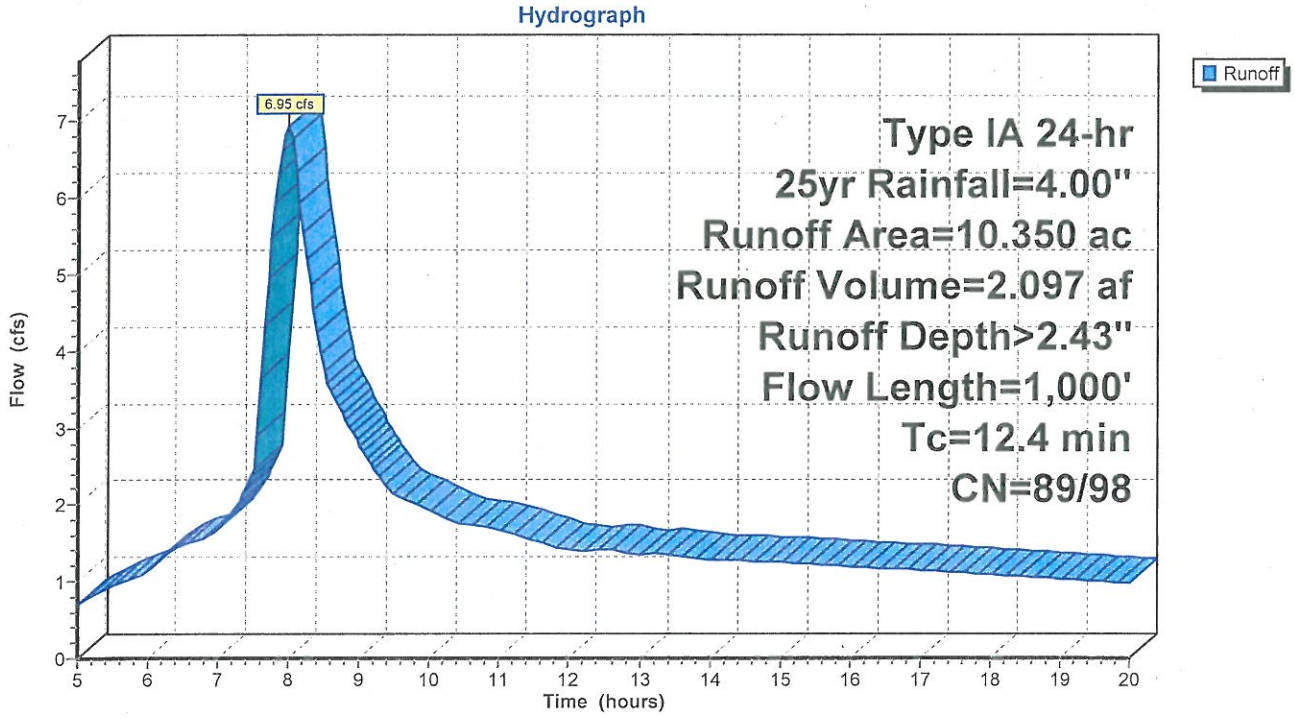
Runoff = 6.95 cfs @ 8.00 hrs, Volume= 2.097 af, Depth> 2.43"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25yr Rainfall=4.00"

Area (ac)	CN	Description
0.380	74	>75% Grass cover, Good, HSG C
0.380	98	Paved roads w/curbs & sewers, HSG C
0.050	98	Unconnected roofs, HSG C
0.450	79	50-75% Grass cover, Fair, HSG C
9.090	90	Fallow, crop residue, Poor, HSG C
10.350	89	Weighted Average
9.920	89	95.85% Pervious Area
0.430	98	4.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	300	0.0350	0.58		**Sheet Flow, Grass Field** Fallow n= 0.050 P2= 2.60"
3.4	300	0.0450	1.48		**Shallow Concentrated Flow, Shallow Flow** Short Grass Pasture Kv= 7.0 fps
0.3	400	0.0550	22.27	222.68	**Channel Flow, Ditch** Area= 10.0 sf Perim= 6.0' r= 1.67' n= 0.022 Earth, clean & straight
12.4	1,000	Total			

Subcatchment 1S: PRE

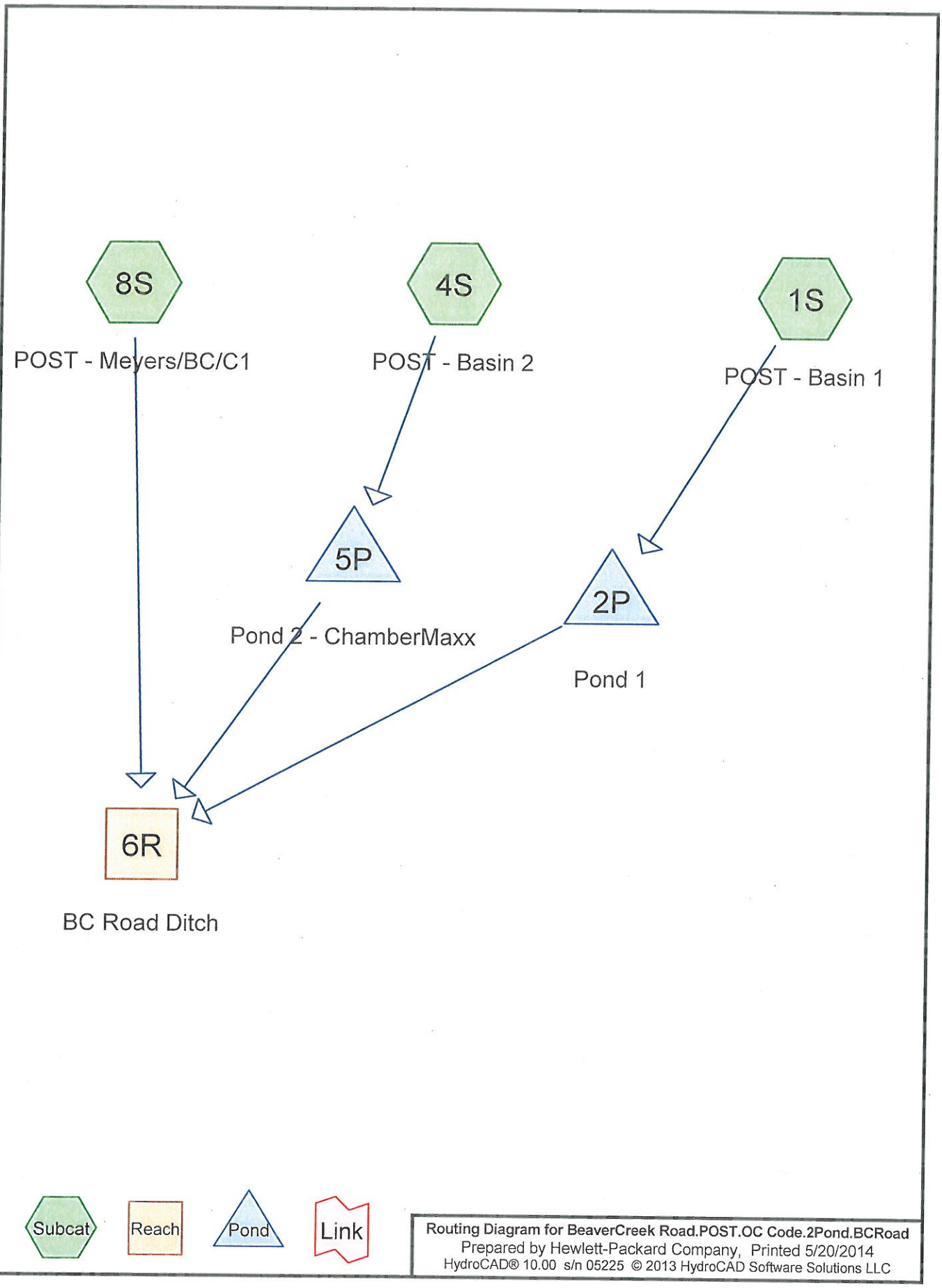


BEAVERCREEK ROAD
LIVE/WORK DEVELOPMENT

PRELIMINARY STORMWATER DESIGN REPORT
MAY 2014

Appendix 3

Post-Developed Site Hydrographs and Flow Details



Routing Diagram for BeaverCreek Road.POST.OC Code.2Pond.BCRoad
Prepared by Hewlett-Packard Company, Printed 5/20/2014
HydroCAD® 10.00 s/n 05225 © 2013 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.487	74	>75% Grass cover, Good, HSG C (1S, 4S, 8S)
4.106	98	Paved parking, HSG C (1S, 4S, 8S)
1.871	98	Roofs, HSG C (1S, 4S, 8S)
0.889	98	Unconnected pavement, HSG C (1S, 4S, 8S)
10.353	**90**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
10.353	HSG C	1S, 4S, 8S
0.000	HSG D	
0.000	Other	
10.353		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	3.487	0.000	0.000	3.487	>75% Grass cover, Good	1S, 4S, 8S
0.000	0.000	4.106	0.000	0.000	4.106	Paved parking	1S, 4S, 8S
0.000	0.000	1.871	0.000	0.000	1.871	Roofs	1S, 4S, 8S
0.000	0.000	0.889	0.000	0.000	0.889	Unconnected pavement	1S, 4S, 8S
0.000	**0.000**	**10.353**	**0.000**	**0.000**	**10.353**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1S	0.00	0.00	500.0	0.0600	0.010	12.0	0.0	0.0
2	4S	0.00	0.00	500.0	0.0600	0.010	12.0	0.0	0.0
3	8S	0.00	0.00	500.0	0.0600	0.010	12.0	0.0	0.0
4	2P	473.50	473.00	50.0	0.0100	0.010	36.0	0.0	0.0
5	5P	473.00	470.50	50.0	0.0500	0.010	12.0	0.0	0.0

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: POST - Basin 1 Runoff Area=5.348 ac 69.82% Impervious Runoff Depth>1.85"
Flow Length=850' Tc=14.1 min CN=74/98 Runoff=2.14 cfs 0.822 af

Subcatchment 4S: POST - Basin 2 Runoff Area=1.832 ac 71.62% Impervious Runoff Depth>1.88"
Flow Length=850' Tc=14.1 min CN=74/98 Runoff=0.75 cfs 0.286 af

Subcatchment 8S: POST - Meyers/BC/C1 Runoff Area=3.173 ac 57.36% Impervious Runoff Depth>1.63"
Flow Length=850' Tc=14.1 min CN=74/98 Runoff=1.09 cfs 0.432 af

Reach 6R: BC Road Ditch Avg. Flow Depth=0.19' Max Vel=3.65 fps Inflow=1.60 cfs 1.344 af
n=0.030 L=10.0' S=0.0650 '/' Capacity=407.12 cfs Outflow=1.60 cfs 1.344 af

Pond 2P: Pond 1 Peak Elev=476.93' Storage=0.241 af Inflow=2.14 cfs 0.822 af
Outflow=0.63 cfs 0.718 af

Pond 5P: Pond 2 - ChamberMaxx Peak Elev=474.38' Storage=0.102 af Inflow=0.75 cfs 0.286 af
Outflow=0.33 cfs 0.194 af

Total Runoff Area = 10.353 ac Runoff Volume = 1.541 af Average Runoff Depth = 1.79"
33.68% Pervious = 3.487 ac 66.32% Impervious = 6.866 ac

Summary for Subcatchment 1S: POST - Basin 1

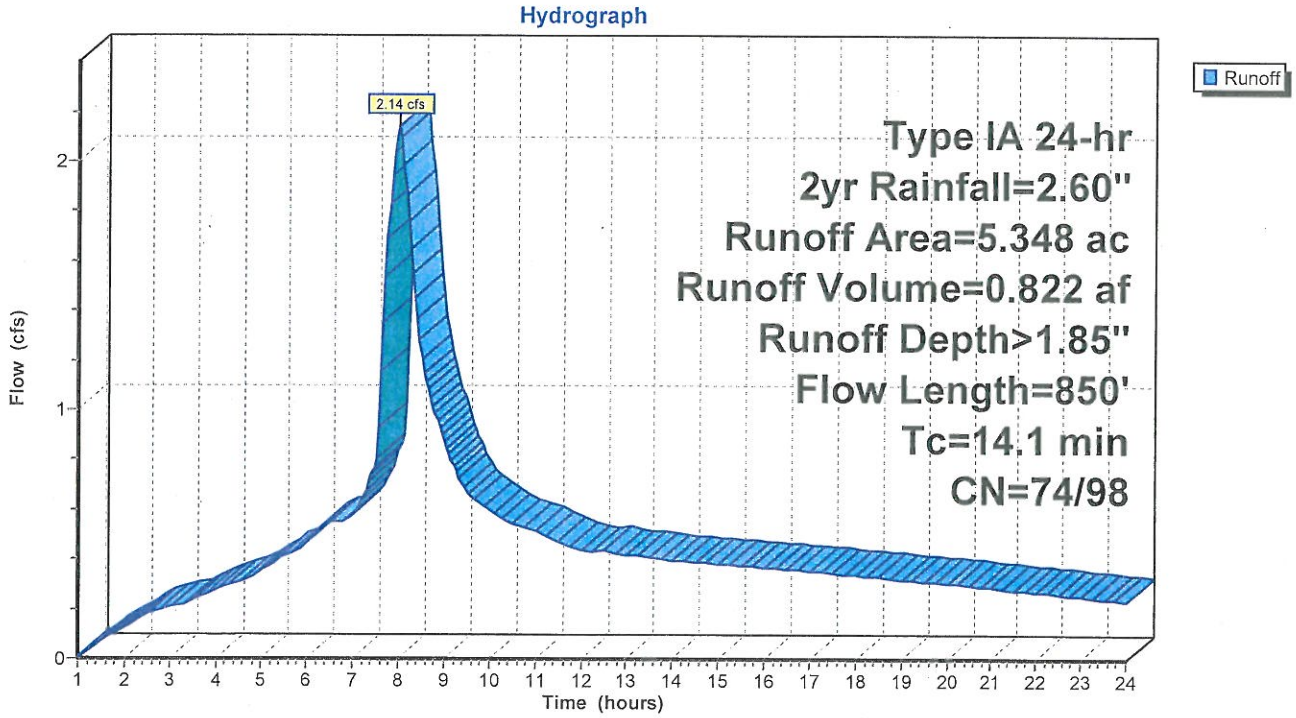
Runoff = 2.14 cfs @ 8.00 hrs, Volume= 0.822 af, Depth> 1.85"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2yr Rainfall=2.60"

Area (ac)	CN	Description
1.614	74	>75% Grass cover, Good, HSG C
0.486	98	Unconnected pavement, HSG C
2.119	98	Paved parking, HSG C
1.129	98	Roofs, HSG C
5.348	91	Weighted Average
1.614	74	30.18% Pervious Area
3.734	98	69.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 1S: POST - Basin 1



Summary for Subcatchment 4S: POST - Basin 2

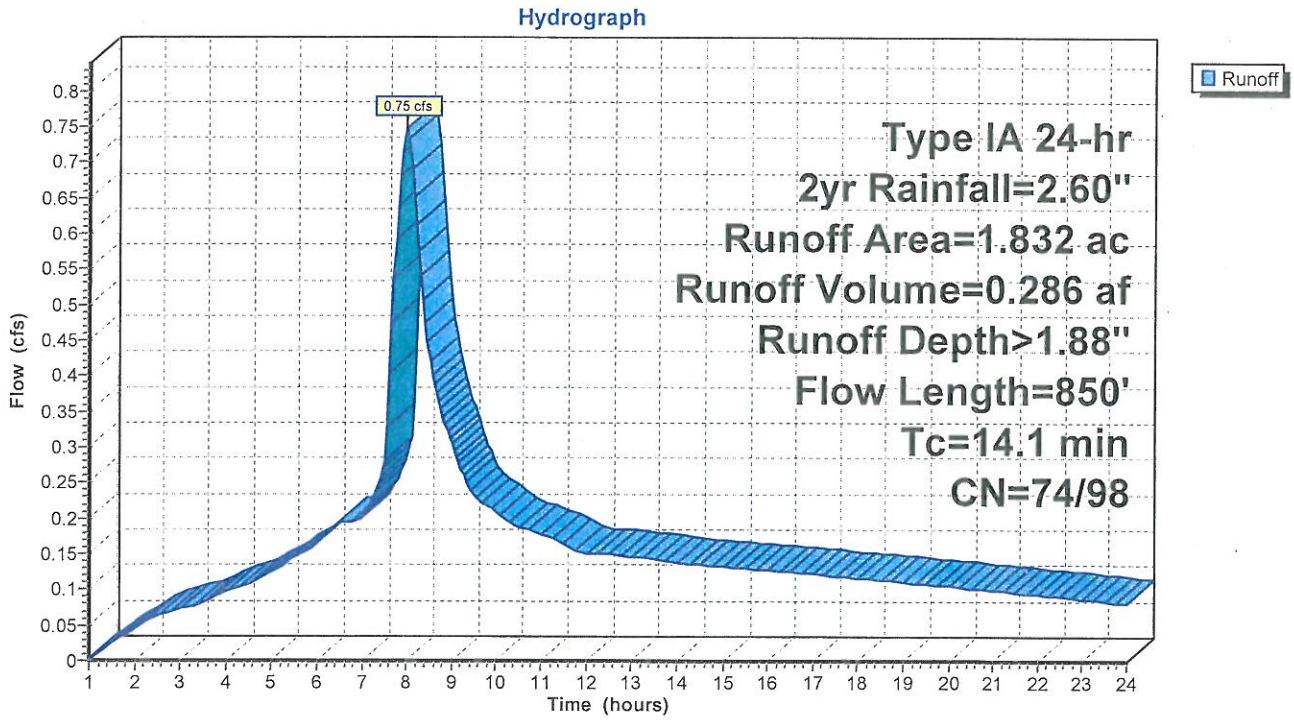
Runoff = 0.75 cfs @ 8.00 hrs, Volume= 0.286 af, Depth> 1.88"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2yr Rainfall=2.60"

Area (ac)	CN	Description
0.520	74	>75% Grass cover, Good, HSG C
0.086	98	Unconnected pavement, HSG C
0.620	98	Paved parking, HSG C
0.606	98	Roofs, HSG C
1.832	91	Weighted Average
0.520	74	28.38% Pervious Area
1.312	98	71.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 4S: POST - Basin 2



Summary for Subcatchment 8S: POST - Meyers/BC/C1

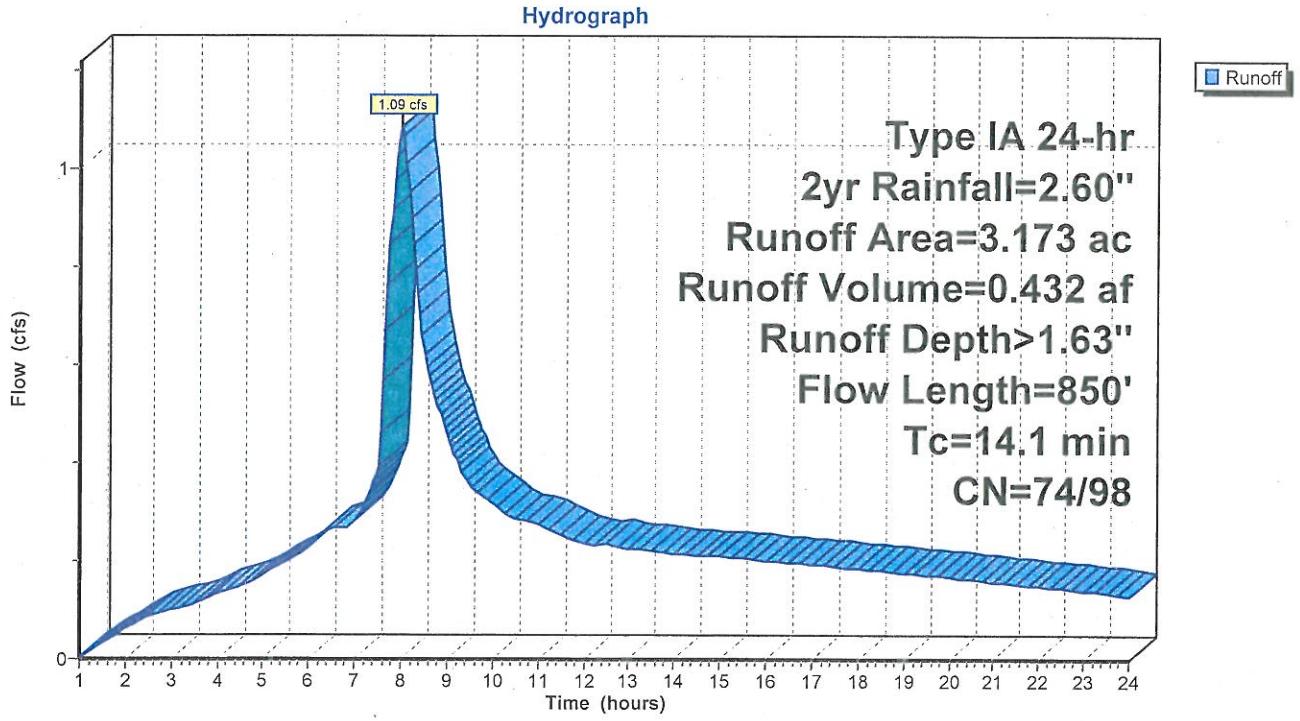
Runoff = 1.09 cfs @ 8.00 hrs, Volume= 0.432 af, Depth> 1.63"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2yr Rainfall=2.60"

Area (ac)	CN	Description
1.353	74	>75% Grass cover, Good, HSG C
0.317	98	Unconnected pavement, HSG C
1.367	98	Paved parking, HSG C
0.136	98	Roofs, HSG C
3.173	88	Weighted Average
1.353	74	42.64% Pervious Area
1.820	98	57.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 8S: POST - Meyers/BC/C1



Summary for Reach 6R: BC Road Ditch

[82] Warning: Early inflow requires earlier time span

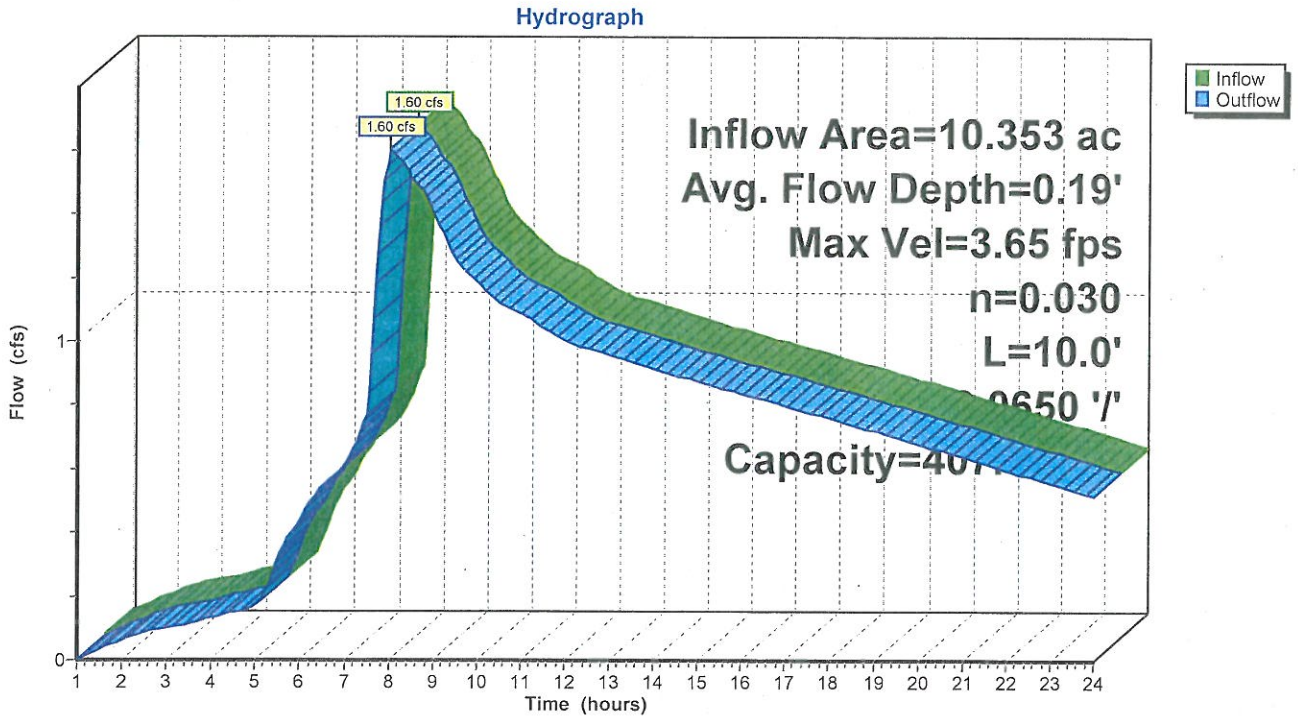
Inflow Area = 10.353 ac, 66.32% Impervious, Inflow Depth > 1.56" for 2yr event
Inflow = 1.60 cfs @ 8.04 hrs, Volume= 1.344 af
Outflow = 1.60 cfs @ 8.04 hrs, Volume= 1.344 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.65 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.63 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 8.04 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 3.00' Flow Area= 24.0 sf, Capacity= 407.12 cfs

2.00' x 3.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 2.0 '/' Top Width= 14.00'
Length= 10.0' Slope= 0.0650 '/'
Inlet Invert= 470.00', Outlet Invert= 469.35'





Summary for Pond 2P: Pond 1

[82] Warning: Early inflow requires earlier time span

Inflow Area = 5.348 ac, 69.82% Impervious, Inflow Depth > 1.85" for 2yr event
Inflow = 2.14 cfs @ 8.00 hrs, Volume= 0.822 af
Outflow = 0.63 cfs @ 9.73 hrs, Volume= 0.718 af, Atten= 71%, Lag= 103.6 min
Primary = 0.63 cfs @ 9.73 hrs, Volume= 0.718 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 476.93' @ 9.73 hrs Surf.Area= 0.094 ac Storage= 0.241 af

Plug-Flow detention time= 245.0 min calculated for 0.716 af (87% of inflow)
Center-of-Mass det. time= 158.2 min (859.9 - 701.7)

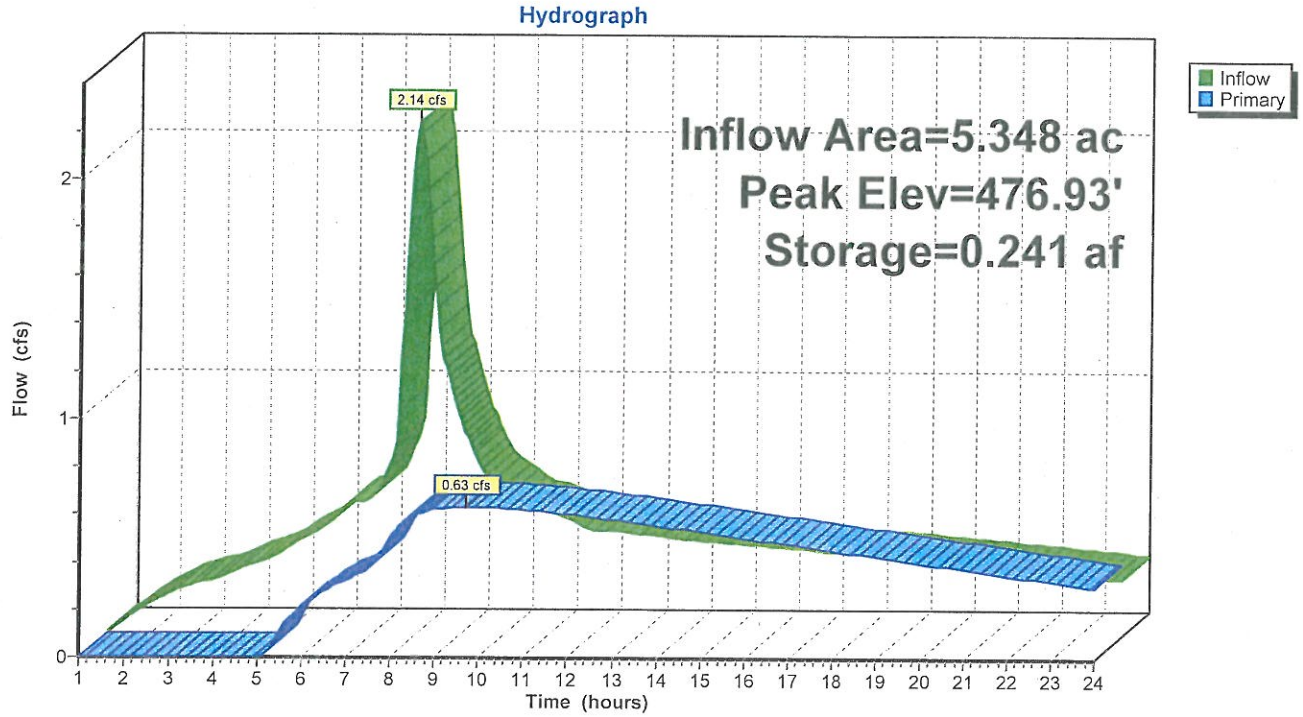
Volume	Invert	Avail.Storage	Storage Description
#1	473.00'	0.479 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
473.00	0.035	0.000	0.000
474.00	0.046	0.040	0.040
475.00	0.061	0.053	0.094
476.00	0.076	0.068	0.162
477.00	0.095	0.085	0.248
478.00	0.117	0.106	0.354
479.00	0.133	0.125	0.479

Device	Routing	Invert	Outlet Devices
#1	Primary	473.50'	**36.0" Round CMP_Round 36"** L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 473.50' / 473.00' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf
#2	Device 1	474.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	477.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.63 cfs @ 9.73 hrs HW=476.93' (Free Discharge)
↑└─**1=CMP_Round 36"** (Passes 0.63 cfs of 46.65 cfs potential flow)
↑ ├─**2=Orifice/Grate** (Orifice Controls 0.63 cfs @ 7.24 fps)
└─**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Pond 1



Summary for Pond 5P: Pond 2 - ChamberMaxx

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.832 ac, 71.62% Impervious, Inflow Depth > 1.88" for 2yr event
Inflow = 0.75 cfs @ 8.00 hrs, Volume= 0.286 af
Outflow = 0.33 cfs @ 8.85 hrs, Volume= 0.194 af, Atten= 56%, Lag= 51.1 min
Primary = 0.33 cfs @ 8.85 hrs, Volume= 0.194 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 474.38' @ 8.85 hrs Surf.Area= 0.067 ac Storage= 0.102 af

Plug-Flow detention time= 364.8 min calculated for 0.194 af (68% of inflow)
Center-of-Mass det. time= 170.0 min (870.0 - 699.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	472.00'	0.085 af	**39.77'W x 73.49'L x 4.53'H Field A** 0.304 af Overall - 0.091 af Embedded = 0.213 af x 40.0% Voids
#2A	473.00'	0.091 af	**Contech ChamberMaxx** x 80 Inside #1 Effective Size= 49.6"W x 30.0"H => 6.92 sf x 7.12'L = 49.3 cf Overall Size= 51.4"W x 30.3"H x 7.58'L with 0.47' Overlap Row Length Adjustment= +0.32' x 6.92 sf x 8 rows
		0.176 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	473.00'	**12.0" Round Culvert** L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 473.00' / 470.50' S= 0.0500 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	474.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.33 cfs @ 8.85 hrs HW=474.38' (Free Discharge)
↑**1=Culvert** (Passes 0.33 cfs of 3.54 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.33 cfs @ 2.09 fps)

Pond 5P: Pond 2 - ChamberMaxx - Chamber Wizard Field A

Chamber Model = Contech ChamberMaxx
Effective Size= 49.6"W x 30.0"H => 6.92 sf x 7.12'L = 49.3 cf
Overall Size= 51.4"W x 30.3"H x 7.58'L with 0.47' Overlap
Row Length Adjustment= +0.32' x 6.92 sf x 8 rows

51.4" Wide + 6.0" Spacing = 57.4" C-C Row Spacing

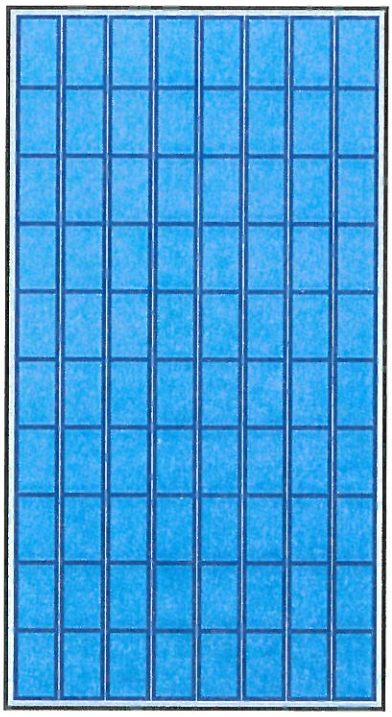
10 Chambers/Row x 7.12' Long +0.32' Row Adjustment = 71.49' Row Length +12.0" End Stone x 2 = 73.49' Base Length
8 Rows x 51.4" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.77' Base Width
12.0" Base + 30.3" Chamber Height + 12.0" Cover = 4.53' Field Height

80 Chambers x 49.3 cf +0.32' Row Adjustment x 6.92 sf x 8 Rows = 3,958.4 cf Chamber Storage

13,223.5 cf Field - 3,958.4 cf Chambers = 9,265.1 cf Stone x 40.0% Voids = 3,706.1 cf Stone Storage

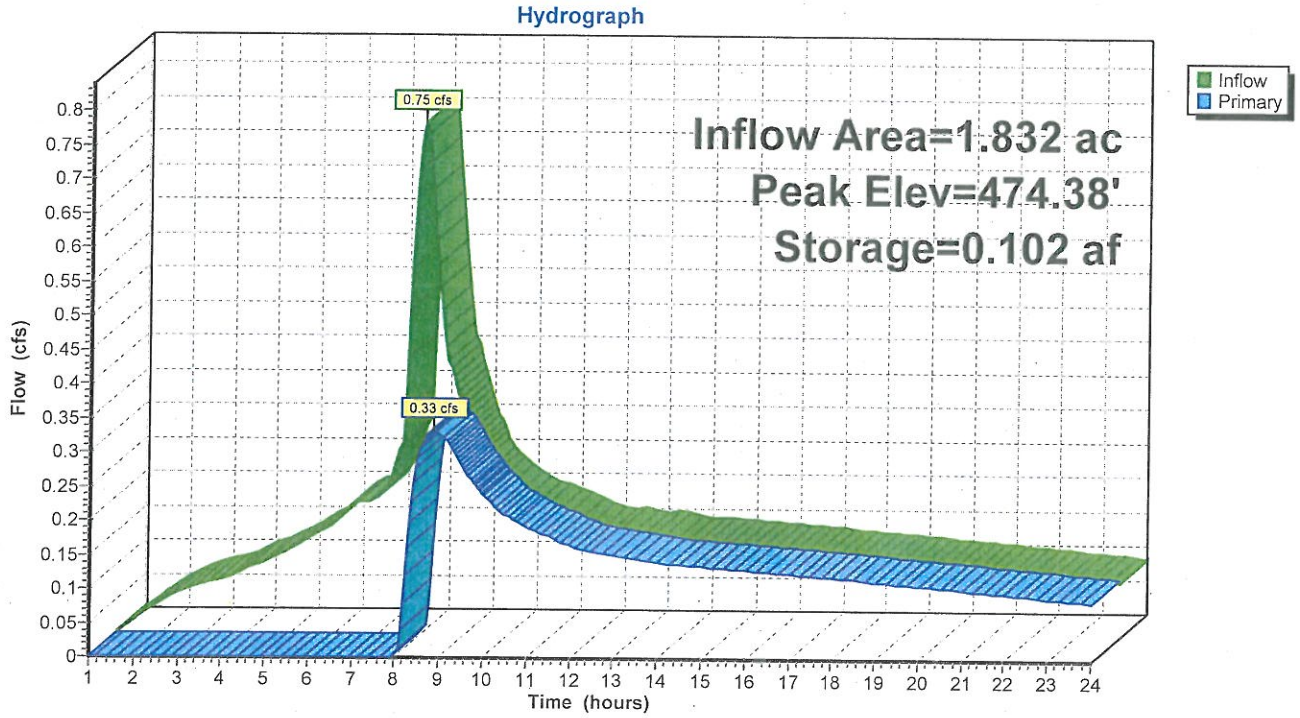
Chamber Storage + Stone Storage = 7,664.4 cf = 0.176 af
Overall Storage Efficiency = 58.0%

80 Chambers
489.8 cy Field
343.2 cy Stone





Pond 5P: Pond 2 - ChamberMaxx



Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: POST - Basin 1 Runoff Area=5.348 ac 69.82% Impervious Runoff Depth>2.28"
Flow Length=850' Tc=14.1 min CN=74/98 Runoff=2.66 cfs 1.017 af

Subcatchment 4S: POST - Basin 2 Runoff Area=1.832 ac 71.62% Impervious Runoff Depth>2.32"
Flow Length=850' Tc=14.1 min CN=74/98 Runoff=0.93 cfs 0.354 af

Subcatchment 8S: POST - Meyers/BC/C1 Runoff Area=3.173 ac 57.36% Impervious Runoff Depth>2.05"
Flow Length=850' Tc=14.1 min CN=74/98 Runoff=1.38 cfs 0.541 af

Reach 6R: BC Road Ditch Avg. Flow Depth=0.23' Max Vel=4.12 fps Inflow=2.32 cfs 1.691 af
n=0.030 L=10.0' S=0.0650 '/' Capacity=407.12 cfs Outflow=2.32 cfs 1.691 af

Pond 2P: Pond 1 Peak Elev=477.35' Storage=0.282 af Inflow=2.66 cfs 1.017 af
Outflow=0.98 cfs 0.889 af

Pond 5P: Pond 2 - ChamberMaxx Peak Elev=474.56' Storage=0.112 af Inflow=0.93 cfs 0.354 af
Outflow=0.53 cfs 0.261 af

Total Runoff Area = 10.353 ac Runoff Volume = 1.913 af Average Runoff Depth = 2.22"
33.68% Pervious = 3.487 ac 66.32% Impervious = 6.866 ac

Summary for Subcatchment 1S: POST - Basin 1

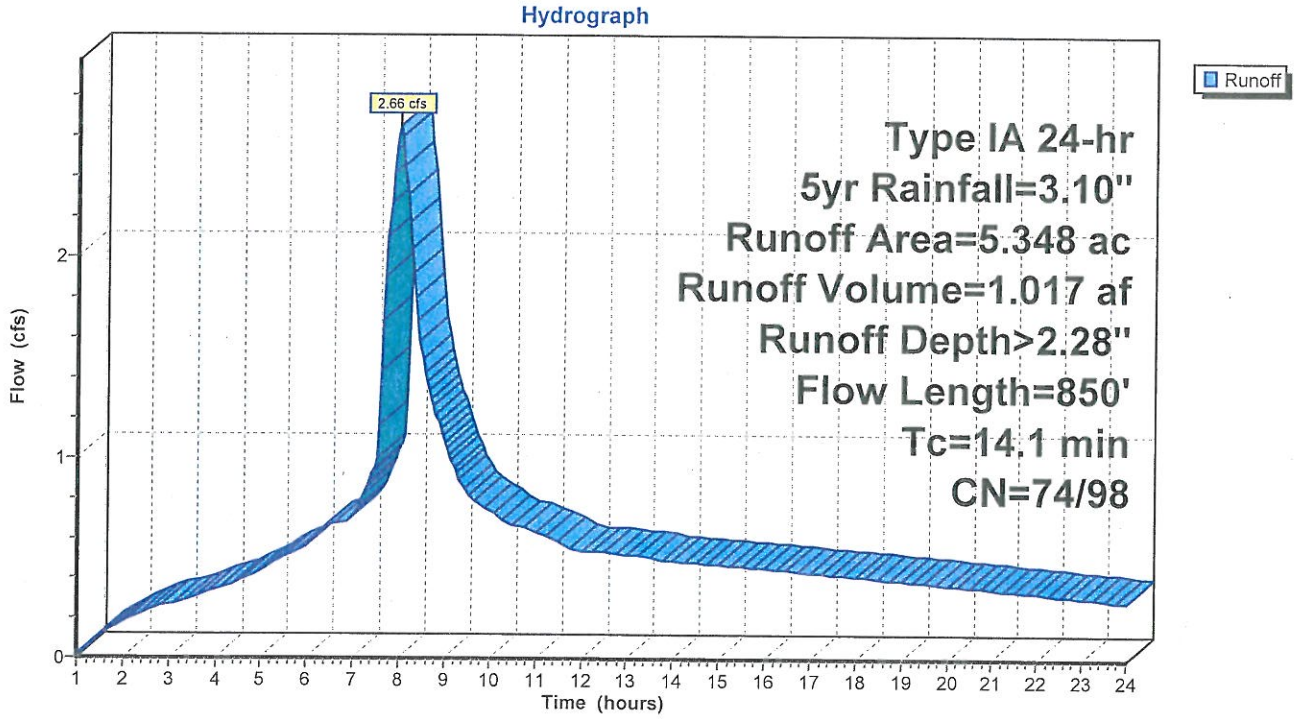
Runoff = 2.66 cfs @ 8.00 hrs, Volume= 1.017 af, Depth> 2.28"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5yr Rainfall=3.10"

Area (ac)	CN	Description
1.614	74	>75% Grass cover, Good, HSG C
0.486	98	Unconnected pavement, HSG C
2.119	98	Paved parking, HSG C
1.129	98	Roofs, HSG C
5.348	91	Weighted Average
1.614	74	30.18% Pervious Area
3.734	98	69.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 1S: POST - Basin 1



Summary for Subcatchment 4S: POST - Basin 2

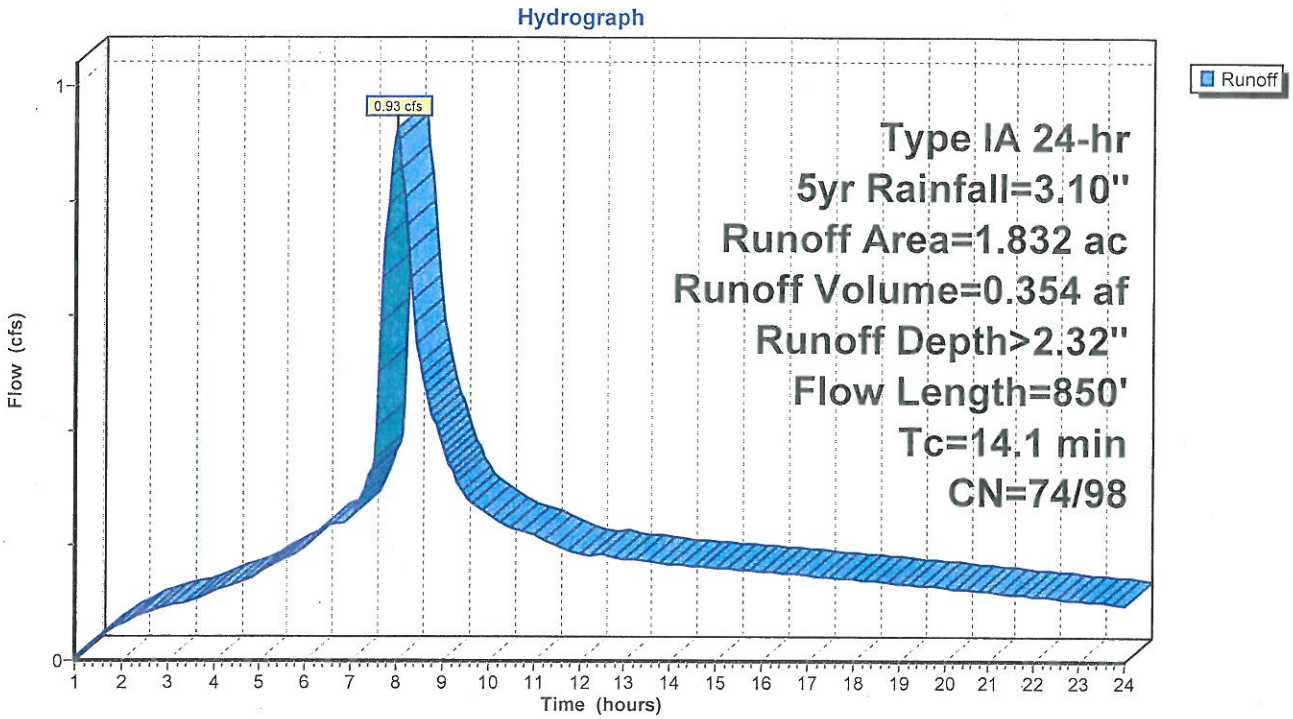
Runoff = 0.93 cfs @ 8.00 hrs, Volume= 0.354 af, Depth> 2.32"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5yr Rainfall=3.10"

Area (ac)	CN	Description
0.520	74	>75% Grass cover, Good, HSG C
0.086	98	Unconnected pavement, HSG C
0.620	98	Paved parking, HSG C
0.606	98	Roofs, HSG C
1.832	91	Weighted Average
0.520	74	28.38% Pervious Area
1.312	98	71.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 4S: POST - Basin 2



Summary for Subcatchment 8S: POST - Meyers/BC/C1

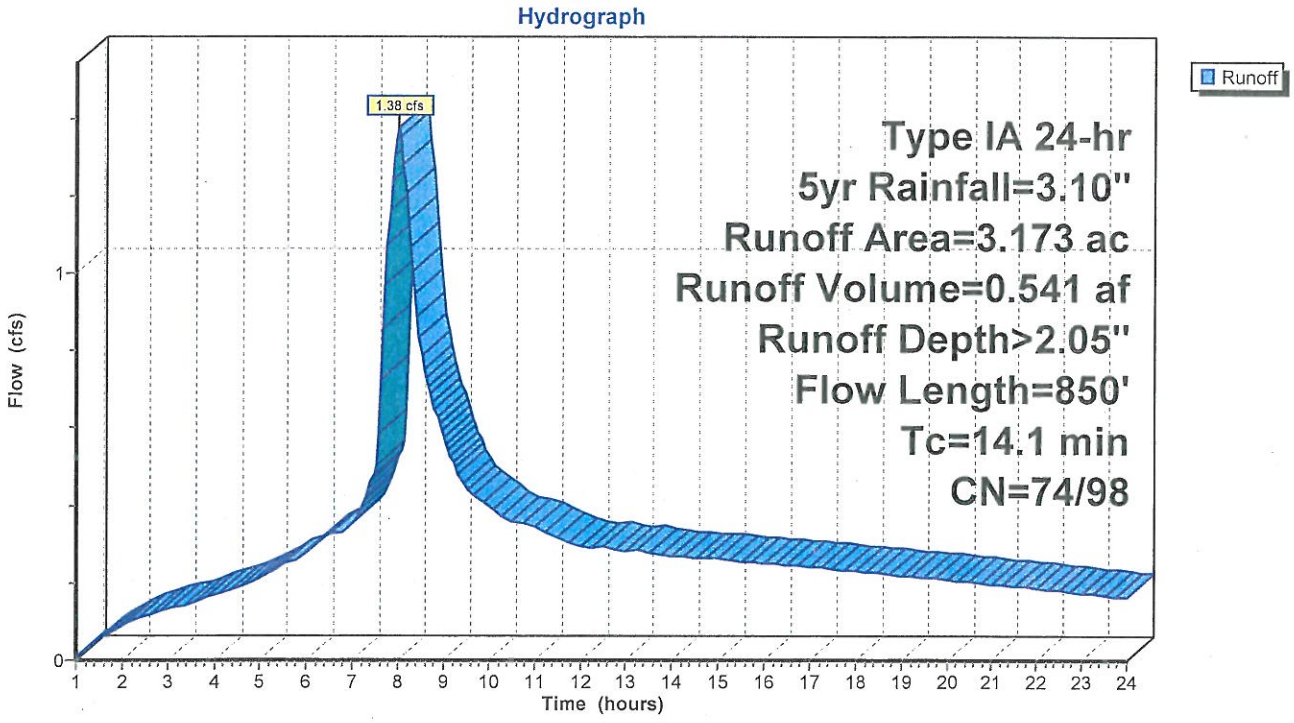
Runoff = 1.38 cfs @ 8.00 hrs, Volume= 0.541 af, Depth> 2.05"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5yr Rainfall=3.10"

Area (ac)	CN	Description
1.353	74	>75% Grass cover, Good, HSG C
0.317	98	Unconnected pavement, HSG C
1.367	98	Paved parking, HSG C
0.136	98	Roofs, HSG C
3.173	88	Weighted Average
1.353	74	42.64% Pervious Area
1.820	98	57.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 8S: POST - Meyers/BC/C1



Summary for Reach 6R: BC Road Ditch

[82] Warning: Early inflow requires earlier time span

Inflow Area = 10.353 ac, 66.32% Impervious, Inflow Depth > 1.96" for 5yr event
Inflow = 2.32 cfs @ 8.07 hrs, Volume= 1.691 af
Outflow = 2.32 cfs @ 8.07 hrs, Volume= 1.691 af, Atten= 0%, Lag= 0.0 min

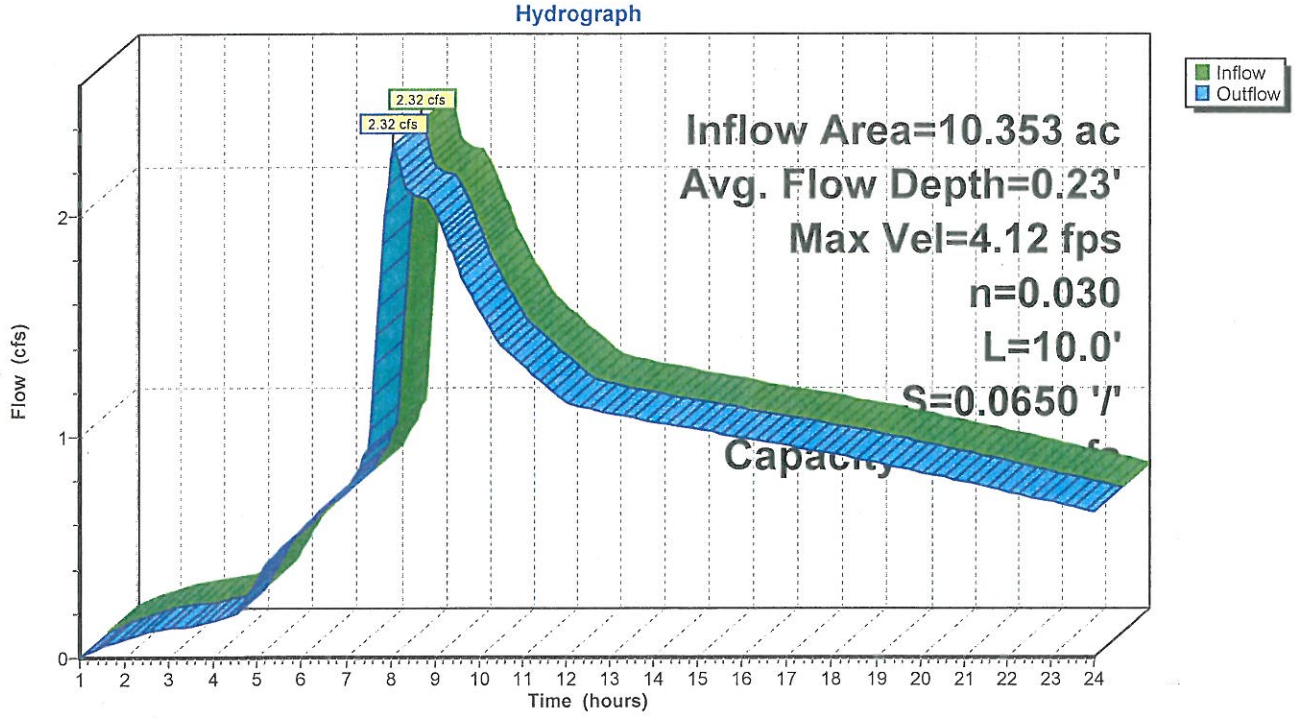
Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.12 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.84 fps, Avg. Travel Time= 0.1 min

Peak Storage= 6 cf @ 8.07 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 3.00' Flow Area= 24.0 sf, Capacity= 407.12 cfs

2.00' x 3.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 2.0 '/' Top Width= 14.00'
Length= 10.0' Slope= 0.0650 '/'
Inlet Invert= 470.00', Outlet Invert= 469.35'



Reach 6R: BC Road Ditch



Summary for Pond 2P: Pond 1

[82] Warning: Early inflow requires earlier time span

Inflow Area = 5.348 ac, 69.82% Impervious, Inflow Depth > 2.28" for 5yr event
Inflow = 2.66 cfs @ 8.00 hrs, Volume= 1.017 af
Outflow = 0.98 cfs @ 9.15 hrs, Volume= 0.889 af, Atten= 63%, Lag= 69.4 min
Primary = 0.98 cfs @ 9.15 hrs, Volume= 0.889 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 477.35' @ 9.15 hrs Surf.Area= 0.103 ac Storage= 0.282 af

Plug-Flow detention time= 238.7 min calculated for 0.889 af (87% of inflow)
Center-of-Mass det. time= 152.1 min (850.2 - 698.1)

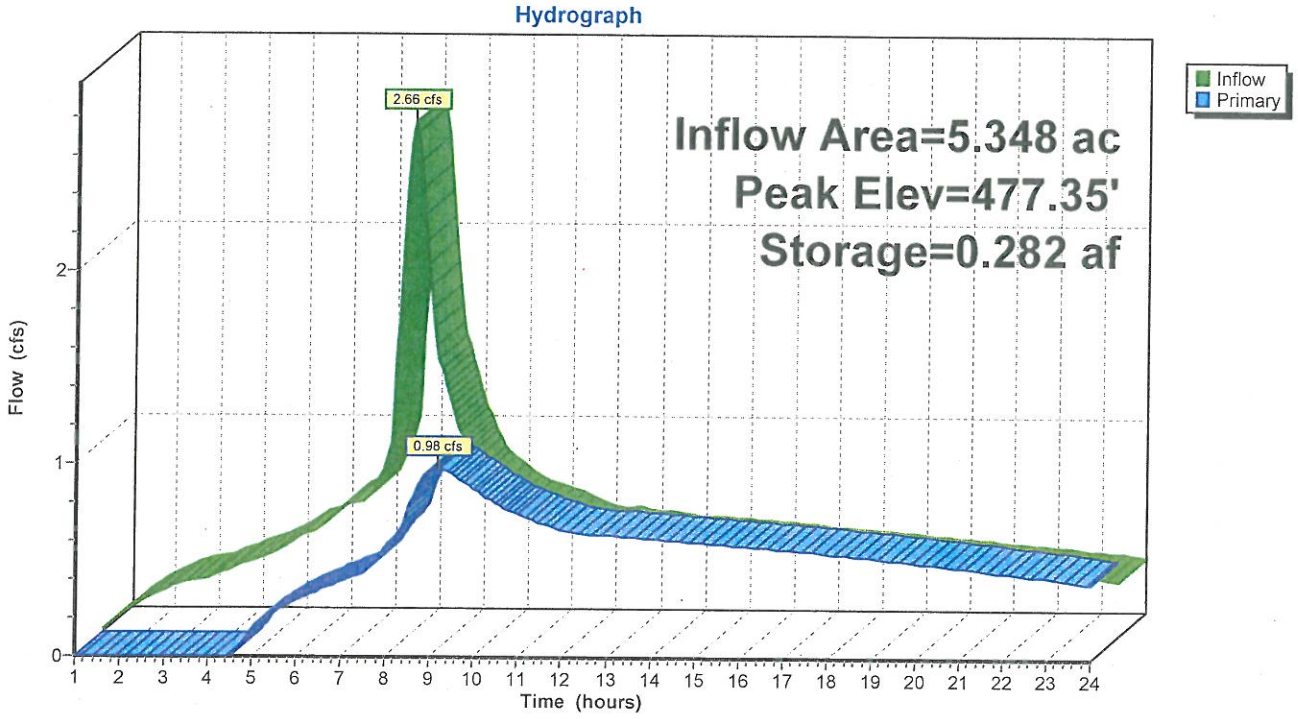
Volume	Invert	Avail.Storage	Storage Description
#1	473.00'	0.479 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
473.00	0.035	0.000	0.000
474.00	0.046	0.040	0.040
475.00	0.061	0.053	0.094
476.00	0.076	0.068	0.162
477.00	0.095	0.085	0.248
478.00	0.117	0.106	0.354
479.00	0.133	0.125	0.479

Device	Routing	Invert	Outlet Devices
#1	Primary	473.50'	**36.0" Round CMP_Round 36"** L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 473.50' / 473.00' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf
#2	Device 1	474.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	477.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.98 cfs @ 9.15 hrs HW=477.35' (Free Discharge)
↑**1=CMP_Round 36"** (Passes 0.98 cfs of 52.16 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.69 cfs @ 7.89 fps)
3=Orifice/Grate (Orifice Controls 0.29 cfs @ 2.01 fps)

Pond 2P: Pond 1



Summary for Pond 5P: Pond 2 - ChamberMaxx

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.832 ac, 71.62% Impervious, Inflow Depth > 2.32" for 5yr event
Inflow = 0.93 cfs @ 8.00 hrs, Volume= 0.354 af
Outflow = 0.53 cfs @ 8.49 hrs, Volume= 0.261 af, Atten= 43%, Lag= 29.3 min
Primary = 0.53 cfs @ 8.49 hrs, Volume= 0.261 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 474.56' @ 8.49 hrs Surf.Area= 0.067 ac Storage= 0.112 af

Plug-Flow detention time= 306.7 min calculated for 0.260 af (74% of inflow)
Center-of-Mass det. time= 141.3 min (837.6 - 696.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	472.00'	0.085 af	**39.77'W x 73.49'L x 4.53'H Field A** 0.304 af Overall - 0.091 af Embedded = 0.213 af x 40.0% Voids
#2A	473.00'	0.091 af	**Contech ChamberMaxx** x 80 Inside #1 Effective Size= 49.6"W x 30.0"H => 6.92 sf x 7.12'L = 49.3 cf Overall Size= 51.4"W x 30.3"H x 7.58'L with 0.47' Overlap Row Length Adjustment= +0.32' x 6.92 sf x 8 rows
		0.176 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	473.00'	**12.0" Round Culvert** L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 473.00' / 470.50' S= 0.0500 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	474.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.53 cfs @ 8.49 hrs HW=474.56' (Free Discharge)
↑—**1=Culvert** (Passes 0.53 cfs of 3.90 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 0.53 cfs @ 2.70 fps)

Pond 5P: Pond 2 - ChamberMaxx - Chamber Wizard Field A

Chamber Model = Contech ChamberMaxx
Effective Size= 49.6"W x 30.0"H => 6.92 sf x 7.12'L = 49.3 cf
Overall Size= 51.4"W x 30.3"H x 7.58'L with 0.47' Overlap
Row Length Adjustment= +0.32' x 6.92 sf x 8 rows

51.4" Wide + 6.0" Spacing = 57.4" C-C Row Spacing

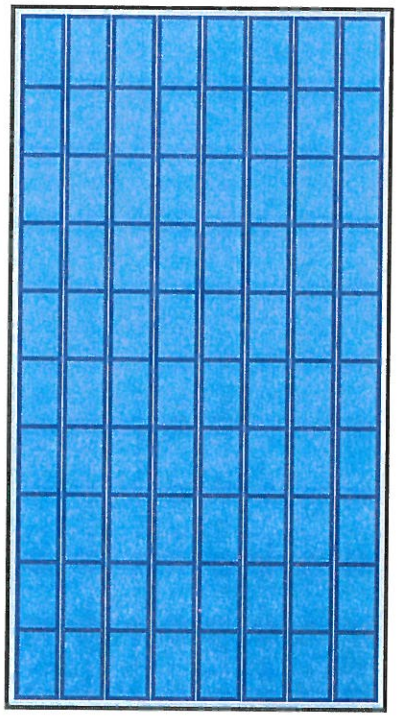
10 Chambers/Row x 7.12' Long +0.32' Row Adjustment = 71.49' Row Length +12.0" End Stone x 2 = 73.49' Base Length
8 Rows x 51.4" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.77' Base Width
12.0" Base + 30.3" Chamber Height + 12.0" Cover = 4.53' Field Height

80 Chambers x 49.3 cf +0.32' Row Adjustment x 6.92 sf x 8 Rows = 3,958.4 cf Chamber Storage

13,223.5 cf Field - 3,958.4 cf Chambers = 9,265.1 cf Stone x 40.0% Voids = 3,706.1 cf Stone Storage

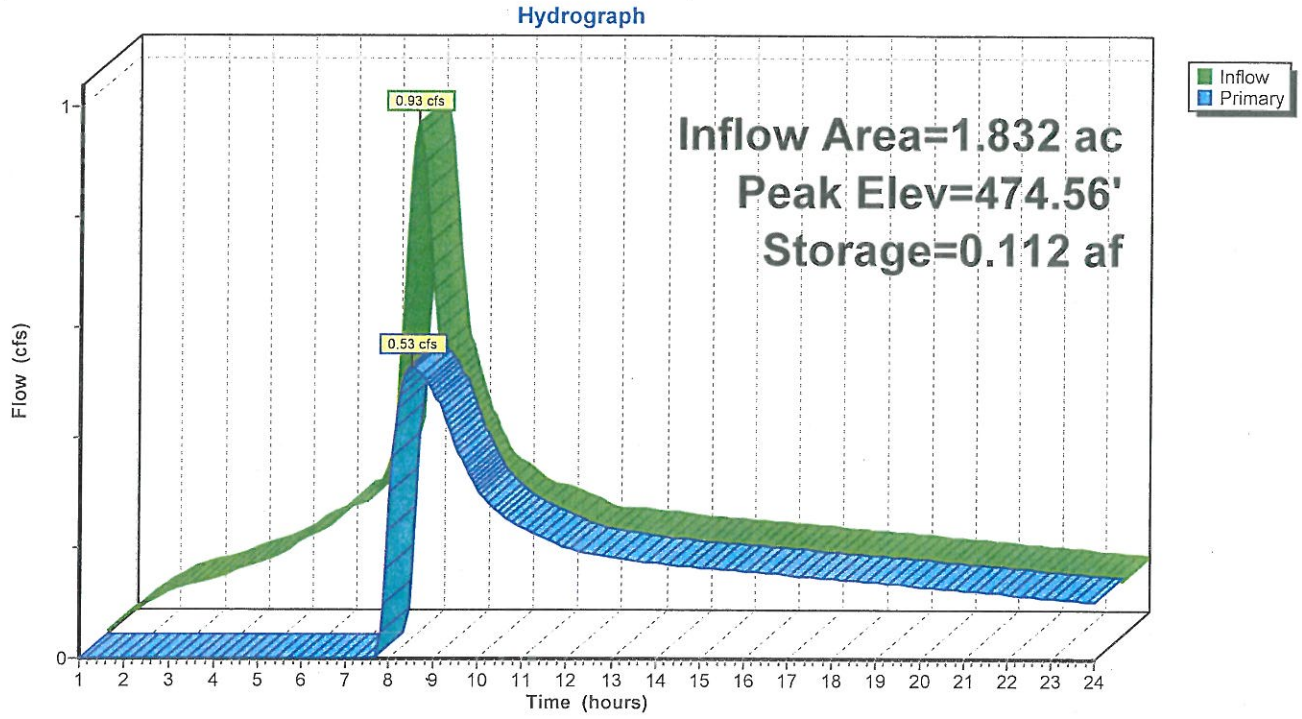
Chamber Storage + Stone Storage = 7,664.4 cf = 0.176 af
Overall Storage Efficiency = 58.0%

80 Chambers
489.8 cy Field
343.2 cy Stone





Pond 5P: Pond 2 - ChamberMaxx



Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: POST - Basin 1 Runoff Area=5.348 ac 69.82% Impervious Runoff Depth>3.09"
Flow Length=850' Tc=14.1 min CN=74/98 Runoff=3.62 cfs 1.378 af

Subcatchment 4S: POST - Basin 2 Runoff Area=1.832 ac 71.62% Impervious Runoff Depth>3.13"
Flow Length=850' Tc=14.1 min CN=74/98 Runoff=1.26 cfs 0.478 af

Subcatchment 8S: POST - Meyers/BC/C1 Runoff Area=3.173 ac 57.36% Impervious Runoff Depth>2.82"
Flow Length=850' Tc=14.1 min CN=74/98 Runoff=1.93 cfs 0.747 af

Reach 6R: BC Road Ditch Avg. Flow Depth=0.30' Max Vel=4.77 fps Inflow=3.70 cfs 2.327 af
n=0.030 L=10.0' S=0.0650 '/' Capacity=407.12 cfs Outflow=3.70 cfs 2.327 af

Pond 2P: Pond 1 Peak Elev=477.95' Storage=0.348 af Inflow=3.62 cfs 1.378 af
Outflow=1.55 cfs 1.197 af

Pond 5P: Pond 2 - ChamberMaxx Peak Elev=474.95' Storage=0.129 af Inflow=1.26 cfs 0.478 af
Outflow=0.79 cfs 0.383 af

Total Runoff Area = 10.353 ac Runoff Volume = 2.603 af Average Runoff Depth = 3.02"
33.68% Pervious = 3.487 ac 66.32% Impervious = 6.866 ac

Summary for Subcatchment 1S: POST - Basin 1

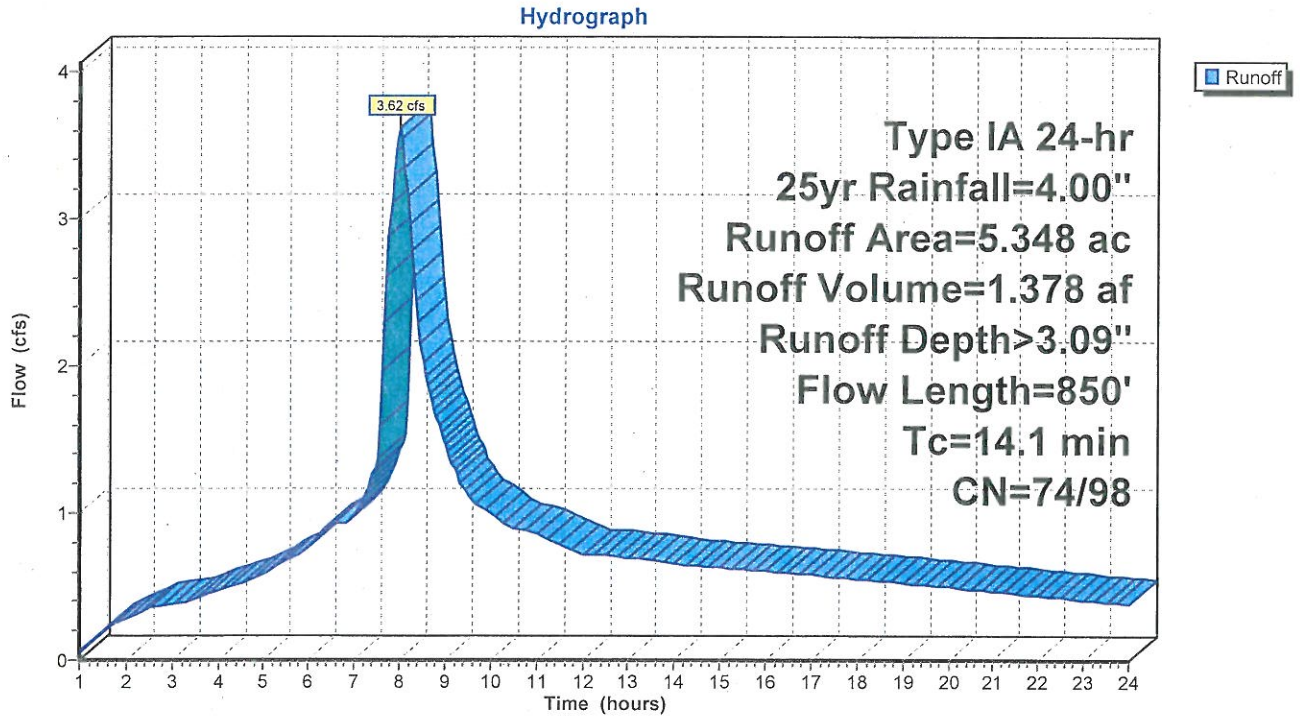
Runoff = 3.62 cfs @ 8.00 hrs, Volume= 1.378 af, Depth> 3.09"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25yr Rainfall=4.00"

Area (ac)	CN	Description
1.614	74	>75% Grass cover, Good, HSG C
0.486	98	Unconnected pavement, HSG C
2.119	98	Paved parking, HSG C
1.129	98	Roofs, HSG C
5.348	91	Weighted Average
1.614	74	30.18% Pervious Area
3.734	98	69.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 1S: POST - Basin 1



Summary for Subcatchment 4S: POST - Basin 2

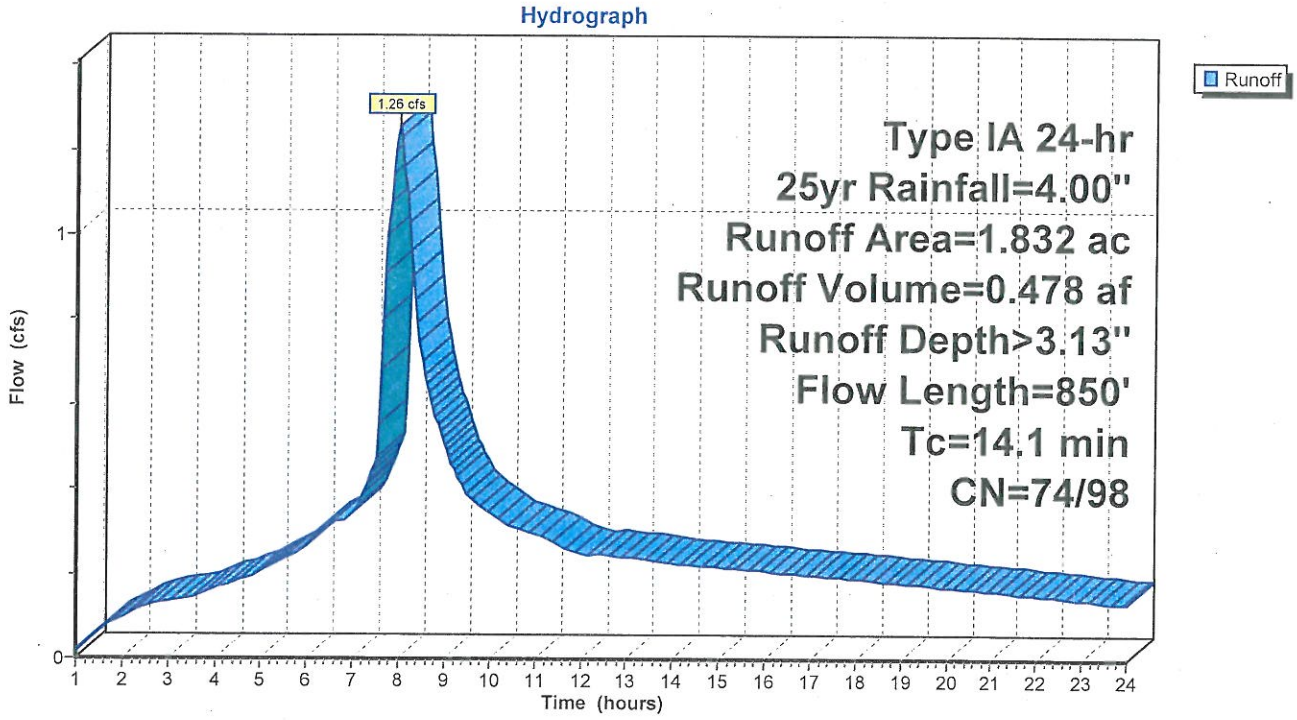
Runoff = 1.26 cfs @ 8.00 hrs, Volume= 0.478 af, Depth> 3.13"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25yr Rainfall=4.00"

Area (ac)	CN	Description
0.520	74	>75% Grass cover, Good, HSG C
0.086	98	Unconnected pavement, HSG C
0.620	98	Paved parking, HSG C
0.606	98	Roofs, HSG C
1.832	91	Weighted Average
0.520	74	28.38% Pervious Area
1.312	98	71.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 4S: POST - Basin 2



Summary for Subcatchment 8S: POST - Meyers/BC/C1

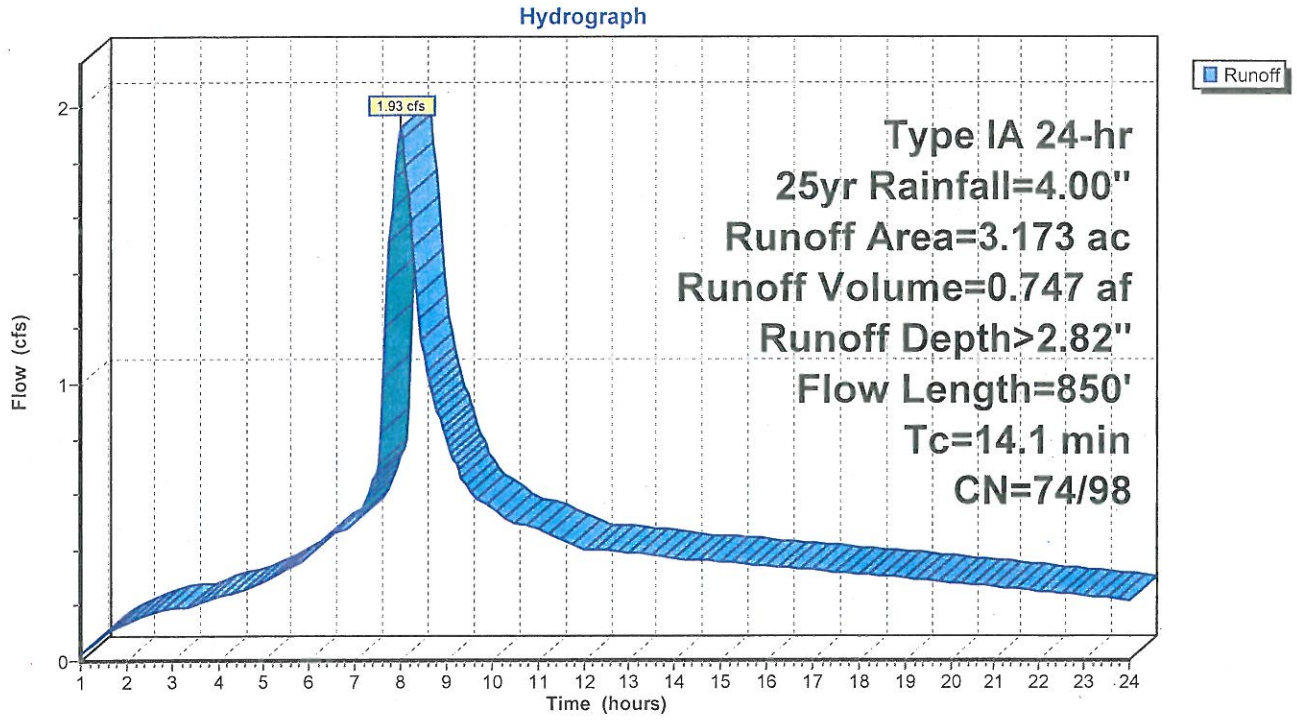
Runoff = 1.93 cfs @ 8.00 hrs, Volume= 0.747 af, Depth> 2.82"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25yr Rainfall=4.00"

Area (ac)	CN	Description
1.353	74	>75% Grass cover, Good, HSG C
0.317	98	Unconnected pavement, HSG C
1.367	98	Paved parking, HSG C
0.136	98	Roofs, HSG C
3.173	88	Weighted Average
1.353	74	42.64% Pervious Area
1.820	98	57.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0200	0.15		**Sheet Flow, Grass Area** Grass: Short n= 0.150 P2= 2.60"
2.6	250	0.0250	1.63		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 2.60"
0.6	500	0.0600	14.45	11.35	**Pipe Channel, Storm Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.1	850	Total			

Subcatchment 8S: POST - Meyers/BC/C1



Summary for Reach 6R: BC Road Ditch

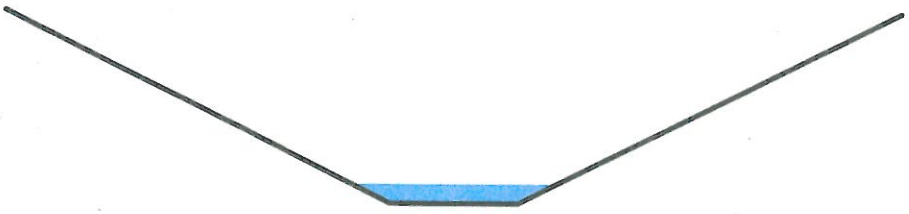
[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1 (severity=2)

Inflow Area = 10.353 ac, 66.32% Impervious, Inflow Depth > 2.70" for 25yr event
Inflow = 3.70 cfs @ 8.12 hrs, Volume= 2.327 af
Outflow = 3.70 cfs @ 8.12 hrs, Volume= 2.327 af, Atten= 0%, Lag= 0.0 min

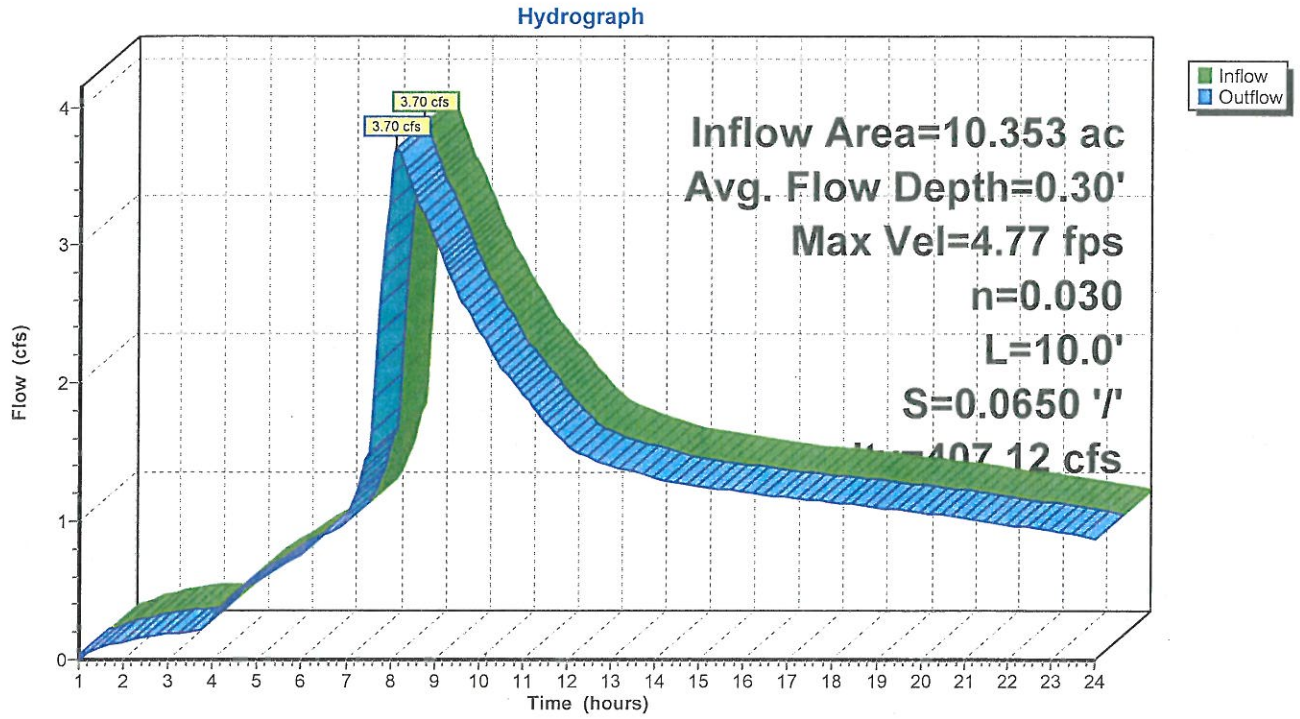
Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.77 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.16 fps, Avg. Travel Time= 0.1 min

Peak Storage= 8 cf @ 8.12 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 3.00' Flow Area= 24.0 sf, Capacity= 407.12 cfs

2.00' x 3.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 2.0 '/' Top Width= 14.00'
Length= 10.0' Slope= 0.0650 '/'
Inlet Invert= 470.00', Outlet Invert= 469.35'



Reach 6R: BC Road Ditch



Summary for Pond 2P: Pond 1

[82] Warning: Early inflow requires earlier time span

Inflow Area = 5.348 ac, 69.82% Impervious, Inflow Depth > 3.09" for 25yr event
Inflow = 3.62 cfs @ 8.00 hrs, Volume= 1.378 af
Outflow = 1.55 cfs @ 8.90 hrs, Volume= 1.197 af, Atten= 57%, Lag= 54.3 min
Primary = 1.55 cfs @ 8.90 hrs, Volume= 1.197 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 477.95' @ 8.90 hrs Surf.Area= 0.116 ac Storage= 0.348 af

Plug-Flow detention time= 214.4 min calculated for 1.197 af (87% of inflow)
Center-of-Mass det. time= 124.4 min (817.5 - 693.2)

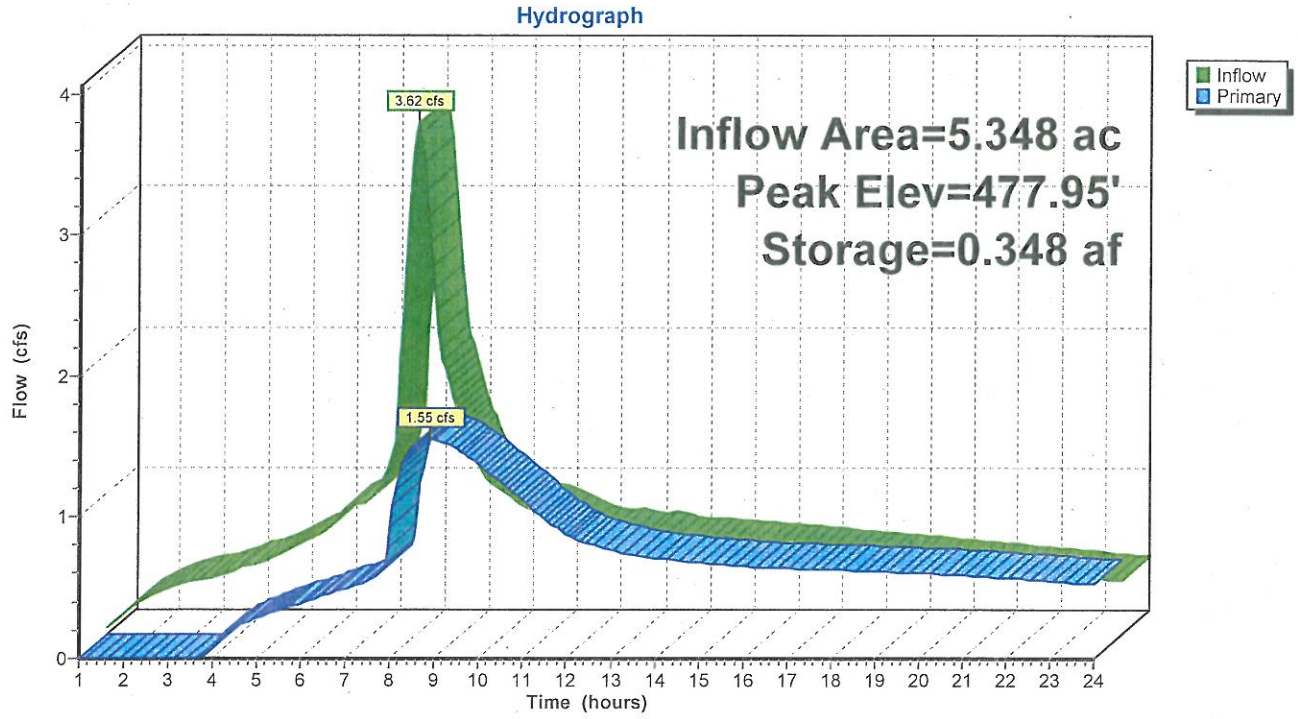
Volume	Invert	Avail.Storage	Storage Description
#1	473.00'	0.479 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
473.00	0.035	0.000	0.000
474.00	0.046	0.040	0.040
475.00	0.061	0.053	0.094
476.00	0.076	0.068	0.162
477.00	0.095	0.085	0.248
478.00	0.117	0.106	0.354
479.00	0.133	0.125	0.479

Device	Routing	Invert	Outlet Devices
#1	Primary	473.50'	**36.0" Round CMP_Round 36"** L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 473.50' / 473.00' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf
#2	Device 1	474.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	477.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.55 cfs @ 8.90 hrs HW=477.95' (Free Discharge)
↑└─**1=CMP_Round 36"** (Passes 1.55 cfs of 58.42 cfs potential flow)
  ↑├─**2=Orifice/Grate** (Orifice Controls 0.76 cfs @ 8.72 fps)
  └─**3=Orifice/Grate** (Orifice Controls 0.79 cfs @ 4.02 fps)

Pond 2P: Pond 1



Summary for Pond 5P: Pond 2 - ChamberMaxx

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.832 ac, 71.62% Impervious, Inflow Depth > 3.13" for 25yr event
Inflow = 1.26 cfs @ 8.00 hrs, Volume= 0.478 af
Outflow = 0.79 cfs @ 8.41 hrs, Volume= 0.383 af, Atten= 37%, Lag= 24.6 min
Primary = 0.79 cfs @ 8.41 hrs, Volume= 0.383 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 474.95' @ 8.41 hrs Surf.Area= 0.067 ac Storage= 0.129 af

Plug-Flow detention time= 243.6 min calculated for 0.383 af (80% of inflow)
Center-of-Mass det. time= 113.7 min (805.0 - 691.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	472.00'	0.085 af	**39.77'W x 73.49'L x 4.53'H Field A** 0.304 af Overall - 0.091 af Embedded = 0.213 af x 40.0% Voids
#2A	473.00'	0.091 af	**Contech ChamberMaxx** x 80 Inside #1 Effective Size= 49.6"W x 30.0"H => 6.92 sf x 7.12'L = 49.3 cf Overall Size= 51.4"W x 30.3"H x 7.58'L with 0.47' Overlap Row Length Adjustment= +0.32' x 6.92 sf x 8 rows
		0.176 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	473.00'	**12.0" Round Culvert** L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 473.00' / 470.50' S= 0.0500 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	474.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.79 cfs @ 8.41 hrs HW=474.95' (Free Discharge)
↑—**1=Culvert** (Passes 0.79 cfs of 4.55 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 0.79 cfs @ 4.02 fps)

Pond 5P: Pond 2 - ChamberMaxx - Chamber Wizard Field A

Chamber Model = Contech ChamberMaxx
Effective Size= 49.6"W x 30.0"H => 6.92 sf x 7.12'L = 49.3 cf
Overall Size= 51.4"W x 30.3"H x 7.58'L with 0.47' Overlap
Row Length Adjustment= +0.32' x 6.92 sf x 8 rows

51.4" Wide + 6.0" Spacing = 57.4" C-C Row Spacing

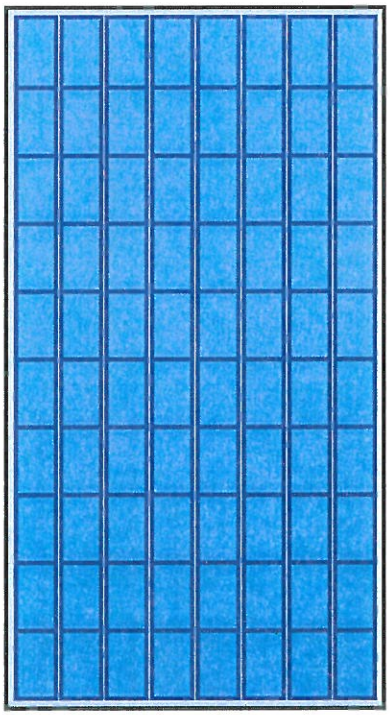
10 Chambers/Row x 7.12' Long +0.32' Row Adjustment = 71.49' Row Length +12.0" End Stone x 2 = 73.49' Base Length
8 Rows x 51.4" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.77' Base Width
12.0" Base + 30.3" Chamber Height + 12.0" Cover = 4.53' Field Height

80 Chambers x 49.3 cf +0.32' Row Adjustment x 6.92 sf x 8 Rows = 3,958.4 cf Chamber Storage

13,223.5 cf Field - 3,958.4 cf Chambers = 9,265.1 cf Stone x 40.0% Voids = 3,706.1 cf Stone Storage

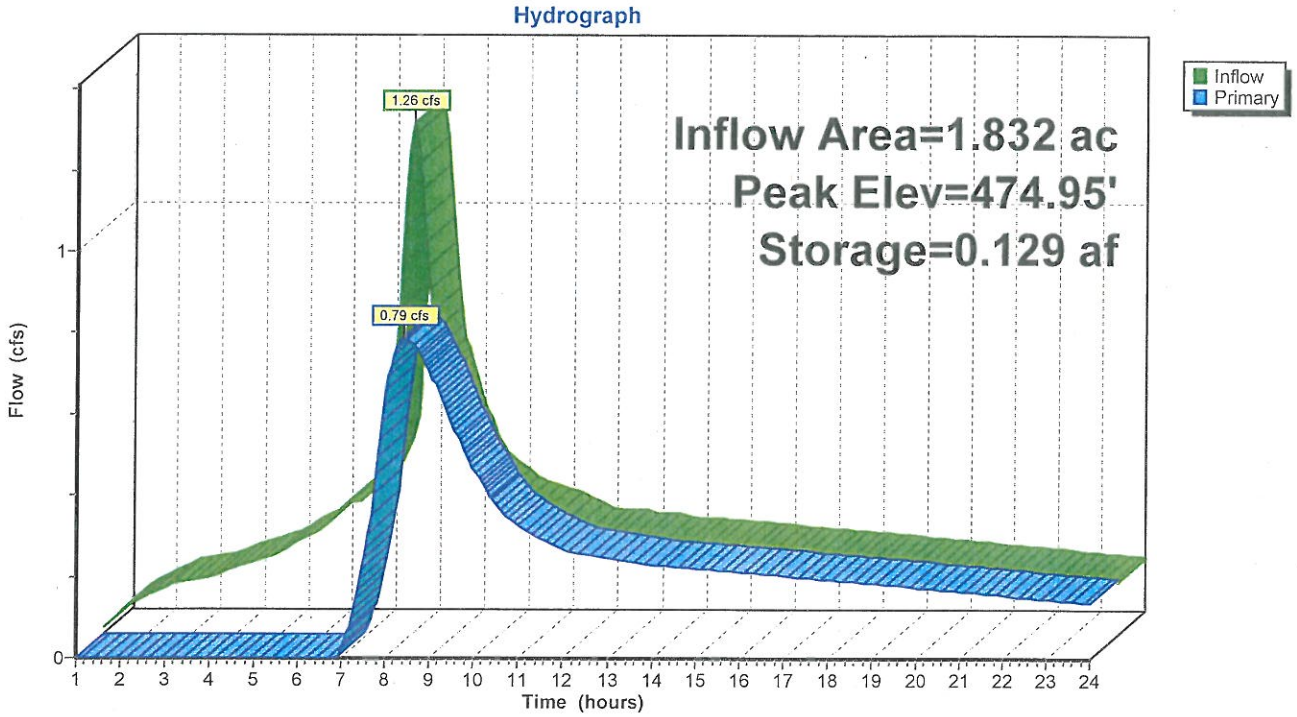
Chamber Storage + Stone Storage = 7,664.4 cf = 0.176 af
Overall Storage Efficiency = 58.0%

80 Chambers
489.8 cy Field
343.2 cy Stone





Pond 5P: Pond 2 - ChamberMaxx



BEAVERCREEK ROAD
LIVE/WORK DEVELOPMENT

PRELIMINARY STORMWATER DESIGN REPORT
MAY 2014

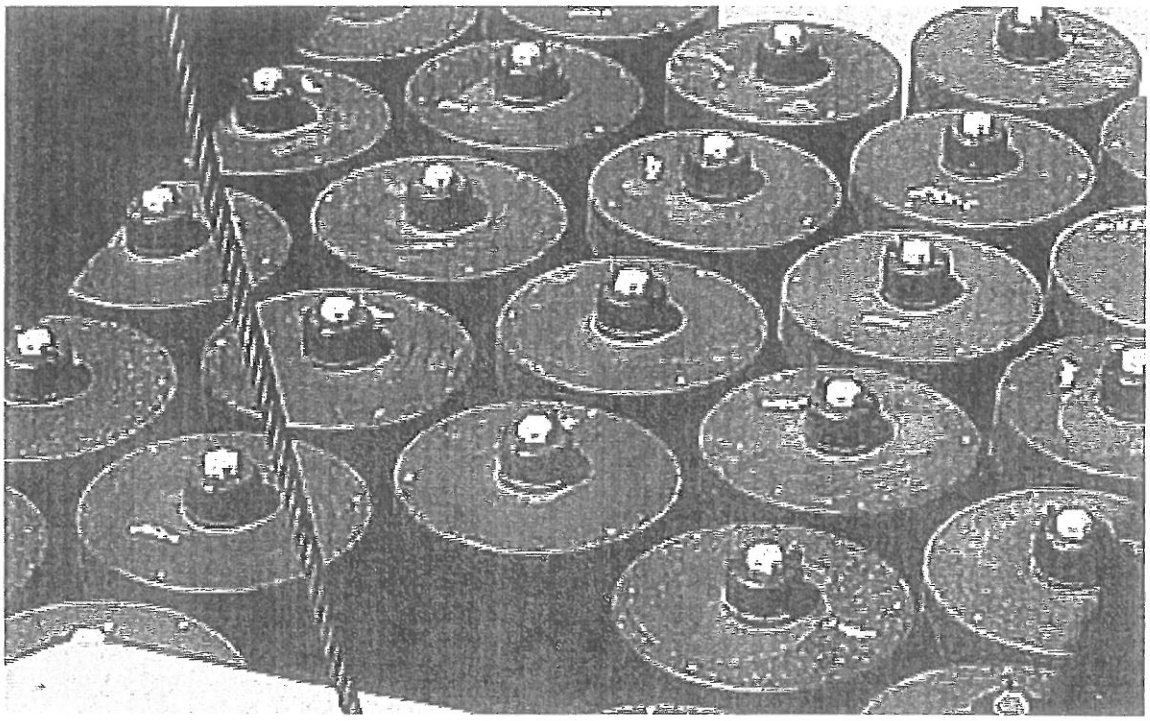
Appendix 4

Water Quality Structure Cut Sheets

CONTECH®
CONSTRUCTION PRODUCTS INC.

StormFilter

Configuration Guide



The Stormwater Management
StormFilter®

The Stormwater Management StormFilter®

The Stormwater Management StormFilter® (StormFilter) is a passive, flow-through, stormwater filtration system. The system is comprised of one or more structures that house rechargeable, media-filled cartridges which trap particulates and adsorb materials such as dissolved metals, hydrocarbons, and nutrients in polluted runoff.

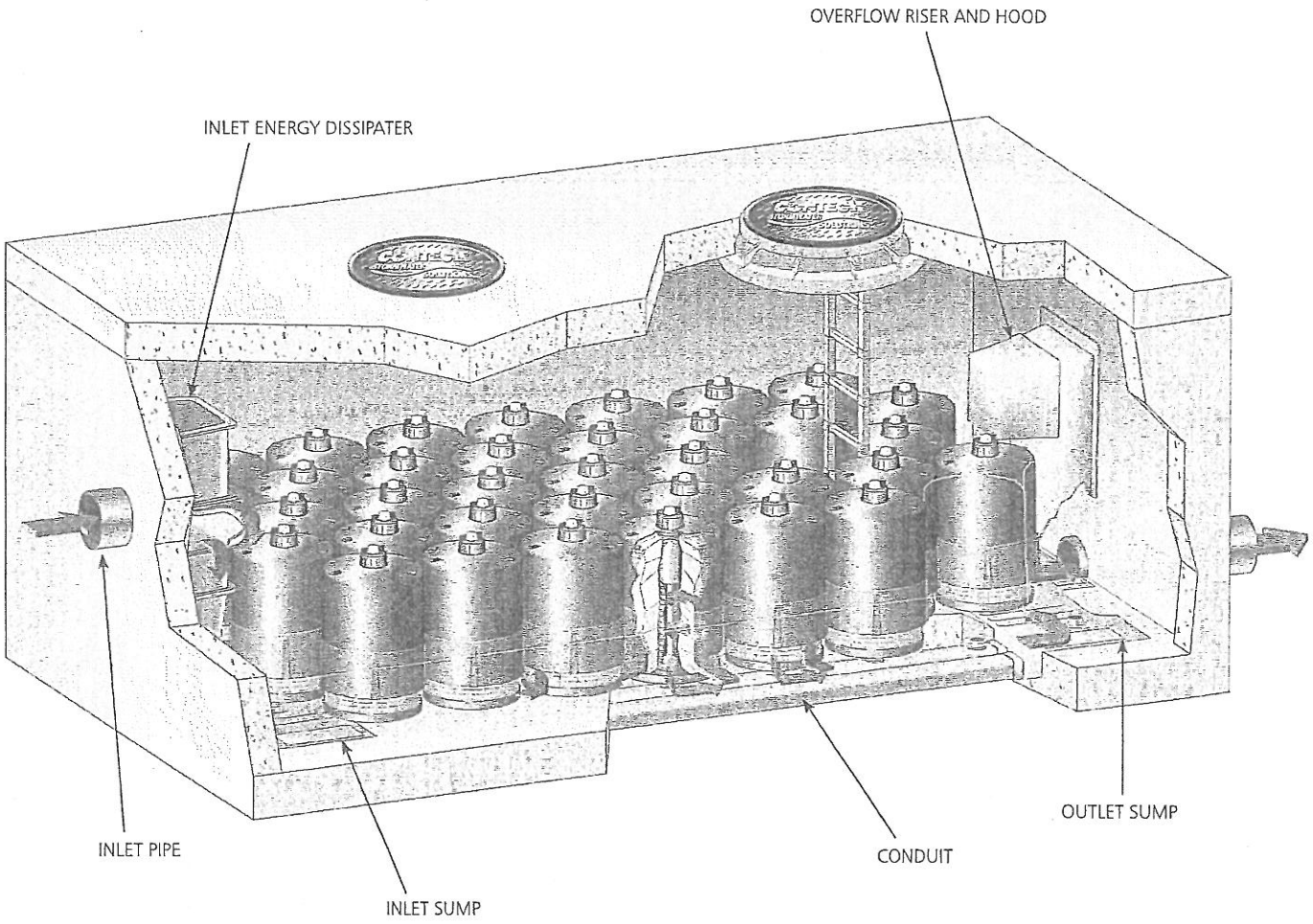
The StormFilter system comes in a variety of configurations and sizes to meet any site need. A variety of filter media is available and can be customized for each site to remove the desired pollutants.

Basic Design

The StormFilter is sized to treat the peak flow of a water quality design storm. The peak flow or WQv is determined from calculations based on the contributing watershed hydrology and from a design storm magnitude set by the local stormwater management agency. The StormFilter system is modular and each unit is designed with the number of cartridges required to meet the peak design flow rate, WQv or cap.

The flow rate through each filter cartridge is set to meet the jurisdictional performance requirements, allowing control over the amount of contact time between the influent and the filter media. The maximum flow rate through each cartridge can be adjusted, between 0.26 gpm/ft² and 2 gpm/ft² of surface area, using a calibrated restrictor disc at the base of each filter cartridge. Adjustments to the cartridge flow rate will affect the number of cartridges required to treat the peak flow or WQv.

Please contact your local CONTECH representative for site-specific design assistance.



Basic Operation

Priming System Function

The system is designed to siphon stormwater runoff through the StormFilter cartridge. Stormwater enters a StormFilter cartridge, percolates horizontally through the cartridge's filter media and collects in the center tube where the float valve is in a closed (downward) position.

As water passes through the filter media and into the cartridge's center tube, the air in the cartridge is displaced by the water and purged from beneath the filter hood through the one-way check valve located in the cap. Once the center tube is filled with water, there is enough buoyant force to open the float valve and allow the treated water in the center tube to flow into the under-drain manifold. This causes the check valve to close, initiating a siphon that draws polluted water throughout the full surface area and volume of the filter. Thus, the entire filter cartridge is used to filter water throughout the duration of the storm, regardless of the water surface elevation in the unit. This siphon continues until the water surface elevation drops to the elevation of the hood's scrubbing regulators, and the float returns to a closed position. Utilizing the hydraulic potential in the cartridge, the scrubbing regulators cause the filter surface to be clean of attached sediments thus extending the filter's operational life.

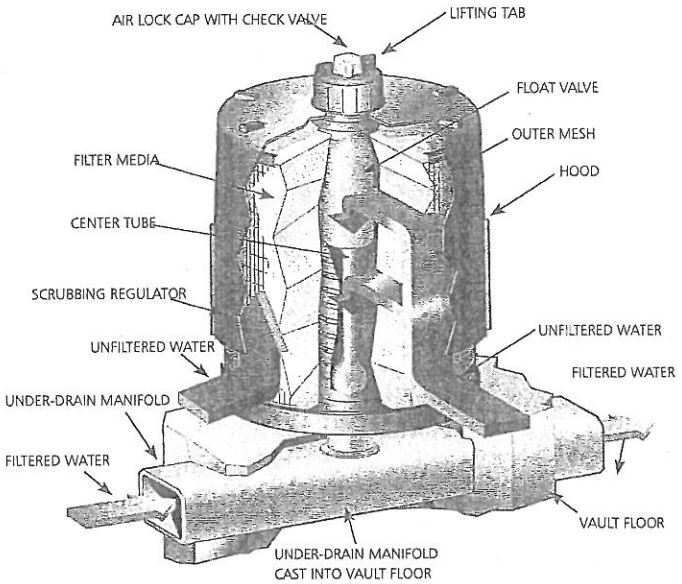
Flow and Valve Control

The filtration rate through a typical StormFilter cartridge can be adjusted so that it has a maximum flow rate of 2 gpm/ft² at the design driving head. The flow rate is individually controlled for each cartridge by a restrictor disc located at the connection point between the cartridge and the under-drain manifold. Consisting of a simple orifice disc of a specific diameter, the flow rate through the cartridges can be adjusted to a level that coincides with your treatment requirements by using a disc with the appropriate orifice diameter.

A reduction in flow rate affects the performance of the StormFilter system with regards to both sediment and soluble pollutants. For solids, Stokes' Law predicts the movement of sediment in a fluid and it has been proven that a reduction in the flow velocity through the system will facilitate increased settling and capture of sediments. In addition, some media types have the ability to remove soluble pollutants through chemical processes, like ion exchange. A reduction in the flow velocity through the StormFilter cartridge will increase the contact time between the stormwater and the media, thereby increasing the removal efficiency by increasing the time for a chemical process to take place.

Media type can be changed, but flow rate adjustment requires engineering consultation to ensure hydraulic demands are satisfied.

Through routine maintenance, a media filtration system can adjust the media type to target or update the system to treating specific pollutants, new TMDLs, or changing pollutants of concern. The media change out can provide a long-term solution to changing regulatory requirements.



StormFilter Configurations

The StormFilter technology can be configured to meet your unique site requirements.

Downstream Treatment Configurations

Conventional stormwater treatment involves collecting, conveying and treating stormwater runoff with an end of pipe treatment system before discharging off-site. StormFilter configurations suitable for these applications are listed below and can be engineered to treat a wide range of flows.

Vault/Manhole

The Vault/Manhole consists of one or more precast concrete structures ranging from 48" manholes to 8' x 24' vaults. The largest unit treats water quality design flows up to 3.75 cfs, and can be placed in series or in parallel to treat higher flows if needed.

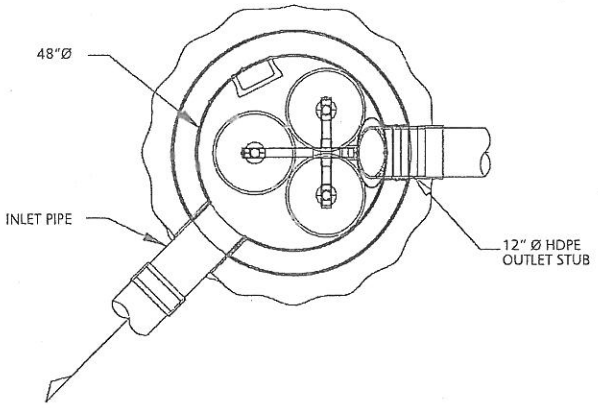
A Vault/Manhole configuration can be installed online or offline from storm system, where the unit has internal overflow bypass. These systems can also be installed offline, where high flows are bypassed around the treatment system and there is no internal overflow. However, if detention, pretreatment, or bypassing is required, it can be installed offline of the storm system.

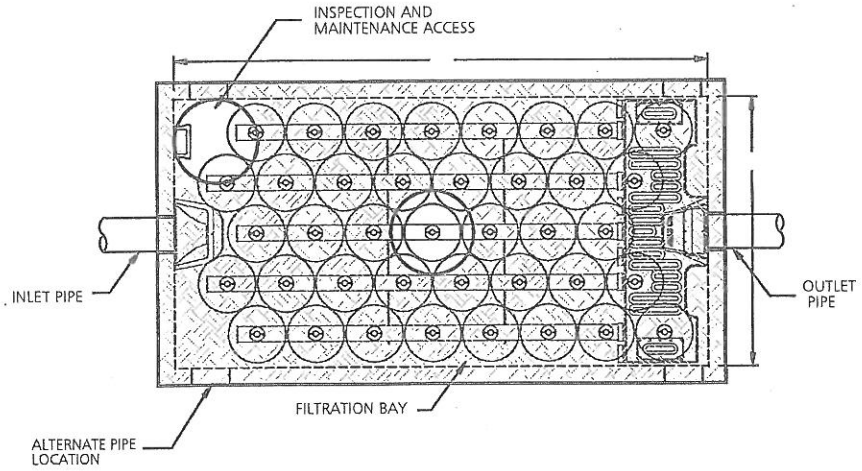
Basic Operation

Vault/Manhole systems are housed in either a vault or manhole. Stormwater first enters the structure through the inlet pipe where it is directed through the energy dissipator. This gently spreads the flow to minimize re-suspension of previously captured pollutants.

Once in the filtration area, the stormwater begins to pond and percolate horizontally through the media contained in the filter cartridges. After passing through the media, treated water that has collected in the cartridge center tube is directed into the outlet sump by an under-drain manifold. The treated water in the outlet sump is then discharged through the outlet pipe.

Precast StormFilter systems have an internal bypass capability from 1.0 cfs to 2.0 cfs, depending upon the size of the system. If peaks flows to the system exceed 2.0 cfs, an offline high flow bypass is needed.





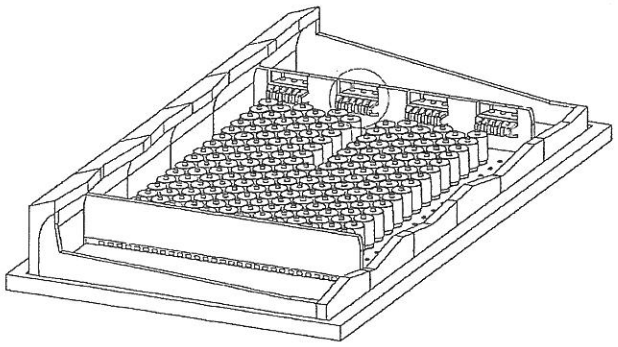
Vault/Manhole StormFilter

High Flow StormFilter

High Flow StormFilter systems can be designed within a variety of structures to meet local requirements and streamline installation. These systems are designed for large sites and large flows. Too big for standard precast structures, they are usually built from precast components that are assembled on site. The High Flow StormFilter is available in several configurations: CON/SPAN®, Panel Vaults, Box Culverts, or Cast-In-Place.

Basic Operation

The High Flow StormFilter design has the same basic configuration and components as the Precast StormFilter but operates on a larger scale.



High Flow StormFilter

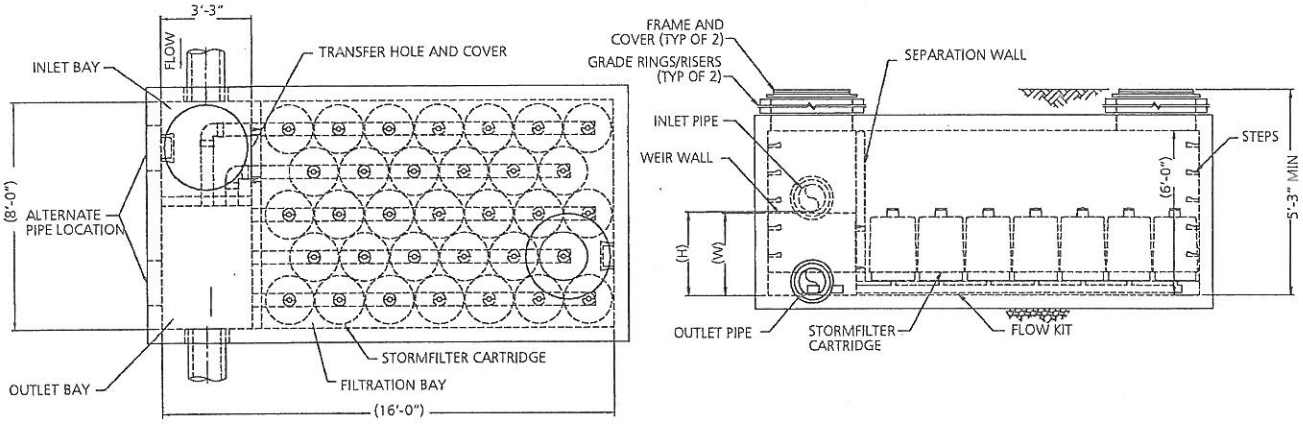
Peak Diversion StormFilter

The Peak Diversion StormFilter includes a treatment chamber and offline by-pass capability in one precast vault. Sizes range from 8'x11" to 8'x24" in most areas. Larger units can treat up to 2.5 cfs depending on cartridge height and the approved flow rate of regulatory jurisdiction. The integrated off-line bypass eliminates upstream flow splitters, downstream junction structures, and additional piping to save space and reduce the overall foot print. This lowers materials and installation cost while reducing potential conflicts with right of way (ROW) boundaries and utilities.

Basic Operation

Stormwater enters the structure through one or two inlet pipes into the inlet bay and low flows are directed to the filtration bay through a transfer opening. Once in the filtration area, the stormwater begins to pond and percolate horizontally through the media contained in the filter cartridges. After passing through the media, treated water that has collected in the cartridge center tube is directed into the outlet bay by an under-drain manifold. The treated water in the outlet sump is then discharged through the outlet pipe.

During large storm events greater than the treatment capacity, peak flows are diverted across the overflow weir directly to the outlet. Even during high flows the cartridges are still operating and water is entering the filtration bay from the inlet bay. This continuous flow into the filter bay helps ensure pollutants can not be washed out during high flow events.



Peak Diversion StormFilter

Volume StormFilter

The Volume StormFilter is designed to meet volume-based regulations where a specific water quality volume (WQv) must be captured and treated. In addition to the treatment, the structure can be sized to capture all or a portion of the WQv.

Restrictor discs inside each cartridge can be used to control the discharge rate from the system. The size of the disc is calibrated to provide the design filtration rate at a live storage depth. Because of these discs (and the airlock cap with a one way vent) water can be impounded above the cartridges in the treatment bay.

Structures range in size from a 48" manhole to CON/SPAN sections with a 24' x 10' cross section built to length. In many cases smaller structures are combined with outboard storage, such as pipe, to provide the WQv storage.

The Volume StormFilter can be designed with or without an internal bypass. If peak flows to the system exceed the internal bypass, or external bypass. If peak flows to the system exceed the internal bypass, or external bypass is required, a high flow bypass is needed. The system can also be installed online or offline and uses a traffic-bearing lid.

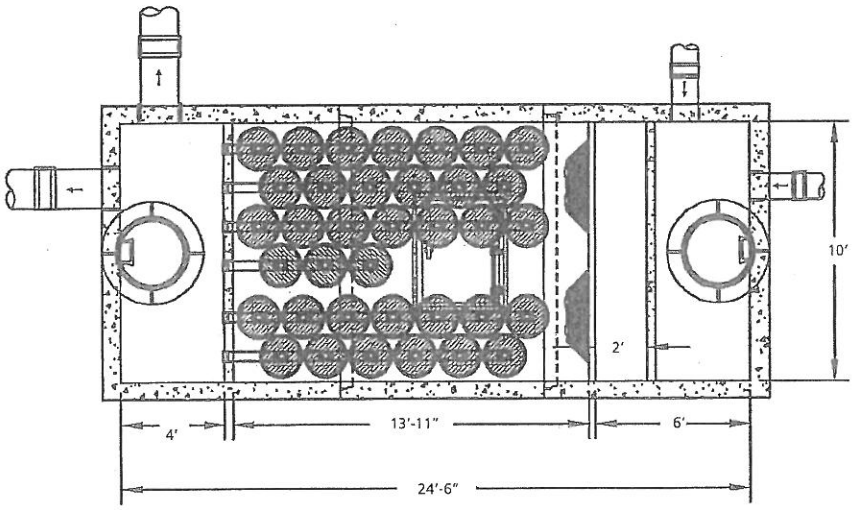
Basic Operation

The Volume StormFilter is typically configured in one of two ways.

A three bay system that incorporates internal storage for the WQv and includes: the storage bay, the filtration bay, and the outlet bay. Water first enters the storage bay (a portion of which includes dead storage) which facilitates pretreatment (gravity separation) and storage of the WQv. The stormwater is then directed into the filtration bay for full treatment and additional storage. The storage bay can be designed with a baffle to trap floatables, oils, and surface scum. Cartridges in the filtration bay treat the stormwater and control the discharge rate. Once in the filtration bay, the stormwater percolates horizontally through the media contained in the filter cartridges. After passing through the cartridge, treated water is directed to the outlet bay by an under-drain manifold where it is discharged through an outlet pipe.

A two bay, precast vault bases system similar to the Vault StormFilter where pretreatment and live storage are provided upstream.

Providing WQv storage in an outboard storage facility such as storage pipe provides the versatility to meet most footprint and elevation requirements.



Volume StormFilter

Upstream Treatment Configurations

Low Impact Design (LID) involves managing runoff close to the source using small, decentralized system. The following suite of StormFilter configurations are easily incorporated on sites where LID site design is recommended. These low-cost, lowdrop, point-of-entry systems also work well when you have a compact drainage area.

CatchBasin StormFilter

The CatchBasin StormFilter (CBSF) consists of a multi-chamber steel, concrete, or plastic catch basin unit that contains up to four StormFilter cartridges. The steel CBSF is offered both as a standard and as a deep unit.

The CBSF is installed flush with the finished grade and is applicable for small drainage areas from roadways and parking lots, and retrofit applications. It can also be fitted with an inlet pipe for roof leaders or similar applications.

The CBSF unit treats water quality design flows up to 0.20 cfs, coupled with an internal weir overflow capacity of 1.0 cfs for the standard steel and concrete units and 1.8 cfs for the deep steel units. Non-traffic rated plastic CBSF units have an internal weir overflow capacity of 0.5 cfs.

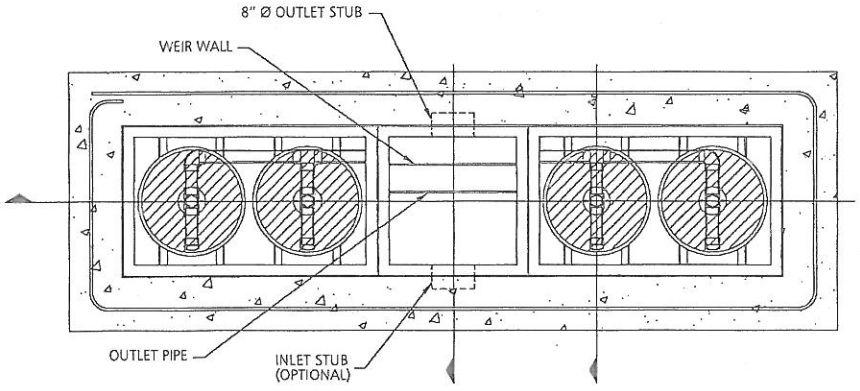
Basic Operation

The CBSF acts as the primary receiver of runoff, similar to a standard, grated catch basin. The steel and concrete CBSF units each have an H-20 rated, traffic-bearing lid that allows the filter to be installed in parking lots and take up no land area. Plastic CBSF units can be used in landscaped areas and for other non-traffic bearing applications.

The CBSF consists of a sumped inlet chamber and cartridge chamber(s). Runoff enters the sumped inlet chamber either by sheet flow from a paved surface or from an inlet pipe discharging directly to the unit. The inlet chamber's internal baffle traps debris and floating oil, and houses an overflow weir. Heavier solids settle into the deep sump, while lighter solids and soluble pollutants are directed under the baffle and into the cartridge chamber through a port between the baffle and the overflow weir. Once in the cartridge chamber, polluted water ponds and percolates horizontally through the media in the filter cartridges. Treated water collects in the cartridge's center tube from where it is directed by an under-drain manifold to the outlet pipe on the downstream side of the overflow weir and discharged.

When flows into the CBSF exceed the water quality design value, excess water spills over the overflow weir, bypassing the cartridge bay, and discharges to the outlet pipe.

The CBSF is particularly useful where small flows are being treated or for sites that are flat and have little available hydraulic head to spare. The unit is ideal for applications in which standard catch basins are to be used. Both water quality and catchment issues can be resolved with the use of the CBSF.



CatchBasin StormFilter

Curb Inlet StormFilter

The Curb Inlet StormFilter consists of a precast concrete vault ranging from 6'x8' to 8'x16' in size. These units can treat water quality design flows up to 1.2 cfs. The system is installed online and includes an internal offline overflow bypass around the filtration chamber. The internal bypass capability is based on depth of the structure. The standard bypass capacity is 15 cfs but is larger for deeper units. A traffic-bearing lid is placed underneath the median or sidewalk adjacent to the roadway.

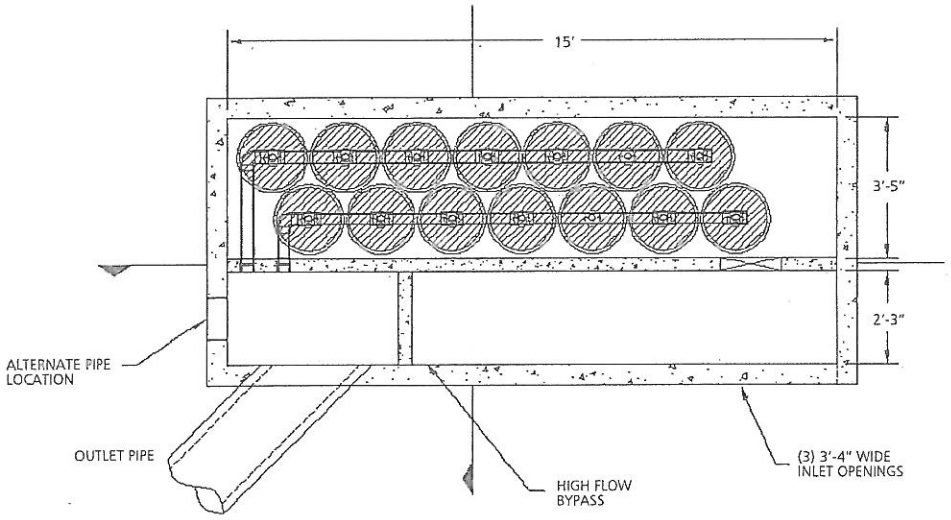
Basic Operation

The Curb Inlet StormFilter is composed of three bays: the inlet bay, the filtration bay, and the outlet bay. Stormwater enters the inlet bay through the curb inlet opening. The design flow is directed through a transfer opening to the filtration bay for full treatment.

Once in the filtration bay, the stormwater percolates horizontally through the media in the filter cartridges to the center tube. Treated water in the cartridge center tube is directed into the outlet bay by an under-drain manifold and discharged through the outlet pipe. Outlet pipes can be placed parallel, perpendicular, or up to 45° to the roadway. Overflow is directed over a weir wall between the inlet bay and the outlet bay, bypassing the filtration bay leaving accumulated pollutants undisturbed.

Curb Inlet Openings

Every Curb Inlet StormFilter is designed to meet local regulations governing the geometry of the curb inlet. This can be accomplished in two ways. One way is with an integrated face plate – the vault lid includes the face plate which is tied into the curb. Another way is with a cast-in-place face plate – the entire face plate is constructed by the contractor pouring the curb. Curb inlet openings can be 4', 7', or 10' in length.



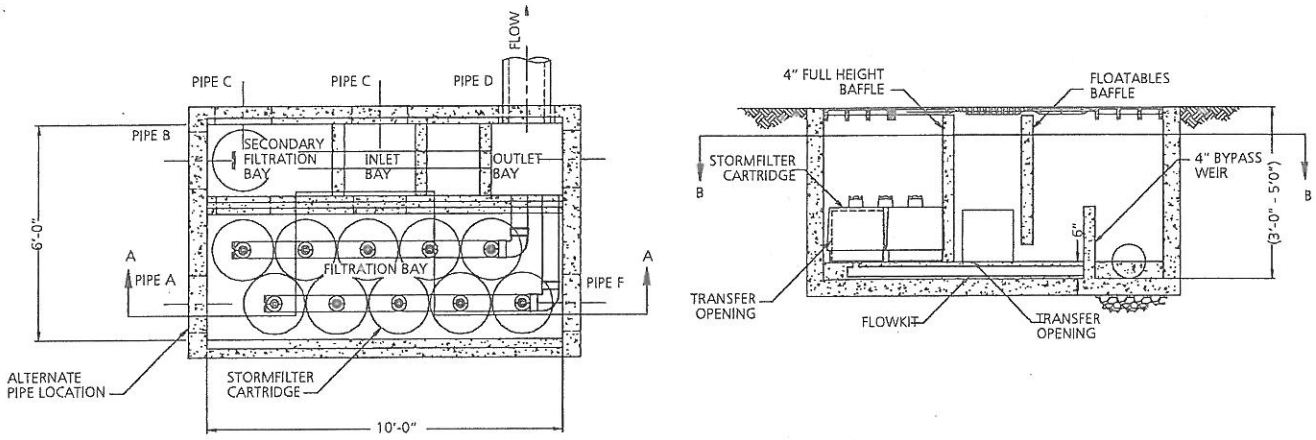
Curb Inlet StormFilter

Linear Grate StormFilter

The Linear Grate StormFilter is a precast vault that acts as the primary receiver of runoff, similar to a standard grated catch basin. The unit has H-20 rated traffic bearing lids that allow the filter to be installed under parking lots. The system consists of an inlet bay, filtration bay, and an outlet bay. Providing treatment as it enters the conveyance system reduces the overall head loss because the vertical drop from the finished grade into the conveyance system is also used to provide hydraulic pressure on the filter cartridges.

Basic Operation

Runoff enters the inlet bay by sheet flow from a paved surface or from an inlet pipe discharging directly to the unit. The inlet bay's internal baffle traps debris and floating oil and denser pollutants are directed into the filtration bay. Once in the cartridge chamber, polluted water ponds and percolates through a radial media filter cartridge. Treated water collects in the cartridge's center tube where it is directed by an underdrain manifold to the outlet pipe on the downstream side of the overflow weir. When flow rates exceed the water quality design value, excess water spills across the overflow weir, bypassing the cartridge bay and proceed directly to the outlet pipe. The integrated offline bypass ensures pollutants captured in the filtration bay are not washed downstream during peak flow events.



Linear Grate StormFilter

Grated Inlet Openings

The number of inlet grates and the size of the inlet bay are designed to capture the peak flow rates from the drainage area. The remaining area is devoted to the filtration bay and the outlet bay which are covered with removable plates for access during maintenance. The entire inlet bay, filtration bay, and outlet bay can be opened at one time allowing full access. In many cases, due to the shallow nature of the design, confined space entry is not required for maintenance.

Linear StormFilter

The Linear StormFilter consists of one or two precast concrete channels that are 10' or 20' in length and 2' 9" in width.

The Linear StormFilter is installed flush with the finished grade, functioning similar to a catch basin or trench drain. The top of the unit has either covers or doors for easy access. The Linear StormFilter is typically installed online like the precast StormFilter.

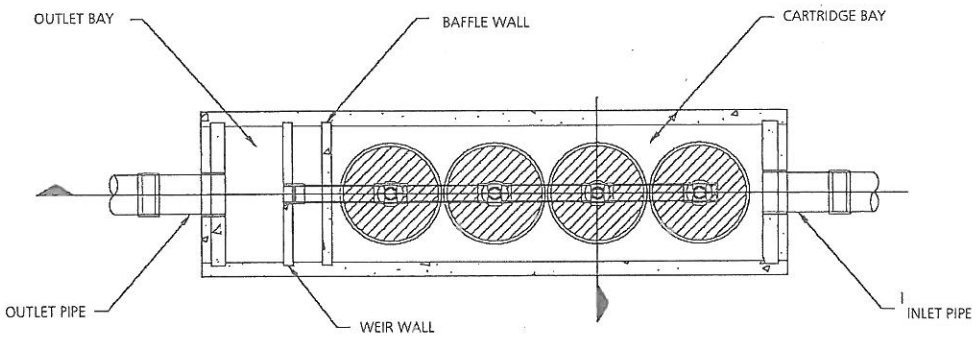
The Linear StormFilter unit treats water quality design flows up to 0.27 cfs.

Basic Operation

The Linear StormFilter can be installed either as the primary receiver of runoff, similar to a grated catch basin, or with an inlet stub and doors to receive runoff collected upstream.

The system is equipped with an internal overflow weir to ensure that there is no local flooding for storm events in excess of the design treatment flow. Maintenance costs for the unit are typically less because there are no confined space entry requirements, and access is quick and easy.

The Linear StormFilter is particularly useful where small flows are being treated or where the site is very flat and there is little available hydraulic head to spare.



Linear StormFilter

Infiltration Configuration

Dry Well StormFilter

The Dry Well StormFilter provides treatment, infiltration and groundwater protection in a single structure. The system is designed to treat conveyed flow or sheet flow from small drainages. Multiple units can be installed to treat any size site. Because it provides treatment and infiltration in a single unit, the total number of structures and the amount of pipe required for the stormwater system are reduced.

The Dry Well StormFilter system is available in 48", 60" and 72-" pre-cast manhole top sections that are designed to be stacked on top of dry well infiltration risers. The StormFilter portion of the unit arrives fully assembled and ready to install, including an integrated concrete deck for the StormFilter cartridges. The system can also be retrofitted into existing 48" manhole dry wells.

Basic Operation

Stormwater enters the dry well unit through one or more entry pipes or channels at its top. It then percolates through the media in the StormFilter cartridge to the center tube. Treated water in the cartridge center tube is discharged to the infiltration section below, and then infiltrates into the surrounding soils through a number of small exit openings at the sides and bottom.

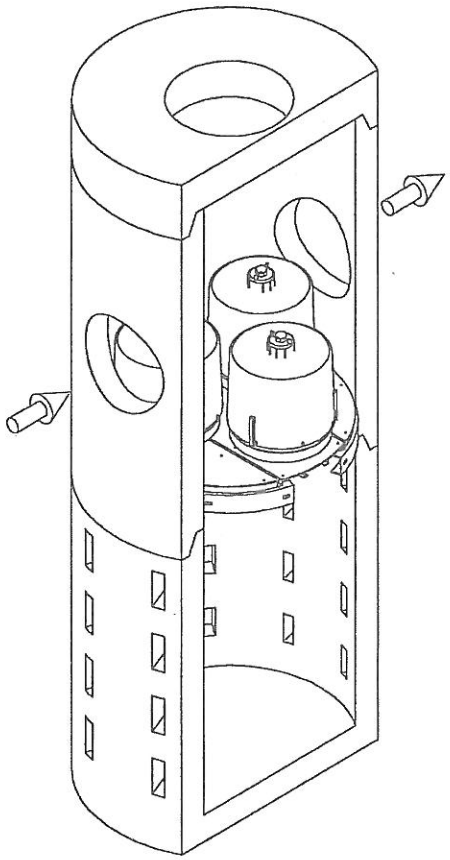
Roof Runoff Treatment Configuration

Downspout StormFilter

The Downspout StormFilter is an aboveground configuration that can be easily integrated into existing gutter systems to eliminate pollution from rooftop runoff. It typically occupies 2.5' x 5' footprint, and can fit most downspout configurations and sizes. Each unit holds two StormFilter cartridges, and single- and dual-stage options are available. It treats up to 14,000 square feet of rooftop area per dual-cartridge system.

StormFilter Cartridges

There are three cartridge heights available for StormFilter systems: 27", 18", and Low Drop. The most economical is the 27" tall cartridge. It can treat the highest flow rate per cartridge, which creates the smallest system with the lowest installed cost. The 27" cartridge requires 3.05' of driving head to operate. For sites with less driving head available, the 18" cartridge is the next best option. Lower flow rates per cartridge increase the footprint of the overall system but only 2.3' of driving head is required. For sites with very limited drop, the Low Drop cartridge only requires 1.8" of driving head.



DryWell StormFilter

Cartridge Flow Rates

Cartridge Type	Hydraulic Drop	Treatment Capacity (gpm)	
		1 gpm/ft2	2 gpm/ft2
StormFilter 27"	3.05'	11.25	22.5
StormFilter 18"	2.30'	7.5	15
StormFilter Low Drop	1.80'	5	10

StormFilter Media

The removal of site-specific pollutants can be maximized with the variety of filtration media available. In many cases, different media types can be combined so as to target a wide spectrum of pollutants. This ability to combine and use various media types allows the system to be easily adjusted to meet ever-changing site conditions and increasingly stringent regulatory requirements.

PhosphoSorb™



PhosphoSorb, a lightweight media comprised of Perlite (a heat-expanded volcanic rock) and activated alumina, removes total phosphorus (TP) by absorbing dissolved-P and filtering particulate-P simultaneously. The Perlite provides the capability to remove suspended solids while the activated alumina absorbs soluble phosphorus absorption.

PhosphoSorb is composed of a slightly finer gradation than the field proven ZPG™ (Zeolite, Perlite, Granular Activated Carbon) media and will provide equivalent - or even better - removal of suspended solids. Initial field tests have indicated an increase in the TSS removal efficiency up to 10% over the field-proven ZPG media. The StormFilter with ZPG media has already received a General Use Level Designation for basic treatment in the State of Washington.

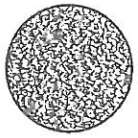
Perlite



Perlite is a natural, volcanic ash, similar in composition to glass and similar in appearance to pumice. To use perlite as a filter medium, it must first go through a heating process to yield a lightweight, multicellular, expanded form. This expanded form has a coarse texture, very low-density, high surface area, and stable, inert chemistry, all of which make perlite an excellent physical filtration medium.

Perlite has proven to be our media of choice for sediment and oil removal. The multicellular nature of expanded perlite is the key to its excellent ability to trap sediments and adsorb oil. The coarse texture of the expanded perlite creates a bed of material with a very high porosity, which allows perlite to have the highest sediment and oil storage capacity of all of the available media options.

Zeolite

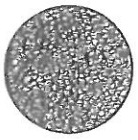


The term zeolite defines a family of both natural and synthetic, hydrous aluminosilicate materials with a highly porous mineral matrix that holds light, alkali metal cations (ideally sodium ions).

Zeolite has the ability to use a cation exchange reaction that removes other cations such as zinc, copper, lead, and ammonia from water. In the cation exchange reaction, the light metal cations in the zeolite matrix are displaced by the heavier metal cations, such as copper, in the water.

The zeolite used in our system is clinoptilolite, which has a cation exchange capacity (CEC) of approximately 100 to 220 meq/100 g. Clinoptilolite has inert characteristics that make it an excellent metals removal media option when CSF media cannot be used. It can be combined with other media such as GAC and perlite when metals are not of exclusive concern.

CSF® Leaf Media



CSF Leaf Media is a patented filtration media composed of composted deciduous leaves originating from the City of Portland, Oregon. CONTECH Stormwater Solutions purchases the mature, stable, deciduous leaf compost and then processes it into an odorless, pelletized compost product with physical and chemical characteristics desirable for stormwater filtration.

The patented compost process creates a material with excellent flow-through characteristics and stability in water. Not only do CSF Leaf Media consist of 100% recycled, all natural materials, but it also provides good removal of sediments and excellent removal of a wide range of toxic contaminants.

CSF Leaf Media provides the multitude of beneficial water treatment properties typical of soil in a form that is compatible with the compact, modular, media-based design of the StormFilter system. In addition to the physical filtration provided by the granular nature of the CSF Leaf Media, the complex chemistry of the compost also provides chemical filtration as well.

Sediment and total nutrients are removed through physical filtration. Oil, complexed metals, and anthropogenic organic contaminants such as herbicides and pesticides are removed through adsorption, the physical partitioning of organic compounds, such as pesticides, to carbon-rich materials, such as the compost.

Soluble metals are removed by cation exchange, as well as by complexation of metal ions to the organic chelating agents present in compost. CSF Leaf Media is an excellent, cost-effective, all-purpose media that epitomizes the potential value of recycled materials.

GAC



GAC (Granular Activated Carbon) is a widely accepted water filtration media used for the removal of organic compounds. It consists of pure carbon (originating from coal or charcoal) whose micro-porous structure has been enhanced through steam or acid "activation."

The high carbon content and porous nature of GAC accounts for its excellent ability to remove organic compounds through adsorption. Since adsorption is the physical partitioning of organic compounds to high carbon surfaces, the "activation" of the carbon (which creates GAC) endows it with an enormous surface area upon which adsorption can take place.

In situations where anthropogenic organic contaminants are of exclusive concern, GAC media provide the highest level of stormwater treatment compared to other available media options. However, because it is not very often the case that anthropogenic organic contaminants are of exclusive concern, GAC is usually combined with another media such as perlite or zeolite for the treatment of additional contaminants.

Combination of GAC with perlite constitutes the most cost-effective configuration, as the effectiveness of GAC is drastically reduced if it is coated with high concentrations of heavy oil or sediment, which can restrict access via surface pores to the interior of the GAC granules.

ZPG™ (Zeolite, Perlite, GAC blend)



This proprietary blend of zeolite, perlite, and granular activated carbon media is used to provide an alternative for CSF media for installations where leaf media cannot be used.

Laboratory and Field Testing

The StormFilter system is designed to meet the most stringent regulatory requirements. The field-proven performance of the StormFilter has led to hundreds of regulatory agency approvals nationwide as a standalone BMP.

The Stormwater Management StormFilter® is the first manufactured BMP to receive stand-alone approval through field testing and satisfying the total suspended solids treatment requirements in Washington and New Jersey.

Log on to www.contechstormwater.com/stormfilter to view the following reports in full.

Field Monitoring Reports

Field Proven Performance of the StormFilter using the Technology Assessment Protocol - Ecology (TAPE) and Technology Acceptance Reciprocity Partnership (TARP) Tier II Protocol

1. Washington
   a. Washington State Department of Ecology General Use Level Designation for Basic Treatment
   b. Technical Evaluator Engineering Report (TEER). Gary Minton, Ph.D., P.E.
2. New Jersey
   a. New Jersey State Department of Environmental Protection Final Certification
   b. New Jersey Corporation for Advanced Technology (NJCAT) Field Verification Report

Laboratory Reports

Total Suspended Solids (TSS) Removal Using Different Particle Size Distributions with the Stormwater Management StormFilter.

Influences on TSS removal efficiency
Influence of analytical method, data summarization method, and particle size on total suspended solids (TSS) removal efficiency of the StormFilter

StormFilter removal efficiency with coarse/fine perlite media
Evaluation of the removal of silt loam TSS using coarse/fine perlite at 28 L/min (7.5 gpm).

StormFilter removal efficiency with ZPG media
Evaluation of the removal of SIL-CO-SIL 106 using ZPG media at 28 L/min (7.5 gpm)

StormFilter removal efficiency with coarse perlite
Evaluation of the removal of sandy loam TSS using coarse perlite at 57 L/min (15 gpm)

Support

- Drawings and specifications are available at contechstormwater.com.
- Site-specific design support is available from CONTECH Stormwater Design Engineers.

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CONTECH Construction Products Inc. provides site solutions for the civil engineering industry. CONTECH's portfolio includes bridges, drainage, sanitary sewer, stormwater and earth stabilization products. For information on other CONTECH division offerings, visit contech-cpi.com or call 800.338.1122

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CONTECH CONSTRUCTION PRODUCTS INC.

RECYCLED PAPER

BEAVERCREEK ROAD
LIVE/WORK DEVELOPMENT

PRELIMINARY STORMWATER DESIGN REPORT
MAY 2014

Appendix 5

Sample Maintenance Agreement

After recording return to:

_____
_____
_____
_____

MAINTENANCE COVENANT AND ACCESS EASEMENT

THIS MAINTENANCE COVENANT AND ACCESS EASEMENT ("Agreement") is made this ____ day of _____, 1999, between _____, a _____ ("Developer"), and the CITY OF OREGON CITY, a municipal corporation of the State of Oregon formed pursuant to ORS Chapter 457 (the "City").

RECITALS

A. Developer is the owner and developer of certain real property located in the City of Oregon City, Clackamas County, Oregon, legally described on Exhibit A attached hereto and commonly known as _____ (the "Development").

B. The City's Community Development Department ("CDD") has approved construction plans submitted by Developer for the Development. The Development contains on-site stormwater facilities as described in the approved construction plans (together with any other stormwater facilities that may hereafter be constructed on the Development, the "Stormwater Facilities").

C. To protect future lot owners in the Development, owners of neighboring property, and their property, CDD has required that Developer enter into this Agreement as a condition to CDD's approval of construction plans and the final plat for the Development.

AGREEMENT

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the City and Developer agree as follows:

1. **Covenant to Maintain and Repair.** Developer shall, at its sole expense, itself or through qualified independent contractors, at all times maintain the Stormwater Facilities in good working order, condition and repair, clear of all debris, and in compliance with all applicable state and local rules, regulations, and guidelines (including those adopted from time to time by the CDD or the City and including the City's Stormwater and Grading Design Standards). Developer shall notify CDD in writing of the person responsible for compliance with Developer's obligations under this covenant ("Developer Designee"), and of any change in the Developer Designee. Developer expressly agrees that the Developer Designee shall have the authority to bind Developer, its successors and assigns with respect to the matters described in this Agreement.

2. **Failure to Perform Covenant; Easement.** If the City determines that Developer is not in compliance with the covenant described in Section 1, except in the case of emergency, the City or its designee shall give the Developer Designee written notice to perform the maintenance and/or repair work

specified in the notice. If such work is not performed to the City's satisfaction within seven (7) days after the date of such notice, Developer hereby grants to the City, CDD, their employees, independent contractors and designees the right to enter the Development to perform any and all work required to bring the Stormwater Facilities into compliance with Section 1.

If the City determines that Developer is not in compliance with the covenant in Section 1 and determines that there exists or will likely exist an emergency on or about the Development with respect to the Stormwater Facilities, Developer hereby grants to the City, CDD, their employees, independent contractors and designees the right to enter the Development to perform any and all work required to bring the Stormwater Facilities into compliance with Section 1, and in such case the City shall use reasonable efforts to notify the Developer Designee prior to entering the Development. Notwithstanding the above, the work performed may consist only of cleaning and repairing the Stormwater Facilities to their original condition and standards.

Developer hereby grants the City, CDD, their employees, independent contractors and designees a nonexclusive easement for ingress and egress over, across and under the Development for the purposes described above in this Section 2 and from time to time at the City's sole discretion to inspect, sample, and monitor components of the Stormwater Facilities and discharges therefrom.

DEVELOPER, FOR ITSELF AND ITS SUCCESSORS AND ASSIGNS (INCLUDING ALL OWNERS OF LOTS IN THE DEVELOPMENT), AGREES THAT NONE OF THE CITY, CDD, THEIR EMPLOYEES, INDEPENDENT CONTRACTORS AND/OR DESIGNEES SHALL HAVE ANY OBLIGATION TO EXERCISE THEIR RIGHTS UNDER THIS SECTION 2 OR TO PERFORM ANY MAINTENANCE OR REPAIR OF THE STORMWATER FACILITIES, AND THAT NONE OF THEM SHALL HAVE ANY LIABILITY TO DEVELOPER OR ANY OF DEVELOPER'S SUCCESSORS OR ASSIGNS (INCLUDING OWNERS OF LOTS IN THE DEVELOPMENT) IN CONNECTION WITH THE EXERCISE OR NONEXERCISE OF SUCH RIGHTS, THE MAINTENANCE OR REPAIR OF THE STORMWATER FACILITIES, OR THE FAILURE TO PERFORM THE SAME.

3. **Reimbursement**. If the City exercises its right to enter the Development pursuant to Section 2 (to include inspection, sampling, and monitoring), Developer shall reimburse the City for all of its costs and expenses incurred in connection therewith within thirty (30) days after receipt of an invoice. If Developer fails to pay the invoiced amount within such period, such amount shall thereafter accrue interest at a per annum rate equal to the prime rate of U.S. Bank (or its successor) plus five percent (5%). Such amount, together with interest, shall be a lien on the Development (and each of the lots contained therein) which may be foreclosed in accordance with ORS Chapter 88. If the Development is owned by more than one person (i.e., multiple lot owners), each such owner shall be jointly and severally liable for payment of the amounts provided for in this Section 3.

4. **Indemnification**. Developer agrees to indemnify, defend (with legal counsel reasonably acceptable to the City), and hold harmless the City, CDD, their employees, independent contractors and designees harmless from and against any liability, losses, costs, expenses (including reasonable attorney fees), claims or suits arising from Developer's failure to perform its obligations under this Agreements or the exercise of the City, CDD, or their employees, independent contractors or designees of their rights under Section 2.

5. **Run with the Land**. The parties' rights and obligations contained herein shall run with the land and inure to the benefit of, and shall be binding upon, the City and Developer and their respective successors and assigns (including, without limitation, subsequent owners of lots in the Development and any homeowner's association owning common areas in the Development).

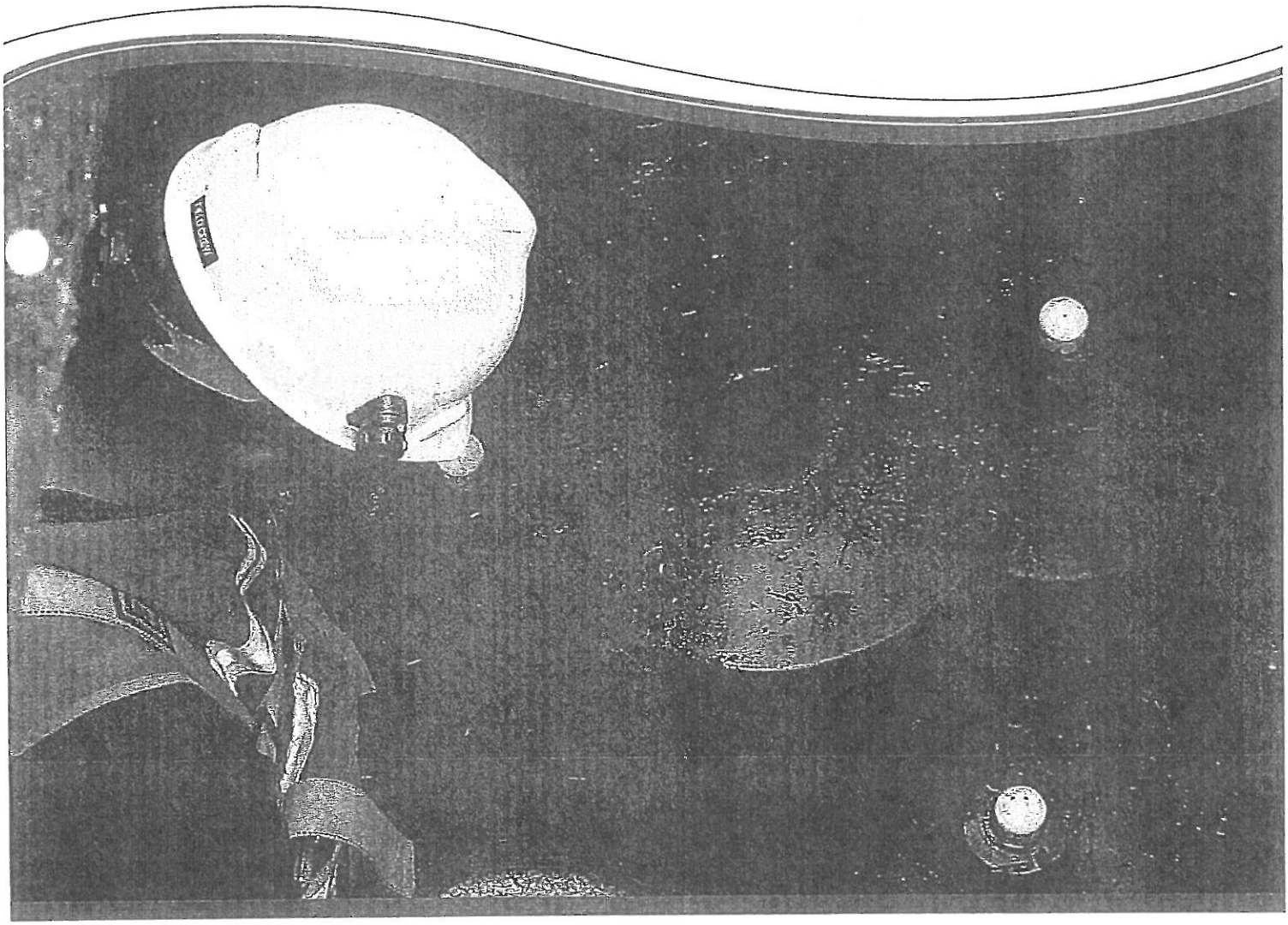
STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was acknowledged before me on _____ by _____.

_____
Notary Public for _____
My Commission Expires _____

CONTECH
CONSTRUCTION PRODUCTS INC.

StormFilter Inspection and Maintenance Procedures



The Stormwater Management StormFilter®

Maintenance Guidelines

The primary purpose of the Stormwater Management StormFilter® is to filter out and prevent pollutants from entering our waterways. Like any effective filtration system, periodically these pollutants must be removed to restore the StormFilter to its full efficiency and effectiveness.

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site. Maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms. It is a good practice to inspect the system after major storm events.

Maintenance Procedures

Although there are likely many effective maintenance options, we believe the following procedure is efficient and can be implemented using common equipment and existing maintenance protocols. A two step procedure is recommended as follows:

1. Inspection

Inspection of the vault interior to determine the need for maintenance.

2. Maintenance

Cartridge replacement

Sediment removal

Inspection and Maintenance Timing

At least one scheduled inspection should take place per year with maintenance following as warranted.

First, an inspection should be done before the winter season. During the inspection the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, a maintenance (replacement of the filter cartridges and removal of accumulated sediments) should be performed during periods of dry weather.



In addition to these two activities, it is important to check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation that may be caused by localized erosion in the drainage area. It may be necessary to adjust the inspection/ maintenance schedule depending on the actual operating conditions encountered by the system. In general, inspection activities can be conducted at any time, and maintenance should occur, if warranted, in late summer to early fall when flows into the system are not likely to be present.

Maintenance Frequency

The primary factor controlling timing of maintenance of the StormFilter is sediment loading.

A properly functioning system will remove solids from water by trapping particulates in the porous structure of the filter media inside the cartridges. The flow through the system will naturally decrease as more and more particulates are trapped. Eventually the flow through the cartridges will be low enough to require replacement. It may be possible to extend the usable span of the cartridges by removing sediment from upstream trapping devices on a routine as-needed basis in order to prevent material from being re-suspended and discharged to the StormFilter treatment system.

Site conditions greatly influence maintenance requirements. StormFilter units located in areas with erosion or active construction may need to be inspected and maintained more often than those with fully stabilized surface conditions.

The maintenance frequency may be adjusted as additional monitoring information becomes available during the inspection program. Areas that develop known problems should be inspected more frequently than areas that demonstrate no problems, particularly after major storms. Ultimately, inspection and maintenance activities should be scheduled based on the historic records and characteristics of an individual StormFilter system or site. It is recommended that the site owner develop a database to properly manage StormFilter inspection and maintenance programs.

Prior to the development of the maintenance database, the following maintenance frequencies should be followed:

Inspection

One time per year

After major storms

Maintenance

As needed, based on results of inspection (The average maintenance lifecycle is approximately 1-3 years)

Per Regulatory requirement

In the event of a chemical spill

Frequencies should be updated as required. The recommended initial frequency for inspection is one time per year. StormFilter units should be inspected after major storms.

Sediment removal and cartridge replacement on an as needed basis is recommended unless site conditions warrant.

Once an understanding of site characteristics has been established, maintenance may not be needed for one to three years, but inspection is warranted and recommended annually.

Inspection Procedures

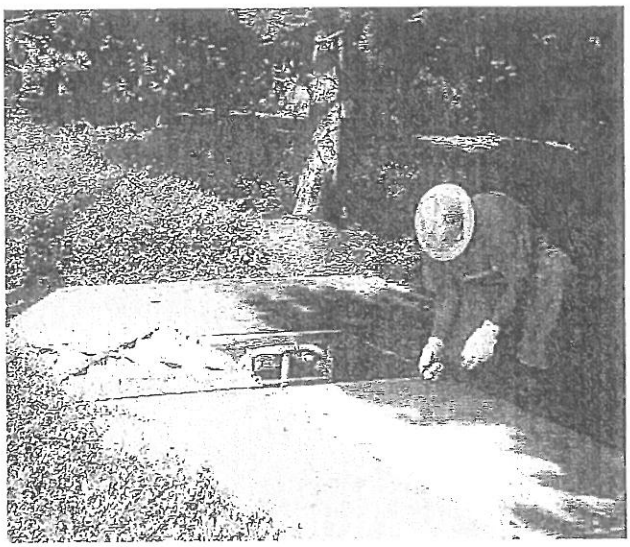
The primary goal of an inspection is to assess the condition of the cartridges relative to the level of visual sediment loading as it relates to decreased treatment capacity. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Construction Products immediately.

To conduct an inspection:

Important: Inspection should be performed by a person who is familiar with the operation and configuration of the StormFilter treatment unit.

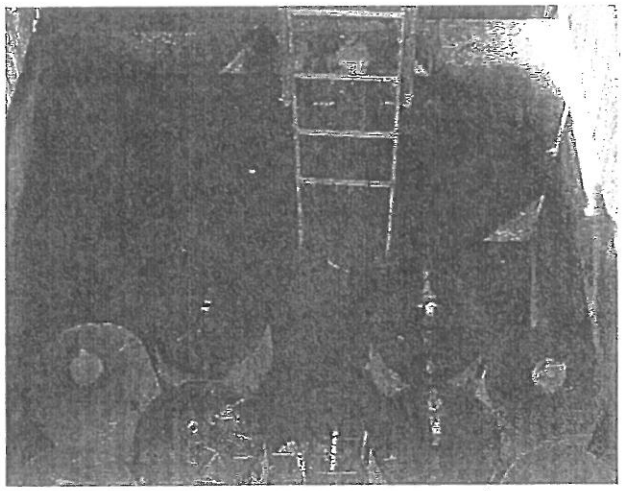
1. If applicable, set up safety equipment to protect and notify surrounding vehicle and pedestrian traffic.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.



3. Open the access portals to the vault and allow the system vent.
4. Without entering the vault, visually inspect the inside of the unit, and note accumulations of liquids and solids.
5. Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the flow of water per drainage pipe. Record all observations. Digital pictures are valuable for historical documentation.
6. Close and fasten the access portals.
7. Remove safety equipment.
8. If appropriate, make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
9. Discuss conditions that suggest maintenance and make decision as to weather or not maintenance is needed.

Maintenance Decision Tree

The need for maintenance is typically based on results of the inspection. The following Maintenance Decision Tree should be used as a general guide. (Other factors, such as Regulatory Requirements, may need to be considered)



1. Sediment loading on the vault floor.
   a. If >4" of accumulated sediment, maintenance is required.
2. Sediment loading on top of the cartridge.
   a. If >1/4" of accumulation, maintenance is required.
3. Submerged cartridges.
   a. If >4" of static water in the cartridge bay for more that 24 hours after end of rain event, maintenance is required.
4. Plugged media.
   a. If pore space between media granules is absent, maintenance is required.
5. Bypass condition.
   a. If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges), maintenance is required.
6. Hazardous material release.
   a. If hazardous material release (automotive fluids or other) is reported, maintenance is required.
7. Pronounced scum line.
   a. If pronounced scum line (say ≥ 1/4" thick) is present above top cap, maintenance is required.
8. Calendar Lifecycle.
   a. If system has not been maintained for 3 years maintenance is required.

Assumptions

- No rainfall for 24 hours or more
- No upstream detention (at least not draining into StormFilter)
- Structure is online
- Outlet pipe is clear of obstruction
- Construction bypass is plugged

Maintenance

Depending on the configuration of the particular system, maintenance personnel will be required to enter the vault to perform the maintenance.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows is occurring.

Replacement cartridges can be delivered to the site or customers facility. Information concerning how to obtain the replacement cartridges is available from CONTECH Construction Products.

Warning: In the case of a spill, the maintenance personnel should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Construction Products immediately.

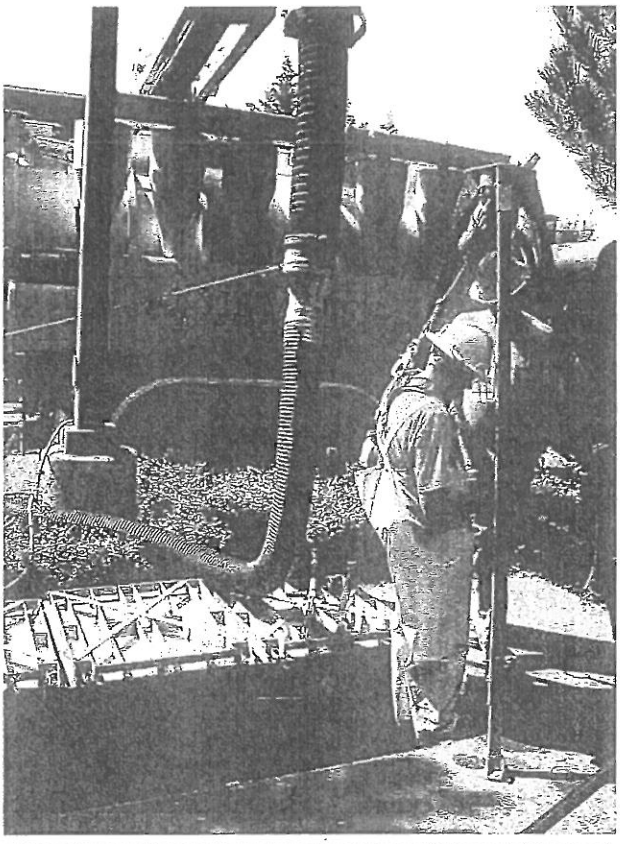
To conduct cartridge replacement and sediment removal maintenance:

1. If applicable, set up safety equipment to protect maintenance personnel and pedestrians from site hazards.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors (access portals) to the vault and allow the system to vent.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:

Method 1:

A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Unscrew (counterclockwise rotations) each filter cartridge from the underdrain connector. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact CONTECH Construction Products for suggested attachment devices.



Important: Note that cartridges containing leaf media (CSF) do not require unscrewing from their connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and could be capped during the maintenance activity to prevent sediments from entering the underdrain manifold.

B. Remove the used cartridges (up to 250 lbs. each) from the vault.

Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner unless CONTECH Construction Products performs the maintenance activities and damage is not related to discharges to the system.

C. Set the used cartridge aside or load onto the hauling truck.

D. Continue steps a through c until all cartridges have been removed.

Method 2:

A. Enter the vault using appropriate confined space protocols.

B. Unscrew the cartridge cap.

C. Remove the cartridge hood screws (3) hood and float.

D. At location under structure access, tip the cartridge on its side.

Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

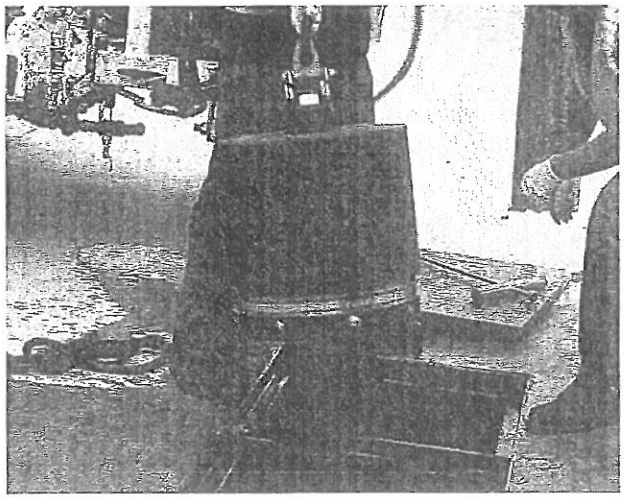
D. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.

E. Set the empty, used cartridge aside or load onto the hauling truck.

F. Continue steps a through e until all cartridges have been removed.







8. Remove accumulated sediment from the floor of the vault and from the forebay. This can most effectively be accomplished by use of a vacuum truck.
9. Once the sediments are removed, assess the condition of the vault and the condition of the connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude about 1" above the floor of the vault. Lightly wash down the vault interior.
   a. Replace any damaged connectors.
10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Once again, take care not to damage connections.
11. Close and fasten the door.
12. Remove safety equipment.
13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used empty cartridges to CONTECH Construction Products.

Related Maintenance Activities -

Performed on an as-needed basis

StormFilter units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

RECYCLED PAPER

CONTECH CONSTRUCTION PRODUCTS INC.
800.338.1122
www.contech-cpi.com

Support

- Drawings and specifications are available at contechstormwater.com.
- Site-specific design support is available from our engineers.

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CONTECH Construction Products Inc. provides site solutions for the civil engineering industry. CONTECH's portfolio includes bridges, drainage, sanitary sewer, stormwater and earth stabilization products. For information on other CONTECH division offerings, visit contech-cpi.com or call 800.338.1122

Nothing in this catalog should be construed as an expressed warranty or an implied warranty of merchantability or fitness for any particular purpose. See the CONTECH standard quotation or acknowledgement for applicable warranties and other terms and conditions of sale.

The product(s) described may be protected by one or more of the following US patents: 5,322,629; 5,624,576; 5,707,527; 5,759,415; 5,788,848; 5,985,157; 6,027,639; 6,350,374; 6,406,218; 6,641,720; 6,511,595; 6,649,048; 6,991,114; 6,998,038; 7,186,058; related foreign patents or other patents pending.

Inspection Report

Date: _____ Personnel: _____

Location: _____ System Size: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

Sediment Thickness in Forebay: _____ Date: _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Estimated Flow from Drainage Pipes (if available): _____

Cartridges Submerged: Yes ☐ No ☐ Depth of Standing Water: _____

StormFilter Maintenance Activities (check off if done and give description)

☐ Trash and Debris Removal: _____

☐ Minor Structural Repairs: _____

☐ Drainage Area Report _____

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

Items Needing Further Work: _____

Owners should contact the local public works department and inquire about how the department disposes of their street waste residuals.

Other Comments:

_____

_____

_____

_____

_____

_____

_____

_____

Review the condition reports from the previous inspection visits.

StormFilter Maintenance Report

Date: _____ Personnel: _____

Location: _____ System Size: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

List Safety Procedures and Equipment Used: _____

_____

_____

System Observations

Months in Service:

Oil in Forebay: Yes ☐ No ☐

Sediment Depth in Forebay: _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Drainage Area Report

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

StormFilter Cartridge Replacement Maintenance Activities

Remove Trash and Debris: Yes ☐ No ☐ Details: _____

Replace Cartridges: Yes ☐ No ☐ Details: _____

Sediment Removed: Yes ☐ No ☐ Details: _____

Quantity of Sediment Removed (estimate?):

Minor Structural Repairs: Yes ☐ No ☐ Details: _____

Residuals (debris, sediment) Disposal Methods: _____

Notes:

_____

_____

_____

_____

_____

_____

_____

BEAVERCREEK ROAD
LIVE/WORK DEVELOPMENT

PRELIMINARY STORMWATER DESIGN REPORT
MAY 2014

Appendix 6

Soil Information

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Clackamas County Area, Oregon

Beavercreek Live/Work



January 7, 2014

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means

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45B—Jory silty clay loam, 2 to 8 percent slopes.....12
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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 7, Aug 20, 2012

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 8, 2010—Sep 4, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Clackamas County Area, Oregon (OR610)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
45B	Jory silty clay loam, 2 to 8 percent slopes	11.0	100.0%
Totals for Area of Interest		11.0	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Clackamas County Area, Oregon

45B—Jory silty clay loam, 2 to 8 percent slopes

Map Unit Setting

Elevation: 250 to 1,200 feet
Mean annual precipitation: 50 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Jory and similar soils: 90 percent

Description of Jory

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Base slope, interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 10.1 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability classification (irrigated): 2e
Land capability (nonirrigated): 2e
Hydrologic Soil Group: C

Typical profile

0 to 13 inches: Silty clay loam
13 to 60 inches: Silty clay

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LEGEND

- WATER VALVE
- HYDRANT
- WATER METER
- MANHOLES (SS/SD)
- CB
- POWER/UTILITY POLE
- GUY ANCHOR
- STREET LIGHT
- ROCKERY

- CENTER LINES
- PROPERTY LINES
- RIGHT-OF-WAY LINES
- LOT LINES
- DITCH LINE
- FLOW LINE
- W — WATER LINE
- SS — SANITARY SEWER LINE
- SD — STORM DRAIN LINE
- G — GAS LINE
- UP — UNDERGROUND POWER LINES
- UT — UNDERGROUND TELEPHONE LINES
- UTV — UNDERGROUND CABLE TV LINES
- UFO — UNDERGROUND FIBER OPTIC LINES
- P — OVERHEAD POWER LINES
- OHL — OVERHEAD UTILITY LINES
- CHAIN LINK FENCE
- WIRE FENCE
- WOOD FENCE

DD SET

SYM	REVISION	DATE

PACE
An Engineering Services Company
5000 Meadows Road
Lake Oswego, Oregon 97035
p. 503.597.3222 | f. 503.597.7655
Civil | Structural | Planning | Survey
paceengrs.com

REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 23, 1980
ANDREW A. REITER
EXPIRES: 12/31/2014

STORM DRAINAGE PLAN

A LIVE/WORK APARTMENT AND TOWNHOME DEVELOPMENT

19896 BEAVERCREEK RD.
OREGON CITY, OR

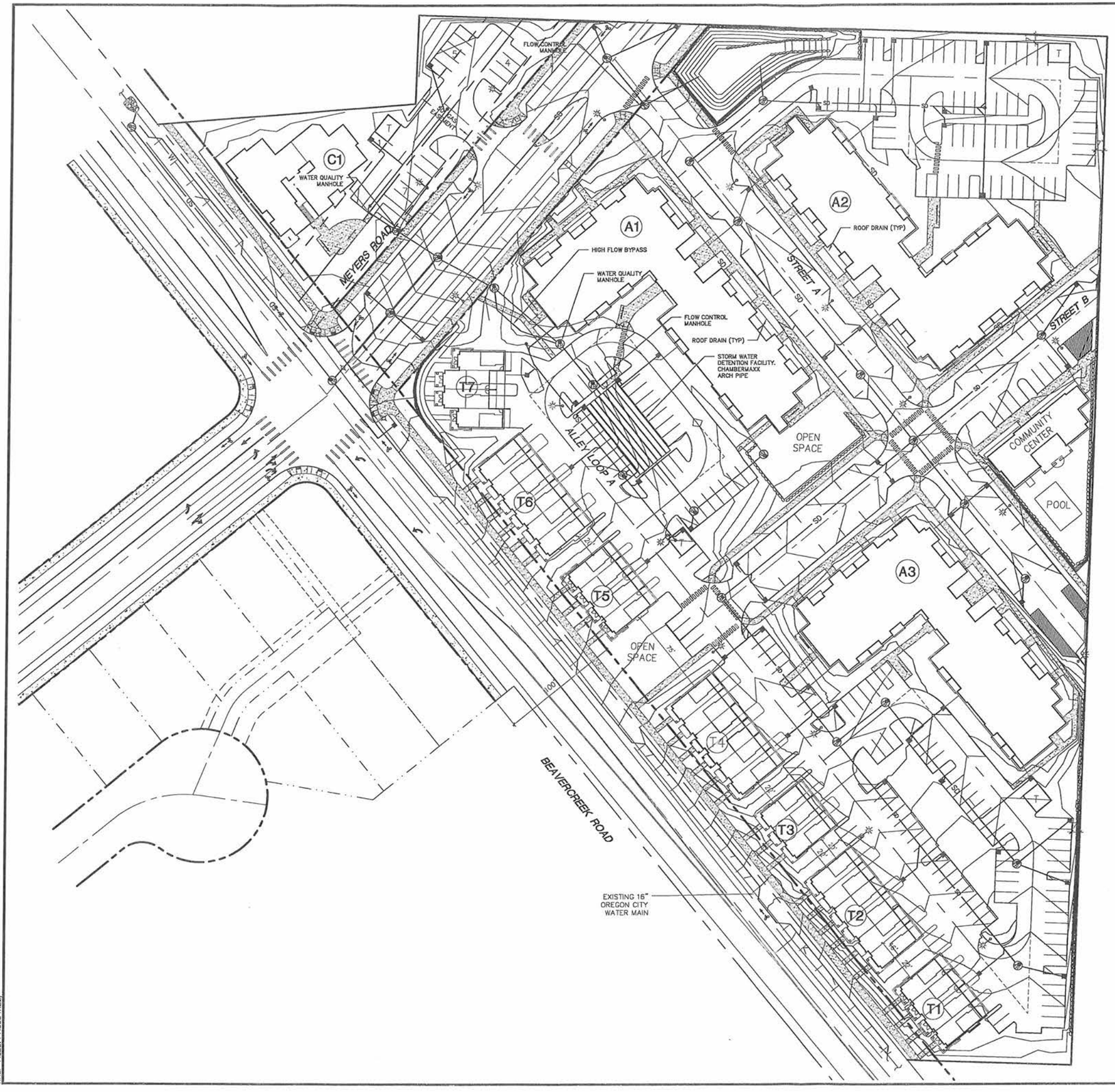
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AAR	DP

JOB NUMBER
13869

DWG NAME:
C6 STORM DRAINAGE

SHEET C6 OF 8

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XREF FILES: PACE34X22.



HORIZ. 0 20 40 80
Scale In Feet

LEGEND

- WATER VALVE
- HYDRANT
- WATER METER
- MANHOLES (SS/SD)
- CB
- POWER/UTILITY POLE
- GUY ANCHOR
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DD SET

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p. 503.597.3222 | f. 503.597.7155
Civil | Structural | Planning | Survey
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REGISTERED PROFESSIONAL ENGINEER
OREGON
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ANDREW A. REITER
14,799
PREMINARY
EXPIRES: 12/31/2014

STORM DRAINAGE PLAN

A LIVE/WORK APARTMENT AND TOWNHOME DEVELOPMENT

19896 BEAVERCREEK RD.
OREGON CITY, OR

SCALE:	DATE:
1"=40'	6/06/14
DESIGNED BY: AAR	CHECKED BY: DP

JOB NUMBER **13869**

DWG NAME: C6 STORM DRAINAGE

SHEET C6 OF 8

FILE NAME: P:\P13\13869 - EVERGREEN HOUSING - BEAVERCREEK ROAD\CAD\SHEETS\C6 STORM DRAINAGE.DWG
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PLOT TIME: 6/6/2014 10:37 AM
USER NAME: AARON REITER
XREF FILES: PACE34X22

FOUNDATION ENGINEERING, INC.
Professional Geotechnical Services

Memorandum

Date: October 29, 2012

To: Andrew Brand
Evergreen Housing Development Group, LLC

From: Mark Catlin, P.E., G.E.
Mitch Schaub, P.E., G.E.

Subject: Reconnaissance-Level Geotechnical Investigation

Project: 19896 Beavercreek Road
FEI Project 2122022



We have completed the requested reconnaissance-level geotechnical investigation for the above-referenced site. This memorandum includes a description of our work, a discussion of site and subsurface conditions, and a brief discussion of geotechnical considerations for typical, two or three-story apartment construction.

BACKGROUND

We understand that Evergreen Housing Development Group, LLC (Evergreen) is considering the purchase of a 9.59-acre parcel located at 19896 Beavercreek Road in Oregon City, Oregon. No site-specific development plans are presently available. The site location is shown on Figure 1A (attached). Foundation Engineering, Inc. (FEI) was retained by Evergreen to conduct a reconnaissance-level geotechnical investigation to evaluate specific soil conditions that relate to constructability. These conditions are: expansive soils, compressible soils, peat, signs of landslides, and groundwater. FEI's scope of work was outlined in a proposal dated October 9, 2012, and authorized by a signed Professional Services Agreement dated October 17, 2012.

FIELD EXPLORATION

We excavated six exploratory test pits at the site on October 22, 2012. The test pit locations are shown on Figure 2A (attached). Locations were established by pacing and cloth tape, and are approximate only.

The test pits were excavated using a Kubota M-59 rubber-tired backhoe. The explorations extended to a maximum depth of 8.5 feet. The test pits were logged and representative samples were obtained in each of the test pits. The test pit logs (attached) were prepared based on a review of the field logs and an examination of the soil samples in our office.

DISCUSSION OF SITE CONDITIONS

Surface Conditions

The project site is approximately triangular with about 1,000 lineal feet of frontage on the east side of Beavercreek Road. The width of the site at the northern property line is about 700 feet, and at the south is about 150 feet. The site is mostly level and

covered with grass and some berry brambles. Several mature trees are located at the southern end of the site, surrounding the vacant residence at 19896 Beavercreek Road.

Subsurface Conditions

Topsoil. A layer of topsoil was encountered in the test pits usually to a depth of about 6 inches. In test pit TP-3, the topsoil layer extended to a depth of 1 foot. The topsoil consisted of mostly silt, with some sand, gravel, and numerous organics (roots).

Silt. Below the topsoil, a silt layer with various traces of clay, sand, gravel, and occasional cobble and boulder was encountered, extending to depths of 5 to 8 feet. The silt was typically red-brown to light brown, damp to moist, and had a consistency of medium stiff to very stiff. The silt was typically non-plastic to low plasticity; however; a low to medium plasticity clayey silt was encountered in TP-1 extending to a depth of about 2 feet.

Basalt. A moderately to highly weathered basalt rock was encountered in TP-1, TP-3, and TP-4, at depths of 5, 7, and 6.5 feet, respectively. The basalt rock typically formed a silty sandy gravel with cobble upon excavation. Refusal conditions were encountered at a depth of 8 feet in TP-4. A basalt boulder was encountered in TP-6 at a depth of about 4 feet.

Specific details of the soil conditions encountered in each test pit are provided in the attached test pit logs.

Ground Water

The predominantly silty soils encountered in the test pits were typically damp to moist. No seepage or ground water infiltration was observed in the test pits.

LABORATORY TESTING

No laboratory testing was performed.

DISCUSSION OF GEOTECHNICAL ISSUES

General Earthwork Considerations

For typical two to three-story apartment construction, the layer of topsoil would need to be removed below planned structures, roadways, parking areas, and sidewalks. Topsoil strippings may be used for landscaping but are not suitable for use under settlement-sensitive buildings or pavements.

Below the topsoil, the silt layer is moisture-sensitive and will soften significantly when disturbed or wetted. We anticipate the silt will be prone to disturbance from construction activities when exposed. Processing the silt soils for reuse as

structural fill would likely require extensive material handling and moisture conditioning. Site earthwork construction therefore should be completed during the drier summer months. We judge that if earthwork is undertaken during wet weather, it may result in an increase in earthwork construction duration and costs.

Expansive Soils

A low to medium plastic clayey silt was encountered in TP-1 to a depth of about 2 feet. It may be moderately expansive. We recommend that future development, if it occurs, remove this material below structures and replace with a non-expansive granular compacted fill.

Compressibility

The topsoil is compressible and should be excavated as discussed above. The silt layer below the topsoil was encountered in a medium stiff to very stiff condition. It is our opinion that the silt soil poses a low risk of compressibility for typical spread and isolated shallow spread footings in its undisturbed state.

Peat

We did not encounter any peat in the test pits advanced at the site. As is common, however, the topsoil contained organics (roots) and is not suitable for structural support.

Landslides

We did not observe ground surface features or soils in the test pits that indicate potential landslide activity. It is our opinion that landslides present a low risk to future development of this site.

Ground Water

No ground water was encountered in our test pits. We expect that ground water levels will fluctuate seasonally and will be significantly higher during the wet winter and spring months. Perched water, surface ponding, and surface water runoff may also develop following periods of wet weather.

SUMMARY CONCLUSIONS

Based on the conditions encountered in our preliminary work, there appears to be no subsurface conditions that would preclude development of the site. However, the sensitivity of soils to disturbance and moisture, the need for careful site preparation to protect the subgrade under foundations and pavements, and the construction schedule will likely be key geotechnical issues that will need to be addressed during design and construction. Site excavations greater than about 5 feet may encounter basalt rock. Soil consisting of gravel, cobbles and boulders may also be encountered at any depth and at any location across the site.

ADDITIONAL GEOTECHNICAL WORK

A second phase of geotechnical work is required prior to design, once the layout of specific units and roads is established. We anticipate some additional field exploration, laboratory testing, and analysis will be needed to develop recommendations for foundation design and construction, and for site grading and pavements.

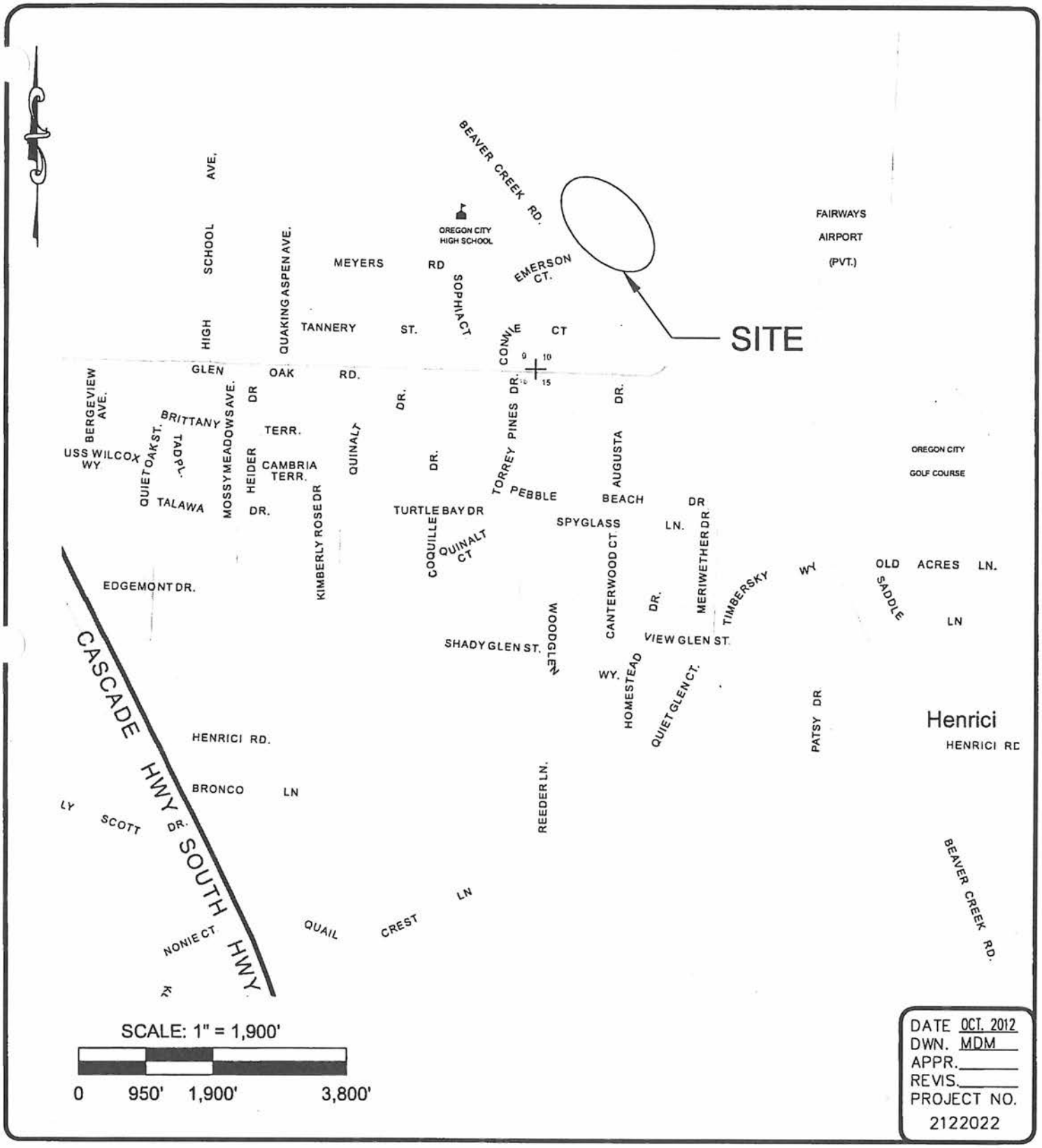
VARIATION OF SUBSURFACE CONDITIONS, USE OF THIS REPORT AND WARRANTY

The findings and conclusions contained herein are based on the assumption that the soil profiles and the absence of ground water encountered in the test pits are representative of overall site conditions.

This reconnaissance-level geotechnical memorandum was prepared for the exclusive use of Evergreen Housing Development Group, LLC for the 19896 Beavercreek Road project in Oregon City, Oregon. Information contained herein should not be used for other sites or for unanticipated construction without our written consent. This report is intended for preliminary planning. It is assumed that a more detailed geotechnical investigation will be completed prior to final design and construction.

Our work was done in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

We trust this information meets your present needs. It has been a pleasure assisting you with this phase of the project. Please do not hesitate to call if you have any questions or need further assistance.



DATE OCT. 2012
DWN. MDM
APPR.
REVIS.
PROJECT NO.
2122022

FOUNDATION ENGINEERING INC.
PROFESSIONAL GEOTECHNICAL SERVICES
8380 SW NIMBUS AVENUE
BEAVERTON, OR 97008-6445
BUS. (503) 643-1541 FAX (503) 626-2419

VICINITY MAP

19896 BEAVERCREEK ROAD
OREGON CITY, OREGON

1A

FILE NAME:

DISTINCTION BETWEEN FIELD LOGS AND FINAL LOGS

A field log is prepared for each boring or test pit by our field representative. The log contains information concerning sampling depths and the presence of various materials such as gravel, cobbles, and fill, and observations of ground water. It also contains our interpretation of the soil conditions between samples. The final logs presented in this report represent our interpretation of the contents of the field logs and the results of the laboratory examinations and tests. Our recommendations are based on the contents of the final logs and the information contained therein and not on the field logs.

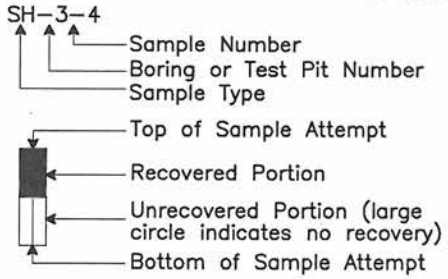
VARIATION IN SOILS BETWEEN TEST PITS AND BORINGS

The final log and related information depict subsurface conditions only at the specific location and on the date indicated. Those using the information contained herein should be aware that soil conditions at other locations or on other dates may differ. Actual foundation or subgrade conditions should be confirmed by us during construction.

TRANSITION BETWEEN SOIL OR ROCK TYPES

The lines designating the interface between soil, fill or rock on the final logs and on subsurface profiles presented in the report are determined by interpolation and are therefore approximate. The transition between the materials may be abrupt or gradual. Only at boring or test pit locations should profiles be considered as reasonably accurate and then only to the degree implied by the notes thereon.

SAMPLE OR TEST SYMBOLS



S – Grab Samples
SS – Standard Penetration Test Sample (split–spoon)
SH – Thin–walled Shelby Tube Sample
C – Core Sample
CS – Continuous Sample

▲ Standard Penetration Test Resistance equals the number of blows a 140 lb. weight falling 30 in. is required to drive a standard split–spoon sampler 1 ft. Practical refusal is equal to 50 or more blows per 6 in. of sampler penetration.

● Water Content (%).

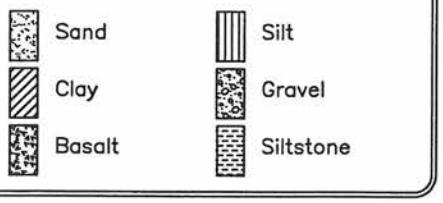
UNIFIED SOIL CLASSIFICATION SYMBOLS

G – Gravel	W – Well Graded
S – Sand	P – Poorly Graded
M – Silt	L – Low Plasticity
C – Clay	H – High Plasticity
Pt – Peat	O – Organic

FIELD SHEAR STRENGTH TEST

Shear strength measurements on test pit side walls, blocks of soil or Shelby tube samples are typically made with Torvane or pocket penetrometer devices.

TYPICAL SOIL/ROCK SYMBOLS



WATER TABLE


Water Table Location

(1/31/00) Date of Measurement


Piezometer Tip Location (if used)

FOUNDATION ENGINEERING INC.
PROFESSIONAL GEOTECHNICAL SERVICES

8380 SW NIMBUS AVE
BEAVERTON, OR 97008
BUS. (503) 641–1541 FAX (503) 626–2419

SYMBOL KEY
BORING AND TEST PIT LOGS

Explanation of Common Terms Used in Soil Descriptions

Field Identification	Cohesive Soils			Granular Soils	
	SPT	S_u^* (tsf)	Term	SPT	Term
Easily penetrated several inches by fist.	0 – 1	< 0.125	Very Soft	0 – 4	Very Loose
Easily penetrated several inches by thumb.	2 – 4	0.125–0.25	Soft	5 – 10	Loose
Can be penetrated several inches by thumb with moderate effort.	5 – 8	0.25 – 0.50	Medium Stiff (Firm)	11 – 30	Medium Dense
Readily indented by thumb but penetrated only with great effort.	9 – 15	0.50 – 1.0	Stiff	31 – 50	Dense
Readily indented by thumbnail.	16 – 30	1.0 – 2.0	Very Stiff	> 50	Very Dense
Indented with difficulty by thumbnail.	31 – 60	> 2.0	Hard		

* Undrained shear strength

Term	Soil Moisture Field Description
Dry	Absence of moisture. Dusty. Dry to the touch.
Damp	Soil has moisture. Cohesive soils are below plastic limit and usually moldable.
Moist	Grains appear darkened, but no visible water. Silt/clay will clump. Sand will bulk. Soils are often at or near plastic limit.
Wet	Visible water on larger grain surfaces. Sand and cohesionless silt exhibit dilatancy. Cohesive silt/clay can be readily remolded. Soil leaves wetness on the hand when squeezed. "Wet" indicates that the soil is wetter than the optimum moisture content and above the plastic limit.

Term	PI	Plasticity Field Test
Nonplastic	0 – 3	Cannot be rolled into a thread.
Low Plasticity	3 – 15	Can be rolled into a thread with some difficulty.
Medium Plasticity	15 – 30	Easily rolled into thread.
High Plasticity	> 30	Easily rolled and rerolled into thread.

Term	Soil Structure Criteria
Stratified	Alternating layers at least 1 inch thick – describe variation.
Laminated	Alternating layers at less than 1 inch thick – describe variation.
Fissured	Contains shears and partings along planes of weakness.
Slickensides	Partings appear glossy or striated.
Blocky	Breaks into lumps – crumbly.
Lensed	Contains pockets of different soils – describe variation.

Term	Soil Cementation Criteria
Weak	Breaks under light finger pressure.
Moderate	Breaks under hard finger pressure.
Strong	Will not break with finger pressure.

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8380 SW NIMBUS AVE.
BEAVERTON, OR 97008
BUS. (503) 643-1541 FAX (503) 626-2419

COMMON TERMS
SOIL DESCRIPTIONS

Explanation of Common Terms Used in Rock Descriptions

Field Identification		UCS (psi)	UCS (MPa)	Strength (Hardness)
Indented by thumbnail.	R0	< 100	0.25–1.0	Extremely Weak (Extremely Soft)
Crumbles under firm blows with geological hammer, can be peeled by a pocket knife.	R1	100–1000	1.0–5.0	Very Weak (Very Soft)
Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with geological hammer.	R2	1000–4000	5.0–25	Weak (Soft)
Cannot be scraped or peeled with a pocket knife, specimen can be fractured with a single blow of geological hammer.	R3	4000–8000	25–50	Medium Strong (Medium Hard)
Specimen requires more than one blow of geological hammer to fracture it.	R4	8000–16000	50–100	Strong (Hard)
Specimen requires many blows of geological hammer to fracture it.	R5	16000–36000	100–250	Very Strong (Very Hard)
Specimen can only be chipped with geological hammer.	R6	> 36000	> 250	Extremely Strong (Extremely Hard)

Term	Weathering Field Identification
Fresh	Crystals are bright. Discontinuities may show some minor surface staining. No discoloration in rock fabric.
Slightly Weathered	Rock mass is generally fresh. Discontinuities are stained and may contain clay. Some discoloration in rock fabric.
Moderately Weathered	Significant portions of rock show discoloration and weathering effects. Crystals are dull and show visible chemical alteration. Discontinuities are stained and may contain secondary mineral deposits.
Highly Weathered	Rock can be excavated with geologist's pick. All dicontinuities exhibit secondary mineralization. Complete discoloration of rock fabric. Surface of core is friable and usually pitted due to washing out of highly altered minerals by drilling water.
Decomposed	Rock mass is completely decomposed. Original rock "fabric" may be evident. May be reduced to soil with hand pressure.

Spacing (meters)	Spacing (feet)	Spacing Term	Bedding/Foliation
< 0.06	< 2 in.	Very Close	Very Thin
0.06 – 0.30	2 in. – 1 ft.	Close	Thin
0.30 – 0.90	1 ft. – 3 ft.	Moderately Close	Medium
0.90 – 3.0	3 ft. – 10 ft.	Wide	Thick
> 3.0	> 10 ft.	Very Wide	Very Thick (Massive)

Vesicle Term	Volume
Some	3 – 20%
Highly	20 – 50%
Scoria	> 50%

Stratification Term	Description
Lamination	<0.39 in. thick beds
Fissile	Preferred break along laminations
Parting	Preferred break direction
Foliation	Metamorphic layering of minerals

RQD %	Designation	RQD %	Designation
0 – 25	Very Poor	75 – 90	Good
25 – 50	Poor	90 – 100	Excellent
50 – 75	Fair		

Rock Quality Designation (RQD) is the percent of a core run with intact lengths greater than 4.0 in. excluding breaks caused by drilling.

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PROFESSIONAL GEOTECHNICAL SERVICES
8380 SW NIMBUS AVE.
BEAVERTON, OR 97008
BUS. (503) 643-1541 FAX (503) 628-2419

COMMON TERMS
ROCK DESCRIPTIONS

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
								SILT with organics, (ML) (±6 inches); dark brown, (topsoil).
	1-							Medium stiff SILT/CLAY, (ML/CL); dark red-brown, low to medium plasticity, moist, occasional rootlet, (organics).
	2-	S-1						
	3-	S-2						Medium stiff to stiff sandy SILT, some gravel, (ML); red-brown and yellow-brown, moist to wet, non-plastic, gravel is subrounded/angular basalt, occasional black organic staining.
	4-							
	5-	S-3						(R2 to R3) BASALT; grey-brown, moderately to highly weathered, remolds to sandy SILT (ML), moist, non-plastic.
	6-							
	7-							
	8-							BOTTOM OF TEST PIT

Project No.: 2122022

Surface Elevation: (Approx.)

Date of Test Pit: October 22, 2012

Test Pit Log: TP-1

19896 Beavercreek Road

Oregon City, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
								SILT with organics, (ML); dark brown, (topsoil).
	1-							Stiff SILT, with gravel and cobbles, (ML); dark red-brown, moist, non-plastic, occasional organics.
	2-	S-1						
	3-							Very stiff SILT with gravel and cobbles, (ML); red-brown to yellow-brown, moist, non to low plasticity, occasional black organic staining.
	4-	S-2						
	5-							
	6-							
	7-							
	8-							BOTTOM OF TEST PIT

Project No.: 2122022

Surface Elevation: (Approx.)

Date of Test Pit: October 22, 2012

Test Pit Log: TP-2

19896 Beavercreek Road

Oregon City, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
								SILT with organics, (ML) (±1 foot); dark brown, (topsoil).
	1							Medium stiff to stiff SILT, (ML); red-brown, moist, low plasticity, occasional black organic staining.
	2							
	3	S-1						
	4							
Becomes very stiff at 4 feet.	5	S-2						
	6							
	7							(R2 to R3) BASALT; grey-brown, slightly to moderately weathered, moist.
Refusal at 8 feet.	8							BOTTOM OF TEST PIT

Project No.: 2122022

Surface Elevation: (Approx.)

Date of Test Pit: October 22, 2012

Test Pit Log: TP-3

19896 Beavercreek Road

Oregon City, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
								SILT with organics, (ML) (±6 inches); dark brown, (topsoil).
	1							Stiff to very stiff SILT, (ML); red-brown, dry to moist, non to low plasticity, occasional black organic staining.
	2							
	3	S-1						
	4							
	5							
	6							
	7	S-2						(R1 to R2) BASALT; grey-brown, slightly to highly weathered.
	8							BOTTOM OF TEST PIT

Project No.: 2122022

Surface Elevation: (Approx.)

Date of Test Pit: October 22, 2012

Test Pit Log: TP-4

19896 Beavercreek Road

Oregon City, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Occasional coarse gravel and cobble (basalt) at 4 feet.	1 2 3 4 5 6 7 8	S-1 S-2						SILT with organics, (ML) (±6 inches); dark brown, (topsoil). Medium stiff to stiff SILT, (ML); red-brown, dry to moist, non to low plasticity, occasional black organic staining. BOTTOM OF TEST PIT

Project No.: 2122022

Surface Elevation: (Approx.)

Date of Test Pit: October 22, 2012

Test Pit Log: TP-5

19896 Beavercreek Road

Oregon City, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Basalt boulder enc. ±18 inches diameter, grey-brown, at 4 to 5 feet.	1 2 3 4 5 6 7 8 9	S-1 S-2						SILT with organics, (ML); dark brown, (topsoil). Medium stiff to stiff SILT, some organics, (ML); red-brown, dry to moist, non to low plasticity, partially cemented, occasional black organic staining. BOTTOM OF TEST PIT

Project No.: 2122022

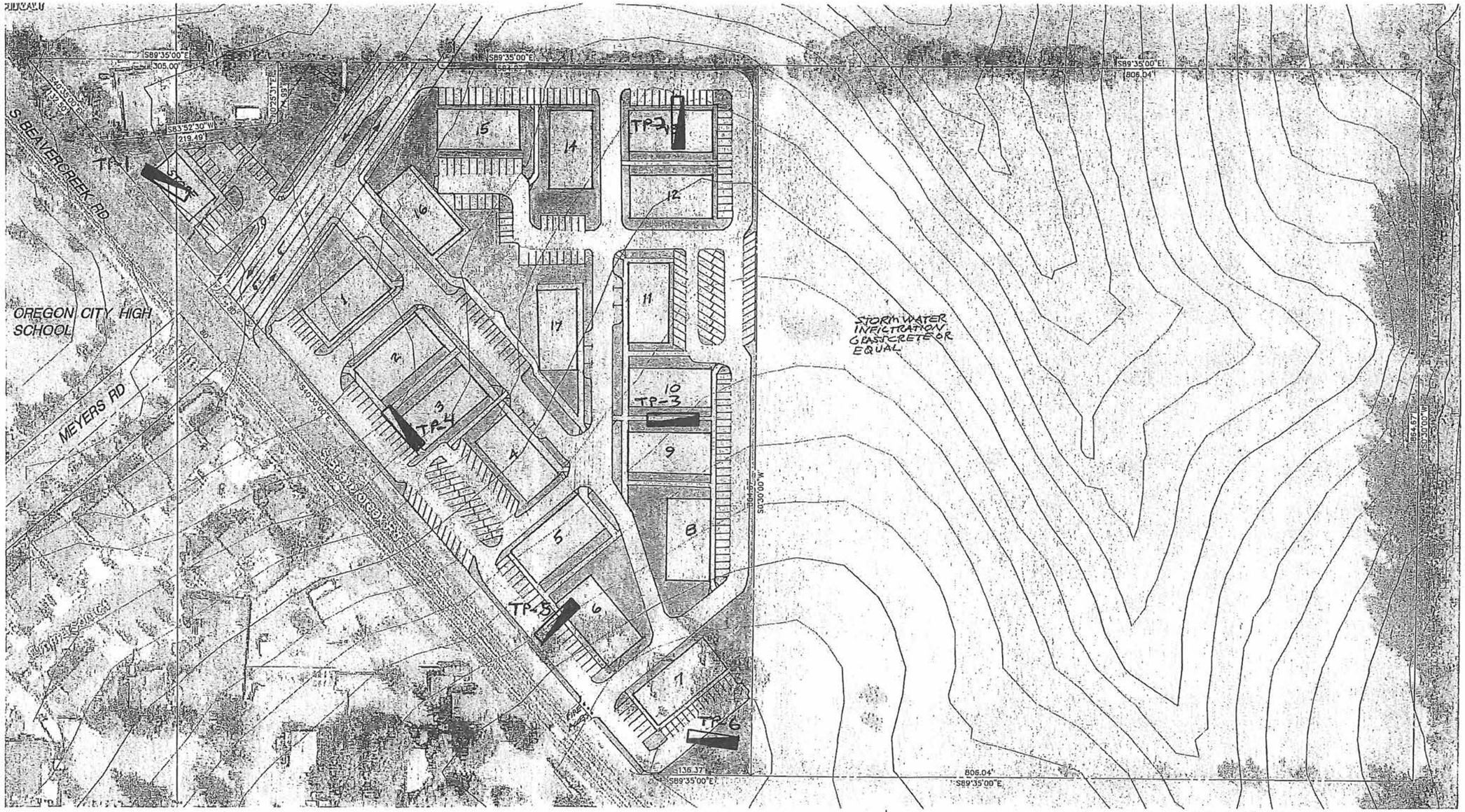
Surface Elevation: (Approx.)

Date of Test Pit: October 22, 2012

Test Pit Log: TP-6

19896 Beavercreek Road

Oregon City, Oregon



LEGEND

▬ APPROXIMATE LOCATIONS OF TEST PITS by FEI (10-22-12)

GRAPHIC SCALE
60 0 60 120
(IN FEET)
1 inch = 60 ft.

- 300 PARKING SPACES SHOWN - 1.97 SPACES/UNIT
- 17 BLDGS - 12 UNITS/BLDGS

CAD/CALC XXX					
DRAWN XXX					
PLAT CHK XXX					
SYM	REVISION	DATE	BY	APP'D	

PACE
An Engineering Services Company

5000 Meadows Road, Suite 345
Lake Oswego, OR 97035
p. 503.597.3222 | f. 503.597.7655
Civil | Structural | Planning | Survey
paceengrs.com

PROPOSED DEVELOPMENT
OPTION B

DATE 3/27/2012
SCALE: BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

PRELIMINARY SITE PLAN
FOR
DLB CAPITAL MANAGEMENT LLC.

PROJECT NO. 00000
SHEET 1 OF 1

DWG NAME: P:\PD_2012 FEI PROPOSALS\SITE KEY\PD-12_MASSIE DEVELOPMENT_BEAVERCREEK-MEYERS ROAD\DWG\MASSIE.dwg & MORSING
LAYOUT TAB: OPTION 2
PLOT DATE: 3/27/2012 3:33:43 PM
PLOT BY: Mike Morsing
USER NAME: Mike Morsing
XREF FILES:

Figure 2A

Oregon City Live/Work
Evergreen Housing Development Group

11/10/2014

Floor Area Ratio Calculation

Building	First Floor	Second Floor	Third Floor
Clubhouse	2798	0	0
C1	6391	6391	6391
A1	17545	17111	17111
A2	17545	17111	17111
A3	16806	16285	16285
T1	2507	2893	2689
T2	3756	4334	3995
T3	1883	2172	2019
T4	3756	4334	3995
T5	2507	2893	2689
T6	3756	4334	3995
T7	2507	2893	2689
Floor Total	**81757**	**80751**	**78969**

Total Gross Square Footage **241477**

Total site area **369496**

FAR = **0.653531**

KELLER associates

Technical Memo

REGISTERED PROFESSIONAL ENGINEER 73454PE OREGON JULY 15, 2003 JAMES BLEDSOE

EXPIRATION DATE: 12-31-15

TO: Andrew Brand, Director of Development
Evergreen Housing Development Group, LLC

FROM: James Bledsoe, PE

DATE: September 9, 2014

SUBJECT: Sewer Service to the Beavercreek Development

Background

The proposed Beavercreek Apartment Development is located east of S. Beavercreek Road in Oregon City, Oregon. The City's Draft Sanitary Sewer Master Plan (May 20, 2014) shows this area being serviced by a new sanitary sewer trunkline to be located in S. Beavercreek Road. A subsequent evaluation of a portion of the Beavercreek Road basin (identified as Areas 1 and 2 in Figure 1 below) was subsequently completed by Brown and Caldwell (BC). The build-out impacts on the Glen Oak Road sewer for Areas 1 and 2 was summarized by BC in a technical memorandum dated June 30, 2014. The proposed Beavercreek Apartment Development encompasses approximately 11 acres and is located within Area 1.

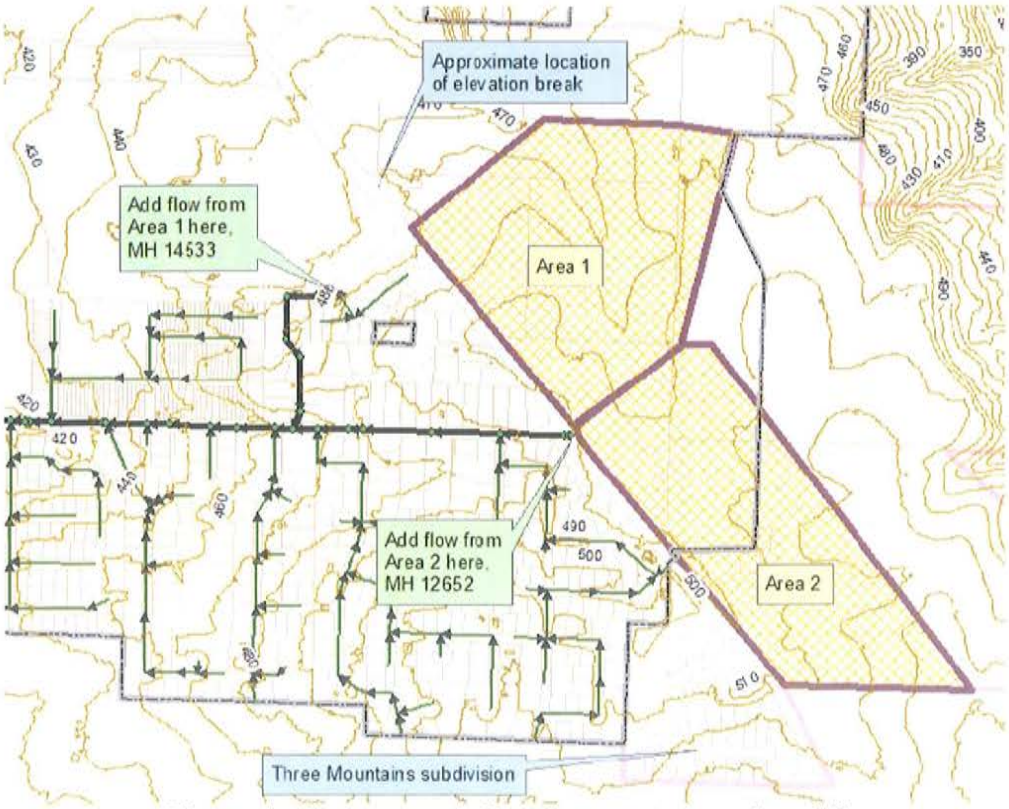


Figure 1: Beavercreek Development, Area 1 and 2
(from Brown and Caldwell June 30, 2014 Technical Memorandum)

Keller Associates was contracted by Evergreen Housing Development Group, LLC to evaluate the availability of sewer service in the existing Glen Oak Road Sewer for the Beavercreek Development. This effort involved a review of Oregon City's Draft Sanitary Sewer Master Plan and subsequent technical memorandum prepared by BC. Brown and Caldwell also provided a letter on August 8, 2014 to address specific comments and questions Keller Associates had relative to the master plan and technical memorandum. This technical memorandum presents our findings.

General Observations

The approach taken by BC in evaluating the existing collection system appears to be in line with industry standards. Planning criteria, including peaking factors, design storm events, future flow assumptions, and infiltration and inflow (I/I) assumptions also appear to be in line with industry standards, customized to the unique local conditions of the region. Flow data gathered throughout the system (including one location downstream of the Glen Oak Road sewer line) also provide a level of assurance that the existing model and evaluation reflect existing field conditions.

The estimated combined build-out flow from the Beavercreek Areas 1 and 2 was calculated by BC to be approximately 421 gpm, which is more than the available capacity in the Glen Oak Road sewer. Keller Associates does not object with BC findings that the best *long-term* approach for servicing the entire Beavercreek service area appears to be a new sewer trunkline along S. Beavercreek Road. This service approach ultimately directs available capacity in the Glen Oak Road Sewer and the downstream pipeline in HWY 213 for undeveloped areas adjacent to these pipelines, while providing for build-out of both the Beavercreek and Glen Oak service areas.

Flow projections prepared by Evergreen Housing Development's project engineer, PACE Engineering, estimate a total flow of approximately 105 gpm for the Beavercreek Apartment Development. These projections were developed using similar assumptions to those used by BC in estimating flow projections for this sewer basin (80 gpcd, 2.5 people per household, and I/I rates similar to the existing developments). Refer to Attachment A for a copy of PACE engineering calculations. With improved construction materials and installation techniques, it is anticipated that substantially less I/I will be present in the development lines and that actual flows will be less than reported.

It should also be noted that constructing the Beavercreek Sewer Trunkline to service only the Beavercreek Apartment Development could introduce other operation and maintenance challenges until such time as increased flows provided sufficient scouring velocities in the new sewer line.

Available Capacity in the Glen Oak Sewer Line

While construction of the S. Beavercreek Road pipeline may be the best long-term solution for serving the Beavercreek area, there is available capacity in the Glen Oak Road sewer for new development. Brown and Caldwell reported an **estimated remaining capacity of approximately 225 gpm** in the downstream Hwy 213 and Glen Oak Road conveyance system, assuming full pipe conditions and existing peak flow conditions (10-year evaluation event). Surcharged conditions were not considered in estimating the existing remaining capacity, presumably because of the minimal cover above the pipe (only two feet) near the

location where the Glen Oak Road sewer discharges into the Hwy 213 sewer (nodes 12371 and 12372). Regardless of the source of additional flows in the Glen Oak Road sewer, Keller Associates recommends that the manholes with only two feet of cover be equipped with bolted down, sealed manholes if these are currently not in place.

The City desires to reserve approximately 20 gpm of the available 225 gpm capacity for the existing Three Mountains subdivision (currently on septic systems). This would leave approximately 205 gpm of uncommitted capacity that could be used to service a portion of Areas 1 and 2 of the Beavercreek Development. **Allowing the proposed Beavercreek Apartment Development to gravity flow to Glen Oak Road would still leave approximately 100+ gpm of uncommitted capacity for future downstream development.**

While accommodating the Beavercreek Apartment Development in the Glen Oak Road sewer would direct flows across sewer basins on a short-term basis, it is worth noting that the area can gravity flow to the Glen Oak Road sewer system. Additionally, in the short-term there may be operational benefits to the City to direct flow into the Glen Oak Road sewer. Allowing flow from Beavercreek Development to go to the Glen Oak Road sewer would also allow the large capital expenditures of the Beavercreek Sewer Trunkline project to be delayed without exceeding the capacity of the existing pipelines, giving the City and development community more time to plan for and fund the new trunkline. Flow from the Beavercreek Development could eventually be routed into the Beavercreek Sewer Trunkline, and provisions for this transfer should be incorporated into the design of the Beavercreek Development.

Accommodating the Beavercreek Apartment Development in the Glen Oak Road sewer does not obligate the City to service other future developments in Areas 1 and 2 within the Glen Oak Road sewer. Should Areas 1 and 2 be committed long-term to the Glen Oak Road sewer, then as an alternative to the Beavercreek Sewer Trunkline, it may be possible to complete downstream improvements in Hwy 213 to alleviate surcharged conditions in the City's Glen Oak Road sewer. In their June 30, 2014 technical memorandum, BC estimated that a $537,000 pipe upsizing project in Hwy 213 would alleviate the surcharged conditions in the City-owned Glen Oak Road sewer.

One of the concerns expressed by the City in allowing Beavercreek Apartment Development to discharge into the Glen Oak Road sewer is that the flow utilizes available downstream capacity in HWY 219 that could be dedicated to other developments. The City also recognizes that significant contributions of I/I utilize available pipe capacity. Reducing the amount of I/I could free up pipe capacity for development. The cost to reduce flow by reducing I/I is a function of a number of factors, including the presence of direct storm water connections, topography, climate, groundwater levels, soil conditions, and pipe material conditions.

Keller Associates investigated whether there are benchmarks for estimating typical cost per gallon for I/I removed from a wastewater collection system. Contact was made with the City of Eugene, City of Springfield, City of Salem, City of Portland, and Clean Water Services. All of these entities desire to obtain this information, but do not have it at the present time. Clean Water Services reported that they have done similar research on the

topic and were also not able to obtain results in the Western United States. Some of the best available data comes from Massachusetts where there are several regional systems that assess development a fee to allow the development to occur. The cost charged to offset I/I is derived from a mix of technical and political discussions. Many municipalities use a factor referred to as an offset ratio which is multiplied by what they anticipate the actual cost. For example, if there is an offset ratio of 1.25 to 1, a developer would pay 125% the actual anticipated cost to remove the I/I. Depending on the municipality, this fee would be assessed the developer based on either average or peak anticipated flows from the development. Using the available data we were able to find, the average cost to remove I/I was about $5/gallon/day based on average daily flows. Obviously, if a large point source of I/I can be identified, the cost to reduce could be much lower. Likewise, a community with a history of aggressive I/I reduction efforts may find that the incremental cost to further reduce I/I could be much higher.

Attachment A

MEMORANDUM

Date: August 27, 2014

To: Dave Poulson,PE, Branch Manager, PACE Engineers, Inc.

From: Bill Pavlich, PE, PACE Engineers, Inc.

Subject: **Oregon City Live/Work – Sewer Flow Computation**
PACE Project No. 13869

Methodology

The methodology used for this sewer flow analysis is largely based on data and approaches utilized in the City's recent *Draft Sewer System Master Plan* (D-SSMP) and *Draft Technical Memo* March 3, 2014 (D-TM)prepared by Brown and Caldwell. Plans for the proposed development have been sufficiently developed so as to determine specific sewer main sizes and lengths and the number of housing units; consequently, the calculations are based on the specific characteristics where possible rather than general planning, per-acre allowances.

Oregon City Live/Work - Sewer Related Design Characteristics

- 1,794 lineal feet of 8-inch gravity sewer main tributary to the Glen Oaks subbasin.
- 180 dwelling units (du) (*147 apartments, 33 townhomes*).

Analysis Parameters

The following analysis parameters and approaches are based on information obtained or derived from the D-SSMP and D-TM.

- Persons per household (pph) = 2.5
- Average daily sewer contribution = 80 gallons per capita day (gpcd). *(Note this is an older per capita standard; newer standards are typically lower.)*
- Peak Factor = 3.6 (*This is conservatively estimated from Table 11 (p. A19, D-SSMP) the entry ("Main Street") used for a comparable size of development in terms of acreage and population).*
- Peak I/I = 8,144 gallons per inch of pipe diameter per mile per day (gpimd). *(This is the figure determined for the Glen Oaks subbasin in Table ES-5 (p. xiv, D-SSMP) and represents a very conservative estimate of future I/I in the Oregon City Live/Work development. Note typical design standards (such as the Ten State Standards) allow only 100 gpimd when testing new construction.)*

PACE

PACE Engineers, Inc.
5000 Meadows Road, Suite 345
Lake Oswego, OR 97035
Phone: 503.597.3222 Fax: 503.597.7655

Calculations

Domestic wastewater average daily flow:

180 du x 2.5 pph x 80 gpcd = 36,000 gpd (25 gpm)

Peak domestic wastewater flow:

36,000 gpd x 3.6 = 129,600 gpd (90 gpm)

Peak I/I:

8,144 gpimd x 8 in x (1,794 LF/ 5,280) = 22,137 gpd (15.4 gpm)

Combined peak domestic and I/I flow:

129,600 gpd (domestic) + 22,137 gpd (I/I) = 151,737 gpd (105.4 gpm)

Impacts

The D-TM showed flow attenuation (diminishing of the peak flow) occurring at a few locations downstream of the connection (manhole #12652) with the proposed development (see Table 3, D-TM). Flow attenuation resulted in flows that were approximately 98% of the peak at manhole # 12370, and 83% of the peak at manhole # 11776 for Alternative B. Assuming a similar attenuation to occur for the 105.4 gpm calculated above would result in the following peak flows as the flow passes through each of the noted manholes:

MH-12652	100.0%	105.4 gpm
MH-12903	99.3%	104.7 gpm
MH-12370	98.3%	103.6 gpm
MH-11776	83.2%	87.7 gpm

The attenuation percentages above were based on routing 285 gpm (D-TM); for 105.4 gpm the attenuation percentages are likely lower, but without modelling it is not possible to more accurately determine the attenuation in the system.

Actual peak flows from the proposed development are likely to be lower than the calculated 105.4 gpm. The nature of the development (apartments and townhouses) will likely have an average occupancy lower than the 2.5 pph used above. Modern fixtures and appliances are much more water efficient: typical interior water usage for such dwellings is 51.9 gpcd (source: Metcalf & Eddy, Wastewater Engineering: Treatment and Reuse, 2003) – considerably lower than the 80 gpcd noted above. Initial I/I should be nominal assuming quality engineering and construction. We understand the need to be conservative in planning and design; however, these consideration suggest real world impacts considerably less than 105.4 gpm.

Clackamas River Water
P. O. Box 2439
Clackamas, Oregon 97015-2439

ADDRESS SERVICE REQUESTED

PORTLAND
OR 970
22 AUG '14
PM 2 L

UNITED STATES POSTAGE
PITNEY BOWES
02 1P $ 000.48⁰
0000805758 AUG 22 2014
MAILED FROM ZIP CODE 97015

Pete Walter, AICP, Associate Planner
Oregon City Community Development Department
221 Molalla Avenue, Ste. 200
Oregon City, Oregon 97045

97045307350

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION TRANSMITTAL

July 24, 2014

CITY STAFF DISTRIBUTION	*MAIL-OUT DISTRIBUTION*
❑ BUILDING OFFICIAL ✓	❑ NEIGHBORHOOD ASSOCIATION _Caufield ✓
❑ DEVELOPMENT SERVICES MANAGER ✓	❑ NATURAL RESOURCES COMM. (NRC)
❑ PUBLIC WORKS- OPERATIONS ✓	❑ CLACKAMAS COUNTY TRANSP. & PLANNING ✓
❑ CITY ENGINEER ✓	❑ CLACKAMAS FIRE DISTRICT #1 ✓
❑ PUBLIC WORKS DIRECTOR ✓	❑ ODOT – Division Review ✓
❑ TECHNICAL SERVICES (GIS) ✓	❑ OREGON CITY SCHOOL DISTRICT ✓
❑ PARKS MANAGER ✓	❑ TRI-MET ✓
❑ ADDRESSING	❑ METRO ✓
❑ POLICE ✓	❑ OREGON CITY POSTMASTER
TRAFFIC ENGINEER	❑ DLCD
❑ REPLINGER AND ASSOCIATES ✓	❑ CITY ATTORNEY ✓
	❑ OTHER: _____
Mailed Notice to County CPO's	
❑ Central Pt-New Era-Leland / Holcomb-Outlook/Beavercreek ✓	
Mailed Notice	
❑ Within 300' ✓	

PUBLIC COMMENTS DUE:	6:00 p.m., August 11, 2014
REVIEW COMMENTS DUE:	6:00 PM, August 25, 2014
HEARING DATE:	Type II – Not applicable
HEARING BODY:	_XX__**Staff Review;** _____PC; _____CC
FILE # & TYPE:	SP 14-01: Site Plan and Design Review for a 121-unit Apartments and 62 Live-Work Units on 9.7 acres (Zoned MUC-1) – East side of Beavercreek Road
PLANNER:	Pete Walter, AICP, Planner (503) 496-1568
PROJECT WEBSITE:	http://www.orcity.org/planning/landusecase/sp-14-01-beavercreek-road-apartments-live-work-units
APPLICANT:	Beavercreek Road, LLC, Attn: Andrew Brand
LOCATION:	19896 Beavercreek Rd, Oregon City OR 97045 (See Vicinity Map on Public Notice) Clackamas County Map 3-2E-10C Tax Lot 800

This application material is referred to you for your information, study and official comments. If hard copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and ensure prompt consideration of your recommendations.

Please check the appropriate spaces below. Attach additional pages if needed.

_____ The proposal does not conflict with our interests.

_____ The proposal conflicts with our interests for the reasons stated below.

__X__ The proposal would not conflict our interests if the changes noted below are included.

See attached CRW comments

Signed Betty Lefton

Title Engineering associates

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

Clackamas River Water

Date:	August 22, 2014	**SENT VIA EMAIL**
To:	Pete Walter, Planner City of Oregon City	
From:	Betty Johnson, Engineering Associate Clackamas River Water	
Subject:	Land Use Application:	**File** #SP 14-01
Applicant:	Beavercreek Road, LLC Andrew Brand 600 University Street, Suite 1708 Seattle, WA 98101	
Site Address:	19896 Beavercreek Rd, Oregon City, OR 97045	
Legal Description:	32E10C 00800	

CRW Comments:

This property was withdrawn from the Clackamas River Water (CRW) service boundary and annexation completed in 2008 per Ordinance: 07-1021. The property is within the City's Beavercreek Concept planning area but due to low water pressure has elected not to allow City water service to the property. Beavercreek Road, LLC has contacted CRW inquiring if the District would be able to provide water service for the development. A preliminary hydraulic model indicates that the District's Beavercreek Pressure Zone has the capability to provide both volume and pressure.

The attached CRW letter to Evergreen Housing Development Group outlines the District's minimum requirements as summarized below:

- Per Section 9 of the CRW's Rules and Regulations *Service Outside District* the applicant must seek approval from the CRW Board of Commissioners to provide water service to this exterritorial development.
- Be prepared to comply with an Intergovernmental Agreement between the City and CRW, allowing the district to provide water to the property described and other requirements to be determined.
- Evergreen Housing Development shall sign a "Developer's Agreement" `with CRW.

- Evergreen Housing Development shall be responsible for all costs associated with the design and construction of a waterline and metering vault assembly including hydraulic modeling efforts by CRW, project review and inspection.
- The waterline, once constructed and accepted, will be donated to the City to maintain and operate.
- The master meter and vault assembly serving the development will be donated to CRW to maintain and operate.

On August 18, 2014, Beavercreek Road LLC provided a written request to CRW to provide water service to the referenced property (see attached letter). Based on this request CRW staff is preparing an agenda item for the CRW Board of Commissioners to consider providing water service to this exterritorial property.

CRW requests direction from the City to determine if CRW will be allowed to provide water service to the referenced property, with the understanding that agreements will meet both the City and CRW requirements.

For further information regarding these comments please contact Bob George, 503-722-9228.

Clackamas River Water

P.O. Box 2439
Clackamas, Oregon 97015-2439

(503) 722-9220
Fax (503) 656-7086

16770 SE 82nd Drive, Clackamas
customerservice@crwater.com

June 10, 2014

Andrew Brand
Evergreen Housing Development Group, LLC
600 University Street, Suite 1708
Seattle, WA 98101

Subject: Water Service for 19896 Beavercreek Rd. – REF: SP 14-01 / PA-13-24

Mr. Brand,

Based on documentation from Oregon City and Evergreen Housing Development Group, the current development plan has the site to be developed with 121 rental apartments and 62 live-work units. Due to low available water pressure the City has determined that the site cannot be served from the existing City's 16-inch water main (590HGL) that fronts the property. Multiple solutions utilizing the main have been offered by Evergreen Housing Development (Developer) to the City, but none have met the City requirements.

Per our conversations, you have shown an interest working with CRW in development of a water main from CRW's Beavercreek Pressure Zone to the development site. CRW's Beavercreek Pressure Zone (744HGL – high level) is located approximately 850 feet south of the site along Beavercreek Road. A review of the property indicates that it is within the City's limits and outside the Clackamas River Water (CRW) district's service boundary. Also our preliminary review indicates that pressure and volume from this pressure zone could meet the City's requirement.

For CRW to consider this option, you will be required as a minimum be prepared to comply to or complete the following items.

- Be prepared to comply with an Intergovernmental Agreement between the City and CRW, allowing the district to provide water to the property described and other requirements to be determined.
- The CRW Board will need to provide a Resolution allowing water to be provided exterritorialy.
- Evergreen Housing Development shall be responsible for all costs associated with the design and construction of a waterline and metering assembly sized to meter domestic water requirements. This would include hydraulic modeling efforts by CRW, project review and inspection.

- The waterline once constructed and accepted would be donated to the City to be maintained and operated.
- The master meter and vault assembly would be donated to CRW to be maintained and operated.
- Evergreen Housing Development shall sign a "Developer's Agreement "with CRW.

In conclusion, CRW is willing to work with Evergreen Housing Development on the development of a water system that would provide domestic water from the Beavercreek Pressure Zone to the referenced site. If you have any additional questions or comments please do not hesitate to call (503-722-9228).

Respectfully,

Robert C. George

Robert C. George, P.E.
District Engineering, Clackamas River Water

CC: CRW Chron file
Engineering files – Evergreen Housing (3-ring file)

Beavercreek Road LLC
600 University St, Suite 1708
Seattle, WA 98101
206-535-6348

August 18, 2014

Bob George
Clackamas River Water District
16770 SE 82nd Dr. #100
Clackamas, OR 97015

RE: Request for Water Service at 19896 Beavercreek Road, Oregon City, OR

Bob,

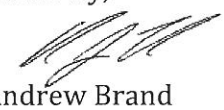
I am writing today as the representative for Beavercreek Road LLC, the owner of an approximately 11 acre parcel of land at 19896 Beavercreek Road in Oregon City and land use applicant to develop approximately 186 units of multi-family rental housing on this same site.

It has come to our attention that the City of Oregon City may have difficulty providing adequate water service to meet the needs of our proposed development both for residential domestic water and possibly for fire services. Before our parcel was annexed to Oregon City it was under the jurisdiction of CRW. As such, it still has an abandoned water line running to it from the CRW pump station on Beavercreek Road.

I am writing to formally ask for exterritorial water service from CRW to supply our project. I would appreciate having a formal decision from the CRW board as soon as possible stating CRW's willingness to provide water services to our project.

I appreciate your time on this matter. Please let me know if I can clarify any questions you may have about our proposed project or this request for exterritorial service.

Sincerely,



Andrew Brand
Authorized Representative
Beavercreek Road LLC
andrew@evergreenhd.com

Oregon City Live/Work
Evergreen Housing Development Group

11/10/2014

Parking Area Breakdown

Beavercreek Road On-Street	0	
Meyers Road On-Street	17	
Street A – On-Street	27	**
Street B – On-Street Parallel	18	**
Street B – On-Street 90 degree	7	**
Bldgs T1-T7 (one car garages)	33	
Bldgs T1-T7 (aprons)	33	**
Bldg C1 lot	17	
Alley Loop A	40	**
Alley Loop B	61	**
Alley Loop C	78	**
Total	**331**	**

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

NOTICE OF LIMITED LAND USE APPLICATION
Mailed on July 24th, 2014

COMMENT DEADLINE:	Written comments on this Type II application must be received by the Oregon City Planning Division no later than **5:00 pm, Monday, August 11th, 2014**
FILE NUMBER:	SP 14-01: Site Plan and Design Review
APPLICANT:	Beavercreek Road, LLC, Attn: Andrew Brand 600 University Street, Ste. 1708, Seattle, WA 98101
OWNER:	Same as Applicant
REPRESENTATIVE:	Same as Applicant
REQUEST:	Site Plan and Design Review for a 121-unit Apartments and 62 Live-Work Units on 9.7 acres (Zoned MUC-1)
LOCATION:	19896 Beavercreek Rd, Oregon City OR 97045 Clackamas County Map 3-2E-10C Tax Lot 800
CONTACT PERSON:	Peter Walter AICP, Associate Planner (503) 496-1568
NEIGHBORHOOD ASSOCIATION:	Caufield Neighborhood Association
CRITERIA:	• Oregon City Municipal Code. The City Code Book is available on-line at www.orcity.org • Administration and Procedures in Chapter 17.50; • "MUC-1" – Mixed Use Corridor District in Chapter 17.29; • Streets, Sidewalks and Public Places in Chapter 12.04; • Public and Street Trees in Chapter 12.08; • Site Plan and Design Review in Chapter 17.62; • Multi-Family Design Standards in Section 17.62.057; • Water Service System in Chapter 13.04; • Sewer Regulation in Chapter 13.08; • Stormwater Management in Chapter 13.12; • Off-Street Parking and Loading in Chapter 17.52

The application and all supporting documents submitted by or on behalf of the applicant are available for inspection at no cost at the Oregon City Planning Division, 221 Molalla Ave., Ste. 200, during regular business days (8 am - 5 pm). Copies of these materials may be obtained for a reasonable cost. Any interested party may submit written comments prior to the issuance of the Community Development Director's decision. Written comments must be received at the Planning Department no later than the close of business on **5:00 pm, August 11th, 2014** to be considered by the Community Development Director. The Community Development Director's decision will be based on the applicant's submittal, departmental and agency comments, letters from the public, and available information applicable to the criteria. Notice of the decision shall be sent to the applicant and to those persons submitting comments and providing a return address. Please be advised that any issue that is intended to provide a basis for appeal must be raised in writing during the 14-day comment period with sufficient specificity to afford the City and the parties an opportunity to respond to the issue. Failure to raise an issue on the record with sufficient specificity and accompanied by statements or evidence sufficient to afford the City to respond to the issue, will preclude any appeal on that issue. The Community Development Director's decision may be appealed to the City Commission by parties with standing. Any appeal will be based on the record.

A city-recognized neighborhood association requesting an appeal fee waiver must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal pursuant to OCMC 17.50.190(C)(5) to and 17.50.290(C).

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

NOTICE OF LIMITED LAND USE APPLICATION (SECOND NOTICE)

Mailed on October 17, 2014

COMMENT DEADLINE:	Written comments on this Type II application must be received by the Oregon City Planning Division no later than **5:00 pm, Friday, October 31st, 2014**
FILE NUMBER:	SP 14-01: Site Plan and Design Review
APPLICANT:	Beavercreek Road, LLC, Attn: Andrew Brand 600 University Street, Ste. 1708, Seattle, WA 98101
OWNER / REP:	Same as Applicant
REQUEST:	Site Plan and Design Review for a 121-unit Apartments and 62 Live-Work Units on 9.7 acres (Zoned MUC-1) -
LOCATION:	19896 Beavercreek Rd, Oregon City OR 97045 Clackamas County Map 3-2E-10C Tax Lot 800
PROJECT WEBSITE:	Application materials may be downloaded at http://www.orcity.org/planning/landuse
CONTACT PERSON:	Peter Walter AICP, Associate Planner (503) 496-1568
NEIGHBORHOOD ASSOCIATION:	Caufield Neighborhood Association
CRITERIA:	• Oregon City Municipal Code. The City Code Book is available on-line at www.orcity.org • Administration and Procedures in Chapter 17.50; • "MUC-1" – Mixed Use Corridor District in Chapter 17.29; • Streets, Sidewalks and Public Places in Chapter 12.04; • Public and Street Trees in Chapter 12.08; • Site Plan and Design Review in Chapter 17.62; • Multi-Family Design Standards in Section 17.62.057; • Water Service System in Chapter 13.04; • Sewer Regulation in Chapter 13.08; • Stormwater Management in Chapter 13.12; • Off-Street Parking and Loading in Chapter 17.52

The application and all supporting documents submitted by or on behalf of the applicant are available for inspection at no cost at the Oregon City Planning Division, 221 Molalla Ave., Ste. 200, M-F, 8:30 am – 3:30 pm. Copies of these materials may be obtained for a reasonable cost. Any interested party may submit written comments prior to the issuance of the Community Development Director's decision. Written comments must be received at the Planning Department no later than the close of business on **5:00 pm, October 31st, 2014** to be considered by the Community Development Director. The Community Development Director's decision will be based on the applicant's submittal, departmental and agency comments, letters from the public, and available information applicable to the criteria. Notice of the decision shall be sent to the applicant and to those persons submitting comments and providing a return address. Please be advised that any issue that is intended to provide a basis for appeal must be raised in writing during the 14-day comment period with sufficient specificity to afford the City and the parties an opportunity to respond to the issue. Failure to raise an issue on the record with sufficient specificity and accompanied by statements or evidence sufficient to afford the City to respond to the issue, will preclude any appeal on that issue. The Community Development Director's decision may be appealed to the City Commission by parties with standing. Any appeal will be based on the record.

A city-recognized neighborhood association requesting an appeal fee waiver must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal pursuant to OCMC 17.50.190(C)(5) to and 17.50.290(C).

From:	Tony Konkol
To:	Pete Walter
Subject:	FW: Beavercreek Rd LLC SP14-01
Date:	Monday, August 04, 2014 12:27:28 PM

Hi Pete,
The following public comments were submitted for the project on Beavercreek Road.
Thanks,
Tony

From: wshfish@aol.com [mailto:wshfish@aol.com]
Sent: Thursday, July 31, 2014 11:38 AM
To: Tony Konkol
Subject: Beavercreek Rd LLC SP14-01

Dear Mr. Konkol:

We are writing in regards to the proposed development for 19896 Beavercreek Rd. We attended the Evergreen Development meeting last summer and want to reiterate our concerns from the information provided last August.

We live across the street from the proposed apartments and are quite concerned about the considerable increase in traffic that will arise from the 183 planned units. Obviously a left turn lane will be needed at Myers, but will Beavercreek also be widened to accommodate these 200-400 more cars? Using Maple Lane as an example, that turn lane is often backed up 10-15 cars obstructing thru traffic on Beavercreek, but the two lanes help alleviate the congestion.

Our other main concern is the live-work units and their proposal of units fronting Beavercreek with on street parking. Again, we do not see A) how Beavercreek will be wide enough to accommodate on street parking and/or B) how cars will safely be able to pull out onto Beavercreek at the current posted speeds (and also slight uphill grade causing a blind spot). Also, will cars be allowed to park on both sides of Beavercreek? How much traffic will also spill onto Meyers for scrapbooking parties or a fitness class (these were suggested uses made by developer at previous meeting).

An additional parking concern is even though the developers claim they'll provide a parking space for each bedroom in the complex, where will guests, (customers?) or 2 car couples living in a 1 bedroom unit park?? Our property backs to Meyers and we are worried we will have even less privacy and increased noise with all these extra cars and no available parking for them in their own complex.

A final concern is the ability of the city to provide adequate water pressure to all these new residences when our current water pressure is already quite low. Will our water pressure decrease even further?

While development is inevitable, it would be much more appealing if single family homes could be built on this site. If this mixed use development must be permitted, we would hope the City would see fit to significantly reduce the number of units allowed (by half?) and require more parking/garages with no on street parking outside of the development.

Thank you for considering our concerns.

Ron & Wendy Carter
15035 Emerson Ct
Oregon City OR 97045

RECEIVED
2014 AUG 11 PM 4:06

Oregon City Planning Department
221 Molalla Ave.
Suite 200
Oregon City, OR 97045
Attention: Peter Walter, Associate Planner

RE: Beavercreek Road Site Plan SP 14-01

Dear Pete:

Thank you very much for meeting with Gary Davis and me on Wednesday to discuss the Beavercreek Road Project, SP 14-01. We appreciate all of the time and effort you put forth on this spur of the moment meeting.

This letter represents the formal response from the Caufield Neighborhood Association on SP 14-01.

We have several concerns about the size, scope and safety of this project.

1. As we discussed, I believe that the size and scope of this project presents a significant safety issue considering that it is located near an unregulated airport. Since there are no paved runways, runway lights or manned personnel, it is very difficult to determine how many planes land before it is safe to do so and how many planes go beyond the recommended distance to be airborne. Therefore, the number of residents in this area, expected to reach 550 people would constitute a considerable safety issue

2. Initially, we believed that the concept for this project was light industrial that would bring employment to the community, especially for students that attend Clackamas Community College and to a lesser degree, Oregon City High School. However, SP 14-01 has 183 units of which 62 are live work units. Needless to say, these stores are so small that it should be considered small family businesses, which would employ maybe 1 or 2 people in addition to the owner/operator.

3. Since the number of resident to live in this project is 550 people, it is anticipated that the number of vehicles in the complex will be over 800. This does not include the number of vehicles that will be in the vicinity for business purposes. The Caufield Neighborhood Association is still reeling from the miscalculation the City had regarding the parking and traffic in the Landing, an apartment complex located on Glen Oaks Road. The home owners in the Caufield Neighborhood Association are having to put up with the residents of the Landing parking in front of their house, which prohibits the residents of these houses from parking near their homes. Additionally, several people have complained that residents of the Landing are parking in front of their mailboxes. These actions result in the U.S.P.S. from delivering mail the residents.

I can assure you that the residents and/or customers of the project will use the Oregon City High School parking lot to park their vehicles during the day, conduct business and/or after school hours. I am positive the high school would not be amenable to this use.

4. There are no plans to widen Beavercreek road from a 2 lane to a 4 lane between Glen Oak Road and Maple Lane. The reason to widen Beavercreek Road is obvious. Since there are going to be an estimated 800 more vehicles in the area, the road is not wide enough to handle that capacity.

5. According to our discussion, a significant issue exists with the connecting the proposed sewer line in the area. According to you, this has to be resolved before any construction can occur. Of course, the major issue is the cost. It would be unrealistic to make a connection to a smaller sewer because of the cost.

6. Finally, it has been brought to our attention by Elizabeth Graser-Lindsey, that Oregon City and SP 14-01 is not in compliance with the Beavercreek Concept Plan. You stated in our conversation that SP 14-01 was included in the project prior to the Concept Plan. However, I do not have any documentation showing that this was the case. Therefore, I included a copy of Elizabeth's comments for you to address. Although Elizabeth does not reside within the Caufield Neighborhood Association boundaries, she does raise some significant issues which can have a significant impact on us.

If you have any comments or concerns, please feel free to contact me.

Sincerely,

Mike Mermelstein
Chairman Caufield Neighborhood Association

2014 AUG 11 PM 4:06

Public Comment on Land Use Application
SP 14-01: Site Plan and Design Review
for 121-Unit Apartments and 62-Live-Work Units on 9.7 acres
(Zoned MUC-1) – East Side of Beavercreek Rd.

TO: Attn: Pete Walter (503) 496-1568

FROM: Elizabeth Graser-Lindsey

DATE: Aug, 2, 2014

1. This urbanization project cannot go forward until a Beavercreek Rd. Concept Plan is adopted that isn't remanded by the review court. Graser-Lindsey v. City of Oregon City, 58 Or LUBA 703 (2009) i.e. LUBA 2008-170. Since the Beavercreek Rd. Concept Plan has not been adopted in a valid form, this urbanization and land use project (site plan and design review) cannot go forward at this time. Various Oregon City and Metro laws require the type of planning and analysis that occurs in concept planning such as determining if infrastructure and public services are available and determining how they will be paid for and ensuring that the services of current city residents will not be degraded. These steps have not been completed and the legal requirements have not been fulfilled.

When this property was annexed into Oregon City (see attached maps), LUBA agreed that the annexation could proceed the concept plan with the understanding that the concept plan would proceed urbanization. This is explained in LUBA's final order and opinion numerous times. For example,

> "The city concedes that the Metro Code and the OCCP require that the Beavercreek Road Concept Plan must be adopted before the annexed territory can be planned and zoned in a manner that would allow the annexed property to be developed with urban uses." p. 13-14.
>
> "The underlying purpose of OCCP Goal 14.4 and related city and Metro provisions appears to be to ensure that (1) a concept plan will

procede actual urbanization of the annexed areas, (2) concept plans will provide the basis for planning and zoning of annexed areas for urban development, and (3) adequate and sufficient public facilities are extended to annexed areas as they urbanize in a way that does not financially burden or adversely affect public facilities and services in other parts of the city. As we have explained elsewhere in this opinion, the city took steps to ensure that urbanization cannot occur until the Beavercreek Road Concept Plan has been completed. The Beavercreek Rd. Concept Plan planning process must address public facility impacts of urbanization." p. 20.

"We [LUBA] understand the city to argue [and this necessary argument allowed LUBA to let the annexation to proceed adoption of the concept plan] that since (1) annexation, in and of itself, authorizes no additional urban development of the annexed property, ...(3) no urban development will be possible before the Beavercreek Road Concept Plan is adopted and necessary comprehensive plan and zoning amendments are adopted to allow urbanization of the annexed area, and (4) the Beavercreek Road Concept Plan will be required to address the public facilities and services that will be needed for urbanization of the plan area, the city's findings that recognize and point out these facts are sufficient to 'consider' the 'relevant factors' set out in OCCMC 14.04.060(A). We conclude that the decision includes the above-described implied interpretation of OCMC 14.04.060(A)." p.24.

Graser-Lindsey, Kehoe and Kosinski v. City of Oregon City and Jacobson. LUBA 2007-171.

2. There was extensive public comment and infrastructure studies during the concept plan process that provided evidence that the infrastructure, public facilities and services could not serve this property without degrading these facilities and services for other city residents. (See attached Petitioner's brief in Graser-Lindsey v. City of Oregon City, 58 Or LUBA 703 (2009) i.e. LUBA 2008-170 elaborating on these points). These deficiencies have not been corrected.

Beavercreek Rd., for example, is 2-lanes, has heavy traffic loads and is projected to fail in the next 20 years at various intersections according to Clackamas County's analysis for its Transportation System Plan which concluded in early 2014. That TSP analysis also showed Hwy 213 failing through Newell Creek Canyon and I205 failing in this vicinity. How are these and existing residents to move about without impairment. How will this development add to development in the Park Place Concept Plan area which also impacts Hwy 213 and feeds onto I205.

The public also has not been able to comment on the area plan.

3. In the absence of a final concept plan, the proposed development is unable to interface with the rest of the area in the concept plan such as roads, other infrastructure and building type. Using the remanded concept plan would not work, because LUBA recognized mis-zoning of the industrial land, which, went corrected, would inevitably lead to changes in the areas configuration such as road network and adjacent land uses.

4. These densities (i.e. 183 units on under 10 acres) look like the type that Metro favors along a light rail line to create a dense urban neighborhood. As proposed, this development plan is not near public transportation nor near similar or compatible uses and is sitting inharmoniously on the rural fringe. The remanded concept plan projected light vehicle use due special green assumptions and as a result projected light impacts on the road network as ODOT's reviewer questioned; this development appears to be motor vehicle focused and to be negatively impactful on the area. The density issue is likely to affect other public facilities and services, but this has not been studied.

5. While the city is to plan new lands, it appears that piecemeal development is the approach. This does not comply with Metro or OC ordinances and it does not comply with Metro time requirements for planning.

RECEIVED
2014 AUG 11 PM 4:00

OREGON CITY
Community Development - Planning
221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

NOTICE OF LIMITED LAND USE APPLICATION
Mailed on July 24th, 2014

COMMENT DEADLINE:	Written comments on this Type II application must be received by the Oregon City Planning Division no later than **5:00 pm, Monday, August 11th, 2014**
FILE NUMBER:	SP 14-01: Site Plan and Design Review
APPLICANT:	Beavercreek Road, LLC, Attn: Andrew Brand 600 University Street, Ste. 1708, Seattle, WA 98101
OWNER:	Same as Applicant
REPRESENTATIVE:	Same as Applicant
REQUEST:	Site Plan and Design Review for a 121-unit Apartments and 62 Live-Work Units on 9.7 acres (Zoned MUC-1)
LOCATION:	19896 Beavercreek Rd, Oregon City OR 97045 Clackamas County Map 3-2E-10C Tax Lot 800
CONTACT PERSON:	Peter Walter AICP, Associate Planner (503) 496-1568
NEIGHBORHOOD ASSOCIATION:	Caufield Neighborhood Association
CRITERIA:	• Oregon City Municipal Code. The City Code Book is available on-line at www.orcity.org • Administration and Procedures in Chapter 17.50; • "MUC-1" – Mixed Use Corridor District in Chapter 17.29; • Streets, Sidewalks and Public Places in Chapter 12.04; • Public and Street Trees in Chapter 12.08; • Site Plan and Design Review in Chapter 17.62; • Multi-Family Design Standards in Section 17.62.057; • Water Service System in Chapter 13.04; • Sewer Regulation in Chapter 13.08; • Stormwater Management in Chapter 13.12; • Off-Street Parking and Loading in Chapter 17.52

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OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION TRANSMITTAL

July 24, 2014

CITY STAFF DISTRIBUTION	*MAIL-OUT DISTRIBUTION*
☐ BUILDING OFFICIAL	☐ NEIGHBORHOOD ASSOCIATION _Caufield ✓
☐ DEVELOPMENT SERVICES MANAGER ✓	☐ NATURAL RESOURCES COMM. (NRC)
☐ PUBLIC WORKS- OPERATIONS ✓	☐ CLACKAMAS COUNTY TRANSP. & PLANNING ✓
☐ CITY ENGINEER ✓	☐ CLACKAMAS FIRE DISTRICT #1 ✓
☐ PUBLIC WORKS DIRECTOR	☐ ODOT – Division Review
☐ TECHNICAL SERVICES (GIS) ✓	☐ OREGON CITY SCHOOL DISTRICT ✓
☐ PARKS MANAGER	☐ TRI-MET ✓
☐ ADDRESSING	☐ METRO
☐ POLICE ✓	☐ OREGON CITY POSTMASTER
TRAFFIC ENGINEER	☐ DLCD
☐ REPLINGER AND ASSOCIATES ✓	☐ CITY ATTORNEY
	☐ OTHER: _____
Mailed Notice to County CPO's	
☐ Central Pt-New Era-Leland / Holcomb-Outlook/Beavercreek ✓	
Mailed Notice	
☐ Within 300' ✓	

PUBLIC COMMENTS DUE:	6:00 p.m., August 11, 2014
REVIEW COMMENTS DUE:	6:00 PM, August 25, 2014
HEARING DATE:	Type II – Not applicable
HEARING BODY:	_XX_ **Staff Review;** _____PC; _____CC
FILE # & TYPE:	SP 14-01: Site Plan and Design Review for a 121-unit Apartments and 62 Live-Work Units on 9.7 acres (Zoned MUC-1) – East side of Beavercreek Road
PLANNER:	Pete Walter, AICP, Planner (503) 496-1568
PROJECT WEBSITE:	http://www.orcity.org/planning/landusecase/sp-14-01-beavercreek-road-apartments-live-work-units
APPLICANT:	Beavercreek Road, LLC, Attn: Andrew Brand
LOCATION:	19896 Beavercreek Rd, Oregon City OR 97045 (See Vicinity Map on Public Notice) Clackamas County Map 3-2E-10C Tax Lot 800

This application material is referred to you for your information, study and official comments. If hard copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and ensure prompt consideration of your recommendations.

Please check the appropriate spaces below. Attach additional pages if needed.

_____ The proposal does not conflict with our interests.

__X__ The proposal conflicts with our interests for the reasons stated below.

_____ The proposal would not conflict our interests if the changes noted below are included.

see attached

Signed Carina da Silveira 08/08/2014

Title Property owner

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

August 8, 2014

Carina DeOliveira
15550 S. Old Acres Lane
Oregon City, OR
97045

Oregon City Community Development
SP 14-01
Pete Walker AICP Planner
221 Molalla Ave #200
Oregon City, Oregon 97045

Dear Sir,

I wish to file my opposition to the development at 19896 Beavercreek Road, Oregon City. This property, near the already busy Community College, cannot support further stress on the existing traffic situation. During the school year, cars transporting students to and from the Oregon City High School and CCC stack up at this part of Beavercreek Road. Non student-connected residents are forced to face this back up on a daily basis.

Adding 112 units of apartments, each one with at least one car, will make a bad situation so much worse. It is my understanding that this area of Beavercreek Road is zoned for industrial use, not residential.

There is no traffic signal at the corner of Glen Acres and Beavercreek Roads. It is impossible to make a left turn from Glen Acres onto Beavercreek during high peak traffic times. Hundreds of apartment-type housing units already exists off Glen Acres Road along the back side of Oregon City High School. Is further development of high density housing really needed in our area? Can Beavercreek, as only a two-lane in and out access road support added cars and congestion? Those of us who moved here some time ago for the tranquility of Oregon City are asking you to NOT turn the Beavercreek Road Community into Beaverton.

Please keep the area in question zoned industrial, as it is, and consider the opinions of the people who live in this community.

Thank you,

Carina DeOliveira
carinad@bctonline.com
503 313-2140



Attn Peter Walker
City of Oregon City
221 Molalla Ave Suite 200
Oregon City, OR 97045





✓ Postmark August 6, 2014

PW

Public Comment on Land Use Application
SP 14-01: Site Plan and Design Review
for 121-Unit Apartments and 62-Live-Work Units on 9.7 acres
(Zoned MUC-1) – East Side of Beavercreek Rd.

TO: Attn: Pete Walter (503) 496-1568

FROM: Elizabeth Graser-Lindsey

DATE: Aug. 6, 2014

RECEIVED
2014 AUG 6 AM 11:03

1. This urbanization project cannot go forward because this urbanization and land use project (site plan and design review) requires a valid concept plan according to LUBA'S Final Opinion and Order in Graser-Lindsey, Kehoe and Kosinski v. City of Oregon City and Jacobson. LUBA 2007-171, but the Beavercreek Rd. Concept Plan was remanded by the review court and the remanded concept plan has not been reworked into and adopted as a valid concept plan. Graser-Lindsey v. City of Oregon City, 58 Or LUBA 703 (2009) i.e. LUBA 2008-170. AH. 3 AH. #2

When this property was annexed into Oregon City (see attached maps), in its review LUBA agreed that the annexation could proceed the concept plan with the understanding that the concept plan would proceed urbanization. This is explained in LUBA's final order and opinion numerous times. For example, AH. #1

> "The city concedes that the Metro Code and the OCCP require that the Beavercreek Road Concept Plan must be adopted before the annexed territory can be planned and zoned in a manner that would allow the annexed property to be developed with urban uses." p. 13-14.
>
> "The underlying purpose of OCCP Goal 14.4 and related city and Metro provisions appears to be to ensure that (1) a concept plan will procede actual urbanization of the annexed areas, (2) concept plans will provide the basis for planning and zoning of annexed areas for

urban development, and (3) adequate and sufficient public facilities are extended to annexed areas as they urbanize in a way that does not financially burden or adversely affect public facilities and services in other parts of the city. As we have explained elsewhere in this opinion, the city took steps to ensure that urbanization cannot occur until the Beavercreek Road Concept Plan has been completed. The Beavercreek Rd. Concept Plan planning process must address public facility impacts of urbanization." p. 20.

"We [LUBA} understand the city to argue [and this necessary argument allowed LUBA to let the annexation to proceed adoption of the concept plan] that since (1) annexation, in and of itself, authorizes no additional urban development of the annexed property, ...(3) no urban development will be possible before the Beavercreek Road Concept Plan is adopted and necessary comprehensive plan and zoning amendments are adopted to allow urbanization of the annexed area, and (4) the Beavercreek Road Concept Plan will be required to address the public facilities and services that will be needed for urbanization of the plan area, the city's findings that recognize and point out these facts are sufficient to 'consider' the 'relevant factors' set out in OCCMC 14.04.060(A). We conclude that the decision includes the above-described implied interpretation of OCMC 14.04.060(A)." p.24.

In addition to LUBA's pertinent decision specific to this property, various Oregon City and Metro laws require the type of planning and analysis that occurs in concept planning such as determining if infrastructure and public services are available and determining how they will be paid for and ensuring that the services of current city residents will not be degraded. These steps have not been completed and the legal requirements have not been fulfilled.

2. There was extensive public comment and infrastructure studies during the concept plan process that provided evidence that the infrastructure, public facilities and services could not serve this property without degrading these facilities and services for other city residents. (See attached

Petitioner's Brief in Graser-Lindsey v. City of Oregon City, 58 Or LUBA 703 (2009) i.e. LUBA 2008-170 elaborating on these points particularly in Assignment of Error 2). These deficiencies have not been corrected.

Beavercreek Rd., for example, is 2-lanes, has heavy traffic loads and is projected to fail in the next 20 years at various intersections according to Clackamas County's analysis for its Transportation System Plan which concluded in early 2014. That TSP analysis also showed Hwy 213 failing through Newell Creek Canyon and I 205 failing in this vicinity. How are these and existing residents to move about without impairment? How will this development add to development in the Park Place Concept Plan area which also impacts Hwy 213 and feeds onto I205?

Building this development would tightly restrict widening of Beavercreek Rd. and so future accommodation of the heavy traffic loads would become very expensive (to move back the 4-story building within 10 ft of the road) or impossible. The development narrows Beavercreek Rd. somewhat (because the sidewalk subtracts from the lane of travel and bike lane as they currently exist) when the road is already very narrow for the loads it is carrying.

Street-side parking along Beavercreek Rd. would cause great traffic slowdowns on this heavily-used arterial. Commuters would get caught up in retail (as implied by live/work) traffic. During earlier planning it was not envisioned that a strip mall would be created (and one without adequate parking); rather, a community was envisioned. It was claimed that the neighborhood would not be automobile focused, but this retail is focused on Beavercreek Rd.

The development does not propose to utilize a concept-plan sized sewage solution (building sewage line the mile down Beavercreek Rd.), but instead to do a piecemeal use of the Glen Oak neighborhood's capacity.

The public also has not been able to comment on the area plan.

3. In the absence of a final concept plan, the proposed development is unable to interface with the rest of the area in the concept plan such as

roads, other infrastructure and building type. Using the remanded concept plan would not work, because LUBA recognized mis-zoning of the industrial land, which, went corrected, would inevitably could lead to changes in the whole area's configuration such as road network and adjacent land uses.

4. These densities (i.e. 183 units on under 10 acres) look like the type that Metro favors along a light rail line to create a dense urban neighborhood. As proposed, this development plan is not near public transportation nor near similar or compatible uses and is sitting inharmoniously on the rural fringe.

The remanded concept plan projected light vehicle use due special green assumptions and as a result projected light impacts on the road network as ODOT's reviewer questioned; this development appears to be motor vehicle focused and to be negatively impactful on the area e.g. Hwy 213 and I 205. The density issue is likely to affect other public facilities and services, but this has not been studied.

5. While the city is to plan new lands, it appears that piecemeal development is the approach. This does not comply with Metro or OC ordinances and it does not comply with Metro time requirements for planning e.g. Metro's time line for planning to be completed.

AN 07-02

City of Oregon City
P.O. Box 3040
320 Warner Milne Rd
Oregon City, OR 97045
(503) 657-0891
www.orcity.org

This map is not suitable for survey, engineering, legal, or navigation purposes. Errors and omissions may exist.

Map created with OCMap 2006

05/29/2007

LUBA 2007-171 Record Page Exhibit 442

#2

BEFORE THE LAND USE BOARD OF APPEALS

OF THE STATE OF OREGON

ELIZABETH A. GRASER-LINDSEY,
Petitioner,

and

KATHERINE KEHOE and CHRISTINE KOSINSKI,
Intervenor-Petitioners,

vs.

CITY OF OREGON CITY,
Respondent,

and

PATTY JACOBSON,
Intervenor-Respondent.

LUBA No. 2007-171

FINAL OPINION
AND ORDER

Appeal from City of Oregon City.

Elizabeth Graser-Lindsey, Beavercreek, filed a petition for review and argued on her own behalf.

Christine Kosinski, Oregon City, filed a petition for review on her own behalf.

Katherine Kehoe, Oregon City, represented herself.

Edward J. Sullivan and Carrie Richter, Portland, filed the response brief and Edward J. Sullivan argued on behalf of respondent. With them on the brief was Garvey Schubert Barer.

Patty Jacobson, Lake Oswego, represented herself.

HOLSTUN, Board Member; RYAN, Board Chair; BASSHAM, Board Member, participated in the decision.

AFFIRMED 05/07/2008

You are entitled to judicial review of this Order. Judicial review is governed by the provisions of ORS 197.850.

Opinion by Holstun.

NATURE OF THE DECISION

Petitioners appeal a city resolution that approves a petition to annex 122 acres to the city. The resolution also refers the proposed annexation to city voters.[1] The annexation apparently was approved by city voters in November 2007.

FACTS

The Metropolitan Service District (Metro) included the 122-acre area that is the subject of this appeal within the urban growth boundary (UGB) in 2002. The disputed annexation was initiated by a petition of 100 percent of the owners owning 100 percent of subject area. Record 668-75. At the time the 122 acres were annexed, the area was developed with five single-family residences and an airport and had a total population of nine people.

The 122 acres were included in the UGB by Metro to provide additional urban land for industrial development. At the time the subject property was included in the UGB, it was outside city limits and was designated Low Density Residential by the Clackamas County Comprehensive Plan and was zoned Future Use Zone (FU-10) by the county. The FU-10 zone is a holding zone, which imposes a 10-acre minimum lot size. The city is in the process of developing and adopting the Beavercreek Road Concept Plan for an area that includes the disputed 122-acre area. That concept plan will provide the basis for new city comprehensive plan and zoning map designations for the annexed area and other areas. Until that concept plan is completed and adopted, the findings that support Resolution 07-24 explain that the county FU-10 zoning will remain in place.

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[1] The decision and its supporting findings are scattered in the record in a way that makes it unclear exactly what documents make up the decision on appeal. As far as we can tell, the challenged decision is made up of six documents: (1) Resolution 07-24 (Record 40-42); (2) a legal description of the annexed property (Record 43-44); (3) a map of the annexed property (Record 50); (4) City Commission Findings and Reasons (Record 46-49); (5); a notice of ballot title (Record 45); (6) Findings and Conclusions dated August 15, 2007 (Record 33-39).

In approving the disputed annexation, the city found that there are adequate public facilities to serve the now sparsely developed 122 acres and that the existing FU-10 holding zone is sufficient to ensure that any additional development that may occur before the Beavercreek Road Concept Plan is adopted will also be low density development that can be adequately served by existing public facilities. The city found that the Beavercreek Road Concept Plan that is currently being drafted will identify how the 122 acres will be planned and zoned for urban development and how that urban development will be provided the needed additional public facilities and urban infrastructure. The central dispute in this appeal is whether the city erred in annexing the 122 acres before the Beavercreek Road Concept Plan has been adopted. Although that question presents a relatively simple and straightforward legal dispute, the parties have managed to make it a much more complicated dispute.

MOTIONS

Petitioner's 50-page petition for review was filed on February 6, 2008. The city's 24-page response brief was filed on February 27, 2008. Petitioner's reply brief was filed on March 28, 2008. Oral argument in this appeal was held on April 3, 2008. That reply brief claims to be nine pages long, but the 16-page appendix is in reality additional reply brief argument. The reply brief is actually approximately 25 pages long.

Under OAR 661-010-0039 a request to file a reply brief and a reply brief are to be filed "as soon as possible after respondent's brief is filed."[2] The reply brief is to be limited "new matters raised in the respondent's brief." In addition, the reply brief is not to "exceed

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[2] OAR 661-010-0039 provides:

> "A reply brief may not be filed unless permission is obtained from the Board. A request to file a reply brief shall be filed with the proposed reply brief together with four copies as soon as possible after respondent's brief is filed. A reply brief shall be confined solely to new matters raised in the respondent's brief. A reply brief shall not exceed five pages, exclusive of appendices, unless permission for a longer reply brief is given by the Board. A reply brief shall have gray front and back covers."

five pages, exclusive of appendices, unless permission for a longer reply brief is given by the Board." Petitioner's reply brief does not comply with any of these requirements.

The reply brief was filed 28 days after the respondent's brief was filed. The reply brief was filed and served by mail late in the day on Friday March 28, 2008, so that it was not received by LUBA or respondent until Monday March 31, 2008, three days before oral argument. Petitioner provides no explanation for the delay in filing the reply brief. Much of the reply brief does not respond to "new matters raised in the respondent's brief." Finally, the brief is 25 pages long, and petitioner does not offer any explanation for exceeding the 5 page limit by 20 pages. It does not appear to us that petitioner made any effort to keep the reply brief within the five-page limit or as short as possible.

Based primarily on petitioner's failure to timely file the reply brief and its length, at the beginning of oral argument in this appeal we partially granted respondent's motion to strike the reply brief. We allowed the parts of pages one and two of the reply brief that respond to respondent's waiver arguments and the six-page Appendix A that continues petitioner's response to respondent's waiver arguments. We granted respondent's motion to strike the remaining parts of the reply brief and the other reply brief appendices.

Because respondent had only three days before oral argument to prepare its written response to the 25-page reply brief, we allowed respondent additional time to file an additional written response to the part of petitioner's reply brief that we allowed. We advised respondent that the additional response should not exceed five pages. On April 10, 2008 respondent filed a five-page response to petitioner's response to the waiver arguments and petitioner's Appendix A.

On April 11, 2008, petitioner filed a motion to strike respondent's two responses to the reply brief. Alternatively, petitioner moved to allow petitioner's entire reply brief. Petitioner's April 11, 2008 motions are denied.

WAIVER

Under ORS 197.763(1) and 197.835(3), unless a petitioner at LUBA raised an issue before the respondent below, the petitioner may not assert that issue as a basis for reversal or remand on appeal to LUBA.[3] Respondent argues that petitioner and intervenor-petitioner (petitioners) waived almost all of the issues that are raised in their assignments of error. Petitioners do not argue that ORS 197.763(1) and 197.835(3) do not apply to the appealed decision. But petitioner does argue that all issues that are raised in the petition for review were adequately raised before the city.

ORS 197.763(1) and 197.835(3) require "fair notice to adjudicators and opponents, rather than the particularity that inheres in judicial preservation concepts." *Boldt. v. Clackamas County*, 107 Or App 619, 623, 813 P2d 1078 (1991). A petitioner adequately raises an issue under ORS 197.763(1) and 197.835(3) by citing the relevant legal standard, presenting argument that includes the operative terms of the legal standard, or taking other actions to raise the issue such that the city knows or should know that the issue is one that needs to be addressed in its decision. *Reagan v. City of Oregon City*, 39 Or LUBA 672, 690 (2001). In reviewing waiver arguments under ORS 197.763(1) and 197.835(3), LUBA relies on the party against whom a waiver defense is asserted to identify where in the record the disputed issue was raised. If the party against whom a waiver defense is asserted fails to cite evidence in the record that establishes that the disputed issue was raised below, LUBA will not consider the issue on appeal. *Cummins v. Washington County*, 22 Or LUBA 129, 137

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[3] ORS 197.835(3) limits LUBA's scope of review when considering appeals of quasi-judicial land use decisions to issues that were raised in accordance with ORS 197.763(1). ORS 197.763 sets out statutory requirements of conducting quasi-judicial land use hearings. ORS 197.763(1) provides:

> "An issue which may be the basis for an appeal to the Land Use Board of Appeals shall be raised not later than the close of the record at or following the final evidentiary hearing on the proposal before the local government. Such issues shall be raised and accompanied by statements or evidence sufficient to afford the governing body, planning commission, hearings body or hearings officer, and the parties an adequate opportunity to respond to each issue."

(1991). Where a party does provide citations to the record in response to arguments that issues were not raised below, we review the cited portions of the record to determine whether the cited portions of the record demonstrate the city knew or should have known that the issue should be addressed in its decision. We address respondent's waiver arguments, and petitioner's response to those waiver arguments, under our discussion of the assignments of error and subassignments of error below.

FIRST ASSIGNMENT OF ERROR

The first assignment of error includes several subassignments of error, which we address separately below.

A. Oregon City Municipal Code (OCMC) 14.04.050 Annexation Procedures

OCMC 14.04.050 is entitled "Annexation Procedures." Petitioner's first subassignment of error concerns two subsections of OCMC 14.04.050. OCMC 14.04.050(C) states that annexation applicants are "encouraged to meet with the city-recognized neighborhood association or associations within which the property proposed to be annexed is located." OCMC 14.04.050(E) sets out a long list of things that must be included in an annexation application.

Petitioner contends that the city erred by treating the annexation application as complete, without requiring that the applicant comply with OCMC 14.04.050(C) and meet with neighborhood associations. Petitioner also argues the application is missing certain information that OCMC 14.04.050(E) requires to be included in an annexation application.

The city argues that petitioner waived the issues presented in this subassignment of error because no party raised any issue below regarding whether the application was deficient based on the applicant's failures to (1) meet with neighborhood associations or (2) submit an application that includes all of the information listed in OCMC 14.04.050(E).

Petitioner cites to testimony that was submitted to the city below questioning the adequacy of public facilities to serve the annexed area. Record 13-14, 158, 243-44 (Reply

Brief Appendix A – first unnumbered page). Petitioner recognizes that this testimony does not raise any issue regarding the application requirements under OCMC 14.04.050(C) and (E) but argues that its subassignment of error concerning OCMC 14.04.050(C) and (E) is a permissible elaboration of the broader issue that was raised below concerning the adequacy of public facilities to satisfy annexation approval standards.

Petitioner is correct that ORS 197.763(1) and 197.835(3) do not require that petitioner or other parties must have raised before the city "the identical" or "precisely the same" argument that is presented in subassignment of error A. *Hale v. City of Beaverton*, 21 Or LUBA 249, 254 (1991); *Boldt v. Clackamas County*, 21 Or LUBA 40, 46, *aff'd* 107 Or App 619, 813 P2d 1078 (1991). While the distinction between "issues" and "arguments" is somewhat imprecise, the *issue* that petitioners raised on the cited pages of the record (the alleged adequacy of public facilities to satisfy annexation approval standards) is not the same issue that is raised in petitioner's subassignment of error A (adequacy of the application to meet OMC 14.04.050(C) and (E) application requirements).

Petitioner did not raise the issue that is presented in the subassignment of error A, and that issue is waived.

B. The City Erred by Failing to Adopt a Concept Plan for the Area Before Annexing the Property

In subassignment of error B, petitioner argues that the city must adopt the Beavercreek Road Concept Plan before it approves the disputed annexation. We understand petitioner to advance three legal theories for why the city must adopt the Beavercreek Road Concept Plan before it approves the disputed annexation. First, petitioner argues that relevant annexation approval standards and contextual laws require that a concept plan be adopted before annexation. Second, petitioner contends that both the planning commission and city commission were uncomfortable proceeding with the annexation before the concept plan was adopted. Third, petitioner agues the proposed annexation cannot comply with the

city's comprehensive plan without a concept plan in place. We address each of petitioner's legal theories in support of subassignment of error B separately below.

1. Waiver

The city first argues the issue that is presented under subassignment of error B was not raised below. In response to the city's waiver argument, petitioner relies principally on the following testimony in the record to establish that the legal issue presented under this subassignment of error was raised below:

> "I also believe that when Metro regulated that areas within an Urban Growth Boundary could not develop until a Concept Plan was adopted, they did not mean for developers to take the initiative and seek annexation prior to Concept Plans being adopted. Metro Code states that the Commission's decision on this boundary change should be consistent with specific directly applicable standards or criteria for boundary changes contained in Comprehensive Land Use Plans, Public Facility Plans, etc. The Clackamas County Comprehensive Plan implements the Oregon City Comprehensive Plan for lands within the Urban Growth Boundary. The plan designations for these properties on the County's Oregon City Area Land Use Plan (Map IV-5) have not been updated to reflect the UGB expansion and the current designation of these properties are FU-10. If Map IV-5 needs to be updated once the Beavecreek Concept Plan is adopted, then these annexed areas currently do not meet the applicable zoning assignments, which can only be established upon adoption [of the] concept plans." Record 160.

Although the person presenting the above-quoted testimony certainly could have been clearer about her underlying legal theory for arguing that adoption of the Beavercreek Road Concept Plan must precede approval of the disputed annexation, we agree with petitioner that the above-quoted testimony is sufficient to raise the issue that is presented under the subassignment of error B, *i.e.*, whether the Beavercreek Road Concept Plan must be adopted before the disputed annexation can be approved.

We turn next to petitioner's three legal theories for why she believes the Beavercreek Road Concept Plan must be adopted before the annexation can be approved.

2. Examples of Metro Code, City Comprehensive Plan Requirements and OCMC Requirements

Petitioner first cites eleven "examples" of Metro Code, Oregon City Comprehensive Plan (OCCP) and OCMC requirements that she contends require that the Beavercreek Road Concept Plan be adopted prior to annexation. We address them separately below.

a. OCCP Page 118 (Examples 1 and 2)

Petitioner sets out text from the city comprehensive plan that describes what Title 11 of the Metro Code requires of cities when land is included in the UGB. That text also describes a number of things the city could and should do.[4] We agree with the city that nothing in the cited comprehensive plan text mandates prior approval of the Beavercreek Road Concept Plan before the disputed annexation could be approved. The closest the cited text comes to lending any support to petitioner's position is the part that states that one of Metro Code Title 11 purposes is met "by ensuring that concept plans are developed for areas proposed for urbanization or annexation." *See* n 4. But the quoted statement in the OCCP that an intent in Metro Code Title 11 is met by ensuring that concept plans are developed for areas proposed for urbanization or annexation imposes no legal requirement, by itself. Metro

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[4] The cited text is as follows:

> "Title 11 requires cities to include the land within their Urban Growth Boundaries in their Comprehensive Plans prior to urbanizing that land. Title 11 intends to promote the integration of land added to the Urban Growth Boundary with existing communities by ensuring that concept plans are developed for areas proposed for urbanization or annexation. * * * Metro requires Oregon City to adopt concept plans for areas added to the Urban Growth Boundary.
>
> "Once inside the Urban Growth Boundary, areas can be proposed for annexation. * * * The City should consider its ability to adequately provide public facilities and services to an area * * *.
>
> "Rather than asking voters to approve property owners' requests to annex one at a time, the City should implement an annexation plan. The City could then annex large blocks of properties, with voter approval, rather than in a piecemeal fashion. Annexation would be tied more directly to the City's ability to provide services efficiently * * *. The zoning of the property should be considered when the Planning Commission and City Commission review the annexation request." OCCP 118.

Code Title 11 may impose such a requirement, but the quoted OCCP *description* of that requirement does not impose that requirement.

b. Metro Code 3.07.1120 (Example 3)

Petitioner next relies on Metro Code 3.07.1120.[5] Metro Code 3.07.1120 requires the city adopt comprehensive plan provisions for land that is included in the UGB and requires that the city comprehensive plan include a requirement that such land be annexed before it is allowed to urbanize. A Metro Ordinance that was adopted on December 5, 2002 gave cities four years to do so, but the city has not yet done so.

Metro Code 3.07.1120 is concerned with ensuring that annexation precedes urbanization. Like the city, we do not see that Metro Code 3.07.1120 says anything about whether the city may annex property before it adopts the required concept plan for such property.

c. OCMC 14.04.060(2) (Example 4)

OCMC 14.04.060 sets out seven "factors" the city must "consider" when deciding whether to approve an annexation request. *See* n 13. Factor OCMC 14.04.060(A)(2) is as follows:

"Conformity of the proposal with the city's comprehensive plan[.]"

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[5] Metro Code 3.07.1120 provides, in part:

> All territory added to the UGB as either a major amendment or a legislative amendment pursuant to Metro Code Chapter 3.01 shall be subject to adopted comprehensive plan provisions consistent with the requirements of all applicable titles of the Metro Urban Growth Management Functional Plan * * *. The comprehensive plan provisions shall be fully coordinated with all other applicable plans. * * * *Comprehensive plan amendments shall include*:
>
> "* * * * *
>
> "B. *Provision for annexation to the district and to a city or any necessary service districts prior to urbanization of the territory*[.]" (Emphasis added).

In addressing OCMC 14.04.060(A)(2), the city found that "the City's Comprehensive Plan is satisfied or will be satisfied with the adoption of the Beavercreek Road Concept Plan * * *." Record 64.

Whatever the adequacy of the city's finding concerning annexation factor OCMC 14.04.060(A)(2), neither that finding nor OCMC 14.04.060(A)(2) itself operate to create a legal requirement that the Beavercreek Road Concept Plan be adopted before the disputed annexation is approved.

d. OCCP Policies 11.1.1 and 14.4.2 (Example 5)

OCCP Policy 11.1.1 is as follows:

> "Ensure adequate public funding for the following public facilities and services, if feasible[.]

OCCP Policy 14.4.2 is as follows:

> "Include an assessment of the fiscal impacts of providing public services to unincorporated areas upon annexation, including the costs and benefits to the city as a whole as a requirement for concept plans."[6]

The city's findings concerning OCCP Policy 11.1.1 took the position that the Beavercreek Road Concept Plan would address the public facility impacts of urban development of the annexed property. Record 58.

That finding may or may not be adequate to establish that the disputed annexation is consistent with OCCP Policy 11.1.1. But that is not the question presented under subassignment of error B. Neither Policy 11.1.1 nor Policy 14.4.2 impose a legal

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[6] The quoted text of Policy 14.4.2 is taken from the copy of the City Comprehensive Plan that is available on the city's webpage. The text of Policy 14.4.2 set out at Record 63 is worded slightly differently and is set out below:

> "Concept Plans * * * for unincorporated areas within the Urban Growth Boundary shall include an assessment of the fiscal impacts of providing public services to the area upon annexation, including the costs and benefits to the city as a whole." Record 63.

requirement that the Beavercreek Road Concept Plan be adopted before the disputed annexation.

e. OCCP Policy 2.6.8 (Example 6)

OCCP Policy 2.6.8 is as follows:

> "Require lands east of Clackamas Community College that are designated as Future Urban Holding to be the subject of concept plans, which if approved as an amendment to the Comprehensive Plan, would guide zoning designations. The majority of these lands should be designated in a manner that encourages family-wage jobs in order to generate new jobs and move towards meeting the city's employment goals."

The subject property falls within the area described in the first clause of OCCP Policy 2.6.8. Petitioner argues that OCCP Policy 2.6.8 anticipates that the Beavercreek Road Concept Plan would be in place before annexation.

The city responds that although OCCP Policy 2.6.8 anticipates that the Beavercreek Road Concept Plan will be in place to guide *zoning* of the subject property that policy does not anticipate or require that the Beavercreek Road Concept Plan necessarily will be in place before the disputed area is *annexed*. Based on the text of OCCP Policy 2.6.8, we agree with the city.

f. OCMC 14.04.050(E) (Example 7)

OCMC 14.04.050(E) sets out the required contents of an annexation application. In several places OCMC 14.04.050(E) refers to the "anticipated development" and "proposed development." Petitioner argues the applicant proposes urban development in the annexed area and expresses concern that such development could occur before the Beavercreek Road Concept Plan is adopted.

The city responds that the FU-10 zone, which remains in place after the annexation, would not permit urban development of the annexed property. New comprehensive plan and zoning map designations will have to be adopted before the annexed property could be developed for urban uses. The city concedes that the Metro Code and the OCCP require that

the Beavercreek Road Concept Plan must be adopted before the annexed territory can be planned and zoned in a manner that would allow the annexed property to be developed with urban uses. However, we understand the city to argue that the requirement that the Beavercreek Road Concept Plan must be adopted before the subject property can be developed with urban uses has no bearing on whether the Beavercreek Road Concept Plan must be adopted before the subject property is *annexed.* We agree with the city.

g. OCCP Policy 14.4.3 (Examples 8 and 9)

OCCP page 118 explains that Metro Code Title 11 directs the city to adopt a Concept Plan to guide annexations. That page of the comprehensive plan also says the city "should" adopt an annexation plan. OCCP Policy 14.4.3 sets out certain considerations that may be relied upon to require that a proposed annexation be enlarged to include other properties.[7] Petitioner argues that without the Beavercreek Road Concept Plan the city cannot adopt and implement an annexation plan, and without the Beavercreek Road Concept Plan the city cannot require that adjacent parcels be included in the annexation.

As in other arguments petitioner presents under this subassignment of error and elsewhere in the petition for review, petitioner identifies OCCP and OCMC language that is consistent with having the Beavercreek Road Concept Plan in place before approving the disputed annexation. But that is not the same thing as citing language that *requires that* the Beavercreek Road Concept Plan be adopted before the disputed annexation. Nothing on

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[7] OCCP Policy 14.4.3 provides:

> "Evaluate and in some instances require that parcels adjacent to proposed annexations be included to:
>
> "• avoid creating unincorporated islands within the city;
>
> "• enable public services to be efficiently and cost-effectively extended to the entire area; or
>
> "• implement a concept plan or sub-area master plan that has been approved by the Planning and City Commissions."

page 118 of the OCCP and nothing in the language of Policy 14.4.3 imposes a legal requirement that the Beavercreek Road Concept Plan must be adopted before any land that may be subject to the concept plan can be annexed.

h. OCMC 17.06.050 (Example 10)

OCMC 17.06.050 governs zoning of land that is annexed by the city and requires that the city apply a final zoning classification within 60 days after the property is annexed.[8] Petitioner's entire argument regarding this example is set out below:

> "The city is to designate the final zoning within 60 days of annexation. This can't happen without the Concept Plan being adopted." Petition for Review 12 (citations omitted).

The city responds that the county's FU-10 zoning is "final zoning," within the meaning of OCMC 17.06.050. The city contends that although the decision anticipates that zoning will change at the conclusion of the Beavercreek Road Concept Plan, that does not mean that the FU-10 zoning cannot constitute the "final zoning" that is required by OCMC 17.06.050.

We need not and do not decide here whether the city's plan to leave the county FU-10 zoning in place is consistent with OCMC 17.06.050.[9] The only question we must resolve under this subassignment of error is whether OCMC 17.06.050 establishes a legal

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[8] OCMC 17.06.050 provides:

> "All lands within the urban growth boundary of Oregon City have been classified according to the appropriate city land use designation as noted on the comprehensive plan map (as per the city/county urban growth management area agreement). The planning department shall complete a review of the final zoning classification within sixty days after annexation. The zoning classification shall reflect the city land use classification as illustrated in Table 17.06.050."

The referenced Table 17.06.050 shows the city zoning districts that correspond to various city comprehensive plan designations.

[9] If we were required to reach that question, the city's position that the *county* zoning that was applied to the property before it was annexed and continues to apply to the property qualifies as the "final zoning classification" that is required by OCMC 17.06.050 seems highly suspect. OCMC 17.06.050 seems clearly to envision application of the appropriate "city" zoning, not the "county" zoning that applied before annexation.

requirement that the Beavercreek Road Concept Plan be adopted before the disputed annexation. OCMC 17.06.050 clearly does not impose that requirement. OCMC 17.06.050 specifies action that the county must take *after* property is annexed; it says nothing about what a city must do *before* property is annexed or at the time property is annexed.

i. Bad Faith (Example 11)

We quote petitioner's eleventh example below:

> "When the application for annexation [precedes] adoption of the draft Concept Plan, which is already so close to adoption that the Planning and City Commissions are expecting it imminently, the applicant and City are placed in the position of racing the Concept Plan to adoption and of acting in bad faith as the term is understood in common law, which is fatal to the application. * * *" Petition for Review 12.

Petitioner's eleventh example provides no basis for concluding that prior adoption of the Beavercreek Road Concept Plan is legally required before the subject property can be annexed.

j. Conclusion

Some of petitioner's eleven examples of Metro Code, OCCP and OCMC requirements establish criteria that may be difficult or impossible to comply with because the Beavercreek Road Concept Plan was not adopted and in place before the disputed annexation was approved. But even if that is the case, that would simply mean that the annexation would have to be remanded if petitioner assigns error to the city's failure to demonstrate that the annexation complies with one or more applicable annexation approval criteria. Under this subassignment of error, petitioner makes a very different argument. That argument is that the examples establish the existence of a legal requirement that the city must adopt the Beavercreek Road Concept Plan before taking action to annex land that will be subject to the Concept Plan. Whether those examples are viewed separately or collectively, they simply do not impose that legal requirement.

3. City Commission and Planning Commission Discomfort with Approving the Annexation First

The second of petitioner's three legal theories for why she believes the Beavercreek Road Concept Plan must be adopted before the annexation can be approved is that the planning commission and city commission were uncomfortable with proceeding with the annexation before the Beavercreek Road Concept Plan was adopted.

That theory is without merit, and we reject it.

4. Other OCCP Goals and Policies

The third and final theory petitioner advances in support of subassignment of error B is not clear. That legal theory appears to be that additional OCCP Goals and Policies legally require the city to adopt the Beavercreek Road Concept Plan before the area that will be subject to that plan can be annexed. Some of the OCCP Goals and Policies that petitioner cites this final legal theory were previously cited under petitioner's first legal theory.

Setting out the text of all the OCCP Goals and Policies that petitioner cites here would needlessly lengthen and further complicate this opinion. None of the cited OCCP Goals and Policies supports petitioner's argument under subassignment of error B that the Beavercreek Road Concept Plan must be adopted before the city can annex the disputed 122 acres. Only three of the cited OCCP Goals and Policies, Goal 14.4 and Policies 14.4.2 and 14.4.3, specifically address annexation.[10] OCCP Goal 14.4 requires the city to consider the

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[10] Those OCCP provisions are set out below:

> **"Goal 14.4 Annexation of Lands to the City**
>
> "Annex lands to the city through a process that considers the effects on public services and the benefits to the city as a whole and ensures that development within the annexed area is consistent with the Oregon City Comprehensive Plan, City ordinances, and the City Charter."
>
> "*Policy 14.4.2*
>
> "Include an assessment of the fiscal impacts of providing public services to unincorporated areas upon annexation, including the costs and benefits to the city as a whole as a requirement for concept plans.

impacts of providing public services to the annexed area and to ensure that development of annexed areas is consistent with the OCCP. OCCP Policy 14.4.2 requires that concept plans assess the fiscal impacts of providing public services to unincorporated areas upon annexation. OCCP Policy 14.4.3 authorizes the city to enlarge areas proposed for annexation in certain circumstances. One of those circumstances is the additional territory is needed to "implement a concept plan or sub-area master plan that has been approved by the Planning and City Commissions."

OCCP Goal 14.4 is the provision that seems most consistent with and most supportive of petitioner's view. That policy specifically applies to annexation decisions and requires that the city "[a]nnex lands to the City *through a process* that considers the effects on public services and the benefits to the city as a whole." (Emphasis added.) The city certainly could interpret that reference to be a reference to the "annexation process." Other OCCP language and polices, including OCCP Policies 14.4.2 and 14.4.3, which are discussed above, are consistent with such an interpretation.

The city assumes in its decision that the planning and zoning that will be required to urbanize the subject 122 acres will be determined in the yet-to-be completed Beavercreek Road Concept Plan planning process. Until the city knows how the annexed area will urbanize, *i.e.* until the Beavercreek Road Concept Plan is completed, it is not possible consider "the effects on public services and the benefits to the city as a whole" in any

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"*Policy 14.4.3*

"Evaluate and in some instances require that parcels adjacent to proposed annexations be included to:

"• avoid creating unincorporated islands within the city;

"• enable public services to be efficiently and cost-effectively extended to the entire area; or

"• implement a concept plan or sub-area master plan that has been approved by the Planning and City Commissions."

meaningful way. That is why the city has effectively deferred that consideration to the Beavercreek Road Concept Plan process.[11] If the "process" that is referenced in OCCP Goal 14.4 must be limited to the annexation process, such a deferral is improper and OCCP Goal 14.4 likely would have the legal effect of forcing the city to wait until the Beavercreek Road Concept Plan is adopted before it proceeds with annexation with the Beavercreek Road Concept Plan area.

However, it is clear from the findings that the city adopted to address OCCP Goal 14.4 and related provisions that it does not interpret OCCP Goal 14.4 in that manner. Therefore, the question we must answer is whether the text of OCCP Goal 14.4, viewed in context, requires that the adequacy of public facilities to serve annexed territory once it is fully urbanized must be demonstrated in the "annexation process," making the city's reliance on a post-annexation *planning* process inconsistent with OCCP Goal 14.4. While the question is a reasonably close one, we do not believe the city's contrary interpretation is reversibly wrong under ORS 197.829(1) and *Church v. Grant County*, 187 Or App 518, 524, 69 P3d 759 (2003).[12] The nature, scope and extent of the "process" envisioned by OCCP

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[11] The city's findings addressing OCCP 14.4 are set out below:

> "The city annexation process is set out in Chapter 14 of the [OCMC]. By requiring compliance with that code, the Metro Code, and the statewide Planning Rules, the city is identifying the effects of the full build-out of these annexed properties will have on public services and any benefit to the city as a whole. As part of the Beavercreek Road Concept Plan adoption, appropriate Master Plans, such as the Transportation System Plan, Water and Sewer Master Plans for example, will be updated to address the anticipated impacts." Record 63.

[12] ORS 197.829(1) provides:

> "The Land Use Board of Appeals shall affirm a local government's interpretation of its comprehensive plan and land use regulations, unless the board determines that the local government's interpretation:
>
> "(a) Is inconsistent with the express language of the comprehensive plan or land use regulation;
>
> "(b) Is inconsistent with the purpose for the comprehensive plan or land use regulation;

Goal 14.4 is not expressly limited to the annexation process. Therefore, the city's interpretation that the process can include a required post-annexation planning process is not inconsistent with the text of OCCP Goal 14.4.

The underlying purpose of OCCP Goal 14.4 and related city and Metro provisions appears to be to ensure that (1) a concept plan will precede actual urbanization of the annexed areas, (2) concept plans will provide the basis for planning and zoning of annexed areas for urban development, and (3) adequate and sufficient public facilities are extended to annexed areas as they urbanize in a way that does not financially burden or adversely affect public facilities and services in other parts of the city. As we have explained elsewhere in this opinion, the city took steps to ensure that urbanization cannot occur until the Beavercreek Road Concept Plan has been completed. The Beavercreek Road Concept Plan planning process must address public facility impacts of urbanization. While a number of contextual OCCP provisions seem to envision that planning and zoning for urbanization will precede annexation, those contextual provisions are not unworkable if annexation is the first step. Stated differently, as far as the apparent underlying purpose is concerned, it does not appear to matter whether planning and zoning comes before or after annexation, so long as such planning and zoning is completed before the annexed property is allowed to urbanize. While it is a reasonably close question, we conclude that OCCP Goal 14.4 and related OCCP and OCMC provisions not require that the Beavercreek Road Concept Plan must be in place before the city can annex any property within the Beavercreek Road Concept Plan planning area.

For the reasons explained above, subassignment of error B is denied.

"(c) Is inconsistent with the underlying policy that provides the basis for the comprehensive plan or land use regulation; or

"(d) Is contrary to a state statute, land use goal or rule that the comprehensive plan provision or land use regulation implements."

C. The City Failed to Analyze the Annexation Based on Potential Development of the Annexed Area

Subassignment of error C concerns OCMC 14.04.060(A). OCMC 14.04.060(A) sets out "factors" that the city must "consider" in reviewing an annexation proposal. Among the factors that the city must consider are whether the proposal conforms to the city's comprehensive plan and whether the city has adequate and available public services and facilities to serve the potential development.[13] In addressing OCMC 14.04.060(A) the city adopted a two-part view of potential development: (1) the potential development under the FU-10 zone (which the city found to be insignificant and adequately served by existing public facilities) and (2) the potential development when that existing holding zone is replaced by new city zoning for urban development (which will be identified in the not-yet-completed Beavercreek Road Concept Plan, a plan that will also address and resolve public facility impacts):

> "[T]he Facilities and Services discussion of the staff report indicate that there are adequate services to support the annexation at the zoning designation of FU-10. To the extent additional development will occur, the property will have to be re-zoned, which will not occur until the Concept Plan has been approved. The Concept Plan will have to demonstrate that public facilities and services for potential development will be accounted for once the Beavercreek Road Concept Plan is adopted. The concept plan will identify

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[13] OCMC 14.04.060(A) provides, in part:

> "When reviewing a proposed annexation, the commission shall consider the following factors, as relevant:
>
> "* * * * *
>
> "2. Conformity of the proposal with the city's comprehensive plan;
>
> "3. Adequacy and availability of public facilities and services to service potential development;
>
> "* * * * *
>
> "7. Lack of any significant adverse effects on the economic, social and physical environment of the community by the overall impact of the annexation."

the impacts to the public facilities and services and the remedies necessary to accommodate the potential development on the annexed properties." Record 37.

We understand petitioner to raise two related but separate issues under this subassignment of error. Under OCMC 14.04.060(A)(2) and (3), the city was required to consider the "proposal" and "potential development." We understand petitioner to argue first that it was error for the city to ignore the development that is actually proposed in the disputed annexation application and instead defer comprehensive plan conformance questions and public facilities and services adequacy questions that may be posed by future urbanization of the annexed territory to the not-yet-completed Beavercreek Road Concept Plan."[14] Second, we understand petitioner to argue that even if the city's two-step approach is permissible, the record shows the city cannot even provide adequate public facilities for existing development on the 122 acres and the minimal additional development that is possible under FU-10 zoning.

1. Waiver

The city argues petitioner waived both of the issues presented under subassignment of error C. We agree with the city that the record citations provided by petitioner do not demonstrate that the second issue was raised below. Petitioner's stated concerns below with regard to the adequacy of public facilities were with the alleged inadequacy of those facilities to serve the more intense urban development that the annexation will make possible, not the sparse existing development or the additional sparse development that may be possible under FU-10 zoning. However, we do not agree with the city that petitioner failed to raise the first issue. The alleged impermissibility of relying on the not-yet-adopted Beavercreek Road Concept Plan was a constant theme in the testimony of petitioner and other annexation opponents.

[14] The application proposes approximately 2 million square feet of commercial development and approximately 1,500 units of residential development. Record 680.

2. The City's Reliance on the Beavercreek Road Concept Plan

At its core, the remaining issue is not that complicated. The parties simply interpret the legal requirement that is imposed by OCMC 14.04.060(A) differently. *See* n 13. Petitioner apparently reads OCMC 14.04.060(A) to require that the city *consider* the annexation "proposal" and any "potential development" under that proposal and *establish* that such potential urban development presently conforms to the city's comprehensive plan and that adequate public facilities and services are now available or already planned to serve that potential urban development before approving the annexation. If that is what OCMC 14.04.060(A) requires, the city's decision must be remanded. At the time the city adopted the challenged decision, the city did not know for sure what urban development will be proposed under the Beavercreek Road Concept Plan. Whether the "proposal" or the "potential development" that is referred to in OCMC 14.04.060(A) is the development proposed in the application or the development that will be allowed under the Beavercreek Road Concept Plan the city did not know how or whether adequate public facilities will be available for that urban development at the time the city approved the disputed annexation.

Although the city adopted no express interpretation of OCMC 14.04.060(A), it is quite clear that the city does not interpret OCMC 14.04.060(A) in the same way petitioner does.[15] The city apparently interprets OCMC 14.04.060(A) not to require, at the time of annexation, that the comprehensive plan authorize the ultimate urban development that is anticipated following annexation. The city also interprets OCMC 14.04.060(A) not to require that public facilities exist or that plans for public facilities to support the ultimate urban development that will be allowed under future plan and zoning amendments be in

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[15] The closest the city comes to rejecting petitioner's interpretation and explaining its own express interpretation is as follows:

> "The City's Code contains provisions on annexation processing. Section 6 of Chapter 14 [which appears to be a reference to OCMC 14.04.060(A)] requires the City Commission 'to consider the following factors, as relevant'[.]" Record 64.

place at the time of annexation. Rather, the city interprets OCMC 14.04.060(A) to require that the city "consider" the ultimate comprehensive planning for the annexed area and to "consider" the adequacy and availability of public services and facilities to serve that urban development as "relevant factors." We understand the city to argue that since (1) annexation, in and of itself, authorizes no additional urban development of the annexed property, (2) no urban development of the 122 annexed acres is allowed or will be allowed under the existing FU-10 zoning, (3) no urban development will be possible before the Beavercreek Road Concept Plan is adopted and necessary comprehensive plan and zoning amendments are adopted to allow urbanization of the annexed area, and (4) the Beavercreek Road Concept Plan will be required to address the public facilities and services that will be needed for urbanization of the plan area, the city's findings that recognize and point out these facts are sufficient to "consider" the "relevant factors" set out in OCMC 14.04.060(A).

We conclude that the decision includes the above-described implied interpretation of OCMC 14.04.060(A). We also agree with the city that the city's interpretation and application of OCMC 14.04.060(A) is not reversible under ORS 197.829(1) and *Church v. Grant County*. *See Alliance for Responsible Land Use v. Deschutes Cty*, 149 Or App 259, 265-67, 942 P2d 836 (1997) (LUBA may not substitute its interpretation for express or implied interpretations of a local governing body).

D. Bad Faith

Under subassignment of error D, petitioner makes a "bad faith" argument. Petitioner appears to be concerned that the city's approval of the disputed annexation before the Beavercreek Road Concept Plan is complete may allow the applicant to qualify for a vested right to develop in ways that would be inconsistent with the Beavercreek Road Concept Plan when it is ultimately adopted. Petitioner never explains how this vesting of rights might come to pass and seems to recognize that because the annexation applicant has knowledge of the pending adoption of the Beavercreek Road Concept Plan it is highly unlikely that a

vested rights theory under *Clackamas County v. Holmes*, 265 Or 193, 508 P2d 190 (1973) would allow the applicant to assert a vested right to develop in ways that are inconsistent with the Beavercreek Road Concept Plan.

The city argues that petitioner waived this argument by failing to raise the issue below. The city also contends the bad faith argument is without merit. We agree with the city on both points.

E. OCMC 17.06.050

As we noted in discussing Example 10 under subassignment of error B above, OCMC 17.06.050 establishes a 60-day deadline for applying city zoning to annexed property. Under subassignment of error E, petitioner argues the city erred by annexing the subject property when it knew it would not be able to comply with OCMC 17.06.050 because the Beavercreek Road Concept Plan would not be completed in time to meet that deadline.

The city argues that the decision that is before LUBA is the annexation decision. The city contends that acts or failures to act that occur after that decision cannot provide a basis for reversing or remanding the annexation decision. We agree with the city.

Subassignment of error E is denied.

The first assignment of error is denied.

SECOND ASSIGNMENT OF ERROR

A. Legal Background

Petitioner's second assignment of error begins with a section that is entitled "Legal Background." Many of the cited OCCP and OCMC provisions that petitioner cites in the Legal Background" discussion under the second assignment of error were cited in the first assignment of error. The Legal Background section is followed by five subassignments of error, some of which have several sub-subassignments of error. As we explain below, petitioner and the city simply disagree about the nature of the legal obligation that those

OCCP and OCMC provisions impose on the city, at the time of annexation. We set out petitioner's Legal Background discussion before turning to her subassignments of error.

> "Like State law, Metro ordinances, and County ordinances which require ensuring public facilities and services can be provided, there are many parts of the City's Comprehensive Plan and Code which concern measures of the ability of the City to provide public facilities and services to the newly annexed land: a) the City is required to ensure the 'adequacy and availability of public facilities and services';[16] b) 'public facilities and services [are to be] provided in a timely, orderly and efficient manner';[17] c) [w]ith annexation of large blocks according to the plan, 'Annexation would be tied more directly to the City's ability to provide services efficiently';[18] d) 'The City should consider its ability to adequately provide public facilities and services';[19] e) '* * * ensure adequate public funding for the following urban facilities and services, if feasible';[20] f) the City is to 'ensure the cost of providing new public services * * * are born by the entity responsible for the new development to the maximum extent allowed under state law'; [21] g) the City is to 'ensure' the provision of services doesn't 'diminish the delivery of those same services to existing areas and residents';[22] h) '[Annex lands to the City through a process that considers] the effects on public services and the benefits to the city as a whole';[23] and i) the City is to consider a 'lack of

---

[16] The quoted language is from OCMC 14.04.060(A)(3) which, which is one of the "factors" the city must "consider" when reviewing an application for annexation. That text was set out earlier at n 13.

[17] The quoted language appears on page 79 of the OCCP, which addresses public facilities.

[18] The quoted language appears at page 118 of the OCCP, which addresses Urbanization. That language was quoted earlier at n 4.

[19] The quoted language appears at page 118 of the OCCP, which addresses Urbanization. That language was quoted earlier at n 4.

[20] The quoted language is from OCCP Plan Policy 11.1.1, which was quoted earlier in our discussion of Example 5.

[21] The quoted language is from Policy 14.3.4 which appears in the Urbanization Section of the OCCP. *See* n 26.

[22] The quoted language is from Policy 14.3.2 which appears in the Urbanization Section of the OCCP.

[23] The quoted language is from Goal 14.4, which appears in the Urbanization Section of the OCCP and addresses annexation. Goal 14.4 is set out at n 10.

any significant adverse effects on the economic, social and physical environment of the community'[24][.]" Petition for Review 25-26.

Petitioner then offers the following "summary" of the above listed OCCP and OCMC provisions:

> "In summary, at annexation the City is obligated to determine if it can provide public facilities and services to the potential new development through the developer's funding and its own funding without diminishing services to the existing City residents or causing economic, social and physical adversities, since the City will be responsible to provide services once the annexation is approved."

B. Subassignments of Error B, C and D

Just as petitioner argued the above described OCCP and OCMC provisions mandate that the Beavercreek Road Concept Plan and implementing comprehensive planning and zoning must precede annexation, petitioner argues at length under these assignments of error that the detailed public facility and service planning that will be required to urbanize the annexed 122 acres must precede annexation.

An erroneous assumption on petitioner's part, which permeates the petition for review, is that once the disputed 122 acres are annexed, the city will be immediately obligated to provide public facilities and services to the property to allow urbanization to go forward immediately. The city may be legally obligated to provide public facilities and services to those 122 acres at some point following annexation, but petitioner cites nothing that requires that the city immediately do so. Specifically, petitioner cites nothing that would legally require that the city extend public facilities and services before the Beavercreek Road Concept Plan planning process that will establish the nature of that urbanization and how the necessary public facilities will be provided and paid for is complete. Until those 122 acres

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[24] The quoted language is from OCMC 14.04.060(A)(7) which is one of the "factors" the city must "consider" when reviewing an application for annexation. That text was set out earlier at n 13.

are planned and zoned in a way that allows them to be urbanized, the public facilities and public services needed by the subject 122 acres will remain essentially unchanged.

In rejecting petitioner's third legal theory under subassignment of error B of her first assignment of error, we addressed OCCP Goal 14.4, which requires that the city "[a]nnex lands to the city through a process that considers the effects on public services and the benefits to the city as a whole and ensures that development within the annexed area is consistent with the Oregon City Comprehensive Plan, City ordinances, and the City Charter." *See* n 10. In rejecting petitioner's subassignment of error C under her first assignment of error, we considered OCMC 14.04.060(A), which requires that the city consider a number of factors when considering an annexation proposal. *See* n 13. Among those factors are whether the annexation conforms to the comprehensive plan, and whether the public facilities that will be needed for the potential urban development that will be made possible by the annexation are adequate and available. We ultimately concluded in rejecting subassignments of error B and C under the first assignment of error that the city did not violate its obligations under those OCCP and OCMC requirements because it has ensured that the 122 acres will not urbanize until the required land use and public facilities planning is completed under the Beavercreek Road Concept Plan. The additional legal requirements that petitioner cites in her discussion of the "Legal Background" above and addresses in her arguments under subassignments of error B, C and D under her second assignment of error do not materially add to the legal obligations the city has under OCCP Goal 14.4 and OCMC 14.04.060(A)(2)(3). The conclusions that we reached there in addressing the city's interpretation and application of OCCP Goal 14.4 and OCMC 14.04.060(A)(2) and (3) require that we deny petitioner's subassignments of error B, C and D under the second assignment of error.

Subassignments of error B, C and D are denied.

C. Subassignment of Error E

Under subassignment of error E, petitioner argues the ballot title that the challenged resolution adopted and placed before the voters on November 6, 2007 is not supported by adequate findings or substantial evidence. According to petitioner, the city has not adequately explained how the annexed property can be adequately served with necessary public facilities and petitioner contends that the record does not demonstrate that the facilities and services needed for urbanization can be provided to the 122 acres.

Subassignment of error E relies on petitioner's view that public facility planning and land use planning and zoning must precede both urbanization and annexation under the OCCP and OCMC. We have rejected that view. Because we reject that view, subassignment of error E provides no basis for reversal or remand.[25]

Subassignment of error E is denied.

D. Subassignment of Error F

Under subassignment of error F, petitioner argues the disputed annexation violates OCCP 14.3.4.[26] We understand petitioner to argue the city should have ensured in its annexation decision that the public services that will be needed at the time the annexed property is urbanized are paid for by system development charges, to the maximum extent allowed by law.

As we have already explained, the city has not yet determined how the subject property will be urbanized, what public facilities and services will be required when the

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[25] It also seems unlikely that LUBA has jurisdiction to review an election ballot title that was voted on in a November 2007 election, for a number of reasons.

[26] OCCP Policy 14.3.4 provides:

> "Ensure the cost of providing new public services and improvements to existing public services resulting from new development are borne by the entity responsible for the new development to the maximum extent allowed under state law for Systems Development Charges."

annexed area does urbanize, and how those needed public facilities and services will be paid for when the subject property does urbanize. Those determinations will be made in the Beavercreek Road Concept Plan planning process. When those determinations are made during the Beavercreek Road Concept Plan planning process, it may be that OCCP 14.3.4 will have some bearing on that planning process. But since the city's annexation decision does not decide how the annexed territory will be urbanized or how any needed public services will be provided and paid for, and the Beavercreek Road Concept Plan will make these decisions, it follows that the annexation decision does not violate OCCP 14.3.4.

Subassignment of error F is denied

The second assignment of error is denied.

THIRD ASSIGNMENT OF ERROR

Under her third assignment of error, petitioner argues the UGB amendment that included the subject property inside the UGB was justified based on a need for industrial land. We understand petitioner to contend that there is still a need for industrial land. Petitioner points out that Metro requires that land that is included in the UGB to meet industrial land needs must be planned and zoned for industrial use and protected for such industrial use. The OCCP similarly requires that the city provide an adequate supply of land for industrial use and protect such lands from inappropriate development. Petitioner contends that because the annexation applicant's proposal and the draft Beavercreek Road Concept Plan both call for commercial and residential development within the subject 122 acres, the annexation violates Metro and OCCP requirements that industrial land be protected for industrial use. One of those OCCP requirements is OCCP Goal 2.6, which provides:

> "Industrial Land Development: Ensure an adequate supply of land for major industrial employers with family-wage jobs."

The challenged decision includes the following findings addressing OCCP Goal 2.6:

> "The Beavercreek Road Concept Plan is being completed and will create a community that provides for industrial, employment, office and residential

> uses arranged in a manner that maximizes the available services and provides for a mix of supporting uses. The proposed lands for annexation will receive the zoning as identified within the concept plan once approved. The preliminary concept plan identifies a small area of industrial lands within the proposed annexation area that will add to the industrial lands within the city." Record 57.

Once again, petitioner's assignment of error is based on erroneous assumptions about what the disputed annexation does and what the disputed annexation must do under the cited Metro and OCCP provisions that require an adequate supply of industrial land. Petitioner's arguments under the third assignment of error all appear to be directed at the Beavercreek Road Concept Plan, which will determine how much of the annexed area will be developed industrially. The city's annexation decision does not determine how many of the annexed 122 acres will be developed industrially. Petitioner's arguments under the third assignment of error therefore provide no basis for reversal or remand.

The third assignment of error is denied.

FOURTH ASSIGNMENT OF ERROR

A. Late Notice under Metro Code 3.09.030(E) and ORS 197.615(2)

Metro Code 3.09.030(E) requires that within 30 days after a final decision on a boundary change application, the reviewing entity must give written notice to "Metro and all necessary parties." Under ORS 197.615(2) a local government is required to give notice of a post acknowledgment plan amendment to persons who have requested such notice. Petitioner argues the city did not give notice until 44 days after its annexation decision was rendered. Petitioner also asserts an undeveloped argument that the city's action deprived unspecified members of the public their right to equal protection of the law.

The city argues petitioners failed to raise any notice issue concerning Metro Code 3.09.030(E) or ORS 197.615(3). The city also argues that petitioner makes no attempt to

show how any procedural error the city may have committed under Metro Code 3.09.030(E) or ORS 197.615(3) prejudiced petitioner's substantial rights.[27]

Petitioner does not respond to the city's waiver defense, and makes no attempt to show how the alleged delay in giving notice of the annexation decision prejudiced *petitioner's* substantial rights.

Subassignment of error A is denied.[28]

B. Resident Voters Who do not Own Property

We understand petitioner to assign error to the city's failure to protect the right of voters who do not own property to participate in the annexation petition.

The city contends petitioner did not raise this issue below. Petitioner does not respond to the city's waiver defense. We therefore do not consider this subassignment of error further.

Subassignment of error B is denied.

C. Posted Notice Was Inadequate

OCMC 17.50.100(B) requires that notice of certain city land use hearings must be posted on the property in advance of the hearing. Such posted notice is to be "posted within ten feet of the street and shall be visible to pedestrians and motorists." Petitioner argues that the notice posted by the applicant was inadequate for a number of reasons.

Petitioner speculates that the substantial rights of other persons who are not parties to this appeal may have been prejudiced by the allegedly defective notice. However, petitioner does not argue that her substantial rights were prejudiced. Without a demonstration that the

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[27] Under ORS 197.835(9)(a)(B), LUBA may reverse or remand a land use decision if a local government "[f]ailed to follow the procedures applicable to the matter before it in a manner that prejudiced the substantial rights of the petitioner."

[28] Although we need not and do not reach the question, it also seems doubtful that the city's annexation decision is accurately described as a post-acknowledgment plan amendment. If not, ORS 197.615(2) would not apply.

alleged notice defect under OCMC 17.50.100(B) prejudiced petitioner's substantial rights that alleged notice defect does not provide a basis for reversal or remand.

Subassignment of error C is denied.

D. City Violated its Own Timeline

We quote petitioner's final subassignment of error below:

"The City failed to use its own time line for the November 2007 election App. F."

Subassignment of error D appears on page 50 of the petition for review. It is not accompanied by any argument. The cited appendix F is a table. If we consider that table to be petitioner's argument in support of subassignment of error, petitioner's petition for review exceeds the 50-page limit specified by OAR 661-010-0030(2)(b).

One column on the appendix F table is labeled "City Timeline Date Requirement." The adjoining column is labeled "Actual Date." The table indicates that four events occurred after the listed "City Timeline Date Requirement." The "Actual Date" column list a question mark for two events. The table indicates the Election was held on the date specified in the "City Timeline Date Requirement."

Because considering appendix F to be part of the petition for review would make the petition for review exceed the 50-page limit specified in our rules and because appendix F makes no attempt to explain the source of the alleged timeline requirement or whether that source specifies a legal consequence for failing to meet the timeline, appendix F is not a sufficiently developed argument to provide a basis for reversal or remand. For both reasons we reject subassignment of error D.

The fourth assignment of error is denied.

INTERVENOR-PETITIONER KOSINSKI'S ASSIGNMENTS OF ERROR

Intervenor-petitioner's first assignment of error is denied for the same reasons we rejected petitioner's subassignment of error F under petitioner's second assignment of error.

Intervenor-petitioner's second assignment of error appears to allege that the procedures the city has followed in adopting the Beavercreek Road Concept Plan and a neighboring concept plan violate OCCP Goals and Policies that encourage citizen participation. Because these arguments are directed at the concept plans rather than the annexation decision that is before us in this appeal, they provide no basis for reversal or remand. Intervenor-petitioner's second assignment of error is denied.

Intervenor-petitioner's third assignment of error overlaps petitioner's first assignment of error and is denied for the same reasons we denied petitioner's first assignment of error.

The city's decision is affirmed.

BEFORE THE LAND USE BOARD OF APPEALS

OF THE STATE OF OREGON

ELIZABETH GRASER-LINDSEY,
Petitioner,

vs.

CITY OF OREGON CITY,
Respondent,

and

OREGON CITY GOLF CLUB,
Intervenor-Respondent.

LUBA No. 2008-170

FINAL OPINION
AND ORDER

Appeal from City of Oregon City.

Elizabeth Graser-Lindsey, Beavercreek, filed the petition for review and argued on her own behalf.

Carrie A. Richter, Portland, filed the response brief. Carrie A. Richter and Jennifer M. Bragar argued on behalf of respondent. With her on the brief were Edward J. Sullivan and Garvey Schubert Barer, PC.

Kelly S. Hossaini, Portland, represented intervenor-respondent.

HOLSTUN, Board Member; RYAN, Board Member, participated in the decision.

BASSHAM, Board Chair, did not participate in the decision.

REMANDED 08/20/2009

You are entitled to judicial review of this Order. Judicial review is governed by the provisions of ORS 197.850.

But the ECONorthwest market analysis is not a sufficient basis for the city to proceed with its Title 11 planning to divert some of the 308 Industrially designated acres to allow non-industrial development of those acres. If the city were permitted to do so, and Metro simply conformed its mapping to the city's concept plan under MC 3.07.450(B), the regional shortage of Industrially designated land would simply be exacerbated.

For the reasons explained above, we conclude above that the city's decision to designate only approximately 74 acres out of the total 308 acres that carry the Industrial design type for industrial use in accordance with MC 3.07.430 is not consistent with that design type and is not consistent with the city's obligation under MC 3.07.1140 to conduct its Title 11 planning consistently with Metro's design types. Remand is therefore required.

We have addressed some, but not all of petitioner's arguments under her first assignment of error. The petition for review also includes two more assignments of error that we have not addressed. The issues presented by those arguments may or may not arise if the city on remand adopts a new concept plan that complies with MC 3.07.1120 and 3.07.430.

ORS 197.835(11)(a) provides:

> "Whenever the findings, order and record are sufficient to allow review, and to the extent possible consistent with the time requirements of ORS 197.830 (14), the board shall decide all issues presented to it when reversing or remanding a land use decision described in subsections (2) to (9) of this section or limited land use decision described in ORS 197.828 and 197.195."

The statutory deadline established by ORS 197.830(14) for LUBA's final opinion in this appeal expired some time ago. We therefore remand the decision without considering petitioner's remaining arguments.

The city's decision is remanded.

BEFORE THE LAND USE BOARD OF APPEALS
OF THE STATE OF OREGON

ELIZABETH GRASER-LINDSEY Petitioner, v. CITY OF OREGON CITY Respondent and OREGON CITY GOLF CLUB Intervenor-Respondent.)	)	LUBA No. 2008-170

PETITION FOR REVIEW

Elizabeth A. Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

Petitioner

Edward J. Sullivan, OSB #69167
Carrie A. Richter, OSB #00370
Garvy, Schubert and Barer, PC
121 SW Morrison, Suite 1100
Portland, OR 97204
(503) 553-3118

Attorneys for Respondent

Kelly S. Hossaini
Miller Nash LLP
111 SW Fifth Avenue, Suite 3400
Portland, OR 97204
(503) 205-2332

Attorney for Intervenor-Respondent

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IV. ARGUMENT 2

FIRST ASSIGNMENT OF ERROR 2

Oregon City Erred In Adopting Oregon City Ordinance 07-1008 And, By This Adoption, (1) Violated Applicable Law Requiring Protection Of Industrial Land For Industrial Use Such As Metro Title 4 Especially Metro Code 3.07.430 And 3.07.450, Title 11 Especially 3.07.1120 F And Metro Code 3.01.040, And Oregon City Comprehensive Plan (OCCP) Goals 2.6 And 2.7 And Related Policies; (2) Misconstrued These Laws Pertaining To Protection Of Industrial Land For Industrial Use; (3) Did Not Support Its Decision With Correct Analysis Of Industrial Land Use And Did Not Support Its Decision With Adequate Findings Or Reasons Or With Substantial Evidence In The Whole Record In Violation of OAR 661-010-0071 And 661-010-0073; (4) Acted Outside Its Jurisdiction Concerning A Boundary Change Resulting In An Acknowledged Industrial Designation And Determination Of The Buildable Land Supply Made By Metro In Violation of Relevant Laws Such As OAR 661-01-0071 and 73, ORS 195, 197 and 268; (5) Violated The Laws And Precedent Governing The Process Of Bringing Lands Into The Urban Growth Boundary For Industrial Use and Governing The Lands Brought Into The Urban Growth Boundary For Industrial Use Such As Statewide Planning Goal 2, 3, 4 And 14, OAR 660-009, Metro Ordinance 02-969B And Metro Ordinance 04-1040B, Metro Code 3.01.040, 3.07.810, OCCO Goals 2.6 And 14.1 And Related Policies And *Opus Development Corp. v. City of Eugene*, *Concerned Citizens v. Jackson County*, And *1000 Friends of Oregon v. City of North Plains*; And (6) Violated Relevant Law Requiring Maintaining Consistency And Coordination Of Government Planning Such As ORS 268.354(2)(d), Statewide Planning Goal 2 And 14, Metro Code 3.01, 3.07 Titles 8 and 11 And OCCP.

SECOND ASSIGNMENT OF ERROR 30

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

Oregon City Erred In Adopting Oregon City Ordinance 07-1008 Which Violated Relevant Laws Such As Statewide Planning Goals 11 and 12, OAR 660 Divisions 9, 11 and 12, Metro Code 3.07.1120, OCCP Goals 2, 5, 11 and 14 and Related Policies When It (1) Failed To Provide Or Reference A Conceptual Transportation Plan, Conceptual Public Facilities And Services Plan Including Parks, Police, Fire And Solid Waste, A Conceptual School Plan, And A Natural Resource Protection Plan That Would Serve The Site And Integrate It With Other Plans; (2) Failed To Estimate When Each Planned Public Facility Project Will Be Needed, What The Trigger Would Be Such As Population Level, Service Level Standards, Date And Provide Detailed Strategies For Preparing The Total Land Supply; (3) Failed To Provide Rough Cost Estimates For Some Public Facilities And Services Such As Parks, Police And Fire And Part Of Transportation; (4) Failed To Adequately Evaluate The Ability Of Potential Funding Mechanisms To Fund The Development, To Discuss Local Fiscal Policies, And To Evaluate Likely Financing Approaches; To Coordinate With Its Capital Improvement Program Or Discuss How The Concept Plan Would Be Integrated Into It; And To Ensure Measures Will Be In Place To Ensure Cost Is Borne By The Developer; (5) Failed To Consider, Evaluate, Plan Implementation Approaches Or Otherwise Ensure Extension Of New Services Does Not Diminish Delivery Of Those Same Services To Existing Areas And Residents In The City As A Whole Where Substantial Evidence In The Record Indicates That Delivery Of Services To The Existing City As A Whole Will Be Diminished; (6) Failed To Show Compliance With Findings Of Resolution 07-24 Which Deferred Annexation Compliance To The Concept Plan As Decided By *Graser-Lindsey V. Oregon City*; (7) Failed To Comply With Statewide Planning Goals 5 And 7; (8) Failed To Provide The Basis For Specific Implementation Measures; (9) Failed To Be Able To Plan Public Services Properly While The Uses Are Unknown, Due To Being Contested, As Decided In *1000 Friends Of Oregon V. North Plain*; And (Throughout) Failed To Provide Adequate Findings.

THIRD ASSIGNMENT OF ERROR 45

Oregon City Erred In Adopting Oregon City Ordinance 07-1008 When (1) The Concept Plan Is Out Of Compliance With OCCP P. 16 #3 And The Findings Are Insufficient And Not Supported By Substantial Evidence In The Record; (2) The Process Violated The Substantial Rights Of The Petitioner, And (3) The Citizen Involvement Process For Adopting The Concept Plan Did Not Comply With The Acknowledged Citizen Involvement Program Or Statewide Planning Goal 1, The Findings Were Insufficient To Support The Decision And Not Supported By An Adequate Factual Basis, And Substantial Evidence In The Whole Record Shows The Citizen Involvement As Out Of Compliance.

V. CONCLUSION 50

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

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Urban Growth Management Agreement: Clackamas County-City of Oregon City

Findings to Oregon City Resolution 07-24

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

I. PETITIONER'S STANDING

Petitioner has standing under ORS 197.830(2) to petition this Board for review of this land use decision made by the Respondent, Oregon City, because Petitioner (1) filed a notice of intent to appeal with LUBA, and (2) appeared before Oregon City through oral and written testimony in the proceedings leading to the land use decision appealed in this action. Rec. 661-803, 853-893, 1094-1185, 1495-1593 et al.

II. STATEMENT OF THE CASE

A. Nature of the Land Use Decision and Relief Sought

The decision appealed is Oregon City's Ordinance No. 07-1008 adopted September 17, 2008. Rec. 5-6. This decision adopted the Beavercreek Road Concept Plan and amended the Oregon City Comprehensive Plan (OCCP) and its ancillary documents.

Pursuant to ORS 197.835, the Petitioner seeks reversal of Oregon City's decision adopting 07-1008.

B. Summary of Arguments

Oregon City violated state law, Metro Code and its own Comprehensive Plan when 1) it planned Title-4 Industrial land for commercial and residential rather than protected industrial use by limiting non-industrial uses; it did not comply with Metro Ordinances 02-969 B and 04-1040 B which expanded the UGB; it acted outside its jurisdiction concerning a UGB change and determination of the buildable land supply where Metro has jurisdiction; and it did not maintain consistency and coordination of planning; (2) it failed to provide appropriate plans, to project timing, to estimate costs, to evaluate likely funding, to plan implementation so the rest of the city would not have diminished service, to comply with the findings of its Resolution 07-24, to plan when the uses were unsettled ; and (3) it failed to use evidence to determine popular sentiment; it violated the substantial rights of petitioner;

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

and it violated the acknowledged citizen involvement program.

C. Summary of Facts

In 2002 and 2004 respectively, Metro expanded the Urban Growth Boundary (UGB) to include 245- and 63-acres of industrial land. Rec. 7, 1524. These lands are mapped on Metro's Employment and Industrial Land Map. Appendix B. The 453-acre Beavercreek Road Concept Plan plans the 308 Title-4 Industrial acres as well as a smaller amount of 2040 Growth Concept Title-4 Employment and Outer Neighborhood land which was already in the UGB and/or City. Rec. 42. The concept plan describes 127 net acres as Title-4 compliant with the balance a mix of commercial/retail and residential uses. Rec. 50. The site, bordered by Beavercreek Rd. to the west, is connected to I-205 and the regional road network by Highway 213. Rec. 411.

III. LUBA'S JURISDICTION

The appealed decision is a final land use decision of local government concerning application of statewide planning goals, comprehension plan provisions, and land use regulations. As provided by ORS 197.825, LUBA has exclusive jurisdiction to review local government land use decisions, within the meaning of ORS 197.015(10)(a)(A).

IV. ARGUMENT

FIRST ASSIGNMENT OF ERROR

Oregon City Erred In Adopting Oregon City Ordinance 07-1008 And, By This Adoption, (1) Violated Applicable Law Requiring Protection Of Industrial Land For Industrial Use Such As Metro Title 4 Especially Metro Code 3.07.430 And 3.07.450, Title 11 Especially 3.07.1120 F And Metro Code 3.01.040, And Oregon City Comprehensive Plan (OCCP) Goals 2.6 And 2.7 And Related Policies; (2) Misconstrued These Laws Pertaining To Protection Of Industrial Land For Industrial Use; (3) Did Not Support Its Decision With Correct Analysis Of Industrial Land Use And Did Not Support Its Decision With Adequate Findings Or Reasons Or With Substantial Evidence In The Whole Record In Violation of OAR 661-010-0071 And 661-010-0073; (4) Acted Outside Its Jurisdiction Concerning A Boundary Change Resulting In An Acknowledged Industrial

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

Designation And Determination Of The Buildable Land Supply Made By Metro In Violation of Relevant Laws Such As OAR 661-01-0071 and 73, ORS 195, 197 and 268; (5) Violated The Laws And Precedent Governing The Process Of Bringing Lands Into The Urban Growth Boundary For Industrial Use and Governing The Lands Brought Into The Urban Growth Boundary For Industrial Use Such As Statewide Planning Goal 2, 3, 4 And 14, OAR 660-009, Metro Ordinance 02-969B And Metro Ordinance 04-1040B, Metro Code 3.01.040, 3.07.810, OCCO Goals 2.6 And 14.1 And Related Policies And *Opus Development Corp. v. City of Eugene, Concerned Citizens v. Jackson County*, And *1000 Friends of Oregon v. City of North Plains*; And (6) Violated Relevant Law Requiring Maintaining Consistency And Coordination Of Government Planning Such As ORS 268.354(2)(d), Statewide Planning Goal 2 And 14, Metro Code 3.01, 3.07 Titles 8 and 11 And OCCP.

Subassignment of Error A

Although relevant law such as Statewide Planning Goal 2, Metro Code 3.01 and 3.07 Titles 8 and 11 and Oregon City Comprehensive Plan requires that local governments in their planning maintain consistency with regional plans[1], Oregon City erred in adopting Ordinance 07-1008 adopting the Beavercreek Road Concept Plan and incorporating it into its Comprehensive Plan without the concept plan and comprehensive plan amendments complying with Metro Code 3.01 and 3.07. Metro Code 3.07.450, the Employment and Industrial Areas Map, shows that the majority of the concept planning area is industrial and must be planned as industrial and 3.07.430 tells how non-industrial development will be limited in industrial areas, but the concept plan does not comply with this law planning more of the industrial land residential and commercial/retail[2] than the law allows. State[3], Metro and Oregon City's own law require that the City maintain consistency with Metro planning. Statewide Planning Goal 2 states:

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[1] The City recognizes, "Compliance with the Statewide Planning Goals is a specific requirement for changes to the Comprehensive Plan..." Rec. 14.

[2] The City itself recognized in delaying the effective date of the plan due to the absence of implementing measures that the plan fell short of the standard "to assure... consistency and adequacy" and hence the editorial remark was "couch" which erroneously was typed into the text. Rec. 8 line 2.

[3] ORS 268.354 (2) (d) states "(2) For a boundary change that is subject to the jurisdiction of the district pursuant to ORS 268.347 the district shall:... (d) Ensure that a boundary change is in compliance with the Metro regional framework plan..." OAR 660-009-0030.

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

"City… plans and actions related to land use shall be **consistent** with the comprehensive plans of cities and counties and regional plans adopted under ORS Chapter 268… Each plan and related implementation measure shall be **coordinated** with plans of affected governmental units." (bold added)

Metro Code 3.01 including 3.01.040 requires the Growth Concept design types to be established by Metro and followed by local governments:

"(a) Land added to the UGB by legislative amendment… or by major amendment… shall be subject to the requirements of Title 11, Planning for New Urban Areas, of the Urban Growth Management Functional Plan…" and
"(b) …when the Council adopts a legislative or major amendment to the UGB, the Council shall:…
(1) …designate the city… responsible for adoption of amendments to comprehensive plans… pursuant to Title 11…
(2) Establish the 2040 Growth Concept design type designations applicable to the land added to the UGB, including the specific land needed, if any, that is the basis for the amendment."

Metro Code 3.07 Title 8 especially 3.07.810 especially D states:

"Cities… that amend their comprehensive plans or land use regulations… shall make the amendments in compliance with the functional plan."

Metro Code 3.07.1105 states, "It is the intent of Title 11 that development of areas brought into the UGB implement the Regional Framework Plan and 2040 Growth Concept. Metro Code 3.07.1120 elaborates,

"The comprehensive plan provisions shall be **fully coordinated** with all other applicable plans. The comprehensive plan provisions **shall** contain an urban growth plan diagram and policies that **demonstrate compliance with** the RUGGO, including the Metro Council adopted 2040 **Growth Concept design types**. (bold added)

Oregon City's Comprehensive Plan p. 1 states:

"Oregon City's Comprehensive Plan and implementation ordinances must comply with applicable Statewide Planning Goals adopted by the Land Conservation and Development Commission as the result of a 1973 state law. The plan must also comply with the relevant portions of Metro's 1998 Urban Growth Management Functional Plan."

Consequently, the City must be in compliance with Metro's Functional Plan, Code

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

3.07 Title 4, the 2040 Growth Concept design types and other law.

Metro's Urban Growth Management Functional Plan gives provisions for industrial land at Metro Ordinance 3.07 Title 4. Title 4's stated purpose and intent is:

> "to provide and protect a supply of sites for employment by limiting the types and scale of non-industrial uses in... Industrial... areas". Metro Code 3.07.410.

Metro Code 3.07.430 describes the "Protection of Industrial Areas":

> "A. Cities and counties shall review their land use regulations and revise them... to limit new buildings for retail commercial uses--such as stores and restaurants-- and retail and professional services that cater to daily customers--such as financial, insurance, real estate, legal, medical and dental offices--in order to ensure they serve primarily the needs of workers in the area. One such measure shall be that new buildings for stores, branches... for these retail uses and services shall not occupy more than 5,000 square feet of sales or service area in a single outlet, or multiple outlets that occupy more than 20,000 square feet of sales or service area in a single building or in multiple buildings that are part of the same development project...
> "B. Cities and Counties shall review their land use regulations... to limit new buildings for the uses described in subsection A to ensure that they do not interfere with the efficient movement of freight...
> "D. Cities and counties may allow division of lots or parcels into smaller lots or parcels as follows:...
> "2. Lots or parcels larger than 50 acres may be divided into smaller lots... so long as the resulting division yields at least one lot or parcel of at least 50 acres in size." Metro Ordinance 3.07.430.

Metro Ordinance 3.07.450 Employment and Industrial Areas Map specifies:

> "A. The Employment and Industrial Areas Map is the official depiction of the boundaries of Regionally Significant Industrial Areas, Industrial Areas and Employment Areas." Metro Code 3.07.450 A. Appendix B. Rec. 1525 & 1097.

Of the 453-acre concept plan[4], most of the plan area is Title-4 Industrial -- 308 acres from the 2002 and 2004 UGB expansions[5] (Appendices B and C) -- as shown on the Metro

[4] "Total Project Area Gross Acres 453" Rec. 91, 7. "There are 448 gross acres in the project area, not including the right-of-way for Loder Road (approximately five acres)." Rec. 44.

[5] Oregon City says, "Metro brought 248 gross acres in the UGB in 2002 and an additional 63 acres were added in 2004. The remaining acreage was in the UGB and/or Oregon city limits prior to 2002. These areas (308 gross acres) are designated as the Industrial Design Type on Metro's 2040 Growth Concept Map." Rec. 18. The concept plan and findings correctly give the 2002 and 2004 UGB expansion areas at Rec. 42, 18, 7, but at Rec. 47 and 23 they omitted the 2004 acreage of 63 acres: "Metro brought the majority of the concept plan area (245 gross acres) into the UGB in 2002 and 2004 to fulfill regional industrial employment needs." Rec. 47, 23. The meaning is garbled and erroneous at Rec. 23 (despite being correct in an earlier draft at Rec. 645).

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

Code 3.07.450 Employment and Industrial Areas Map. Appendices B and C, Rec. 1524 & 725. About 64 additional acres[6,7] are Title-4 Employment Land with similar rules to Title-4 Industrial Land limiting commercial. Metro Code 3.07.440. Appendices B and C. Rec. 44, 42. Altogether that yields about 372 acres of Metro Title-4 Industrial and Employment Lands in the 453-acre concept plan[8]. The concept plan, however, only plans 175 gross acres (Rec. 91 middle box under hybrid) in the north part of the concept plan area, called the North Employment Campus, as Title-4 compliant and industrial and states "The [North Employment Campus] subdistrict is intended to comply with Metro's Title 4 regulation." Rec. 49, 50, 24[9], 47 right bottom. This petition does not find error with how the City planned the Title-4 Employment lands which are lumped with the Industrial lands in the concept plan; the violation of Title 4 occurs wholly in the Title-4 Industrial lands to the south of the North Employment Campus. Compare Rec. 49 with Appendix B. Oregon City violates Metro Code 3.07.450 and 3.07.430 in not planning the entire area indicated on Metro's Employment and Industrial Areas map as Title-4 compliant, and, consequently, the Finding of "coordination" (Rec. 14) is not factually based, so, for this reason, the decision must be reversed.

"These areas (308 gross acres including those already within the UGB) are designated as the Industrial Design Type on Metro's 2040 Growth Concept Map"; none of the 308 acres were in the UGB prior to 2002.

[6] The acreages have been difficult to figure out because the city and its consultant who did the mapping and acreage calculations did not make the data easily or completely available despite numerous requests. Rec. 1101-1109, 1500, 1505. See Appendix C for more details on the acreages.

[7] "A portion of the study area (approximately 50 acres) is currently within the existing city limits and zoned Campus Industrial." Rec. 44. About 14 acres in the county are the balance of the Title-4 Employment lands. Appendices B and C.

[8] The balance of the concept plan area – land to the south of the site, jagged lots along diagonal Beavercreek Road to the west of the site, and a tiny lot in the north -- was apparently brought into the UGB in 1979 and remains in the county. It is Metro design-type Outer Neighborhood. Appendices B and C. Rec. 1524 & 725, 42, 801.

[9] The Findings state: "The North Employment Campus is to provide for the needed family wage employment that strengthens and diversifies the economy and will be compliant with Metro's Title 4 regulations." Rec. 24.

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

The uses indicated in Metro Code 3.07.430 A, such as commercial and retail, are to be limited to "serve primarily the needs of workers in the [industrial] area"[10] and to comprise less that 5,000 or 20,000 sq. feet in the development. Metro Code 3.07.430 A and C. The City only intends to limit incompatible uses in the North Employment Campus. Rec. 24. Non-industrial uses, of the type specifically mentioned in Metro Code 3.07.430 A to be limited such as "retail commercial uses… and retail and professional uses… offices" and residential[11], are not limited by the concept plan but, instead, non-industrial uses extensively and illegally displace industrial uses, making up just over half the gross acres and almost half the unconstrained acres, that is,

- Title-4 uses are planned to comprise only 175 of 372 gross Title-4 acres (47%)
- Title-4 uses are planned to comprise only 123 of 225.7 buildable/unconstrained Title-4 acres[12] (54%)

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[10] The "area" being referred to ("primarily the needs of the workers in the area") is the area where the workers are, the industrial area. The "area" is discussed in a Title (Metro Code 3.07) and section (Metro Code 3.07.430) both with titles focused on "Industrial Areas" and it speaks of "workers" in the area, not "residents" or other people making clear that it is the "industrial area" being referred to.

[11] Metro made no provision for residential displacing industrial as it did for small incursions of retail commercial. Metro Ordinance 3.07.430.

[12] The North Employment Campus (NEC) yields 123 unconstrained acres (Rec. 91 FN *); the other numbers are explained at FN 27. The Beavercreek Road Concept Plan and Findings do not state how much of the 372-acres of Title-4 land is buildable (FN 6), so this number must be determined from the data given. Contrained Title-4 land shown at Rec. 46 (compare Appendix B and Rec. 49) consists of 146.3 acres: 5 acres for Loder Rd. (Rec. 44), 13.9 acres of "low impact development" (Rec. 46 legend; "a minimum of 50% of the conservation area must be open space. No residential uses are permitted", Rec. 56 item a, 16 bottom, 49 light green in south), and 127.4 acres of constrained land from Rec. 46 (3.6 + 3.4 + 94.3 + 1.3 + 16.3 + 8.5). The 372 gross, Title-4 acres less the 146.3 constrained acres yields 225.7 acres of buildable Title-4 acres (including local roads other than Loder Rd. The 123 unconstrained NEC acres divided by the 225.7 unconstrained Title-4 acres is 54%.

Net buildable acres would remove 15% from both numbers: 105 net unconstrained Title-4-compliant acres/192 net unconstrained Title-4 acres = 54%. Rec. 90 footnote *. OAR 660-007-0005 defines "net buildable acre" without rights-of -way.).

These calculations concur reasonably well with other acreage data given. "When land for power lines, the natural gas line, natural resources and committed structures are removed, the net buildable acreage is approximately 292 acres." Rec. 8, 45. The 292 net buildable acres less 225.7 of buildable Title-4 acres yields 66.3 buildable Outer Neighborhood acres. Rec. 46 and Appendix C. The 76-acres of OuterNeighborhood (Appendix C) less the 3.8 acres of constraints shown at Rec. 46 (1.8 + 1.5 + an estimated 0.5 under the diagonal gas line, Ref. 46, Appendix C) yields 72.2 buildable acres. Despite some estimated acreages (FN 6),

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

Viewing Appendix C and Rec. 49, the jagged pink Title-4 Industrial land becomes over half the Mixed Employment Village (MEV)[13] and part of Main Street (MS)[14] and West Mixed Use Neighborhood (WMUN) and the orange Title-4 Industrial land and considerable pink Title-4 Industrial land to the north and west become East Mixed Use Neighborhood (EMUN). Rec. 53, 77. The City extensively displaces Title-4 Industrial with limited uses.

Oregon City makes no effort to ensure the limited uses "serve primarily the needs of workers" such as by limiting their size and demonstrating that the size complies with the requirement, either by locating them within an industrial subdistrict, by planning various implementation measures such as ensuring concurrency of limited uses with industrial construction, or by using other necessary measures. There is no analysis of the amount of limited uses and the needs of the workers and no comparison of the two. The location of the retail/commercial is well away from the industrial area requiring a special trip, so the worker may be more likely to go to an existing shopping center just northwest of the industrial site on the 4- to 5-lane Beavercreek Road than travel south to the new shopping center on the 2- to 3-lane Beavercreek Road (Rec. 24 & 57, 60 top right, 36 – Clairmont to NW). Substantial evidence in the record indicates the new shopping center, MS and MEV, which would have residential on much of 3 sides and borders industrial over a tiny segment, is intended for "residents" and surrounding neighborhoods to use, not "workers". Rec. 49, 731[15], 736, 51-52.

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the two approaches agree within 5.9 acres.

[13] Mixed Employment Village: "retail, office, civic, and residential" Rec. 51, 76.

[14] Main Street: "commercial, mixed use and services" Rec. 52, 76.

[15] The retail commercial was to be for Title-4 "workers" rather than residents of this and surrounding neighborhoods, retail/commercial workers, or users of this roadway, but evidence in the record indicates they will not be: (1) The State reviewer disbelieved that the site planning (where Alternates A and D were similar to the Hybrid (Rec. 88, 49)) would prevent half of potential car trips. Rec. 731 #12 . The City's consultant acknowledges that there was no modeling, but the trip reductions was speculation. Rec. 736 box 4 (response to Rec. 731 #12). (2) The consultant also states the retail/commercial will be used for residents: "a significant proportion of existing and future residents of the Oregon City area will work, shop, and recreate at this site"

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

The substantial evidence in the record, together with the lack of implementation measures such as concurrency requirements and two large annexation applications for residential and commercial[16], indicate that the non-industrial uses would not serve primarily the needs of workers but would proceed the industrial uses by years or decades, which would ensure these uses will not to serve workers at all. Rec. 48[17], 854 middle, 1094 bottom, 655 bottom. The failure of the retail/commercial to primarily serve the workers puts the concept plan in violation of Metro Code 3.07.430 A.

The limited uses far exceed the 5,000 or 20,000 sq. ft. limits Metro Code 3.07.430 specifies: (a) the limited uses may occur in the North Employment Campus, (b) although an estimated half of the 26-acre Mixed Use Village and the 10-acre Main Street subdistricts is Title-4 Industrial (Appendices B and C, Rec. 49, 91), the limited uses are planned to comprise the entire 36 acres and the limited uses would comprise up to half of the 27.8-acre "Conservation and Low-Impact Development" district despite its being all Title-4 Industrial (Rec. 46, 56 "a"), totaling all together about 31.9 acres[18] or 1,389,564 sq. ft. [19] of

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(bold added) (Rec. 736 box 4). (3) The concept plan states: The "Mixed Employment Village... [would] serve the daily needs of **adjacent neighborhoods** and Beavercreek Road sub-districts" and the "Main Street... [would] serve the daily needs of **the surrounding area.**" (bold added). Rec. 51, 52.

[16]The City has already approved two annexation applications (without revision) that indicate an intent, consistent with the contested concept plan, to develop large portions of the industrial land with no industrial at all, in violation of the law. The first annexation, called Cordillera A Cascadian Village, of "122 acres", although mostly Title-4 lands from the 2002 expansion, proposes no industrial but "proposes approximately 2 million square feet of commercial development and approximately 1,500 units of residential development." *Graser-Lindsey v. Oregon City.* 56 Or LUBA 504 (2008), p. 3, 22 FN 14. The developer described it, "Half might be residential and half might be pure commercial with no industrial." Rec. 1177. The concept plan only placed "a small area of industrial lands within the proposed annexation" (Rec. 1515) of approximately 20 acres (Findings to Resolution 07-24, p. 4 of 7), but a detention pond (Rec. 723) is shown occupying this potential industrial land. Rec. 306 middle. The second annexation application, called Conservation Community at Thimble Creek (Rec. 1382), which includes the 63-acre 2004 industrial expansion and which was approved by the City Commission, but twice voted down by voters, doesn't include any land planned as industrial. *Graser-Lindsey v. Oregon City.* LUBA 2007-257. Final Opinion and Order and *Kehoe v. Oregon City*, LUBA 2008-169, Final Order and Opinion.

[17] The concept plan anticipates phased development over greater than 20 years. Rec. 48.

[18] ½ (26-acre Mixed Use Village + 10-acre Main Street) and ½ (27.8-acre Low-Impact Development)

[19] 43,560 ft^2/acre is the conversion from Webster's New Collegiate Dictionary, 1975.

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

commercial/retail[20] on Title 4 land[21]. (c) Residential completely displaces Title-4 Industrial over an estimated (FN 6) two-thirds or 50 acres or 2,178,000 sq. ft. (FN 19) of the 77-acre East (and a little West) Mixed Use Neighborhood[22]. Rec. 91 Hybrid. (d) Two large annexation applications, located largely on Title-4 Industrial lands, which have proposed projects or developments wholly not industrial and vastly exceeding the commercial limits, have already been approved. FN 16. The concept plan violates Metro Code 3.07 Title 4 particularly 3.07.430 because in it extensive non-industrial uses, not for the workers nor within the sq. ft. limits, displace industrial uses on Title-4 lands, consequently Ordinance 07-1008 must be reversed or remanded.

Oregon City did not "ensure" "the uses described in subsection A" "do not interfere with the efficient movement of freight" as required by Metro Code 3.07.430B, but, instead, such interference is likely given the tens of thousands of new mostly non-industrial vehicle trips per day projected from the development of the concept plan (Rec. 420) due to problems with capacity, levels of service and funding addressed in Assignment of Error 2.

Oregon City failed to ensure land "division yields at least one lot or parcel of at least 50 acres in size" as required by Metro Code 3.07.430 D and Statewide Planning Goal 14[23]. The concept plan states: "There are 51 total properties ranging in size from 0.25 acres to 63.2 acres." Rec. 44. Large ownerships combine properties. Rec. 45, 1781. The City has not addressed preserving large buildable parcels of 50 acres or larger for industrial in

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[20] The MEV is planned to be 3-5 story buildings (Rec. 34) and MS is to be over 2 stories (Rec. 52), but the areas given reflect the land area only.

[21] The City tallies these jobs (Rec. 90), but they are not industrial nor the type intended by Title 4. FN 26.

[22] The concept plan says, "Jobs in residential areas (Work at home Jobs) estimated at 4%..." (Rec. 90 FN ***) and mentions "live work units" and "in home work options" (Rec. 53), but, by Oregon City Municipal Code 17.04.290, "Home occupation, "an occupation... in connection with... no commodities are sold other than services... includes such occupations as lawyer...", is for professional jobs and is restricted to exclude industrial jobs and the concept plan does not intend to change this. Rec. 1497, 628 (Konkol, Graser-Lindsey).

[23] "The size of the parcels of urbanizable land that are converted to urban land should be of adequate dimension so as to maximize the utility of the land resource...".

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

violation of Metro Code 3.07.430 D and Goal 14.

In conclusion, the city violated Statewide Planning Goal 2 and related law by not maintaining consistency with Metro law and violated Metro Code Titles 4 especially 3.07.430 and 3.07.450 in not planning according to the 2040 Growth Concept design types and the Title-4 map when planning Title-4 Industrial land as commercial and residential. The City's decision is prohibited as a matter of law, so the decision must be reversed. The city also improperly construed applicable law, when it permits residential and commercial to be exclusive users of many industrially-designated parcels whereas the law requires the land to be used industrially with only tiny pockets of commercial of less than 5,000 and 20,000 sq. ft., if at all, and when it fails to ensure limited uses are for workers, to protect freight movement and to protect a 50-acre lot, so this decision must be reversed or remanded.

Subassignment of Error B

The city errs in not providing Findings or evidence or reasons or a correct analysis to demonstrate compliance with Metro Title 4 and Goal 2.

OAR 661-010-0071 2a and 661-010-0072 2a state:

> "(2) The Board shall remand a land use decision for further proceedings when: (a) The findings are insufficient to support the decision... (b) The decision is not supported by substantial evidence in the... record."

Goal 2 requires,

> "The required information shall be contained in the plan document or in supporting documents... The plans shall be the basis for specific implementation measures. These measures shall be consistent with and adequate to carry out the plans."

Although Goal 2 requires consistency of government planning, the City does not include Title 4 in its "Decision–Making Criteria" (Rec. 9-10), nor does it address compliance of the complete concept plan with Title 4[24] nor does it provide evidence of

[24] In discussing its own Comprehensive Plan Criteria, without providing evidence or discussion, the City

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
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compliance or reasons or a correct analysis nor can it. The city, as an aside in its discussion of Title 11 E, gives a mere assertion of compliance of one subdistrict with Title 4:

> "The North Employment Campus is to provide for the needed family wage employment that strengthens and diversifies the economy and will be compliant with Metro's Title 4 regulations." Rec. 24 top.

The City's Findings on Title 11 E (Rec. 23-24) do not actually address or replace findings on Metro Ordinance 3.07 Title 4 nor does this aside address compliance of the concept plan besides the one subdistrict.

The City fails to clearly compile and make available the plan's supporting documents ("under separate cover", Rec. 33) as required by Goal 2. Concerning Goal 2, the City concludes, "It contains adequate implementation measures to ensure that upon taking effect (when the implementing zoning is subsequently adopted) sufficient means will carry out the plan." (Rec. 15); however, it does not discuss what the implementing measures are and, in fact, discusses that the Commission has not yet reviewed the implementing measures. FN 2, Rec. 7 bottom, 3. A challenged decision must not become final before compliance with relevant rules is assured. *Concerned Citizens v. Jackson Co.*, 33 Or LUBA 70 (1997).

Local government findings are inadequate when they fail to interpret an applicable regulation and fail to identify facts upon which it relied in reaching its conclusion. LUBA will not overlook such inadequacies in the Findings, when no party cites evidence in the record that compels the interpretation or conclusion made by the local government. *DLCD v. Clatsop Co.*, 31 Or LUBA 90 (1996);

Because the Findings and evidence concerning Title 4 and Goal 2 are insufficient to support the decision, City Ordinance 07-1008 must be remanded.

Subassignment of Error C

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makes the general, conclusionary assertion: "The Beavercreek Road Concept Plan and regulations are in compliance with Metro's Functional Plan..." Rec. 11.

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
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The City must comply with Metro's Functional Plan including Metro Code 3.07 Title 11and related law which requires the Growth Concept design type boundaries and regulations to be followed and the City failed to adopt adequate findings.

Goal 14 states: "Establishment and change of the UGBs shall be based on the following:... (2) Demonstrated need for employment...".

Metro Code 3.07.1105 states, "It is the intent of Title 11 that development of areas brought into the UGB implement the Regional Framework Plan and 2040 Growth Concept. Metro Code 3.07.1120 elaborates,

> "The comprehensive plan provisions shall be fully coordinated with all other applicable plans. The comprehensive plan provisions shall contain an urban growth plan diagram and policies that demonstrate compliance with... 2040 Growth Concept design types. Comprehensive plan amendments shall include:...
> A. Specific plan designation boundaries derived from the **general boundaries** of design type designations assigned by the Council in the ordinance adding the territory to the UGB.
> F. **Provision for sufficient** commercial and industrial development for the **needs** of the area to be developed consistent with 2040 Growth Concept design types."

Oregon City Comprehensive Plan states:

> "Policy 2.7.3 **Recognize the design types of Metro's 2040 Growth Concept.** Establish boundaries for ... Industrial areas..."

According to Statewide Planning Goal 2 and related law (as discussed in AOE 1 A), the City must comply with Metro's Functional Plan. As discussed previously, 308 acres of the concept plan are Title-4 Industrial design type of Metro's 2040 Growth Concept. Metro Code 3.07.450, Appendices B and C, 42, 44, 18. Oregon City violated Metro Code 3.07.1120 A and OCCP Policy 2.7.3, because its "comprehensive plan amendments", comprised of the Beavercreek Road Concept Plan, "shall include" "specific plan designation boundaries derived from the general boundaries of design type designations assigned by the Council in the ordinance adding the territory to the UGB", but the concept plan does not

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

follow the general boundaries given by Metro's Employment and Industrial Land Map, but instead only plans a portion of the concept plan (North Employment Campus) as industrial (Rec. 24), which violates Metro Code 3.07.1120 A and must be reversed.

While Metro Code 3.07.1120 F, defines "sufficient ... industrial development" "shall" be provided as meeting "the needs of the area to be developed consistent with 2040 Growth Concept design types" referring to consistency with the Title-4 design type map and to the Goal-14 needs justification acknowledged in the UGB expansion, the City mis-defines "sufficient" as being 120 acres:

> "Metro intended 120 net acres of the concept plan area would be used for employment uses. Metro noted that it was important to fulfill the original intent for providing industrial lands and that there was flexibility for the local process to evaluate creative ways to meet the intent." Rec. 18. "Metro estimated 120 net acres of the concept plan area would be used for employment uses..." Rec. 23, 47.

The city does not provide the source or evidence of the 120-acres number and errors in many ways concerning this number[25] including some accounting sleight of hand:

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[25] The City claims it had Metro's permission to violate Metro's Code. The City says: "This approach was blessed by David Bragdon, Metro Council President, in a letter dated May 14, 2007 as well as Metro planner Ray Valone in a letter dated March 19. (sic) 2008." Rec. 18, 23. The city errs in interpreting "flexibility" to mean that the "original intent" or the Metro Code can be violated; instead there are many flexible ways to comply with the "original intent" and the Metro Code. The City did not choose to explore or adopt flexible ways to comply, but chose to interpret "flexibility" to mean the City did not need to comply.

Metro President, writing a year and a half before the adoption (Rec. 691), does not give legal advice in his letter, he is not legally able to personally waive a law, and, in expressing his "understanding", he is relying on his consultations with unmentioned others, but, having referred to the City before writing (Rec. 694-696, 697-698 – the City responded to the Hamlet before Metro to whom its letter was sent), he has obtained erroneous information: the 120 acres number was not a target but presumably a buildable land estimate and was for 2002 only with the estimate for 2004 not being included. These errors, made by the City, are addressed.

Metro Planner in his letter to the City (Rec. 566) does not address Metro Code 3.07 Title 4 or the other points above. His letter is not legal advice; he says "the plan...**seem**[s] consistent with Metro policies and regulations" (bold added); he is not qualified to determine the "intent" of a previous Metro Council and he was not in his current position in 2002, and, even if he were, complying with what is purported to have been intended is not compliance with the law; and neither he nor his staff can personally waive Metro Code despite his obvious eagerness for progress on the UGB expansion lands.

In 2002, Metro's intention was to strengthen its industrial land law. Ordinance 02-969B, which expanded the UGB to include Area 26, now part of the concept plan area, as industrial land (Rec. 1537, 1542), states,

> "Analysis of results of local implementation of Title 4 indicates that commercial uses and other non-industrial uses are converting land designated for industrial use to non-industrial use." Rec. 1541.

Therefore Metro adopted "Exhibit F: Amends Metro Code (UGMFP) to increase the efficiency of the use of land within the UGB for industrial use" which includes "3.07.430 Protection of Industrial Areas". Rec. 1527 #5, 1544, 1532-1535.

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21341 S. Ferguson Rd.
Beavercreek, OR 97004
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(1) The 120-acres number was not Metro's target for employment use[26] but presumably a buildable-land estimate for the new UGB industrial land. The City errors in deciding that, if more lands were buildable within this Growth Concept design type than were estimated by Metro to be, then the additional lands could be diverted to different purposes such as commercial, retail and residential[27]. All the buildable land shown on Metro's Industrial lands map must be developed to be Title-4 compliant, not just the first 120 buildable acres. Appendix B. It was estimated earlier that about 50 and 31.9 acres of buildable Title-4 Industrial land (the southerly part of the 2002 expansion and the 2004 expansion, see AOE 1 A) were diverted to other uses in the concept plan, but instead this land needs to be planned industrially.

(2) The City seems to suggest, such as when it said "about 127 net acres of North Employment Campus (NEC)... is consistent with Metro's intent" (Rec. 18, 23), that it has planned 127 new acres of buildable industrial land to reach a Metro 120-acre target for new land; however, the 120 acres weren't reached solely with either buildable or new industrial land. First, this 127 net acres includes 26 acres of power-line corridor which is not

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[26] Or, rather, industrial use (Appendix B); the City acknowledged the intent of "providing industrial lands", but it continues to cloudy the distinction between "employment" and Title-4 Industrial. The City considers employment to include any jobs (Rec. 51, 52, 90 43 right; FN 41) rather than distinguishing Title-4 Industrial and Employment jobs from commercial/retail jobs. Metro Code 3.07.430 and 3.07.440. Substantial evidence in the Record distinguishes jobs. FN 39, 41. Rec. 1146, 1176 (Westfall), 1522. Metro defines family-wage jobs as having "an annual income greater than or equal to the average annual in the region." Rec. 1522.

[27] The concept plan describes how the unconstrained industrial 123 acres can be augmented to include constrained land – "useable portion of powerline overlay (50%) 26 [acres]" i.e. one half the "useable" (not canyon) regional powerline corridor where building and even bushy vegetation is not allowed – to yield a gross acreage of 149 acres. Appendix D; Rec. 91 (middle box under hybrid), 863, 1831-1832, 54, 723, 15. The net acreage with roads deducted but still with one half the constrained powerline corridor included is 127 acres. Rec. 90 (hybrid net acres). Various approaches had been tried to include more of the power-line corridor as buildable. Rec. 46 vs. 980 (6-30-07) or 1779 (7-2006). By inflating the industrial in the north, the City intends to divert industrial in the south to other uses.

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21341 S. Ferguson Rd.
Beavercreek, OR 97004
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buildable. Rec. 91; FN 27. Second, the City substituted about 46.3 **pre-existing** net acres[28] already in the city and/or the UGB for part of the new UGB-expansion Title-4 Industrial net acres when assembling the 127 acres to try to reach the City's erroneous 120-net-acre industrial-lands target[29]. As a result, instead of planning 120 new buildable acres as industrial, as the City seems to suggest, it is planning about 54.7 new buildable acres[30] from the Title-4 Industrial land. Rec. 1505, 1506[31].

(3) Significantly, the Metro 120-acre buildable land estimate was for 2002 only. The city ignores that more Title-4 Industrial land was brought into the UGB in 2004 and it did not include a Metro buildable land estimate for 2004. Petitioner estimated that 30 buildable acres were added to the UGB in 2004 (Rec. 1505, 1506), before the City decided the low impact area was 50% buildable yielding 12 net acres[32] (Rec. 56, 46), so approximately 42 net buildable acres were added in 2004.

About 150 new buildable Title-4 acres (120 + 30 or, as much as, 120 + 42), brought into the UGB in 2002 and 2004, are being planned to yield just 54.7 acres.

Year of UGB Expansion	Growth Concept Design Type	Gross Acres of Expansion	Metro Buildable Land Estimate – A Guess	Yield of Concept Plan of Net Buildable Title-4 Industrial Acres
2002	Industrial	245	120	**54.7**
2004	Industrial	63	30	**0**

Rec. 18, 1505, 1580 ¶2 – 60 acres.

[28] Appendix C shows pre-existing Employment land (50 + 14 acres) and Outer Neighborhood land (2 acres) giving 66 pre-existing acres less 11.5 constrained acres shown at Rec. 46 (3.6 + 1.3) or estimated from Rec. 46 (6.6 acres in two pieces under powerlines, FN 6) yielding 54.5 pre-existing buildable acres. Deducting 15% for local roads yields 46.3 pre-existing net acres.

[29] "There are 7 properties within the concept plan that are currently within the city and zoned campus industrial. These properties were included in the study are and the total acreage of employment lands calculation for the plan included these properties even though they were already in the city." Rec. 721.

[30] That is, 127 - 26 – 46.3 = 54.7

[31] Petitioner revises the 80 acres, as stated at the hearings, downward to 55 acres as explained in the text.

[32] ½ of 27.8 acres less 15% for local roads yields 11.6 acres.

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(4) Although the City consultant's Market Analysis determined that the "large parcels with consolidated ownership" of "flat, buildable, undeveloped land" particularly in "the south half" of the concept plan area were major advantages of this site (Rec. 1781, 1789-1790), because the City was only intent on reaching its minimum 120-acre target of industrial acres, it located the industrial NEC in the north on the least buildable, most dissected part of the site with the regional powerline corridor network, canyons and even a large retention pond. Rec. 36 & 49 blue NEC, Appendices B and C, 46, 724 E3, 723, 785, 863, Appendix D, 1831, 1832, 1147 middle; FN 31. The commercial, retail and residential are planned on flat, buildable land to the south.

The 120-acre target does not define sufficient nor needs, but the "needs of the area" for industrial land are clear as originally demonstrated in 2002[33]. The City in its 2002 letter to Metro explained its need for this land for industrial:

> "1. Creating industrial land and providing jobs within Oregon City.
> "2. Diversifying the city's... residential tax base to generate higher property tax revenues to better serve local public safety, parks, recreation, and library needs...
> "5. Limiting additional housing" Rec. 1517-1519.

Substantial evidence in the record shows the need:

(1) Oregon City's jobs-to-housing ratio is far below the regional average (Rec. 729[34], 2153 ¶5, 1094) which causes it to disproportionately burden the region's failing road network (e.g. Rec. 411, 1871, 1866[35], 1582[36], 1178[37], 1174[38]) as a result of so much

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[33] OCCP Policy 2.6.1 directed the City to pick enough appropriate land based on market factors, proximity to express ways, and site requirements of specific types of industry, etc.

34 ODOT Reviewer commented on the Concept Plan, "The City's 2030 jobs-housing ratio of 1.52 is only about 10% higher than the 2005 jobs-housing ratio of 1.38. It would still be quite a bit lower than the regional jobs-housing ratio of 1.69." The concept plan falls considerably short of utilizing this opportunity to plan the strong jobs-housing ratio the City needs. Rec. 729 & 1578.

35 Kittleson and Associates, the traffic consultant for the Beavercreek Road Concept Plan, state: "Highway 213 is a major connection to the regional transportation system for residents of Oregon City. Traffic on Highway 214 is highly directional in nature, as it is used heavily by commuters in the a.m. and p.m. peak hours each

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commuting out of the area (Rec. 1146[39], 42 top right[40], 1497, 1094, 1147, 1172, 854.

(2) As the City explained in 2002, it needs to diversify its tax base. Rec. 1517. Dan Drentlaw, City Community Development Director, and Gary Barth, Deputy Director of Business and Community Service for Clackamas County, concurred that industrial tends to generate revenues while housing stresses public services. Rec. 1156, 1146[41].

(3) The lack of business with good jobs has lead to Oregon City's budget woes impacting its ability to provide fire service, police service, a pool, a library and so forth making the problem of an adequate business tax base of great importance. Rec. 1516, 1152-1154[42], 1176 Mr. O'Brien, 1148 top[43].

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weekday, with congestion occurring during both peak periods." Rec. 1866, Appendix E.

36 Kittleson and Associates, Inc., the traffic consultant for the Beavercreek Road Concept Plan, indicate that even without development at the concept plan location, $75 to 125 million in road improvements are needed to Highway 213 which is one of Oregon City's two routes of access to Highway 205 which connects Oregon City to regional jobs. Rec. 1582.

37 City Commissioner confirmed "the failure of Hwy 213 and Beavercreek Road" and "What had to be addressed was the flow of traffic onto Hwy 213 from Beavercreek Road." Rec. 1178.

38 Ms. Kosinski said, "Hwy 213 was failing" and "Beavercreek Road was at capacity. There was only one major and one minor arterial to serve this entire area." Rec. 1174, 1150.

39 Gary Barth, Deputy Director of Business and Community Services for Clackamas County, said, "Clackamas County [where Oregon City is located] has long been a net exporter of labor and talent, a bedroom community and was working hard to reverse that trend a bit to balance jobs, even though housing was growing dramatically." Rec. 1146.

40 The concept plan states: "There are relatively limited employment centers within this area of Oregon City and Clackamas County. This imbalance of jobs and housing contributes to Clackamas County's pattern of approximately 60% of the work force traveling outside the County to work." Rec. 42 top right.

41 Gary Barth, Deputy Director of Business and Community Services, said, "Service sector type job growth in Clackamas County would bring a lot of housing and below living wage income, which would continue to stress public services. The growth of strong development is needed; where light industrial, commercial and intellectual type jobs with higher than average living wages increase the citizens' net worth and give them more capacity to help provide for the essential public services of a community." Rec. 1146.

42 Planning Commissioner Dunn said, "There were shortcomings not only to police, fire and library services mentioned, but also regarding City services. Anyone touring the building would know City Hall was deficient as well." Rec. 1152. There was consensus among other Planning Commissioners that such services were failing. Rec. 1152-1154.

43 Elizabeth Graser-Lindsey said, "problems exist involving poor response times and the City's ability to stay

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
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(4) The record indicates local demand for industrial land that remains and that the City is not addressing. Rec. 1579[44], 1510-1511[45], 1098[46], 1110-1122, 1501[47].

(5) The Findings say, "employment lands… are greatly needed" (Rec. 13).

(6) This land was selected for a 20-year planning horizon, so it is not surprising if the land need has not fully materialized in the first 5 years since 2002 just as Metro's 20-year population forecast hasn't yet either.

(7) This land was not selected solely to meet Oregon City's industrial needs, but also the Goal-14 demonstrated need of Clackamas County and Metro

Although the property owners and developers clearly did not want this property zoned industrial (Rec. 803[48], 894, 719, 47[49], 1177, 1039), the City has not shown nor adopted Findings that the Metro Industrial land is not all needed to meet the industrial "needs of the area" and substantial evidence in the Record indicates it is needed.

The City selected an erroneous acreage target and the City's concept plan does not select" sufficient" industrial land to meet "the needs of the area" nor comply with the design type boundaries and regulations, but planned the industrial land for other uses in violation of the law and the Findings are inadequate to show compliance with Metro Code 3.07 Title 11 especially 3.07.1120 F. Rec. 23-24. This constitutes a "bait and switch" where the City asked for industrial acres, but its concept plan diverts them to other uses. In conclusion, the

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in the fire district. Also, the library was not funded for a good part of one year, and was only held open a few hours by the County. The pool has also been threatened to be closed many years, which is where many area children, including her own, learn to swim." Rec. 1148 top, 1172:29-30.

[44] Coldwell Banker broker Kathy Berge wrote, "I am greatly concerned about the lack of property zoned General Industrial for use by family owned/locally owned businesses." Rec. 1579.

[45] One Real Estate broker said, "This city has currently been rezoned so that there is no place to build a new auto service garage. I have been involved with several… business owners who are looking for just such property." Rec. 1510-1511.

[46] "My business is a Dump Truck company… we require appropriately zoned land… we have had a difficult time finding affordable property in the Oregon City area." Rec. 1098.

[47] "Local businesses continue saying they cannot find industrial land that meets their needs." Rec. 1501.

[48] "My family and I do not want any of the Hall Family land to be zoned industrial." Rec. 803.

[49] The concept plan describes opposition to industrial during the planning: " The advice ranged… to strong opposition [to industrial lands] based on shorter term market factors and locations considerations." Rec. 47.

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21341 S. Ferguson Rd.
Beavercreek, OR 97004
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concept plan violates Metro Code 3.07 Title 11, Goals 2 and 14, and OCCP 2.7.3 and consequently the decision must be reversed.

Subassignment of Error D

The City misapplied Metro's residential densities to industrial land.

Metro Code 3.01.040 says,

> "(a) Land added to the UGB by legislative amendment… or by major amendment… shall be subject to the requirements of Title 11, Planning for New Urban Areas, of the Urban Growth Management Functional Plan…" and
> "(b) …when the Council adopts a legislative or major amendment to the UGB, the Council shall:…
> (2) Establish the 2040 Growth Concept design type designations applicable to the land added to the UGB, including the specific land needed, if any, that is the basis for the amendment. **If the design type designation authorizes housing**, the Council shall designate the land to allow an average density of **at least 10 units per net developable acre or such other density that is consistent with the design type.**" (bold added)

Metro Code 3.07.170 A gives the Design Type Density Recommendations:

> "Employment Areas – 20 persons per acre, Industrial Areas – 9 employees per acre, Outer Neighborhoods – 13 persons per acre."

Metro Code 3.07.1120 C states,

> "Provision for average residential densities of at least 10 dwelling units per net developable residential acre or such other densities that the Council specifies pursuant to section 3.01.040 of the Urban Growth Management Functional Plan."

The City states,

> "The concept plan is required to comply with Metro's title 11 requirements regarding residential density". Rec. 9.
> "Based on the proposed densities, the plan has an estimated capacity of approximately 1,000 dwellings, which is approximately 10.3 dwellings per net developable acres. The Commission finds this requirement is satisfied." Rec. 22.

Because Metro Code only specifies residential densities "if the design type designation authorizes housing" (Metro Code 3.01.040) and the Code specifies "other [non-residential] densities" when the design type is not housing, the City errors when it mis-applies Metro's

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

residential densities to land with an industrial design type rather than Metro's industrial densities when it detemines compliance with Title 11. The City's decision must be reversed.

Subassignment of Error E

Oregon City in adopting the Beavercreek Road Concept Plan is not complying with Statewide Planning Goals 2, 3, 4 and 14, OAR 660-09, Metro Ordinances 02-969 B and 04-1040 B, OCCP Goals 2.6, 14.1, Policies 2.6.1, 2.7.3, 14.1.1 and 14.1.2 and related law which govern the Urban Growth Boundary expansion process of which this concept plan and city comprehensive plan amendment are to be part, because the city is not planning the 2002 and 2004 expansion land as industrial although the expansion process selected, justified, acknowledged and designated the design type of this particular land on the basis of demonstrated industrial need only, so, consequently, this land must now be planned in accord with the original industrial justification as shown by Statewide Planning Goal 2 and similar laws discussed in Subassignment of Error 1. The City's Findings were inadequate to demonstrate compliance. The City acted outside its jurisdiction when state law has UGB expansion and determination of needs and land supply under Metro's jurisdiction.

Statewide Planning Goal 14 says[50]:

> "Urban growth boundaries shall be established to identify and separate urbanizable land from rural land. Establishment and change of the boundaries shall be based upon considerations of the following factors:
> (1) Demonstrated need to accommodate long-range urban population growth requirements consistent with LCDC goals;
> (2) Need for housing, employment opportunities, and livability;...
> The results of the above considerations shall be included in the comprehensive plan. In the case of a change of a boundary, a governing body proposing such change in boundary separating urbanizable land from rural land, shall follow the procedures and requirements as set forth in the Land Use Planning goal (Goal 2) for goal exceptions."

[50] Goal 14 Applicability Provisions (1) (b) allows the City to use the old rules since the UGB evaluation was initiated prior to April 28, 2005. The City does not discuss if it is using the old or new rules, which are similar in this part. The City does not discuss if it is using old or new rules which are similar in this part.

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OCCP gives further guidance:

> "Goal 2.6 Ensure an adequate supply of land for major industrial employers with family-wage jobs."
>
> "Policy 2.61 Work with Metro to ensure that there is enough land available within the Urban Growth Boundary to meet the need for industrial... development..."
>
> "Policy 2.7.4 Recognize the design types of *Metro's 2040 Growth Concept*..."
>
> "Goal 14.1 Establish and amend when appropriate, the Urban Growth Boundary... that contains sufficient land to accommodate growth during the planning period for a full range of city land uses, including... industrial..."
>
> "Policy 14.1.1 The Urban Growth Boundary shall conform to Title 11... and will provide sufficient land to accommodate 20-year urban land needs..."
>
> "Policy 14.1.2 Concept Plans... will be required prior to development..."

Metro Ordinances 02-969B and 04-1040B describe process and subsequent requirements.

Goal 14 requires that, when expanding an UGB, Metro go through the "exceptions" process of Goal 2, Part II.. That is, Metro had to take an exception to Goals 3[51] and 4 to bring rural land inside the UGB and urbanize it. To bring THESE pieces of land in, Metro therefore had to show there was (1) a need for the land -- which here they justified as an industrial need, (2) that no alternative areas existed to meet this industrial need, inside or outside the UGB, that had less impact on agriculture lands, forest lands, etc. This land was NOT analyzed as to its ability to meet a residential need. Rec. 1526, 1537, 1538, 1540, 1542 called area 26 by Metro, Rec. Item Retained B Metro Ordinances 02-969B and 04-1040B (CD). Finally, Metro had to show the UGB expansion met Goal 14, including that this site met factors 3-7 of Goal 14, which again, was based on a need for industrial land. So as an example, Goal 14, factor 7, requires showing that the site is compatible with, or can be made compatible with, surrounding farm land. Making that evaluation for future industrial use is a different analysis than doing it for residential use: Metro separately analyzed for

[51] The 2004 UGB expansion brought in TBR lands. Appendix F.

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

population, commercial and industrial land need. Metro Ordinances 02-969B and 04-1040B; Metro Code 3.01.015 and 3.01.020, OAR 660-009; Rec. 1523[52], 1536[53], 1540[54] (for 2002) and 1545-1556 (for 2004), Rec. 1514.

In 2002, in its every-5-year UGB expansion process, Metro determined it needed more land for industrial uses within the UGB to accommodate the region's forecasted industrial land need[55] to the year 2022 and it brought land from outside the UGB into the UGB based on a legally-prescribed process which required the land be selected and justified for industrial use and acknowledged by the state as described in Statewide Planning Goals 2, 3, 4, and 14. 245 acres demonstrated to meet a need for industrial land in 2002 are in the Beavercreek Road Concept Plan area. Metro Ordinance 02-969B; Rec. 1538 from 1523-1544, 1514. Metro Code 3.01.015 and 3.01.020, ORS 197, 215, 268, 527; OAR 660-015-0000(1)-(14); Appendix C. During the acknowledgment process, LCDC determined that in 2002 Metro erred in not selecting enough industrial land to meet its needs assessment, so LCDC issued its "Partial Approval and Remand Order 03-WKTASK-001524" and in 2004 Metro undertook a solely industrial land expansion to correct this industrial land shortage and brought in more industrial land, 63 acres of which is in the Beavercreek Road Concept Plan area. Metro Ordinance 04-1040 B; Rec. 1545-1558 especially 1546, 1524.

Planning for lands brought into the UGB must comply with the legally-prescribed process which justified the expansion and brought the lands in and must remain in

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52 Metro provided for population/dwelling units and employment/jobs separately. Rec. 1523.
53 Study areas were analyzed separately for inner and outer neighborhoods (IN and ON), employment (EMP) and industrial (IND). Rec. 1536 and Item Retained B, 1538.
54 Metro's "Need for Land" indicated there was "a surplus of land (759.6 acres) for commercial employment and a deficit of land (5,684.9 acres) for industrial development." Rec. 1540.
55 Although residential land was also selected in the 2002 Metro Urban Growth Boundary expansion, the 2002 and 2004 UGB expansion land in the concept plan area was all selected as industrial. Rec. 18; Items Retained B Metro Ordinances 02-969 B and 04-1040B (CDs). "The lands within the Beavercreek Road Concept Plan area were brought into the UGB to help address the lack of industrial and living wage jobs within Oregon City." Rec. 1514.

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
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compliance with the laws governing that process which established how the land must be used after its inclusion. As described in AOE 1 A, Statewide Planning Goal 2 requires consistency among the planning decisions. The string of decisions from Metro's justification and expansion of the UGB to the planning, zoning and using of this land must be consistent with and based on the same substantial evidence and "shall be included in the comprehensive plan." Goal 14, OAR 660-009-0025. The City is required to plan and keep this land in compliance with Metro Ordinances 02-969B and 04-1040B and Metro Title 4.

LUBA has repeatedly found that land must be used as it was justified. Where an amendment to a city's UGB is proposed in order to achieve a particular mix of uses and population, the amendment must be conditioned on zoning and developing the subject property to achieve the desired result. *Concerned Citizens v. Jackson County*, 33 Or LUBA 70 (1997). Where a city's decision to almost double its UGB relies on a study assuming a particular combination of uses in the UGB expansion area, the city must ensure the plan designations and zoning districts applied to land within the UGB expansion area will accommodate those uses. *1000 Friends of Oregon v. City of North Plains*, 27 Or LUBA 372 (1994). When adopting post-acknowledgment plan and zone map amendments affecting... designated land within an urban growth boundary, a local government must demonstrate that it continues to satisfy its Goal... obligation to maintain an adequate inventory of buildable lands. *Opus Development Corp. v. City of Eugene*, 28 Or LUBA 670 (1995). LUBA concluded similarly in *Collins v. Klamath County*, 26 Or LUBA 434 (1994) and *Penland v. Josephine County*, 29 Or LUBA 213 (1995). Consequently, Oregon City's UGB expansion for more industrial land must be followed by the concept plan ensuring the UGB expansion accommodates that use and maintains adequate industrial land.

To request land for one purpose and then to attempt to use it for another purpose is a

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"bait and switch"[56]. To plan or zone the land for something other than industrial violates Goal 2, 14, 3, and 4, Metro Ordinance 02-969B and 04-1040B and other applicable law and is prohibited as a matter of law and the decision must be reversed.

The City discusses its obligations under Statewide Planning Goal 14 and related law:

> "This goal [14] essentially defines the purpose of the concept plan. Oregon City's Urban Growth Boundary was expanded in 2002 and 2004 through Metro's regional review process to include more industrial land. This was the result of a demonstrated need for additional land to accommodate a deficiency in available, vacant industrial lands. The revised element of the updated plan calls for implementing Metro's 'concept plan' requirements under Title 11 of the Functional Plan that will result in subarea planning of new areas added to the UGB... while monitoring the supply of land to ensure its adequacy to accommodate growth." Rec. 21.

The City did not quantify the demonstrated need for industrial land or its monitoring of the industrial land supply nor did it include the needs justification in the concept plan nor did the City explain how it planned the expansion areas in keeping with the demonstrated need[57,58]. The city did not identify the facts it relied on in reaching its decision nor explain its basis, analysis or evaluation; the finding regarding Goal 14 was conclusionary. Hence,

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[56] The legally-prescribed process of bringing lands into the urban growth boundary selects and justifies lands for specific purposes. If the regional need were believed to have changed and this land were no longer needed as Industrial Land, Metro would need to go through the Needs Analysis process again and demonstrate that the land is no longer needed as industrial land. The land could then be put back out of the UGB. If Metro were to believe that this land were needed as commercial or residential rather than as industrial land, Metro would need to go through a Needs Analysis to demonstrate this land should be included on a new basis in an official amendment. Goals 2, 3, 4, and 14.

These lands would not quality for such a change in demonstrated need even if the legal process were followed (AOE 1 C second half) and such a process has not been followed. These lands have only been justified for industrial use and must be planned as industrial during concept planning.

[57] The Findings are opaque and difficult to understand: "The revised element of the updated plan calls for implementing Metro's 'concept plan' requirements under Title 11 of the Functional Plan that will result in subarea planning of new areas added to the UGB." (Rec. 21), but seem to suggest that the "'concept plan' requirements" collapsed into "subarea planning" where one subarea will comply.

[58] The closest the City gets to quantifying demonstrated need in the concept plan (Rec. 29-91) is referencing "Metro 2002-2022 Urban Growth Report: An Employment Land Need Analysis" and mentioning "Metro's employment land needs analysis reports that about 9,300 net acres of industrial land is needed between 2002 and 2022, of which, approximately 6,300 net acres must be vacant and that the region has a shortage of large and small industrial lots", but not one local needs number, such as justified this land, is cited. Rec. 75 FN **, 90 FN **, 17.

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the City did not comply with Goal 14, 2, 3, 4[59], Metro Ordinances 02-969 B or 04-1040 B, OAR 660-009-0025 and other relevant law and the findings are inadequate to show compliance and hence the decision must be remanded.

State law such as ORS 268.354, 197.296-197.302 and 195.020 (1) establish that urban growth boundary changes and related analyses and determination of buildable land supply are subject to the jurisdiction of Metro. Rec. 1523; Metro Code 3.01.015 (a). For Oregon City to unilaterally attempt to skip the relevant process; neglect the land supply analysis and determination, and plan this land for other than its Metro-justified and designated and LCDC-acknowledged purpose is to illegally exceed its jurisdiction. The City erred by acting outside its jurisdiction, and, consequently, this decision must be reversed.

For all these reasons, the City's concept plan decision must be reversed or remanded.

Subassignment of Error F

The City overlooks and violates its own Comprehensive Plan provisions concerning industrial land, its protection, this specific location and coordination with Metro; the City failed to adopt findings concerning the applicable laws.

Oregon City's Comprehensive Plan (OCCP) guides concept planning of this site:

> "There is often pressure to convert industrially zoned land to easily developable sites and other uses. The goals of the City are to **protect existing industrial land from conversion**, where appropriate, to annex industrial land and expand the Urban Growth Boundary to add urbanizable industrial land to the inventory, and to ensure that public facilities can serve future development." (bold added) OCCP p. 13.
>
> Goal 2.6 "**Ensure an adequate supply of land for major industrial employers with family-wage jobs.**" (bold added)
>
> Policy 2.6.1 "**Work with Metro to ensure that there is enough land available within the Urban Growth Boundary to meet the need for industrial...**"

[59] The City finds that neither it nor its UGB contains resource land due to both being urban. Rec. 15. The Timber land brought into the UGB through the exception process must be used as justified regardless of when zoning changes relative to an UGB expansion.

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Policy 2.6.2 "**Ensure that land** zoned or planned **for industrial use is used for industrial** purposes, and that exceptions are allowed only where some other use **supports** industrial development. New non-industrial uses should especially be restricted in already developed, active industrial sites." (bold added)

Policy 2.6.3 "**Protect** the city's supply of undeveloped and underdeveloped land zoned for industrial uses by limiting non-industrial community uses, such as schools, parks, and churches on such properties and by limiting larger commercial uses within those areas." (bold added)

Policy 2.6.4 "**Protect** existing and planned undeveloped and underdeveloped industrial lands from incompatible land uses, and minimize deterrents to desired industrial development." (bold added)

Policy 2.6.8 "Require lands **east of Clackamas Community College** that are designated as Future Urban Holding to be the subject of concept plans, which if approved as an amendment to the Comprehensive Plan, would guide zoning designations. The **majority** of these lands should be designated in a manner that encourages **family-wage jobs** in order to generate new jobs and move towards meeting the city's employment goals." (bold added)

Policy 2.7.1 Maintain a sufficient land supply within the city limits and the Urban Growth Boundary to meet local, regional, and state requirements for accommodating growth.

The City's Comprehensive Plan, in the seven goals and policies and additional text above, emphasizes the necessity of protecting industrial land from non-industrial uses, minimizing deterrents to industrial development, and ensuring there is a "sufficient" and "adequate" supply and "enough" land, but the Beavercreek Road Concept Plan fails to comply with the City's own law by failing to plan or to protect much of the industrial land as industrial or to ensure a sufficient supply to meet demonstrated need. (See AOE 1 A, 1 C). For this reason alone, the decision must be reversed or remanded.

Both OCCP Policy 2.6.8, concerning the concept plan area, "east of Clackamas Community College" (Rec. 42, 49 oval track to NW), and Goal 2.6, "ensure... adequate... land... for family-wage jobs", highlight family-wage jobs, but the City fails either to ensure adequate land for them or to "designate" a "majority of these lands" "in a manner that

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21341 S. Ferguson Rd.
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encourages family-wage jobs". "Family-wage jobs" are "a permanent job with an annual income greater than or equal to the average annual in the region" (Rec. 1522); they are not retail. (FN 26, 41) When the City fails to distinguish type of job (Rec. 90), it violates Policy 2.6.8 and Goal 2.6. As was previously argued (AOE 1 A and 1 C) the amount of Title-4-compliant Employment and Industrial land planned is neither a "majority" of the site[60] nor "adequate" which Metro defined by the Title-4 designations, consequently the City failed to demonstrate compliance or to comply with Policy 2.6.8 and Goal 2.6.

OCCP Policy 2.6.2 provides that "exceptions are allowed only where some other use **supports** industrial development"; however, it was argued previously (AOE 1 A second half) that, in the absence of implementing measures, the substantial evidence in the record shows the other uses will not support industrial development and the plan violates Policy 2.6.2. The concept plan does not comply with OCCP p. 13, Goal 2.6 and 2.7 and related policies. Consequently Oregon City Ordinance 07-1008 must be reversed or remanded.

The City failed to adopt findings to address or explain its Plan regulations except OCCP p. 16 and for this reason, the decision must be remanded. Rec. 9- 10.

Subassignment of Error G

The City failed to comply with Statewide Planning Goal 9 and OAR 660-009 or to adopt adequate finding on Division 9.

Goal 9 states:

> "Comprehensive plans and policies shall contribute to a stable and healthy economy in all region of the state. Sueh plans shall be based on inventories of areas suitable... Comprehensive plans for urban areas shall:...
> 3. Provide for at least an adequate supply of sites of suitable sizes, types, locations, and service levels for a variety of industrial and commercial uses consistent with plan policies;

[60] The 175-gross-acre North Employment Campus is not a majority of the 453-acre site, half of which is 227 gross acres; neither are 123 unconstrained acres the majority of the concept plan area's 292 unconstrained acres with or without the 14 acres of low impact development. Rec. 45, Appendix C.

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4. Limit uses on or near sites zoned for specific industrial and commercial uses to those which are compatible with proposed uses.

OAR 660-009 states:

> OAR 660-009-0015... Cities... must review and... amend their comprehensive plans to provide economic opportunities analyses containing the **information** described in sections (1) to (4) of this rule. This analysis will compare the demand for land for industrial and other employment uses to the existing supply of such land.
> (2) ... The economic opportunities analysis must identify the number of sites by type reasonably expected to be needed to accommodate the expected employment...
> (3) ... Comprehensive plans for all areas within urban growth boundaries must include an inventory of ... lands within the planning area designated for industrial...
>
> OAR 660-009-0025... Cities... must adopt measures adequate to **implement** policies adopted pursuant to OAR 660-009-0020. Appropriate implementing measures include amendments to plan and zone map designations, land use regulations...
> (1) ... The Plan must identify the approximate number, acreage and site characteristics... needed to accommodate industrial... uses to implement plan...
> (2) ... Plans must designate serviceable land suitable to meet the site needs identified in section (1) of this rule. ...the total acreage of land designated must at least equal the total projected land needs for each industrial or other employment use category identified in the plan during the 20-year planning period."

The City failed to plan an adequate supply of industrial land and to limit incompatible uses as required by Goal 9 and as was discussed in AOE 1 A and 1 C. The City also failed to compare inventoried industrial sites and the demonstrated need for industrial lands or to adopt implementation measures[61] or add an amendment to the comprehensive plan to identify and designate needed industrial sites for the 20-year planning period as was discussed in AOE 1 E concerning Goal 14 and OAR 660-09-0025. The City must demonstrate it remains in compliance with Goal 9. Opus Development v. City of Eugene, 28 Or LUBA 670, points 8 and 9. In addition, the necessary inventory is not seen in the concept plan or record and the Findings for Goal 9 state the consultant inventoried the market conditions rather than the land[62]. Rec. 17. The Findings do not

[61] Concurrency implementation measures appear necessary. AOE 1 A second half. Industrial land would appear to need the type of implementation measures given at Rec. 1094.
[62] The report, "Beavercreek Road Concept Plan Market Analysis", and doesn't claim to detail "the supply of

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
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discuss or analyze the consultant's vague 20-year build-out projection ("it is not unreasonable to expect 150 acres of industrial and business park development"[63]) nor compare it with Metro's demonstrated need for the entire UGB expansion (which is also "not unreasonable to expect") nor explain why only 127 acres is planned and designated as industrial nor do the Findings state how the demonstrated need will be met. Rec. 17-18.

The City violated Statewide Planning Goal 9 and OAR 660-009 and failed to provide adequate findings, and its decision must be reversed.

SECOND ASSIGNMENT OF ERROR

Oregon City Erred In Adopting Oregon City Ordinance 07-1008 Which Violated Relevant Laws Such As Statewide Planning Goals 11 and 12, OAR 660 Divisions 9, 11 and 12, Metro Code 3.07.1120, OCCP Goals 2, 5, 11 and 14 and Related Policies When It (1) Failed To Provide Or Reference A Conceptual Transportation Plan, Conceptual Public Facilities And Services Plan Including Parks, Police, Fire And Solid Waste, A Conceptual School Plan, And A Natural Resource Protection Plan That Would Serve The Site And Integrate It With Other Plans; (2) Failed To Estimate When Each Planned Public Facility Project Will Be Needed, What The Trigger Would Be Such As Population Level, Service Level Standards, Date And Provide Detailed Strategies For Preparing The Total Land Supply; (3) Failed To Provide Rough Cost Estimates For Some Public Facilities And Services Such As Parks, Police And Fire And Part Of Transportation; (4) Failed To Adequately Evaluate The Ability Of Potential Funding Mechanisms To Fund The Development, To Discuss Local Fiscal Policies, And To Evaluate Likely Financing Approaches; To Coordinate With Its Capital Improvement Program Or Discuss How The Concept Plan Would Be Integrated Into It; And To Ensure Measures Will Be In Place To Ensure Cost Is Borne By The Developer; (5) Failed To Consider, Evaluate, Plan Implementation Approaches Or Otherwise Ensure Extension Of New Services Does Not Diminish Delivery Of Those Same Services To Existing Areas And Residents In The City As A Whole Where Substantial Evidence In The Record Indicates That Delivery Of Services To The Existing City As A Whole Will Be Diminished; (6) Failed To Show Compliance With Findings Of Resolution 07-24 Which Deferred Annexation Compliance To The Concept Plan As Decided By *Graser-Lindsey V. Oregon City*; (7) Failed To Comply With Statewide Planning Goals 5 And 7; (8) Failed To Provide The Basis For Specific Implementation Measures; (9) Failed To Be Able To Plan Public Services Properly While The Uses Are Unknown, Due To Being Contested, As Decided In

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industrial, commercial and office land" nor does it do so contrary to what the City finds. Rec. 1781-1808, 17.

[63] This conclusion followed the assumption, " Assume, arbitrarily, that 1/3 of the acres are developed residentially. That would leave about 150 buildable acres for employment..." Rec. 1798.

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***1000 Friends Of Oregon V. North Plain*; And (Throughout) Failed To Provide Adequate Findings.**

Statewide Planning Goal 2 states:

> "All land use plans shall include identification of **issues and problems**, inventories and other factual information for each applicable statewide planning goal, evaluation of alternative courses of action and ultimate policy choices, taking into consideration social, economic, energy and environmental needs. The required information shall be contained in the **plan document or in supporting documents** and implementation ordinances shall be filed in a public office or other place easily accessible to the public. The plans shall be the **basis for specific implementation** measures. These measures shall be consistent with and adequate to carry out the plans. Each plan and related implementation measure shall be coordinated with the plans of affected governmental units." Goal 2 Part I – Planning.

Statewide Planning Goal 5 states: " To protect natural resources… Local governments shall adopt programs that will protect natural resources…" Goal 7 states: "To protect people and property from natural hazards… Local governments shall adopt comprehensive plans… to reduce risk to people and property from natural hazards… **landslides**…"

Statewide Planning Goal 11 states:

> "To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development. …A provision for key facilities shall be included in each plan. Cities … shall develop and adopt a **public facility plan** for areas within an urban growth boundary… To meet current and long-range needs, a provision for **solid waste** disposal sites, including sites for inert waste, shall be included in each plan."

Statewide Planning Goal 12 states:

> "To provide and encourage a safe convenient and economic transportation system. A transportation plan shall (1) consider all modes of transportation…; (2) be based upon an **inventory of local, regional and state transportation needs**…(8) **facilitate the flow of goods and services** so as to strengthen the local and regional economy; and (9) **conform** with local and regional comprehensive land use plans."

OAR 660 Division 11 states:

> "660-011-0010 The Public Facility Plan
> (1) The **public facility plan** shall contain the following items:
> (a) An inventory and general assessment of the condition of all the significant public facility system… designated in the acknowledged comprehensive plan;

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(b) A list of the significant public facility projects… descriptions or specifications…;
(c) Rough cost estimates of each public facility project;
(d) A map or written description…;
(e) Policy statement(s) or urban growth management agreement identifying the provider of each public facility system…;
(f) **An estimate of when each facility project will be needed**; and
(g) A discussion of the provider's existing funding mechanisms and the **ability** of these and possible new mechanisms **to fund** the development of each public facility…
(3) It is not the purpose of this division to cause duplication of or to supplant **existing applicable facility plans and programs**. Where all or part of an acknowledged comprehensive plan, facility master plan…, capital improvement program, regional functional plan, similar plan… meets… the requirements of this division, those **plans… may be incorporated by reference into the public facility plan** required…"

"660-011-0015 Responsibility for Public Facility Plan Preparation
(1) Responsibility for the preparation, adoption and amendment of the public facility plan shall be specified within the urban growth management agreement…
(2) The jurisdiction responsible… shall provide for the coordination …" (bold added).

OAR 660 Division 12 states:

"OAR 660-012-0040 Transportation Financing Program
(1) For areas within an urban growth boundary containing a population greater than 2,500 persons, the TSP shall include a transportation financing program.
(2) A transportation financing program shall include the items listed in (a)-(d)
(a) A list of planned transportation facilities and major improvements;
(b) A general estimate of the timing…;
(c) A determination of rough cost estimates…; and
(d) In metropolitan areas, policies to guide selection … for funding…"

"OAR 660-012-0060 Plan and Land Use Regulation Amendments
(1) Where an amendment to a functional plan, an acknowledged comprehensive plan… would significantly affect a… transportation facility, the local government shall put in place measures as provided in section (2) of this rule to assure that allowed land uses are consistent with the identified function, capacity, and performance standards (e.g. level of service, volume to capacity ratio, etc.) of the facility. A plan or land use regulation amendment significantly affects a transportation facility if it would:…
(c) As measured at the end of the planning period…:…
(B) Reduce the performance of an existing or planned transportation facility below the minimum acceptable performance standard identified in the TSP or comprehensive plan:…
(2) Where a local government determines that there would be a significant effect, compliance with section (1) shall be accomplished…"

Metro Code 3.07.1120 says:

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21341 S. Ferguson Rd.
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"All territory added to the UGB as either a major amendment or a legislative amendment pursuant to Metro Code Chapter 3.01 shall be subject to adopted comprehensive plan provisions consistent with the requirements of all applicable titles of the Metro Urban Growth Management Functional Plan and in particular this Title 11. The comprehensive plan provisions shall be fully coordinated with all other applicable plans…Comprehensive plan amendments shall include:

G. A **conceptual transportation plan** consistent with the applicable provision of **the Regional Transportation Plan…** The plan shall, consistent with OAR Chapter 660, division 11, included preliminary cost estimates and funding strategies, **including likely financing approaches**.

H. Identification and mapping of areas to be protected from development due to fish and wildlife habitat protection, water quality enhancement and mitigation, and natural hazards mitigation… A **natural resource protection plan…** shall be completed as part of the comprehensive plan and zoning for lands added to the Urban Growth Boundary... The plan shall include zoning strategies to avoid and minimize the conflicts… the plan shall also include a preliminary cost estimate and funding strategy, including **likely financing approaches..** to ensure that all significant natural resources are protected.

I. A **conceptual public facilities and services plan** for the provision of sanitary sewer, water, storm drainage, transportation, **parks and police and fire protection**. The plan shall, consistent with OAR Chapter 660, Division 11, include preliminary cost estimates and funding strategies…

J. A **conceptual school plan** that provides for the amount of land and improvements needed, if any, for school facilities on new or existing sites that will serve the territory added to the UGB. The estimate of need shall be coordinated with the affected local governments and special districts…

M. The plan amendments shall be coordinated among the city, county, school district and other service districts."

The Clackamas County-Oregon City Urban Growth Management Agreement states:

"2. Comprehensive Planning, Plan Amendments and Public Facilities Planning...

A. …CITY shall be responsible for preparing all legislative comprehensive plan amendments in the UGMB [Urban Growth Management Boundary]…

B. CITY shall be responsible for the preparation, adoption, and amendment of the public facility plan within the UGMB required by OAR Chapter 660, Division 11, Public Facilities Planning…" Appendix Local Laws.

Oregon City Comprehensive Plan provides rules relevant to the concept plan:

Policy 2.6.7 "Establish priorities to ensure that adequate public facilities are available to support the desired industrial development."

Policy 5.4.5 "Ensure that riparian corridors along streams and rivers are conserved…"

Policy 5.4.7 "The City shall encourage preservation over mitigation when making decisions that affect wetlands and a "no net loss" approach to wetland protection."

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Policy 5.4.14 "Comply with federal and state regulations for protecting, conserving and restoring threatened and endangered species and critical habitat."

Policy 5.4.16 "Protect surface water quality by:

- Providing a vegetated corridor to separate protected water features from development..."

Goal 11.1 Provision of Public Services
"Serve the health safety, education, welfare, and recreational needs of all Oregon City residents through the planning and provision of adequate public facilities."

Policy 11.1.1 "Ensure adequate public funding for the following public facilities and services, if feasible:

- Transportation infrastructure
- Wastewater collection
- Stormwater management
- Police protection
- Fire protection
- Parks and recreation
- Water distribution
- Planning, zoning and subdivision regulation
- Library services
- Aquatic Center
- Carnegie Center
- Pioneer Community Center
- City Hall
- Buena Vista House
- Ermatinger House"

Policy 11.1.7 "Develop and maintain a coordinated Capital Improvement Plan that provides a framework, schedule, prioritization, and cost estimate for the provision of public facilities and services within the City... and its Urban Growth Boundary."

"Concept plans must include a conceptual transportation plan; natural resources protection plan to protect areas with fish and wildlife habitat, water quality enhancement and mitigation and natural hazards mitigation; a conceptual public facilities and services plan for wastewater, water, storm drainage, transportation, parks and police and fire protection, and a conceptual school plan." p. 118

Goal 14.3 Orderly Provision of Services to Growth Areas "Plan for public services to lands within the Urban Growth Boundary through adoption of a concept plan and related Capital Improvement Program, as amendments to the Comprehensive Plan."

Policy 14.3.2 "Ensure that the extension of new services does not diminish the delivery of those same services to existing areas and residents in the city."

Policy 14.3.4 "Ensure the cost of providing new public services and improvements to existing public services resulting from new development are (sic) borne by the entity responsible for the new development to the maximum extent allowed under state law for Systems Development Charges."

Goal 14.4 "Annex lands to the city through a process that considers the effects on

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
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public services and the benefits to the city as a whole..."

Policy 14.4.2 "Include an assessment of the fiscal impacts of providing public services to unincorporated areas upon annexation, including the costs and benefits to the city as a whole as a requirement for concept plans."

Subassignment of Error 1

Oregon City erred in failing to provide or reference a conceptual transportation plan, conceptual public facilities and services plan including parks, police, fire and solid waste, a conceptual school plan, a natural resource protection plan that would serve the site and integrate into the city's, service district or regional plans.

Statewide Planning Goal 11, OAR 660-011-0010 (1), Metro Code 3.07.1120 I, and OCCP p. 118 require the public facility plan including a provision for parks, police, fire, and solid waste disposal; Goal 12, OAR 660-012-0060, Metro Code 3.07.1120 G, and OCCP p. 118 require the transportation plan based upon an inventory of local, regional and state transportation needs and in conformity with the regional plan; Metro Code 3.07.1120 J and OCCP p. 118 require a conceptual school plan; and Metro Code 3.07.1120 H and OCCP p. 118 require the natural resource protection plan. Many of these plans are also required by the City's Findings to Resolution 07-24[64].

The City failed to provide the required plans or reference an existing, updated plan.

Transportation. The concept plan failed to provide the necessary Transportation System Plan (TSP) for the concept plan area and made it clear the City TSP had not been

[64] "The city's findings addressing OCCP 14.4 are set out below: 'The city annexation process is set out in Chapter 14 of the [OCMC]. By requiring compliance with that code, the Metro Code, and the statewide Planning Rules, the city is identifying the effects of the full build-out of these annexed properties will have on public services and any benefit to the city as a whole. As part of the Beavercreek Road Concept Plan adoption, appropriate Master Plans, such as the Transportation System Plan, Water and Sewer Master Plans for example, will be updated to address the anticipated impacts.' Record 63." *Graser-Lindsey v. Oregon City*. 56 Or LUBA 504, p. 19 FN 11.

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updated to include the concept plan area as required by Goal 12, OAR 660-012-0060, Metro Code 3.07.1120 G, and OCCC p. 118. Rec. 57 -- "Update OC Transportation System Plan"; Rec. 20[65] – "future amendments to the Transportation System Plan and Capital Improvement Plan". The City acknowledges that the concept plan is not currently in compliance with the Transportation Planning Rule, OAR 660-012-0060, and does not explain what it means by "limit development until compliance". Rec. 19-20; FN 65. OAR 660-012-0060 provides that "compliance… shall be accomplished" not compliance will be accomplished. A challenged decision must not become final before compliance with relevant rules is assured. *Concerned Citizens v. Jackson Co.*, 33 Or LUBA 70 (1997).

Various transportation studies were done (Rec. Table of Contents Exhibits 69, 87, and 88) and the concept plan mentioned improvements "within the concept plan area" (Rec. 20 – FN 65) such as on-site and near-frontage roads (Rec. 59, 64), their cross-section (Rec. 60-63), and their cost (Rec. 64), but the concept plan leaves a gap in planning without a TSP to address or plan compliance with regulations such as level-of-service performance standards when development of the concept plan area generated transportation impacts to the City's transportation system such as from tens of thousands of projected daily vehicle trips. Rec. 420. Substantial evidence in the record documented this lack of existing capacity in the road system. In bright red typeface, the consultant identifies this stunning gap in the level-of-service and volume/capacity planning between existing conditions and those fundamentally necessary for development of the concept plan, a gap, which is being

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[65] The City says, ""In order to meet the requirements of this regulation, needed improvements and funding mechanisms have been identified for properties **within** the concept plan area that will mitigate impacts of the amendment in a manner that avoids **further degradation** to the performance of the facilities. The proposed transportation infrastructure improvements, financing and funding estimates, identified in the plan, along with **future** amendments to the Transportation System Plan and Capital Improvement Plan provide adequate basis on which **to limit development until compliance** with the Transportation Planning Rule is shown." p. 19-20.

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considered external to planning: "this analysis assumes that the improvements recommended under the 2027 Mitigated No-Build conditions are in place…". Rec. 1582, Rec. 423 red type, Rec. 413—schematics for 16 interchange/ intersection modifications. The gap is ignored as the consultant continued with on-site transportation planning as if it could magically disappear. Coordination and integration of the concept plan with regional transportation planning is consequently lacking as well. Clearly transportation planning law does not intended solely for on-site planning when Goal 12 says the plan shall "facilitate the flow of goods" and "conform with regional land use plans"; OAR 660-012-0060 applies when "an amendment… would significantly affect an existing… transportation facility"; Metro Code 3.07.1120 has the "transportation plan consistent with the… Regional Transportation Plan…"; and OCCP Policies 14.3.2 concerns impacts to "existing areas" and Goal 14.4 and Policy 14.4.2, "the city as a whole".

Public Facilities and Services. The Goal 11 findings mention a stormwater infrastructure plan, the water infrastructure plan and mention sanitary though not a plan; no police, fire nor solid waste plan is mentioned or referenced. Rec. 19. The Metro findings for "H. Public Facilities and Services" say that parks were included in the conceptual public facility planning (Rec. 25), but the plan is not apparent except the Goal 5 mentions the Open Space Framework plan; however, the plan appears to consist of nothing more than the outline on the map for open space but does not provide park facilities (Rec. 54-55, 625 Konkol) and Goal 8 mentions the City's parks and recreation, open space and trail master plans have not been updated to include the concept plan nor what changes might be made (Rec. 11, 17) and, hence, there is not the required park plan. Goal 11 findings are inexplicable and conclusionary in saying without evidence:

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
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(503) 632-5568

"The updated Land Use, Water, Stormwater, Sewer, and Transportation elements address the following public facilities and services: wastewater, water distribution, stormwater management, transportation infrastructure, **police protection, fire protection,** parks and recreation, health services, and other civic facilities." (bold added) Rec. 19.

The Metro "H" findings appear to attempt to make up for the lack of a plan by discussing police and fire services for several sentences but fail to provide any inventory, needs, costs or plan. Rec. 25-26. Solid waste is not addressed.

School. No school plan is prepared nor cited and no consideration nor provision is made for the children from over a thousand planned residences. Rec. 26. *Natural Resource.* The Goal 5 findings mention a Natural Resource Inventory upon which the plan is to be based, but no plan is given. Rec. 15.

In conclusion, the City failed to provide the necessary transportation, public facility and services, school and natural resource protection plans violating Statewide Planning Goals 11 and 12, OAR 660-011-0010 and 660-012-0060, Metro Code 3.07.1120, OCCP p. 118 and the decision must be remanded.

Subassignment of Error 2

The City failed to estimate when each planned public facility project will be needed, what the trigger would be such as population level, service level standards, date and provide detailed strategies for preparing the total land supply. These project timing estimates to carry out the plan and preparation strategies are required by Goal 2, OAR 660-009-0020, OAR 660-011-0010, OCCP Policy 11.1.7, Goal 14.3 and 14.4 and related Policies. The City failed to estimate when the public facilities will be needed or what will trigger development of the public facilities such as population level, service level like reaching a vehicle per day

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21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

standard or time[66] (OAR 660-011-0025) or strategies for how the land is to be prepared. Due to this error, Ordinance 07-1008 must be remanded.

Subassignment of Error 3

The City failed to provide rough cost estimates for some public facilities and services such as parks, police and fire and part of transportation. These cost estimates are required by OAR 660-011-0010 (1) (c), Metro 3.07.1120 G, H and I, OCCP Policies 11.1.1, 11.1.7, 14.3.4, and 14.4.2. The rough cost estimates were not provided for parks, police and fire. For transportation the on-site/frontage costs were estimated (Rec. 64), but not for off-site impacts. Rec. 1582, 1879-1880. Hence Ordinance 07-1008 must be remanded.

Subassignment of Error 4

The City failed to adequately evaluate the ability of potential funding mechanisms to fund the development, to discuss local fiscal policies and to evaluate likely financing approaches; it failed to coordinate with capital improvement program or discuss how the concept plan would be integrated into it; and it failed to ensure measures will be in place to ensure cost is borne by the developer.

Goal 2, OAR 660-011-0010 (1) (g) and (2), Metro Code 3.07.1120 G, H, and I and OCCP Goal 14.3 and Policies 11.1.1, 11.1.7, 14.3.4, and 14.4.2 require a discussion of the ability and likelihood of funding mechanisms to fund the public facilities and how the concept plan relates to the capital improvement program, and measures to ensure development costs are borne by the developer to the maximum possible extent.

[66] Evidence in the record suggests a band aid approach, rather than a standard-based trigger, is likely to be taken, but this is not demonstrated and is unlikely to comply with level-of-service standards. Rec. 798, 854.

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
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The City did not adequately evaluate the ability or likelihood of various funding strategies being able to fund the public facilities and infrastructure nor did it discuss its local fiscal policies. Rec. 70-71. The consultant, though not the concept plan, indicates SDCs will be insufficient to pay for on-site infrastructure. Rec. 1123, 70. While the City mentioned that the concept plan area has "improvement-to-land values [that] are likely low enough to" meet the "blight" standard for urban renewal/tax increment financing, it did not evaluate its access to such funding or the extent to which such funds have already been committed to other projects. The City seems to suggest LID funding is unlikely. It did not discuss if bond measures in support of this concept plan are likely to be approved by popular vote. It didn't give any details on other named possibilities. Specifically on transportation the City mentioned there are other sources which "are limited and extremely competitive." Rec. 71. The record does not contain evidence of likely financing approaches (Rec. 862[67], 659, 1516, 854 ¶2) and the City does not identify "likely financing approaches" as required by Metro Code 3.07.1120.

The City indicates that its Capital Improvement Plan (CIP) has not been amended to account for the concept plan as is required by OCCP 14.3 and as can satisfy OAR 660-011-0100 and OAR 660-012-0040, and Metro Code 3.07.1120. Rec. 20. The findings are conclusionary when they assert Goal 14.3 is satisfied without adoption of the CIP. Rec. 11.

The City also did not address compliance of its System Development Charges (SDC) with OCCP 14.4.3, although substantial evidence in the record indicated the SDCs are insufficient for compliance. Rec. 196-K (Neeley, Drentlaw), 1132, 1123, 1175 (Kosinski).

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[67] The Clackamas County Deputy County Administrator and the Director of the Department of Transportation and Development, together, said, "At this point in time there is a growing regional and statewide recognition that there is just not enough money available for transportation road improvements in Oregon." Rec. 862.

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21341 S. Ferguson Rd.
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The necessary public utility systems are not currently available (Rec. 1123) and the City has not demonstrated with which likely funding sources that they can be extended. Planning needs to demonstrate that adequate public utility systems are available or could be extended to service the area. *Highland Condominium Assoc. v. City of Eugene;* 37, Or LUBA 13 (1999).

Because the city failed to evaluate it potential funding mechanisms as likely or able, to discuss its local fiscal policies, to coordinate intergration of the concept plan into the capital improvement program or to evaluate its SDC if violates Goal 2, OAR 660-011-0010 (1) (g) and (2), Metro Code 3.07.1120 G, H, and I and OCCP Goal 14.3 and Policies 11.1.1, 11.1.7, 14.3.4, and 14.4.2 and the decision must be remanded.

Subassignment of Error 5

The City failed to consider, evaluate, plan implementation approaches or otherwise ensure extension of new services does not diminish delivery of those same services to existing areas and residents in the city as a whole despite substantial evidence in the record which indicates that delivery of services to the existing city as a whole will be diminished.

OCCP Policy 14.3.2, Goal 14.4, and Policy 14.4.2 concern how development of the concept plan will affect services to existing areas and costs and benefits to the city.

The City addresses conveying sewage (Rec. 19, 25), but it does not address that area sewage plant capacity problems (Rec. 856, 857) could diminish City services or recreation.

Some of the concept plans assumptions are unreliable and could cause complete traffic failure and diminishment of the ability of the whole City to use its roads e.g. the failure to plan needed off-site road improvements (Rec. 423 red) and the assumption half the

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

residents road trips won't occur[68]. Rec. 420,731. Because the City has not demonstrated that it has the funds to implement the necessary transportation and other public facility improvements, this alone would cause development of the concept plan to diminish public facilities for the existing city; Rec. 429 (left column) illustrates conditions if the concept plan were built without the improvements at Rec. 432 (assuming $125M in improvements were already made). Rec. 1582.

Substantial evidence in the record indicates that, even with all the assumed and planned improvements at a cost of near $200 million (Rec. 412, 432, 1582), the level of service (LOS) will diminish for existing residents at nearly every intersection, because the City had the consultant develop the plan with a target level of service D[69], while existing levels of service are more often above level of service D. Compare 1876 (Existing Traffic LOS) and 431 (Mitigated Build LOS), 447; Appendix G. The study also shows the level of service dipping below the required level of D to E at two intersection. Appendix G.

The City has not compared the costs and benefits to the city as a whole.

There must be adequate plans in place or at least an adequate factual basis to demonstrate that facilities and services can reasonably be provided to the UGB expansion area without leaving the area already included within the UGB with inadequate facilities and services. *Concerned Citizens of the Upper Rogue v. Jackson County*, LUBA 95-173.

[68] The Updated Future Traffic Conditions Analysis assumes 15,140 of 29,685 new trips wouldn't affect area roads. Rec. 420. The state reviewer disbelieved this. Rec. 731 Comments 11 and 12.

[69] "Commissioner Wuest did not catch one thing. What was the level of service you designed the intersection for or plan for? Mr. Brehmer replied what we were trying to do with minimum operating standards level of service D. That was the minimum target we were trying to get to," Rec. 196-F. "Commissioner Mabee said...Kittleson did the study to our level of service, our acceptable level of service... We told them that was the minimum acceptable... Mr. Konkol said the Code spell out level of service acceptable." Rec. 196-G. "Mr. Brehmer... One of the big picture goals... was to the extent possible keep the size of Beavercreek down to a three-lane arterial... We were trying not... to widen Beavercreek... Commissioner Mabee said that would make it an A. Mr. Brehmer said that was one of the overriding goals we were trying to do... meet those minimum operating standards..." Rec. 196-E.

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21341 S. Ferguson Rd.
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Because substantial evidence in the record demonstrates that the development of the concept plan will diminish public facilities and services including transportation to the city as a whole and the city has not considered and assessed the costs and benefits to the city in violation of OCCP Policy 14.3.2, Goal 14.4, and Policy 14.4.2, the decision must be reversed.

Subassignment of Error 6

The City failed to show compliance with the Findings of Resolution 07-24 which deferred annexation compliance to the concept plan as decided by *Graser-Lindsey v. Oregon City*, 56 Or LUBA 504 (2008).

LUBA stated concerning this post-annexation planning process:

> "the Beavercreek Road Concept Plan planning process... will establish the nature of that urbanization and how the necessary public facilities will be provided and paid for..." 27:23-25
> "... how those needed public facilities and services will be paid for when the subject property does urbanize. Those determinations will be made in the Beavercreek Road Concept Plan planning process. 29:19-30:2
> "The underlying purpose of OCCP Goal 14.4 and related.., provisions appears to be to ensure,.. concept plans will provide... adequate and sufficient public facilities are extended to annexed areas as they urbanize in a way that does not financially burden or adversely affect public facilities and services in other parts of the city." 20:4-9.

As previously discussed above, the City did not show how the necessary public facilities will be provided and paid for in a way that does not financially burden or adversely affect public facilities and services in other parts of the city as required by its Findings to Resolution 07-24. Consequently, the City's decision must be remanded.

Subassignment of Error 7

The City failed to comply with Statewide Planning Goals 5 and 7.

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
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(503) 632-5568

Goal 5 and OCCP 5.4.5, 5.4.7, and 5.4.16 require protection of streams and wetlands and Goal 7 deals with natural hazards and landslides.

Metro's Goal 5 Map shows a green-colored stream across the site. (North of Loder Rd., this stream is the canyon labeled E3). Rec. 1512, 724. The concept plan says, "The location and linearity of the park was first indicated by Metro's Goal 5 mapping." Rec. 54-55. However, the park and creek are not co-located[70] and no such implementation measure is planned. To the contrary, developers got the park shrunk (Rec. 1077-1078, 293, 295, 314 Konkol) and the findings state "the code will allow flexibility…". Rec. 16. The plan does not comply with Goal 5 and the Findings do not address this disconnect.

The concept plan violated Goal 7 concerning reducing the risk to people and property from landslides, when at the developers' request (Rec. 721 "490", 1077) but without geological landslide data (e.g. Rec. 687 Thayer N), it changed the plan (Rec. 1328-1330, where 490 feet was mis-written as "190") to permit development on the steep slope of Thimble Creek canyon below 490-foot elevation. Rec. 16, 56, 724 E5. The plan does not comply with Goal 7.

Because of its Goal 5 and 7 violations, the decision must be reversed or remanded.

Subassignment of Error 8

The City failed to provide the basis for specific implementation measures in that the concept plan give little indication what implementation measures there might be. Goal 2 requires the concept plan serve as a basis for implementation measures. The city relies on

[70] E.g. "Central Park was not based on what was quoted… Metro's Goal 5 mapping…" Rec. 1077 and personal communication between Petitioner and Joe Dills of Otak in 2007 around Rec. 683.

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

about half the new traffic using area roads (Rec. 420; 731 Comments 11 and 12; FN 68) and implementation measures would be necessary to assure this happens. There is no park implementation measure to comply with Goal 5. The Findings are conclusionary when stating there are "adequate implementation measures" when the text is vague about any and it acknowledges none have been adopted. Rec. 15; FN 2. Consequently, the concept plan does not comply with Goal 2 and the decision must be remanded.

Subassignment of Error 9

The City is not able to properly plan public facilities and services for the concept plan area, because complying uses remain unknown. Goals 2, 11, 12, Metro Code 3.07.1120 and related law require public facilities and services be planned. Because the City is out of compliance with Metro 3.07 Title 4 and related law and the concept plan subdistricts need to be reconceived, the resulting, complying uses are currently unknown. The uses of land must be known for the City to be able to properly plan public facilities and services as the law requires. *1000 Friends of Oregon v. North Plain,* LUBA 93-154, p. 23 and *Graser-Lindsey v. Oregon City*, 56 Or LUBA 504[71]. Consequently, the decision must be reversed.

THIRD ASSIGNMENT OF ERROR

Oregon City Erred In Adopting Oregon City Ordinance 07-1008 When (1) The Concept Plan Is Out Of Compliance With OCCP P. 16 #3 And The Findings Are Insufficient And Not Supported By Substantial Evidence In The Record; (2) The Process Violated The Substantial Rights Of The Petitioner, And (3) The Citizen Involvement Process For Adopting The Concept Plan Did Not Comply With The Acknowledged Citizen Involvement Program Or Statewide Planning Goal 1; The Findings Were Insufficient To Support The Decision And Not Supported By An Adequate Factual Basis, And Substantial Evidence In The Whole Record Shows The Citizen Involvement As Out Of Compliance.

[71] "Until the city knows how the annexed area will urbanize, *i.e.* until the Beavercreek Road Concept Plan is completed, it is not possible [to] consider 'the effects on public services and the benefits to the city as a whole' in any meaningful way. That is why the city has effectively deferred that consideration to the Beavercreek Road Concept Plan process." *Graser-Lindsey v. Oregon City.* ____18:8-19, 23:11-15.

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
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Statewide Planning Goal 1 requires governmental units:

"To develop a citizen involvement program that **insures** the opportunity for citizens to be involved in **all phases** of the planning process. The governing body charged with preparing and adopting a comprehensive plan **shall** adopt and publicize a program for citizen involvement **that clearly defines the procedures by which the general public will be involved** in the on-going land-use planning process. The citizen involvement program **shall be appropriate to the scale** of the planning effort. The program **shall provide for continuity** of citizen participation and of information that enables citizens to identify and comprehend the issues… The citizen involvement program shall incorporate the following components:
"1. Citizen Involvement -- To provide for **widespread citizen involvement**. The citizen involvement program **shall involve a cross-section of affected citizens in all phases of the planning process**…"
"3. Citizen Influence -- **To provide the opportunity for citizens to be involved in all phases of the planning process.** Citizens shall have the opportunity to be involved in the phases of the planning process … including Preparation of Plans and Implementation Measures, Plan Content, Plan Adoption, Minor Changes and Major Revisions in the Plan, and Implementation Measures."
"6. Financial Support – **To insure funding** for the citizen involvement program."
"A. CITIZEN INVOLVEMENT 1. **A program for stimulating citizen involvement** should be developed using a range of available media…"

Oregon City Comprehensive Plan states:

Section 1 "This section is intended to show compliance with…LCDC… Statewide Planning Goal 1, Citizen Involvement…" OCCP p. 5.

Goal 1.1 "Implement a Citizen Involvement Program that **will provide an active and systematic process for citizen participation in all phases of the land-use decision-making process to enable citizens to consider and act upon a broad range of issues affecting the livability, community sustainability, and quality of neighborhoods and the community as a whole.**"

Goal 1.2 "**Ensure that citizens,** neighborhood groups, and affected property owners are involved in **all phases** of the comprehensive planning program."

Goal 1.3 "Provide education for individuals, groups, and communities to ensure effective participation in decision-making processes that affect the livability of neighborhoods."

Goal 1.4 "Provide complete information for individuals, groups, and communities to participate in public policy planning and implementation of policies."

Policy 1.4.1 "**Notify citizens about community involvement opportunities when they occur.**"

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

Goal 1.8 "Establish and support citizen advisory committees and commissions."

Policy 1.8.1 "Identify the areas of City government in which the counsel of a formal citizen advisory committee or commission is warranted..."

Policy 1.8.2 "Solicit and support citizen participation on citizen advisory committees and commissions."

In addition the OCCP gives a related criterion[72] for evaluating the comprehensive plan:

"Whether the Plan still reflects community needs, desires, attitudes and conditions. This shall include changing demographic patterns and economics." OCCP p. 16.

Subassignment of Error 1

The concept plan does not comply with OCCP p. 16#3 and findings to the contrary are conclusionary and disregard substantial evidence in the record.

OCCP p. 16 #3 identifies community desires and attitudes about the plan as relevant to amending the comprehensive plan.

Concerning OCCP p. 16 criterion #3, the findings claim: "Citizen input was critical to ensure that the community's desires and attitudes would be reflected in the Concept Plan... The concept plan is a reflection of the needs, desires, attitudes and conditions of the community..." Rec. 12-13. As discussed in AOE 3 B below, the City failed to consider the bulk[73] of the citizen input which occurred in early stages of the concept-plan process during the citizen involvement activities the Findings list[74]. Rec. 12-13. The findings are conclusionary when they claim the concept plan complies with OCCP p. 16 #3, when they present no evidence of "the community's desires and attitudes" to support this claim, evidence of "the community's desires and attitudes" has largely been omitted from the record, and the substantial evidence in the Record indicates "the community's desires and

[72] The Findings mention this criterion. Rec. 10, 12-13.
[73] More citizens participated in the early process (Rec. 93-101), while only a very few attended and/or testified at the city commission hearings.
[74] "Twelve meetings... two open houses... a design workshop..." Rec. 12-13.

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
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attitudes" ran in opposition to the concept plan. Rec. 1496, 786 & 1587-1593 (second open house), 758, 709, 710, 850-851, 895-896, 1099; Second Rec. Supp. 179-180. Local governments are to explain the rule, the consideration of it and the weighing in the findings. *Tollefson v. Jackson County.* 51 Or LUBA 790 (2006); *Kautson Family, LLC v. City of Eugene.* 48 Or LUBA 399 (2005); *Lathop v. Wallowa County.* 25 Or LUBA 693 (1993).

The decision violates OCCP p. 16 #3 for the reasons stated and the findings are inadequate to support the decision and it must be reversed or remanded.

Subassignment of Error 2

The process violated the substantial rights of the petitioner.

OAR 661-010-0071 provides for decisions to be remanded when they prejudice the substantial rights of the petitioner.

The substantial rights of the petitioner were violated when she did not get notice of the final resumed hearings on the Beavercreek Road concept plan and consequently could not attend the hearings due to the road sign not being updated and being removed around the time of the first city commission hearing (Appendix D -- the picture dated "11/14/07" shows the "Sept. 24, 2007" planning commission hearing being advertised rather than the 10/22/07 meeting), Rec. 863, Rec. Table of Contents Exhibits 38-40., due to not receiving mailings and due to the continuity of the process being lost by the long delay between Jan. and Sept. (e.g. 1st S Rec. 11 and 14 -- "Staff requests… continues…"). Goal 1 requires "the program shall provide for continuity of citizen participation" and OCCP requires "notify citizens".

Petitioner's substantial rights were violated when the adopted decision is not clear in the Record and she cannot find the concept plan "Technical Appendix (Under Separate Cover)" (Rec. 33) or the "Ancillary Documents" adopted by the Ordinance (Rec. 5) in the

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
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Record nor the many references throughout the plan e.g. C6 and H3 at Rec. 68 or C3, D, and E at Rec. 73; as a result of not finding the relevant documents, she left certain arguments out of her brief. During Record Objections, when she asked where C2 and G were in the record (Precautionary Record Objections, page 6:4-5), she was given 2 options for C2 (Response to Petitioner's Record Objections, page 4:19-20), she does not have a concrete idea what has been adopted. The comprehensive plan including its ancillary documents is the fundamental document that governs land use planning. Citizens must be able to rely of the fact that the acknowledged comprehensive plan and information integrated I that plan will serve as the basis for land use decisions, rather than running the risk of being "sandbagged" by government's reliance on new date that is inconsistent with the information on which the comprehensive plan was based. *1000 Friends of Oregon v. City of Dundee*. 203 Ore. App. 207 (2005).

The Petitioner's substantial rights were violated when the City accepted new evidence and testimony (e.g. in Aug. 2008, Rec. 293-294, 447-453) after the public testimony part of the hearing was closed April 16, 2008 (Rec. 555) and the record was closed June 4, 2008 (Appendix H; Rec. Items Retained C April 16, 2008 Tape 2 Side 1 Count 637) and the Commission Reports prepared by the staff indicated the process had moved to the First Reading on June 4, 2008 (Rec. 533), so she was not able to provide testimony about these new items.

Because the City committed procedural errors which prejudiced the substantial rights of the petitioner, the decision must be remanded.

[Subassignment of Error 3 C will be argued on page 51 if LUBA allows this Petition for Review to go over length.]

V. CONCLUSION

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

In this decision, Oregon City disregarded laws at all levels including on proper planning of industrial lands, providing for public facilities and services and following an acknowledged citizen involvement plan, so the decision to adopt Ordinance 07-1008 and the Beavercreek Road Concept Plan should be reversed.

DATED this 15th day of May, 2009.

By: Elizabeth Graser-Lindsey
Elizabeth A. Graser-Lindsey

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION TRANSMITTAL

July 24, 2014

CITY STAFF DISTRIBUTION	***MAIL-OUT DISTRIBUTION***
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❑ DEVELOPMENT SERVICES MANAGER ✓	❑ NATURAL RESOURCES COMM. (NRC)
❑ PUBLIC WORKS- OPERATIONS ✓	❑ CLACKAMAS COUNTY TRANSP. & PLANNING ✓
❑ CITY ENGINEER ✓	❑ CLACKAMAS FIRE DISTRICT #1 ✓
❑ PUBLIC WORKS DIRECTOR ✓	❑ ODOT – Division Review ✓
❑ TECHNICAL SERVICES (GIS) ✓	❑ OREGON CITY SCHOOL DISTRICT ✓
❑ PARKS MANAGER ✓	❑ TRI-MET ✓
❑ ADDRESSING	❑ METRO ✓
❑ POLICE ✓	❑ OREGON CITY POSTMASTER
TRAFFIC ENGINEER	❑ DLCD
❑ REPLINGER AND ASSOCIATES ✓	❑ CITY ATTORNEY ✓
	❑ OTHER: _____
Mailed Notice to County CPO's	
❑ Central Pt-New Era-Leland / Holcomb-Outlook/Beavercreek ✓	
Mailed Notice	
❑ Within 300' ✓	

PUBLIC COMMENTS DUE:	6:00 p.m., August 11, 2014
REVIEW COMMENTS DUE:	6:00 PM, August 25, 2014
HEARING DATE:	Type II – Not applicable
HEARING BODY:	**XX Staff Review;** _____PC; _____CC
FILE # & TYPE:	SP 14-01: Site Plan and Design Review for a 121-unit Apartments and 62 Live-Work Units on 9.7 acres (Zoned MUC-1) – East side of Beavercreek Road
PLANNER:	Pete Walter, AICP, Planner (503) 496-1568
PROJECT WEBSITE:	http://www.orcity.org/planning/landusecase/sp-14-01-beavercreek-road-apartments-live-work-units
APPLICANT:	Beavercreek Road, LLC, Attn: Andrew Brand
LOCATION:	19896 Beavercreek Rd, Oregon City OR 97045 (See Vicinity Map on Public Notice) Clackamas County Map 3-2E-10C Tax Lot 800

This application material is referred to you for your information, study and official comments. If hard copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and ensure prompt consideration of your recommendations.

Please check the appropriate spaces below. Attach additional pages if needed.

_____ The proposal does not conflict with our interests.

__X__ The proposal conflicts with our interests for the reasons stated below.

_____ The proposal would not conflict our interests if the changes noted below are included.

See ATTACHED

Signed _____ 08-06-14

Title Concerned Citizen

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

Stephen Gufreda
15550 S Old Acres Lane
Oregon City, Oregon 97045

Oregon City Community Development
SP 14-01
Pete Walker AICP Planner
221 Molalla Ave #200
Oregon City, Oregon 97045

Dear Sirs,

I appose the proposed development at 19896 Beavercreek Rd. , Oregon City. Oregon 97045. This development will put undo burden on the existing infrastructure.

For example:

The traffic is already at high level on the single lane road of Beavercreek Rd. with the high school and the collage traffic not to mention the thousands of homes further out the Beavercreek Rd area. The vehicles turning into and out of this development could likely create a situation of gridlock on the surrounding surface streets.

The sewage generated by an additional 112 units of apartments and 62 live work units may overload this system.

This development will increase the pedestrian traffic and it is already very unpleasant to walk Beavercreek Rd.

Will the police department be able to adequately patrol this area of mass housing and the activity which usually attaches itself to these high density developments.

In conclusion, this proposal is not needed nor is compatible with the the rural nature of the community. Also, we are loosing the open space that all the folks living out here enjoy.

Thank you,

Stephen Gufreda
stephen@bctonline.com
503.621.6064

Hamlet of Beavercreek

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION TRANSMITTAL

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❑ ADDRESSING	❑ METRO ✓
❑ POLICE ✓	❑ OREGON CITY POSTMASTER
TRAFFIC ENGINEER	❑ DLCD
❑ REPLINGER AND ASSOCIATES ✓	❑ CITY ATTORNEY ✓
	❑ OTHER: _____
Mailed Notice to County CPO's	
❑ Central Pt-New Era-Leland / Holcomb-Outlook/Beavercreek ✓	
Mailed Notice	
❑ Within 300' ✓	

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CLACKAMAS COUNTY

PUBLIC COMMENTS DUE:	6:00 p.m., August 11, 2014
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APPLICANT:	Beavercreek Road, LLC, Attn: Andrew Brand
LOCATION:	19896 Beavercreek Rd, Oregon City OR 97045 (See Vicinity Map on Public Notice) Clackamas County Map 3-2E-10C Tax Lot 800

This application material is referred to you for your information, study and official comments. If hard copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and ensure prompt consideration of your recommendations.

Please check the appropriate spaces below. Attach additional pages if needed.

_____ The proposal does not conflict with our interests.

_____ The proposal conflicts with our interests for the reasons stated below.

_____ The proposal would not conflict our interests if the changes noted below are included.

_____

_____

_____

Signed_____

Title_____

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

The Hamlet of
BEAVERCREEK
PO BOX 587 · BEAVERCREEK · OREGON · 97004

RECEIVED
CITY OF OREGON CITY
2014 AUG 11 PM 1:49

Mr. Pete Walter, Planner
City of Oregon City Community Development
221 Molalla Avenue, Suite 200
Oregon City, OR 97045

August 11, 2014

RE: SP 14-01: Site Plan and Design Review for a 121-unit Apartments and 62 Live-Work Units on 9.7 acres (Zoned MUC-1)
East side of Beavercreek Road

This is a Land Use Application Transmittal from The Hamlet of Beavercreek regarding the subject proposed Site Plan and Design Review. After meeting to study the application, SP 14-01, The Hamlet of Beavercreek cannot support this Land Use application for the following reasons:

1) First and foremost, the 6,500 citizens of The Hamlet of Beavercreek (HOB) were not notified by the City of Oregon City of the subject Land Use application, SP 14-01.

On October 6th, October 13th and October 20th, 2010, the Hamlet of Beavercreek both testified and presented their letters to the City of Oregon City over this same Land Use, which was then application ZC 10-01 and PZ 10-01.

Testimony in 2010 spoke of the lack of Land Use notification to the HOB, and how the Planning Commission already had, on August 30th, 2010, met and approved the land use application ZC 10-01 and PZ 10-01. Mayor Norris did grant the HOB an additional seven day time period in which to respond their concerns to the City. The HOB did timely respond on October 13th, 2010, which was followed by a request from the HOB that "we hope in the future that Oregon City will notify the Hamlet in a more timely fashion, giving them the necessary time to study the land use file and reply."

The HOB does note, that on the Land Use Application Transmittal of July 24th, 2014, the City has checked off that the Central Pt-New Era-Leland/Holcomb-Outlook/Beavercreek CPO's and Hamlet were notified. We do not know who may have received this notice, but the HOB did not, and we are asking once again that ALL Land Use applications be sent to the Hamlet.



2) We noted that on July 29th, 2013, an Invitation was sent to the Caufield Neighborhood Association, by Evergreen Housing, to meet on August 15th, 2013 at McLoughlin Hall at Clackamas Community College. The meeting was arranged to help the Neighborhood Association learn about a new 239 unit market rate multi-family development proposed at 19896 S Beavercreek Rd in Oregon City. We are extremely concerned that the "6,500 people living in Beavercreek" were completely ignored and not invited to this same meeting. The lives of these 6,500 people are dramatically impacted by all development that is proposed for Beavercreek Road.

3) The HOB objects to any parking on an Arterial, presenting too much danger for both motorists and citizens, and is not appropriate when there is a large High School just across the street.

4) When speed limits in the Beavercreek/Meyers area are slow, traffic and commutes are slowed. The ability for Ambulance, Fire and Police to reach areas of Beavercreek will be highly compromised.

5) We believe the Traffic Counts per day are incorrect as only Residential units were considered. When adding in the Live-Work commercial units, these counts will become much higher. The Traffic Counts need to be corrected to reflect ALL incoming and outgoing trips.

6) Beavercreek Rd is currently three lanes at this location. When considering the addition of sidewalks, bike lanes, parallel parking pockets, and street trees, these additions will dramatically narrow this important arterial which is already close to failing. Even the citizens from the Caufield Neighborhood Association stated that traffic is becoming "tight" here.

7) Only 1.82 stalls per unit is not enough. For the Live-Work units, where will all the clients park? For the residential units, many young people attending the High School and College will share only one apartment and 1.82 units will not be sufficient.

8) Both I-205 and Hwy 213 are expected to fail before the next twenty years per the model used and there are NO state dollars to expand.

9) On August 17th, 2010, a letter was sent from ODOT to Pete Walter, City Planner, stating that ODOT recognizes that the westbound right turn lane is also needed to mitigate for the traffic impacts associated with the Beavercreek Concept Plan. Therefore, it is recommended that the applicant be conditioned to contribute their proportionate share of the right turn lane based on their traffic impact. Additional analysis may be needed to determine proportionate share in relationship to the broader Beavercreek

Concept Plan area. ODOT supports the findings and recommended mitigation identified in the TIA with the following provisions to ensure no significant effect on OR 213.

a) The City of Oregon City documents through the land use decision that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027)

b) The land use decision includes a condition requiring the applicant to contribute funding to City of Oregon City for the construction of the westbound right turn lane at the OR 213/Meyers Rd Intersection.

The HOB requests the City to answer the above ODOT concerns and state whether identified provisions will be completed, when, by whom and how financed.

10) The HOB requests additional information about the "skew" at Beavercreek & Meyers.

Lastly, the HOB sent three letters to the City in 2010 (attached), with concerns which have gone unanswered and we ask that the City respond to the HOB regarding the following:

In our letter of October 13th, 2010, first paragraph of Pg.3, "Testimony was given at both the September 15th and October 6th, 2010 hearings regarding financial concerns on the part of the applicant. The applicant explained that he is seeking a Zone change for this property which will allow him to obtain the necessary financing for this parcel and that apparently without a Zone change the **lender may consider foreclosure.** City Attorney, Ed Sullivan, quickly brought to the attention of the Commission that they cannot consider the financial concerns of the applicant as part of their decision to approve, or disapprove, these land use applications."

The above testimony seriously questions the applicant's ability of contributing funding to the City of Oregon City for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. We ask the City to publicly divulge the total amount of funding required from the applicant, when are monies due to the City and what measures are in place to ensure that the applicant has the ability to pay the total amount of his share of the funding.

In our letter of October 20th, 2010, two serious conditions were brought forward that the City continues to ignore. Page 2, paragraph 4, "Also, under transportation in the city's staff memorandum, city staff states the TIA was prepared in consultation with and reviewed by ODOT and city staff and found to comply with all applicable transportation standards." "We point out, once again, that the HOB was not invited to be a part of

these meetings and therefore their concerns were never heard."

Page 3, last paragraph, "Additionally, we understand from County staff that Mr. Konkol has informally agreed to send all future land use application notices to both the HOB, the Holcomb-Outlook CPO and the Central Point-Leland-New Era CPO, which are the three CPO's bordering the City of Oregon City. The HOB requests the City Commission to act upon this agreement tonight by formally writing this agreement into City Code, and after approved, we ask that all land use notices be sent by both U.S. Mail as well as e-mail, as a precaution in the event that mail is not timely delivered."

We ask once again that Oregon City comply with the above agreement and take steps to ensure that the HOB is informed by both mail and e-mail of all future land use applications.

Representing the Board of The Hamlet of Beavercreek

Christine Kosinski
Corresponding Secretary and Co-Speaker
The Hamlet of Beavercreek
Cor.Sec@Beavercreek.org

encl: October 6th, 2010 letter from The Hamlet of Beavercreek to Oregon City
October 13th, 2010 letter from The Hamlet of Beavercreek to Oregon City
October 20th, 2010 letter from The Hamlet of Beavercreek to Oregon City

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RECEIVED
2010 AUG 11 PM 1:49

October 6, 2010

Alice Norris, Mayor
Jim Nicita, Commissioner
Daphne Wuest, Commissioner
Doug Neeley, Commissioner
Rocky Smith, Commissioner
David Frasher, City Manager
City of Oregon City

RE: Land Use Application ZC 10-01 and PZ 10-01
19896 Beavercreek Road - Meyers and Beavercreek Road Intersection
9.59 Acre Parcel brought into the UGB in 1979, annexed to the city in 2008
Contiguous to the Beavercreek Road Concept Plan

Honorable Mayor Norris and City Commission:

The Hamlet of Beavercreek enters this letter into the City of Oregon City records and requests the Oregon City Commission remand the above Land Use applications back to the Oregon City Planning Commission for the purpose of re-opening the hearings to public testimony. Our request is based on the following information.

The Hamlet is enclosing a copy of a notice generated by Oregon City Community Development-Planning. The notice is marked mailed July 16th, 2010 and describes a hearing on ZC 10-01 and PZ 10-01 to be held Monday, August 30th, 2010. The notice was mailed from the Oregon City Planning Division to the Hamlet of Beavercreek, Postmarked September 3rd, 2010, (copy enclosed). This notice was received by the Hamlet of Beavercreek **AFTER THE PLANNING COMMISSION ALREADY MET ON AUGUST 30TH AND APPROVED THE LAND USE APPLICATION** for forwarding to the City Commission at it's next meeting on September 15th, 2010.

We draw your attention to the Oregon City "Notice of Public Hearing" which states the Notice was mailed, July 16, 2010. In fine print, your Notice states " The application and all documents submitted by or on behalf of the applicant are available for inspection at no cost at the Oregon City Planning Division on Molalla Avenue in Oregon City. The staff report, with all the applicable approval criteria, will also be available for inspection seven days prior to the hearing. Any interested party may testify at the public hearing and/or submit written testimony at or prior to the close of the City Commission hearing.

Written comments must be received by close of business at City Hall 10 days before the scheduled hearing to be included in the staff report. Written comments received within 10 days of the hearing will be provided to the Commission at the hearing."

The Hamlet of Beavercreek and its citizens were deprived of inspecting these applications and documents. They were deprived of having the ability to testify at the public hearing and/or submitting written testimony prior to the close of the City Commission hearing within your time frame. They were deprived because they **did not receive notice of these Hearings!**

Both city records and the Agenda from the City Commission meeting of September 15th, 2010 clearly show that the above Land Use applications were brought before the City Commission to seek approval for a Zone change from the current zoning of FU10 to MUC-1 for this 9.59 acre parcel which is located at 19896 Beavercreek Road and is contiguous to the Beavercreek Road Concept Plan.

When Mayor Norris opened the meeting, on September 15th, 2010, to "citizen comments", Christine Kosinski, a member of the Hamlet of Beavercreek made comments to the Commission and inquired why the Hamlet of Beavercreek was not notified of the hearings in front of the Planning Commission on August 30th, 2010? Mrs. Kosinski further commented that there are about 6500 citizens in Beavercreek who rely daily on Beavercreek Road since this is virtually the only way "in and out" of Beavercreek. She further commented that this 9.59 acre parcel **is contiguous to the Beavercreek Rd Concept Plan**, and therefore the Hamlet should have been notified of these hearings since the same requirements that applied to the Concept Plan should apply to this 9.59 acre parcel. She questioned why Oregon City did not recognize this fact and that she felt the city had ignored 6500 citizens from having their voices and concerns heard in violation of state land use Goal One.

Tony Konkol, city planner, stated the city had met the legal requirements of notifying those within 300 feet of the Land Use application. Then Mr. Konkol stated to the Commission, actually we did send notice to the Hamlet, however this was done as an "afterthought".

Commissioner Neeley spoke, asking the Commission to recognize the people of the Hamlet of Beavercreek. Commissioner Neeley stated the Commission should not vote on the Land Use application until their next meeting, allowing the people of Beavercreek to be heard. The Commission approved, but stated that the Hamlet may only bring forth testimony which was brought before the Planning Commission.

The Minutes of the Planning Commission meeting of August 30th, 2010 state that Chair Powell opened the meeting to public testimony, there being none, Chair Powell closed the meeting to public comments and subsequently the Planning Commission approved Land Use Applications PZ 10-01 and ZC 10-01 which were referred on to the City Commission for their next meeting on September 15th, 2010.

This was a travesty to the people of Beavercreek. Did the City of Oregon City purposefully ignore the Hamlet? Certainly because the Hamlet was not timely notified, they now are virtually locked out from giving public testimony since they are confined to testify only to comments brought before the Planning Commission, for which there were none.

By not allowing the 6500 people of the Hamlet of Beavercreek to publicly testify, whose primary access in and out of Beavercreek, is on Beavercreek Road, the City of Oregon City has committed a thoughtless and contemptuous act upon the Hamlet of Beavercreek and has breached the requirements of Goal One.

This land use application is for property that is contiguous to the Beavercreek Road Concept Plan, therefore the same requirements should apply and that would be to timely notify the Hamlet of Beavercreek of these hearings.

Furthermore, The Hamlet goes on record stating that it requests the City of Oregon City send notice of all Land Use applications which effect it's boundaries on both Beavercreek Road and Highway 213. As development occurs in the future along both of these two major corridors, traffic from the rural areas will become increasingly affected since these are the only two major corridors bringing rural residents into the city allowing connection to Oregon's major transportation corridor. The safety of these citizens could also become compromised since heavy traffic will slow down the response times for Fire, Police and Ambulance.

With the above information, we ask that you honor our request to remand Land Use applications ZC 10-01 and PZ 10-01 back to the City Planning Commission, appropriately allowing the voices of the citizens of the Hamlet of Beavercreek to be heard.

Representing the Board of The Hamlet of Beavercreek

Christine Kosinski
Corresponding Secretary and Co-Speaker
The Hamlet of Beavercreek

Encl: Oregon City Notice of Public Hearing
Copy of Postmark on envelope – to the Hamlet – dated Sept 03, 2010

cc: Clackamas County Board of Commissioners
cc: Steve Wheeler, Clackamas County
cc: Cam Gilmour, Clackamas County
cc: Gail Curtis, ODOT
cc: Hamlet of Mulino
cc: Hamlet of Molalla Prairie
cc: Ray Valone, Metro
cc: Michael Jordan, Metro
cc: Carlotta Collette, Metro

The Hamlet of
BEAVERCREEK
PO BOX 587 · BEAVERCREEK · OREGON · 97004

2010 AUG 11 PM 1:45

October 13, 2010

Alice Norris, Mayor
Jim Nicita, Commissioner
Daphne Wuest, Commissioner
Doug Neeley, Commissioner
Rocky Smith, Commissioner
David Frasher, City Manager
City of Oregon City

RE: Land Use Application ZC 10-01 and PZ 10-01
19896 Beavercreek Road – Meyers and Beavercreek Road Intersection
9.59 Acre Parcel brought into the UGB in 1979, annexed to the city in 2008
Contiguous to the Beavercreek Road Concept Plan

Honorable Mayor and City Commission:

The Hamlet of Beavercreek enters this letter into the City of Oregon City records in reference to land use applications ZC 10-01 and PZ 10-01. Comments from the Hamlet, based on the Staff Report for the above land use applications, are addressed in this letter and consist of concerns for:

- ***Title 11 requirements***
- ***Reduced density***
- ***Piecemeal development***
- ***Financial obligations of the applicant***
- ***Transportation issues***
- ***Concerns for Compliance with policy***
- ***Partnering with your neighboring Hamlets and County CPO's***

Title 11 first requires that local governments place interim measures on the new urban land to protect it from urbanization before a plan is completed and adopted. When new land is brought into the urban growth boundary, Metro collaborates with local cities and counties to plan how the new communities will be developed and served by roads, schools and other urban services.

In December 2002, the Metro Council voted to expand the urban growth boundary by 18,638 acres. In 2004 and 2005, the Metro Council voted to expand the urban growth boundary by an additional 2,500 acres for industrial land purposes. Before this land is converted from rural to urban use, Metro requires that it be planned by the local city or county that will provide services for the new urban area.

This 9.59 acre parcel was previously part of the Beavercreek Road Concept Plan and subject to Title 11 requirements. Oregon City now proposes to develop this parcel separately and states Title 11 will not apply since this property was brought into the UGB in 1979 (prior to Title 11 requirements), and furthermore, is no longer subject to Title 11 requirements since the Concept plan has not been approved.

We question Title 11 status for this property. Please clarify if this parcel was under Title 11 when part of the Beavercreek Road Concept Plan. And if so, then explain why the City now states that it is not? Also, because this parcel was not annexed into the City until 2008, when Metro required compliance with Title 11, wouldn't this property now be subject to the requirements of Title 11?

The proposed density for this 9.59 acre parcel was much higher when part of the Beavercreek Road Concept Plan under MEV zoning, however now the density is being reduced. The city must transfer this density and where will that be? Understand that as the city transfers density further out, the rural lands of the Hamlet of Beavercreek and other surrounding County CPO's will be pressured by urbanization coming directly up against their boundaries.

Testimony was brought forward by a member of the Hamlet of Beavercreek, stating that taking this 9.59 acre parcel out of the Concept Plan would allow for "piecemeal development". The Beavercreek Road Concept Plan, as well as Title 4 land, has not been planned or approved, therefore we do not know what the plan will look like. If development begins on this 9.59 acre parcel prior to the Concept Plan being planned and approved, then how will the city and developer understand the proper development of this parcel so that it actually blends in with the Concept Plan and appears as though it is part of this entire community? If planning is not correctly executed for this 9.59 acre parcel it just could become a project which the city will regret. We do not believe this is what you want, but rather we feel you want to develop a concept plan for which you can take much pride.

These slower speeds will queue traffic dramatically and create a traffic mess in this vicinity. We bring your attention also to the Traffic Report addressing the intersection of Molalla Avenue and Highway 213. The report shows (357) trips onto Molalla without the Meyers Road extension and a count of 325 trips with the extension, please explain why it would be down 22 trips? Additionally, why would you propose to put even more traffic onto the Intersection of Highway 213 and Molalla Avenue when this will create a heavier back up in traffic? Currently, traffic at the Peak Hour on Highway 213 and Molalla backs up to the Haggen's Market and beyond.

Again, the proposal to extend Meyers Road does not make any sense. This is a small two-way street with stop signs only and no signal until Warner Milne Road. The only way that an extension of Meyers Road will be helpful is if the City dramatically improves Meyers Road and puts it through to Leland Rd, preventing traffic from being dumped onto Highway 213. In it's current state, Meyers Road is not beneficial in any way to moving anything other than lesser amounts of traffic east and west between Beavercreek Rd and Glen Oak Rd.

Finally, let us not lose sight of the real elephant in the room, and that is for the intersection of Beavercreek Road and Highway 213. This is where our attentions should be focused, now and in the future, since this is the true pinch point for vehicular traffic in this entire region. Continued stresses, from all future development by the City, will have great effects upon this intersection, which even with continual expansion, fails miserably.

We fail to see how this proposed development will benefit Oregon City. We do not understand why you are deviating from the Concept Plan for one property owner? And now you are decreasing density, from the previous MEV zoning in the Concept Plan, where this property was to be the "cornerstone" of the plan? We question where will the density be transferred to within the Concept Plan? Lastly, why are you creating absolutely huge expenses for a transportation system that will be needed once development is proposed? Why would you do this just for a 9.59 acre parcel? It doesn't pen out and seems to be a terrible waste of taxpayer dollars at a time when the economy simply does not support this type of wasteful spending. It seems the intelligent and prudent decision would be to wait until the Beavercreek Road Concept Plan is designed and adopted, along with the Title 4 lands. We feel this 9.59 acre parcel should be placed back into the Concept Plan and allowed to be developed as originally intended under MEV zoning.

The Hamlet of Beavercreek's **Findings** in the City's Staff Report is that many discrepancies exist in the statements. We do not believe the applicant has adequately demonstrated compliance with the Transportation Impacts, nor has the applicant proved

that a Zone change to MUC-1 would be desirable for this land. Rather it is more desirable to return this property to the Concept Plan, allowing it to be developed as intended and to be part of a "planned community". This property was intended to be the Cornerstone of the Concept Plan, however when taken away from the Concept Plan this current land use application will deter from the overall vibrancy and uniqueness originally intended for this land. The applicant has not demonstrated compliance with Goal 6.1 Air Quality, please note that Beavercreek Road is identified as a transportation corridor which is NOT walkable. The Hamlet feels Statewide Goal 14 has not been met. The applicant believes the proposed zoning and Comp Plan designation MUC 1 will be in concert with the goals of the city. We have already outlined that it would be best to keep this parcel in the Concept Plan where it will be developed as a planned community. These are just a few ways in which the applicant has failed to adequately demonstrate that this is the best use for this 9.59 acre parcel. It is probable that the Hamlet could have indicated more discrepancies if it had been given the opportunity to fully participate in the hearings before the Planning Commission.

Our final concern is regarding "Partnering". We ask that Oregon City partner with the Hamlet of Beavercreek, as well as other Hamlets and County CPO's bordering Oregon City. Often, Oregon City plans development without regards to it's effect upon the neighboring communities which is what has happened in these two land use applications. Development on either Beavercreek Road or Highway 213 could have detrimental affects upon the citizens living in Beavercreek, as well as other outlying rural areas, which is why we have placed strong emphasis upon this development. Oregon City seems oblivious to issues facing it's neighbors, therefore how can you appropriately plan for the future? The answer is, you simply cannot. Only by Partnering with your neighbors will you be able to achieve appropriate and efficient planning for this entire section of Clackamas County.

Planning into the future must change. The Hamlet of Beavercreek will be vigilant in the future as urban cities expand. We will be vigilant in protecting our rural lands, our small farms, our creeks and streams with fish and wildlife. We will protect and preserve our rural community and it's way of life. This is what the 6500 citizens of the Hamlet of Beavercreek have asked for. They want to design their future and the destiny of their community. We ask Oregon City to partner with our Hamlet on all future development and we ask that you show respect for our community and that you listen to the 6500 voices who are asking only to be heard and acknowledged.

At the October 6th, 2010 City Commission meeting, the city chose to extend an olive branch to the Beavercreek community by giving the Hamlet until 5 PM on October 13th to submit written testimony, however they are being bound, by the City, to testify only to the Staff Report and Application and have been forbidden to bring forth any new facts.

We continue to feel that Oregon City has breached the requirements of state Goal 1 by choosing to ignore the 6500 people of the Hamlet. At the upcoming City Commission meeting on October 20th, 2010, the City will have the opportunity to redeem it's latest actions upon the Hamlet of Beavercreek by making the decision to remand Land Use applications ZC 10-01 and PZ 10-01 back to the Planning Commission allowing the Hamlet of Beavercreek to **testify to any and all comments, concerns and facts,** rather than holding them hostage, stating they can only testify to the Staff Report and application.

The final decision now rests with the City. We ask that you consider the information we have brought before you in our letter. We ask that you acknowledge the request of the people of the Hamlet of Beavercreek by properly remanding Land Use applications ZC 10-01 and PZ 10-01 back to the Planning Department allowing them to appropriately participate in these land use hearings, as defined under citizen participation, in state Goal 1.

Representing the Board of The Hamlet of Beavercreek

Christine Kosinski
Corresponding Secretary and Co-Speaker
The Hamlet of Beavercreek

cc: Clackamas County Board of Commissioners
cc: Steve Wheeler, Clackamas County
cc: Cam Gilmour, Clackamas County
cc: Gail Curtis, ODOT
cc: Hamlet of Mulino
cc: Hamlet of Molalla Prairie
cc: Ray Valone, Metro
cc: Michael Jordan, Metro
cc: Carlotta Collette, Metro

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2010 AUG 11 PM 1:49

Alice Norris, Mayor
Jim Nicita, Commissioner
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Rocky Smith, Commissioner
David Frasher, City Manager
City of Oregon City

October 20, 2010

RE: Land Use Application ZC 10-01 and PZ 10-01
19896 Beavercreek Road – Meyers and Beavercreek Road Intersection
9.59 Acre parcel brought into the UGB in 1979, annexed to the city in 2008
Contiguous to the Beavercreek Road Concept Plan

Honorable Mayor Norris and Commission:

The Hamlet of Beavercreek enters this letter into the City of Oregon City records for the above land use applications. The Hamlet extends their appreciation to Oregon City by recognizing the fact that the City gave them 7 days in which to respond to the staff report and application from the City. The Hamlet adequately responded within the given time frame.

We bring to your attention, that Tony Konkol, Planner for Oregon City, sent e-mail to the Hamlet last night at 6:38 PM attaching a staff memorandum from the City in response to the many concerns raised by the Hamlet of Beavercreek. Understand, that once again, this late notice did not give the Hamlet time to fully study the staff report and adequately respond to you tonight. We hope in the future that Oregon City will notify the Hamlet in a more timely fashion, giving them the necessary time to study the land use file and reply.

In our letter of October 13th, 2010, the Hamlet brought forth many strong concerns for consideration and questioned the reasoning of the City in allowing this zone change to be considered for approval. Even though, in Oregon City's staff memorandum, each of our concerns were addressed, it is consistently pointed out by city staff that the Hamlet of Beavercreek either failed to demonstrate which criteria are not met, or that there are

no facts offered to support this opinion, or that the Hamlet has submitted no cognizable evidence or credible argument to the contrary.

The Hamlet takes exception to these comments on the part of city staff. If the City had been dutiful and a good neighbor, we should have been rightfully notified in July of 2010 of the Planning Commission hearings for these land use applications. Because the Hamlet was notified, after the Planning Commission had already met and approved the application, they were completely left out and deprived of having the ability to fully participate from the beginning of the hearings in front of the Planning Commission.

Issues and concerns such as "piecemeal development" were not addressed in your staff memorandum and we continue to question the findings in the transportation report. For example, the City states it has made the finding that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027). The Hamlet takes exception with the language "reasonably likely" and would like the City to replace this with language stating that the Meyers Road extension improvement **will be** built at the time development is approved for both of these land use applications at Meyers and Beavercreek Roads. To state "reasonably likely" is not good enough since we all recognize the fact that traffic in this area is already very heavy. To wait until the year of 2027 is far too late and not acceptable since traffic in this area will have become prohibitively difficult. The Hamlet of Beavercreek states that the Kittleson report and city staff report fails to identify any true mitigation for the transportation issues which currently exist. What you have proposed is simply NO mitigation that will be effective for these traffic impacts.

Also, under transportation in the city's staff memorandum, city staff states "the TIA was prepared in consultation with and reviewed by ODOT and city staff and found to comply with all applicable transportation standards." We point out once again that the Hamlet of Beavercreek was not invited to be a part of these meetings and therefore their concerns were never heard.

We question the lower density of this 9.59 acre parcel, even though you fail to recognize this in your staff memorandum. When this parcel was previously part of the Concept Plan, a much larger market and retail center were planned and this area was to be the "cornerstone" for this community. By taking it away from the Concept Plan, where will your "cornerstone" now be. We continue to have concerns that the city will request to transfer density in the future which is certain to place more density towards our rural lands.

We want you to know that the Hamlet does not question that Oregon City can legally do this, and we do not question your ability in this land use application, however we do question whether this zone change makes sense. Oregon City has dedicated much time, energy and hundreds of thousands of dollars into designing and developing a Concept Plan. Why is the City now willing to throw all of this away and now consider re-zoning this 9.59 acre parcel for just ONE person? Additionally, will the City do this for every other person involved in the Concept Plan? Do you realize you are setting a precedent for just ONE person? Are you willing to take this risk?

We wonder why the City is in such a hurry to approve this Zone Change from MEV to MUC-1 when the applicant is on record stating they propose NO development at this time. It makes more sense for the City to recognize it's neighbors by remanding this land use application back to the Planning Commission, allowing the Hamlet of Beavercreek to participate in these hearings.

Oregon City has fought the notification of the Hamlet of Beavercreek on a mere technicality. We feel that since this parcel is contiguous to the Beavercreek Road Concept Plan, and because 6500 people in the community of Beavercreek must rely daily on this road, that notice of the Planning Commission hearings should have been timely sent to the Hamlet of Beavercreek. For the record, the Hamlet of Beavercreek boundaries are only 826 feet from Land Use application Z10-01, therefore Oregon City is truly fighting the Hamlet over a technicality.

In ending, we continue to request that the City correct it's past actions upon the Hamlet and remand these land use applications back to the Planning Commission.

Additionally, we understand from County staff that Mr. Konkol has informally agreed to send all future land use application notices to both the Hamlet of Beavercreek (HOB), the Holcomb-Outlook CPO and the Central Point-Leland-New Era CPO, which are the three CPO's bordering the City of Oregon City. The Hamlet of Beavercreek requests the City Commission to act upon this agreement tonight by formally writing this agreement into City Code, and after approved, we ask that all land use notices be sent by both U.S. mail as well as e-mail, as a precaution in the event that mail is not timely delivered.

We sincerely thank you for recognizing the Hamlet of Beavercreek and their concerns regarding these land use applications. We look forward to working with you, as a partner, on all future land use applications.

Representing the Board of the Hamlet of Beavercreek

Christine Kosinski
Corresponding Secretary and Co-Speaker
The Hamlet of Beavercreek
Corr.sec@HamletofBeavercreek.org

cc: Clackamas County Board of Commissioners
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cc: Gail Curtis, ODOT
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cc: Ray Valone, Metro
cc: Michael Jordan, Metro
cc: Carlotta Collette, Metro

Christine Kosinski

OREGON CITY

Community Development – Planning

221 Molalla Ave., Suite 200, | Oregon City, OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

2014 AUG 11 PM 1:47

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CITY OF OREGON CITY

LAND USE APPLICATION TRANSMITTAL

July 24, 2014

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☐ CITY ENGINEER ✓	☐ CLACKAMAS FIRE DISTRICT #1 ✓
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☐ TECHNICAL SERVICES (GIS) ✓	☐ OREGON CITY SCHOOL DISTRICT ✓
☐ PARKS MANAGER ✓	☐ TRI-MET ✓
☐ ADDRESSING	☐ METRO ✓
☐ POLICE ✓	☐ OREGON CITY POSTMASTER
TRAFFIC ENGINEER	☐ DLCD
☐ REPLINGER AND ASSOCIATES ✓	☐ CITY ATTORNEY ✓
	☐ OTHER: _____
Mailed Notice to County CPO's	
☐ Central Pt-New Era-Leland / Holcomb-Outlook/Beavercreek ✓	
Mailed Notice	
☐ Within 300' ✓	

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PUBLIC COMMENTS DUE:	6:00 p.m., August 11, 2014
REVIEW COMMENTS DUE:	6:00 PM, August 25, 2014
HEARING DATE:	Type II – Not applicable
HEARING BODY:	XX **Staff Review;** _____PC; _____CC
FILE # & TYPE:	SP 14-01: Site Plan and Design Review for a 121-unit Apartments and 62 Live-Work Units on 9.7 acres (Zoned MUC-1) – East side of Beavercreek Road
PLANNER:	Pete Walter, AICP, Planner (503) 496-1568
PROJECT WEBSITE:	http://www.orcity.org/planning/landusecase/sp-14-01-beavercreek-road-apartments-live-work-units
APPLICANT:	Beavercreek Road, LLC, Attn: Andrew Brand
LOCATION:	19896 Beavercreek Rd, Oregon City OR 97045 (See Vicinity Map on Public Notice) Clackamas County Map 3-2E-10C Tax Lot 800

This application material is referred to you for your information, study and official comments. If hard copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and ensure prompt consideration of your recommendations.

Please check the appropriate spaces below. Attach additional pages if needed.

_____ The proposal does not conflict with our interests.

_____ The proposal conflicts with our interests for the reasons stated below.

_____ The proposal would not conflict our interests if the changes noted below are included.

_____

_____

_____

Signed_____

Title_____

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

Mr. Pete Walter, Planner
City of Oregon City Community Development
221 Molalla Avenue, Suite 200
Oregon City, OR 97045

August 11, 2014

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RE: SP 14-01: Site Plan and Design Review for a 121 unit Apartments and 62 Live-Work Units on 9.7 acres (Zoned MUC-1) Beavercreek and Meyers Roads

Testimony and Comments from: Christine Kosinski, Unincorporated County, Holly Lane

After studying the above land use application, SP 14-01, I cannot support this plan in going forward.

I feel I do not only speak for myself, but also for the more than 500 plus residents of the Holly neighborhood who have filled your Planning Commission and City Commission chanbers on several occasions with these same comments and concerns that I am giving you below:

Oregon City Planning Commission meeting of April 8th, 2013 (attached). My testimony made clear the fact that Holly Lane is a very fragile corridor filled with numerous Landslides, that at any time have the ability to re-activate. I also made the City aware that any attempts, by the City, to widen Holly Ln could cause these landslides to re-activate. I warned the City that these people are unable to obtain "Insurance that will cover losses due to Landslides". I asked the City if they were willing to take on this large risk. In the past two years, on more than six occasions, I have explained to the City Commission that my testimonies have made them aware of the terrible Landslide risks on Holly Lane and I then asked the City if they were willing to cover any and all landslides that may occur on Holly Ln due to excavation and/or grading that the City would undertake to widen the street. I never received an answer from the City, however they have been fully informed of the disastrous risks they would take on if they are ever to consider any roadway changes to Holly Ln.

Oregon City Commission Meeting of May 15th, 2013 (attached). My testimony made clear the fact that both the 6,500 residents of the Hamlet of Beavercreek (much of Holly lies in the Hamlet boundaries) and the more than 500 plus residents of the Holly Ln neighborhood were not contacted by the City regarding their intentions to include Holly Lane, and it's extensions, into Oregon City's TSP upgrade. I pointed to the thousands of "trips per day" that the City had planned to put onto Holly Ln as a result of the build out of the Park Park and Beavercreek Rd Concept Plans. On page 2, last paragraph of my testimony, I point out to the City that about 3/4ths of the TSP upgrades are affecting Holly Ln, that it is evident Beavercreek and Hwy 213 are failing and that the City is now planning to divert traffic away from these overcrowded arterials and put the traffic inland into residential areas filled with citizens, children and families.

Oregon City Commission Meeting of June 19th, 2013 (attached). My testimony here makes it clear to the City, that the good people of Holly Lane, are pleading with Oregon City to remove Holly Lane from their TSP upgrade, and why. The concerns for these homeowners to take on "personal liability" should the City try to upgrade this road, the Landslides and the fact that these citizens cannot obtain "insurance to cover losses due to landslides".

I refer you to the upgrade of the Oregon City TSP (D48, D57, D58, D59), where the intentions of the City couldn't be more clear, that the City is planning to extend Holly Lane from Henrici Road, across Maplelane, down Holly, across Redland Rd, then extending the street up to connect with Holcomb Road. This would virtually make Holly Ln several miles long, it would make it a major thoroughfare

where thousands of drivers each day would be forced to use this route due to clogged and failing arterial roads within the City which motorists presently use. The City seems all to willing to virtually sacrifice the safety and livability of the more than 500 people that presently live in the Holly Lane community. The City seems willing to "turn a blind eye" to the dangerous landslides which riddle Holly Ln, and the city continues to "turn a blind eye" to the fact that they knowingly understand these residents are unable to obtain "insurance to cover losses due to landslides", and the City still is willing not to listen to the pleas of these people and continues on a path to literally use these people as sacrifices for their own cause.

I therefore state NO, I do not in any way support the proposed development on Beavercreek and Meyers Road due to the fact, that in the next phase of development, the City will begin to build out the Holly Lane extension which myself and all my neighbors on Holly Lane stand firmly against.

Oregon City Planning Commission
April 8th, 2013 meeting

RE: L 13-01, Oregon City Transportation Plan

2014 AUG 11 PM 1:16
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Testimony of: Christine Kosinski, Unincorporated Clackamas County, Hamlet of Beavercreek

Over the past several weeks I have given you compelling reasons to deny the proposed changes to the City's TSP and I have more for you tonight.

Remember a few weeks ago I spoke to you about Scott Burns, Professor of Geology, PSU. I am providing you with a copy of e-mail he sent to me in 2007 regarding the failure of the Thayer Rd Landslide, a Landslide that cannot be mitigated.

Next, is a copy of an Oregonian article of April 6th, 2013, "Couple sues over sinking home" claiming a reactivated landslide is harming their former Street of Dreams home. I have highlighted important facts in this article. The home was built in 2006, now 7 years later the home is sinking and legal action is being taken. This area is known to have locally perched shallow groundwater that can cause erosion and slope instability. The owners state they were not told the land was unstable, they claim excavation disturbed a natural spring (Holly Ln is filled with natural springs). Lastly, the owners state they were not told by the builder about landslide studies performed. ORS 105.462 to 105.490, in the State Property Disclosure law is the question "Is the property in a designated slide or other geologic zone"?

I question then who in their right mind would buy a home in Park Place where Landslides pose a huge threat and why is the City proposing to extend Holly Ln to Holcomb when they can't sell any homes here? Does the City propose to tell new property owners in Park Place they are moving into a Landslide area and that Insurance will cover NO losses? If no, then the City will risk this same type of litigation.

I refer you to the Landslide Map I have given you. The first "pink marker" is the Newell Creek Apartment Landslide, the second "pink marker" is a home on Holly Ln that is 220 feet away from a huge deep seated ancient landslide. If Holly Ln is widened here to 120 feet, this slide can be disturbed and reactivated, if so, the slide will not only block Holly, but will come down on Hwy 213 as well. The third "pink marker" marks a home that is 329 feet from Holly and was totally destroyed in 1996. A new home was built on a new site, but again widening Holly here could very well reactivate this deep seated ancient landslide. The final "green marker" indicates Country Village, where landslides took out several homes and further development was halted. I can give you more examples of the risk you are taking in attempting to widen Holly. Remember, the people of Holly Lane ***CANNOT BE INSURED FOR LANDSLIDES***. If any of their properties slide in the years ahead, as a result of your attempts to widen Holly Ln, unfortunately they will be forced to look to the city to recover their losses. Are you willing to take on this large risk?

A resident of Holly Ln did come to City Staff with an alternate plan for a new north/south connector, this route would have opened many opportunities for the City to expand it's Commercial/Industrial base. City staff turned the plan down saying the proposed roadway was outside the UGB.....well you know what.....Holly Lane is also outside the UGB???

SUSCEPTIBILITY MAPS – DOGAMI will release the maps in May. At this time I am requesting that Oregon City "Keep This Hearing Open" for these maps. DOGAMI is working quickly to make the maps available for you. Oregon City simply cannot make any decisions on their TSP without this important new information, information which may well show Holly Ln as a seriously hazardous area. I'm sure you have technical questions about the maps. Professor Bill Burns of DOGAMI stated he would be happy to help the City and Commissioners with any questions or concerns regarding the susceptibility maps and the landslide issues that surround Holly Lane. Just call DOGAMI and ask to speak with Bill Burns, their phone number is (971) 673-1555.

The two biggest threats for Holly Lane are Landslides & Safety for the people. Without a doubt, the City is unable to meet the requirements of Goal 7 "To reduce risk to people and property from natural hazards". The City continues to develop in the Holly Ln area and is simply shoving heavy traffic down Holly Lane, however the City has been, and continues to be irresponsible. The City has been warned many times that speeding and heavy traffic is jeopardizing the lives of the people living on Holly Lane. Yet the City proposes a roundabout at Holly and Maplelane with NO improvements to the rest of Holly. I want you to realize that if anyone is seriously injured on Holly, they may well take recourse upon the city. I know myself I have openly talked to the City about the decaying safety conditions on Holly due to the City's ramped up development, all without regard for the people's safety.

I wrote an article a couple of years ago about traffic, Holly Lane and the Park Place Plan, the article was titled "Empty Promises and Broken Dreams." That is exactly the hand that Oregon City has dealt to the people of Holly Lane. The Planning Commission has the ability to deny this insane transportation plan where Holly Lane continues to be victimized by this City. Who will stand up and provide Safety for these people? Do you have the courage to send this plan back to committee, where a member of the Hamlet or of Holly Ln can be appointed to the panel to represent the needs of these people?

In ending, I request that this hearing be left open until the Susceptibility Maps from DOGAMI are received and thorougly reviewed by both the City, DOGAMI and the people of Holly Lane. Furthermore I request that the hearing be left open until a complete Geological Review and Study is performed for the entire length of Holly Lane and proposed extension of Holly to Holcomb.

Remember, in 1993 the City did not listen to Professor Scott Burns and his students when they stated "do not build in Newell Canyon", the city built and the buildings fell. You don't want to make this same mistake again.

So what will it be, will you support and protect the safety of the people of Holly Lane, or will you simply give us more "Empty Promises and Broken Dreams"?

Oregon City Commission
Meeting of May 15th, 2013

RE: PC 13-047 Transportation System Plan Update

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Testimony of: Christine Kosinski, Hamlet of Beavercreek, Unincorporated Clackamas County

I am here to represent the concerns of The Hamlet of Beavercreek (HOB) and the people of Holly Lane regarding your intentions to include Holly Lane, and its extensions, into your TSP upgrade.

At the March 11th Planning Commission meeting I did bring forth concerns that the City has placed Holly Ln in its TSP, but never did ask the hundreds of citizens of Holly Ln nor the 6500 people residing in the HOB to be part of the planning process. I further stated that the people of Holly Lane, outside the UGB had never received any notices from the City regarding their intentions to include Holly in their TSP. John Lewis and Laura Terway felt that the Hamlet had been invited as a stakeholder, but proof of this was not available at the time.

John Lewis did ask Laura to send a notice of meeting dates and times to the people of Holly Lane, outside of UGB, these notices were received by most on March 20th. These citizens continue to be upset because the City did not reach out and ask a member from the HOB or a citizen of Holly Ln to sit on the city's Transportation Committee to represent their concerns. They feel the City wants their street, but has excluded each of them in every part of the planning process Yes, I have heard explanations that the City met it's legal obligations in posting notices in various places, however I feel you were morally and ethically bound to include the 600 plus people of Holly Ln in these important planning decisions, but you chose not to which is a failure to meet the requirements of Goal 1.

The idea to extend Holly Lane to Henrici on the South and to Holcomb on the North, came out of the Park Place Concept Plan. It was explained to the community that a Concept Plan is like a dream, if you could dream what would you like your neighborhood to look like. After many community and city meetings, it became clear that transportation and the need for roads was one of the biggest challenges for this plan due to the difficult topography of this area.

As the planning process continued, it was very evident there were no good, stable areas for roads within the concept plan, however the City had to meet ODOT, Metro and State requirements to gain approval for the plan, therefore the Holly Ln extension to Holcomb and the Swan Rd extension were put into the plan. Again, this was all a big dream and there was no clear evidence that either of these roads could even be built. Additionally, neither Holly nor Swan were studied or reviewed as possible roadways in the Preliminary Geological Study, therefore the City was ignorant whether it was even possible to build either of these two proposed roads, but remember, these roads are just One Big Dream!

I want to point out that during the Concept Planning period, Kittleson and Associates stated to the City that the Park Place Plan would generate from 16,000 to 20,000 ADT"s per day with many of these vehicles using Holly for North/South travel. The Beavercreek Rd Concept Plan was to generate about 13,000 residential ADT's and 33,000 commercial ADT's per day, with many motorists choosing to use Holly.

In studying your current TSP update, you are now forecasting many, many more trips than those which you originally proposed to both the people of Holly Ln and to the HOB. I note you are planning to extend several more streets across Beavercreek Road and connect them into Holly. This traffic could virtually put 50,000 vehicles and more per day down Holly Ln, a street where most homes sit very close to the road. You are planning to build more than a Sunnyside Road and more than a Harmony Road, you are planning to build a Freeway through a residential neighborhood that sits in a corridor of huge landslides and unstable soils.

Oregon City has been developing far too much residential without the proper Infrastructure necessary to support this large development. Many citizens have been telling you this for years, you did not listen and now the birds have come home to roost. There simply are not enough roads in this City to support this high amount of development, and now you are asking the people of Holly Lane, and the other few County roads to pull you out of a pickle.

In studying your TSP it is evident that about 3/4ths of your upgrades are affecting Holly Lane, and it is further evident that Beavercreek and Hwy 213 are failing and that you now are planning to divert traffic away from these overcrowded arteries and into smaller interior roads where you are placing people, children and families in harm's way. You have conveniently planned to pull traffic away from Beavercreek, placing it through the Beavercreek Concept Plan and up into Thayer and Maplelane, virtually parelling Beavercreek Road. The same holds true for Holly Ln, Hwy 213 is failing so Holly will be used as a dumping ground for the thousands of vehicles that cannot fit onto the arterial grid. It is sad that you are willing to sacrifice the safety of the people, who don't even live in your city, because you have over developed without the proper infrastructure.

It was not fair for you to tell this community to Dream and then hand them a Nightmare!

City Commission Meeting June 19, 2013

RE Plan File L 13-01 & L 13-02
Oregon City Transportation System Plan Update

Testimony of: Christine Kosinski, Unincorporated Clackamas County
Hamlet of Beavercreek

2014 AUG 11 PM 1:47

I have come before you for more than 8 years, in this time, you have come to understand much about Holly Lane, it's dangers, landslides, and you've certainly heard alot about heavy, speeding traffic and unsafe conditions that exist on our street.

While it is true that after 8 years I can bring more concerns to you, I think it is important for you to know about the good people who live on Holly Lane. These are the same citizens who just a few weeks ago almost filled this room to speak to your Planning Commissioners about their concerns and fears, and just what it is like to live on Holly Lane, where speeding traffic prevails.

The people of Holly Ln are just the best, good, caring, hardworking and honest people. One of our people lived here as a small boy. It was his dream to retire here one day, and yes, he is back with his family, very happy to be back on Holly, we have a family living in an original Holly Ln home built by their Grandfather many years ago. We can count on our neighbor across the street, who every Fall brings us the most beautiful Tomatoes in all colors of the rainbow and the most succulent, sweet Corn you have ever tasted. Another neighbor, now in his 90's, lives in his original Holly Ln home, a home that slid almost down to Hwy 213 in the 1950's landslides, with the help of family and friends, the home was lifted onto rollers, where day by day the home was slowly rolled back up to Holly to a new homesite.

Then our neighbors beyond the curve, who have suffered emotional toil and thousands upon thousands of dollars in property losses due to the slides of 1996. They did not abandon Holly, they rebuilt and plan to stay here for a long time.

These good people are asking Oregon City to remove Holly Lane from their TSP Upgrade.
Holly Lane serves this City no purpose. We have well outlined the fact that this is an area comprised of Stream Sediments which cannot bear the heavy weight of development or the pounding of heavy traffic. This street has suffered landslides in the 1950's, 1970's, in 1995, 1996 and 1997. It is only a matter of time before the earth slides violently again. Heavy grading or widening of the street will only exacerbate the re-activation of these slides.

Removing Holly Ln means you can satisfy all demands and quell the fears of these people. This short 1 1/2 mile stretch of a narrow road can't possibly take the amount of added ADT's that you are planning for it. You are looking for a miracle where none exists.

Please, these caring and good people are pleading with you to give them back their neighborhood and let them finally have some peace in their lives. Please remove Holly Ln from your TSP.

Recieved by Email 10/31/14
- PJW

TO: Pete Walter, Planner, Oregon City

FROM: Elizabeth Graser-Lindsey, 21341 S. Ferguson Rd., Beavercreek, OR 97004

DATE: October 31, 2014

SUBJECT: Land Use Application SP 14-01 (Beavercreek Rd.)

This development cannot go ahead in the absence of proper planning for infrastructure as required by regional and city law. (See previous letter). Because the application is being considered without the proper planning document including the concept plan, the infrastructure is being considered piecemeal despite the fact that the project is in and part of the Beavercreek Road Concept Planning area. The concept plan area needs transportation, sewage and water sufficient for the entire concept plan. The applicant and city need to address the overall infrastructure needs of the concept plan area, not bring in piecemeal infrastructure that ignores the overall needs of the area.

Transportation. Beavercreek Rd. needs to be sized so that the entire concept plan transportation load can be accommodated, not hemmed in by buildings right on the right-of-way that prevent predictable needed ~~with~~ width of Beavercreek Rd. and which encroach into the roadway currently used as bikeway/pedestrian way and emergency shoulder. In addition, the traffic count tubes that were recently (within a couple weeks) installed adjacent to this property were not properly placed across the bicycle lanes to get complete traffic counts. This development would harm and degrade the transportation infrastructure used by current Oregon City residents in violation of City Code (this evidence is part of the concept plan appeal, which resulted in a remand, which was previously submitted in response to this development).

Water. The water service to the concept plan areas needs to accommodate the entire concept plan area. Having this property asking for special service from CRW does not solve the overall problem, but actually makes it worse by this development not helping to pay for the pipes needed to serve the entire concept plan area. That the CRW acknowledges (8-22-14) the developer's request is not an agreement to provide water and does not meet the current need to show water service can be provided. The city is to be the water provider to this city property and the rest of the city development in this area. The City is unable to provide the necessary volume of water without building out its water system (to provide storage and pressure) and apparently there aren't the resources including finances to do so. There is no evidence that CRW is able to continue to serve piecemeal development in the Beavercreek Rd. concept plan area and this piecemeal approach was to be avoided by concept planning.

This request also potentially could compromises the ability of CRW to serve its core rate payers and others within its district that haven't yet built out. For example, climate change is reducing the summer flows of this district with little water storage capacity and drought in California could cause an increased demand for irrigated food produce/vegetable production from properties in the CRW district. Because the district is likely to have first choice of its district water, this development could be left without adequate water in a droughty year.

Sewage. The approach to sewage is piecemeal as well. As consultants Keller (9-9-14) and Brown and Caldwell (cited by Keller) acknowledge, "the best long-term approach for servicing the entire Beavercreek service area appears to be a new sewer trunkline along S. Beavercreek Rd. This service approach ultimately directs available capacity in the Glen Oak Road Sewer and the downstream pipeline in Hwy 213 for undeveloped areas adjacent to these pipelines, while providing for build-out of both the Beavercreek and Glen Oak service areas." Using current lines while

possible apparently puts the lines very near total capacity as it is recommended that ~~he man of bolted down, sealed man hole covers.~~ "that the manhole covers be bolted and sealed down." Besides being an obvious public health and safety risk, this use of the sewage line so near its total capacity both would hinder Oregon City from handling ordinary development in the area (including Oregon City urban reserves in the vicinity) and it would interfere with the real need for the new sewer trunkline being implemented, with this development paying its fair share, so the whole concept plan area can be served properly as was promised to the public.

The development application is not timely with the sewage master plan at the time of submittal.

Public Services. The fire department serving the Hamlet of Beavercreek and surroundings reports that 52.35% of responses in Beavercreek served by the Beavercreek station take longer than 6:24 minutes. This apparently puts many calls over the service standard. 10% of the calls are served by the Oregon City Hilltop station which has a (4 minute longer) response time of over 10 minutes. (See accompanying email). Beavercreek Rd. is already bogged down by the high school speed zone and it has been called a cul du sac because it is the only way in and out of Beavercreek. Any further bogging down of Beavercreek Rd. by on-street parking on this arterial and more cross traffic will further slow medical and fire responses and can cost people their lives.

There has been no evidence that the police can service this area adequately. In the past (around the time the remanded concept plan was under consideration), the police said that they could not even serve the area with decent response times when it wasn't developed; the degree to which this situation has been corrected has not been clarified as is needed.

Miscellaneous: The file is not complete in that the service district responses do not document the availability of water and sewage; however, the public comment period ends before the documents appear. The public is not being allowed to respond to a complete application.

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

REVISED LAND USE APPLICATION TRANSMITTAL (New Application Material)

October 17, 2014

CITY STAFF DISTRIBUTION	*MAIL-OUT DISTRIBUTION*
❑ BUILDING OFFICIAL ✓	❑ NEIGHBORHOOD ASSOCIATION _Caufield ✓
❑ DEVELOPMENT SERVICES MANAGER ✓	❑ NATURAL RESOURCES COMM. (NRC)
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❑ CITY ENGINEER ✓	❑ CLACKAMAS FIRE DISTRICT #1 ✓
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TRAFFIC ENGINEER	❑ DLCD
❑ REPLINGER AND ASSOCIATES ✓	❑ CITY ATTORNEY ✓
	❑ OTHER: _____
Mailed Notice to County CPO's	
❑ Central Pt-New Era-Leland / Holcomb-Outlook/Beavercreek ✓	
Mailed Notice	
❑ Within 300' ✓	

COMMENTS DUE:	5:00 p.m., October 31, 2014
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Please check the appropriate spaces below. Attach additional pages if needed.

_____ The proposal does not conflict with our interests.

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_____ The proposal would not conflict our interests if the changes noted below are included.

_____

_____

_____

Signed_____

Title_____

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

The Hamlet of
BEAVERCREEK
PO BOX 587 · BEAVERCREEK · OREGON · 97004

2014 OCT 31 PM 3:37
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CITY OF OREGON CITY

Mr. Pete Walter, Planner
City of Oregon City Community Development
221 Molalla Avenue, Suite 200
Oregon City, OR 97045

October 31, 2014

RE: Notice of Limited Land Use Application (Second Notice) October 17, 2014
SP 14-01: Site Plan and Design Review for a 121-unit Apartments
and 62 Live-Work Units on 9.7 acres (Zoned MUC-1)
East side of Beavercreek Road

Comments from The Hamlet of Beavercreek (due October 31st, 2014) regarding the subject proposed Site Plan and Design Review for property located at 19896 Beavercreek Road are listed below.

As previously stated in our letter of August 11th, 2014, The Hamlet of Beavercreek did not receive the First Notice of this land use application from Oregon City. Because land use notification from Oregon City to The Hamlet of Beavercreek has continued to be an outstanding issue, we contacted your Planning Department with our concerns and were told that your e-mail notification system needed to be updated. Therefore, we gave you our e-mail contact information and look forward to receiving all future land use applications.

The Hamlet of Beavercreek is in receipt of your Second Notice of October 17th, 2014, and after reviewing both the new documents and studies outlining your plan for development, The Hamlet of Beavercreek finds, that once again, they do not support this Land Use application for the following reasons.

1) The Hamlet of Beavercreek requests that the City provide an **additional comment period**. It is not fair of the City to impose a deadline period for comments when its plan for development is incomplete and may lack the necessary compliance to meet State regulatory requirements for development.

2) Oregon's Statewide Planning Goal 1 *Citizen Involvement* – to meet the requirements of Goal 1, citizens are to be involved in "all phases" of the planning process, which has not happened in this plan for development. Much of the Planning by the City had already taken place without citizen involvement, prior to Notice 1 or Notice 2 being sent out. With the mailing of each Notice, citizens and CPO's were given only two weeks to Comment. In the case of Notice 2, which was e-mailed on October 17th, the deadline for comments is October 31st, and yet there are still significant issues to be resolved, such as the ability to provide water and sewer services. Once the City and the developer are able to finalize all outstanding needs and infrastructure, it is only appropriate that the City provide another comment period to allow the citizens to participate in the final stages of planning

3) This proposed plan for development will bring a plethora of SAFETY issues for the 6,500 people living in the Beavercreek community. You are proposing to add sidewalks, bike lanes and parallel parking along Beavercreek Road. In addition, the future Bus barn (located on an extension of Meyers Road) will have buses both entering and exiting via Beavercreek Road and you are proposing a Tri-Met stop at Meyers Road as well. All of these will greatly diminish the current width of Beavercreek Road increasing queuing at the intersection as well as this entire section of Beavercreek Road. The response times for lifesaving services, such as Fire, Police and Ambulance will be greatly impacted, placing citizens in harm's way. **As an example: An accident occurred on Beavercreek & Glen Oak just last week, tying up traffic for more than two hours! If the Hilltop Fire Station would have been covering an emergency call for the Beavercreek Station, would they have made it down Beavercreek Road through this dense traffic and how poor would their response time have been? Did Oregon City even consider the impact that this proposed development will have upon the thousands of people living in the Beavercreek community?**

4) The current response time for the Beavercreek Fire station is 6.24 minutes. When the hilltop fire station must cover, and comes into Beavercreek, the response time is 10.18 minutes. Considering that a person cannot be deprived of oxygen for more than four minutes before suffering serious brain damage, the difference between 6.24 and 10.18 is already far too great. When factoring in the large amounts of added trips per day from this development, especially into the intersection of Beavercreek and Meyers Roads, it is evident that the response times will be much higher than the current 10.18 minutes if the hilltop station must respond to a call in the Beavercreek community.

5) Beavercreek Road is the sole north access for the people of Beavercreek. Your proposed plan for development at Beavercreek & Meyers will create a bottleneck, hemming in Beavercreek Road with no ability to widen for future development. Parking along the arterial will further reduce traffic flow already restricted by the high school speed zone and high traffic volumes.

6) The Average Daily Trip count is seriously understated. Based on your **810 trips per day-** , this calculates out to only **4.43 trips per day from each residence;** however, the City is charging monthly road maintenance fees at a much higher rate (which does not compute). Have you accounted for the extra trips to and from the Live/Work units? The hundreds, if not thousands of trips, to and from retail and commercial outlets have not been included. Have you accounted for the ADT's per day from and to the Bus Barn, including employee trips? Have you accounted for the ADT's per day, coming into the Beavercreek/Meyers Intersection, from the newly approved, Linn-Leland-Meyers Corridor? And lastly, what about the ADT's that will come into the Beavercreek & Meyers Rd area from an Enterprise Zone, if awarded to Oregon City?

7) There has been inadequate general planning, as well as a lack of funding and concurrency for this proposed development, due to NO concept plan.

8) The City should Master Plan this proposed development at Beavercreek & Meyers Roads. Although the parcel measures 9.7 acres (which barely fails to meet the 10 acre threshold), when you consider that the City is also planning for the 8 acre Bus Barn and Maintenance Facility in this same area, both of these projects together exceed the 10 acre or more threshold. A Master Plan incorporates the entire area where development is planned in the next five to twenty years. The Plan assures that sufficient Infrastructure is identified and planned for, such as Sewer, Water, adequate transportation, financing, just to name a few. To develop this parcel, without a Master Plan, would indicate a serious lack of proper planning by the City resulting in even more serious livability and safety issues.

9) It appears that delivering water remains an outstanding issue. The city reservoirs are too low to serve the area and an IGA will be needed if CRW is to service the area. Additionally, there were initial concerns that a Sewer hook-up at Glen Oak would not be adequate to service the proposed development, but now it seems that Glen Oak is being reconsidered, even though the best solution for adequately serving the area could possibly be to utilize a separate new line placed down Beavercreek Road.

10) The City has not identified stable financing for a Sewer and Water plan to service the needs of this entire area, to include all townhouses, live-work units, high school, new bus facility, in-fill and other development in the area. It would be shameful to think that the City expects its ratepayers to cover the costs for the new Sewer Master Plan. The people have already had a recent raise in Sewer rates, with another to follow next year and a possible bond measure to finance the balance. As a reminder to the City, this comes to your people at a time when they are struggling to put food on their tables, gas in their cars, and clothes on their backs. Please consider the taxation and fees you are placing upon your people during these difficult times.

11) This project should not go forward because this proposal for development requires a valid concept plan according to LUBA's Final Opinion and Order, LUBA Case 2007-171. When this 9.7 acres was annexed into Oregon City, LUBA stated that annexation could go forward, but with the understanding that the concept plan would proceed urbanization

12) We question, why now is the City attempting to develop these 9.7 acres outside of the concept plan and contradictory to LUBA's Final Opinion?

The outstanding problems noted above, the lack of citizen participation, the need to do a Master Plan to identify, and provide for, the necessary infrastructure needed to support the large amounts of development being proposed in the Beavercreek Road area, the lack of providing SAFETY for the people of The Hamlet of Beavercreek, what about those response times for emergency vehicles, did you make SAFETY a priority since your plan could virtually "almost close down" Beavercreek Road as an easy access into and out of The Hamlet of Beavercreek.

Did anyone consider inviting the Hamlet of Beavercreek to be a partner in the planning of this development that will have great effects upon their everyday lives? There has been inadequate general planning, a lack of funding, lack of proper transportation plan, no concurrency, incorrect ADT's in the traffic plan and there remains the question of who will be able to deliver water and sewer services to these 121 Apartments and 62 Live-Work units?

It is the concern and fear of the citizens of The Hamlet of Beavercreek that the City of Oregon City will turn Beavercreek Road into a future Sunnyside Road. As a result, Clackamas County spent in the last decade, millions upon millions of dollars resolving poorly planned growth by the City of Happy Valley and Clackamas County. Clackamas County does not and will not have the funds to fix another Sunnyside Road. Therefore, it is the responsibility of Cities and the County to assure appropriate and effective planning and concurrency.

And if these are not enough reasons to say "NO" to this development, then why is the City attempting to develop these 9.7 acres, outside of the concept plan which is contradictory to LUBA's Final Opinion?

Sincerely,

Christine Kosinski

Christine Kosinski
Corresponding Secretary
The Hamlet of Beavercreek
Cor.Sec@Beavercreek.org
503-656-1029

CC: Clackamas County Board of County Commissioners
John Ludlow, Chair
Martha Schrader, Vice Chair
Commissioner Jim Bernard
Commissioner Paul Savas
Commissioner Tootie Smith

Mike McCallister, Director of Planning, Clackamas County
Rick Nys, Senior Traffic Engineer, Clackamas County
Mike Bezner, Transportation Engineering Manager, Clackamas County
Ken Kent, Senior Planner, Land Use Review Coordinator, Clackamas County
Barbara Smolak, Public and Government Affairs, Clackamas County
Betty Johnson, Engineering Associate, Clackamas River Water
Bob George, PE, Chief Engineer, Clackamas River Water

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

REVISED LAND USE APPLICATION TRANSMITTAL (New Application Material)

October 17, 2014

CITY STAFF DISTRIBUTION	*MAIL-OUT DISTRIBUTION*
❑ BUILDING OFFICIAL ✓	❑ NEIGHBORHOOD ASSOCIATION _Caufield ✓
❑ DEVELOPMENT SERVICES MANAGER ✓	❑ NATURAL RESOURCES COMM. (NRC)
❑ PUBLIC WORKS- OPERATIONS ✓	❑ CLACKAMAS COUNTY TRANSP. & PLANNING ✓
❑ CITY ENGINEER ✓	❑ CLACKAMAS FIRE DISTRICT #1 ✓
❑ PUBLIC WORKS DIRECTOR ✓	❑ ODOT – Division Review ✓
❑ TECHNICAL SERVICES (GIS) ✓	❑ OREGON CITY SCHOOL DISTRICT ✓
❑ PARKS MANAGER ✓	❑ TRI-MET ✓
❑ ADDRESSING	❑ METRO ✓
❑ POLICE ✓	❑ OREGON CITY POSTMASTER
TRAFFIC ENGINEER	❑ DLCD
❑ REPLINGER AND ASSOCIATES ✓	❑ CITY ATTORNEY ✓
	❑ OTHER: _____
Mailed Notice to County CPO's	
❑ Central Pt-New Era-Leland / Holcomb-Outlook/Beavercreek ✓	
Mailed Notice	
❑ Within 300' ✓	

COMMENTS DUE:	5:00 p.m., October 31, 2014
HEARING DATE:	Type II – Not applicable
HEARING BODY:	_XX_ **Staff Review;** _____PC; _____CC
FILE # & TYPE:	SP 14-01: Site Plan and Design Review for a 121-unit Apartments and 62 Live-Work Units on 9.7 acres (Zoned MUC-1) – East side of Beavercreek Road
PLANNER:	Pete Walter, AICP, Planner (503) 496-1568
PROJECT WEBSITE:	http://www.orcity.org/planning/landusecase/sp-14-01-beavercreek-road-apartments-live-work-units
APPLICANT:	Beavercreek Road, LLC, Attn: Andrew Brand
LOCATION:	19896 Beavercreek Rd, Oregon City OR 97045 (See Vicinity Map on Public Notice) Clackamas County Map 3-2E-10C Tax Lot 800

This application material is referred to you for your information, study and official comments. If hard copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and ensure prompt consideration of your recommendations.

Please check the appropriate spaces below. Attach additional pages if needed.

_____ The proposal does not conflict with our interests.

_____ The proposal conflicts with our interests for the reasons stated below.

_____ The proposal would not conflict our interests if the changes noted below are included.

_____

_____

_____

Signed_____

Title_____

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

Mr. Pete Walter, Planner
City of Oregon City Community Development
221 Molalla Avenue, Suite 200
Oregon City, OR 97045

October 31, 2014

2014 OCT 31 PM 3:37
RECEIVED

RE: SP 14-01: Site Plan and Design Review for a 121 unit Apartments and 62 Live-work Units on property of 9.7 acres (Zoned MUC-1) Beavercreek and Meyers Roads

Testimony/Comments from: Christine Kosinski, Unincorporated Clackamas County, Holly Lane

After receiving the Second Notice for the above proposed development, and reviewing the documents and information the City has provided on its website, I cannot in good conscience, support this plan for development for the following reasons:

1) The transportation plan for this proposed development is poorly planned and severely underfunded. To propose development of 121-3 story apartments and 62 live-work units without the proper infrastructure to support the large amount of development being planned for this part of Beavercreek Road, is simply irresponsible. In Oregon City's latest TSP, Beavercreek Road is shown with an ROW width of 94', however, considering that the city is proposing to add sidewalks, bike lanes and parallel parking on Beavercreek, all of these additions will grossly narrow the road which is already inundated with traffic.

2) The addition of a new Bus Barn and Maintenance Facility in the same area must be considered as hundreds of bus trips per day will enter and exit Beavercreek Rd. The City has recently approved the Linn-Leland-Meyers Corridor which will bring much traffic into the Beavercreek/Meyers Intersection and now add the fact that the City is proposing a Tri-Met bus stop at Meyers Road. All of these hundreds and hundreds of additional ADT's per day into this intersection will surely be enough to cause it to fail. Since Beavercreek Road is the one and only thoroughfare serving a huge population base, it is extremely important that measures be taken to insure that this major intersection remains clear and open. Beavercreek Road serves more than 6500 people in the Beavercreek Community, it is their only way in and out of Beavercreek. The addition of the High School has already begun to create a bottleneck at the intersection. This proposed development will only add to an already looming problem.

3) Safety for the people is being sacrificed because the infrastructure necessary to support the heavy development, which the City is planning for this area, is not being funded and is not being proposed as part of this development. Because Beavercreek Road is the only Major Arterial in this area, the clogging up of the road and the intersection will slow response times for emergency vehicles trying to get aid to the people. It is wrong for the City to plan any development that will jeopardize the people in any way. By narrowing and placing dense traffic into this corridor, Safety will be a major issue for those motorists coming in from the Beavercreek area.

4) In the planning documents, the City states, that college students living in the apartments, can walk to the College by using the Bike-Ped lanes along Beavercreed Road. Nothing was stated about the danger these students would face, walking along a Major Arterial with thousands of cars bypassing them, often at high speeds. Safety in development must never be compromised.

5) There is a lack of funding for providing the necessary infrastructure to support the heavy development being proposed for this area. Development is, unfortunately, being approved by the City with NO ROADS being built to support the dense development being undertaken. This happens when "concurrency" is not part of planned development.

6) Since 2004, the lack of roads to support new development has been a hotly debated subject. Holly Lane is the only North/South connector between Beavercreek and Redland Roads. These people have literally begged Oregon City to build at least one to two more North/South connectors to support the dense development they were proposing, but all of their pleas simply fell on "deaf ears". The City has been derelict in it's duties to provide Safe and Livable communities because it has chosen to develop "On The Cheap", rather than to provide the roads which the people greatly need. Developing roads and necessary infrastructure are one of the major uses of Urban Renewal Funds and should be considered by the City.

7) Statewide Goal 1, requirements for Citizen Involvement, have not been met by the City for this development. Oregon City did not reach out to the people of Holly Ln, to partake in ANY planning for this development, even though the next phase of development in this area, will directly link traffic to Holly Lane, a small and windy country road filled with landslides. Oregon City also did not reach out to the Hamlet of Beavercreek (most of Holly Ln lies within the Hamlet boundaries). The Hamlet also will be greatly effected, especially by the denser traffic that this development will place upon Beavercreek Road, which is the only way in and out of the Beavercreek community. The City's own Caufield Neighborhood Assn was invited to a meeting at the College since their neighborhood will be effected by this development, and yet both Holly Ln and the Hamlet of Beavercreek were completely left out, leaving Oregon City out of compliance with Goal 1, which clearly states that citizens be involved in ALL Phases of Planning.

8) In the LUBA review, when this property was annexed into Oregon City, LUBA agreed that the annexation could proceed the Beavercreek concept plan, with the understanding that the concept plan would proceed urbanization. Therefore, why is the City proposing development on these 9.7 acres without the concept plan going first?

9) The Average Daily Trip count of 810 trips per day is vastly incorrect. Trip counts must be added for the new Bus Barn and Maintenance Facility, where buses will enter and exit Beavercreek Road on a daily basis, the trips coming in from the newly approved Linn-Leland-Meyers Road Corridor, trips from and to the Live-Work units have not been counted.

10) In my first letter to the City, of August 11th, 2014, I enclosed my testimonies to the City, dated April 8th, 2013, May 15th, 2013 and June 19th, 2013. These testimonies made it clear to the City that Holly Lane is a street riddled with dangerous Landslides. These Landslides have re-activated, and struck Holly Lane in the 1950's, 1970's, in 1995 and 1996, just to name a few of the years in which Landslides have devastated this long and windy street where hundreds of people reside. I also have testified on numerous occasions to the City, that the people of Holly Lane are unable to obtain "Difference In Conditions Insurance". This is the only type of Insurance that, in some instances, may cover some losses due to landslides. The problem is that almost all Insurance companies no longer offer this type of insurance and Landslide insurance is not available through the government. Oregon City does have Holly Lane in it's TSP as it continues to plan to use this North/South connector in a very heavy manner. Holly Ln residents have gone on record several times with the City, that performing any excavating and/or

widening of Holly Lane is close to impossible due to the fact that this heavy type of roadwork will probably cause one or more landslides to re-activate. We questioned the City, who will pay for these losses? The City is aware that the people are unable to obtain insurance to cover losses due to landslides, and yet, the City continues to plan for heavy traffic down this dangerous street. DOGAMI has stated that the Landslides lining Hwy 213 did not re-activate until the State put the road in. Since Holly Ln and Hwy 213 share the same Landslides, if the City tries to widen Holly, will the slides re-activate again? Is Oregon City ready for these monetary losses because surely you cannot ask the people to bear financial losses directly caused by the City's decisions and actions.

11) I can't even fathom the amount of traffic the City is considering to put onto Holly Lane, I did a little math recently, and just counting the homes in Walnut Grove, Crabtree Terrace, Thayer Estates, the new homes on Thayer, in-fill in this area, these alone account for close to 1000 residences. If they could access Holly Ln, this would add about 10,000 whopping trips per day down this narrow, slide ridden street where hundreds of driveways directly access Holly Ln. Doesn't seem like good planning to me.

12) The City has been heavily developing, both in the Maplelane/Holly Ln area and on the Hilltop, but the City has been ignorant to providing ROADS and the necessary infrastructure to support this large build-out.

I say NO to this proposed development, this Urbanization should not go forward due to poor planning, lack of funding, lack of infrastructure, lack of studies into the huge Landslide problems along Hwy 213 and Holly Lane, and lack of communication from the City to the residents of the Holly Lane neighborhood. Oregon City has been all to willing to keep Holly Lane in its TSP, but remains unwilling to recognize the many serious life threatening issues that exist here.

From: Mary Johnson
To: Pete Walter
Subject: File Number SP 14-01
Date: Tuesday, October 28, 2014 1:10:53 PM

Dear Mr. Walter,

I am under the impression that you are the appropriate contact person in the Planning Department for the Limited Land Use Application SP 14-01. If you are not, please forward this email to the appropriate officer.

I visited in the office recently to determine what kind of sewer plan was going to be decided for the Beavercreek Apartment project. I had previously discussed this with other members of your staff and was told that 1) there is no sewer line running down Beavercreek Road between Marjorie Lane and Glen Oak Road, 2) Marjorie Lane would be the closest terminus for receiving sewer outflow from the proposed development, 3) connecting to Meyers Road would not be possible because the High School is on a private sewer system, 4) connecting through to Emerson Court would require crossing private land and 5) adding more sewer outflow to Glen Oak Road would overwhelm the current system because the existing pipe is too small and it would require a pump station.

Apparently, the developers will not give up on this idea, and have now submitted additional engineering studies that support their plan to add 421 gpm from Beavercreek Areas 1 and 2 into the Glen Oak system. My concerns are as follows:

1. If estimated remaining capacity of the Glen Oak/Highway 213 "conveyance" system is only 225 gpm, how can developers plan to add 421 gpm to that system? This is my understanding from reading the submitted file. I may be incorrect in my assumption.
2. Is this the reason Keller and Associates recommend that the manholes in Glen Oak Road be bolted down and "sealed" so that we don't have raw sewage leaking onto the roadway? That does not seem to be a good idea.
3. Infiltration and Inflow west along Glen Oak Road between Connie Court and Highway 213 has been managed to date by a series of catchment ponds. Are there any plans for the developers to provide such infrastructure to reduce I/I east along the remaining sections of Glen Oak and presumably Beavercreek Road as well?
4. How will the developers access the Glen Oak system since, from the map I have, they do not appear to own the land directly east of Glen Oak Road?

Even the engineering firms realize that "**the best *long-term* approach for servicing the entire Beavercreek service area appears to be a new sewer trunkline along S. Beavercreek Road.**" I concur.

At this point in time,due to the constraints of the existing sewer system in the area, it does not seem to be cost-effective to the company or healthy for our local community to approve this project.

Mary Johnson
19921 Beavercreek Road
Oregon City, OR 97045

October 27, 2014

Oregon City Planning Division

File # SP 14-01 Site Plan & Review

We are writing in regards to the proposed development for 19896 Beavercreek Rd. We attended the Evergreen Development meeting last summer and want to reiterate our concerns from the information provided last August.

We live across the street from the proposed apartments and are quite concerned about the considerable increase in traffic that will arise from the 183 planned units. Obviously a left turn lane will be needed at Myers, but will Beavercreek also be widened to accommodate these 200-400 more cars? Using Maple Lane as an example, that turn lane is often backed up 10-15 cars obstructing thru traffic on Beavercreek, but the two lanes help alleviate the congestion.

Our other main concern is the live-work units and their proposal of units fronting Beavercreek with on street parking. Again, we do not see A) how Beavercreek will be wide enough to accommodate on street parking and/or B) how cars will safely be able to pull out onto Beavercreek at the current posted speeds (and also slight uphill grade causing a blind spot). Also, will cars be allowed to park on both sides of Beavercreek? How much traffic will also spill onto Meyers for scrapbooking parties or a fitness class (these were suggested uses made by developer at previous meeting).

An additional parking concern is even though the developers claim they'll provide a parking space for each bedroom in the complex, where will guests, (customers?) or 2 car couples living in a 1 bedroom unit park?? Our property backs to Meyers and we are worried we will have even less privacy and increased noise with all these extra cars and no available parking for them in their own complex.

A final concern is the ability of the city to provide adequate water pressure to all these new residences when our current water pressure is already quite low. Will our water pressure decrease even further?

While development is inevitable, it would be much more appealing if single family homes could be built on this site. If this mixed use development must be permitted, we would hope the City would see fit to significantly reduce the number of units allowed (by half?) and require more parking/garages with no on street parking outside of the development.

Thank you for considering our concerns.

Ron & Wendy Carter
15035 Emerson Ct
Oregon City OR 97045

2014 OCT 30 AM 9:01
RECEIVED
CITY OF OREGON CITY



Ron & Wendy Carter
[redacted]
Oregon City, OR 97045

PORTLAND OR 970
28 OCT 2014 PM 3 L



Oregon City Planning
221 Molalla Ave
Oregon City, OR
97045

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OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION TRANSMITTAL

July 24, 2014

CITY STAFF DISTRIBUTION	*MAIL-OUT DISTRIBUTION*
❑ BUILDING OFFICIAL ✓	❑ NEIGHBORHOOD ASSOCIATION _Caufield ✓
❑ DEVELOPMENT SERVICES MANAGER ✓	❑ NATURAL RESOURCES COMM. (NRC)
❑ PUBLIC WORKS- OPERATIONS ✓	❑ CLACKAMAS COUNTY TRANSP. & PLANNING ✓
❑ CITY ENGINEER ✓	❑ CLACKAMAS FIRE DISTRICT #1 ✓
❑ PUBLIC WORKS DIRECTOR ✓	❑ ODOT – Division Review ✓
❑ TECHNICAL SERVICES (GIS) ✓	❑ OREGON CITY SCHOOL DISTRICT ✓
❑ PARKS MANAGER ✓	❑ TRI-MET ✓
❑ ADDRESSING	❑ METRO ✓
❑ POLICE ✓	❑ OREGON CITY POSTMASTER
TRAFFIC ENGINEER	❑ DLCD
❑ REPLINGER AND ASSOCIATES ✓	❑ CITY ATTORNEY ✓
	❑ OTHER: _____
Mailed Notice to County CPO's	
❑ Central Pt-New Era-Leland / Holcomb-Outlook/Beavercreek ✓	
Mailed Notice	
❑ Within 300' ✓	

PUBLIC COMMENTS DUE:	6:00 p.m., August 11, 2014
REVIEW COMMENTS DUE:	6:00 PM, August 25, 2014
HEARING DATE:	Type II – Not applicable
HEARING BODY:	_XX__**Staff Review;** _____PC; _____CC
FILE # & TYPE:	SP 14-01: Site Plan and Design Review for a 121-unit Apartments and 62 Live-Work Units on 9.7 acres (Zoned MUC-1) – East side of Beavercreek Road
PLANNER:	Pete Walter, AICP, Planner (503) 496-1568
PROJECT WEBSITE:	http://www.orcity.org/planning/landusecase/sp-14-01-beavercreek-road-apartments-live-work-units
APPLICANT:	Beavercreek Road, LLC, Attn: Andrew Brand
LOCATION:	19896 Beavercreek Rd, Oregon City OR 97045 (See Vicinity Map on Public Notice) Clackamas County Map 3-2E-10C Tax Lot 800

This application material is referred to you for your information, study and official comments. If hard copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and ensure prompt consideration of your recommendations.

Please check the appropriate spaces below. Attach additional pages if needed.

_____ The proposal does not conflict with our interests.

_____ The proposal conflicts with our interests for the reasons stated below.

__X__ The proposal would not conflict our interests if the changes noted below are included.

See attached CRW comments

Signed Betty Lefton

Title Engineering associates

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

Clackamas River Water

Date:	August 22, 2014	**SENT VIA EMAIL**
To:	Pete Walter, Planner City of Oregon City	
From:	Betty Johnson, Engineering Associate Clackamas River Water	
Subject:	Land Use Application:	**File** #SP 14-01
Applicant:	Beavercreek Road, LLC Andrew Brand 600 University Street, Suite 1708 Seattle, WA 98101	
Site Address:	19896 Beavercreek Rd, Oregon City, OR 97045	
Legal Description:	32E10C 00800	

CRW Comments:

This property was withdrawn from the Clackamas River Water (CRW) service boundary and annexation completed in 2008 per Ordinance: 07-1021. The property is within the City's Beavercreek Concept planning area but due to low water pressure has elected not to allow City water service to the property. Beavercreek Road, LLC has contacted CRW inquiring if the District would be able to provide water service for the development. A preliminary hydraulic model indicates that the District's Beavercreek Pressure Zone has the capability to provide both volume and pressure.

The attached CRW letter to Evergreen Housing Development Group outlines the District's minimum requirements as summarized below:

- Per Section 9 of the CRW's Rules and Regulations *Service Outside District* the applicant must seek approval from the CRW Board of Commissioners to provide water service to this exterritorial development.
- Be prepared to comply with an Intergovernmental Agreement between the City and CRW, allowing the district to provide water to the property described and other requirements to be determined.
- Evergreen Housing Development shall sign a "Developer's Agreement" `with CRW.

- Evergreen Housing Development shall be responsible for all costs associated with the design and construction of a waterline and metering vault assembly including hydraulic modeling efforts by CRW, project review and inspection.
- The waterline, once constructed and accepted, will be donated to the City to maintain and operate.
- The master meter and vault assembly serving the development will be donated to CRW to maintain and operate.

On August 18, 2014, Beavercreek Road LLC provided a written request to CRW to provide water service to the referenced property (see attached letter). Based on this request CRW staff is preparing an agenda item for the CRW Board of Commissioners to consider providing water service to this exterritorial property.

CRW requests direction from the City to determine if CRW will be allowed to provide water service to the referenced property, with the understanding that agreements will meet both the City and CRW requirements.

For further information regarding these comments please contact Bob George, 503-722-9228.

Clackamas River Water

P.O. Box 2439
Clackamas, Oregon 97015-2439

(503) 722-9220
Fax (503) 656-7086

16770 SE 82nd Drive, Clackamas
customerservice@crwater.com

June 10, 2014

Andrew Brand
Evergreen Housing Development Group, LLC
600 University Street, Suite 1708
Seattle, WA 98101

Subject: Water Service for 19896 Beavercreek Rd. – REF: SP 14-01 / PA-13-24

Mr. Brand,

Based on documentation from Oregon City and Evergreen Housing Development Group, the current development plan has the site to be developed with 121 rental apartments and 62 live-work units. Due to low available water pressure the City has determined that the site cannot be served from the existing City's 16-inch water main (590HGL) that fronts the property. Multiple solutions utilizing the main have been offered by Evergreen Housing Development (Developer) to the City, but none have met the City requirements.

Per our conversations, you have shown an interest working with CRW in development of a water main from CRW's Beavercreek Pressure Zone to the development site. CRW's Beavercreek Pressure Zone (744HGL – high level) is located approximately 850 feet south of the site along Beavercreek Road. A review of the property indicates that it is within the City's limits and outside the Clackamas River Water (CRW) district's service boundary. Also our preliminary review indicates that pressure and volume from this pressure zone could meet the City's requirement.

For CRW to consider this option, you will be required as a minimum be prepared to comply to or complete the following items.

- Be prepared to comply with an Intergovernmental Agreement between the City and CRW, allowing the district to provide water to the property described and other requirements to be determined.
- The CRW Board will need to provide a Resolution allowing water to be provided exterritorialy.
- Evergreen Housing Development shall be responsible for all costs associated with the design and construction of a waterline and metering assembly sized to meter domestic water requirements. This would include hydraulic modeling efforts by CRW, project review and inspection.

- The waterline once constructed and accepted would be donated to the City to be maintained and operated.
- The master meter and vault assembly would be donated to CRW to be maintained and operated.
- Evergreen Housing Development shall sign a "Developer's Agreement "with CRW.

In conclusion, CRW is willing to work with Evergreen Housing Development on the development of a water system that would provide domestic water from the Beavercreek Pressure Zone to the referenced site. If you have any additional questions or comments please do not hesitate to call (503-722-9228).

Respectfully,

Robert C. George

Robert C. George, P.E.
District Engineering, Clackamas River Water

CC: CRW Chron file
Engineering files – Evergreen Housing (3-ring file)

Beavercreek Road LLC
600 University St, Suite 1708
Seattle, WA 98101
206-535-6348

August 18, 2014

Bob George
Clackamas River Water District
16770 SE 82nd Dr. #100
Clackamas, OR 97015

RE: Request for Water Service at 19896 Beavercreek Road, Oregon City, OR

Bob,

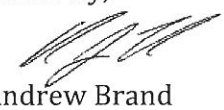
I am writing today as the representative for Beavercreek Road LLC, the owner of an approximately 11 acre parcel of land at 19896 Beavercreek Road in Oregon City and land use applicant to develop approximately 186 units of multi-family rental housing on this same site.

It has come to our attention that the City of Oregon City may have difficulty providing adequate water service to meet the needs of our proposed development both for residential domestic water and possibly for fire services. Before our parcel was annexed to Oregon City it was under the jurisdiction of CRW. As such, it still has an abandoned water line running to it from the CRW pump station on Beavercreek Road.

I am writing to formally ask for exterritorial water service from CRW to supply our project. I would appreciate having a formal decision from the CRW board as soon as possible stating CRW's willingness to provide water services to our project.

I appreciate your time on this matter. Please let me know if I can clarify any questions you may have about our proposed project or this request for exterritorial service.

Sincerely,



Andrew Brand
Authorized Representative
Beavercreek Road LLC
andrew@evergreenhd.com

Clackamas County Fire District #1
Fire Prevention Office

To: **Pete Walter, Oregon City Planning**

From: **Mike Boumann, Deputy Fire Marshal**, Clackamas County Fire District #1

Date: **11/10/2014**

Re: **180-Unit Apartment & Townhome Development, 19896 Beavercreek Road**

This review is based upon the current version of the Oregon Fire Code (OFC), as adopted by the Oregon State Fire Marshal's Office. The scope of review is typically limited to fire apparatus access and water supply, although the applicant must comply with all applicable OFC requirements. ***The following items should be addressed by the applicant and shown on the fire and life safety plans:***

FD Apparatus Access

1) Fire apparatus access roads shall be within 150 feet of all portions of the exterior wall of the first story of the building as measured by an approved route around the exterior of the building.
2) Per section D106.1 of the Oregon Fire Code, secondary access is required for projects having more than 100 dwelling units. It appears sprinklers are being planned for the apartments but please address this requirement as the design does not appear to meet the exception at this time.
3) Fire apparatus access roads shall have an unobstructed driving surface width of not less than 20 feet (26 feet adjacent to fire hydrants) and an unobstructed vertical clearance of not less than 13 feet 6 inches.
4) Where fire apparatus roadways are not of sufficient width to accommodate parked vehicles and 20 feet of unobstructed driving surface, "No Parking Fire Lane" signs shall be installed on one or both sides of the roadway where needed. Painted curbs considered as an alternate.
5) Turning radii for curves and turnarounds shall be not less than 28 feet and 48 feet respectively, measured from the same center point. Appears to be met based on sheet C4.

Water Supply

1) All new buildings shall have a firefighting water supply that meets the fire flow requirements of Appendix B of the 2010 Oregon Fire Code. Estimated required fire flow for largest fire area is 5,000 gpm @20 psi. 75% reduction allowed with fire sprinklers installed but in no case shall the resulting fire flow be less than 1,500 gpm @ 20 psi residual.
2) Fire hydrant and FDC locations for current sprinklered buildings approved as shown on C7.
3) Following completion of construction activities please provide CFD#1 with an as-built PDF showing the following: Fire apparatus access, fire lanes, fire hydrants, fire lines, available fire flow, fdc locations if applicable, building square footage and type of construction.

2930 S.E. Oak Grove Blvd. • Milwaukie, OR 97267 • 503-742-2660

MEMORANDUM

TO: Pete Walter, City of Oregon City, Planning Division
FROM: Kenneth Kent, Clackamas County, Land Use Review Coordinator
DATE: November 4, 2014
RE: SP 14-01 Live/work
3-2E-10C TL 800

This office has the following comments pertaining to this proposal:

FACTS AND FINDINGS

1. The proposed land use application for 173 dwelling units, consisting of 121 apartment units and 62 live-work units on a 9.7 acre property located within the City of Oregon City. The project site abuts Beavercreek Road which is under the jurisdiction of Clackamas County. These comments address improvements as they relate to the Beavercreek Road frontage of the project site.

2. Generally, where the City's road cross-section exceeds the county's minimum standard, the County will defer to the City section. However, certain design standards relating to storm drainage, access spacing, geometric design, parking or specific construction details may not allow implementation of the full City standard.

3. The proposed development has approximately 1,015 feet of frontage on the easterly side of Beavercreek Road. Clackamas County has designated Beavercreek Road a major arterial roadway. Clackamas County has adopted roadway standards that pertain to the structural section, right-of-way width, construction characteristics, and access standards for arterial roadways. Developments adjacent to existing roadways are required to improve the roadway to current standards.

4. *Clackamas County's Roadway Standards* indicate that major arterial roadways shall have a right-of-way width that ranges from 60 to 134 feet, depending on the planned road section. The standard urban major arterial roadway 3-lane section calls for a 50-foot wide curb to curb width, typically requiring 80 feet of right-of-way. The applicant will be required to dedicate approximately 10 feet of additional right-of-way to provide a 40-foot one-half right-of-way width. Minimum improvements on the Beavercreek Road frontage consistent with *Clackamas County's Roadway Standards* include, but are not limited to, up to a 25-foot wide half-street improvement, pavement widening, curb, 5-foot wide landscape strip and 7-foot wide sidewalk.

5. The new easterly leg of Meyers Road is proposed with a 79.5 degree angle to Beavercreek Road. Section 250.8.2 of the Clackamas County Roadway Standards states that intersections should be kept as near to 90 degrees as possible. Although the standards specify that the angle can vary from 90 degrees to 80 degrees, it is dependent on the roadway, as determined by the Engineering Division. For a signalized

intersection on a high volume major arterial road, 79.5 degrees in not appropriate. The tangent of the Meyers intersection needs to be as near to 90 degrees as possible for a minimum of 75 feet.

6. The preliminary plans propose parking on Beavercreek Road. Although, parking can be considered on a major arterial, the design, volume and characteristics of the roadway are factors in the decision. Given the high volume and speed of the roadway, Clackamas County Engineering has determined that parking is not appropriate for this portion of Beavercreek Road.

7. There is an existing school speed zone of 20 MPH 7 AM – 5 PM along Beavercreek Road adjacent to the site. As currently posted, this school zone is the source of much frustration for many. School zones along major arterials are required by the County Roadway Standards to be installed with school zone flashers, which would limit the hours of school speed 20. Based on the increased traffic generated by the proposed development, it is recommended that the applicant provide funds to construct school zone flashers.

8. The proposed subdivision will create a new public road intersection with Beavercreek Road. Intersections with a county road are required to meet minimum intersection sight distance, per Section 240 of the Clackamas County Roadway Standards. Beavercreek Road has a posted speed of 40 miles per hour. The design speed for purposes of determining sight distance is based on the posted speed plus 5 miles per hour. For a speed of 45 miles per hours, a minimum of 500 feet of intersection sight distance is required. It appears that at the point of intersection with Beavercreek Road sight distance of 500 feet can meet. The applicant will be required to demonstrate site lines in compliance with minimum intersection sight distance as part of the Development Permit.

9. The following are review comments regarding the traffic impact study*:*

    a. Several of the intersections are referred to as City intersections, but are actually under the jurisdiction of Clackamas County. The intersections include Beavercreek/Maplelane, Maplelane/Thayer, Beavercreek/Loder, Beavercreek/Meyers, Beavercreek/Glen Oak, and Beavercreek/Clairmont.

    b. The trip generation seems a little off as there isn't consideration beyond the trip generation of residential units for the live/work units, but this is not anticipated to change the outcome of the study.

    c. The trip distribution seems a little off as the majority of traffic is illustrated as travelling to/from the south while the trip percentages illustrate traffic travelling mostly to/from the north, but this is not anticipated to change the outcome of the study.

    d. The traffic analysis illustrates a southbound left turn into the site with permissive phasing, while the existing northbound phasing is protected/permissive. The County would actually operate both movements with protected/permissive phasing. However, this would not affect the outcome of the study.

10. Clackamas County standards limit access to minor arterial roadways. Individual driveway access is typically not permitted on an arterial when alternatives are available. Access is generally required from a road with a lower functional classification. The

proposed plan is consistent with this standard. No direct vehicular access to the Beavercreek road frontage will be permitted to the project site.

11. Prior to commencement of site work, a Development Permit and a Utility Placement Permit are required and must be obtained from Clackamas County for all work performed in the Beavercreek Road right-of-way.

CONCLUSION

Although the County does not have land use jurisdiction over the proposed subdivision, the County does have jurisdiction over improvements along and access to Beavercreek Road. However, the following recommended conditions reflect the County's minimum standards. Where Oregon City's standards are greater, and do not otherwise conflict with the County's storm drainage standards and maintenance practices.

If the City of Oregon City approves the request, the following conditions of approval are recommended. If the applicant is advised to or chooses to modify the proposal in terms of access location and/or design following the preparation of these comments this office requests an opportunity to review and comment on such changes prior to a decision being made.

1. All frontage improvements in, or adjacent to Clackamas County right-of-way, shall be in compliance with *Clackamas County Roadway Standards*.
2. The applicant shall dedicate approximately 10 feet of additional right-of-way on Beavercreek Road and shall verify by survey that a 40-foot wide, one-half right-of-way width exists along the entire site frontage, or shall dedicate additional right-of-way as necessary to provide the minimum width.
3. The applicant shall design and construct improvements along the entire site frontage of Beavercreek Road in accordance with *Clackamas County Roadway Standards,* as modified to reflect the Oregon City street section.

   These improvements shall consist of:

   a. Up to a half-street improvement. Structural section for Beavercreek Road improvements shall consist of 7.5 inches of asphalt concrete per Clackamas County Roadway Standards Standard Drawing C100.

   b. Standard curb, or curb and gutter if curbline slope is less than one percent, and pavement with the face of the new curb located a minimum of 37 feet from the centerline of right-of-way. Centerline of the right-of-way shall be established by a registered survey.

   c. A minimum 7-foot wide unobstructed setback sidewalk, with a 5-foot landscape strip shall be constructed along the entire site frontage. The applicant shall relocate mailboxes, fire hydrants, utility poles, etc., when they are located within the limits of the sidewalk or construct an eyebrow so that the full width of the sidewalk is provided around the obstruction. Additional easement, as necessary, shall be granted to provide for any sidewalk eyebrows.

   d. If the sidewalk does not connect to sidewalk on adjacent property, the end of the sidewalk shall require the construction of a temporary asphalt ramp, adjacent to

the end of the sidewalk, providing a transition from the new sidewalk to the edge of the pavement. The ramp shall meet ADA guidelines and shall be a minimum of two inches in thickness.

e. Appropriate pavement tapers shall be provided, per Clackamas County Roadway Standards Section 250.6.4.

f. Drainage facilities in conformance Tri-City Service District #4 regulations and Clackamas Roadway Standards, Chapter 4.

g. The proposed Beavercreek cross-section shall be modified to eliminate parking. No on-street parking shall be permitted along the Beavercreek Road site frontage.

4. The intersection of the new portion of Meyers Road shall intersect Beavercreek Road at a 90 degree angle and shall include a tangent section of at least 75 feet from the curb, per Section 250 of the Roadway Standards.

5. A signal modification for the Beavercreek/Meyers signal shall be approved by Clackamas County Traffic Engineering, including signal pole locations, lane configuration, signal detection and signal phasing. The applicant shall also provide queuing estimates for the Beavercreek/Meyers intersection prior to the approval of the improvement plans.

6. The applicant shall provide funds to construct school zone flashers on Beavercreek Road to replace the existing school speed zone signs in the vicinity of the project site.

7. The applicant shall provide minimum intersection sight distance at the intersection of the new Meyers Road intersection with Beavercreek Road. In addition, no plantings at maturity, retaining walls, embankments, fences or any other objects shall be allowed to obstruct vehicular sight distance. Minimum sight distance is 500 feet in each direction. Sight distance shall be measured from a point 14.5 feet back from the edge of the travel lane at a driver's eye height in the driveway of 3.5 feet to a vehicle height of 3.5 feet in the oncoming travel lanes. The applicant shall demonstrate sight lines and compliance with minimum intersection sight distance as part of the Development Permit for the project.

8. Any surface water runoff from the site to the Beavercreek Road right-of-way shall be detained outside of the right-of-way in conformance with *Clackamas Roadway Standards*. Any surface water runoff discharged to the Beavercreek Road right-of-way will only be allowed if it can be shown that the existing system has the capacity to accept the runoff and no adverse downstream impacts will be created.

9. The applicant shall submit an Engineer's cost estimate to be approved by Clackamas County Engineering for the asphalt concrete, aggregates, and any other required public improvement in the Beavercreek Road right-of-way.

10. Prior to commencement of site work the applicant shall obtain a Development Permit from this office for design and construction of required improvements to Beavercreek Road. To obtain the Permit, the applicant shall submit plans prepared and stamped by an Engineer registered in the State of Oregon, provide a Performance Guarantee, and pay an Inspection Fee. The Performance Guarantee is 125% of the approved Engineer's cost estimate for the required improvements.

11. Prior to commencement of utility work within the Beavercreek Road right-of-way a Utility Placement Permit shall be obtained from this office.

12. Prior to commencement of any work, including grading, and prior to issuance of the Development and Utility Placement permits, the contractor shall:

    Provide a traffic control plan for review and approval from Clackamas County's Engineering Office. Provide a certificate of liability insurance, naming the County as additionally insured. Obtain separate "Street Opening Permits" for utility installations within the County right-of-way. The applicant shall obtain these permits from the Engineering office prior to the issuance of the Development Permit.

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Region 1 Headquarters
123 NE Flanders Street
Portland, Oregon 97209
(503) 731.8200
FAX (503) 731.8259

11/6/2014

City of Oregon City
221 Molalla Ave, Suite 200
Oregon City, OR 97045

ODOT Case No: 5274

Subject: SP 14-01: Beavercreek Live/Work (Marquee Mixed Use Apts)
OR 213 and Meyers Rd

Attn: Pete Walter, Planner

We have reviewed the applicant's proposal for 183-unit apartment - live/work units. The site is in the vicinity of OR 213. ODOT has permitting authority for this facility. According to the 1999 Oregon Highway Plan (OHP), this facility is classified a District highway and the performance standard is 0.99 volume to capacity (v/c) ratio.

ODOT recommends that the City require the applicant to "contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection" as conditioned in the zone change decision dated November 9, 2010. Thank you for providing ODOT the opportunity to participate in this land use review. If you have any questions regarding this matter, please contact me at 503.731.8234.

Sincerely,

Seth Brumley

Seth Brumley
Development Review Planner

C: Avi Tayar, P.E., ODOT Region 1 Traffic

From: O"Connell, Grant
To: Pete Walter
Cc: Kautz, Steve; Baldwin, Ben
Subject: RE: Beavercreek Road Live-Work / Apartments Comments? (SP 14-01)
Date: Monday, November 03, 2014 3:49:08 PM
Attachments: image001.png
image003.png

Hi Pete,

We did review the plans for the project. This project, correct? I also shared them with Steve Kautz, the Service Development Manager and coordinator of the Southeast Service Enhancement Plan. We have no firm plans to run service along this road so to comment regarding specific bus stop plans seems inappropriate. However, we welcome the visionary approach you take, as always, to development in Oregon City.

Grant O'Connell

Planner II · Operating Projects · 1800 SW First Avenue, Suite 300 · Portland, OR 97201
o'connelg@trimet.org · **T** 503-962-6478
TRIMET
See where it takes you.

From: Pete Walter [mailto:pwalter@ci.oregon-city.or.us]
Sent: Thursday, October 30, 2014 3:27 PM
To: Baldwin, Ben; Boll, Heather; O'Connell, Grant
Subject: Beavercreek Road Live-Work / Apartments Comments? (SP 14-01)

Hi guys,

I sent out a transmittal for comment (by email) a couple of weeks back for a 180 unit apartment '/ live work unit complex on Beavercreek Road across from Oregon City High School which I am reviewing for compliance with our Site Plan criteria, as well as our Transit Corridor requirements. I know this is not currently a Tri-Met Route, but thought I'd send you a tickler in any event.

Let me know if I need to resend the transmittal, or if you have any concerns or not. Seems like a good spot for a bus-stop.

Thanks,

Pete Walter



Pete Walter, AICP, Associate Planner
pwalter@orcity.org
Community Development Department
Planning Division
221 Molalla Avenue, Ste. 200

Oregon City, Oregon 97045
503-496-1568 Direct
503-722-3789 Front Desk
503-722-3880 Fax
Website: www.orcity.org
New Hours(Sept 2): 8:30 AM – 3:30 PM, M-F

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REPLINGER & ASSOCIATES LLC
TRANSPORTATION ENGINEERING

November 12, 2014

Mr. Pete Walter
City of Oregon City
PO Box 3040
Oregon City, OR 97045

SUBJECT: REVIEW OF TRANSPORTATION IMPACT ANALYSIS – BEAVERCREEK MIXED-USE DEVELOPMENT – SP14-01

Dear Mr. Walter:

In response to your request, I have reviewed the Traffic Impact Analysis (TIA) in support of the proposed of the proposed mixed-use development adjacent to Beavercreek Road. The TIA was prepared by Chris Brehmer, PE of Kittelson & Associates, Inc. The TIA is dated December 13, 2013.

The TIA describes a proposal to construct 183 residential units of which 36 are proposed to be live-work townhomes. The 9.73-acre site is adjacent to Beavercreek Road in the vicinity of Meyers Road. The TIA assumes the site will be built out by 2016.

Overall

I find the TIA addresses the city's requirements and provides an adequate basis to evaluate impacts of the proposed development.

Comments

1. ***Study Area.*** The study addresses the appropriate intersections. It includes an analysis of the following intersections:

    - Highway 213/Beavercreek Road
    - Highway 213/Molalla Avenue
    - Highway 213/Meyers Road
    - Highway 213/Glen Oak Road
    - Thayer Road/Maplelane Road
    - Beavercreek Road/Maplelane Road
    - Beavercreek Road/Clairmont Drive
    - Beavercreek Road/Loder Road
    - Beavercreek Road/Meyers Road

- Beavercreek Road/Glen Oak Road

These intersections are appropriate for the purposes of assessing the impact of the development.

2. ***Traffic Counts.*** The traffic counts were conducted in October 2013 during the AM and PM peak periods. The counts appear reasonable. Traffic counts for intersections along Highway 213 were adjusted to account for seasonal differences in accordance with ODOT's *Analysis Procedures Manual*.

3. ***Trip Generation.*** The TIA provides trip generation information from the Institute of Transportation Engineers' *Trip Generation.* The engineer uses 147 units of Mid-Rise Apartments (ITE Land Use Category 223) and 36 Rental Townhouses (ITE Category 224) He calculates trip generation for the proposed development to be 69 AM peak hour trips; 83 PM peak hour trips; and 810 total weekday trips.

   I think the engineer should have used a different category from *Trip Generation* that also describes the development but which is based on larger number of studies. I have revised the trip generation estimates using Apartments (ITE Category 220). Using this category, the trip generation estimates are approximately 50 percent higher. Using category 220 the calculated trip generation is 100 AM peak hour trips; 127 PM peak hour trips; and 1248 weekday trips. I do not think the effect would be significant in the operations at any intersection.

4. ***Trip Distribution.*** According to the engineer, the trip distribution is based a review of the current transportation network, existing turning movements and the nature of the development. The regional trip distribution pattern seems reasonable. The engineer's assumption about trips in the immediate vicinity of the site indicates approximately the same volume of traffic using Glen Oak Road to connect with Highway 213 as using Beavercreek Road. Overall, the trip distribution patterns appear reasonable and modest changes to the assumptions would have little practical effect on the analysis.

5. ***Traffic Growth.*** The TIA uses a one percent annual growth rate for traffic through 2016. For the intersection of Highway 213 and Meyers Road, an intersection previously identified as an issue, a supplemental analysis using year 2027 as the horizon year was conducted. Traffic volumes for this intersection for 2027 were developed based on previous analyses and on the values from the regional transportation model and consultation with ODOT and the City.

6. ***Analysis.*** Traffic operations analysis was conducted for the AM and PM peak hours for 2013 existing conditions; 2016 background conditions; and 2016 total conditions with the proposed development.

In year 2016, the analysis indicates that the intersection of Highway 213 and Beavercreek Road is calculated to operate at a volume-to-capacity ratio (v/c) of 1.0 in the AM peak hour and a v/c of 0.81 in the PM peak hour. Under OCMC 12.04.205 D, this intersection is exempt from the normal mobility standard of 0.99, but 12.04.205 D 2 states:

> *Development which does not comply with the mobility standards for the intersections identified in 12.04.205.D shall provide for the improvements identified in the Transportation System Plan (TSP) in an effort to improve intersection mobility as necessary to offset the impact caused by development. Where required by other provisions of the Code, the applicant shall provide a traffic impact study that includes an assessment of the development's impact on the intersections identified in this exemption and shall construct the intersection improvements listed in the TSP or required by the Code.*

The TIA predicts that 21 vehicles from the development will traverse the Highway 213/Beavercreek Road intersection during the AM peak hour and 25 will traverse it during the PM peak hour. Using my revised trip generation calculations described in #3, above, the intersection would be traversed by 30 vehicles during the AM peak hour and 38 during the PM peak hour. Based on OCMC 12.04.205 D 2, the applicant may be required to implement improvements listed in the TSP to mitigate for this traffic impact.

For the nine other intersections in the study area, the TIA predicts that, even with the development, the v/c is predicted to be less than 0.99 in 2016. All intersections are predicted to meet the city's operational standard. The TIA notes that at the intersection of Loder Road and Beavercreek Road, the minor street approach will operate at level of service (LOS) F during the AM peak hour. However, under the new city mobility standard, there "is no performance standard for the minor street approaches" at unsignalized intersections.

In addition, an analysis was conducted of the Highway 213/Meyers Road intersection for year 2027 with assumed completion of the extension of Meyers Road between Highway 213 and Beavercreek Road, a project included in the adopted Transportation System Plan. The analysis of this intersection also included a sensitivity analysis to determine how an increase in the number of dwelling units at the site would impact the year 2027 traffic operations.

At the Highway 213/Meyers Road intersection, the predicted 2027 v/c is 1.13 under background conditions. With the development, the v/c is expected to deteriorate to 1.14 during the PM peak hour. In the 2010 study, this was determined to be less than a "significant impact" under ODOT's definitions. However, in 2017, the intersection was predicted to fail to meet city and ODOT operational standards. To mitigate for the failure to achieve operational standards, one of the conditions specified in the rezoning

completed during 2010 was participation in the construction of intersection improvements.

In the 2010 study, the engineer's indicated that the addition of an exclusive right-turn lane on westbound Meyers Road at Highway 213 improves the operations of the intersection such that its performance in the "with rezoning" scenario would be better than the 2017 scenario without the rezoning. The engineer also calculated that the addition of a northbound through lane on Highway 213 allows either 2017 scenario to meet ODOT's mobility standards.

Using my revised trip generation calculations and the engineer's trip distribution patterns, the proposed right turn lane from Meyers Road to OR 213 northbound would be used by 14 vehicles from the development during the PM peak hour. This would represent approximately 14 percent of the predicted right-turning traffic at this location.

7. ***Turn Lanes.*** TIA specified that westbound approach of Meyers Road at Beavercreek Road would utilize a left-turn lane and a through-right lane. He further explained that the configuration of Meyers Road would consist of a three-lane cross-section consistent with the Beavercreek Concept Plan and TSP. The configuration satisfies the need to analyze turn lanes at the site.

8. ***Crash Information.*** The TIA provided a five-year crash history for the intersections in the study area. The only intersection approaching a crash rate of 1.0 crashes per million entering vehicles is the intersection of Highway 213 and Beavercreek Road. All other intersections have experienced a much lower crash rate and no particular patterns were evident. There is no indication that the proposed development will have a disproportional impact on safety at any of the intersections.

9. ***Pedestrian and Bicycle Facilities.*** The conceptual sight plan appears to provide appropriate facilities for pedestrians and bicyclists in the development. The provision of bicycle facilities along the frontage should be verified in connection the review of detailed plans for frontage improvements.

10. ***Site Plan and Access.*** The TIA and conceptual sight plan indicate Meyers Road will be extended east of Beavercreek Road through his site consistent with adopted plans. The conceptual site plan indicates local streets will be extended to the property boundaries allowing further extension when adjoining properties are developed. The alignment proposed for Meyers Road at Beavercreek Road calls for an angle of intersection of approximately 80 degrees, rather than the ideal angle of 90 degrees. I consider the 80-degree angle of intersection to be completely acceptable for this location because it is signalized intersection. For an unsignalized intersection, I would be more concerned because of the potential impact on sight distance. For signalized intersections, this is not a significant concern.

11. ***Intersection Spacing.*** Intersection spacing along Meyers Road to the east of Beavercreek Road appears appropriate given the configuration of the parcel and the opportunities for further connections with adjoining parcels.

12. ***Sight Distance.*** The TIA indicates that sight distance at the Meyers Road/Beavercreek Road intersection was estimated to be in excess of 450 feet to the north and approximately 650 feet to the south. Sight distance is adequate for this signalized intersection.

13. ***Consistency with the TSP.*** The planned extension of Meyers Road east of Beavercreek Road is consistent with the TSP and Beavercreek Road Concept Plan. A detailed review of proposed frontage improvements should be conducted to verify consistency with the TSP and city code requirements.

14. ***Conclusions and Recommendations.*** The engineer concludes that the all study area intersections will meet mobility standards in 2016 even with the build out of the development. In fact, the v/c for the Highway 213/Beavercreek Road is predicted to be 1.0, rather than 0.99. However, under OCMC 12.04.205 D, the normal mobility standards to not apply at this intersection.

    Because of the conditions associated with rezoning of the parcel in 2010, the TIA also includes a discussion for the Highway 213/Meyers Road intersection. In the 2010 study it was shown that the inclusion of an exclusive right-turn lane on the westbound approach of Meyers Road at Highway 213 improves the intersection's performance to better than that predicted for the "no rezoning" scenario. This became a condition of approval associated with the rezoning of the property.

Conclusion and Recommendations

I find the TIA meets city requirements. The TIA indicates that development will cause modest increases in traffic. With the exception of Highway 213/Beavercreek Road, mobility standards will be met at all locations with the development in year 2016.

The applicant's access to the transportation system will be accomplished by constructing the extension of Meyers Road to the east of Beavercreek Road. Materials provided by the applicant appear consistent with the planned function of Meyers Road. The extension of Meyers Road will require the applicant reconstruct the existing intersection and signal system to accommodate the new east leg of the intersection. The conditions of approval should specify that the applicant bear the costs of designing and reconstructing the intersection and the existing signal to provide for all movements including left-turn lanes and protected phasing for left turns on each approach. The signal system upgrade should comply with county standards.

Because of special provisions in OCMC 12.04.205 D, the intersection of Highway 213 and Beavercreek Road is allowed to exceed v/c 0.99. Under 12.04.205 D 2, the applicant may be required to construct TSP improvements or other improvements specified by the Code to offset the impacts at this intersection. (See #6, above.) I recommend that the City Engineer and planning staff identify improvements from the TSP that could be implemented by the applicant to offset the impacts caused by the development at this intersection. I further recommend that implementation of the specified improvements be added as a condition of development for this proposal.

In connection with the rezoning of the property in 2010, an analysis was also conducted of the Highway 213/Meyers Road intersection. I recommend that the conditions of approval related to this intersection prescribed during the rezoning (ZC10-01) be retained and restated as conditions of approval for this development proposal. Based on the information supplied in the TIA and supplemented by my revised trip generation calculations, I conclude that the development's contribution to the right-turn movements from Meyers Road to northbound OR 213 will be approximately 14 percent. This is a reasonable minimum as the required contribution by the developer for improving the operations of this intersection.

If you have any questions or need any further information concerning this review, please contact me at replinger-associates@comcast.net.

Sincerely,



John Replinger, PE
Principal

Oregon City\2014\SP14-01v3.docx

OREGON CITY

Public Works

625 Center Street | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7892

FILE MEMORANDUM

SUBJECT:	Public Works Engineering SP 14-01 Staff Report Findings and Conditions for Sanitary Sewer and Water Service for Beavercreek Rd Apartments/Live-Work Development
BY:	Aleta Froman-Goodrich, P.E., City Engineer
DATE:	November 5, 2014
PLANNING FILE:	SP 14-01: Site Plan and Design Review

Background:
The staff report for the Type II Limited Land Use Action for SP 14-01 Beavercreek Rd Apartment/Live-Work development is being prepared. This file memorandum provides further details about the Public Works Engineering findings, responses and conditions for the public sanitary sewer and water systems to serve the proposed development. The proposed development, Beavercreek Rd Apartments/Live Work (Beavercreek Rd Apts), is a 121-unit apartments and 62 live-work units on 9.7 acres with MUC-1 zoning located along the eastern side of Beavercreek Road across from the intersection of Meyers Road and Beavercreek Road. The developer is Evergreen Housing Development Group, LLC. The application completeness date was July 11, 2014.

Sanitary Sewer Service:

1. City's 2003 Sanitary Sewer Master Plan (SSMP)
   Findings:
   a. On July 11, 2014, application completeness date, the 2003 SSMP was the City's adopted master planning document for the sanitary sewer collection system standards, improvement requirements, and capacity evaluation.
   b. The 2003 SSMP included evaluation of the existing sanitary sewer collection system to convey flows under existing and future buildout conditions.
      i. Evaluation included collection systems in the Glen Oak and Beavercreek basins.
      ii. The Glen Oak basin conveys flows directly to the City's Highway 213 trunk sewers.
      iii. The Hwy 213 trunk sewers were not evaluated. As a result there is no information about capacity within the Hwy 213 collection system in the 2003 SSMP.
   c. Per the 2003 SSMP, the Beavercreek Road Concept Plan (BRCP) area located north of Glen Oak Rd is planned to be served by the Beavercreek Rd basin from a future sanitary sewer main extension in Beavercreek Rd starting just south of Marjorie Lane to the development.
   d. Beavercreek Rd Apts development is located along Beavercreek Rd north of Glen Oak Rd and within the BRCP area. Per 2003 SSMP, the property is planned to be served by the Beavercreek basin.
      i. 2003 SSMP does not evaluate flows from Beavercreek Rd Apts to be conveyed to the Glen Oak basin.
      ii. 2003 SSMP does evaluate future build-out flows including Beavercreek Rd Apts to be conveyed to the Beavercreek Rd basin.

e. 2003 SSMP identified deficiencies in Glen Oak Rd basin when evaluating the conveyance system for build-out flow conditions, improvements were recommended, and the improvements were constructed and placed into operation.

2. City's 2014 Sanitary Sewer Master Plan (SSMP)
   Findings:
   a. The City Commission adopted the City's 2014 Sanitary Sewer Master Plan (SSMP) on October 1, 2014.
   b. On July 11, 2014, application completeness date, the 2014 SSMP was in the process of being adopted as the City's master planning document for the sanitary sewer collection system standards, improvement requirements, and capacity evaluation.
   c. The 2014 SSMP updates the 2003 SSMP with a current assessment of the City's sanitary sewer collection system to convey existing and future buildout flows, including an evaluation of the Hwy 213 trunk sewers located downstream of the Glen Oak basin.
   d. The 2014 SSMP provides constructive evidence in determining the adequacy of the sanitary sewer service to Beavercreek Rd Apts, including requirements that may apply in order to meet City standards.
   e. The 2014 SSMP included evaluations of the collection systems in the Glen Oak and Beavercreek basins and the downstream Hwy 213 trunk sewers.
      i. The Glen Oak basin conveys flows directly to the City's Highway 213 trunk sewers.
      ii. The Hwy 213 trunk sewers were evaluated for existing and build-out flow conditions, modeling results identified pipe capacity deficiencies in the future build-out conditions, and recommendations for improvements in the Hwy 213 trunk sewers were provided to mitigate for the capacity impacts of future buildout flows. The recommended capacity improvements included upsizing sections of the Hwy 213 trunk sewers from 21" to 24" pipe.
         1. In addition to upsizing Hwy 213 sewers, another recommendation was for the implementation of an Inflow and Infiltration (I/I) Abatement Program in order to reduce the flows upstream of the Hwy 213 trunk sewers. Reducing the upstream flows may minimize and/or eliminate the need to upsize the Hwy 213 sewers.
         2. The City plans to implement an I/I Abatement Program, reduce flows to Hwy 213 trunk sewers to the maximum extent practicable and minimize and/or eliminate the need to upsize the Hwy 213 sewers.
   f. Per the 2014 SSMP, the BRCP area, including Beavercreek Rd Apts, is planned to be served by the Beavercreek Rd basin from a future 15" sanitary sewer main extension in Beavercreek Rd starting just south of Marjorie Lane to the development and continuing south to the south end of Beavercreek Rd. However, although not the preferred approach, *2014 SSMP Appendix I: Glen Oak Road Analysis (Analysis),* does contemplate discharging a portion of the BRCP area flows into the Glen Oak Basin.
      i. *The Analysis* evaluates alternatives for routing some of the future BRCP flows to the Glen Oak basin and provides recommendations for capacity improvements needed to mitigate for the deficiencies in the existing system.
         1. *The Analysis, Routing Alternative C,* showed results of extensive surcharging and potential overflow conditions in the Glen Oak basin and Hwy 213 collection systems when routing approximately 421 gpm of BRCP flows to the Glen Oak basin, including 105gpm of Beavercreek Rd Apts.
         2. The estimated peak flow of 421 gpm is based on the flow expected from BRCP areas that would most likely cross to the Glen Oak basin if developing the

properties prior to the future 15-inch sewer extension being constructed in Beavercreek Rd.

3. To manage the excessive surcharging and potential overflow conditions in the Glen Oak basin and Hwy 213 sewers, modeling results indicate upsizing the City's Hwy 213 sewers is needed. The estimated cost to upsize approximately 1,400 feet of existing 12-inch to 15-inch is $537,000 and 2,400 feet of existing 21-inch to 24-inch is $2,381,000, for a total cost of $2,918,000.

ii. If the BRCP areas identified in *The Analysis, Routing Alternative C,* develop prior to the future 15-inch trunk sewer being constructed in Beavercreek Rd, and convey the estimated peak flow of 421gpm to the Glen Oak basin, then the capacity improvements for upsizing the 12" and 21" Hwy 213 sewers are required.

1. The City will assess each BRCP development proposal for proportional share of Hwy 213 sewer capacity improvements when the BRCP areas identified in *The Analysis, Routing Alternative C* propose to develop prior to the future Beavercreek Rd 15-inch sewer improvements.
2. The total proportional share contribution for said BRCP areas, with a total flow of 421 gpm, is 100% of the 15-inch sewer cost, $537,000, and 69% of the 24-inch sewer cost, $1,643,000, for a total contribution of $2,180,000.
    a. The following should be noted:
        i. Modeling results show upsizing the Hwy 213 sewers from 12-inch to 15-inch is not required when the said BRCP flows are not routed to the Glen Oak basin.
        ii. Modeling results show upsizing the Hwy 213 sewers from 21-inch to 24-inch is required when 613 gpm buildout flows are added to the Hwy 213 trunk sewers. The said BRCP flows are 69% of these buildout flows.
3. Beavercreek Apts, being one of the properties included in the said BRCP areas with a flow of approximately 105 gpm, is approximately 25% of the said BRCP areas total peak flow.
    a. Beavercreek Rd. Apts shall be conditioned to pay a fee-in-lieu for the Hwy 213 sewer improvements.
    b. Fee-in-lieu is based on 25% of BRCP's total proportional share contribution, and 25% of the total contribution is $545,000.

3. Developer's engineer, Keller Associates, submitted a Technical Memo, dated 9/9/2014 that evaluated sewer service to the Beavercreek Rd Apts development.
    a. Keller's Memo:
        i. Memo acknowledges that the 2014 SSMP evaluation of the existing collection system appears to be in line with industry standards and the best long-term approach for servicing the entire Beavercreek service area appears to be a new trunkline sewer along Beavercreek Rd in the Beavercreek basin.
        ii. Memo documents the Beavercreek Apts development estimated peak flow to be 105 gpm.
        iii. Memo includes recommendation to accommodate the Beavercreek Apts development flows in the Glen Oak Rd sewers and direct flows across sewer basins on a short-term basis.
            1. Further comment is made that the Beavercreek Apts could be routed into future Beavercreek Sewer and recommends provisions for this transfer be incorporated into the design of the Beavercreek Apts development.
            2. Note: The development application shows proposed sanitary sewer service to be connected to sewers in the Glen Oak basin.

3. Memo references the City's desire to reserve flows and the resulting available capacity is uncommitted. *City Comment:: This comment is inaccurate as the City through the adoption of the 2014 SSMP has committed the existing remaining capacity of the Glen Oak collection system for the planned developments that must flow to the Glen Oak basin and Hwy 213 sewers.*

iv. Memo includes recommendation to bolt down and seal manholes with only two feet of cover. *City Comment: The City manages excessive surcharging of pipes through upsizing the pipe to increase the capacity and/or reducing the flow to the sewer through I/I abatement or other flow reduction measure. Bolting down the manholes does not resolve the capacity deficiencies of the sewer pipes.*

v. Memo includes comments about the BRCP areas being routed to the Glen Oak Rd basin long-term and completing downstream improvement in Hwy 213 to alleviate surcharged conditions in the City's Glen Oak Rd sewers.

vi. Memo includes comments about inflow and infiltration I/I and reducing the amount of I/I to free up pipe capacity for development.
   1. Memo also includes comments about Keller's investigation about benchmarks for estimating typical cost per gallon for I/I removed from collection systems.
   2. Keller found local agencies have no quantifiable method to calculate the I/I reduction and cost per gallon.
   3. Keller found there is a methodology that is being used by municipalities that calculates a cost to offset I/I.

vii. Memo includes three sections titled: "Background", "General Observations", and "Available Capacity in the Glen Oak Sewer Line".

viii. Memo does not include a section for recommendations and/or conclusions.

b. PW Engr Staff Findings in reference to Keller's Technical Memo:

i. Memo does not include a section for specific recommendations and/or conclusions so staff reviewed the content of the Memo and made interpretation of the intent for the statements that were presented.

ii. There is no reliable methodology that quantifies the amount of I/I reduction that would result from an I/I Abatement Program. Therefore, there is no reliable method to calculate the cost per gallon of I/I removed from the sewer system until the I/I is physically removed and measured through flow monitoring before and after the abatement improvements are implemented.

iii. Routing flows from the BRCP areas, including Beavercreek Apts, to the Glen Oak Rd utilizes capacity in the Glen Oak Rd basin and Hwy 213 collection systems that was planned for the future buildout of the Glen Oak basin and Hwy 213. The BRCP flows were planned for the Beavercreek Rd basin.

iv. *The 2014 SSMP Analysis Routing Alternative C* identifies improvements to the Hwy 213 sewers to mitigate for the capacity impacts related to the BRCP areas' additional flows.
   1. If development occurs in the said BRCP areas prior to the future 15-inch sewer extension in Beavercreek Rd and development flows are directed across basins to the Glen Oak basin, then the Hwy 213 sewer capacity improvements are required to manage the surcharging and potential overflow conditions.
   2. Beavercreek Rd Apt is one of the properties in the said BRCP areas and is the first development proposing to cross basins.
   3. The total estimated additional peak flows from said BRCP areas is 421 gpm and Beavercreek Apts flow is approximately 25% of this flow, 105 gpm.

v. The City plans to start an I/I abatement program in 2015/2016 for the Basins that contribute to Hwy 213 sewers and it is unknown at this time whether there will be a reduction in I/I through this proposed program.

vi. To allow the said BRCP areas, including Beavercreek Rd Apts, to cross basins and direct flows to the Glen Oak basin, the Hwy 213 sewer capacity improvements are required to mitigate for the additional flows that will contribute to excessive surcharging within the Glen Oak and Hwy 213 collection systems.

1. These improvements are identified in *2014 SSMP, Appendix I: Glen Oak Road Analysis, Figure C-5, Routing Alternative C* and includes: upsizing the City's Hwy 213 sewers and estimated costs, approximately 1,400 feet of existing 12-inch to 15-inch is $537,000 and 2,400 feet of existing 21-inch to 24-inch is $2,381,000, for a total cost of $2,918,000.
2. The proportional share of cost for the said BRCP areas with a total flow of 421 gpm, is 100% of the 15-inch sewer cost, $537,000, and 69% of the 24-inch sewer cost, $1,643,000, for a total contribution of $2,180,000.
3. The proportional share of cost for the Beavercreek Apts, being one of the properties in said BRCP areas, with a total flow of 105 gpm is 25% of BRCP's total proportional share contribution, and 25% of the total contribution is $545,000.

vii. Requirements for connection to the City's existing Glen Oak system and sewer improvements for service extensions:

1. Connection to the existing Glen Oak system shall be located in the public road right-of-way, Meyers Road, at the existing manhole at Meyers Rd and Emerson Ct.
2. The design of the new 8-inch connecting sewer shall incorporate the design of the future 15-inch sanitary sewer so in the future the Beavercreek Apts can be transferred to the Beavercreek basin through a connection from the new 8-inch to the future 15-inch sewer.
3. The new 8-inch sewer shall extend south of the Meyers/Beavercreek intersection in Beavercreek Rd along the frontage of the site with service laterals to serve the proposed buildings with frontage on Beavercreek Rd.
4. The new 8-inch sewer shall not extend north of the Meyers/Beavercreek intersection at this time due to direction of flow to the Glen Oak basin so fee-in-lieu shall be required. Fee-in-lieu for 8-inch sewer along site frontage in Beavercreek Rd from Meyers/Beavercreek intersection to northerly boundary of development. Fee-in-lieu shall include all costs for design, construction and contingencies for a City public agency construction contract for the 8-inch extension.
5. At this time a 15-inch pipe in Beavercreek Rd shall not be required due to the anticipated potential for maintenance and operational problems of having a 15-inch pipe with very little flow contribution, and the future 15-inch connection will most likely not be made within the next 10 years.

c. Conditions of Approval recommended for sewer service to proposed SP 14-01 Beavercreek Apartment Development:

i. To direct flows across sewer basins to the Glen Oak basin:

1. Applicant shall be conditioned to pay a fee-in-lieu for the Hwy 213 sewer improvements based on its proportional share contribution to the additional line capacity.
    a. Beavercreek Apts additional flow is 25% of the BRCP areas total flow.
    b. The proportional share contribution for the Beavercreek Apts, being one of the properties in said BRCP areas, with a total flow of 105 gpm is 25% of

BRCP's total proportional share contribution, and 25% of the total contribution is $545,000.

c. The 2014 SSMP provides the data and information for the basis of the fee-in-lieu costs.

ii. Connection location of proposed sanitary sewer to the existing sewer in the Glen Oak basin:
   1. Applicant shall design 8" sanitary sewer collection system in existing and future public roads with the connection to the existing sanitary sewer system at the manhole located in Meyers Road at Emerson Ct.
   2. Applicant shall refer to the City's standards for typical utility placement within the public street section for location of underground public utilities.
   3. Applicant shall extend the new 8-inch sewer pipe in Meyers Rd to Beavercreek Rd with a crossing of Beavercreek Rd to the future public road system and extend the new 8-inch sewer pipe in Beavercreek Rd to the south across the frontage of the property to serve the proposed buildings fronting Beavercreek Rd.
   4. Beavercreek Apt design shall make consideration of the future Beavercreek Rd 15-inch sewer extension for future and incorporate into the design the future transferring of the new 8-inch to the future 15-inch.

iii. Sanitary Sewer improvements along frontage of development in Beavercreek Road.
   1. Applicant shall pay fee-in-lieu for 8-inch sanitary sewer along the site frontage north of the Meyers/Beavercreek intersection to the northerly site boundary of development for the future Beavercreek Rd sanitary sewer extension.
   2. Fee-in-lieu for 8-inch sewer along frontage shall be based on all costs for design, construction and contingencies for a City public agency construction contract.
   3. Applicant shall provide an engineer's estimate, signed and stamped by the engineer, for the City's review and approval.

iv. There may be other conditions of approval for consideration and still to be determined.

Water:

1. City's 2012 Water Master Plan
   Findings:
   a. Beavercreek Apts development is located in the Beavercreek Rd Concept Plan (BRCP) area.
   b. Beavercreek Apts development has ground elevations of 480 feet and greater.
   c. BRCP area with ground elevations of 480 feet and greater are planned to be served by the future expanded Fairway Downs pressure zone. The future expanded Fairway Downs pressure zone requires the construction of future water facilities that include a storage reservoir and pump station prior to providing water service to the BRCP area with properties that have ground elevations of 480 feet and greater.
   d. Future 12-inch waterline is recommended in Beavercreek Rd from Glen Oak Road to Meyers Road to serve the BRCP area and a future 12-inch waterline extending into the BRCP area where ground elevations are 480 feet and greater.
2. Beavercreek Apts development proposed water service
   Findings:
   a. Beavercreek Apts development wants to develop prior to the expansion of the Fairway Downs pressure zone and construction of the future water facilities planned to serve the BRCP area.
   b. Clackamas River Water (CRW), the City and Developer have found an interim solution for water service prior to the City's Fairway Down pressure zone expansion and construction of the future facilities needed to serve the BRCP area.
   c. CRW Commissioners met on 9/22/2014 and approved to proceed with the following interim plan with reference to water service to Beavercreek Apts:

   i. 800 feet of 12-inch waterline and master meter paid for by developer
   ii. CRW own master meter
   iii. City own 12-inch waterline.
   iv. An Intergovernmental Agreement between CRW and the City providing the terms and conditions of water service

3. Conditions of Approval recommended for Water service to proposed SP 14-01 Beavercreek Apts development:
   a. New water system shall be designed with minimum 12-inch pipe in Beavercreek Road from Glen Oak Rd to Meyers Rd and to be owned by the City, with minimum 8-inch water mains throughout the site, and connection to a new master meter and vault to be owned by Clackamas River Water located at approximately Glen Oak Rd and Beavercreek Rd.
   b. Applicant shall design looping of the new water system and avoid dead-end mains to the maximum extent practicable.
   c. Applicant shall design water system in existing and future public roads to the maximum extent practicable minimizing the need for public waterline easements.
   d. Prior to submitting construction plans to the City, an Intergovernmental Agreement (IGA) between Clackamas River Water (CRW) and the City must be executed. IGA shall include the terms and provisions needed for water service to the development through a proposed master meter to be owned by CRW and 12-inch waterline in Beavercreek Rd to be owned by the City.
   e. Prior to construction plan approval and after execution of the proposed IGA, the Applicant shall receive CRW's written approval of design, plans and specifications for water facilities as agreed upon through the IGA.
   f. Note: There may be other conditions of approval for consideration and still to be determined.

ORDINANCE NO. 07-1021

AN ORDINANCE ANNEXING CERTAIN PROPERTY TO THE CITY OF OREGON CITY

OREGON CITY MAKES THE FOLLOWING FINDINGS:

WHEREAS, The City of Oregon City proposed that certain properties, more fully identified in Exhibit 'A' to this Ordinance, be annexed to the City; and

WHEREAS, the City found that the proposal complied with all applicable legal requirements, as detailed in the findings attached hereto and made a part of this ordinance as Exhibit 'B'; and

WHEREAS, Chapter I, section 3 of the Oregon City Charter of 1982 requires voter approval for annexations such as the one proposed; and

WHEREAS, the annexation of the identified properties was submitted to the voters of the City of Oregon City at a special election held on November 6, 2007; and

WHEREAS, the Clackamas County Clerk has returned the official figures indicating the results of the election held on November 6, 2007; and

WHEREAS, the official figures returned by the Clackamas County Clerk indicate that a majority of the voters of the City of Oregon City voted to approve the annexation of the identified properties; and

WHEREAS, the identified properties are currently in Clackamas County Rural Fire Protection District # 1; and

WHEREAS, the identified properties are currently within the Clackamas County Service District for Enhanced Law Enforcement; and

WHEREAS, the identified properties are currently within the Clackamas River Water District; and

WHEREAS, the Tri-City Service District requires the City's concurrence to annexations into the District; and

WHEREAS, the City Commission concurs that the Tri-City Service District can annex the identified properties into their sewer district.

NOW, THEREFORE, OREGON CITY ORDAINS AS FOLLOWS:

Section 1. That the area further identified in the legal description attached hereto as Exhibit "A", is hereby annexed to and made a part of the City of Oregon City.

Section 2. That the findings attached hereto as Exhibit 'B' are hereby adopted.

Section 3. That the territory identified in Exhibit "A" is hereby withdrawn from Clackamas County Rural Fire Protection District # 1.

Section 4. That the territory identified in Exhibit "A" is hereby withdrawn from Clackamas County Service District for Enhanced Law Enforcement.

Section 5. That the territory identified in Exhibit "A" is hereby withdrawn from the Clackamas River Water District.

Section 6. The City hereby concurs with and approves the annexing of the territory identified in Exhibit "A" into the Tri-City Service District by the Clackamas County Board of Commissioners, to the extent allowed by law.

Section 7. That the effective date for this annexation is the date this ordinance is submitted to the Secretary of State, as provided in ORS 222.180.

Read for the first time at a regular meeting of the City Commission held on the 19th day of December 2007, and the foregoing ordinance was finally enacted by the City Commission this 19th day of December 2007.

ALICE NORRIS
Mayor

ATTESTED this 19th day of December 2007

NANCY IDE
City Recorder

AN07-02
CL 1807

Exhibit A

Legal Description

Part of the SE ¼ of Section 9, the South ½ of Section 10 and of the North ½ of Section 15 Township 3 South, Range 2 East of the Willamette Meridian, County of Clackamas, State of Oregon, and further described as follows:

Commencing at the northeast corner of the Andrew Hood DLC No. 44 thence North 00 °30' East along the extension of the East line of said claim, a distance of 20 feet to the North right-of-way of John H. Loder Road and to the True Point of Beginning;

thence South 89°15' West along the Northerly right of way of said road 620.4 feet to the Northerly extension of the Westerly boundary of that parcel described in Clackamas County Deed Record No. 94-00722;

thence South 0°30' West a distance of 371.12 feet to the Southwest corner of that parcel described in said Deed Record No. 94-00722;

thence South 89° 15' West a distance of 784.08 feet to a stone marked "X" on the North boundary of a tract of land conveyed to David F. Moehunke, et ux, in Book 157, Page 360, Deed Records;

thence North 0° 30' East 371.12 feet along the West boundary and the Northerly extension thereof of a tract of land conveyed to Charles G. Thomas, et ux, by Book 341, Page 570, Clackamas County Deed Records to a point in the Northerly right of way of said Loder Road,

thence South 89°15' West along the North boundary of said Northerly right of way of said Loder Road a distance of 465 feet more or less, to a point being the Northwesterly extension of the Northeasterly boundary of that parcel conveyed to the Hall Family Investment Co, LLC in Clackamas County Deed #98-130715;

thence South 40° 45' East a distance of 485 feet more or less, to an iron pipe as recorded on P.S. 3494, Clackamas County Surveyor's Office;

thence South 49° 55' West 670 feet to an iron pipe as recorded on said P.S. 3494 located on the Northeasterly right of way of the Oregon City to Highland Road, now known as Beavercreek Road;

thence South 40°37' East along the Easterly right of way of said Beavercreek Road 3135 feet, more or less, to a point being the south most southwest corner of that parcel of land conveyed to Wayne C. Hall and Helen E. Hall and recorded in Clackamas County Deed Records in Book 546, Page 288;

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MAY 2007
CLACKAMAS COUNTY ASSESSOR

thence N 87° 11' 21" E along the south line of said Hall tract, 445.92 feet to a 5/8" iron rod set at the south most southeast corner of said Hall tract;

thence N 0° 46' 16" E, 570.00 feet to a 5/8" iron rod;

thence N 0° 46' 16" E, 410.31 feet to 5/8" iron rod;

thence N 0° 46' 57" E, 480.44 feet to a 1/2" iron rod;

thence N 27° 12' 06" W, 533.04 feet to 5/8" iron rod;

thence N 12° 49' 21" E, 306.64 feet to 5/8" iron rod;

thence S 89° 13' 00" E, 197.71 feet to 5/8" iron rod;

thence S 89° 13' 00" E, 500.04 feet to 5/8" iron rod set in a mound of stone at the north most southeast of said Hall tract and also being the West line of Government Lot 2 of Section 10 of Township 3 South, Range 2 East of the Willamette Meridian;

thence North 0° 13' East 892.13 feet along, said Lot 2 and the Urban Growth Boundary to the Northerly right of way of Loder Road;

thence South 89°15' West tracing said Northerly right of way of said Loder Road 987.36 feet to the Point of Beginning.



Exhibit B

BEFORE THE OREGON CITY
CITY COMMISSION

In the Matter of Resolution No. 07-24 to set the election date of November 6, 2007 for the annexation of 122 acres located east of Beavercreek Road and South of Loder Road into Oregon City.	FINDINGS OF FACT, CONCLUSIONS OF LAW AND FINAL ORDER IN OREGON CITY FILE No. AN 07-02.

I. INTRODUCTION

Northwest Development Solutions (the "Applicant") submitted application for the annexation of 12 properties totaling 122 acres into the city limits of Oregon City. The Planning Commission held evidentiary hearings on July 16th and July 23rd, 2007, after which the Planning Commission deliberated and unanimously recommended approval of the request to the City Commission for their consideration. On August 1st, 2007, the City Commission held a public hearing and after hearing all of the testimony and considering all of the evidence, tentatively voted to approve the annexation and recommend that the issue be sent to the citizens for a vote on November 6th, 2007. The Commission's reasons for approving the application are set forth in these findings of fact, conclusions of law, and final order.

II. FINDINGS

Annexation 07-02 was initiated by consent petition of a 100% of the property owners and voters. The territory contains approximately 122 acres, has 5 single-family residences, 7 commercial structures, a population of 9 and is valued at $1,566,711. The properties have a comprehensive plan designation of Future Urban Holding, which is a holding designation until a Concept Plan for the Beavercreek Road area is completed. The zoning designation will remain Future Urban 10-acre minimum until adoption of the Beavercreek Road Concept Plan and the appropriate Comprehensive Plan and Zoning designation can be applied to the individual properties. A majority of the public testimony addressed the draft Beavercreek Road Concept Plan design and process and was not applicable to the annexation request before the commission.

A. Metro Boundary Change Criteria.

1. Consistency with directly applicable provisions in ORS 195 agreements or ORS 195 annexation plans.

Findings. There are no adopted 195 annexation plans or agreements applicable to this area. For the foregoing reasons, this criterion is met.

2. Consistency with directly applicable provisions of urban planning area agreements between the annexing entity and a necessary party.

Findings. A necessary party is defined as any county, city or district whose jurisdictional boundary or adopted urban serve area includes any part of the affected territory or who provides any urban service to any portion of the affected territory, Metro, and any other unit of local government, as defined in ORS 190.003, that is a party to any agreement for provisions of an urban service to the affected territory. Proper notice was given to all necessary parties and the only comments received where from the Public Safety Director of Oregon City, which were addressed to the satisfaction of the Director by the applicant.

A citizen contended that the County Commissioner's have not been briefed on the annexation, thus it is not possible to know if the necessary party has contested the annexation.

The County Commissioner's office was mailed notice of the annexation request on June 12th, 2007, indicating the time and location of the Planning and City Commission public hearings and requesting comments, either in writing or during testimony at the hearings. No comments were received from the County.

The City and County have an Urban Growth Management Agreement (UGMA), which is part of their Comprehensive Plans. The territory to be annexed falls within the Urban Growth Management Boundary (UGMB) identified for Oregon City and is subject to the agreement. The County agreed to adopt the City's Comprehensive Plan designation for the area, which currently is Future Urban 10 and the agreement presumes that all the urban lands within the UGMB will ultimately annex to the City and that the responsibility for the public facilities shall fall the City.

The City agrees to concur with the Tri-City Service District's annexation of the subject properties upon voter approval of the city annexation. This territory is currently within the Clackamas River Water District, with which the city does not have an urban service agreement, however; ORS 222.120 allows the city to specify that the territory by automatically withdrawn from the water district upon annexation, which will occur upon voter approval of the city annexation. The City shall also withdraw the territory from the County Service District for Law Enforcement and Clackamas County R.F.P.D #1. For the foregoing reasons, this criterion is met.

3. Consistency with directly applicable standards for boundary changes contained in comprehensive land use plans and public facility plans.

Findings. The AN 07-02 staff report demonstrates consistency with the existing comprehensive land use plans and public facility plans. The annexation of the 122 acres and 5 single-family homes will have minimal impact on the existing services and infrastructure and the properties are contiguous to the existing City limits. The properties will be zoned Future Urban 10 until the Beavercreek Concept Plan and implementing ordinances are adopted. Approval of the Beavercreek Road Concept Plan will comply with all applicable Comprehensive Plan requirements and the public facility plans will be updated to account for the future impacts of the full build out of the 122 acres. The FU-10 zoning designation is a holding zone that prevents the property from being developed at urban standards until such time as the Concept Plan and implementing ordinances are adopted, having demonstrated compliance with the Comprehensive Plan, including updates to the city master plans and capital improvements plans. For the foregoing reasons, this criterion is met. At the public hearing before the city commission, several parties raised the issue of consistency with the Beavercreek Concept Plan. As discussed below, that plan had not yet been adopted and is not a criterion for this annexation.

4. Consistency with directly applicable standards for boundary changes contained in the Regional framework or any functional plans.

Findings. The law that requires Metro to adopt criteria for boundary changes specifically states that those criteria shall include "...compliance with adopted regional urban growth goals and objectives, functional plans....and the regional framework plan of the district

(Metro)." The Growth Management Functional Plan was reviewed and found not to contain any criteria directly applicable to boundary changes. In addition, the Regional Framework Plan was reviewed and found not to contain specific criteria applicable to boundary changes. For the foregoing reasons, this criterion is met.

5. Whether the proposed boundary change will promote or not interfere with the timely, orderly and economic provision of public facilities and services.

Findings. Annexation of the existing five homes will have virtually no affect on the timely, orderly and economic provision of public facilities and services. The City will obtain a small increase in property tax revenues from adding additional assessed value to its tax roll as a result of annexing the territory and there is adequate public facilities and services to provide for the additional 5 homes and 7 commercial buildings. The City will also obtain land use jurisdiction over the territory. The Beavercreek Concept Plan will address the overall impact to the city of a much larger swath of land, which includes this piece, but that plan has not yet been completed. The territory to be annexed under that plan will include approximately 20 acres of employment and 48 acres of mixed employment, which will provide employment opportunities that are greatly lacking in Oregon City. Because that plan has not been adopted, it is not an applicable criterion and there has been no showing that annexation of this property to the city will interfere with the timely, orderly and economic provision of public facilities and services to the area. The applicant has also proposed a Police Funding Fee to be collected at time of building permit to off-set the impacts on Police service. For the foregoing reasons, this criterion is met.

6. Consistency with other applicable criteria for the boundary change in question under state and local law.

Findings. The proposed annexation complies with all applicable state and local laws as demonstrated in these findings of fact and the AN 07-01 staff report. For the foregoing reasons, this criterion is met.

B. Oregon City Municipal Code: Section 6 of Chapter 14.

1. Adequacy of access to the site.

Findings. Access is provided from Beavercreek Road to the west and Loder Road to the north. The City-County UGMA requires the annexation to include the adjacent portions of all county streets. There is adequate frontage from public streets to access the site in a safe and efficient manner. For the foregoing reasons, this criterion is met.

2. Conformity of the proposal with the City's Comprehensive Plan.

Findings. The Comprehensive Plan identifies a need to provide an adequate supply of land for major industrial employers with family-wage jobs, ensure that land-use patterns create opportunities for citizens to live closer to their workplace and require that a majority of the lands east of Clackamas Community College, which includes this area, shall be

designated in such a manner that it encourages family-wage jobs in order to generate new jobs and move towards meeting the city's employment goals.

The Beavercreek Road Concept Plan, which includes this 122 acres, is designed to meet City and Metro requirements for the creation and protection of employment lands within the study area. The site contains approximately 20 acres of employment and 48 acres of mixed employment, which will allow citizens to live closer to employment opportunities and will provide lands that will offer family-wage jobs and move the City closer to meeting their employment goals.

The proposed annexation properties are within the Beavercreek Road Concept Planning area, but no concept plan has been adopted. Therefore, the Concept Plan is not applicable to this annexation.

3. Adequacy and availability of public facilities and services to service potential development.

Findings. as discussed below, the Facilities and Services discussion of the staff report indicate that there are adequate services to support the annexation at the zoning designation of FU-10. To the extent additional development will occur, the property will have to be re-zoned, which will not occur until the Concept Plan has been approved. The Concept Plan will have to demonstrate that public facilities and services for potential development will be accounted for once the Beavercreek Road Concept Plan is adopted. The concept plan will identify the impacts to the public facilities and services and the remedies necessary to accommodate the potential development on the annexed properties.

There are existing water lines and sanitary sewer lines in Beavercreek Road north of the subject site and in Glen Oak Road that can be extended to the site to provide service. The necessary water, sanitary, and stormwater improvements necessary to accommodate the future development of the area will be included in the city's master plans to ensure adequacy of the systems.

The Beavercreek Concept Plan will integrate a multi-modal transportation system with a mixed-use development pattern to achieve a highly efficient and sustainable design. The concept plan will identify a network of internal and external pedestrian, bicycle, transit, and street connections that serve the study area and connect it to the surrounding community and the broader region. The concept plan will ensure that the land brought into the UGB is planned in an efficient and sustainable manner that will identify compatible land uses, including industrial, office, commercial, and residential uses, thereby reducing the need for vehicle trips, improving the efficiency of public transportation, offering multi-modal transportation options, and reducing the need to expand the UGB in the future.

The Concept Plan will address traffic impacts, remedies and costs that are necessary to accommodate the additional growth in this area. The improvements will be added to the Transportation System Plan as part of the adoption of the Beavercreek Concept Plan and will meet the necessary Level of Service requirements of the city and will meet the intent of the Transportation Planning Rule. For the foregoing reasons, this criterion is met.

4. Compliance with applicable sections of Oregon Revised Statutes Chapter 222, and Metro Code 3.09.

Findings. The only criterion in ORS 222 is that annexed lands be contiguous to the City. The site is contiguous at its border with city property for about 4,200 feet along the exterior area boundary. The Metro Code criteria are discussed above. This report considers each factor and the Conclusions and Reasons in the attached Staff Report Findings and Reasons demonstrate that these criteria are satisfied. For the foregoing reasons, this criterion is met.

5. Natural hazards identified by the City, such as wetlands, floodplains, and steep slopes.

Findings. Preliminary review has identified water resource areas that will require further investigation at time of development to demonstrate compliance with existing Oregon City Municipal Code water resource protection standards. For the foregoing reasons, this criterion is met.

6. Any significant adverse effects on specially designated open space, scenic historic or natural resource areas by urbanization of the subject property at the time of annexation.

Findings. The property is in the Newell and Thimble drainage basin according to the Drainage Master Plan. There are no designated areas affected by urbanization of this property.

7. *Lack of any significant adverse effects on the economic, social and physical environment of the community by the overall impact of annexation.*

Findings. Annexation of the existing five homes will have virtually no affect on the economic, social, or physical environment of the community. The Commission interprets the "community" as including the City of Oregon City and the lands within its urban service area. The City will obtain a small increase in property tax revenues from adding additional assessed value to its tax roll as a result of annexing the territory. The City will also obtain land use jurisdiction over the territory. Finally it will have service responsibilities including fire, police, and general administration. The City delivers police service to the unincorporated area in the course of patrolling to deliver service to the incorporated area. The increases in service responsibilities to the area that result from the annexation are insignificant, though an additional five homes may impact the existing response time of the Police Department.

There are adequate public facilities and services to support annexation of this property at the FU-10 zoning. The Beavercreek Concept Plan will address any re-zoning for further urbanization. The plan will providing for a mix of employment, office, commercial and residential that will provide employment, entertainment and services within close proximity to existing and planned residential development. The ability to provide these opportunities in such close proximity to the residential development will limit the impacts on the infrastructure and services, include transportation. The addition of employment lands will have a positive effect on the economic, social and physical environment of Oregon City by providing employment opportunities in a region severely lacking those opportunities, increase the assessed value with

employment, office and commercial uses and providing a unique and urban physical environment that will be to the benefit of the residents of Oregon City.

The concept plan call for a mix of housing sizes and types, creating a truly mixed community that serves many income levels and demographics, which will improve the social environment of Oregon City. The compact urban development will also increase the opportunities for public transportation opportunities, potentially expanding the existing Tri-Met service from Clackamas Community College to the west of the site and providing an alternative to the single occupancy vehicle trip, thereby improving the economic and physical environment of Oregon City. For the foregoing reasons, this criterion is met.

III. CONCLUSION

For the reasons noted above, the City Commission has determined that the Applicant has met its burden of proof with respect to the Annexation and adopts Resolution No. 07-24 and set Proposal No. AN 07-02 for an election on November 6, 2007. The City Commission shall withdraw the territory from the County Service District for Enhanced Law Enforcement, Concur with Tri-City Service District's annexation of the subject property upon voter approval of the city annexation, will withdraw from the Clackamas County R.F.P.D #1 and Clackamas River Water District, will require all consenting property owners to sign a waiver of Measure 37 rights prior to the City Commission adopting a final ordinance accepting a positive annexation election result and shall accept the financial solution offered by the applicant to address the police funding shortcomings.

ADOPTED this 15th day of August 2007.

OREGON CITY COMMISSION

_____

Alice Norris, Mayor

Final Documents

for

Annexation to

Oregon City

CL1807

Ordinance: 07-1021

Annexation: AN 07-02

DOR: 3-1831-2008

Secretary of State: AN 2008-0068

Office of the Secretary of State

BILL BRADBURY
Secretary of State

Archives Division
MARY BETH HERKERT
Director

800 Summer St. NE
Salem, Oregon 97310
(503) 373-0701

Facsimile (503) 373-0953

March 27, 2008

Metro
Linda Martin
600 NE Grand Ave
Portland, Oregon 97232-2736

Dear Ms. Martin:

Please be advised that we have received and filed, as of March 27 2008, the following records annexing territory to the following:

Ordinance/Resolution Number(s)	Our File Number
07-1020 (Oregon City)	AN 2008-0067
07-1021 (Oregon City)	AN 2008-0068

For your records please verify the effective date through the application of ORS 199.519.

Our assigned file number(s) are included in the above information.

Sincerely,

Linda Bjornstad

Linda Bjornstad
Official Public Documents

cc: County Clerk(s)
Department of Revenue
ODOT
Population Research Center

CITY OF OREGON CITY
PUBLIC WORKS

ENGINEERING GROUP
CODE ENFORCEMENT GROUP
City Engineer/Public Works Director
P.O. Box 3040
320 Warner Milne Road
Oregon City, OR 97045
(503) 657-0891
Fax (503) 657-7892

OPERATIONS GROUP
122 S. Center Street
Oregon City, OR 97045
(503) 657-8241
Fax (503) 650-9590

www.orcity.org

March 20, 2008

Joanna Mensher
Metro/DRC
600 NE Grand Ave
Portland, OR 97232

Re: Oregon City AN07-02 (CL1807) Final Packet

Dear Ms. Mensher:

Enclosed is the final packet for the referenced City of Oregon City annexation proposal for your processing to the Secretary of State. This packet contains:

- Ordinance 07-1021
- Department of Revenue Final Approval
- Legal Description
- Findings of Fact with Conclusions and Reasons for Decision
- Annexation Map
- Certified copy of Election Results
- A check for the Metro Mapping Fee of $400.00 (to be mailed)

Your prompt processing is appreciated. If I can be of any further assistance, please call.

Sincerely,

Robert C. Cullison, E.I.T.
Development Services Manager

Encl: As stated

ORDINANCE NO. 07-1021

AN ORDINANCE ANNEXING CERTAIN PROPERTY TO THE CITY OF OREGON CITY

OREGON CITY MAKES THE FOLLOWING FINDINGS:

WHEREAS, The City of Oregon City proposed that certain properties, more fully identified in Exhibit 'A' to this Ordinance, be annexed to the City; and

WHEREAS, the City found that the proposal complied with all applicable legal requirements, as detailed in the findings attached hereto and made a part of this ordinance as Exhibit 'B'; and

WHEREAS, Chapter I, section 3 of the Oregon City Charter of 1982 requires voter approval for annexations such as the one proposed; and

WHEREAS, the annexation of the identified properties was submitted to the voters of the City of Oregon City at a special election held on November 6, 2007; and

WHEREAS, the Clackamas County Clerk has returned the official figures indicating the results of the election held on November 6, 2007; and

WHEREAS, the official figures returned by the Clackamas County Clerk indicate that a majority of the voters of the City of Oregon City voted to approve the annexation of the identified properties; and

WHEREAS, the identified properties are currently in Clackamas County Rural Fire Protection District # 1; and

WHEREAS, the identified properties are currently within the Clackamas County Service District for Enhanced Law Enforcement; and

WHEREAS, the identified properties are currently within the Clackamas River Water District; and

WHEREAS, the Tri-City Service District requires the City's concurrence to annexations into the District; and

WHEREAS, the City Commission concurs that the Tri-City Service District can annex the identified properties into their sewer district.

NOW, THEREFORE, OREGON CITY ORDAINS AS FOLLOWS:

Section 1. That the area further identified in the legal description attached hereto as Exhibit "A", is hereby annexed to and made a part of the City of Oregon City.

Section 2. That the findings attached hereto as Exhibit 'B' are hereby adopted.

Section 3. That the territory identified in Exhibit "A" is hereby withdrawn from Clackamas County Rural Fire Protection District # 1.

Section 4. That the territory identified in Exhibit "A" is hereby withdrawn from Clackamas County Service District for Enhanced Law Enforcement.

Section 5. That the territory identified in Exhibit "A" is hereby withdrawn from the Clackamas River Water District.

Section 6. The City hereby concurs with and approves the annexing of the territory identified in Exhibit "A" into the Tri-City Service District by the Clackamas County Board of Commissioners, to the extent allowed by law.

Section 7. That the effective date for this annexation is the date this ordinance is submitted to the Secretary of State, as provided in ORS 222.180.

Read for the first time at a regular meeting of the City Commission held on the 19th day of December 2007, and the foregoing ordinance was finally enacted by the City Commission this 19th day of December 2007.

ALICE NORRIS
Mayor

ATTESTED this 19th day of December 2007.

NANCY IDE
City Recorder

DOR 3-1831-2008

Notice to Taxing Districts

ORS 308.225

OREGON DEPARTMENT OF REVENUE
Cadastral Information Systems Unit
PO Box 14380
Salem, OR 97309-5075
(503) 945-8297, fax 945-8737

City of Oregon City
Robert C. Cullison
P.O. Box 3040
Oregon City, OR 97045

Description and Map Approved
March 20, 2008
As Per ORS 308.225

☒ Description ☒ Map received from: CITY
On: 3/19/2008

This is to notify you that your boundary change in Clackamas County for

ANNEX TO CITY OF OREGON CITY; WITHDRAW FROM SEVERAL DISTRICTS (CL1807)

ORD.#07-1021/AN07-02

has been: ☒ Approved 3/20/2008
☐ Disapproved

Notes:

Department of Revenue File Number: 3-1831-2008

Prepared by: Elise Bruch, 503-945-8344

Boundary: ☒ Change ☐ Proposed Change
The change is for:

☐ Formation of a new district
☒ Annexation of a territory to a district
☒ Withdrawal of a territory from a district
☐ Dissolution of a district
☐ Transfer
☐ Merge

Exhibit A

Legal Description

Part of the SE 1/4 Section 9, the South 1/2 of Section 10 and of the North 1/2 of Section 15 Township 3 South, Range 2 East of the Willamette Meridian, County of Clackamas, State of Oregon, and further described as follows:

Commencing at the northeast corner of the Andrew Hood DLC No. 44 thence North 00°30' East along the extension of the East line of said claim, a distance of 20 feet to the North right-of-way of John H. Loder Road and to the True Point of Beginning;

thence South 89°15' West along the Northerly right of way of said road 620.4 feet to the Northerly extension of the Westerly boundary of that parcel described in Clackamas County Deed Record No. 94-00722;

thence South 0°30' West a distance of 371.12 feet to the Southwest corner of that parcel described in said Deed Record No. 94-00722;

thence South 89° 15' West a distance of 784.08 feet to a stone marked " X on the North boundary of a tract of land conveyed to David F. Moehunke, et ux, in Book 157, Page 360, Deed Records;

thence North 0°30' East 371.I2 feet along the West boundary and the Northerly extension thereof of a tract of land conveyed to Charles G. Thomas, et ux, by Book 341, Page 570, Clackamas County Deed Records to a point in the Northerly right of way of said Loder Road,

thence South 89°15' West along the North boundary of said Northerly right of way of said Loder Road a distance of 465 feet more or less, to a point being the Northwesterly extension of the Northeasterly boundary of that parcel conveyed to the Hall Family Investment Co, LLC in Clackamas County Deed #98-130715;

thence South 40°45' East a distance of 485 feet more or less, to an iron pipe as recorded on P.S. 3494, Clackamas County Surveyor's Office;

thence South 49°55' West 670 feet to an iron pipe as recorded on said P.S. 3494 located on the Northeasterly right of way of the Oregon City to Highland Road, now known as Beavercreek Road;

thence South 40°37' East along the Easterly right of way of said Beavercreek Road 3135 feet, more or less, to a point being the south most southwest corner of that parcel of land conveyed to Wayne C. Hall and Helen E. Hall and recorded in Clackamas County Deed Records in Book 546, Page 288;

thence N 87°11' 21" E along the south line of said Hall tract, 445.92 feet to a 5/8" iron rod set at the south most southeast corner of said Hall tract;

thence N 0° 46' 16" E, 570.00 feet to a 5/8" iron rod;

thence N 0° 46' 16" E, 410.31 feet to 5/8" iron rod;

thence N 0° 46' 57" E, 480.44 feet to a 1/2" iron rod;

thence N 27° 12' 06" W, 533.04 feet to 5/8" iron rod;

thence N 12° 49' 21" E, 306.64 feet to 5/8" iron rod;

thence S 89° 13' 00" E, 197.71 feet to 5/8" iron rod;

thence S 89° 13' 00" E, 500.04 feet to 5/8" iron rod set in a mound of stone at the north most southeast corner of said Hall tract and also being the West line of Government Lot 2 of Section 10 of Township 3 South, Range 2 East of the Willamette Meridian;

thence North 0° 4' 45" East 932.13 feet along said Government Lot 2, the Urban Growth Boundary, and the northerly extension of said west line of Government Lot 2 to the Northerly right of way of Loder Road;

thence South 89° 15' West tracing said Northerly right of way of said Loder Road 987.36 feet to the Point of Beginning.

Exhibit B

BEFORE THE OREGON CITY
CITY COMMISSION

In the Matter of Resolution No. 07-24 to set the election date of November 6, 2007 for the annexation of 122 acres located east of Beavercreek Road and South of Loder Road into Oregon City.	FINDINGS OF FACT, CONCLUSIONS OF LAW AND FINAL ORDER IN OREGON CITY FILE No. AN 07-02.

I. INTRODUCTION

Northwest Development Solutions (the "Applicant") submitted application for the annexation of 12 properties totaling 122 acres into the city limits of Oregon City. The Planning Commission held evidentiary hearings on July 16th and July 23rd, 2007, after which the Planning Commission deliberated and unanimously recommended approval of the request to the City Commission for their consideration. On August 1st, 2007, the City Commission held a public hearing and after hearing all of the testimony and considering all of the evidence, tentatively voted to approve the annexation and recommend that the issue be sent to the citizens for a vote on November 6th, 2007. The Commission's reasons for approving the application are set forth in these findings of fact, conclusions of law, and final order.

II. FINDINGS

Annexation 07-02 was initiated by consent petition of a 100% of the property owners and voters. The territory contains approximately 122 acres, has 5 single-family residences, 7 commercial structures, a population of 9 and is valued at $1,566,711. The properties have a comprehensive plan designation of Future Urban Holding, which is a holding designation until a Concept Plan for the Beavercreek Road area is completed. The zoning designation will remain Future Urban 10-acre minimum until adoption of the Beavercreek Road Concept Plan and the appropriate Comprehensive Plan and Zoning designation can be applied to the individual properties. A majority of the public testimony addressed the draft Beavercreek Road Concept Plan design and process and was not applicable to the annexation request before the commission.

A. Metro Boundary Change Criteria.

1. Consistency with directly applicable provisions in ORS 195 agreements or ORS 195 annexation plans.

Findings. There are no adopted 195 annexation plans or agreements applicable to this area. For the foregoing reasons, this criterion is met.

2. Consistency with directly applicable provisions of urban planning area agreements between the annexing entity and a necessary party.

Findings. A necessary party is defined as any county, city or district whose jurisdictional boundary or adopted urban serve area includes any part of the affected territory or who provides any urban service to any portion of the affected territory, Metro, and any other unit of local government, as defined in ORS 190.003, that is a party to any agreement for provisions of an urban service to the affected territory. Proper notice was given to all necessary parties and the only comments received where from the Public Safety Director of Oregon City, which were addressed to the satisfaction of the Director by the applicant.

A citizen contended that the County Commissioner's have not been briefed on the annexation, thus it is not possible to know if the necessary party has contested the annexation.

The County Commissioner's office was mailed notice of the annexation request on June 12th, 2007, indicating the time and location of the Planning and City Commission public hearings and requesting comments, either in writing or during testimony at the hearings. No comments were received from the County.

The City and County have an Urban Growth Management Agreement (UGMA), which is part of their Comprehensive Plans. The territory to be annexed falls within the Urban Growth Management Boundary (UGMB) identified for Oregon City and is subject to the agreement. The County agreed to adopt the City's Comprehensive Plan designation for the area, which currently is Future Urban 10 and the agreement presumes that all the urban lands within the UGMB will ultimately annex to the City and that the responsibility for the public facilities shall fall the City.

The City agrees to concur with the Tri-City Service District's annexation of the subject properties upon voter approval of the city annexation. This territory is currently within the Clackamas River Water District, with which the city does not have an urban service agreement, however; ORS 222.120 allows the city to specify that the territory by automatically withdrawn from the water district upon annexation, which will occur upon voter approval of the city annexation. The City shall also withdraw the territory from the County Service District for Law Enforcement and Clackamas County R.F.P.D #1. For the foregoing reasons, this criterion is met.

3. Consistency with directly applicable standards for boundary changes contained in comprehensive land use plans and public facility plans.

Findings. The AN 07-02 staff report demonstrates consistency with the existing comprehensive land use plans and public facility plans. The annexation of the 122 acres and 5 single-family homes will have minimal impact on the existing services and infrastructure and the properties are contiguous to the existing City limits. The properties will be zoned Future Urban 10 until the Beavercreek Concept Plan and implementing ordinances are adopted. Approval of the Beavercreek Road Concept Plan will comply with all applicable Comprehensive Plan requirements and the public facility plans will be updated to account for the future impacts of the full build out of the 122 acres. The FU-10 zoning designation is a holding zone that prevents the property from being developed at urban standards until such time as the Concept Plan and implementing ordinances are adopted, having demonstrated compliance with the Comprehensive Plan, including updates to the city master plans and capital improvements plans. For the foregoing reasons, this criterion is met. At the public hearing before the city commission, several parties raised the issue of consistency with the Beavercreek Concept Plan. As discussed below, that plan had not yet been adopted and is not a criterion for this annexation.

4. Consistency with directly applicable standards for boundary changes contained in the Regional framework or any functional plans.

Findings. The law that requires Metro to adopt criteria for boundary changes specifically states that those criteria shall include "...compliance with adopted regional urban growth goals and objectives, functional plans....and the regional framework plan of the district

(Metro)." The Growth Management Functional Plan was reviewed and found not to contain any criteria directly applicable to boundary changes. In addition, the Regional Framework Plan was reviewed and found not to contain specific criteria applicable to boundary changes. For the foregoing reasons, this criterion is met.

5. Whether the proposed boundary change will promote or not interfere with the timely, orderly and economic provision of public facilities and services.

Findings. Annexation of the existing five homes will have virtually no affect on the timely, orderly and economic provision of public facilities and services. The City will obtain a small increase in property tax revenues from adding additional assessed value to its tax roll as a result of annexing the territory and there is adequate public facilities and services to provide for the additional 5 homes and 7 commercial buildings. The City will also obtain land use jurisdiction over the territory. The Beavercreek Concept Plan will address the overall impact to the city of a much larger swath of land, which includes this piece, but that plan has not yet been completed. The territory to be annexed under that plan will include approximately 20 acres of employment and 48 acres of mixed employment, which will provide employment opportunities that are greatly lacking in Oregon City. Because that plan has not been adopted, it is not an applicable criterion and there has been no showing that annexation of this property to the city will interfere with the timely, orderly and economic provision of public facilities and services to the area. The applicant has also proposed a Police Funding Fee to be collected at time of building permit to off-set the impacts on Police service. For the foregoing reasons, this criterion is met.

6. Consistency with other applicable criteria for the boundary change in question under state and local law.

Findings. The proposed annexation complies with all applicable state and local laws as demonstrated in these findings of fact and the AN 07-01 staff report. For the foregoing reasons, this criterion is met.

B. Oregon City Municipal Code: Section 6 of Chapter 14.

1. Adequacy of access to the site.

Findings. Access is provided from Beavercreek Road to the west and Loder Road to the north. The City-County UGMA requires the annexation to include the adjacent portions of all county streets. There is adequate frontage from public streets to access the site in a safe and efficient manner. For the foregoing reasons, this criterion is met.

2. Conformity of the proposal with the City's Comprehensive Plan.

Findings. The Comprehensive Plan identifies a need to provide an adequate supply of land for major industrial employers with family-wage jobs, ensure that land-use patterns create opportunities for citizens to live closer to their workplace and require that a majority of the lands east of Clackamas Community College, which includes this area, shall be

designated in such a manner that it encourages family-wage jobs in order to generate new jobs and move towards meeting the city's employment goals.

The Beavercreek Road Concept Plan, which includes this 122 acres, is designed to meet City and Metro requirements for the creation and protection of employment lands within the study area. The site contains approximately 20 acres of employment and 48 acres of mixed employment, which will allow citizens to live closer to employment opportunities and will provide lands that will offer family-wage jobs and move the City closer to meeting their employment goals.

The proposed annexation properties are within the Beavercreek Road Concept Planning area, but no concept plan has been adopted. Therefore, the Concept Plan is not applicable to this annexation.

3. Adequacy and availability of public facilities and services to service potential development.

Findings. as discussed below, the Facilities and Services discussion of the staff report indicate that there are adequate services to support the annexation at the zoning designation of FU-10. To the extent additional development will occur, the property will have to be re-zoned, which will not occur until the Concept Plan has been approved. The Concept Plan will have to demonstrate that public facilities and services for potential development will be accounted for once the Beavercreek Road Concept Plan is adopted. The concept plan will identify the impacts to the public facilities and services and the remedies necessary to accommodate the potential development on the annexed properties.

There are existing water lines and sanitary sewer lines in Beavercreek Road north of the subject site and in Glen Oak Road that can be extended to the site to provide service. The necessary water, sanitary, and stormwater improvements necessary to accommodate the future development of the area will be included in the city's master plans to ensure adequacy of the systems.

The Beavercreek Concept Plan will integrate a multi-modal transportation system with a mixed-use development pattern to achieve a highly efficient and sustainable design. The concept plan will identify a network of internal and external pedestrian, bicycle, transit, and street connections that serve the study area and connect it to the surrounding community and the broader region. The concept plan will ensure that the land brought into the UGB is planned in an efficient and sustainable manner that will identify compatible land uses, including industrial, office, commercial, and residential uses, thereby reducing the need for vehicle trips, improving the efficiency of public transportation, offering multi-modal transportation options, and reducing the need to expand the UGB in the future.

The Concept Plan will address traffic impacts, remedies and costs that are necessary to accommodate the additional growth in this area. The improvements will be added to the Transportation System Plan as part of the adoption of the Beavercreek Concept Plan and will meet the necessary Level of Service requirements of the city and will meet the intent of the Transportation Planning Rule. For the foregoing reasons, this criterion is met.

4. Compliance with applicable sections of Oregon Revised Statutes Chapter 222, and Metro Code 3.09.

Findings. The only criterion in ORS 222 is that annexed lands be contiguous to the City. The site is contiguous at its border with city property for about 4,200 feet along the exterior area boundary. The Metro Code criteria are discussed above. This report considers each factor and the Conclusions and Reasons in the attached Staff Report Findings and Reasons demonstrate that these criteria are satisfied. For the foregoing reasons, this criterion is met.

5. Natural hazards identified by the City, such as wetlands, floodplains, and steep slopes.

Findings. Preliminary review has identified water resource areas that will require further investigation at time of development to demonstrate compliance with existing Oregon City Municipal Code water resource protection standards. For the foregoing reasons, this criterion is met.

6. Any significant adverse effects on specially designated open space, scenic historic or natural resource areas by urbanization of the subject property at the time of annexation.

Findings. The property is in the Newell and Thimble drainage basin according to the Drainage Master Plan. There are no designated areas affected by urbanization of this property.

7. *Lack of any significant adverse effects on the economic, social and physical environment of the community by the overall impact of annexation.*

Findings. Annexation of the existing five homes will have virtually no affect on the economic, social, or physical environment of the community. The Commission interprets the "community" as including the City of Oregon City and the lands within its urban service area. The City will obtain a small increase in property tax revenues from adding additional assessed value to its tax roll as a result of annexing the territory. The City will also obtain land use jurisdiction over the territory. Finally it will have service responsibilities including fire, police, and general administration. The City delivers police service to the unincorporated area in the course of patrolling to deliver service to the incorporated area. The increases in service responsibilities to the area that result from the annexation are insignificant, though an additional five homes may impact the existing response time of the Police Department.

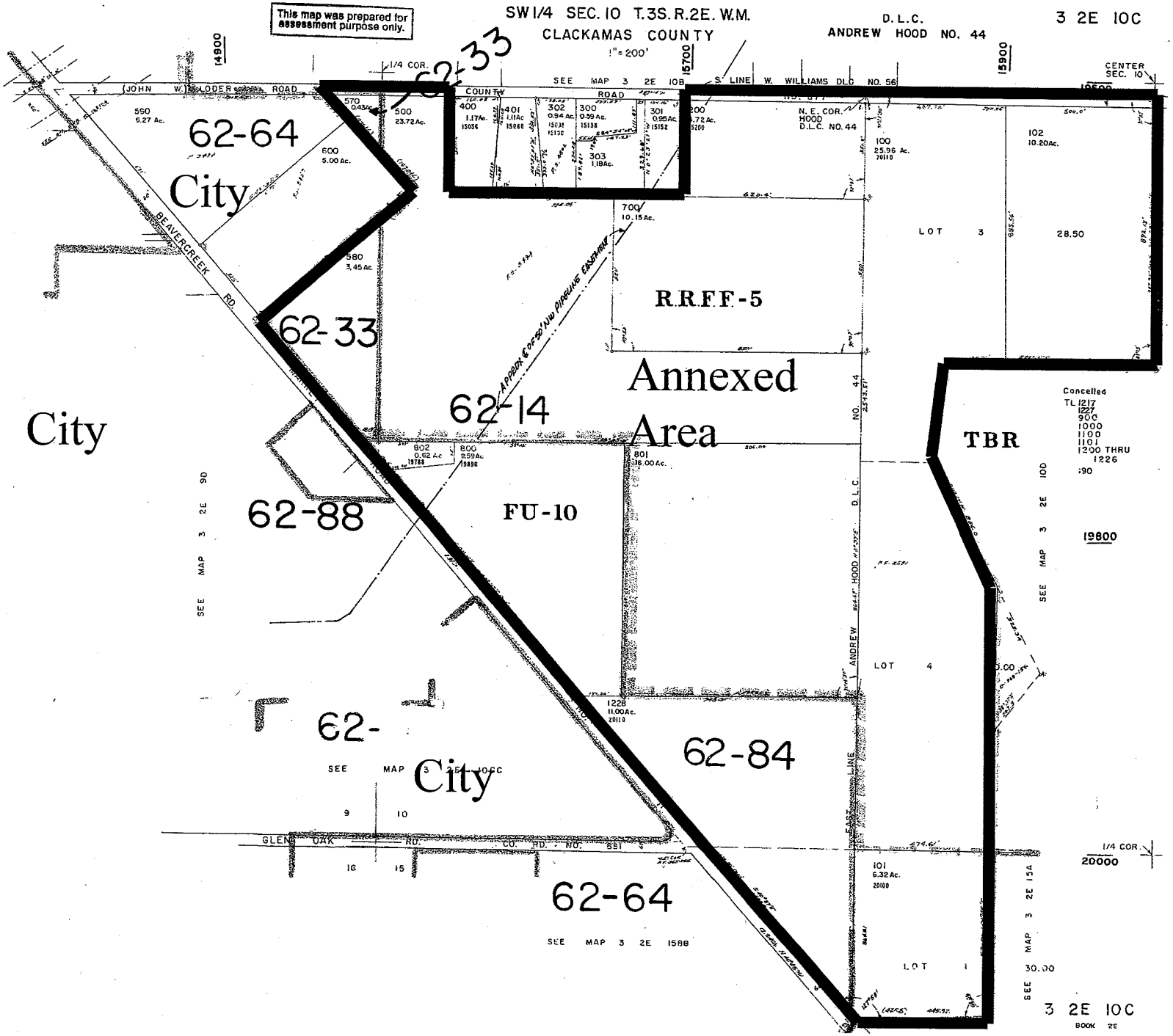
There are adequate public facilities and services to support annexation of this property at the FU-10 zoning. The Beavercreek Concept Plan will address any re-zoning for further urbanization. The plan will providing for a mix of employment, office, commercial and residential that will provide employment, entertainment and services within close proximity to existing and planned residential development. The ability to provide these opportunities in such close proximity to the residential development will limit the impacts on the infrastructure and services, include transportation. The addition of employment lands will have a positive effect on the economic, social and physical environment of Oregon City by providing employment opportunities in a region severely lacking those opportunities, increase the assessed value with

employment, office and commercial uses and providing a unique and urban physical environment that will be to the benefit of the residents of Oregon City.

The concept plan call for a mix of housing sizes and types, creating a truly mixed community that serves many income levels and demographics, which will improve the social environment of Oregon City. The compact urban development will also increase the opportunities for public transportation opportunities, potentially expanding the existing Tri-Met service from Clackamas Community College to the west of the site and providing an alternative to the single occupancy vehicle trip, thereby improving the economic and physical environment of Oregon City. For the foregoing reasons, this criterion is met.

III. CONCLUSION

For the reasons noted above, the City Commission has determined that the Applicant has met its burden of proof with respect to the Annexation and adopts Resolution No. 07-24 and set Proposal No. AN 07-02 for an election on November 6, 2007. The City Commission shall withdraw the territory from the County Service District for Enhanced Law Enforcement, Concur with Tri-City Service District's annexation of the subject property upon voter approval of the city annexation, will withdraw from the Clackamas County R.F.P.D #1 and Clackamas River Water District, will require all consenting property owners to sign a waiver of Measure 37 rights prior to the City Commission adopting a final ordinance accepting a positive annexation election result and shall accept the financial solution offered by the applicant to address the police funding shortcomings.


This map was prepared for assessment purpose only.
SW1/4 SEC. 10 T.3S. R.2E. W.M.
CLACKAMAS COUNTY
1"=200'
3 2E 10C
D.L.C.
ANDREW HOOD NO. 44
62-33
14900
15700
15900
19500
1/4 COR.
CENTER SEC. 10
(JOHN W.) LODER ROAD
COUNTY ROAD
S. LINE W. WILLIAMS DLC NO. 56
N. E. COR. HOOD D.L.C. NO. 44
62-64
City
BEAVERCREEK RD.
APPROX. 6 OF 50' NW PIPELINE EASEMENT
RRFF-5
Annexed Area
62-14
City
62-88
FU-10
TBR
Cancelled
TL 1217
1227
900
1000
1100
1101
1200 THRU 1226
:90
19800
SEE MAP 3 2E 90
SEE MAP 3 2E 10D
D.L.C.
ANDREW HOOD
LOT 4
LOT 3
LOT 1
28.50
30.00
62-
SEE MAP 3 2E 10CC
City
62-84
EAST LINE
GLEN OAK RD. CO. RD. NO. 881
62-64
SEE MAP 3 2E 15BB
1/4 COR.
20000
SEE MAP 3 2E 15A
3 2E 10C
BOOK 2E

3-276 CITY OF OREGON CITY: ANNEXATION OF 122 ACRES INTO CITY

VOTE FOR 1

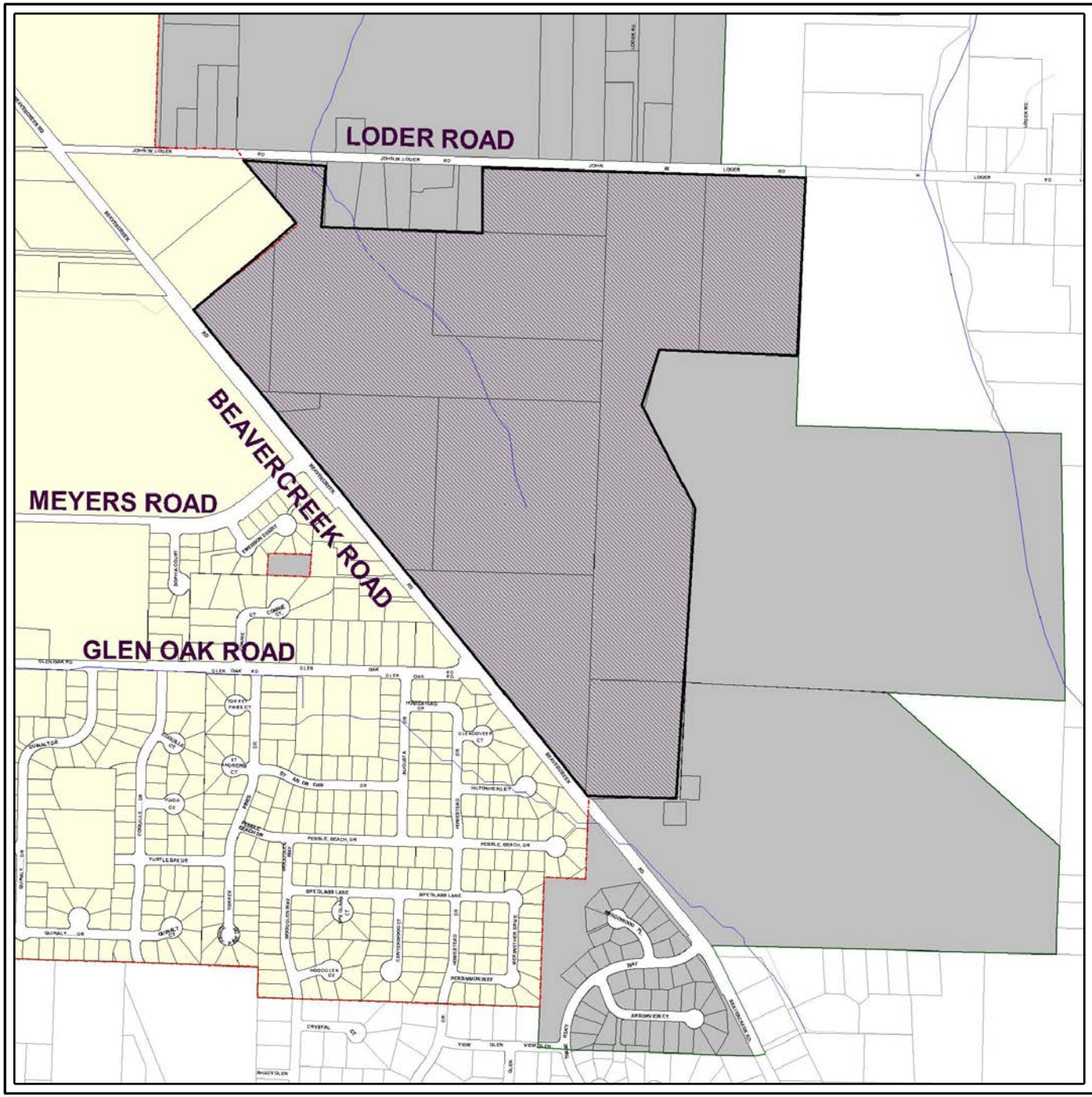
	VOTES	PERCENT		VOTES	PERCENT
01 = Yes	4,116	50.26	03 = OVER VOTES	0	
02 = No	4,073	49.74	04 = UNDER VOTES	620	

	01	02	03	04
0001 1	315	312	0	61
0002 2	324	343	0	67
0003 3	277	233	0	41
0005 5	263	233	0	50
0006 6	323	309	0	41
0007 7	642	677	0	100
0008 8	1207	1162	0	159
0009 9	359	350	0	48
0011 11	406	454	0	53

RECEIVED
NOV 26 2007
CITY RECORDER
CITY OF OREGON CITY, OR

CERTIFIED COPY OF THE ORIGINAL
SHERRY HALL, COUNTY CLERK
BY:
NOV 20 2007

AN 07-02





4

City of Oregon City
P.O. Box 3040
320 Warner Milne Rd
Oregon City, OR 97045
(503) 657-0891
www.orcity.org

This map is not suitable for survey, engineering, legal, or navigation purposes. Errors and omissions may exist.

Map created with OCMap 2006

05/29/2007

NOTICE OF HEARINGS

NOTICE IS HEREBY GIVEN THAT AT 7:00 PM ON MONDAY, JULY 16**,** 2007, IN THE CITY HALL COMMISSION CHAMBERS FOR OREGON CITY, 320 WARNER-MILNE ROAD, OREGON CITY, OREGON; THERE SHALL BE A PUBLIC HEARING BY AND BEFORE THE OREGON CITY **PLANNING COMMISSION** ON THE BOUNDARY CHANGE PROPOSAL LISTED BELOW.

NOTICE IS HEREBY ALSO GIVEN THAT AT 7:00 PM ON WEDNESDAY, AUGUST 1**,** 2007, IN THE CITY HALL COMMISSION CHAMBERS FOR OREGON CITY, 320 WARNER-MILNE ROAD, OREGON CITY, OREGON; THERE SHALL BE A PUBLIC HEARING BY AND BEFORE THE OREGON CITY **CITY COMMISSION** ON THE BOUNDARY CHANGE PROPOSAL LISTED BELOW.

INTERESTED PERSONS MAY APPEAR AT THESE HEARINGS AND WILL BE GIVEN REASONABLE OPPORTUNITY TO BE HEARD. INTERESTED PERSONS MAY ALSO SUBMIT WRITTEN COMMENTS ON THE PROPOSAL AT OR BEFORE THE HEARINGS.

PROPOSAL NO. AN 07-02 - ANNEXATION TO CITY OF OREGON CITY of territory located generally in the south east side of the City on the east side of Beavercreek Road, more particularly: Tax Lots 100, 101, 102, 200, 500, 570, 580, 700, 800, 801, 802, and 1228, in the SW 1/4 of Section 10 (10C); W.M., Clackamas County, Oregon.

The applicant desires to provide the properties with city services to eventually rezone some tax lots to accommodate a mixed use master planned community.

The decision on annexation to the City does not authorize or prevent any specific use of land. Current county zoning and planning designations will remain on the property until the City takes action to rezone the property.

Criteria for processing the annexations by the Planning and City Commission are found in Metro Code 3.09, Oregon City Municipal Code Title 14 (Ordinance 99-1030), the Land Use chapter of the Clackamas County Comprehensive Plan, the City / County Urban Growth Management Agreement, and Sections 11 and 14 of the Oregon City Comprehensive Plan. The Planning Commission will forward their recommendation for annexation to the City Commission who then decides whether to send it to the City voters for the final decision.

Any interested party may testify at the hearing or submit written comments on the proposals at or before the hearing. Staff reports will be available 15 days before the hearing. Any issue, which is intended to provide a basis for an appeal, must be raised before the close of the public record. Issues must be raised and accompanied by statements or evidence sufficient to afford the City and all parties an opportunity to respond to the issue.

The applications and all supporting materials and evidence submitted in support of the applications may be inspected at no charge and copies may be obtained at reasonable cost.

General information and/or a copy of the staff reports may be obtained by calling Bob Cullison at 503 496-1561 or email at bcullison@ci.oregon-city.or.us.

JUNE 7, 2007 NANCY IDE, CITY RECORDER

ORDINANCE NO. 10-1012

AN ORDINANCE AMENDING A PORTION OF THE CITY'S COMPREHENSIVE PLAN MAP FROM COUNTY FU – FUTURE URBAN TO MUC - MIXED USE CORRIDOR AND TITLE 17: ZONING, CHAPTER 17.06.030: A PORTION OF THE OFFICIAL ZONING MAP, OF THE OREGON CITY MUNICIPAL CODE, FROM COUNTY - FU-10 TO MUC-1 – MIXED USE CORRIDOR DISTRICT FOR THE PROPERTY IDENTIFIED AS CLACKAMAS COUNTY MAP 3-2E-10C, TAX LOT 800.

WHEREAS, the City of Oregon City has adopted Comprehensive Plan and Zoning Maps to implement the Comprehensive Plan in conformance with statutory requirements and the requirements of the Statewide Land Use goals; and

WHEREAS, the City of Oregon City Comprehensive Plan and Zoning Maps may be amended and updated as necessary upon findings of facts that satisfy approval criteria in the City of Oregon City Municipal Code Section 17.68.020; and

WHEREAS, the owner of the subject site, identified as Clackamas County Map 3-2E-10-C, Tax Lot 800, has requested the approval of a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land; and

WHEREAS, the proposed comprehensive plan designation of the site as MUC supports the Mixed Use Corridor District zoning designation, and

WHEREAS, the zone change from FU-10 District to MUC-1 is for a property that is has been located within the City's Urban Growth Boundary since 1979;

WHEREAS, the MUC-1 Zone meets the intent of the Comprehensive Plan Policies for mixed-use development, housing choices and increased density near activity centers and along the Beavercreek Road corridor;

WHEREAS, the subject property is not within the Metro Urban Growth Functional Management Plan Title 4 (Industrial and Employment Land) area that has been slated for redesignation out of Title 4 land on Metro's Urban Design Type Map; and therefore the City need not wait for the Title 4 map change before proceeding with the rezoning; and

WHEREAS, based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known; and

WHEREAS, the city considers the construction of the Meyers Road Extension between High School Ave and OR-213 by 2027 a reasonably likely improvement that will be demonstrate compliance with the Transportation Planning Rule (OAR 660-12-0060), and the project is identified in the City's capital improvement program and the city collects SDCs for this project's cost; and

WHEREAS, the projected transportation and public infrastructure impacts resulting from a zone change from FU-10 to MUC-1 Mixed Use Corridor District shall be required to comply with the specific Conditions of Approval and all applicable city regulations at the time a development is proposed on the property, and the applicant has demonstrated compliance with the Transportation System Plan, Public Infrastructure Master Plans and Oregon City Municipal Code; and

WHEREAS, notice of the proposed comprehensive plan map amendment and zone change was mailed to residents within 300 feet of the subject site and the Beavercreek Hamlet; and, in addition, signs were posted on the property, notice was published in a local newspaper and the City held public hearings where the objectives and concepts of the proposal were presented and discussed; and

WHEREAS, on August 30th, 2010, the Planning Commission held a public hearing and, after considering all the public testimony and reviewing all the evidence in the record, recommended approval of the requested comprehensive plan amendment and zone change (with conditions) to the City Commission by a 4 – 0 vote; and

WHEREAS, on October 6th, 2010, the City Commission held a public hearing and took testimony from the Hamlet of Beavercreek and subsequently extended the written comment period for 7 days to consider additional arguments; and

WHEREAS, on October 20th, 2010, the City Commission allowed additional testimony from the Hamlet of Beavercreek and voted not to consider a portion of the additional information submitted by the Hamlet concerning the finding that the construction of Meyers Road was reasonably likely to be constructed ; and

WHEREAS, on November 3rd, 2010, the City Commission, after considering all of the public testimony and written arguments, found that the application, as conditioned, met all of the applicable approval criteria for a comprehensive plan amendment and zone change; and

WHEREAS, approving the comprehensive plan amendment and zone change is in compliance with the Goals and Policies of the Oregon City Comprehensive Plan and as proposed and conditioned is in compliance with all applicable city requirements.

NOW, THEREFORE, OREGON CITY ORDAINS AS FOLLOWS:

Section 1. The requested comprehensive plan map amendment Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation (PZ 10-1), and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district (ZC 10-1) are hereby approved as proposed by the applicant with conditions for the property identified as Clackamas County Map 3-2E-10C, Tax Lot 800 and the Comprehensive Plan Map and Zoning Map are hereby changed accordingly.

Section 2. The comprehensive plan amendment and zone change are approved as proposed by the applicant with the conditions of approval attached to this Ordinance as Attachment A, Exhibit 1.

Section 3. The Commission adopts the findings and conclusions from the August 30, 2010 Planning Commission staff report, included as Attachment A, Exhibit 2, and the

Supplemental Findings, dated October 26, 2010, included as Attachment A, Exhibit 3 and incorporated herein to support the City's approval to amend the comprehensive plan map and zoning map.

Read for the first time at a regular meeting of the City Commission held on the 3rd day of November 2010, and the City Commission finally enacted the foregoing ordinance this 3rd day of November 2010.

ALICE NORRIS, Mayor

Attested to this 3rd day of November 2010

Nancy Ide, City Recorder

Approved as to legal sufficiency:

City Attorney

Oregon
Theodore R. Kulongoski, Governor

Department of Land Conservation and Development
635 Capitol Street, Suite 150
Salem, OR 97301-2540
(503) 373-0050
Fax (503) 378-5518
www.lcd.state.or.us

NOTICE OF ADOPTED AMENDMENT

11/16/2010

TO: Subscribers to Notice of Adopted Plan or Land Use Regulation Amendments

FROM: Plan Amendment Program Specialist

SUBJECT: City of Oregon City Plan Amendment
DLCD File Number 002-10

The Department of Land Conservation and Development (DLCD) received the attached notice of adoption. Due to the size of amended material submitted, a complete copy has not been attached. A Copy of the adopted plan amendment is available for review at the DLCD office in Salem and the local government office.

Appeal Procedures*

DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: Tuesday, November 30, 2010

This amendment was submitted to DLCD for review prior to adoption pursuant to ORS 197.830(2)(b) only persons who participated in the local government proceedings leading to adoption of the amendment are eligible to appeal this decision to the Land Use Board of Appeals (LUBA).

If you wish to appeal, you must file a notice of intent to appeal with the Land Use Board of Appeals (LUBA) no later than 21 days from the date the decision was mailed to you by the local government. If you have questions, check with the local government to determine the appeal deadline. Copies of the notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR Chapter 661, Division 10). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

*NOTE: The Acknowledgment or Appeal Deadline is based upon the date the decision was mailed by local government. A decision may have been mailed to you on a different date than it was mailed to DLCD. As a result, your appeal deadline may be earlier than the above date specified. NO LUBA Notification to the jurisdiction of an appeal by the deadline, this Plan Amendment is acknowledged.

Cc: Pete Walter, City of Oregon City
Gloria Gardiner, DLCD Urban Planning Specialist
Jennifer Donnelly, DLCD Regional Representative
Bill Holmstrom, DLCD Transportation Planner

<paa> YA

FORM 2 DLCD Notice of Adoption

This Form 2 must be mailed to DLCD within **5-Working Days after the Final Ordinance is signed** by the public Official Designated by the jurisdiction and all other requirements of ORS 197.615 and OAR 660-018-000

DATE STAMP
☐ In person ☐ electronic ☐ mailed
DEPT OF
NOV 10 2010
LAND CONSERVATION AND DEVELOPMENT
For Office Use Only

Jurisdiction: **CITY OF OREGON CITY** Local file number: **PZ 10-01 / ZC 10-01**

Date of Adoption: **11/3/2010** Date Mailed: **11/9/2010**

Was a Notice of Proposed Amendment (Form 1) mailed to DLCD? ☐ Yes ☐ No Date:

☐ Comprehensive Plan Text Amendment ☐ Comprehensive Plan Map Amendment

☐ Land Use Regulation Amendment ☐ Zoning Map Amendment

☐ New Land Use Regulation ☐ Other:

Summarize the adopted amendment. Do not use technical terms. Do not write "See Attached".

AMENDED THE CITY'S COMPREHENSIVE PLAN MAP FROM COUNTY FU – FUTURE URBAN TO MUC - MIXED USE CORRIDOR AND CHANGED THE CITY ZONING MAP FROM COUNTY - FU-10 TO MUC-1 – MIXED USE CORRIDOR DISTRICT FOR THE PROPERTY IDENTIFIED AS CLACKAMAS COUNTY MAP 3-2E-10C, TAX LOT 800. NO DEVELOPMENT IS PROPOSED AT THIS TIME.

Does the Adoption differ from proposal?

No, No explanation is neccessary

Plan Map Changed from: **COUNTY FU - FUTURE URBAN** to: **MUC - MIXED USE CORRIDOR**

Zone Map Changed from: **COUNTY – FU-10** to: **MUC-1 – MIXED USE CORRIDOR**

Location: **19896 Beavercreek Road, Oregon City, OR 97045** Acres Involved: **9.59**

Specify Density: Previous: **1 DWELLING** New: **NA – NO DEV. PROPOSED**

Applicable statewide planning goals:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
☒	☒	☐	☐	☒	☒	☐	☐	☒	☒	☒	☒	☒	☒	☐	☐	☐	☐	☐

Was an Exception Adopted? ☐ YES ☒ NO

Did DLCD receive a Notice of Proposed Amendment...

45-days prior to first evidentiary hearing?	☒ **Yes**	☐ **No**
If no, do the statewide planning goals apply?	☐ **Yes**	☐ **No**
If no, did Emergency Circumstances require immediate adoption?	☐ **Yes**	☐ **No**

DLCD file No. 002-10 (18401) [16405]

Please list all affected State or Federal Agencies, Local Governments or Special Districts:

OREGON DEPT OF TRANSPORTATION REGION #1, METRO, CLACKAMAS COUNTY, CLACKAMAS FIRE DISTRICT #1, CLACKAMAS RIVER WATER (CRW), OREGON CITY SCHOOL DISTRICT 62, TRI-COUNTY SERVICE DISTRICT (SEWER)

Local Contact: **PETE WALTER, AICP** Phone: **(503) 496-1568** Extension:

Address: **221 Molalla Ave, Suite 200** Fax Number: **503-722-3880**

City: **OREGON CITY, OR** Zip: **97045** E-mail Address: **pwalter@orcity.org**

ADOPTION SUBMITTAL REQUIREMENTS

This Form 2 must be received by DLCD no later than 5 days after the ordinance has been signed by the public official designated by the jurisdiction to sign the approved ordinance(s)
per ORS 197.615 and OAR Chapter 660, Division 18

1. This Form 2 must be submitted by local jurisdictions only (not by applicant).
2. When submitting, please print this **Form 2** on light **green paper if available.**
3. Send this Form 2 and **One (1) Complete Paper Copy and One (1) Electronic Digital CD** (documents and maps) of the Adopted Amendment to the address in number 6:
4. **Electronic Submittals: Form 2 – Notice of Adoption will not be accepted via email or any electronic or digital format at this time.**
5. The Adopted Materials must include the final decision signed by the official designated by the jurisdiction. The Final Decision must include approved signed ordinance(s), finding(s), exhibit(s), and any map(s).
6. **DLCD Notice of Adoption must be submitted in One (1) Complete Paper Copy and One (1) Electronic Digital CD via United States Postal Service, Common Carrier or Hand Carried to the DLCD Salem Office and stamped with the incoming date stamp.** (for submittal instructions, also see # 5)] **MAIL the PAPER COPY and CD** of the Adopted Amendment to:

ATTENTION: PLAN AMENDMENT SPECIALIST
DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT
635 CAPITOL STREET NE, SUITE 150
SALEM, OREGON 97301-2540

7. Submittal of this Notice of Adoption must include the signed ordinance(s), finding(s), exhibit(s) and any other supplementary information (see ORS 197.615).
8. Deadline to appeals to LUBA is calculated **twenty-one (21) days** from the receipt (postmark date) of adoption (see ORS 197.830 to 197.845).
9. In addition to sending the Form 2 - Notice of Adoption to DLCD, please notify persons who participated in the local hearing and requested notice of the final decision at the same time the adoption packet is mailed to DLCD (see ORS 197.615).
10. **Need More Copies?** You can now access these forms online at **http://www.lcd.state.or.us/**. You may also call the DLCD Office at (503) 373-0050; or Fax your request to: (503) 378-5518.

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

Notice of Decision

November 9, 2010

FILE NO.: PZ 10-01: Comprehensive Plan Map Amendment
ZC 10-01: Zone Change

FILE TYPE: Type IV – Quasi-Judicial Land Use Decision

OWNER: Marylwood, LLC
Att: Phil Gentemann
7128 SW Gonzaga St
Portland, OR 97223

APPLICANT: Theta, LLC, Attn. Bruce Goldson
PO Box 1345
Lake Oswego, OR 97035

REQUEST: Approval of a Comprehensive Plan Map Amendment from County FU – Future Urban to MUC - Mixed Use Corridor and a Zoning Map Change from County - FU-10 To MUC-1 – Mixed Use Corridor District for the Property identified as Clackamas County Map 3-2E-10C, Tax Lot 800.

LOCATION: 19896 Beavercreek Road
Clackamas County Map 3-2E-10C, Tax Lot 800

IN-HOUSE DISTRIBUTION	MAIL-OUT DISTRIBUTION
☑ Building Official	☑ Citizen Involvement Council (CIC)
☑ Development Services Manager	☑ County CPOs Beavercreek Hamlet
☑ Public Works	☑ Neighborhood Association Chair
☑ City Engineer/Public Works Director	☑ Neighborhood Association land Use Chair
☑ Geotechnical Services (GIS)	☑ Fire Marshal
☑ Parks Manager	☑ Clackamas County – Joe Marek
☐ Addressing	☑ Clackamas County – Ken Kent
	☑ School District# 62
	☑ Tri-Met
	☑ Oregon Dept. of Transportation - ~~Sonya Kazen~~ Div. Review
	☐ ~~Oregon Dept. of Transportation – Loretta Kiefer~~
	☑ DLCD
	☑ Metro
	☐ Other:

Public Testimony:
Christine Kosinski
Elisabeth Graser-Lindsay

Tom O'Brien

CONDITIONS OF APPROVAL

Planning Files: PZ 10-01 / ZC 10-01

1. The Applicant is responsible for this project's compliance with Engineering Policy 00-01. The policy pertains to any land use decision requiring the Applicant to provide any public improvements.
2. Public facilities/infrastructure locations shall be provided as determined by the future development's conditions of approval.
3. Future developments shall obtain the appropriate Erosion Prevention and Sedimentation Control permit(s) at the time of construction plan submittal.
4. Based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known.
5. If the Beavercreek Road Concept Plan (BRCP) is formally adopted subsequent to approval of the proposed rezoning, as part of any subsequent site plan design review approval, master plan, phased development review, or other appropriate review, the development shall comply with the BCRP, and any design and performance standards adopted thereto.
6. If the Beavercreek Road Concept Plan is not yet adopted at the time the applicant seeks development approval, the applicant's proposal shall be consistent with the intent and purpose of the Mixed Employment Village, which is to provide retail, office, civic and residential uses in an urban, pedestrian friendly and mixed use setting that is transit supportive in its use, density and design. Development shall create an active urban environment that incorporates pedestrian-friendly amenities, urban building design consistent with the Beavercreek Road Concept Plan and cost effective green development practices. At a minimum, the overall development site shall achieve an average minimum floor area ratio (FAR) of 0.25 and a minimum building height of thirty-four feet except for accessory structures or buildings under one thousand square feet. The applicant may seek to modify these standards through the master plan adjustment or variance process with city approval.
7. In accordance with OCMC 17.29.070, the required minimum FARs shall be calculated on a project-by-project basis and may include multiple contiguous blocks. In mixed-use developments, residential floor space will be included in the calculations of floor area ratio to determine conformance with minimum FARs. An individual phase of a project approved through the Master Plan process OCMC 17.65 shall be permitted to develop below the required minimum floor area ratio provided the applicant demonstrates, through covenants applied to the remainder of the site or project or through other binding legal mechanism, including phased development, that the required density for the project will be achieved at project build-out.

ORDINANCE NO. 10-1012

AN ORDINANCE AMENDING A PORTION OF THE CITY'S COMPREHENSIVE PLAN MAP FROM COUNTY FU – FUTURE URBAN TO MUC - MIXED USE CORRIDOR AND TITLE 17: ZONING, CHAPTER 17.06.030: A PORTION OF THE OFFICIAL ZONING MAP, OF THE OREGON CITY MUNICIPAL CODE, FROM COUNTY - FU-10 TO MUC-1 – MIXED USE CORRIDOR DISTRICT FOR THE PROPERTY IDENTIFIED AS CLACKAMAS COUNTY MAP 3-2E-10C, TAX LOT 800.

WHEREAS, the City of Oregon City has adopted Comprehensive Plan and Zoning Maps to implement the Comprehensive Plan in conformance with statutory requirements and the requirements of the Statewide Land Use goals; and

WHEREAS, the City of Oregon City Comprehensive Plan and Zoning Maps may be amended and updated as necessary upon findings of facts that satisfy approval criteria in the City of Oregon City Municipal Code Section 17.68.020; and

WHEREAS, the owner of the subject site, identified as Clackamas County Map 3-2E-10-C, Tax Lot 800, has requested the approval of a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land; and

WHEREAS, the proposed comprehensive plan designation of the site as MUC supports the Mixed Use Corridor District zoning designation, and

WHEREAS, the zone change from FU-10 District to MUC-1 is for a property that is has been located within the City's Urban Growth Boundary since 1979;

WHEREAS, the MUC-1 Zone meets the intent of the Comprehensive Plan Policies for mixed-use development, housing choices and increased density near activity centers and along the Beavercreek Road corridor;

WHEREAS, the subject property is not within the Metro Urban Growth Functional Management Plan Title 4 (Industrial and Employment Land) area that has been slated for redesignation out of Title 4 land on Metro's Urban Design Type Map; and therefore the City need not wait for the Title 4 map change before proceeding with the rezoning; and

WHEREAS, based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known; and

WHEREAS, the city considers the construction of the Meyers Road Extension between High School Ave and OR-213 by 2027 a reasonably likely improvement that will be demonstrate compliance with the Transportation Planning Rule (OAR 660-12-0060), and the project is identified in the City's capital improvement program and the city collects SDCs for this project's cost; and

WHEREAS, the projected transportation and public infrastructure impacts resulting from a zone change from FU-10 to MUC-1 Mixed Use Corridor District shall be required to comply with the specific Conditions of Approval and all applicable city regulations at the time a development is proposed on the property, and the applicant has demonstrated compliance with the Transportation System Plan, Public Infrastructure Master Plans and Oregon City Municipal Code; and

WHEREAS, notice of the proposed comprehensive plan map amendment and zone change was mailed to residents within 300 feet of the subject site and the Beavercreek Hamlet; and, in addition, signs were posted on the property, notice was published in a local newspaper and the City held public hearings where the objectives and concepts of the proposal were presented and discussed; and

WHEREAS, on August 30th, 2010, the Planning Commission held a public hearing and, after considering all the public testimony and reviewing all the evidence in the record, recommended approval of the requested comprehensive plan amendment and zone change (with conditions) to the City Commission by a 4 – 0 vote; and

WHEREAS, on October 6th, 2010, the City Commission held a public hearing and took testimony from the Hamlet of Beavercreek and subsequently extended the written comment period for 7 days to consider additional arguments; and

WHEREAS, on October 20th, 2010, the City Commission allowed additional testimony from the Hamlet of Beavercreek and voted not to consider a portion of the additional information submitted by the Hamlet concerning the finding that the construction of Meyers Road was reasonably likely to be constructed ; and

WHEREAS, on November 3rd, 2010, the City Commission, after considering all of the public testimony and written arguments, found that the application, as conditioned, met all of the applicable approval criteria for a comprehensive plan amendment and zone change; and

WHEREAS, approving the comprehensive plan amendment and zone change is in compliance with the Goals and Policies of the Oregon City Comprehensive Plan and as proposed and conditioned is in compliance with all applicable city requirements.

NOW, THEREFORE, OREGON CITY ORDAINS AS FOLLOWS:

Section 1. The requested comprehensive plan map amendment Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation (PZ 10-1), and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district (ZC 10-1) are hereby approved as proposed by the applicant with conditions for the property identified as Clackamas County Map 3-2E-10C, Tax Lot 800 and the Comprehensive Plan Map and Zoning Map are hereby changed accordingly.

Section 2. The comprehensive plan amendment and zone change are approved as proposed by the applicant with the conditions of approval attached to this Ordinance as Attachment A, Exhibit 1.

Section 3. The Commission adopts the findings and conclusions from the August 30, 2010 Planning Commission staff report, included as Attachment A, Exhibit 2, and the

Supplemental Findings, dated October 26, 2010, included as Attachment A, Exhibit 3 and incorporated herein to support the City's approval to amend the comprehensive plan map and zoning map.

Read for the first time at a regular meeting of the City Commission held on the 3rd day of November 2010, and the City Commission finally enacted the foregoing ordinance this 3rd day of November 2010.

ALICE NORRIS, Mayor

Attested to this 3rd day of November 2010

Nancy Ide, City Recorder

Approved as to legal sufficiency:

City Attorney

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

NOTICE OF LAND USE DECISION

PZ 10-01, ZC 10-01

DATE OF MAILING OF NOTICE OF DECISION: November 9th, 2010

OWNERS: Marylwood, LLC
Att: Phil Gentemann
7128 SW Gonzaga St
Portland, OR 97223

APPLICANT: Theta, LLC
PO Box 1345
Lake Oswego, OR 97035

REQUEST: Approval of a Comprehensive Plan Map Amendment from County FU – Future Urban to MUC - Mixed Use Corridor and a Zoning Map Change from County - FU-10 To MUC-1 – Mixed Use Corridor District for the Property identified as Clackamas County Map 3-2E-10C, Tax Lot 800.

LOCATION: 19896 Beavercreek Road
Clackamas County Map 3-2E-10C, Tax Lot 800

CONTACT: Pete Walter, AICP, Associate Planner

DECISION: On November 3rd, 2010, after reviewing all of the evidence in the record and considering all of the arguments made by the applicant, opposing and interested parties, the City Commission voted 5-0 to approve with conditions the requested Comprehensive Plan Map amendment and Zone Change. Accordingly, the City Commission adopted as its own the Staff Report, Supplementary Findings and Conditions of Approval for File Numbers PZ 10-01 and ZC 10-01 and approved Ordinance Number 10-1012.

PROCESS: Type IV decisions include only quasi-judicial plan amendments and zone changes. These applications involve the greatest amount of discretion and evaluation of subjective approval standards and must be heard by the city commission for final action. The process for these land use decisions is controlled by ORS 197.763. At the evidentiary hearing held before the planning commission, all issues are addressed. If the planning commission denies the application, any party with standing (i.e., anyone who appeared before the planning commission either in person or in writing) may appeal the planning commission denial to the city commission. If the planning commission denies the application and no appeal has been received within ten days of the issuance of the final decision then the action of the planning commission becomes the final decision of the city. If the planning commission votes to approve the application, that decision is forwarded as a recommendation to the city commission for final consideration. In either case, any review by the city commission is on the record and only issues raised before the planning commission may be raised before the city commission. The city commission decision is the city's final decision and is appealable to the land use board of appeals (LUBA) within twenty-one days of when it becomes final.

The application, decision, and supporting documents are available for inspection at the Oregon City Planning Division located at 320 Warner-Milne Road, Oregon City, OR 97045, (503) 657-0891, between the hours of 8am and 1pm. Copies of these documents are available (for a fee) upon request.

CONDITIONS OF APPROVAL

Planning Files: PZ 10-01 / ZC 10-01

1. The Applicant is responsible for this project's compliance with Engineering Policy 00-01. The policy pertains to any land use decision requiring the Applicant to provide any public improvements.
2. Public facilities/infrastructure locations shall be provided as determined by the future development's conditions of approval.
3. Future developments shall obtain the appropriate Erosion Prevention and Sedimentation Control permit(s) at the time of construction plan submittal.
4. Based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known.
5. If the Beavercreek Road Concept Plan (BRCP) is formally adopted subsequent to approval of the proposed rezoning, as part of any subsequent site plan design review approval, master plan, phased development review, or other appropriate review, the development shall comply with the BCRP, and any design and performance standards adopted thereto.
6. If the Beavercreek Road Concept Plan is not yet adopted at the time the applicant seeks development approval, the applicant's proposal shall be consistent with the intent and purpose of the Mixed Employment Village, which is to provide retail, office, civic and residential uses in an urban, pedestrian friendly and mixed use setting that is transit supportive in its use, density and design. Development shall create an active urban environment that incorporates pedestrian-friendly amenities, urban building design consistent with the Beavercreek Road Concept Plan and cost effective green development practices. At a minimum, the overall development site shall achieve an average minimum floor area ratio (FAR) of 0.25 and a minimum building height of thirty-four feet except for accessory structures or buildings under one thousand square feet. The applicant may seek to modify these standards through the master plan adjustment or variance process with city approval.
7. In accordance with OCMC 17.29.070, the required minimum FARs shall be calculated on a project-by-project basis and may include multiple contiguous blocks. In mixed-use developments, residential floor space will be included in the calculations of floor area ratio to determine conformance with minimum FARs. An individual phase of a project approved through the Master Plan process OCMC 17.65 shall be permitted to develop below the required minimum floor area ratio provided the applicant demonstrates, through covenants applied to the remainder of the site or project or through other binding legal mechanism, including phased development, that the required density for the project will be achieved at project build-out.

From: Andrew Brand
To: Pete Walter
Subject: Re: Status Update on SP 14-01? 120-day Deadline
Date: Wednesday, September 10, 2014 4:03:24 PM
Attachments: image001.png

Pete,

Yes, I would like to ask for an extension to February 4th. Thank you.

Sincerely,

Andrew Brand
Director of Development
Evergreen Housing Development Group, LLC
600 University St, Suite 1708
Seattle, WA 98101
206-535-6248 x 101
andrew@evergreenhd.com

From: Pete Walter <pwalter@ci.oregon-city.or.us>
Date: Wednesday, September 10, 2014 3:54 PM
To: Andrew Brand <andrew@evergreenhd.com>
Subject: RE: Status Update on SP 14-01? 120-day Deadline

Andrew,

You will need to grant an extension of the 120-day deadline to February 4 if you want us to do that, since that is the date of the City Commission meeting. Right now we are maxed out at Jan 7.

Pete

From: Andrew Brand [mailto:andrew@evergreenhd.com]
Sent: Wednesday, September 10, 2014 10:53 AM
To: Pete Walter
Subject: Re: Status Update on SP 14-01? 120-day Deadline

Pete,

I'd like to move the Notice for additional comment back to October 17th. Please let me know if this e-mail is enough to do that or if I need to submit another type of request.

Sincerely,

Andrew Brand

CITY OF OREGON CITY

Community Development Department, 320 Warner Milne Road,
P.O. Box 3040, Oregon City, OR 97045, (503) 657-0891
www.ci.oregon-city.or.us

APPEAL OF A LAND USE DECISION

FILE # **AP** 14-01 (of File #) SP 14-01 DATE: November 26, 2014

NAME: Beavercreek Road, LLC TELEPHONE #: 206-535-6248 x 101

ADDRESS: 600 University St, Suite 1708, Seattle, WA 98101

ADDRESS OR PROPERTY DESCRIPTION (T/R/S) OF SUBJECT PROPERTY:

19896 Beavercreek Road, Oregon City, 97045

SUBJECT OF APPEAL: NOTICE OF DECISION DATE: 11/14/14 For File #:

The undersigned hereby appeal(s) the decision of the Community Development Director

concerning the subject case. The decision to approve X deny ____ the application was made at the meeting held on November 14, 2014

REASONS FOR APPEAL: Please include a statement identifying which approval criteria are violated by the decision and an explanation of how those criteria are violated, or stating how the decision is otherwise in violation of applicable law. Please see Chapter 17.50 of Oregon City Municipal Code for Administration & Procedures concerning Appeals.

Condition of approval No. 37 imposes a fee in lieu of $545,000. Section 17.62.040(14) requires the applicant to modify or replace existing off-site systems if necessary to provide adequate public facilities. The applicant believes that the amount of the fee in lieu is in excess of what is required under Section 17.62.040(14).

FILING FEE PAID: $250.00 DATE PAID: _____ RECEIPT NO.: _____

Property Owner Signature — 600 University St, Suite 1708, Seattle, WA 98101

Property Owner Signature — Address

****SIGNATURES REQUIRED IF APPLICABLE****

Signature — Address

_____ Contract Purchaser ____ Lessee ____ Prospective Purchaser

INSTRUCTIONS FOR COMPLETING LAND USE APPLICATIONS

1. **All applications must be either typed or printed (black ink). Please make the words easily readable.**

2. **The application must be submitted with the correct fee**

3. **If you mail in the application, please check with the Planning Division to ensure that it was received and that all necessary fees and information are with the application form.**

4. **If you wish to modify or withdraw the application, you must notify the Planning division in writing. Additional fees may be charged if the changes require new public notice and/or if additional staff work is necessary. Any refund will reflect the amount of time staff worked up until the date a letter of withdrawal is received.**

5. **With the application form, please attach all the information you have available that pertains to the application you are submitting. All applicable standards and criteria must be addressed prior to accceptance of the application. Detailed descriptions, maps, and other relevant information should be attached and will be available for public review.**

6. **Incomplete applications will be returned.**

dropped off 11-26-14 @ 4:42pm

NOV 2 6 2014

CITY OF OREGON CITY

Community Development Department, 320 Warner Milne Road,
P.O. Box 3040, Oregon City, OR 97045, (503) 657-0891
www.ci.oregon-city.or.us

APPEAL OF A LAND USE DECISION

FILE # **AP** -14-0002 (of File #) SP14-01 DATE: Nov. 26, 2014

NAME: Elizabeth Graser-Lindsey TELEPHONE #: 503 632-5568

ADDRESS: 21341 S. Ferguson Rd., Beavercreek OR 97004

ADDRESS OR PROPERTY DESCRIPTION (T/R/S) OF SUBJECT PROPERTY:

SUBJECT OF APPEAL: NOTICE OF DECISION DATE: 11/14/14 For File #: SP14-01

The undersigned hereby appeal(s) the decision of the City of Oregon City - Planning Division

concerning the subject case. The decision to approve X deny ____ the application was made ~~at the meeting held on~~ by mailed document "Notice of Decision" w/ exhibits

REASONS FOR APPEAL: Please include a statement identifying which approval criteria are violated by the decision and an explanation of how those criteria are violated, or stating how the decision is otherwise in violation of applicable law. Please see Chapter 17.50 of Oregon City Municipal Code for Administration & Procedures concerning Appeals.

See attached - Reasons for Appeal

FILING FEE PAID: $250 DATE PAID: 11-26-14 RECEIPT NO.: _____

Elizabeth Graser Lindsey — 21341 S. Ferguson Rd, Beaver Creek, OR 97004

~~Property Owner~~ Appellant Signature — Address

Property Owner Signature — Address

****SIGNATURES REQUIRED IF APPLICABLE****

Elizabeth Graser Lindsey — 21341 S. Ferguson Rd, Beavercreek OR 97004

Appellant Signature — Address

_____ Contract Purchaser _____ Lessee _____ Prospective Purchaser

REASONS FOR APPEAL

This appeal results from application SP 14-01 being approved despite its violation of Oregon City Comprehensive Plan (OCCP), Oregon City Municipal Code (OCMC), Metro Code (MC), and State law.

Urbanization of this property cannot proceed adoption of a valid concept plan according to applicable law inclusive of OCCP p. 118, Goal 14.3 Orderly Provision of Services to Growth Areas, Goal 14.4 Annexation of Lands to the City, OCMC 14, the City's own Findings to AN 07-02, LUBA's interpretation of these laws specifically with regard to this property in LUBA 2007-171(submitted to the record), and LUBA's remand of the Beavercreek Concept Plan in LUBA 2008-170.

Because of the process being followed (including the absence of a adopted concept plan), public facilities and services are not being handled in a coordinated way respective of and conforming with the needed concept plan or with general good practice, are not adequate nor properly planned (including over-sizing and cost recovery plan, right of way planning and acquisition, response times, etc.), and are not without adverse impact on the city and residents of the area and are consequently in violation of applicable law including OCCP Section 11 Public Facilities, OCMC 17 Zoning (including 17.62 Site Plan and Design Review and 17.52, 17.29), those on infrastructure (including 12 Streets, Sidewalks and Pubic Places and 13 Public Services) and 14 City Boundary Changes and Extension of Services and those above.

The application is incomplete in that the city and service district responses do not document the availability of water and sewage capacity and the public cannot respond to a complete application in violation of applicable law including OCMC 17.62, OCMC 17.50.070 and 080 (completeness) and Statewide Planning Goals 1 and 2.

STATEMENT OF APPELLANT INTEREST AND STANDING

Appellant Elizabeth Graser-Lindsey has an interest in the matter due to having previously served on the pubic committee that developed the concept plan for this area and having appealed the concept plan and annexation; due to utilizing this area and passing through this area on Beavercreek Rd.; due to this area being the entrance to the Hamlet of Beavercreek, an adjacent rural area (and this road corridor having been recognized by many as "the world's largest cul du sac:); due to having family in Oregon City; due to using infrastructure services and my community using infrastructure and services affected by and shared with this area; etc.

Appellant has standing due to having submitted testimony twice in response to this application which is cited on pages 12 and 14 of Exhibit 1 to Notice of Decision.

tyler
TECHNOLOGIES

City of Oregon City
Permit Receipt
RECEIPT NUMBER 00029113

Account Number: 017646 **Date:** 12/1/2014

Applicant: ELIZABETH GRASER-LINDSAY

Type: check # 1016

Permit Number	Fee Description	Amount
AP-14-0002	4106 Appeal Fee	250.00
	Total:	$250.00

M E M O R A N D U M

TO:	Tony Konkol, Community Development Director John M. Lewis, P.E., Public Works Director Carrie Richter, Deputy City Attorney
Cc:	Pete Walter, Associate Planner
FROM:	Aleta Froman-Goodrich, P.E., City Engineer
DATE:	January 5, 2015
SUBJECT:	**AP 14-01**: Applicant's appeal of Condition of Approval No. 37 of the Community Development Director's land use approval on November 14, 2014 of file number **SP 14-01**, a Site Plan and Design Review application for 121 Apartment Units and 62 Live-Work Units on 9.7 acres (Zoned MUC-1).

STAFF RECOMMENDATION

Staff recommends the City Commission deny the Appeal (AP 14-01), uphold the Community Development Director's decision to conditionally approve the applicant's request to construct 121 Apartment Units and 62 Live-Work Units on 9.7 acres on the east side of Beavercreek Road, with no change to the conditions of approval for Condition of Approval No. 37.

BASIC FACTS

The Site Plan and Design Review application SP 14-01 was submitted by the applicant, Beavercreek Road LLC, for review by the Community Development Director on January 22, 2014. The application was deemed incomplete on February 20, 2014, and upon submittal of additional materials, was deemed complete for review on July 11, 2014. The application was subject to two public comment periods due to new information submitted into the record by the applicant to support their sewer and water system proposal for the development. Following the two public comment periods and review by staff, the Community Development Director conditionally approved the application on November 14, 2014. The current extended 120-day decision deadline for this SP 14-01 is February 4, 2015.

PROPOSAL

(See Project Overview on Page 8 of SP 14-01 Staff Report)

The proposed project, Beavercreek Rd Apartments, is a combination of 121 rental apartments and 62 live-work units that form a village concept. The site is a cornerstone for possible future expansion of currently un-zoned land around it. This property and the un-zoned land around it is in the Beavercreek Road Concept Plan.

The proposed community's mix of live-work ground floor commercial and regular apartments provides opportunities for meeting the Mixed Use Corridor base zoning of the site while also meeting the intent of the soon-to-be-adopted Beavercreek Road Concept Plan – Mixed Employment Village.

APPLICANT'S REASON FOR APPEAL AP 14-01

The Applicant, Beavercreek Road, LLC, submitted an appeal of SP 14-01 decision on November 26, 2014. The applicant stated:

Condition of approval No. 37 imposes a fee in lieu of $545,000. Section 17.62.040(14) requires the applicant to modify or replace existing off-site systems if necessary to provide adequate public facilities. The applicant believes that the amount of the fee in lieu is in excess of what is required under Section 17.62.040(14).

Note: The Applicant has referenced the incorrect section of the code in Appeal 14-01. The code that should have been referenced is OCMC ***Section 17.62.050 A. 14.*** **Staff has made consideration of this error and has addressed the issues raised by the applicant based on *Section 17.62.050 A. 14.***

> *OCMC Chapter 17.62 Site Plan and Design Review*
> *17.62.050 - Standards.*
> *A. All development shall comply with the following standards:*
> *14. Adequate public water and sanitary sewer facilities sufficient to serve the proposed or permitted level of development shall be provided. The applicant shall demonstrate that adequate facilities and services are presently available or can be made available concurrent with development. Service providers shall be presumed correct in the evidence, which they submit. All facilities shall be designated to city standards as set out in the city's facility master plans and public works design standards. A development may be required to modify or replace existing offsite systems if necessary to provide adequate public facilities. The city may require over sizing of facilities where necessary to meet standards in the city's facility master plan or to allow for the orderly and efficient provision of public facilities and services. Where over sizing is required, the developer may request reimbursement from the city for over sizing based on the city's reimbursement policy and fund availability, or provide for recovery of costs from intervening properties as they develop.*

Staff Findings

The City's 2014 Sanitary Sewer Master Plan (SSMP) recommends a sanitary sewer facility improvement program to improve the existing sanitary sewer collection system, provide adequate capacity to convey flows under existing and future buildout conditions, and comply with the Oregon Department of Environmental Quality (DEQ), Federal and local regulatory standards. The facility improvement program includes capacity improvements within the Glen Oak Road drainage sub-basin (Glen Oak basin) and immediately downstream in the Highway 213 (Hwy 213) trunk sewer collection system to provide adequate capacity for buildout flows and prevent excessive surcharging of gravity sewers that could lead to basement backups. The technical memorandum dated September 9, 2014, by the Applicant's engineer, Keller Associates, finds the SSMP approach, planning criteria, and model data are in line with industry standards and provide a level of assurance that the existing system model and evaluation reflect existing field conditions.

The Applicant's property is located within the Beavercreek Road Concept Plan (BRCP) area. The SSMP recommends flows from BRCP to be conveyed to the sanitary sewer collection system in Beavercreek Road within the Beavercreek Road drainage sub-basin (Beavercreek basin), this includes the proposed Beavercreek Apartments. Within the Beavercreek basin, for adequate sewer facilities sufficient to provide sewer service to the BRCP area, including the proposed Beavercreek Apartments, approximately 3,700 feet of 12-inch and 15-inch gravity sewer pipeline needs to be constructed in Beavercreek Road, extending from the existing system to the Beavercreek Apartments property.

The SSMP also includes an analysis that evaluates the impacts of flows in the Glen Oak basin and Hwy 213 trunk sewers by routing a portion of the BRCP area to the Glen Oak basin. The results predict there are additional impacts to the existing collection system that cause excessive surcharging of gravity sewers that could lead to basement backups. The surcharging impacts from the redirecting of BRCP flows to the Glen Oak basin are in addition to the planned impacts from the Glen Oak basin buildout. The BRCP impacts may be mitigated by upsizing sewers in the existing Glen Oak and Hwy 213 collection system as identified in the SSMP. This upsizing is predicted to provide the needed capacity and eliminate the surcharging of sewers when the proposed future flows are redirected from the BRCP area to the Glen Oak basin.

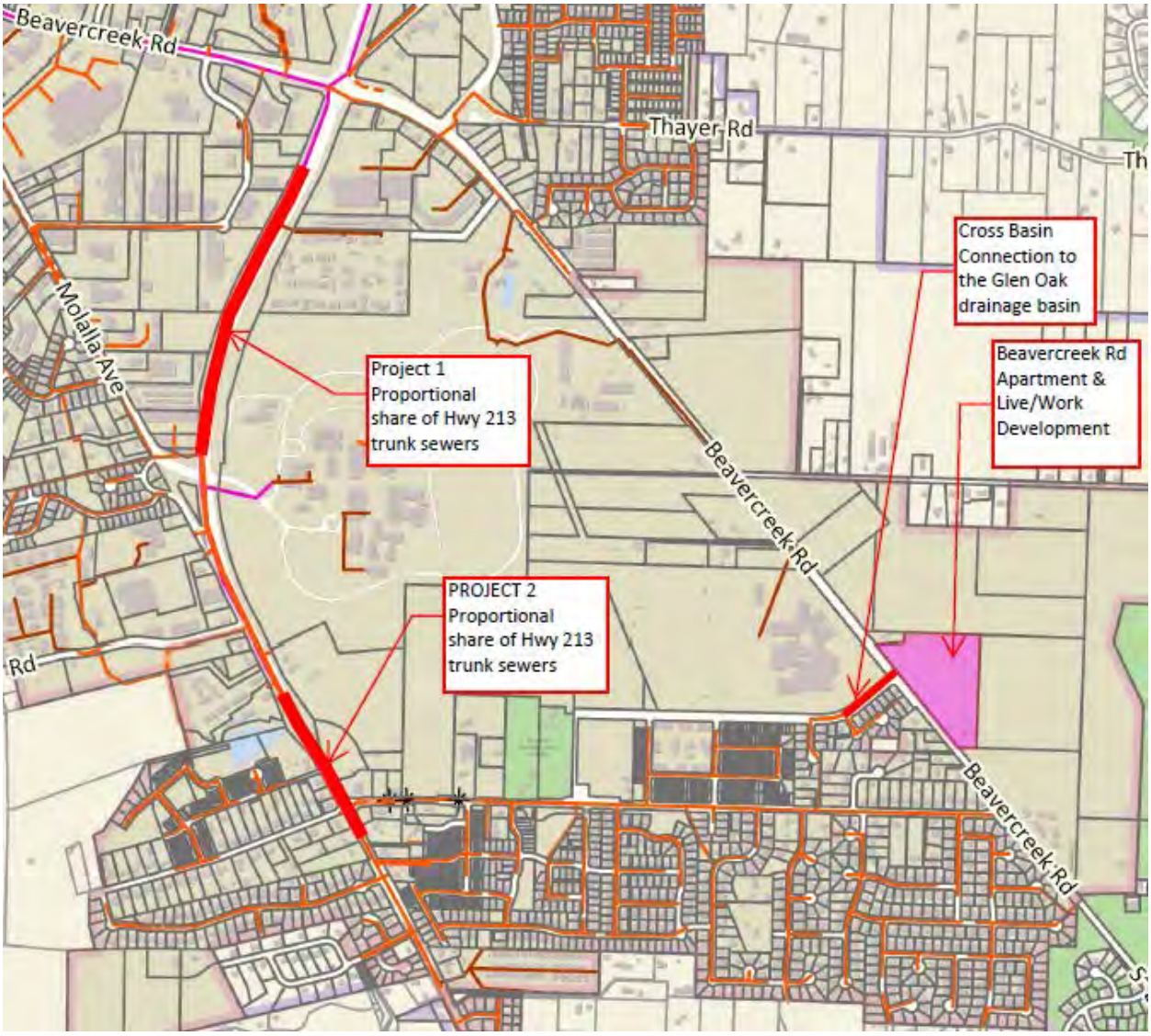
If no BRCP flows are redirected to the Glen Oak basin, then the City does not anticipate constructing upsized gravity sewers in the Glen Oak basin and/or the Hwy 213 trunk sewers, instead the City plans mitigation through an inflow and infiltration (I/I) abatement program that would reduce flows in the collection system to a level that would eliminate the surcharging. The reduction of flows would be facilitated through sewer facility improvements that would be identified as a result of the I/I program.

The Applicant proposed conveying sanitary sewer flows generated by the Beavercreek Apartments development to the Glen Oak basin instead of the Beavercreek basin. This redirecting of flows across basins is expected to result in the redirecting of approximately 421 gpm peak flow from the portion of BRCP

area that may flow by gravity to the Glen Oak basin, and Beavercreek Apartments is approximately 25% of this total peak flow. The SSMP identifies recommended improvements to the existing Glen Oak and Hwy 213 collection system to provide adequate capacity, convey the future BRCP peak flows and eliminate the predicted surcharging from these additional flows. The improvements include upsizing a section of 12-inch pipe to 15-inch pipe and a second section of 21-inch pipe to 24-inch pipe in Hwy 213. The total estimated cost for the capacity improvements is $2,918,000, with BRCP proportional share contribution being $2,180,000 and Beavercreek Apartments peak flows being 25% of BRCP flows for a proportional share contribution of $545,000. This fee-in-lieu, $545,000, is required to provide proportional share funding for capacity improvements that when constructed will eliminate excessive sewer surcharging caused by the predicted peak flows.

Figure 1 shows the locations of the upsizing projects. Project 1 being 2,400 feet of 21-inch pipe to be upsized to 24-inch pipe, and Project 2 being 800 feet of 12-inch pipe to be upsized to 15-inch pipe.

FIGURE 1: Project 1 and Project 2 Location Map



Project 1 capacity improvements result in the elimination of excessive surcharging conditions in upstream sewers in the future buildout conditions. BRCP peak flows of 421 gpm is estimated to be 69% of the buildout peak flows that contribute to the excessive surcharging that requires Project 1 to be constructed. The City anticipates reducing flows through I/I abatement program, although the reduction in I/I is not expected to offset the impacts of the additional BRCP flows, therefore BRCP flows impacts the collection system and contributes to the excessive surcharging conditions that requires Project 1 to be constructed.

Project 2 capacity improvements result in the elimination of excessive surcharging conditions in upstream sewers in the future buildout conditions when the BRCP peak flows of 421 gpm are added to the Glen Oak basin. Project 2 is not required if BRCP flows are not conveyed to the Glen Oak basin. Therefore the BRCP peak flows of 421 gpm is estimated to be 100% of the buildout peak flows causing the excessive surcharging in the collection system that requires Project 2 to be constructed.

Table 1 – Capacity Improvements - Upsizing Pipe Projects

PROJECT #	Length (ft)	Existing Pipe Diameter (inches)	Upsize Pipe Diameter (inches)	Estimated Cost ($)
1	2,400	21	24	$2,381,000
2	800	12	15	$ 537,000
			Total Estimated Cost	$2,918,000

CONCLUSION AND RECOMMENDATION

Staff finds the Condition of Approval No. 37, imposing a fee-in-lieu of $545,000, is not in excess of what is required by code Section 17.62.050 A. 14. Staff finds the fee-in-lieu amount is the needed requirement for the Applicant to provide their proportional cost share of improvements for modification and/or replacement of the existing off-site sanitary sewer system to provide adequate public sanitary sewer facilities for the development proposal. Staff recommends the City Commission deny the Appeal (AP 14-01), uphold the Community Development Director's decision to conditionally approve the applicant's request to construct 121 Apartment Units and 62 Live-Work Units on 9.7 acres on the east side of Beavercreek Road, with no change to the conditions of approval for Condition of Approval No. 37.

EXHIBITS

1. **Public Works File Memorandum** dated November 5, 2014
2. **Keller Associates, Technical Memo** dated September 9, 2014

EXHIBIT 1

OREGON CITY

Public Works

625 Center Street | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7892

F I L E M E M O R A N D U M

SUBJECT:	Public Works Engineering SP 14-01 Staff Report Findings and Conditions for Sanitary Sewer and Water Service for Beavercreek Rd Apartments/Live-Work Development
BY:	Aleta Froman-Goodrich, P.E., City Engineer
DATE:	November 5, 2014
PLANNING FILE:	SP 14-01: Site Plan and Design Review

Background:
The staff report for the Type II Limited Land Use Action for SP 14-01 Beavercreek Rd Apartment/Live-Work development is being prepared. This file memorandum provides further details about the Public Works Engineering findings, responses and conditions for the public sanitary sewer and water systems to serve the proposed development. The proposed development, Beavercreek Rd Apartments/Live Work (Beavercreek Rd Apts), is a 121-unit apartments and 62 live-work units on 9.7 acres with MUC-1 zoning located along the eastern side of Beavercreek Road across from the intersection of Meyers Road and Beavercreek Road. The developer is Evergreen Housing Development Group, LLC. The application completeness date was July 11, 2014.

Sanitary Sewer Service:

1. City's 2003 Sanitary Sewer Master Plan (SSMP)
   Findings:
   a. On July 11, 2014, application completeness date, the 2003 SSMP was the City's adopted master planning document for the sanitary sewer collection system standards, improvement requirements, and capacity evaluation.
   b. The 2003 SSMP included evaluation of the existing sanitary sewer collection system to convey flows under existing and future buildout conditions.
      i. Evaluation included collection systems in the Glen Oak and Beavercreek basins.
      ii. The Glen Oak basin conveys flows directly to the City's Highway 213 trunk sewers.
      iii. The Hwy 213 trunk sewers were not evaluated. As a result there is no information about capacity within the Hwy 213 collection system in the 2003 SSMP.
   c. Per the 2003 SSMP, the Beavercreek Road Concept Plan (BRCP) area located north of Glen Oak Rd is planned to be served by the Beavercreek Rd basin from a future sanitary sewer main extension in Beavercreek Rd starting just south of Marjorie Lane to the development.
   d. Beavercreek Rd Apts development is located along Beavercreek Rd north of Glen Oak Rd and within the BRCP area. Per 2003 SSMP, the property is planned to be served by the Beavercreek basin.
      i. 2003 SSMP does not evaluate flows from Beavercreek Rd Apts to be conveyed to the Glen Oak basin.
      ii. 2003 SSMP does evaluate future build-out flows including Beavercreek Rd Apts to be conveyed to the Beavercreek Rd basin.

e. 2003 SSMP identified deficiencies in Glen Oak Rd basin when evaluating the conveyance system for build-out flow conditions, improvements were recommended, and the improvements were constructed and placed into operation.

2. City's 2014 Sanitary Sewer Master Plan (SSMP)
   Findings:
   a. The City Commission adopted the City's 2014 Sanitary Sewer Master Plan (SSMP) on October 1, 2014.
   b. On July 11, 2014, application completeness date, the 2014 SSMP was in the process of being adopted as the City's master planning document for the sanitary sewer collection system standards, improvement requirements, and capacity evaluation.
   c. The 2014 SSMP updates the 2003 SSMP with a current assessment of the City's sanitary sewer collection system to convey existing and future buildout flows, including an evaluation of the Hwy 213 trunk sewers located downstream of the Glen Oak basin.
   d. The 2014 SSMP provides constructive evidence in determining the adequacy of the sanitary sewer service to Beavercreek Rd Apts, including requirements that may apply in order to meet City standards.
   e. The 2014 SSMP included evaluations of the collection systems in the Glen Oak and Beavercreek basins and the downstream Hwy 213 trunk sewers.
      i. The Glen Oak basin conveys flows directly to the City's Highway 213 trunk sewers.
      ii. The Hwy 213 trunk sewers were evaluated for existing and build-out flow conditions, modeling results identified pipe capacity deficiencies in the future build-out conditions, and recommendations for improvements in the Hwy 213 trunk sewers were provided to mitigate for the capacity impacts of future buildout flows. The recommended capacity improvements included upsizing sections of the Hwy 213 trunk sewers from 21" to 24" pipe.
         1. In addition to upsizing Hwy 213 sewers, another recommendation was for the implementation of an Inflow and Infiltration (I/I) Abatement Program in order to reduce the flows upstream of the Hwy 213 trunk sewers. Reducing the upstream flows may minimize and/or eliminate the need to upsize the Hwy 213 sewers.
         2. The City plans to implement an I/I Abatement Program, reduce flows to Hwy 213 trunk sewers to the maximum extent practicable and minimize and/or eliminate the need to upsize the Hwy 213 sewers.
   f. Per the 2014 SSMP, the BRCP area, including Beavercreek Rd Apts, is planned to be served by the Beavercreek Rd basin from a future 15" sanitary sewer main extension in Beavercreek Rd starting just south of Marjorie Lane to the development and continuing south to the south end of Beavercreek Rd. However, although not the preferred approach, *2014 SSMP Appendix I: Glen Oak Road Analysis (Analysis),* does contemplate discharging a portion of the BRCP area flows into the Glen Oak Basin.
      i. *The Analysis* evaluates alternatives for routing some of the future BRCP flows to the Glen Oak basin and provides recommendations for capacity improvements needed to mitigate for the deficiencies in the existing system.
         1. *The Analysis, Routing Alternative C,* showed results of extensive surcharging and potential overflow conditions in the Glen Oak basin and Hwy 213 collection systems when routing approximately 421 gpm of BRCP flows to the Glen Oak basin, including 105gpm of Beavercreek Rd Apts.
         2. The estimated peak flow of 421 gpm is based on the flow expected from BRCP areas that would most likely cross to the Glen Oak basin if developing the

properties prior to the future 15-inch sewer extension being constructed in Beavercreek Rd.

3. To manage the excessive surcharging and potential overflow conditions in the Glen Oak basin and Hwy 213 sewers, modeling results indicate upsizing the City's Hwy 213 sewers is needed. The estimated cost to upsize approximately 1,400 feet of existing 12-inch to 15-inch is $537,000 and 2,400 feet of existing 21-inch to 24-inch is $2,381,000, for a total cost of $2,918,000.

ii. If the BRCP areas identified in *The Analysis, Routing Alternative C,* develop prior to the future 15-inch trunk sewer being constructed in Beavercreek Rd, and convey the estimated peak flow of 421gpm to the Glen Oak basin, then the capacity improvements for upsizing the 12" and 21" Hwy 213 sewers are required.

1. The City will assess each BRCP development proposal for proportional share of Hwy 213 sewer capacity improvements when the BRCP areas identified in *The Analysis, Routing Alternative C* propose to develop prior to the future Beavercreek Rd 15-inch sewer improvements.
2. The total proportional share contribution for said BRCP areas, with a total flow of 421 gpm, is 100% of the 15-inch sewer cost, $537,000, and 69% of the 24-inch sewer cost, $1,643,000, for a total contribution of $2,180,000.
    a. The following should be noted:
        i. Modeling results show upsizing the Hwy 213 sewers from 12-inch to 15-inch is not required when the said BRCP flows are not routed to the Glen Oak basin.
        ii. Modeling results show upsizing the Hwy 213 sewers from 21-inch to 24-inch is required when 613 gpm buildout flows are added to the Hwy 213 trunk sewers. The said BRCP flows are 69% of these buildout flows.
3. Beavercreek Apts, being one of the properties included in the said BRCP areas with a flow of approximately 105 gpm, is approximately 25% of the said BRCP areas total peak flow.
    a. Beavercreek Rd. Apts shall be conditioned to pay a fee-in-lieu for the Hwy 213 sewer improvements.
    b. Fee-in-lieu is based on 25% of BRCP's total proportional share contribution, and 25% of the total contribution is $545,000.

3. Developer's engineer, Keller Associates, submitted a Technical Memo, dated 9/9/2014 that evaluated sewer service to the Beavercreek Rd Apts development.
    a. Keller's Memo:
        i. Memo acknowledges that the 2014 SSMP evaluation of the existing collection system appears to be in line with industry standards and the best long-term approach for servicing the entire Beavercreek service area appears to be a new trunkline sewer along Beavercreek Rd in the Beavercreek basin.
        ii. Memo documents the Beavercreek Apts development estimated peak flow to be 105 gpm.
        iii. Memo includes recommendation to accommodate the Beavercreek Apts development flows in the Glen Oak Rd sewers and direct flows across sewer basins on a short-term basis.
            1. Further comment is made that the Beavercreek Apts could be routed into future Beavercreek Sewer and recommends provisions for this transfer be incorporated into the design of the Beavercreek Apts development.
            2. Note: The development application shows proposed sanitary sewer service to be connected to sewers in the Glen Oak basin.

3. Memo references the City's desire to reserve flows and the resulting available capacity is uncommitted. *City Comment:: This comment is inaccurate as the City through the adoption of the 2014 SSMP has committed the existing remaining capacity of the Glen Oak collection system for the planned developments that must flow to the Glen Oak basin and Hwy 213 sewers.*

iv. Memo includes recommendation to bolt down and seal manholes with only two feet of cover. *City Comment: The City manages excessive surcharging of pipes through upsizing the pipe to increase the capacity and/or reducing the flow to the sewer through I/I abatement or other flow reduction measure. Bolting down the manholes does not resolve the capacity deficiencies of the sewer pipes.*

v. Memo includes comments about the BRCP areas being routed to the Glen Oak Rd basin long-term and completing downstream improvement in Hwy 213 to alleviate surcharged conditions in the City's Glen Oak Rd sewers.

vi. Memo includes comments about inflow and infiltration I/I and reducing the amount of I/I to free up pipe capacity for development.
   1. Memo also includes comments about Keller's investigation about benchmarks for estimating typical cost per gallon for I/I removed from collection systems.
   2. Keller found local agencies have no quantifiable method to calculate the I/I reduction and cost per gallon.
   3. Keller found there is a methodology that is being used by municipalities that calculates a cost to offset I/I.

vii. Memo includes three sections titled: "Background", "General Observations", and "Available Capacity in the Glen Oak Sewer Line".

viii. Memo does not include a section for recommendations and/or conclusions.

b. PW Engr Staff Findings in reference to Keller's Technical Memo:

i. Memo does not include a section for specific recommendations and/or conclusions so staff reviewed the content of the Memo and made interpretation of the intent for the statements that were presented.

ii. There is no reliable methodology that quantifies the amount of I/I reduction that would result from an I/I Abatement Program. Therefore, there is no reliable method to calculate the cost per gallon of I/I removed from the sewer system until the I/I is physically removed and measured through flow monitoring before and after the abatement improvements are implemented.

iii. Routing flows from the BRCP areas, including Beavercreek Apts, to the Glen Oak Rd utilizes capacity in the Glen Oak Rd basin and Hwy 213 collection systems that was planned for the future buildout of the Glen Oak basin and Hwy 213. The BRCP flows were planned for the Beavercreek Rd basin.

iv. *The 2014 SSMP Analysis Routing Alternative C* identifies improvements to the Hwy 213 sewers to mitigate for the capacity impacts related to the BRCP areas' additional flows.
   1. If development occurs in the said BRCP areas prior to the future 15-inch sewer extension in Beavercreek Rd and development flows are directed across basins to the Glen Oak basin, then the Hwy 213 sewer capacity improvements are required to manage the surcharging and potential overflow conditions.
   2. Beavercreek Rd Apt is one of the properties in the said BRCP areas and is the first development proposing to cross basins.
   3. The total estimated additional peak flows from said BRCP areas is 421 gpm and Beavercreek Apts flow is approximately 25% of this flow, 105 gpm.

v. The City plans to start an I/I abatement program in 2015/2016 for the Basins that contribute to Hwy 213 sewers and it is unknown at this time whether there will be a reduction in I/I through this proposed program.

vi. To allow the said BRCP areas, including Beavercreek Rd Apts, to cross basins and direct flows to the Glen Oak basin, the Hwy 213 sewer capacity improvements are required to mitigate for the additional flows that will contribute to excessive surcharging within the Glen Oak and Hwy 213 collection systems.

1. These improvements are identified in *2014 SSMP, Appendix I: Glen Oak Road Analysis, Figure C-5, Routing Alternative C* and includes: upsizing the City's Hwy 213 sewers and estimated costs, approximately 1,400 feet of existing 12-inch to 15-inch is $537,000 and 2,400 feet of existing 21-inch to 24-inch is $2,381,000, for a total cost of $2,918,000.
2. The proportional share of cost for the said BRCP areas with a total flow of 421 gpm, is 100% of the 15-inch sewer cost, $537,000, and 69% of the 24-inch sewer cost, $1,643,000, for a total contribution of $2,180,000.
3. The proportional share of cost for the Beavercreek Apts, being one of the properties in said BRCP areas, with a total flow of 105 gpm is 25% of BRCP's total proportional share contribution, and 25% of the total contribution is $545,000.

vii. Requirements for connection to the City's existing Glen Oak system and sewer improvements for service extensions:

1. Connection to the existing Glen Oak system shall be located in the public road right-of-way, Meyers Road, at the existing manhole at Meyers Rd and Emerson Ct.
2. The design of the new 8-inch connecting sewer shall incorporate the design of the future 15-inch sanitary sewer so in the future the Beavercreek Apts can be transferred to the Beavercreek basin through a connection from the new 8-inch to the future 15-inch sewer.
3. The new 8-inch sewer shall extend south of the Meyers/Beavercreek intersection in Beavercreek Rd along the frontage of the site with service laterals to serve the proposed buildings with frontage on Beavercreek Rd.
4. The new 8-inch sewer shall not extend north of the Meyers/Beavercreek intersection at this time due to direction of flow to the Glen Oak basin so fee-in-lieu shall be required. Fee-in-lieu for 8-inch sewer along site frontage in Beavercreek Rd from Meyers/Beavercreek intersection to northerly boundary of development. Fee-in-lieu shall include all costs for design, construction and contingencies for a City public agency construction contract for the 8-inch extension.
5. At this time a 15-inch pipe in Beavercreek Rd shall not be required due to the anticipated potential for maintenance and operational problems of having a 15-inch pipe with very little flow contribution, and the future 15-inch connection will most likely not be made within the next 10 years.

c. Conditions of Approval recommended for sewer service to proposed SP 14-01 Beavercreek Apartment Development:

i. To direct flows across sewer basins to the Glen Oak basin:

1. Applicant shall be conditioned to pay a fee-in-lieu for the Hwy 213 sewer improvements based on its proportional share contribution to the additional line capacity.
    a. Beavercreek Apts additional flow is 25% of the BRCP areas total flow.
    b. The proportional share contribution for the Beavercreek Apts, being one of the properties in said BRCP areas, with a total flow of 105 gpm is 25% of

BRCP's total proportional share contribution, and 25% of the total contribution is $545,000.

c. The 2014 SSMP provides the data and information for the basis of the fee-in-lieu costs.

ii. Connection location of proposed sanitary sewer to the existing sewer in the Glen Oak basin:
   1. Applicant shall design 8" sanitary sewer collection system in existing and future public roads with the connection to the existing sanitary sewer system at the manhole located in Meyers Road at Emerson Ct.
   2. Applicant shall refer to the City's standards for typical utility placement within the public street section for location of underground public utilities.
   3. Applicant shall extend the new 8-inch sewer pipe in Meyers Rd to Beavercreek Rd with a crossing of Beavercreek Rd to the future public road system and extend the new 8-inch sewer pipe in Beavercreek Rd to the south across the frontage of the property to serve the proposed buildings fronting Beavercreek Rd.
   4. Beavercreek Apt design shall make consideration of the future Beavercreek Rd 15-inch sewer extension for future and incorporate into the design the future transferring of the new 8-inch to the future 15-inch.

iii. Sanitary Sewer improvements along frontage of development in Beavercreek Road.
   1. Applicant shall pay fee-in-lieu for 8-inch sanitary sewer along the site frontage north of the Meyers/Beavercreek intersection to the northerly site boundary of development for the future Beavercreek Rd sanitary sewer extension.
   2. Fee-in-lieu for 8-inch sewer along frontage shall be based on all costs for design, construction and contingencies for a City public agency construction contract.
   3. Applicant shall provide an engineer's estimate, signed and stamped by the engineer, for the City's review and approval.

iv. There may be other conditions of approval for consideration and still to be determined.

Water:

1. City's 2012 Water Master Plan
   Findings:
   a. Beavercreek Apts development is located in the Beavercreek Rd Concept Plan (BRCP) area.
   b. Beavercreek Apts development has ground elevations of 480 feet and greater.
   c. BRCP area with ground elevations of 480 feet and greater are planned to be served by the future expanded Fairway Downs pressure zone. The future expanded Fairway Downs pressure zone requires the construction of future water facilities that include a storage reservoir and pump station prior to providing water service to the BRCP area with properties that have ground elevations of 480 feet and greater.
   d. Future 12-inch waterline is recommended in Beavercreek Rd from Glen Oak Road to Meyers Road to serve the BRCP area and a future 12-inch waterline extending into the BRCP area where ground elevations are 480 feet and greater.
2. Beavercreek Apts development proposed water service
   Findings:
   a. Beavercreek Apts development wants to develop prior to the expansion of the Fairway Downs pressure zone and construction of the future water facilities planned to serve the BRCP area.
   b. Clackamas River Water (CRW), the City and Developer have found an interim solution for water service prior to the City's Fairway Down pressure zone expansion and construction of the future facilities needed to serve the BRCP area.
   c. CRW Commissioners met on 9/22/2014 and approved to proceed with the following interim plan with reference to water service to Beavercreek Apts:

i. 800 feet of 12-inch waterline and master meter paid for by developer
ii. CRW own master meter
iii. City own 12-inch waterline.
iv. An Intergovernmental Agreement between CRW and the City providing the terms and conditions of water service

3. Conditions of Approval recommended for Water service to proposed SP 14-01 Beavercreek Apts development:
    a. New water system shall be designed with minimum 12-inch pipe in Beavercreek Road from Glen Oak Rd to Meyers Rd and to be owned by the City, with minimum 8-inch water mains throughout the site, and connection to a new master meter and vault to be owned by Clackamas River Water located at approximately Glen Oak Rd and Beavercreek Rd.
    b. Applicant shall design looping of the new water system and avoid dead-end mains to the maximum extent practicable.
    c. Applicant shall design water system in existing and future public roads to the maximum extent practicable minimizing the need for public waterline easements.
    d. Prior to submitting construction plans to the City, an Intergovernmental Agreement (IGA) between Clackamas River Water (CRW) and the City must be executed. IGA shall include the terms and provisions needed for water service to the development through a proposed master meter to be owned by CRW and 12-inch waterline in Beavercreek Rd to be owned by the City.
    e. Prior to construction plan approval and after execution of the proposed IGA, the Applicant shall receive CRW's written approval of design, plans and specifications for water facilities as agreed upon through the IGA.
    f. Note: There may be other conditions of approval for consideration and still to be determined.

EXHIBIT 2

KELLER associates

Technical Memo

REGISTERED PROFESSIONAL ENGINEER 73454PE OREGON JULY 15, 2003 JAMES BLEDSOE

EXPIRATION DATE: 12-31-15

TO: Andrew Brand, Director of Development
Evergreen Housing Development Group, LLC

FROM: James Bledsoe, PE

DATE: September 9, 2014

SUBJECT: Sewer Service to the Beavercreek Development

Background

The proposed Beavercreek Apartment Development is located east of S. Beavercreek Road in Oregon City, Oregon. The City's Draft Sanitary Sewer Master Plan (May 20, 2014) shows this area being serviced by a new sanitary sewer trunkline to be located in S. Beavercreek Road. A subsequent evaluation of a portion of the Beavercreek Road basin (identified as Areas 1 and 2 in Figure 1 below) was subsequently completed by Brown and Caldwell (BC). The build-out impacts on the Glen Oak Road sewer for Areas 1 and 2 was summarized by BC in a technical memorandum dated June 30, 2014. The proposed Beavercreek Apartment Development encompasses approximately 11 acres and is located within Area 1.

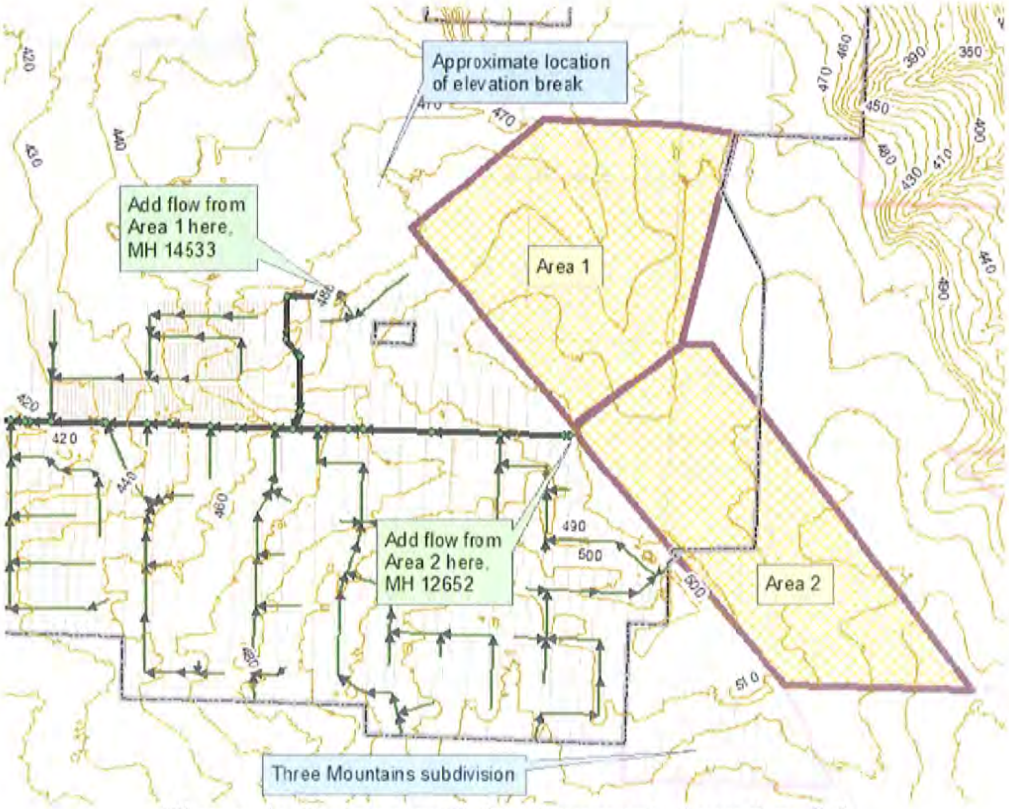


Figure 1: Beavercreek Development, Area 1 and 2
(from Brown and Caldwell June 30, 2014 Technical Memorandum)

EXHIBIT 2

Keller Associates was contracted by Evergreen Housing Development Group, LLC to evaluate the availability of sewer service in the existing Glen Oak Road Sewer for the Beavercreek Development. This effort involved a review of Oregon City's Draft Sanitary Sewer Master Plan and subsequent technical memorandum prepared by BC. Brown and Caldwell also provided a letter on August 8, 2014 to address specific comments and questions Keller Associates had relative to the master plan and technical memorandum. This technical memorandum presents our findings.

General Observations

The approach taken by BC in evaluating the existing collection system appears to be in line with industry standards. Planning criteria, including peaking factors, design storm events, future flow assumptions, and infiltration and inflow (I/I) assumptions also appear to be in line with industry standards, customized to the unique local conditions of the region. Flow data gathered throughout the system (including one location downstream of the Glen Oak Road sewer line) also provide a level of assurance that the existing model and evaluation reflect existing field conditions.

The estimated combined build-out flow from the Beavercreek Areas 1 and 2 was calculated by BC to be approximately 421 gpm, which is more than the available capacity in the Glen Oak Road sewer. Keller Associates does not object with BC findings that the best *long-term* approach for servicing the entire Beavercreek service area appears to be a new sewer trunkline along S. Beavercreek Road. This service approach ultimately directs available capacity in the Glen Oak Road Sewer and the downstream pipeline in HWY 213 for undeveloped areas adjacent to these pipelines, while providing for build-out of both the Beavercreek and Glen Oak service areas.

Flow projections prepared by Evergreen Housing Development's project engineer, PACE Engineering, estimate a total flow of approximately 105 gpm for the Beavercreek Apartment Development. These projections were developed using similar assumptions to those used by BC in estimating flow projections for this sewer basin (80 gpcd, 2.5 people per household, and I/I rates similar to the existing developments). Refer to Attachment A for a copy of PACE engineering calculations. With improved construction materials and installation techniques, it is anticipated that substantially less I/I will be present in the development lines and that actual flows will be less than reported.

It should also be noted that constructing the Beavercreek Sewer Trunkline to service only the Beavercreek Apartment Development could introduce other operation and maintenance challenges until such time as increased flows provided sufficient scouring velocities in the new sewer line.

Available Capacity in the Glen Oak Sewer Line

While construction of the S. Beavercreek Road pipeline may be the best long-term solution for serving the Beavercreek area, there is available capacity in the Glen Oak Road sewer for new development. Brown and Caldwell reported an **estimated remaining capacity of approximately 225 gpm** in the downstream Hwy 213 and Glen Oak Road conveyance system, assuming full pipe conditions and existing peak flow conditions (10-year evaluation event). Surcharged conditions were not considered in estimating the existing remaining capacity, presumably because of the minimal cover above the pipe (only two feet) near the

location where the Glen Oak Road sewer discharges into the Hwy 213 sewer (nodes 12371 and 12372). Regardless of the source of additional flows in the Glen Oak Road sewer, Keller Associates recommends that the manholes with only two feet of cover be equipped with bolted down, sealed manholes if these are currently not in place.

The City desires to reserve approximately 20 gpm of the available 225 gpm capacity for the existing Three Mountains subdivision (currently on septic systems). This would leave approximately 205 gpm of uncommitted capacity that could be used to service a portion of Areas 1 and 2 of the Beavercreek Development. **Allowing the proposed Beavercreek Apartment Development to gravity flow to Glen Oak Road would still leave approximately 100+ gpm of uncommitted capacity for future downstream development.**

While accommodating the Beavercreek Apartment Development in the Glen Oak Road sewer would direct flows across sewer basins on a short-term basis, it is worth noting that the area can gravity flow to the Glen Oak Road sewer system. Additionally, in the short-term there may be operational benefits to the City to direct flow into the Glen Oak Road sewer. Allowing flow from Beavercreek Development to go to the Glen Oak Road sewer would also allow the large capital expenditures of the Beavercreek Sewer Trunkline project to be delayed without exceeding the capacity of the existing pipelines, giving the City and development community more time to plan for and fund the new trunkline. Flow from the Beavercreek Development could eventually be routed into the Beavercreek Sewer Trunkline, and provisions for this transfer should be incorporated into the design of the Beavercreek Development.

Accommodating the Beavercreek Apartment Development in the Glen Oak Road sewer does not obligate the City to service other future developments in Areas 1 and 2 within the Glen Oak Road sewer. Should Areas 1 and 2 be committed long-term to the Glen Oak Road sewer, then as an alternative to the Beavercreek Sewer Trunkline, it may be possible to complete downstream improvements in Hwy 213 to alleviate surcharged conditions in the City's Glen Oak Road sewer. In their June 30, 2014 technical memorandum, BC estimated that a $537,000 pipe upsizing project in Hwy 213 would alleviate the surcharged conditions in the City-owned Glen Oak Road sewer.

One of the concerns expressed by the City in allowing Beavercreek Apartment Development to discharge into the Glen Oak Road sewer is that the flow utilizes available downstream capacity in HWY 219 that could be dedicated to other developments. The City also recognizes that significant contributions of I/I utilize available pipe capacity. Reducing the amount of I/I could free up pipe capacity for development. The cost to reduce flow by reducing I/I is a function of a number of factors, including the presence of direct storm water connections, topography, climate, groundwater levels, soil conditions, and pipe material conditions.

Keller Associates investigated whether there are benchmarks for estimating typical cost per gallon for I/I removed from a wastewater collection system. Contact was made with the City of Eugene, City of Springfield, City of Salem, City of Portland, and Clean Water Services. All of these entities desire to obtain this information, but do not have it at the present time. Clean Water Services reported that they have done similar research on the

topic and were also not able to obtain results in the Western United States. Some of the best available data comes from Massachusetts where there are several regional systems that assess development a fee to allow the development to occur. The cost charged to offset I/I is derived from a mix of technical and political discussions. Many municipalities use a factor referred to as an offset ratio which is multiplied by what they anticipate the actual cost. For example, if there is an offset ratio of 1.25 to 1, a developer would pay 125% the actual anticipated cost to remove the I/I. Depending on the municipality, this fee would be assessed the developer based on either average or peak anticipated flows from the development. Using the available data we were able to find, the average cost to remove I/I was about $5/gallon/day based on average daily flows. Obviously, if a large point source of I/I can be identified, the cost to reduce could be much lower. Likewise, a community with a history of aggressive I/I reduction efforts may find that the incremental cost to further reduce I/I could be much higher.

EXHIBIT 2

Attachment A

MEMORANDUM

Date: August 27, 2014

To: Dave Poulson,PE, Branch Manager, PACE Engineers, Inc.

From: Bill Pavlich, PE, PACE Engineers, Inc.

Subject: **Oregon City Live/Work – Sewer Flow Computation**
PACE Project No. 13869

Methodology

The methodology used for this sewer flow analysis is largely based on data and approaches utilized in the City's recent *Draft Sewer System Master Plan* (D-SSMP) and *Draft Technical Memo* March 3, 2014 (D-TM)prepared by Brown and Caldwell. Plans for the proposed development have been sufficiently developed so as to determine specific sewer main sizes and lengths and the number of housing units; consequently, the calculations are based on the specific characteristics where possible rather than general planning, per-acre allowances.

Oregon City Live/Work - Sewer Related Design Characteristics

- 1,794 lineal feet of 8-inch gravity sewer main tributary to the Glen Oaks subbasin.
- 180 dwelling units (du) (*147 apartments, 33 townhomes*).

Analysis Parameters

The following analysis parameters and approaches are based on information obtained or derived from the D-SSMP and D-TM.

- Persons per household (pph) = 2.5
- Average daily sewer contribution = 80 gallons per capita day (gpcd). *(Note this is an older per capita standard; newer standards are typically lower.)*
- Peak Factor = 3.6 (*This is conservatively estimated from Table 11 (p. A19, D-SSMP) the entry ("Main Street") used for a comparable size of development in terms of acreage and population).*
- Peak I/I = 8,144 gallons per inch of pipe diameter per mile per day (gpimd). *(This is the figure determined for the Glen Oaks subbasin in Table ES-5 (p. xiv, D-SSMP) and represents a very conservative estimate of future I/I in the Oregon City Live/Work development. Note typical design standards (such as the Ten State Standards) allow only 100 gpimd when testing new construction.)*

PACE

PACE Engineers, Inc.
5000 Meadows Road, Suite 345
Lake Oswego, OR 97035
Phone: 503.597.3222 Fax: 503.597.7655

EXHIBIT 2

Calculations

Domestic wastewater average daily flow:

180 du x 2.5 pph x 80 gpcd = 36,000 gpd (25 gpm)

Peak domestic wastewater flow:

36,000 gpd x 3.6 = 129,600 gpd (90 gpm)

Peak I/I:

8,144 gpimd x 8 in x (1,794 LF/ 5,280) = 22,137 gpd (15.4 gpm)

Combined peak domestic and I/I flow:

129,600 gpd (domestic) + 22,137 gpd (I/I) = 151,737 gpd (105.4 gpm)

Impacts

The D-TM showed flow attenuation (diminishing of the peak flow) occurring at a few locations downstream of the connection (manhole #12652) with the proposed development (see Table 3, D-TM). Flow attenuation resulted in flows that were approximately 98% of the peak at manhole # 12370, and 83% of the peak at manhole # 11776 for Alternative B. Assuming a similar attenuation to occur for the 105.4 gpm calculated above would result in the following peak flows as the flow passes through each of the noted manholes:

MH-12652	100.0%	105.4 gpm
MH-12903	99.3%	104.7 gpm
MH-12370	98.3%	103.6 gpm
MH-11776	83.2%	87.7 gpm

The attenuation percentages above were based on routing 285 gpm (D-TM); for 105.4 gpm the attenuation percentages are likely lower, but without modelling it is not possible to more accurately determine the attenuation in the system.

Actual peak flows from the proposed development are likely to be lower than the calculated 105.4 gpm. The nature of the development (apartments and townhouses) will likely have an average occupancy lower than the 2.5 pph used above. Modern fixtures and appliances are much more water efficient: typical interior water usage for such dwellings is 51.9 gpcd (source: Metcalf & Eddy, Wastewater Engineering: Treatment and Reuse, 2003) – considerably lower than the 80 gpcd noted above. Initial I/I should be nominal assuming quality engineering and construction. We understand the need to be conservative in planning and design; however, these consideration suggest real world impacts considerably less than 105.4 gpm.

From: Whiteley, Doug
To: Pete Walter
Subject: FW: SOC
Date: Monday, January 12, 2015 1:11:34 PM

Hi Pete,
Here is the language directly from our Standards Of Coverage document. The highlighted line references our urban response area which the area in questions falls within.
Let me know if you need anything else.
Thanks,

Doug Whiteley
Fire Marshal - Administrative Battalion Chief
Direct: 503.742.2660
main: 503.742.2600



CLACKAMAS FIRE DISTRICT #1
www.clackamasfire.com

Here is the info we discussed, this is our BASELINE published in 2013 SOC with 2012 data.

Baseline EMS Objectives:
DISTRIBUTION- Baseline EMS
For 90 percent of EMS responses, total response time of the first arriving apparatus arrives within:
7 minutes and 15 seconds in **URBAN** communities
7 minutes and 37 seconds in **SUBURBAN** communities
14 minutes and 38 seconds in **RURAL** communities.
The first arriving unit is staffed with two, three, or four personnel and is capable of providing advanced life
support and treatment for a one or two patient medical incident while providing for the safety of victims and
responders in accordance with department policy and procedures.

OREGON CITY

Police Department

320 Warner Milne Road | PO Box 3040 | Oregon City OR 97045
Ph (503) 657-4964 | Fax (503) 655-0530| Non Emergency Police Dispatch: (503) 655-8211

January 12, 2015

Mayor Dan Holladay and Oregon City Commission,

I received an email from Pete Walter of the Oregon City Planning Department, asking my opinion about a proposed 180 unit apartment complex at 19896 Beavercreek Road, in Oregon City. The question was whether the addition of a complex at this location would adversely affect police response times in the area.

While continued growth in Oregon City will require the police department to grow along with the population of our community, I do not believe the presence of this apartment complex will create any issues regarding police response to this location or in the surrounding area.

Sincerely,

James H Band
Chief of Police

Application SP 14-01
Clackamas River Water Response 1-14-2015

Water:

The water service to the concept plan areas needs to accommodate the entire concept plan area.

No comment by CRW

Having this property asking for special service from CRW does not solve the overall problem, but actually makes it worse by this development not helping to pay for the pipes needed to serve the entire concept plan area.

No comment by CRW

That the CRW acknowledges (8-22-14) the developer's request is not an agreement to provide water and does not meet the current need to show water service can be provided.

CRW acknowledges that that the intent of a wholesale water agreement will be utilized only for a specified amount designated for the demand of the development.

The city is to be the water provider to this city property and the rest of the city development in this area.

No comment by CRW – The City will be purchasing water from CRW to serve only the development.

The City is unable to provide the necessary volume of water without building out its water system (to provide storage and pressure) and apparently there aren't the resources including finances to do so.

No comment by CRW – The City can supply the volume of water required but not at the City's required pressure.

There is no evidence that CRW is able to continue to serve piecemeal development in the Beavercreek Rd. concept plan area and this piecemeal approach was to be avoided by concept planning.

The wholesale water agreement will be fashioned for an amount only to meet the water demand at the development.

This request also potentially could compromise the ability of CRW to serve its core rate payers and others within its district that haven't yet built out.

Utilizing a hydraulic model, CRW analyzed current and forecasted future demands (including proposed Application SP 14-01 development) to determine the CRW system's capacity. The results indicated that demands can be supplied without exposing the District customers to water shortages while maintaining the wholesale agreement with Oregon City.

As an example, for the year 2040 the hydraulic modeling used an CRW system Average Daily Demand (ADD) equaling 350 gpm and the development demand of 85 gpm for a total demand of 435 gpm. The system capacity equals 1,030 gpm which results in 2.3 safety factor.

For example, climate change is reducing the summer flows of this district with little water storage capacity and drought in California could cause an increased demand for irrigated food produce/vegetable production from properties in the CRW district. Because the district is likely to have first choice of its district water, this development could be left without adequate water in a droughty year.

No comment by CRW

DRAFT

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-069

Agenda Date: 1/21/2015

Status: Agenda Ready

To: City Commission

Agenda #: 7a.

From: Library Director Maureen Cole

File Type: Report

SUBJECT:
Request to Move into Design Development Phase and Public Review Process of Library Project

RECOMMENDED ACTION (Motion):
Staff requests that the City Commission approve moving from Schematic Design into Design Development and approve moving into the public review process.

BACKGROUND:
The Library Building Project is prepared to move into the next phase of development and requests City Commission's approval to do so. This next step, moving into Design Development and into the public review process, follows many months of effort, many meetings and a great deal of outreach to citizens. Since the City Commission first approved the current Carnegie Center and Library Park as the site of the future home of the library expansion, staff and citizens have achieved the following:

-On May 20, 2014, the Bond Measure for the library project was approved by voters;
-On October 15, 2014, the City Commission of Oregon City selected the two story option as their choice for the addition to the Carnegie Library in Carnegie Library Park;
-On December 10, the City Commission reviewed two options for a two story addition at their regular work session informally agreed to the 'Atrium' option; this was supported by the Library Board
-DKS Consulting completed the Transportation Impact Study (see attached)
-The bond loan was completed and the project received $6,000,000.00
-On January 6 the required pre-application meeting was held with City departments involved in the Land Use process
-On January 8 the Project Team met with the McLoughlin Neighborhood Association for its official project meeting
-On January 13 the new City Commission received an overview and update in a Work Session
-On January 14 the Library Board approved a motion to recommend that the City Commission approve the staff request to move into Design Development and the public review process
-On January 14 another Community Meeting was held to describe progress on the project and get feedback from citizens
With information from the pre-app meeting, the City Commission Work Session, the McLoughlin Neighborhood Association meeting and the Community Meeting, SE /A has been aligning design elements to respond to comments and code guidance. This brings the

Schematic Design Phase to a close. Upon approval of the City Commission, the Library Project will move from the Schematic Design Phase into the Design Development Phase and will commence the public review process.

Public review includes two parts which run concurrently: review with the Historic Review Board and review with the Planning Department of the City. The review process documents will be submitted on January 23 in order to be considered for the February Historic Review Board meeting.

Over the coming weeks, the Architects' work is in the Design Development Phase. Design Development is one of two major design phases remaining, prior to construction. During the Design Development Phase more detailed plans, sections, elevations, typical construction details, and diagrammatic layouts of building systems are prepared to fix and describe the size and character of the project as to architectural, structural, mechanical and electrical systems, etc. Design Development documents also include outline specifications that identify major materials and systems and establish in general their quality levels.
Following Design Development will be the final design phase, Construction Documents. The Construction Documents created during this phase will further develop the approved Design Development Documents and will consist of drawings and specifications setting forth in great detail the quality levels of materials and systems and other requirements for construction of the project.
Moving from each phase to the next requires approval of the client; therefore approval from the City Commission to move from the Design Development Phase into the Construction Document Phase will be requested on March 18. After that, and with the successful conclusion of the public review and permitting process, a request to proceed to construction will be made to the City Commission on July 15.

Summary of dates for Library Project approval requests:
Jan 21: Request approval to move from Schematic Design into Design Development; request approval to start public review process (2 parts: historic and land use)
Mar 18: Request approval from City Commission to move into Construction Document Phase
Jul 15: Request approval from City Commission to start construction
During these months, other important milestones will take place. Cost estimates will be prepared at or near the conclusion of each phase. The Schematic Design cost estimate will be ready in mid-February, the Design Development estimate in early April, and a 50% Construction Documents estimate in late May. Establishment of the GMP (Guaranteed Maximum Price) will take place in June. The Library Board and the City Commission will be updated about this progress regularly.

The Library Board has been informed about all progress and stages of the Building Project and recommends moving forward. At this time, staff requests that the City Commission approve moving from Schematic Design into Design Development and approve moving into the public review process.

BUDGET IMPACT:
Amount: $9 million
FY(s): 2015-2016
Funding Source: Bonds, savings, library district distribution to Oregon City Public Library

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-069

Agenda Date: 1/21/2015

Status: Agenda Ready

To: City Commission

Agenda #: 7a.

From: Library Director Maureen Cole

File Type: Report

SUBJECT:
Request to Move into Design Development Phase and Public Review Process of Library Project

RECOMMENDED ACTION (Motion):
Staff requests that the City Commission approve moving from Schematic Design into Design Development and approve moving into the public review process.

BACKGROUND:
The Library Building Project is prepared to move into the next phase of development and requests City Commission's approval to do so. This next step, moving into Design Development and into the public review process, follows many months of effort, many meetings and a great deal of outreach to citizens. Since the City Commission first approved the current Carnegie Center and Library Park as the site of the future home of the library expansion, staff and citizens have achieved the following:

-On May 20, 2014, the Bond Measure for the library project was approved by voters;
-On October 15, 2014, the City Commission of Oregon City selected the two story option as their choice for the addition to the Carnegie Library in Carnegie Library Park;
-On December 10, the City Commission reviewed two options for a two story addition at their regular work session informally agreed to the 'Atrium' option; this was supported by the Library Board
-DKS Consulting completed the Transportation Impact Study (see attached)
-The bond loan was completed and the project received $6,000,000.00
-On January 6 the required pre-application meeting was held with City departments involved in the Land Use process
-On January 8 the Project Team met with the McLoughlin Neighborhood Association for its official project meeting
-On January 13 the new City Commission received an overview and update in a Work Session
-On January 14 the Library Board approved a motion to recommend that the City Commission approve the staff request to move into Design Development and the public review process
-On January 14 another Community Meeting was held to describe progress on the project and get feedback from citizens
With information from the pre-app meeting, the City Commission Work Session, the McLoughlin Neighborhood Association meeting and the Community Meeting, SE /A has been aligning design elements to respond to comments and code guidance. This brings the

Schematic Design Phase to a close. Upon approval of the City Commission, the Library Project will move from the Schematic Design Phase into the Design Development Phase and will commence the public review process.

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BUDGET IMPACT:
Amount: $9 million
FY(s): 2015-2016
Funding Source: Bonds, savings, library district distribution to Oregon City Public Library

Proposed

Oregon City Library Expansion

Transportation Impact Analysis and Parking Study

Prepared for

Oregon City Library

Prepared by

DKS

December 2014

720 SW Washington St.
Suite 500
Portland, OR 97205
503.243.3500
www.dksassociates.com

December 30, 2014

Maureen Cole
Oregon City Library
606 John Adams Street
Oregon City, OR 97045

P#/A#: P14174-000

Subject: Oregon City Library Expansion Transportation Impact Analysis and Parking Study

Dear Maureen:

DKS Associates is pleased to present this Transportation Impact Analysis and Parking Study for the proposed Oregon City Library Expansion Project, in Oregon City. It reflects comments provided by the Project team. Please feel free to contact me with any questions or comments regarding this study.

Sincerely,

DKS Associates

Julie Sosnovske

Julie Sosnovske, P.E.
Transportation Planner

REGISTERED PROFESSIONAL ENGINEER
18944PE
OREGON
FEB. 14, 1997
JULIE A. SOSNOVSKE
EXPIRES: 6/30/16

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CHAPTER 1: INTRODUCTION AND SUMMARY

This study evaluates the transportation impacts of the proposed expansion of the existing Oregon City Library, in Oregon City, Oregon. The proposed expansion would increase the size of the existing library from 7,600 square feet to a maximum of 22,600 square feet. There are currently 24 employees in total, many of whom work part-time. No more than ten people currently work at the Library at the same time. The library is expecting to add approximately one or two more employees with the expansion and expects to have a maximum of twelve employees working at one time.

The existing library is located on John Adams Street, between 7th Street and 6th Street, as shown in Figure 1. The library owns a parking lot on the southeast corner of the 7th Street/Jefferson Street intersection, and uses the lot for employee parking. Library patrons use on-street parking or city-owned public parking lots in the immediate vicinity of the library. The purpose of this study is to determine the transportation impacts of the library expansion in the study area. The report also provides recommendations for accommodation of the additional parking needs generated by the library expansion.

This report documents the evaluation of existing transportation conditions, trip generation and distribution, future conditions, transportation impacts within the study area, and a parking analysis. The study area is shown in Figure 1, including the following study intersections:

- 7th Street/Washington Street
- 7th Street/John Adams Street
- 7th Street/Jefferson Street
- 7th Street/Jackson Street
- 7th Street/Molalla Avenue/Taylor Street
- Molalla Avenue/Pearl Street
- 6th Street/John Adams Street
- 6th Street/Jefferson Street
- 5th Street/Jackson Street

This chapter provides an introduction to the library expansion and the steps taken to analyze the associated impacts on the transportation network. It highlights important elements from the remaining chapters, including a description of the project site and a summary of the project site evaluation. Table 1 lists important characteristics of the study area and proposed project.



LEGEND

- Study Intersection Number

DKS

Figure **1**

Study Area

Table 1: Key Study Area and Proposed Project Characteristics

Characteristics	Information
Study Area	
Number of Study Intersections	9
Analysis Period	Weekday PM peak hour (one hour from 3-6 pm)
Project Development	
Existing Land Use	Institutional Use - Library
Existing Size	7,600 square feet, 24 employees total (many part-time)
Proposed Addition	15,000 square feet, 1-2 employees
Existing Vehicle Trips Generated	88 (36 in, 52 out) PM peak hour trips, including 4 book drop-off trips
Proposed Expansion Vehicle Trips Generated	110 (45 in, 65 out) PM peak hour trips, including 8 book drop-off trips
Vehicle Access Points	None; vehicles will use on and off-street parking in the vicinity of the library. Only service vehicles will have direct access to the library property.
Anticipated Year of Opening	2016
Roadway Classifications[1]	
7th Street	Major Arterial, Proposed Bikeway
6th Street	Local
5th Street	Minor Arterial, Existing Bikeway
Washington Street	Minor Arterial, Existing Bikeway
John Adams Street	Local, Planned Family Friendly Route
Jefferson Street	Local
Jackson Street	Collector, Proposed Bikeway, Planned Family Friendly Route
Taylor Street	Collector
Molalla Avenue	Major Arterial, Existing Bikeway
Pearl Street	Collector, Proposed Bikeway
Other Transportation Facilities	
Pedestrian Facilities	Sidewalks are available on all blocks surrounding the library
Bicycle Facilities	Bike lanes are provided on 5th Avenue and on Molalla Avenue
Nearest Transit Stop	TriMet Route 33 travels along 5th Street with stops at Washington Street and Jefferson Street. TriMet Route 99 travel along Washington Street, 7th Street, and Molalla Avenue, with a stop at Pearl Street
Freight	There are no freight routes through the study area
Parking	On-street parking is available on sections of all the streets adjacent to the library. Public off-street parking is also available within a block of the library. The library also owns an existing off-street parking lot at the corner of Jefferson and 7th Avenue.

[1] Oregon City Transportation System Plan, Volume 1, Figures 8, 11, 19, and 20. Clackamas County Comprehensive Plan, Chapter 5: Transportation System Plan; Figure 5-2a

Existing Intersection Operations

Existing year 2014 traffic operations at the study intersections were determined for the p.m. peak hour based on the 2000 Highway Capacity Manual (HCM) methodology for signalized intersections[2] and the 2010 Highway Capacity Manual methodology for unsignalized intersections.[3] The level of service (LOS) and volume-to-capacity ratio (V/C) at each study intersection is shown in Table 2. As shown, all intersections meet the city's operating standards.

It should be noted that the HCM 2010 analysis of the 7th Street/Jackson Street intersection does not account for the vehicle platooning caused by the signal at 7th Street/Monroe Street. Therefore, the LOS F for the minor movements at the 7th Street/Jackson Street intersection does not accurately portray the traffic operational conditions observed in the field, which were significantly better than LOS F.

Table 2: Existing Study Intersection Operations

Intersection	Metro Classification	Intersection Control	Operating Standard[4]	Existing PM Peak	
				LOS	*V/C*
7th St/Washington St	Arterial and Throughway Network	Signalized	V/C < 0.99	C	0.65
7th St/John Adams St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/C	0.12
7th St/Jefferson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/C	0.09
7th St/Jackson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/F	0.50
7th St/Molalla Ave/ Taylor St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/D	0.52
Molalla Ave/Pearl St	Arterial and Throughway Network	Signalized	V/C < 0.99	B	0.71
6th St/John Adams St	Not Designated	Unsignalized	LOS E/LOS F	A/A	0.07
6th St/Jefferson St	Not Designated	Unsignalized	LOS E/LOS F	A/A	0.04
5th St/Jackson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/C	0.12

Signalized:
LOS = Level of Service of Intersection
V/C = Volume-to-Capacity Ratio of Intersection

Two-Way or All-Way Stop Controlled:
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement

[1]Oregon City operating standard

[2] *2000 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000.

[3] *2010 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2010.

[4] Oregon City Municipal Code, Section 12.04.205 – Mobility Standards.

Project Traffic Impacts

Project traffic impacts were evaluated at the study intersections for the weekday p.m. peak hour for 2016, the estimated year of opening for the library expansion. Additional traffic was added to the roadway network based on trip generation and trip distribution assumptions associated with the floor space added to the site and assumed background traffic growth (assumptions are documented in Chapter 3). Table 3 lists the future traffic operating conditions at the study intersections. As shown, all nine study intersections are expected to meet Oregon City operating standards for the p.m. peak hour for the project build year.

Table 3: Future Build Study Intersection Operations

Intersection	Metro Classification	Intersection Control	Operating Standard[5]	2016 No Build PM Peak		2016 Build PM Peak	
				LOS	*V/C*	*LOS*	*V/C*
7th St/ Washington St	Arterial and Throughway Network	Signalized	V/C < 0.99	C	0.68	C	0.69
7th St/ John Adams St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/D	0.13	A/D	0.17
7th St/ Jefferson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/C	0.10	A/C	0.13
7th St/ Jackson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/F	0.59	A/F	0.64
7th St/ Molalla Ave/ Taylor St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/E	0.58	A/E	0.60
Molalla Ave/ Pearl St	Arterial and Throughway Network	Signalized	V/C < 0.99	B	0.74	B	0.76
6th St/ John Adams St	Not Designated	Unsignalized	LOS E /LOS F	A/A	0.07	A/A	0.09
6th St/ Jefferson St	Not Designated	Unsignalized	LOS E/ LOS F	A/A	0.04	A/A	0.08
5th St/ Jackson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/C	0.12	A/C	0.12

Signalized:
LOS = Level of Service of Intersection
V/C = Volume-to-Capacity Ratio of Intersection

Two-Way or All-Way Stop Controlled:
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement

[1]Oregon City operating standard

As indicated by the results shown in Table 3, the library expansion does not significantly impact the operations at any of the nine intersections analyzed. No operational mitigations are required. However, some traffic mitigations are recommended to improve access to the library and maintain un-interrupted traffic flow on 7th Street. These mitigations are described later in this chapter.

[5] Oregon City Transportation System Plan, Volume 1, Mobility Standards; pg. 38-39

Project Parking Impact

Parking impacts associated with the proposed library expansion were evaluated for on and off-street parking in the surrounding areas. In addition, the library design team requested that the best use of the library owned lot on the southeast corner of the 7th Street/Jefferson Street intersection be considered and evaluated. The library recently purchased the lot and would like to determine whether the lot should be used for employees, patrons or a combination of both. In addition, it was requested that the possibility of leasing several of the spaces be considered.

The traffic analysis indicated that the existing on-street parking does have sufficient capacity to accommodate the added library parking demand. The analysis assumed that the added demand would only use on-street parking, so the actual capacity of the study area may be higher if library patrons choose to use public lots that are more than one block away from the library. Table 4 summarizes the on-street parking impacts of the library expansion, assuming that patrons will walk no more than one block from a street parking spot to the library site. On average, about two-thirds of the on-street parking spots within one block of the library will be occupied with the proposed expansion in place. The details of the on-street parking analysis are included in Chapter 3.

Table 4: Future Build On-Street Parking Occupancy (PM Peak Hour)

Street (Direction of Traffic)	Block		Capacity (vehicles)	Average Occupancy (vehicles)[6]	Average Vacancy (spaces)	Average Occupancy (%)
	From	*To*				
7th St (Westbound)	Madison St	Jefferson St	7	2	5	29%
	Jefferson St	John Adams St	7	6	1	86%
6th St (Westbound)	Madison St	Jefferson St	11	7	4	64%
	Jefferson St	John Adams St	6	6	0	100%
6th St (Eastbound)	Washington St	John Adams St	9	6	3	67%
	John Adams St	Jefferson St	9	6	3	67%
	Jefferson St	Madison St	12	8	4	67%
John Adams St (Southbound)	7th St	6th St	6	4	2	67%
	6th St	5th St	5	3	2	60%
John Adams St (Northbound)	5th St	6th St	9	5	4	56%
	6th St	7th St	6	5	1	83%
Jefferson St (Southbound)	7th St	6th St	11	10	1	91%
	6th St	5th St	12	7	5	58%
Jefferson St (Northbound)	5th St	6th St	12	5	7	42%
	6th St	7th St	11	9	2	82%
		Total	***133***	***89***	***44***	***67%***

[6] Based on October 9, 2014 PM peak hour (5:00 PM to 6:00 PM) on-street parking occupancy counts and increased by 10 parked vehicles per hour to account for added school day traffic. See Trip Generation section for more details

After reviewing the existing conditions and layout of the library owned parking lot at the southeast corner of the 7th Street/Jefferson Street intersection, it is recommended that at least 10 of the lot parking spaces be reserved for library employees, with additional spaces designated either for long-term daily volunteer parking or for lease to local businesses. Additional improvements to the off-street parking lot were included as recommended project traffic mitigations.

Project Mitigation Summary

The following list summarizes the mitigation strategies identified as part of the Oregon City Library Expansion Transportation Impact Study. These projects are recommended based on the operational analysis of the future traffic conditions, and the existing pedestrian, bicycle, and parking conditions in the study area.

Motor Vehicle Improvements

- Restripe 7th Street at John Adams Street to include a left-turn lane in the northwest direction. This project is included in the City's Transportation System Plan as D29. Although low (<20 vph) left turn volumes allow the intersection operations to meet City standards both under existing and future Build conditions, preliminary left-turn lane warrants indicate a need for a left-turn lane.
- Consider providing library signage on 7th Street, for vehicles traveling in the northwest direction, encouraging vehicles to turn left at Monroe Street, a signalized intersection. This will reduce the left-turn demand on 7th Street at the unsignalized intersections at Jefferson Street and John Adams Street.

Pedestrian and Bicycle Access

- Maintain pedestrian and bicycle accessibility to building entrances, providing bicycle parking near building entrances.

On-Street Parking

- Stripe on-street parking stalls adjacent to library parcel on Jefferson Street, 6th Street, and John Adams Street to maximize parking efficiency.
- Allocate three parking stalls to be used specifically for book drop-off. These stalls should be located on 6th Street, adjacent to the library. Signage adjacent to these stalls should include language similar to "10-minute parking only".
- Upgrade or add curb ramps to ADA standards at the following intersections to improve access between on-street parking and the library:
    - 6th Street/John Adams Street
    - 6th Street/Jefferson Street

Off-Street Parking

- Based on the current parking lot usage and geometry, the following improvements and options are recommended for the library owned parking lot:

- Remove the existing parking space nearest to 7th Street entrance. This space requires a departing vehicle to complete a blind back-up maneuver onto the sidewalk and possibly onto 7th Street if the parking lot is full.
- Restripe the existing one-way parking lot markings to emphasize the circulation.
- Install a "Do Not Enter" sign facing parking lot traffic at the 7th Street entrance. The sight distance restrictions caused by existing foliage and a retaining wall to the west and a building abutting the sidewalk to the east make exiting onto 7th Street undesirable.
- Redirect traffic exiting the parking lot to turn west on the alley toward Jefferson Street, rather than toward Madison Street, since sight distance is restricted where the alley accesses Madison Street.
- Sign the parking spaces required for staff as "library staff only" (approximately 10 spaces). The remaining spaces may be used for either:
  - Volunteer staff parking (revise sign to read "library staff and volunteers only")
  - Lease to nearby businesses

Overall, the only significant transportation impact of the library expansion is the increase in on-street parking demand, especially during the PM peak hour. However, the current on-street parking facilities in the area surrounding the library provide adequate capacity to meet the predicted future demand. The current network has adequate capacity to absorb the added library traffic, and intersection operations near the library should not be noticeably affected. Most transportation mitigation efforts associated with the library expansion should be focused on encouraging alternative modes of travel to the library with improved pedestrian and bicycle facilities in and around the project site.

CHAPTER 2: EXISTING CONDITIONS

This chapter provides documentation of existing study area conditions, including the project site, study area roadway network, parking, pedestrian, bicycle and transit facilities, and existing traffic volumes and operations. Supporting details are provided in the appendix.

Project Site

The proposed project involves the expansion of the existing 7,600 square foot library. The proposed expansion occurs on a single, full block parcel in Oregon City, Oregon. The site is the city block bounded by John Adams Street, 7th Street, Jefferson Street and 6th Street. As there is no existing dedicated off-street parking on the site parcel for the proposed development, the direct connections to the surrounding neighborhood only serve non-motorized modes.

Study Area Roadway Network

The study area was selected with the intention of capturing transportation impacts related to the proposed project. Table 5 lists the characteristics of key roadways in the study area.

Table 5: Study Area Roadway Characteristics

Roadway	Oregon City[7] Classification	Number of Lanes	Posted Speed	Sidewalks	Bike Lanes	On-Street Parking
7th St (Center St to Taylor St)	Primary Arterial, TriMet Transit Route, Proposed Bikeway	2/3	25 mph	Yes	No	Yes (one side)
6th St (Washington St to Madison St)	Local	2	25 mph	Yes	No	Yes
5th St/Linn Ave (Washington St to 4th St)	Minor Arterial, TriMet Transit Route, Existing Bikeway	2	25 mph	Some	Yes	Yes
Washington St (5th St to 8th St)	Minor Arterial, TriMet Transit Route, Existing Bikeway	2	25 mph	Yes	No	Yes
John Adams St (5th St to 8th St)	Local, Planned Family Friendly Route	2	25 mph	Yes	No	Yes
Jefferson St (5th St to 8th St)	Local	2	25 mph	Yes	No	Yes
Jackson St (5th St to 8th St)	Collector, Proposed Bikeway, Planned Family Friendly Route	2	25 mph	Yes	No	Yes
Taylor St (7th St to 8th St)	Collector	2	25 mph	Yes	No	Yes
Molalla Ave (Taylor St to Dewey St)	Major Arterial, TriMet Transit Route, Existing Bikeway	3	25 mph	Yes	Yes	No
Pearl St (Myrtle St to Warren St)	Collector, Proposed Bikeway	2	25 mph	Yes	No	Yes

[7] Oregon City Transportation System Plan, Volume 1, Figures 8, 11, 19, and 20. Clackamas County Comprehensive Plan, Chapter 5: Transportation System Plan; Figures 5-2a and 5-8a

Existing Traffic Volumes and Operations

Existing p.m. peak hour traffic operations were analyzed at the following study intersections, consistent with the City of Oregon City Guidelines for Transportation Impact Analyses[8]:

- 7th Street/Washington Street
- 7th Street/John Adams Street
- 7th Street/Jefferson Street
- 7th Street/Jackson Street
- 7th Street/Taylor Street/Molalla Avenue
- Molalla Avenue/Pearl Street
- 6th Street/John Adams Street
- 6th Street/Jefferson Street
- 5th Street/Jackson Street

To perform the intersection analysis, traffic counts were collected during the p.m. (3:00 to 6:00 p.m.) peak period on October 21, 2014. Existing peak hour traffic volumes are shown in Figure 2 with the detailed traffic counts included in the Appendix.

The purpose of intersection analysis is to ensure that the transportation network remains within desired performance levels as required by City code. Intersections are the focus of the analysis because they are the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is nearly always diminished in their vicinity.

Before the analysis results of the study intersections are presented, discussion is provided for two important analysis issues: intersection performance measures (definitions of typical measures) and required operating standards (as specified by the agency with roadway jurisdiction).

Intersection Performance Measures

Level of service (LOS) ratings and volume-to-capacity (V/C) ratios are two commonly used performance measures that provide a good picture of intersection operations. In addition, they are often incorporated into agency mobility standards.

- **Level of service (LOS):** A "report card" rating (A through F) based on the average delay experienced by vehicles at the intersection.[9] LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity.
- **Volume-to-capacity (V/C) ratio:** A decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

[8] City of Oregon City Guidelines for Transportation Impact Analyses, November 2, 2005.

[9] A description of Level of Service (LOS) is provided in the appendix and includes a list of the delay values (in seconds) that correspond to each LOS designation.

Required Operating Standards

The City of Oregon City's mobility standards are defined in the Oregon City Municipal Code[10], which is included in the Appendix. The relevant standards that apply to the study intersections are as follows:

- For intersections outside of the Regional Center but designated on the Arterial and Throughway Network, as defined in the Regional Transportation Plan, the following mobility standards apply:
    - During the first hour, a maximum v/c ratio of 0.99 shall be maintained. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.
    - During the second hour, a maximum v/c ratio of 0.99 shall be maintained at signalized intersections. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.
- For intersections outside the boundaries of the Regional Center and not designated on the Arterial and Throughway Network, as defined in the Regional Transportation Plan, the following mobility standards apply:
    - For signalized intersections:
        - During the first hour, LOS "D" or better will be required for the intersection as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0 for the sum of the critical movements.
        - During the second hour, LOS "D" or better will be required for the intersection as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0 for the sum of the critical movements.
    - For unsignalized intersections outside of the boundaries of the Regional Center:
        - For unsignalized intersections, during the peak hour, all movements serving more than twenty vehicles shall be maintained at LOS "E" or better. LOS "F" will be tolerated at movements serving no more than twenty vehicles during the peak hour.

For this study, only first hour volumes were analyzed. None of the second hour volumes conditions would apply to any of the study intersections since none of the study intersections are expected to exceed the mobility standards for the first hour during any of the analysis scenarios.

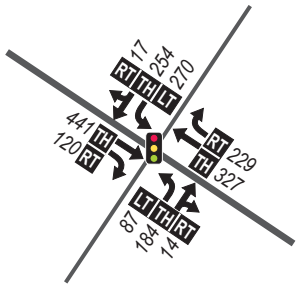
[10] Oregon City Municipal Code, Section 12.04.205 – Mobility Standards.



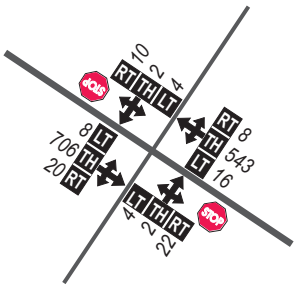
Key Map

No Scale

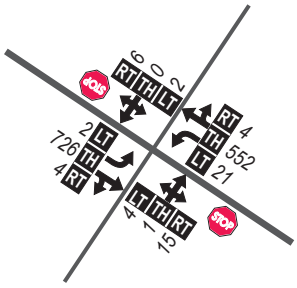
1. 7th St./Washington St.



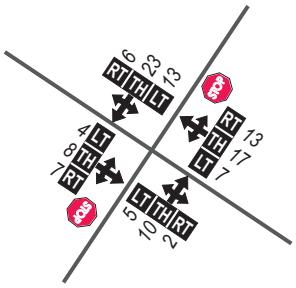
2. 7th St./John Adams St.



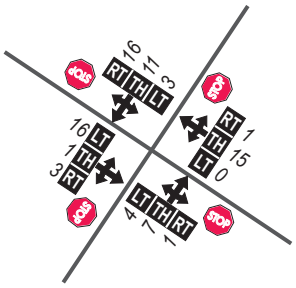
3. 7th St./Jefferson St.



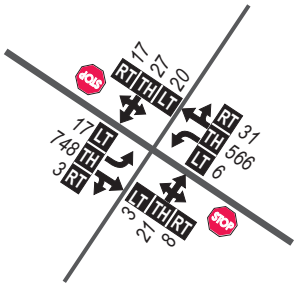
4. 6th St./John Adams St.



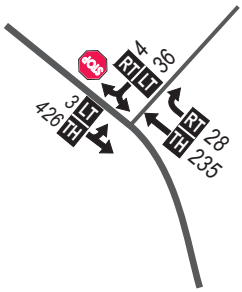
5. 6th St./Jefferson St.



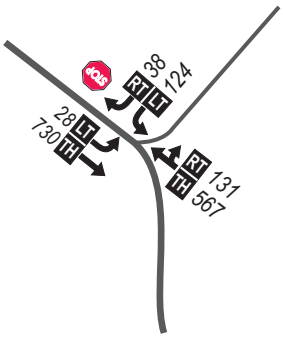
6. 7th St/Jackson St.



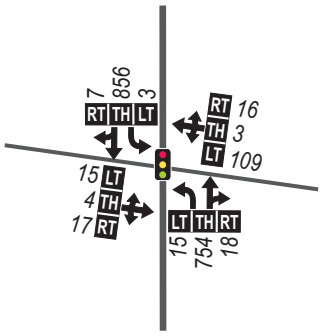
7. 5th St./Jackson St.



8. 7th St./Molalla St./Taylor St.



9. Molalla St./Pearl St.



LEGEND

- # - Study Intersection
- Traffic Signal
- STOP - Stop Sign
- Lane Configuration
- 000 - PM Peak Hour Traffic Volumes
- LT TH RT (Left•Thru•Right) - Volume Turn Movement

DKS

Figure **2**

2014 Existing PM Peak Hour Traffic Volumes

Existing Operating Conditions

Existing traffic operations at the study intersections were determined for the p.m. peak hour based on the 2010 Highway Capacity Manual methodologies[11] for signalized and unsignalized intersections and compared with the City of Oregon City's mobility standards. The estimated LOS and V/C ratio of each study intersection are shown in Table 6.

Table 6: Existing Study Intersection Operations

Intersection	Metro Classification	Intersection Control	Operating Standard[12]	Existing PM Peak	
				LOS	*V/C*
7th St/Washington St	Arterial and Throughway Network	Signalized	V/C < 0.99	C	0.65
7th St/John Adams St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/C	0.12
7th St/Jefferson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/C	0.09
7th St/Jackson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/F	0.50
7th St/Molalla Ave/Taylor St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/D	0.52
Molalla Ave/Pearl St	Arterial and Throughway Network	Signalized	V/C < 0.99	B	0.71
6th St/John Adams St	Not Designated	Unsignalized	LOS E/LOS F	A/A	0.07
6th St/Jefferson St	Not Designated	Unsignalized	LOS E/LOS F	A/A	0.04
5th St/Jackson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/C	0.12

Signalized:
LOS = Level of Service of Intersection
V/C = Volume-to-Capacity Ratio of Intersection

Two-Way or All-Way Stop Controlled:
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement

The results indicate that the southbound movement from the Jackson Street minor approach at the 7th Street/Jackson Street intersection operates at LOS F under existing conditions. There is no mobility

[11] *2000 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000, for signalized intersections and *2010 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2010, for unsignalizedunsignalized intersections.

[12] Oregon City Municipal Code, Section 12.04.205 – Mobility Standards. For intersections on the Regional Transportation Plan's (RTP) designated Arterial and Throughway Network, a v/c ratio < 0.99 shall be maintained for both the first and second hour. There is no performance standard for minor street approaches. For unsignalized intersections not designated in the RTP, all movements serving more than 20 vehicles shall be maintained at LOS "E". LOS "F" will be tolerated for movements serving no more than 20 vehicles during the peak hour.

standard for this approach since it is a minor street approach on the RTP Arterial and Throughway Network, however, it should be noted that project field observations at the intersection noted traffic platooning on 7th Street, due mainly to the traffic signal at 7th Street/Monroe Street two blocks west of Jackson Street. The HCM 2010 TWSC Analysis methodology does not account for vehicle platooning, resulting in calculated LOS F operations for the minor street movements. Based on field observations, the 7th Street/Jackson Street intersection minor approach operates closer to LOS C due to signal platooning.

Collision Analysis

Five years of collision records (2009-2013) for the study area were obtained from the Oregon Department of Transportation (ODOT) collision database. There were 55 total collisions between the nine study intersections over the five year period. As shown in Table 7, none of the intersections had collision rates in excess of 1.0 collisions per million entering vehicles, a common threshold used to identify intersection that require a more detailed safety analysis. Further analysis shows that all of the intersections fall below the statewide critical crash rates.

Table 7: Collision History (2009-2013)

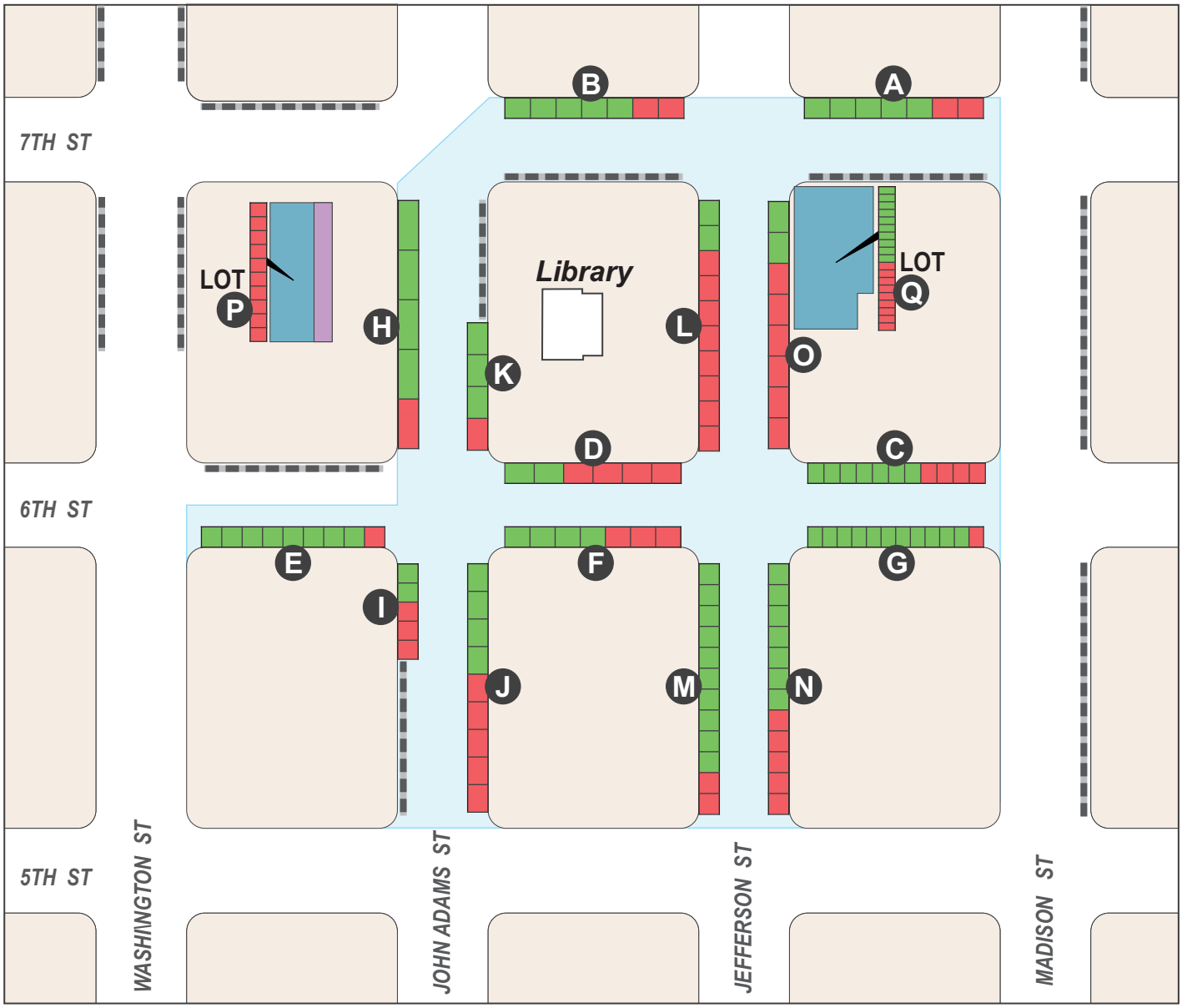
Intersection	Collisions (by Year)						Collision Rate[b]	Critical Rate[c]
	2009	*2010*	*2011*	*2012*	*2013*	*Total*		
7th St/Washington St	2	3	7	1	4	17	0.42	0.67
7th St/John Adams St	0	3	2	0	3	8	0.28	0.31
7th St/Jefferson St	0	1	0	1	0	1	0.04	0.31
7th St/Jackson St	0	1	1	1	0	3	0.10	0.30
7th St/Taylor St/Molalla Ave	1	0	0	0	1	2	0.06	0.48
Molalla Ave/Pearl St	5	1	8	4	3	21	0.55	0.68
6th St/John Adams St	1	0	0	0	0	1	0.41	0.80
6th St/Jefferson St	0	0	0	1	0	1	0.58	0.96
5th St/Jackson St	0	0	1	0	0	1	0.06	0.20

[a] PDO = Property damage only.
[b] Collision rate for intersections= average annual collisions per million entering vehicles (MEV); MEV estimates based on p.m. peak-hour traffic count and applicable factors.
[c] Critical Collision rate for intersections= statewide 90th percentile annual collisions per MEV for similar intersections

On and Off-Street Parking

The existing Oregon City Library does not have a dedicated off-street parking lot for patrons. Current library visitors either park on the streets surrounding the library or in nearby off-street public parking lots, typically owned by the City of Oregon City. The project team collected parking occupancy counts during the PM peak hour on October 9, 2014 and adjusted the counts to reflect a typical school day (see Trip Generation Section). Figure 3 shows the existing study area parking locations and PM peak hour average occupancies. The on-street parking blocks were selected as part of the study area based on their location relative to drivers approaching the library. Other on-street parking is available on the street blocks surrounding the library, but these spaces were removed from the analysis based on the walking distance from to the library. Figure 3 summarizes the existing on-street parking capacities, PM peak hour occupancies and vacancies within the study area.

Current library visitors use the 10 public parking spaces in the fire station parking lot. However, these spaces are generally occupied during the PM peak hour. The library has also purchased the public parking lot on the southeast corner of the 7th Street/Jefferson Street intersection. Currently, library employees use this parking lot. Figure 3 also shows the existing PM peak hour parking capacity and occupancy for the fire station (Lot P) and library owned (Lot Q) public parking lots.



Existing Peak Hour Average Parking Occupancies

Block-face/Lot	Capacity	Average Occupied	Average Vacant	Block-face/Lot	Capacity	Average Occupied	Average Vacant
A	7	2	5	J	9	5	4
B	7	2	5	K	4	1	3
C	11	5	6	L	10	8	2
D	6	4	2	M	12	2	10
E	9	1	8	N	12	5	7
F	7	3	4	O	8	6	2
G	12	1	11	LOT P	10	10	0
H	5	1	4	LOT Q	19	9	10
I	5	3	2	*Total*	*153*	*68*	*85*

LEGEND

- Library On-Street Parking
- Library Off-Street Parking
- Restricted Off-Street Parking
- No Parking Allowed

Block-face/Lot - *Bar Chart*

- Average Available Parking Spaces
- Average Occupied Parking Spaces

DKS

No Scale

Figure 3

Existing Parking by Block-face Weekday PM Peak Hour

Public Transit Service

The two transit stops closest to the library are located on 5th Street/Jefferson Street and 5th Street/Washington Street. The boardings and alightings for these two stops are shown in Table 8. Both stops are served by TriMet Route 33 (McLoughlin), which runs with approximately 15 minute daytime headways. TriMet Route 32 (Oatfield) has three stops within 0.25 miles of the library; 9th Street/Washington Street, 9th Street/Jefferson Street, and 9th Street/Monroe Street. The boardings and alightings for these stops are summarized in

Table 8. The Route 32 headways vary throughout the day from 15 minutes during the morning peak, 30 minutes during the evening peak, and 60 minutes at midday. TriMet Route 99 (McLoughlin Express) travels through the study area using Washington Street, 7th Street, and Molalla Avenue. However, Route 99 riders are not likely to walk to the library as the nearest stop is the Oregon City Transit Center, more than one-half mile to the north.

Table 8: Route 32 and 33 Boarding and Alighting Data

Bus Stop Location	Route	Weekday Daily Average			Monthly Lifts
		Ons	Offs	Total	
9th St/Washington St (Westbound)	32-Oatfield	1	4	5	1
900 Block Washington St (Southbound)	32-Oatfield	3	2	5	2
9th St/Jefferson St (Westbound)	32-Oatfield	1	2	3	0
9th St/Jefferson St (Eastbound)	32-Oatfield	1	2	3	1
9th St/Monroe St (Westbound)	32-Oatfield	1	1	2	0
9th St/Monroe St (Eastbound)	32-Oatfield	2	2	4	0
5th St/Washington St (Westbound)	33-McLoughlin	6	7	13	15
5th St/Washington St (Eastbound)	33-McLoughlin	8	10	18	13
5th St/Jefferson St (Westbound)	33-McLoughlin	2	6	8	7
5th St/Jefferson St (Eastbound)	33-McLoughlin	6	4	10	4
5th St/Monroe St (Westbound)	33-McLoughlin	10	10	20	1
5th St/Monroe St (Eastbound)	33-McLoughlin	9	13	22	3

Pedestrians and Bicyclists

Existing peak hour pedestrian traffic within the study area is summarized in Figure 4. Bicycle activity in the study area is generally low during the peak period, with fewer than five cyclists at each of the study intersections, except Molalla/Pearl, which had seven bicyclists.

Pedestrian activity is highest at Molalla/Pearl and along 7th Street in the immediate vicinity of the library (Washington Street, John Adams Street and Jefferson Street), with about 25-35 pedestrians at these intersections during the PM peak hour.

All of the streets within the study area have continuous sidewalks. The busy peak hour traffic on 7th Street presents the only major barrier to pedestrian movements to and from the library. However, a striped crosswalk with a push button activated pedestrian flasher (RRFB)[13] was recently installed at the intersection of John Adams Street and 7th Street (see Figure 5). This crossing improvement was constructed as part of a planned Family Friendly pedestrian and bicycle route along John Adams Street.[14]

[13] Rectangular Rapid Flashing Beacon.

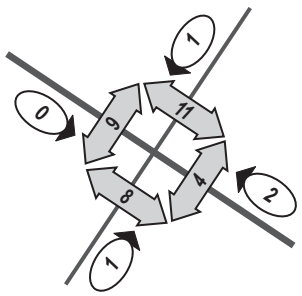
[14] Oregon City Transportation System Plan, Volume 1, Mobility Standards; Figure 19.



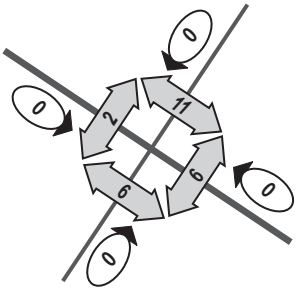
Key Map

No Scale

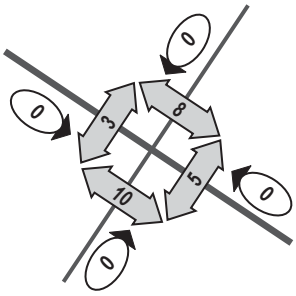
1. 7th St./Washington St.



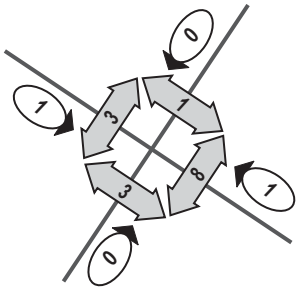
2. 7th St./John Adams St.



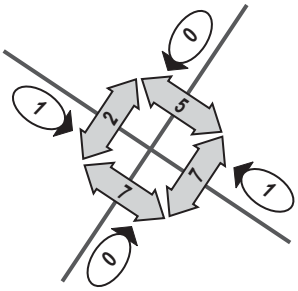
3. 7th St./Jefferson St.



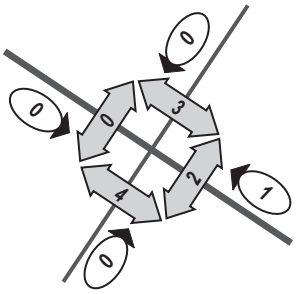
4. 6th St./John Adams St.



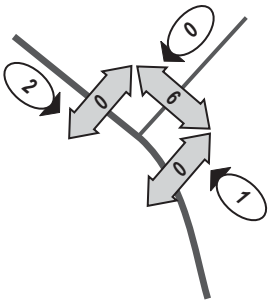
5. 6th St./Jefferson St.



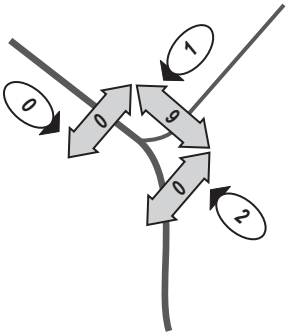
6. 7th St/Jackson St.



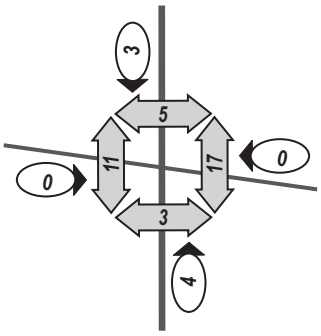
7. 5th St./Jackson St.



8. 7th St./Molalla St./Taylor St.



9. Molalla St./Pearl St.



LEGEND

- Study Intersection

00 - Pedestrian Peak Hour Volume

00 - Bicycle Peak Hour Volume

DKS

Figure 4

2014 PM Peak Bicycle & Pedestrian Volumes



Figure 5: 7th/John Adams Pedestrian Crossing

The 7th Street/Washington Street intersection provides pedestrians with pedestrian signal heads and crosswalks on all approaches. These crosswalks provide pedestrians with a second 7th Street crossing option. Each crossing has wide shared curb ramps.

People walking to the existing library generally use the 6th Street sidewalks between John Adams Street and Jefferson Street. The intersections of 6th Street/John Adams Street and 6th Street/Jefferson Street are currently all-way stop controlled with full striped crosswalks. However, the intersections do not have full ADA curb ramps at all crosswalk locations (see Figure 6 and Figure 7 for examples). The incomplete curb ramp layout hampers movement for disabled persons attempting to access the library from many of the nearby street parking locations. Table 9 show summarizes existing curb ramp deficiencies at the 6th Street intersections.

Table 9: Existing Curb Ramp Inventory on 6th Street

Intersection	Crossing	Curb Ramps
6th Street/John Adams Street	North John Adams Street	Shared ramp at northeast corner, shared ramp at northwest corner
	South John Adams Street	Ramp on southeast corner, no ramp on southwest corner
	East 6th Street	Shared ramp on northeast corner, ramp on southeast corner
	West 6th Street	Shared ramp on northwest corner, ramp on southwest corner
6th Street/Jefferson Street	North Jefferson Street	Ramp at northeast corner, no ramp at northwest corner
	South Jefferson Street	No ramp on southeast corner, ramp on southwest corner
	East 6th Street	No ramp on northeast corner, ramp on southeast corner
	West 6th Street	Ramp on northwest corner, Ramp on southwest corner



Figure 6: Share Curb Ramp at NE corner of John Adams and 6th Street



Figure 7: Missing Curb Ramp at SW corner of John Adams and 6th Street

The study area is served by limited bicycle facilities. As indicated in Table 5, 5th Street, Washington Street and Molalla Avenue are existing bikeways. However, only 5th Street and Molalla Avenue have striped bike lanes. Jackson Street, Pearl Street and 7th Street are all proposed bikeways, according to the Oregon City Transportation System Plan. The PM peak hour bicycle volumes within the study area are very light, as shown in Figure 4. However, higher bicycle volumes are likely during warmer and drier months. The existing library does provide some bicycle parking with a five space bike rack.

Planned Improvements

The Oregon City Transportation System Plan[15] indicates that the following transportation related projects are planned in the vicinity of the project site:

- **Washington Street Upgrade: Driving Solutions (Years 6 – 10, likely to be funded):** Construct Improve Washington Street to a Minor Arterial cross-section from 11th Street to 7th Street. Add curb-ramps at intersections.
- **Washington Street Traffic Surveillance: Driving Solutions (Years 10+, not likely to be funded):** Install video monitoring cameras and vehicle detection equipment to provide turn movement counts, hourly volumes, travel times, and speed measurements on Washington Street between 7th Street and OR 213.
- **Washington Street Speed Warning System: Driving Solutions (Years 10+, not likely to be funded):** Install a speed warning system on Washington Street near 9th Street. The system activates when a motorist approaches at a high speed.
- **Molalla Avenue/Beavercreek Road Adaptive Signal Timing: Driving Solutions (Year 0-5, likely to be funded):** Deploy adaptive signal timing that adjusts signal timings to match real-time traffic conditions on Molalla Avenue/7th Street from Washington Street to Gaffney Lane.
- **7th Street/Molalla Avenue Traffic Surveillance: Driving Solutions (Years 10+, not likely to be funded):** Install video monitoring cameras and vehicle detection equipment to provide turn movement counts, hourly volumes, travel times, and speed measurements on 7th Street/Molalla Avenue between Washington Street and OR 213.

[15] Oregon City Transportation System Plan, Volume 2, Planned and Financially Constrained Transportation Systems.

- **OR213/7th Street-Molalla Avenue/Washington Street Integrated Corridor Management: Driving Solutions (Years 10+, not likely to be funded):** Integrate traffic surveillance and traffic control equipment with ODOT on Washington Street/7th Street-Molalla Avenue corridor.
- **7th Street Speed Warning System: Driving Solutions (Years 10+, not likely to be funded):** Install a speed warning system on 7th Street near Harrison Street. The system activates when a motorist approaches at a high speed.
- **John Adams Street/7th Street Restriping: Driving Solutions (Years 10+, not likely to be funded):** Restripe 7th Street to include a northbound left-turn pocket from 7th Street to John Adams Street.
- **John Adams-Jefferson Street Family Friendly Route: Family Friendly Route Solutions (Years 10+, not likely to be funded):** Complete sidewalk gaps and add way finding and shared lane markings on John Adams and Jefferson Street from Water Board Park Road to 15th Street.
- **John Adams Street/7th Street Family Friendly Route Crossing: Street Crossing Solutions (already constructed):** Install crosswalk and pedestrian activated flasher on 7th Street at John Adams Street.
- **Jackson Street/7th Street Family Friendly Route Crossing: Street Crossing Solutions (Years 10+, not likely to be funded):** Install crosswalk and pedestrian activated flasher on 7th Street at Jackson Street.

CHAPTER 3: PROJECT IMPACTS

This chapter reviews the impacts of the proposed development plans on the study area transportation system. The study area intersections documented in previous sections of this report are the main focus of the analysis. The secondary focus of the analysis is on potential uses for the library leased parking lot on the southeast corner of the 7th Street/Jefferson Street intersection. The current parking lot usage is documented in previous sections of this report.

Proposed Project

The proposed project will expand the existing Oregon City Library in Oregon City, Oregon. The existing Carnegie style library building has 7,600 square feet of gross floor area. The proposed expansion would add up to an additional 15,000 square feet of gross floor area to the existing structure, for a maximum total of 22,600 square feet. A site plan is included in the appendix. The existing library currently has 24 staff members (total, many of whom are part-time) and the library expects to add only one to two additional staff with the expansion. A small amount of added off-street parking adjacent to the library site is assumed with the proposed project, gained through the efficiency of striped parking stalls relative to the unstructured on-street parking that occurs today. The library expansion design team proposes to restrict parking along the north side of Jefferson Street, adjacent to the library, to two-hour parking. The expansion is scheduled for completion by the year 2016.

Trip Generation

This study focuses on the impacts of the existing and proposed library on the surrounding street network during the adjacent street (7th Street) PM peak hour, which occurs between approximately 4:45 PM and 5:45 PM during a normal weekday. The actual library peak hour occurs earlier in the day. However, traffic conditions on the adjacent street network are less busy earlier in the day. The library currently does not open until after the 7th Street AM peak hour. Therefore, the 7th Street PM peak hour was selected for analysis as the most representative time period for peak library expansion traffic impacts.

The ITE Trip Generation Manual[16] contains daily and adjacent street PM peak hour trip rates for libraries calculated based on gross floor area. However, there are a limited number of trip generation studies for libraries of similar size and location to the Oregon City Library. User data was provided by the library, which records visitor entrances and exits throughout each day. In addition, a mode choice survey of library visitors was conducted on October 9, 2014 between 3 PM and 6 PM. The results are shown in Table 10.

Given the urban residential location and parking restrictions of the existing library, a trip generation comparison between the ITE Trip Generation Manual and the existing library usage data was undertaken to determine whether ITE trip rates were appropriate. It was anticipated that the Oregon City Library might generate fewer trips than indicated by ITE due to its proximity to fairly dense residential neighborhoods, where patrons may be more likely to walk or bicycle to the library than in a typical suburban location.

The mode choice survey was collected during a non-school weekday. Door count data indicated approximately 25% more trips during the PM Peak Hour on a school day. To better represent a typical

[16] *Trip Generation, 9th Edition*, Institute of Transportation Engineers, 2012, Land use code 210 (Single Family Detached Housing).

day, the vehicle mode choice data was applied to door counts from a school day the week before the survey.[17] The combined mode choice, entrance, and exit data provided the existing vehicle trip generation for the library. The resulting trip generation was compared to the ITE Trip Generation Manual average trip rate results for a library, as shown in Table 11. The door count data was also used to calculate the entering/exiting trip split during the peak hour of adjacent street traffic (7th Street).

Table 10: Mode Split Survey Results

Mode Split	Total Survey Responses	% of Respondents
Driver	104	58%
Passenger	33	18%
Transit	5	3%
Bike	6	3%
Walk	32	18%
Total	180	100%
Additional Observed Modes		
Book Drop-off (vehicle trips)*	10	

*Persons observed making book drop-offs without entering the library during the survey

Table 11: Existing Trip Generation Comparison

Calculation Method	Average Daily Rate (trip ends per 1000 GFA)	Gross Floor Area (GFA)	Existing Daily Vehicle Trip Ends		Average Daily Rate (trip ends per 1000 GFA)	Existing Adjacent Street PM Peak Hour Vehicle Trip Ends		
			Total	In/Out		Total	In/Out	Split (%In/%Out)
ITE Rate (Code 590)	56.24	7,600	427	214/213	7.30	55	26/29	47%/53%
Calculated from Survey*	92.63	7,600	704	352/352	11.58	88	36/52	41%/59%

*Using mode split data obtained from October 9, 2014 survey and October 2, 2014 door counts. Includes 8 (4 in/4 out) book drop-off trip ends

As indicated in Table 11, the trips generated by the library were higher than the trips calculated using ITE average trip rates.[18] In reviewing the ITE data, it was noted that smaller libraries tend to have higher

[17] The Oregon City Library provided door counts throughout the year. October was found to be a fairly typical month in the year and the count date selected was determined to be representative of a typical school day in October.

[18] The ITE regression equation has a relatively low r-squared value (0.68) and only 11 data points. The ITE Trip Generation

trip generation rates than larger libraries. Since the observed trip rate was not lower than estimated by ITE, as originally anticipated, and since trip rates tend to decrease with increased library size, the average ITE trip rate was used to estimate the proposed project trip generation. This lower rate is supported by the fact that the library anticipates adding only one to two additional staff with the proposed expansion.

Table 12 summarizes the existing and proposed project daily and peak hour library trips. Since the proposed library expansion is expected to approximately triple the size of the existing library, book drop-off portion of total trip ends is also expected to triple with the expected increased book selection. The added book drop-off trips are shown separately in Table 12, but would be included in the PM peak hour trip generation total (110 trips).

Table 12: Proposed Library Expansion Trip Generation

Land Use	Quantity	Units	Daily		PM Peak Hour		
			Rate (trips/unit)	Total	Rate (trips/unit)	Trip Generation (In/Out/Total)[c]	Book Drop-off (In/Out/Total)
Library (ITE Code 590)	15,000	GFA	56.24	844	7.30	45/65/110	8/8/16

[c] Includes book drop-off trips

Typically, a new development generates two trip types: pass-by and non-pass by. Pass-by trips are already on the network, stopping at the development and then continue on without route modification. Non-pass by trips can be broken down into two further trip types; primary and diverted. Primary trips are added to the network by the new development and enter and leave the study area by the same route. Diverted trips are already on the network but modify a specific route to reach the development.

No pass-by trip reduction was applied to the calculated trips added by the proposed library expansion. The existing library parking availability discourages pass-by trips from 7th Street, which is the only busy street adjacent to the library. Given the small size of the study area, no diverted trip reduction was applied to the generated trips. Therefore, all trips added by the library expansion were assumed to be primary trips.

Trip Distribution

The trips generated by the proposed library expansion were distributed based on the existing travel patterns in the study area and the distribution of population and employment in the library's service area (similar to the Oregon City School District boundary). Most of the distributed trips were assumed to be directionally balanced, with equal percentages of trips entering and leaving the study area. However, a higher percentage of trips were assumed to enter the study area from the north (southbound Washington Street) and the west (eastbound 7th Street) and exit to the south either on Molalla Avenue

Handbook recommends using the regression equation when data points exceed 20 and the r-squared value is >0.75.

or Center Street. These un-balanced distributions were selected based on overall peak hour traffic patterns in the study area. The existing traffic patterns indicated that during the peak hour, trips would enter the study area from eastbound 7th Street and leave heading either southbound to 5th Street or continue eastbound on 7th Street. These trips are most likely commuters stopping by the library on their way home from work. The trip distribution for the library expansion trips is shown in Figure 8.

Future Traffic Volumes

Two future traffic volume scenarios were developed, based on an expected year of opening of 2016:

- 2016 No Build (includes background traffic growth)
- 2016 Build (includes background + proposed project traffic growth)

Background Growth

The Oregon City TSP provided existing and year 2035 forecasted traffic volumes on Washington Street, 7th Street and Molalla Avenue. These forecasted volumes were used to calculate the expected through traffic growth along 7th Street and Washington Street by the project year of opening (2016), assuming linear growth. No growth was assumed on the other streets within the network as the area is already developed and does not serve any major through traffic movements. The resulting traffic growth is shown in Table 13. The growth rates were applied to the major (through) movements of the existing 2014 intersection counts.

Table 13: Assumed Through Volume Growth

Roadway	Direction	Total Growth
Washington Street	Both	3%
7th Street	Both	3%
Molalla Avenue	Both	2%
All other streets	Both	0%

The trips added by the future developments summarized below were also included in the future background traffic shown in Figure 8.

Three approved developments within the study area are scheduled for construction in the near future:

- **Olson Pharmacy:** The existing Olson Pharmacy is located at the corner of 7th Street and Monroe Street. The approved development would replace the existing pharmacy with a two-story mixed-use retail/residential building.
- **Mike's Drive-In:** The existing Mike's Drive-In restaurant is located at the northeast corner of 7th Street and Madison Street. The approved development would expand the existing restaurant from 1,600 SF (square feet) to 3,000 SF and add 2,800 SF of office space.
- **512-514 7th Street Vacant Lot Development:** The approved development location is the vacant lot at the southwest corner of 7th Street and Washington Street. The approved development includes 2,540 SF of retail space and 2,000 SF of medical/dental office space.

The three proposed developments will only impact the through trips on 7th Street within the study area. The trips generated by each development were summarized in Traffic Analysis Letters submitted to the City of Oregon City. All primary trips were assumed to stay on 7th Street, and were distributed based on the existing travel patterns in the study area. The added peak hour approved development trips affecting study area intersections are summarized in Table 14.

Table 14: Added Peak Hour Trips from Approved Developments

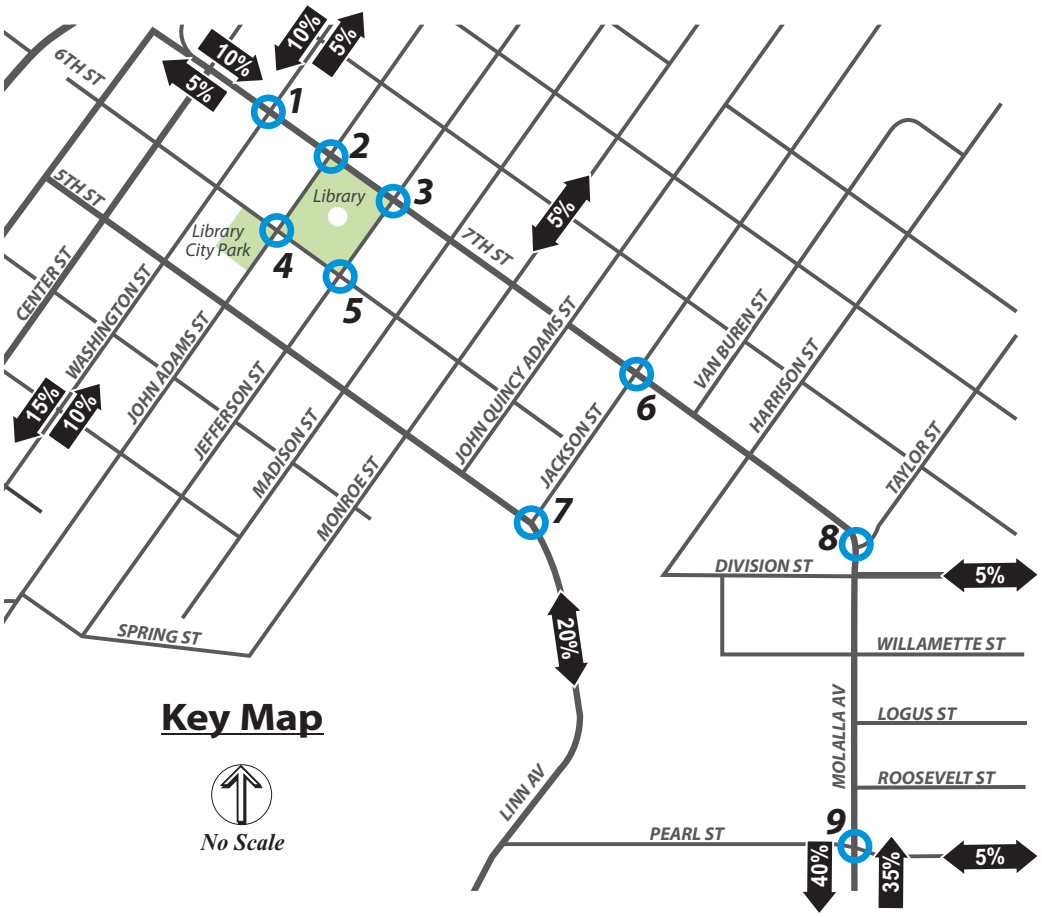
Development	Additional Peak Hour Trips				7th Street/ Molalla Avenue Study Area Impacts			
					Eastbound		Westbound	
	Total	In	Out	Pass-by	West of site	East of site	West of site	East of site
Olson Pharmacy Re-development	*	*	*	*	0	0	0	0
Mike's Drive In Expansion	24	7	12	5	3	7	5	4
7th Street Vacant Lot Development	80	37	38	5	16	21	17	21

*Approved development trips are less than the amount generated by the existing land use

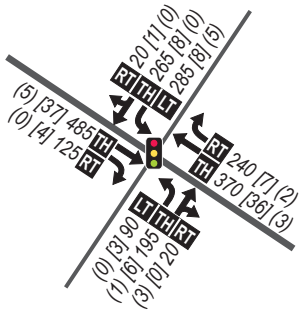
The trips added by background through traffic growth (Table 13) and the approved developments (Table 14) were added to existing traffic volumes, resulting in the future background traffic shown in Figure 8.

Added Traffic Assignment

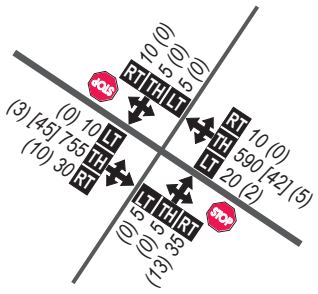
The 110 PM peak hour additional trips generated by the proposed library expansion (see Table 12) were assigned to the study area using the trip distribution percentages shown in Figure 8. Traffic assignment around the library was based on the availability of on-street parking, discussed in more detail in a later section of the report. The final assigned project trips resulted in the PM peak hour volumes that were added to the existing and background volumes at the study intersections, as shown in Figure 8.



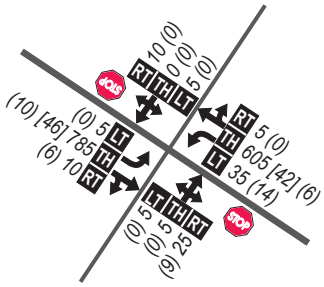
1. *7th St./Washington St.*



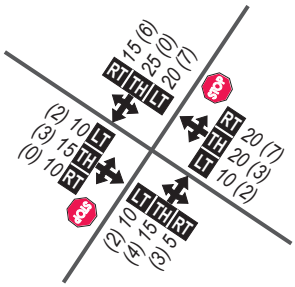
2. *7th St./John Adams St.*



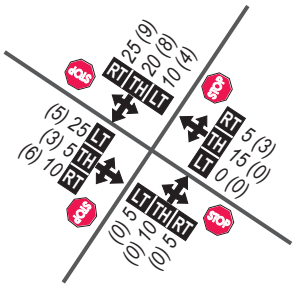
3. *7th St./Jefferson St.*



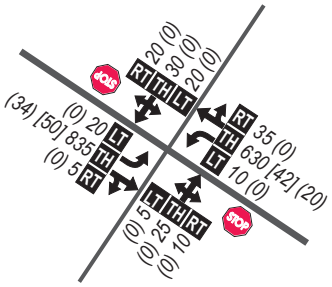
4. *6th St./John Adams St.*



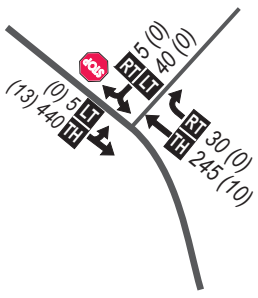
5. *6th St./Jefferson St.*



6. *7th St/Jackson St.*



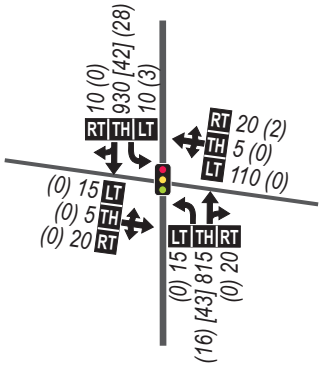
7. *5th St./Jackson St.*



8. *7th St./Molalla St./Taylor St.*



9. *Molalla St./Pearl St.*



LEGEND

- # - Study Intersection
- Traffic Signal
- STOP - Stop Sign
- 00% - Trip Distribution
- ← - Lane Configuration
- *000* - 2016 Build PM Peak Hour Traffic Volumes
- *[000]* - Background Traffic Volume
- *(000)* - Project Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

DKS

Figure **8**

2016 Build PM Peak Hour Traffic Volumes

Intersection Operations

The PM peak hour traffic volumes shown in Figure 8 were analyzed both with (Build Scenario) and without (No-Build Scenario) the library expansion trips. The HCM 2000 methodology was used to analyze the signalized intersections, and the HCM 2010 methodology was used for all-way stop control and two-way stop control intersections.[19] The resulting No-Build Scenario and Build Scenario study intersection operations are summarized in Table 15.

2016 No-Build Scenario:

Under 2016 No Build traffic conditions, all of the study intersections meet Oregon City operational standards. The Jackson Street approaches at the 7th Street/Jackson Street intersection operates at LOS F. As discussed in Chapter 2 and observed in the field, platooning from the 7th Street/Monroe Street intersection signal creates gaps in the 7th Street traffic, resulting in better operations than reported. Therefore, no future traffic operational needs are identified under No-Build Scenario conditions.

2016 Build Scenario:

The added traffic from the proposed library expansion does not significantly affect the future operations at any of the study intersections. All future No-Build Scenario study intersection Levels of Service are maintained under the future Build Scenario conditions.

Table 15: Future Study Intersection Operations

Intersection	Metro Classification	Intersection Control	Operating Standard[20]	No-Build PM Peak		Build PM Peak	
				LOS	*V/C*	*LOS*	*V/C*
7th St/Washington St	Arterial and Throughway Network	Signalized	V/C < 0.99	C	0.68	C	0.69
7th St/John Adams St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/D	0.13	A/D	0.17
7th St/Jefferson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/C	0.10	A/C	0.13
7th St/Jackson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/F	0.59	A/F	0.64
7th St/Molalla Ave/ Taylor St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/E	0.58	A/E	0.60
Molalla Ave/Pearl St	Arterial and Throughway Network	Signalized	V/C < 0.99	B	0.74	B	0.76
6th St/John Adams St	Not Designated	Unsignalized	LOS E/ LOS F	A/A	0.07	A/A	0.09
6th St/Jefferson St	Not Designated	Unsignalized	LOS E/ LOS F	A/A	0.04	A/A	0.08
5th St/Jackson St	Arterial and Throughway Network	Unsignalized	V/C < 0.99	A/C	0.12	A/C	0.12

Signalized:
LOS = Level of Service of Intersection
V/C = Volume-to-Capacity Ratio of Intersection

Two-Way or All-Way Stop Controlled:
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement

[19] *2000 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000. *2010 Highway Capacity Manual,* Transportation Research Board, Washington DC, 2010.

[20] Oregon City Municipal Code, 12.04.205 – Mobility Standards.

Preliminary Left Turn Lane Warrants

All study intersections operate within city mobility standards for the existing, 2016 No-Build Scenario, and 2016 Build Scenario. All intersections along 7th Street currently have striped left-turn lanes except at 7th Street/John Adams Street. Therefore, the need for a left-turn lane in either direction was investigated at 7th Street/John Adams Street. Left-turn lane warrants were calculated using both the Highway Research Board (HRB) and ODOT methods.[21] The results are summarized in Table 16.

Table 16: Peak Hour Left Turn Lane Warrants

Intersection	Direction	2014 (Existing)		2016 (No-Build)		2024 (Build)	
		HRB	ODOT	HRB	ODOT	HRB	ODOT
7th Street/John Adams Street	EB	No	No	No	No	No	No
7th Street/John Adams Street	WB	Yes	Yes	Yes	Yes	Yes	Yes

The westbound 7th Street approach has adequate width to provide a striped left-turn lane, only requiring removal of a small amount on-street parking along westbound 7th Street to accommodate approximately 50' of left turn storage. Project D29 of the Oregon City 2013 TSP Update identifies a low priority restriping project to incorporate a striped westbound left-turn lane at this location. The 2016 Build Scenario operating conditions for the intersection are summarized in Table 17, both without and with an added 50' westbound left turn lane. No improvement is apparent when the added left-turn lane is analyzed using HCM methodology, however, a striped left-turn lane would allow westbound 7th Street through traffic to travel unimpeded when a left-turning vehicle is present, thereby reducing overall intersection delay.

Table 17: Future Mitigated Intersection Operations

Intersection	Intersection Control	Operating Standard[22]	Build PM Peak (no left-turn lane)		Mitigated PM Peak (with left-turn lane)	
			LOS	*V/C*	*LOS*	*V/C*
7th St/John Adams St	Unsignalized	V/C < 0.99	A/D	0.17	A/D	0.17

Signalized:
LOS = Level of Service of Intersection
V/C = Volume-to-Capacity Ratio of Intersection

Two-Way or All-Way Stop Controlled:
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement

[21] Highway Research Record Number 211, Highway Research Board, 1967. ODOT Analysis Procedures Manual, updated November 2014.

[22] Oregon City Transportation System Plan, Volume 1, Mobility Standards; pg. 38-39

On-Street Parking Impacts

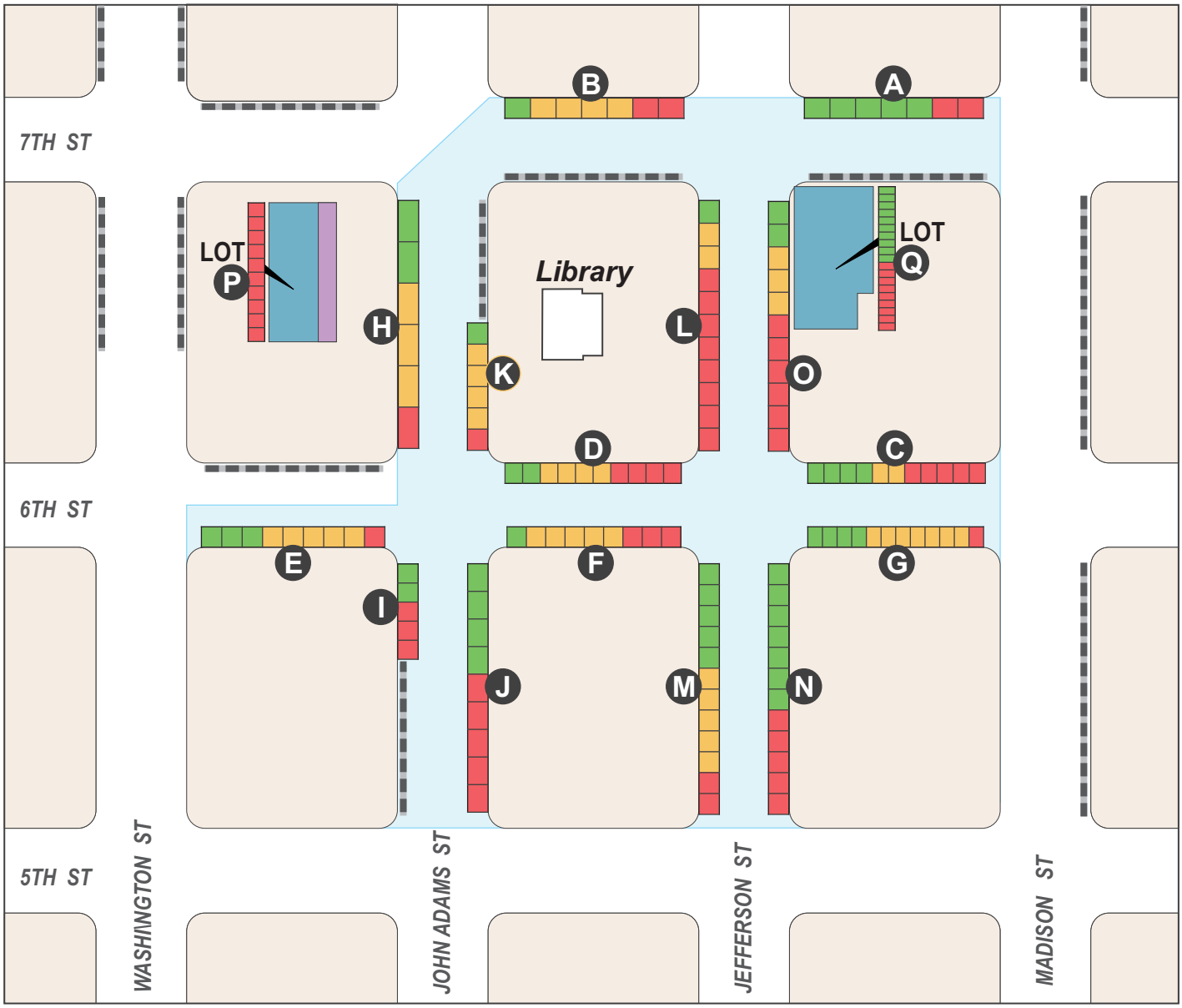
All added project trips were assumed to use on-street parking. A few additional on-street parking stalls were assumed since on-street parking stalls will be striped as part of the library expansion project. The public portion of the fire station lot remains full during the PM peak hour, and current library patrons rarely use the library owned lot on the southeast corner of the 7th Street/Jefferson Street intersection. Other public off-street lots in the area provide additional capacity during the day but require more than one block of walking to reach the library.

One potential site improvement involves restricting parking on three of the westbound 6th Street on-street parking spaces between Jefferson Street and John Adams Street to 10 minute parking. This would restrict the use these parking spaces to book drop-off library patrons only. Three spaces would serve the average future book drop-off demand during the PM peak hour. The library expansion design team proposes to restrict on-street parking on Jefferson Street, adjacent to the library, to two-hour parking. This restriction is reasonable and consistent with the analysis conducted in this study.

To estimate the added parking demand on the existing on-street parking, the average library user's parking dwell time was calculated using the ITE Parking Generation Rate[23] for a library (2.67 spaces per 1,000 SF GFA) and the ITE PM Peak Hour Trip Generation Rate for a library (7.30 total, 3.8 in, 3.5 out trip ends per 1,000 SF GFA). Assuming the peak utilization occurs during the library peak hour, the maximum average peak hour dwell time is 2.67/3.8 hours, or approximately 40-45 minutes. This calculated average dwell time was multiplied by the average hourly vacancy of each on-street parking block to determine how much of the library expansion parking demand could be served. The PM peak hour added trips were assigned to on-street parking based on the calculated parking availability. The resulting on-street parking utilization is shown in Figure 9.

As shown in Figure 9, the existing on-street parking within the study area has adequate capacity to serve the added library demand. Additional library parking could be accommodated in surrounding public lots or farther from the site during special events.

[23] ITE Parking Generation, 4th Edition, 2010.



Build Peak Hour Average Parking Occupancies

	Block-face/Lot	Capacity	Average Occupied	Average Added	Average Vacant	Block-face/Lot	Capacity	Average Occupied	Average Added	Average Vacant
7	A	7	2	0	5	J	9	5	0	4
7	B	7	2	4	1	K	6	1	4	1
11	C	11	5	2	4	L	11	8	2	1
6	D	6	4	2	0	M	12	2	5	5
9	E	9	1	5	3	N	12	5	0	7
7	F	9	3	5	1	O	11	6	3	2
12	G	12	1	7	4	LOT P	10	10	0	0
5	H	6	1	3	2	LOT Q	19	9	0	10
5	I	5	3	0	2	*Total*	162	68	42	52

LEGEND

- Library On-Street Parking
- Library Off-Street Parking
- Restricted Off-Street Parking
- No Parking Allowed

Block-face/Lot - *Bar Chart*

- Average Available Parking Spaces
- Average Proposed Expansion Parking Spaces
- Average Existing Occupied Parking Spaces

DKS

No Scale

Figure 9

Build Parking by Block-face Weekday PM Peak Hour

Library Owned Parking Lot Utilization

As described in Chapter 2, the library currently owns the parking lot on the southeast corner of the 7th Street/Jefferson Street intersection. Access to this parking lot is restricted by steep grade approaches, restricting wheelchair accessibility. The lot is also difficult for a westbound 7th Street vehicle to access during the peak hour, as the left turn lane for Jefferson Street is not yet opened at the driveway. The lot circulation is striped as one-way, with vehicles entering from 7th Street and exiting onto the alley at the southeast corner of the lot. Parking lot traffic is then directed east along the alley, re-entering the local street network at Madison Street.

Currently, the parking lot is used partially by library employees and partially by employees of the surrounding businesses. Since this study has shown that the existing on-street parking within the study area is sufficient for the added demand generated by the library expansion, it is recommended that the parking lot be restricted to library staff, volunteers, and long-term parking for other local businesses. The restricted circulation conditions, operational restrictions with 7th Street, and steep grades of the existing parking lot are not desirable conditions for library patron use.

Due to restricted sight distance from the alley connecting the parking lot to Madison Street, it is recommended that traffic from the parking lot be directed west to Jefferson Street rather than east to Madison Street. While this represents a change in traffic flow, very few vehicles would be affected.

The proposed upgrades and mitigations for the library owned parking lot are summarized in the following chapter, with an overall goal of removing as many long-term library or other business employees from on-street parking as possible.

CHAPTER 4: PROJECT MITIGATION SUMMARY

The following list summarizes the mitigation strategies identified as part of the Oregon City Library Expansion Transportation Impact Study. These projects are recommended based on the operational analysis of the future traffic conditions, and the existing pedestrian, bicycle, and parking conditions in the study area.

Motor Vehicle Improvements

- Restripe 7th Street at John Adams Street to include a left-turn lane in the northwest direction. This project is included in the City's Transportation System Plan as D29. Although low (<20 vph) left turn volumes allow the intersection operations to meet City standards both under existing and future Build conditions, preliminary left-turn lane warrants indicate a need for a left-turn lane.
- Consider providing library signage on 7th Street, for vehicles traveling in the northwest direction, encouraging vehicles to turn left at Monroe Street, a signalized intersection. This will reduce the left-turn demand on 7th Street at the unsignalized intersections at Jefferson Street and John Adams Street.

Pedestrian and Bicycle Access

- Maintain pedestrian and bicycle accessibility to building entrances, providing bicycle parking near building entrances.

On-Street Parking

- Stripe on-street parking stalls adjacent to library parcel on Jefferson Street, 6th Street, and John Adams Street to maximize parking efficiency.
- Allocate three parking stalls to be used specifically for book drop-off. These stalls should be located on 6th Street, adjacent to the library. Signage adjacent to these stalls should include language similar to "10-minute parking only".
- Upgrade or add curb ramps to ADA standards at the following intersections to improve access between on-street parking and the library:
    - 6th Street/John Adams Street
    - 6th Street/Jefferson Street

Off-Street Parking

- Based on the current parking lot usage and geometry, the following improvements and options are recommended for the library owned parking lot:
    - Remove the existing parking space nearest to 7th Street entrance. This space requires a departing vehicle to complete a blind back-up maneuver onto the sidewalk and possibly onto 7th Street if the parking lot is full.
    - Restripe the existing one-way parking lot markings to emphasize the circulation.

- Install a "Do Not Enter" sign facing parking lot traffic at the 7th Street entrance. The sight distance restrictions caused by existing foliage and a retaining wall to the west and a building abutting the sidewalk to the east make exiting onto 7th Street undesirable.
- Redirect traffic exiting the parking lot to turn west on the alley toward Jefferson Street, rather than toward Madison Street, since sight distance is restricted where the alley accesses Madison Street.
- Sign the parking spaces required for staff as "library staff only" (approximately 10 spaces). The remaining spaces may be used for either:
    - Volunteer staff parking (revise sign to read "library staff and volunteers only")
    - Lease to nearby businesses

Overall, the only significant transportation impact of the library expansion is the increase in on-street parking demand, especially during the PM peak hour. However, the current on-street parking facilities in the area surrounding the library provide adequate capacity to meet the predicted future demand. The current network has adequate capacity to absorb the added library traffic, and intersection operations near the library should not be noticeably affected. Most transportation mitigation efforts associated with the library expansion should be focused on encouraging alternative modes of travel to the library with improved pedestrian and bicycle facilities in and around the project site.

APPENDIX

Proposed Site Plan

Traffic Counts

Level of Service Definitions

Oregon City Mobility Standards

Highway Capacity Calculations

Crash Rate Calculations

Turn Lane Warrants

Appendix

Proposed Site Plan

Traffic Counts

Level of Service Descriptions

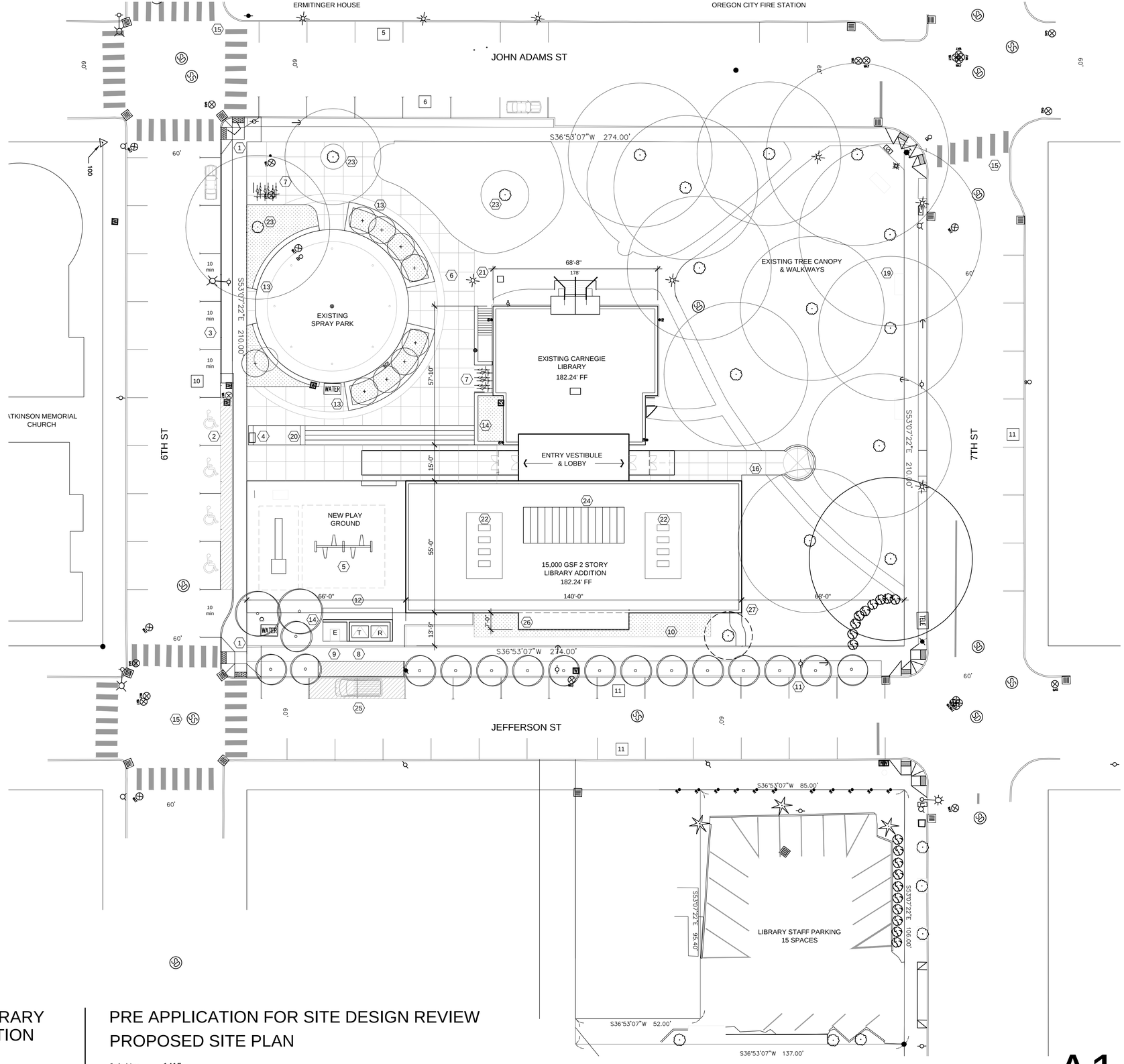
Oregon City Mobility Standards

Highway Capacity Calculations

Crash Rate Calculations

Turn Lane Warrants

Proposed Site Plan



GENERAL NOTES

1. PROTECT ALL BUILDINGS, UTILITIES, VEGETATION ETC TO REMAIN, .
2. SEE CIVIL DRAWINGS FOR BALANCE OF INFORMATION.
3. MAINTAIN 2% MAX CROSS SLOPE AT ALL NEW CONCRETE WALKWAYS & ACCESSIBLE AISLES.
4. DEMO (E) VEGETATION, OBSOLETE POWER POLES, MISC ITEMS AS NECESSARY FOR NEW CONSTRUCTION.
5. MOVE (E) UTILITIES & UTILITY MONUMENTS AS NECESSARY FOR NEW CONSTRUCTION.

KEYNOTES

SYMBOL	DESCRIPTION
1	NEW SIDEWALK, STREET CURB & CORNER CURB ENTIRE LENGTH OF 6TH ST
2	ADA ACCESSIBLE PARKING SPACES (4) W/ ACCESSIBLE AISLE, CURB RAMP & SIGNAGE.
3	(4) 10 MINUTE DROP OFF SPACES AS RECOMMENDED BY TRAFFIC STUDY
4	BOOK DROP
5	NEW PLAY EQUIP & SOFT SURFACE TO REPLACE EXISTING
6	NEW PAVING, SEAT WALL & PLANTING AT EXISTING SPRAY PARK . REMOVE EXISTING CONC WALL.
7	BIKE RACK (6)
8	TRASH & RECYCLING ENCLOSURE
9	TRANSFORMER & PAD
10	STORM WATER PLANTING
11	NEW STREET TREES ALONG JEFFERSON
12	ENTRY CANOPY
13	NEW SEAT WALL & PLANTING
14	LANDSCAPE PLANTING
15	EXISTING STRIPING FOR PEDESTRIAN CROSSING
16	NEW WALKWAY, CONNECT TO EXISTING
17	EXISTING SIDEWALK & CURB TO REMAIN
18	STRIPE & SIGN PARKING FOR 2 HOUR LIMIT
19	EXISTING BENCHES TO REMAIN
20	BUILDING SIGNAGE
21	EXISTING SITE LIGHTING TO REMAIN & RELOCATED IF NECESSARY
22	MECHANICAL W/ SCREEN
23	EXISTING TREE W/ NEW LANDSCAPE
24	SKYLIGHT
25	TRUCK LOADING ONLY W/ CONC APRON ADJ. TO EXISTING SIDEWALK
26	LINE OF BUILDING SHOWN DASHED BELOW
27	SECOND FLOOR EGRESS STAIR EXIT
#	PARKING COUNT

OREGON CITY LIBRARY
REMODEL & ADDITION

606 JOHN ADAMS AVE
OREGON CITY, OREGON

PRE APPLICATION FOR SITE DESIGN REVIEW
PROPOSED SITE PLAN

Job No: 1415
Date: December 17, 2014

A1.1

0 10' 20' 40"
SCALE 1" = 20'
PLAN NORTH

S|E A
SCOTT|EDWARDS ARCHITECTURE LLP

Traffic Counts

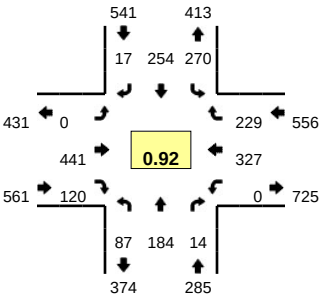
Type of peak hour being reported: User-Defined

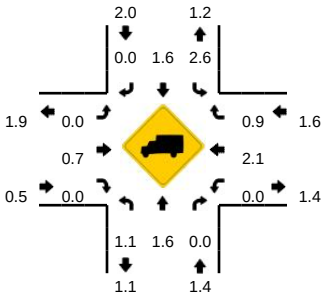
Method for determining peak hour: Total Entering Volume

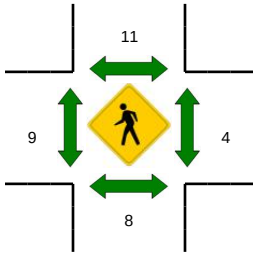
LOCATION: Washington St -- 7th St
CITY/STATE: Oregon City, OR

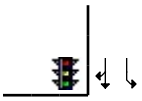
QC JOB #: 13125401
DATE: Tue, Oct 21 2014

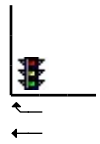
Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

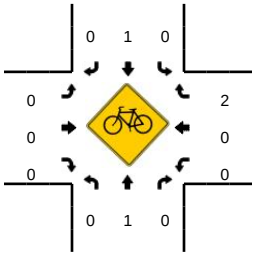


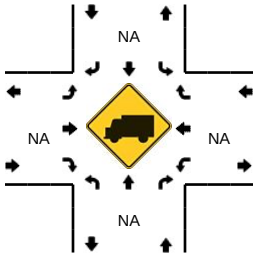


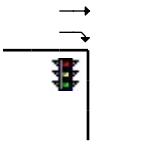




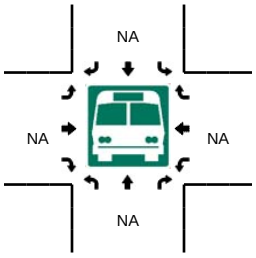












5-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	12	2	0	31	24	1	0	0	24	7	0	0	26	15	0	149	
4:05 PM	4	14	2	0	15	9	1	0	0	55	3	0	0	32	22	0	157	
4:10 PM	12	13	1	0	24	25	3	0	0	37	8	0	0	28	20	0	171	
4:15 PM	5	14	2	0	25	13	1	0	0	47	12	0	0	26	13	0	158	
4:20 PM	10	7	2	0	23	29	1	0	0	38	8	0	0	28	17	0	163	
4:25 PM	5	15	3	0	18	12	3	0	0	34	11	0	0	20	15	0	136	
4:30 PM	6	15	1	0	23	20	4	0	0	30	14	0	0	30	21	0	164	
4:35 PM	8	12	1	0	29	21	2	0	0	30	4	0	0	25	24	0	156	
4:40 PM	3	6	2	0	17	28	2	0	0	30	7	0	0	30	14	0	139	
4:45 PM	5	12	2	0	24	15	1	0	0	48	10	0	0	24	17	0	158	
4:50 PM	5	13	1	0	22	24	1	0	0	34	8	0	0	31	15	0	154	
4:55 PM	8	18	1	0	20	22	4	0	0	31	9	0	0	22	17	0	152	1857
5:00 PM	8	20	2	0	28	20	1	0	0	26	10	0	0	28	19	0	162	1870
5:05 PM	5	21	0	0	23	20	4	0	0	38	11	0	0	35	27	0	184	1897
5:10 PM	8	22	1	0	16	19	1	0	0	45	9	0	0	27	25	0	173	1899
5:15 PM	4	11	1	0	21	20	4	0	0	43	11	0	0	37	17	0	169	1910
5:20 PM	10	13	2	0	23	16	1	0	0	39	7	0	0	16	14	0	141	1888
5:25 PM	8	19	1	0	26	26	0	0	0	39	9	0	0	33	15	0	176	1928
5:30 PM	13	10	0	0	25	22	0	0	0	32	11	0	0	25	11	0	149	1913
5:35 PM	4	12	1	0	20	17	0	0	0	43	10	0	0	21	19	0	147	1904
5:40 PM	8	10	2	0	17	24	0	0	0	36	15	0	0	22	28	0	162	1927
5:45 PM	6	15	2	0	29	24	1	0	0	35	10	0	0	30	22	0	174	1943
5:50 PM	4	13	1	0	17	16	0	0	0	53	8	0	0	17	12	0	141	1930
5:55 PM	5	12	0	0	25	16	3	0	0	19	12	0	0	29	17	0	138	1916

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	68	216	8	0	240	236	36	0	0	504	124	0	0	396	276	0	2104
Heavy Trucks	0	0	0		8	4	0		0	8	0		0	0	4		24
Pedestrians		0				4				8				8			20
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/5/2014 9:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

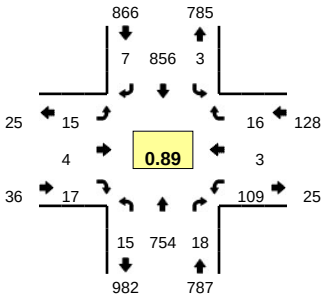
Method for determining peak hour: Total Entering Volume

LOCATION: Molalla Ave -- Pearl St

QC JOB #: 13125402

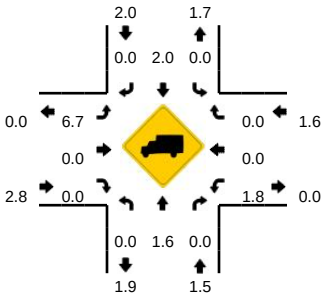
CITY/STATE: Oregon City, OR

DATE: Tue, Oct 21 2014



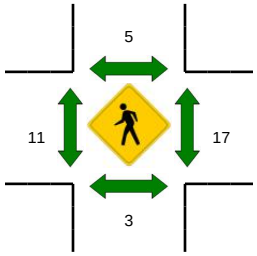
Peak-Hour: 4:50 PM -- 5:50 PM

Peak 15-Min: 5:05 PM -- 5:20 PM

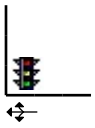


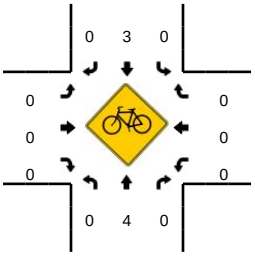


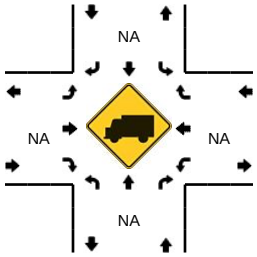
Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

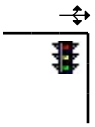


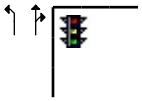


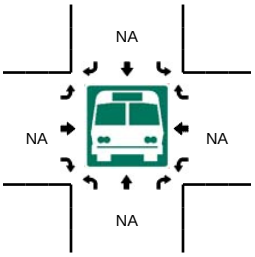












5-Min Count Period Beginning At	Molalla Ave (Northbound)				Molalla Ave (Southbound)				Pearl St (Eastbound)				Pearl St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	53	3	0	0	87	0	0	1	3	0	0	5	0	4	0	156	
4:05 PM	1	62	4	0	0	66	0	0	1	0	1	0	10	1	0	0	146	
4:10 PM	2	55	1	0	3	66	2	0	1	0	2	0	10	1	2	0	145	
4:15 PM	1	56	1	0	1	75	1	0	1	1	0	0	10	1	0	0	148	
4:20 PM	2	57	1	0	0	71	0	0	2	2	1	0	9	1	1	0	147	
4:25 PM	1	50	2	0	1	70	1	0	1	0	2	0	9	2	2	0	141	
4:30 PM	2	65	3	0	1	63	1	0	0	0	1	0	11	0	2	0	149	
4:35 PM	0	58	1	0	0	72	2	0	1	0	1	0	11	1	2	0	149	
4:40 PM	0	49	1	0	0	68	1	0	0	1	1	0	5	0	2	0	128	
4:45 PM	2	63	0	0	0	64	0	0	0	1	3	0	9	0	1	0	143	
4:50 PM	2	66	2	0	1	70	1	0	0	0	1	0	12	0	1	0	156	
4:55 PM	1	63	3	0	0	79	0	0	0	0	0	0	6	0	1	0	153	1761
5:00 PM	2	62	1	0	0	69	0	0	1	0	1	0	8	0	3	0	147	1752
5:05 PM	1	72	2	0	0	74	1	0	1	0	6	0	10	0	1	0	168	1774
5:10 PM	0	87	1	0	2	73	1	0	0	0	3	0	12	0	1	0	180	1809
5:15 PM	1	65	1	0	0	77	0	0	3	0	1	0	9	2	1	0	160	1821
5:20 PM	1	50	0	0	0	57	1	0	1	2	2	0	7	0	0	0	121	1795
5:25 PM	0	57	0	0	0	69	0	0	5	0	0	0	13	0	3	0	147	1801
5:30 PM	1	45	2	0	0	77	1	0	1	0	1	0	7	1	3	0	139	1791
5:35 PM	2	55	4	0	0	77	1	0	2	1	1	0	9	0	0	0	152	1794
5:40 PM	1	71	0	0	0	59	1	0	1	0	1	0	10	0	1	0	145	1811
5:45 PM	3	61	2	0	0	75	0	0	0	1	0	0	6	0	1	0	149	1817
5:50 PM	1	42	0	0	0	72	3	0	0	0	1	0	5	0	1	0	125	1786
5:55 PM	2	63	2	0	1	60	1	0	0	0	4	0	8	0	1	0	142	1775

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	896	16	0	8	896	8	0	16	0	40	0	124	8	12	0	2032
Heavy Trucks	0	4	0		0	16	0		0	0	0		0	0	0		20
Pedestrians		0				0				8				16			24
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/5/2014 9:59 AM

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Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

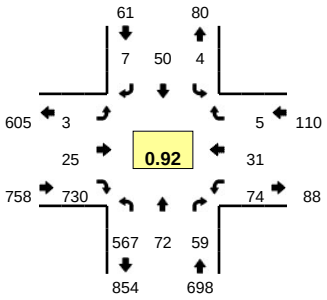
LOCATION: Taylor St/Molalla Ave -- 7th St

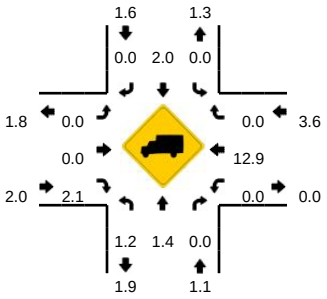
QC JOB #: 13125403

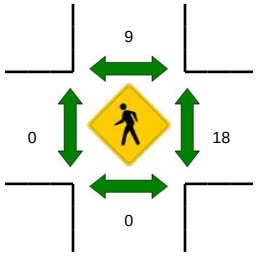
CITY/STATE: Oregon City, OR

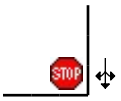
DATE: Tue, Oct 21 2014

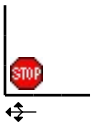
Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

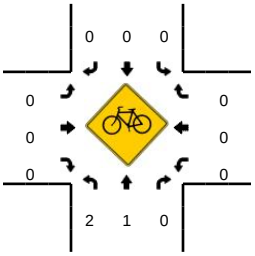


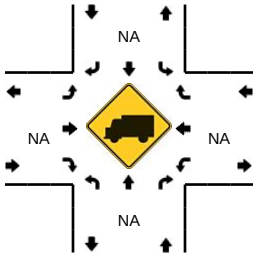


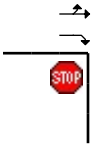


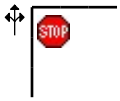


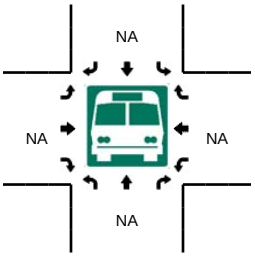












5-Min Count Period Beginning At	Taylor St/Molalla Ave (Northbound)				Taylor St/Molalla Ave (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	45	9	1	0	0	1	0	0	1	0	73	0	8	3	1	0	142	
4:05 PM	37	5	3	0	0	1	0	0	0	1	64	0	3	4	1	0	119	
4:10 PM	45	4	4	0	0	4	0	0	0	6	54	0	9	3	1	0	130	
4:15 PM	41	6	2	0	0	3	1	0	1	3	62	0	13	2	0	0	134	
4:20 PM	49	4	6	0	0	4	0	0	0	1	52	0	6	6	0	0	128	
4:25 PM	32	4	1	0	0	1	0	0	0	0	57	0	10	4	1	0	110	
4:30 PM	51	6	5	0	0	5	0	0	1	3	58	0	8	3	1	0	141	
4:35 PM	49	2	1	0	0	4	0	0	0	3	52	0	14	1	3	0	129	
4:40 PM	38	3	3	0	0	2	0	0	0	3	54	0	8	4	0	0	115	
4:45 PM	43	3	7	0	1	2	0	0	0	3	56	0	7	2	0	0	124	
4:50 PM	45	12	5	0	1	2	1	0	0	2	66	0	6	7	1	0	148	
4:55 PM	45	4	2	0	2	6	1	0	0	2	58	0	3	1	0	0	124	1544
5:00 PM	50	4	5	0	0	7	0	0	1	3	67	0	6	4	1	0	148	1550
5:05 PM	49	14	6	0	0	8	1	0	0	1	52	0	7	2	1	0	141	1572
5:10 PM	59	5	4	0	1	4	1	0	0	4	66	0	6	1	1	0	152	1594
5:15 PM	50	1	5	0	0	1	0	0	0	1	69	0	5	4	0	0	136	1596
5:20 PM	37	2	3	0	0	5	1	0	1	2	45	0	9	4	0	0	109	1577
5:25 PM	55	8	3	0	0	2	1	0	0	4	65	0	8	2	1	0	149	1616
5:30 PM	36	7	4	0	0	3	0	0	0	5	67	0	7	0	0	0	129	1604
5:35 PM	43	4	10	0	0	4	0	0	0	0	56	0	8	3	0	0	128	1603
5:40 PM	45	9	4	0	0	1	0	0	1	0	51	0	6	3	0	0	120	1608
5:45 PM	53	2	8	0	0	7	1	0	0	1	68	0	3	0	0	0	143	1627
5:50 PM	29	7	2	0	0	7	0	0	0	0	49	0	8	3	1	0	106	1585
5:55 PM	47	10	4	0	0	2	0	0	1	4	60	0	3	5	1	0	137	1598

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	632	92	60	0	4	76	8	0	4	32	740	0	76	28	12	0	1764
Heavy Trucks	4	0	0		0	4	0		0	0	16		0	0	0		24
Pedestrians		0				12				0				16			28
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/5/2014 9:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: Jackson St -- 7th St

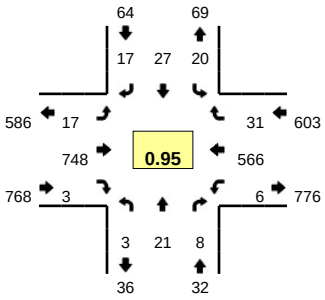
CITY/STATE: Oregon City, OR

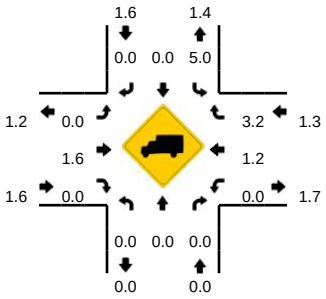
QC JOB #: 13125404

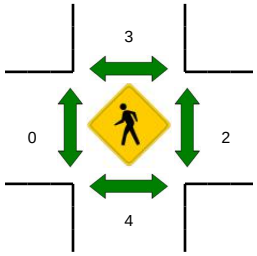
DATE: Tue, Oct 21 2014

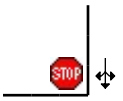
Peak-Hour: 4:50 PM -- 5:50 PM

Peak 15-Min: 5:05 PM -- 5:20 PM

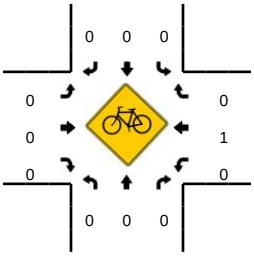


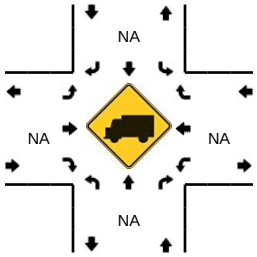


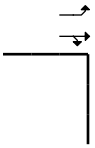


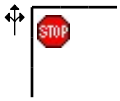


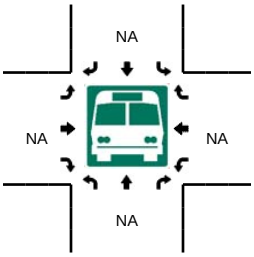












5-Min Count Period Beginning At	Jackson St (Northbound)				Jackson St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	3	0	0	3	0	1	0	1	67	0	0	1	47	1	0	124	
4:05 PM	0	1	2	0	1	1	1	0	0	63	0	0	1	45	4	0	119	
4:10 PM	0	2	0	0	0	1	2	0	2	57	1	0	3	44	0	0	112	
4:15 PM	0	0	1	0	2	0	3	0	2	83	0	0	2	41	1	0	135	
4:20 PM	0	2	1	0	3	0	5	0	0	52	2	0	1	58	2	0	126	
4:25 PM	0	3	2	0	2	1	2	0	0	56	0	0	0	40	2	0	108	
4:30 PM	0	0	1	0	0	0	2	0	0	60	0	0	0	50	0	0	113	
4:35 PM	0	0	2	0	3	1	1	0	0	54	0	0	0	50	2	0	113	
4:40 PM	0	0	3	0	2	0	0	0	2	46	0	0	0	44	2	0	99	
4:45 PM	1	0	0	0	0	2	2	0	2	57	0	0	0	44	2	0	110	
4:50 PM	0	0	0	0	2	2	1	0	3	72	0	0	1	51	2	0	134	
4:55 PM	0	0	0	0	0	2	1	0	0	61	2	0	0	46	2	0	114	1407
5:00 PM	0	0	1	0	2	2	3	0	1	63	0	0	1	49	1	0	123	1406
5:05 PM	0	2	0	0	4	5	1	0	2	54	0	0	1	51	1	0	121	1408
5:10 PM	0	3	1	0	4	2	1	0	1	63	0	0	1	55	3	0	134	1430
5:15 PM	0	3	1	0	1	4	1	0	2	65	0	0	0	49	4	0	130	1425
5:20 PM	0	1	0	0	1	2	1	0	2	51	1	0	1	37	1	0	98	1397
5:25 PM	0	6	1	0	1	2	1	0	0	72	0	0	0	55	3	0	141	1430
5:30 PM	1	0	2	0	1	3	3	0	0	68	0	0	0	36	0	0	114	1431
5:35 PM	0	2	0	0	2	0	1	0	1	52	0	0	1	42	4	0	105	1423
5:40 PM	1	2	2	0	1	0	0	0	3	55	0	0	0	47	6	0	117	1441
5:45 PM	1	2	0	0	1	3	3	0	2	72	0	0	0	48	4	0	136	1467
5:50 PM	0	4	0	0	1	3	0	0	0	53	1	0	0	33	1	0	96	1429
5:55 PM	1	3	0	0	1	1	0	0	1	55	0	0	0	49	4	0	115	1430

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	32	8	0	36	44	12	0	20	728	0	0	8	620	32	0	1540
Heavy Trucks	0	0	0		0	0	0		0	16	0		0	4	0		20
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/5/2014 9:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: Jefferson St -- 7th St

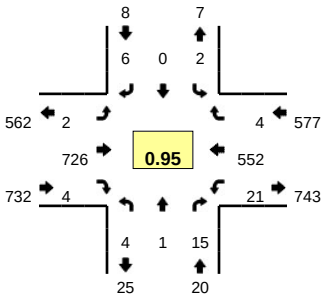
CITY/STATE: Oregon City, OR

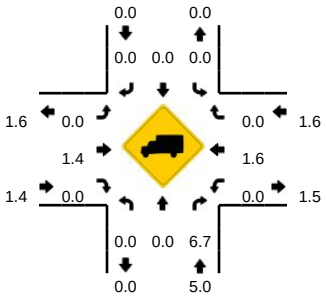
QC JOB #: 13125405

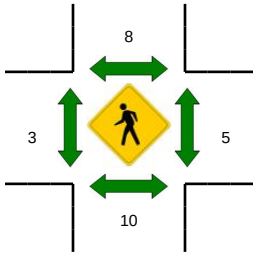
DATE: Tue, Oct 21 2014

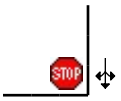
Peak-Hour: 4:50 PM -- 5:50 PM

Peak 15-Min: 5:05 PM -- 5:20 PM

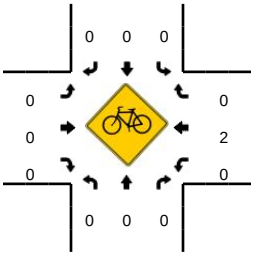


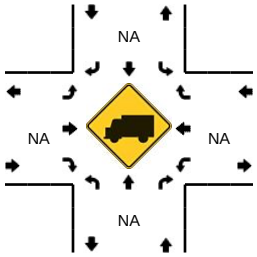


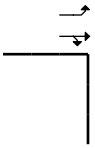


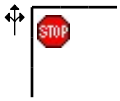


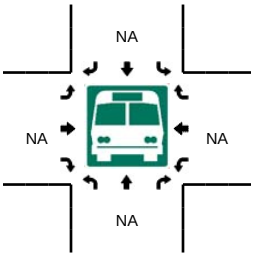












5-Min Count Period Beginning At	Jefferson St (Northbound)				Jefferson St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	1	0	0	0	0	0	1	64	0	0	4	51	0	0	121	
4:05 PM	0	0	1	0	0	0	0	0	0	60	1	0	1	45	0	0	108	
4:10 PM	0	0	1	0	0	0	0	0	1	76	0	0	0	54	0	0	132	
4:15 PM	0	1	0	0	0	0	1	0	0	71	0	0	0	35	0	0	108	
4:20 PM	0	0	1	0	0	1	3	0	0	55	1	0	3	51	0	0	115	
4:25 PM	0	0	1	0	0	0	1	0	1	48	1	0	2	48	0	0	102	
4:30 PM	0	0	0	0	0	0	0	0	2	58	0	0	1	42	0	0	103	
4:35 PM	1	0	2	0	0	0	0	0	2	47	1	0	0	53	0	0	106	
4:40 PM	1	0	0	0	0	0	0	0	1	47	3	0	1	46	0	0	99	
4:45 PM	0	0	1	0	0	0	0	0	1	56	3	0	1	40	1	0	103	
4:50 PM	0	0	2	0	0	0	0	0	0	70	0	0	2	51	1	0	126	
4:55 PM	1	0	2	0	0	0	1	0	0	49	0	0	3	44	0	0	100	1323
5:00 PM	0	1	1	0	0	0	0	0	0	62	1	0	2	44	0	0	111	1313
5:05 PM	0	0	1	0	2	0	1	0	0	47	0	0	0	57	1	0	109	1314
5:10 PM	1	0	1	0	0	0	0	0	0	62	0	0	1	53	1	0	119	1301
5:15 PM	0	0	0	0	0	0	0	0	0	67	1	0	3	53	0	0	124	1317
5:20 PM	0	0	2	0	0	0	0	0	0	58	0	0	4	38	0	0	102	1304
5:25 PM	0	0	1	0	0	0	0	0	0	68	0	0	3	45	1	0	118	1320
5:30 PM	0	0	1	0	0	0	2	0	1	61	1	0	1	41	0	0	108	1325
5:35 PM	1	0	2	0	0	0	1	0	0	53	0	0	2	34	0	0	93	1312
5:40 PM	1	0	1	0	0	0	0	0	1	60	0	0	0	45	0	0	108	1321
5:45 PM	0	0	1	0	0	0	1	0	0	69	1	0	0	47	0	0	119	1337
5:50 PM	0	0	1	0	0	0	0	0	1	55	1	0	3	36	0	0	97	1308
5:55 PM	0	0	1	0	0	0	0	0	3	63	0	0	2	44	0	0	113	1321

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	0	8	0	8	0	4	0	0	704	4	0	16	652	8	0	1408
Heavy Trucks	0	0	0		0	0	0		0	12	0		0	8	0		20
Pedestrians		8				4				12				8			32
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/5/2014 9:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

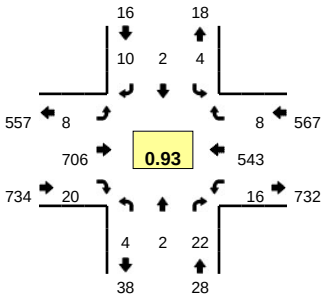
LOCATION: John Adams St -- 7th St

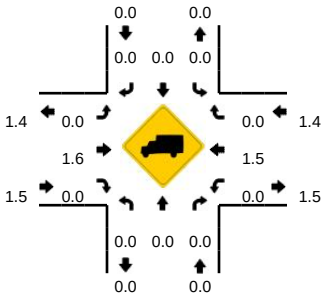
QC JOB #: 13125406

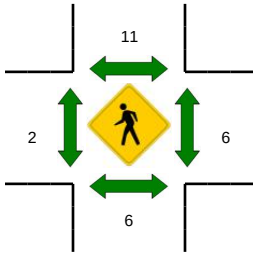
CITY/STATE: Oregon City, OR

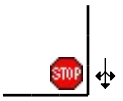
DATE: Tue, Oct 21 2014

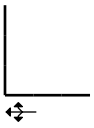
Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

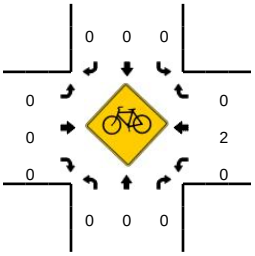


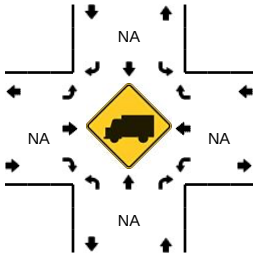


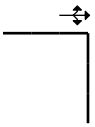


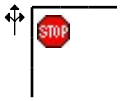


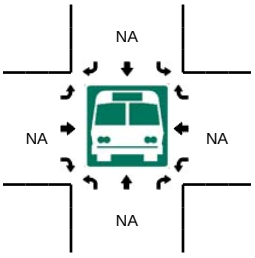












5-Min Count Period Beginning At	John Adams St (Northbound)				John Adams St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	1	1	0	3	0	0	0	0	58	0	0	0	50	4	0	118	
4:05 PM	1	0	0	0	1	0	2	0	0	67	1	0	1	32	1	0	106	
4:10 PM	0	2	2	0	0	0	1	0	0	69	1	0	0	62	0	0	137	
4:15 PM	0	0	2	0	1	0	0	0	1	71	3	0	3	32	1	0	114	
4:20 PM	0	0	2	0	0	0	1	0	2	52	0	0	4	45	0	0	106	
4:25 PM	1	0	4	0	0	0	0	0	2	47	3	0	6	38	2	0	103	
4:30 PM	0	0	1	0	0	0	0	0	1	59	0	0	3	46	1	0	111	
4:35 PM	0	1	0	0	0	0	0	0	1	52	3	0	1	55	0	0	113	
4:40 PM	0	1	3	0	0	0	1	0	4	49	2	0	2	36	1	0	99	
4:45 PM	1	0	2	0	1	1	0	0	0	62	1	0	1	43	0	0	112	
4:50 PM	0	0	2	0	1	0	0	0	0	61	1	0	1	47	1	0	114	
4:55 PM	0	0	3	0	0	1	1	0	2	53	3	0	0	48	0	0	111	1344
5:00 PM	1	1	1	0	0	0	1	0	1	57	0	0	5	39	0	0	106	1332
5:05 PM	0	0	1	0	0	0	1	0	0	49	1	0	2	58	2	0	114	1340
5:10 PM	0	0	0	0	0	0	1	0	0	67	2	0	0	52	1	0	123	1326
5:15 PM	1	0	0	0	2	1	1	0	0	61	0	0	1	57	0	0	124	1336
5:20 PM	1	0	1	0	1	0	1	0	0	59	6	0	1	26	2	0	98	1328
5:25 PM	0	1	2	0	0	0	0	0	1	64	3	0	2	45	0	0	118	1343
5:30 PM	0	0	2	0	0	0	2	0	2	60	2	0	1	40	0	0	109	1341
5:35 PM	0	0	2	0	0	0	1	0	1	53	0	0	1	35	0	0	93	1321
5:40 PM	0	0	1	0	0	0	0	0	1	60	0	0	0	45	1	0	108	1330
5:45 PM	1	0	7	0	0	0	1	0	0	62	2	0	2	51	1	0	127	1345
5:50 PM	0	0	1	0	0	1	0	0	1	63	2	0	4	35	0	0	107	1338
5:55 PM	0	0	2	0	0	0	1	0	1	51	1	0	0	41	1	0	98	1325

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	0	4	0	8	4	12	0	0	708	12	0	12	668	12	0	1444
Heavy Trucks	0	0	0		0	0	0		0	20	0		0	4	0		24
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/5/2014 9:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: Jefferson St -- 6th St

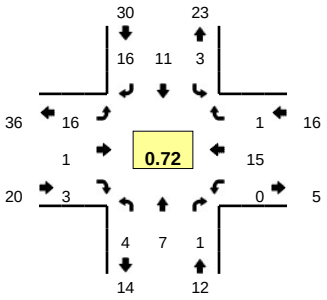
CITY/STATE: Oregon City, OR

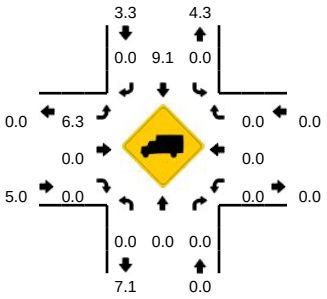
QC JOB #: 13125407

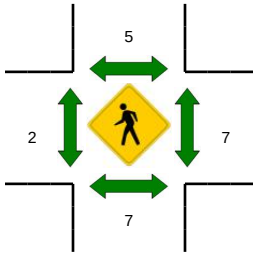
DATE: Tue, Oct 21 2014

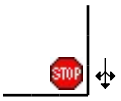
Peak-Hour: 4:50 PM -- 5:50 PM

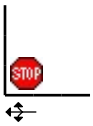
Peak 15-Min: 4:50 PM -- 5:05 PM

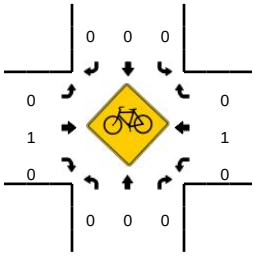


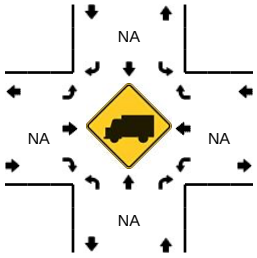


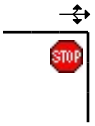


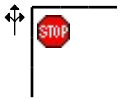


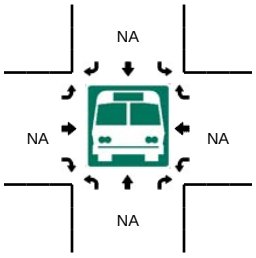












5-Min Count Period Beginning At	Jefferson St (Northbound)				Jefferson St (Southbound)				6th St (Eastbound)				6th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	1	1	2	0	1	0	0	0	0	1	0	0	6	
4:05 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	
4:10 PM	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	3	
4:15 PM	0	0	0	0	0	1	3	0	1	0	0	0	0	1	0	0	6	
4:20 PM	1	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	5	
4:25 PM	0	0	1	0	0	0	0	0	1	1	1	0	0	1	0	0	5	
4:30 PM	0	2	0	0	0	0	1	0	1	0	1	0	0	0	0	0	5	
4:35 PM	1	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	5	
4:40 PM	0	0	0	0	0	1	2	0	0	0	1	0	0	1	0	0	5	
4:45 PM	0	2	0	0	0	0	1	0	1	0	1	0	1	1	0	0	7	
4:50 PM	0	2	0	0	1	0	4	0	2	0	0	0	0	1	1	0	11	
4:55 PM	0	1	0	0	1	1	3	0	1	1	0	0	0	3	0	0	11	71
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0	5	70
5:05 PM	0	1	0	0	0	2	0	0	1	0	0	0	0	1	0	0	5	73
5:10 PM	1	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	5	75
5:15 PM	0	0	1	0	1	1	1	0	0	0	0	0	0	2	0	0	6	75
5:20 PM	0	0	0	0	0	2	2	0	3	0	0	0	0	0	0	0	7	77
5:25 PM	0	0	0	0	0	0	1	0	2	0	1	0	0	1	0	0	5	77
5:30 PM	1	2	0	0	0	0	2	0	2	0	1	1	0	1	0	0	10	82
5:35 PM	1	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0	5	82
5:40 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	79
5:45 PM	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	0	6	78
5:50 PM	1	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5	72
5:55 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2	63

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	12	0	0	8	8	28	0	12	4	0	0	0	32	4	0	108
Heavy Trucks	0	0	0		0	4	0		0	0	0		0	0	0		4
Pedestrians		12				4				0				0			16
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/5/2014 9:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

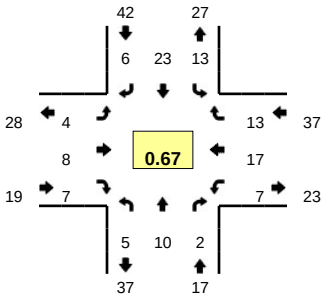
LOCATION: John Adams St -- 6th St

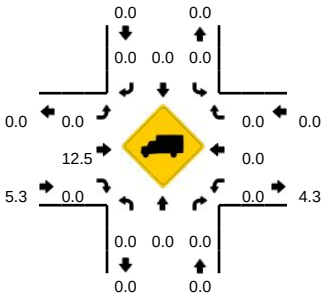
QC JOB #: 13125408

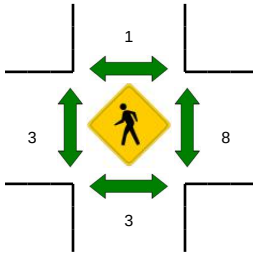
CITY/STATE: Oregon City, OR

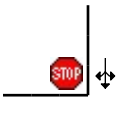
DATE: Tue, Oct 21 2014

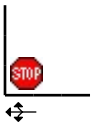
Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 5:20 PM -- 5:35 PM

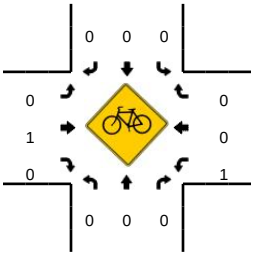


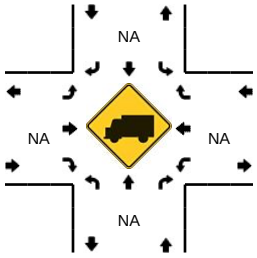


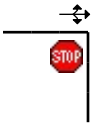


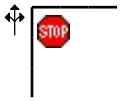


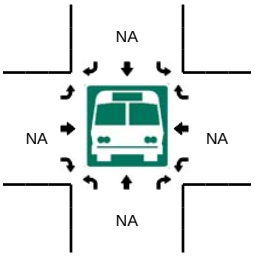












5-Min Count Period Beginning At	John Adams St (Northbound)				John Adams St (Southbound)				6th St (Eastbound)				6th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	1	0	0	1	0	0	0	0	0	0	0	0	3	2	0	8	
4:05 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	
4:10 PM	0	3	0	0	0	0	2	0	0	2	0	0	0	1	0	0	8	
4:15 PM	0	1	0	0	0	1	3	0	0	0	1	0	0	0	1	0	7	
4:20 PM	0	0	0	0	0	2	2	0	1	2	0	0	0	2	0	0	9	
4:25 PM	0	3	0	0	1	2	2	0	0	2	0	0	0	1	3	0	14	
4:30 PM	0	0	1	0	1	2	1	0	0	1	0	0	0	1	1	0	8	
4:35 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	3	
4:40 PM	0	0	0	0	0	1	2	0	1	0	0	0	1	1	3	0	9	
4:45 PM	0	1	0	0	2	0	0	0	1	0	0	0	0	2	2	0	8	
4:50 PM	0	0	0	0	1	1	2	0	0	1	0	0	0	3	2	0	10	
4:55 PM	0	0	0	0	1	2	1	0	1	1	0	0	0	2	2	0	10	96
5:00 PM	0	3	0	0	0	5	0	0	0	0	0	0	1	2	0	0	11	99
5:05 PM	1	0	0	0	1	2	0	0	0	1	2	0	0	2	1	0	10	107
5:10 PM	1	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0	5	104
5:15 PM	0	1	0	0	0	2	0	0	0	0	2	0	0	0	0	0	5	102
5:20 PM	1	0	0	0	1	5	2	0	1	2	1	0	3	1	2	0	19	112
5:25 PM	2	1	0	0	3	3	0	0	0	2	1	0	0	1	2	0	15	113
5:30 PM	0	0	1	0	1	1	1	0	0	0	0	0	2	2	1	0	9	114
5:35 PM	0	0	1	0	1	0	0	0	1	0	0	0	1	0	1	0	5	116
5:40 PM	0	3	0	0	1	0	0	0	0	0	0	0	0	2	0	0	6	113
5:45 PM	0	2	0	0	2	1	0	0	1	1	1	0	0	1	1	0	10	115
5:50 PM	0	0	0	0	1	3	0	0	2	0	0	0	0	1	0	0	7	112
5:55 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	3	0	0	5	107

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	4	4	0	20	36	12	0	4	16	8	0	20	16	20	0	172
Heavy Trucks	0	0	0		0	0	0		0	4	0		0	0	0		4
Pedestrians		4				4				0				16			24
Bicycles	0	0	0		0	0	0		0	0	0		1	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/5/2014 9:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

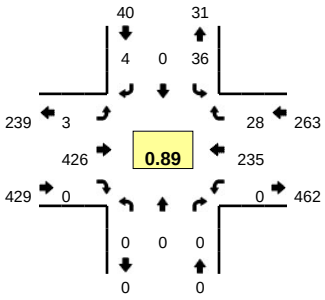
Type of peak hour being reported: User-Defined

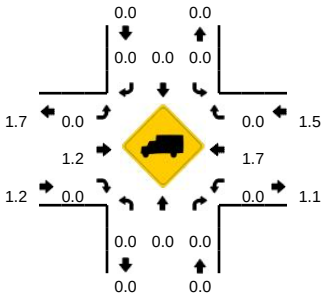
Method for determining peak hour: Total Entering Volume

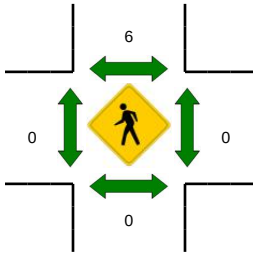
LOCATION: Jackson St -- 5th St
CITY/STATE: Oregon City, OR

QC JOB #: 13125409
DATE: Tue, Oct 21 2014

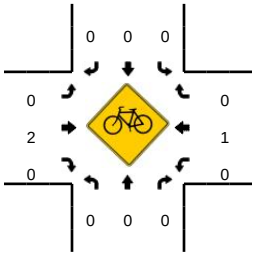
Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

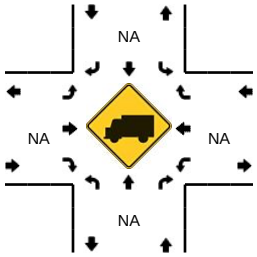




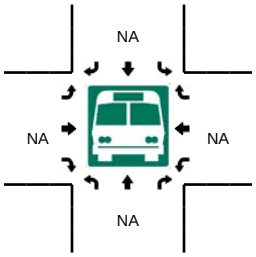












5-Min Count Period Beginning At	Jackson St (Northbound)				Jackson St (Southbound)				5th St (Eastbound)				5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	1	0	0	0	0	42	0	0	0	13	3	0	59	
4:05 PM	0	0	0	0	1	0	1	0	0	26	0	0	0	21	1	0	50	
4:10 PM	0	0	0	0	2	0	1	0	0	31	0	0	0	21	2	0	57	
4:15 PM	0	0	0	0	1	0	1	0	0	34	0	0	0	16	1	0	53	
4:20 PM	0	0	0	0	2	0	1	0	0	46	0	0	0	10	3	0	62	
4:25 PM	0	0	0	0	1	0	0	0	1	27	0	0	0	26	3	0	58	
4:30 PM	0	0	0	0	0	0	0	0	0	38	0	0	0	22	3	0	63	
4:35 PM	0	0	0	0	1	0	0	0	0	29	0	0	0	19	1	0	50	
4:40 PM	0	0	0	0	0	0	0	0	1	37	0	0	0	8	2	0	48	
4:45 PM	0	0	0	0	2	0	0	0	0	38	0	0	0	20	1	0	61	
4:50 PM	0	0	0	0	3	0	0	0	0	28	0	0	0	18	0	0	49	
4:55 PM	0	0	0	0	3	0	0	0	0	33	0	0	0	15	1	0	52	662
5:00 PM	0	0	0	0	2	0	1	0	1	35	0	0	0	21	2	0	62	665
5:05 PM	0	0	0	0	6	0	2	0	0	43	0	0	0	23	1	0	75	690
5:10 PM	0	0	0	0	3	0	0	0	0	42	0	0	0	19	5	0	69	702
5:15 PM	0	0	0	0	1	0	0	0	0	38	0	0	0	17	4	0	60	709
5:20 PM	0	0	0	0	7	0	1	0	0	27	0	0	0	21	3	0	59	706
5:25 PM	0	0	0	0	2	0	0	0	1	41	0	0	0	22	5	0	71	719
5:30 PM	0	0	0	0	3	0	0	0	0	31	0	0	0	21	1	0	56	712
5:35 PM	0	0	0	0	2	0	0	0	0	34	0	0	0	22	2	0	60	722
5:40 PM	0	0	0	0	1	0	0	0	1	37	0	0	0	18	3	0	60	734
5:45 PM	0	0	0	0	3	0	0	0	0	37	0	0	0	18	1	0	59	732
5:50 PM	0	0	0	0	3	0	1	0	0	32	0	0	0	24	6	0	66	749
5:55 PM	0	0	0	0	1	0	0	0	1	31	0	0	0	13	3	0	49	746

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	44	0	12	0	4	480	0	0	0	252	32	0	824
Heavy Trucks	0	0	0		0	0	0		0	16	0		0	4	0		20
Pedestrians		0				12				0				0			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/5/2014 9:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Level of Service Descriptions

TRAFFIC LEVELS OF SERVICE

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of *level of service* (LOS) has been developed to subjectively describe traffic performance. Level of service can be measured at intersections and along key roadway segments.

Level of service categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. Levels of Service A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. Level of service D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day. The *Highway Capacity Manual* provides level of service calculation methodology for both intersections and arterials[1]. The following sections provide interpretations of the analysis approaches.

[1] *Highway Capacity Manual 2000*, Transportation Research Board, Washington D.C., 2000, Chapters 16 and 17 and Highway Capacity Manual 2010, Transportation Research Board, Washington D.C., 2010, Chapter 19..

UNSIGNALIZED INTERSECTIONS (TWO-WAY STOP CONTROLLED)

Unsignalized intersection level of service is reported for each minor street movement (or shared movement) and major street left turns. The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The *Highway Capacity Manual 2010* describes the detailed methodology. It is not unusual for an intersection to experience level of service E or F conditions for the minor street left turn movement. It should be understood that, often, a poor level of service is experienced by only a few vehicles and the intersection as a whole operates acceptably.

Unsignalized intersection levels of service are described in the following table.

Delay (sec/veh)	LOS by Volume-to-Capacity Ratio	
	v/c <=1.0	**v/c > 1.0**
0 – 10	A	F
> 10 – 15	B	F
> 15 – 25	C	F
> 25 – 35	D	F
> 35 – 50	E	F
> 50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

SIGNALIZED INTERSECTIONS

For signalized intersections, level of service is evaluated based upon average vehicle delay experienced by vehicles entering an intersection. Control delay (or signal delay) includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In previous versions of this chapter of the *HCM* (1994 and earlier), delay included only stopped delay. As delay increases, the level of service decreases. Calculations for signalized and unsignalized intersections are different due to the variation in traffic control. The *Highway Capacity Manual 2000* provides the basis for these calculations.

Level of Service	Delay (sec/veh)	Description
A	0 – 10	**Free Flow/Insignificant Delays:** No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
B	> 10 – 20	**Stable Operation/Minimal Delays:** An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
C	> 20 – 35	**Stable Operation/Acceptable Delays:** Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
D	> 35 – 55	**Approaching Unstable/Tolerable Delays:** The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
E	> 55 – 80	**Unstable Operation/Significant Delays:** Volumes at or near capacity. Vehicles may wait though several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
F	> 80	**Forced Flow/Excessive Delays:** Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

Source: *Highway Capacity Manual 2000*, Exhibit 16-2

Oregon City Mobility Standards

12.04.205 - Mobility standards.

Development shall demonstrate compliance with intersection mobility standards. When evaluating the performance of the transportation system, the City of Oregon City requires all intersections, except for the facilities identified in subsection D below, to be maintained at or below the following mobility standards during the two-hour peak operating conditions. The first hour has the highest weekday traffic volumes and the second hour is the next highest hour before or after the first hour. Except as provided otherwise below, this may require the installation of mobility improvements as set forth in the transportation system plan or as otherwise identified by the city transportation engineer.

A. For intersections within the regional center, the following mobility standards apply:

   1. During the first hour, a maximum v/c ratio of 1.10 shall be maintained. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.

   2. During the second hour, a maximum v/c ratio of 0.99 shall be maintained at signalized intersections. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.

   3. Intersections located on the Regional Center boundary shall be considered within the Regional Center.

B. For intersections outside of the Regional Center but designated on the Arterial and Throughway Network, as defined in the Regional Transportation Plan, the following mobility standards apply:

   1. During the first hour, a maximum v/c ratio of 0.99 shall be maintained. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.

   2. During the second hour, a maximum v/c ratio of 0.99 shall be maintained at signalized intersections. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.

C. For intersections outside the boundaries of the Regional Center and not designated on the Arterial and Throughway Network, as defined in the Regional Transportation Plan, the following mobility standards apply:

   1. For signalized intersections:

      a. During the first hour, LOS "D" or better will be required for the intersection as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0 for the sum of the critical movements.

      b. During the second hour, LOS "D" or better will be required for the intersection as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0 for the sum of the critical movements.

   2. For unsignalized intersections outside of the boundaries of the Regional Center:

      a. For unsignalized intersections, during the peak hour, all movements serving more than twenty vehicles shall be maintained at LOS "E" or better. LOS "F" will be tolerated at movements serving no more than twenty vehicles during the peak hour.

D. Until the city adopts new performance measures that identify alternative mobility targets, the city shall exempt proposed development that is permitted, either conditionally, outright, or through detailed development master plan approval, from compliance with the above-referenced mobility standards for the following state-owned facilities:

I-205/OR 99E Interchange

I-205/OR 213 Interchange

OR 213/Beavercreek Road

State intersections located within or on the Regional Center Boundaries

1. In the case of conceptual development approval for a master plan that impacts the above references intersections:
    a. The form of mitigation will be determined at the time of the detailed development plan review for subsequent phases utilizing the Code in place at the time the detailed development plan is submitted; and
    b. Only those trips approved by a detailed development plan review are vested.
2. Development which does not comply with the mobility standards for the intersections identified in [Section] 12.04.205.D shall provide for the improvements identified in the Transportation System Plan (TSP) in an effort to improve intersection mobility as necessary to offset the impact caused by development. Where required by other provisions of the Code, the applicant shall provide a traffic impact study that includes an assessment of the development's impact on the intersections identified in this exemption and shall construct the intersection improvements listed in the TSP or required by the Code.

(Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010; Ord. No. 13-1003, § 1(Exh. 1), 7-17-2013)

Editor's note—

Ord. No. 13-1003, § 1, Exhibit 1, adopted July 17, 2013, retitled § 12.04.205 from "Intersection level of service standards" to "Mobility standards."

Highway Capacity Calculations

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	441	120	0	327	229	87	184	14	270	254	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	10	12	10	10	10	11	1	10	11	1
Total Lost time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.95		1.00	0.94	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1739	1402		1739	1385	1652	1777		1652	1778	
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1739	1402		1739	1385	1652	1777		1652	1778	
Peak-hour factor, PHF	0.90	0.92	0.92	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	479	130	0	355	249	95	200	15	293	276	18
RTOR Reduction (vph)	0	0	28	0	0	126	0	2	0	0	2	0
Lane Group Flow (vph)	0	479	102	0	355	123	95	213	0	293	292	0
Confl. Peds. (#/hr)			8			11	9		4	4		9
Turn Type		NA	Perm		NA	Perm	Split	NA		Split	NA	
Protected Phases		2			4		1	1		3	3	
Permitted Phases			2			4						
Actuated Green, G (s)		58.3	58.3		58.3	58.3	20.0	20.0		26.7	26.7	
Effective Green, g (s)		58.3	58.3		58.3	58.3	20.0	20.0		26.7	26.7	
Actuated g/C Ratio		0.49	0.49		0.49	0.49	0.17	0.17		0.23	0.23	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		855	689		855	681	278	299		372	400	
v/s Ratio Prot		c0.28			0.20		0.06	c0.12		c0.18	0.16	
v/s Ratio Perm			0.07			0.09						
v/c Ratio		0.56	0.15		0.42	0.18	0.34	0.71		0.79	0.73	
Uniform Delay, d1		21.1	16.5		19.2	16.8	43.4	46.5		43.2	42.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.6	0.5		0.3	0.1	0.7	7.7		10.5	6.5	
Delay (s)		23.8	16.9		19.5	16.9	44.2	54.3		53.8	49.1	
Level of Service		C	B		B	B	D	D		D	D	
Approach Delay (s)		22.3			18.5			51.2			51.4	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

Description: Washington Street/7th Street

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.9

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	8	706	20	16	543	8	4	2	22	4	2	10
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	6	6	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	759	22	17	584	9	4	2	24	4	2	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	598	0	0	787	0	0	1428	1426	780	1435	1433	600
Stage 1	-	-	-	-	-	-	793	793	-	629	629	-
Stage 2	-	-	-	-	-	-	635	633	-	806	804	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	979	-	-	832	-	-	113	135	395	111	134	501
Stage 1	-	-	-	-	-	-	382	400	-	470	475	-
Stage 2	-	-	-	-	-	-	467	473	-	376	396	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	974	-	-	829	-	-	104	127	392	99	126	496
Mov Cap-2 Maneuver	-	-	-	-	-	-	104	127	-	99	126	-
Stage 1	-	-	-	-	-	-	374	392	-	460	458	-
Stage 2	-	-	-	-	-	-	438	456	-	345	388	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.1	0.3	21.1	23.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	254	829	-	-	974	-	-	209
HCM Lane V/C Ratio	0.119	0.021	-	-	0.009	-	-	0.082
HCM Control Delay (s)	21.1	9.4	0	-	8.7	0	-	23.8
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	0.6

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	2	726	4	21	552	4	4	1	15	2	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	70	-	-	70	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	7	2	0	2
Mvmt Flow	2	764	4	22	581	4	4	1	16	2	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	585	0	0	768	0	0	1402	1400	766	1406	1400	583
Stage 1	-	-	-	-	-	-	771	771	-	627	627	-
Stage 2	-	-	-	-	-	-	631	629	-	779	773	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.27	7.12	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.5	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.363	3.518	4	3.318
Pot Cap-1 Maneuver	990	-	-	846	-	-	117	140	395	117	142	512
Stage 1	-	-	-	-	-	-	393	410	-	471	479	-
Stage 2	-	-	-	-	-	-	469	475	-	389	412	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	990	-	-	846	-	-	113	136	395	109	138	512
Mov Cap-2 Maneuver	-	-	-	-	-	-	113	136	-	109	138	-
Stage 1	-	-	-	-	-	-	392	409	-	470	467	-
Stage 2	-	-	-	-	-	-	451	463	-	372	411	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.3	20.9	19
HCM LOS			C	C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	248	846	-	-	990	-	-	266
HCM Lane V/C Ratio	0.085	0.026	-	-	0.002	-	-	0.032
HCM Control Delay (s)	20.9	9.4	-	-	8.6	-	-	19
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	3.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	17	748	3	6	566	31	3	21	8	20	27	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	3	2	2	2	5	2	2
Mvmt Flow	18	787	3	6	596	33	3	22	8	21	28	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	628	0	0	791	0	0	1473	1466	789	1465	1451	612
Stage 1	-	-	-	-	-	-	825	825	-	625	625	-
Stage 2	-	-	-	-	-	-	648	641	-	840	826	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.15	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.545	4.018	3.318
Pot Cap-1 Maneuver	954	-	-	829	-	-	105	128	391	105	131	493
Stage 1	-	-	-	-	-	-	367	387	-	468	477	-
Stage 2	-	-	-	-	-	-	459	469	-	355	387	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	954	-	-	829	-	-	82	125	391	87	128	493
Mov Cap-2 Maneuver	-	-	-	-	-	-	82	125	-	87	128	-
Stage 1	-	-	-	-	-	-	360	380	-	459	474	-
Stage 2	-	-	-	-	-	-	413	466	-	321	380	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.2	0.1	38.1	55.7
HCM LOS			E	F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	142	829	-	-	954	-	-	135
HCM Lane V/C Ratio	0.237	0.008	-	-	0.019	-	-	0.499
HCM Control Delay (s)	38.1	9.4	-	-	8.8	-	-	55.7
HCM Lane LOS	E	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	2.3

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	124	38	567	131	28	730
Conflicting Peds, #/hr	5	5	0	0	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	11	2	2	2	2
Mvmt Flow	135	41	616	142	30	793

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1547	698	0	0	764	0
Stage 1	693	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Critical Hdwy	6.42	6.31	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.399	-	-	2.218	-
Pot Cap-1 Maneuver	~ 126	425	-	-	849	-
Stage 1	496	-	-	-	-	-
Stage 2	417	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 121	421	-	-	845	-
Mov Cap-2 Maneuver	257	-	-	-	-	-
Stage 1	494	-	-	-	-	-
Stage 2	402	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	257	421	845	-
HCM Lane V/C Ratio	-	-	0.524	0.098	0.036	-
HCM Control Delay (s)	-	-	33.5	14.5	9.4	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	2.8	0.3	0.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	4	17	109	3	16	15	754	18	3	856	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	1	10	1	1	10	1	10	12	1	10	12	1
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Frt		0.94			0.98		1.00	1.00		1.00	1.00	
Flt Protected		0.98			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1534			1622		1652	1854		1652	1860	
Flt Permitted		0.88			0.73		0.12	1.00		0.18	1.00	
Satd. Flow (perm)		1382			1233		204	1854		311	1860	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	17	4	19	122	3	18	17	847	20	3	962	8
RTOR Reduction (vph)	0	14	0	0	6	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	26	0	0	137	0	17	866	0	3	970	0
Confl. Peds. (#/hr)	5		3	3		5	11		17	17		11
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			4			1			3	
Permitted Phases	2			4			1			3		
Actuated Green, G (s)		23.0			23.0		53.0	53.0		53.0	53.0	
Effective Green, g (s)		23.0			23.0		53.0	53.0		53.0	53.0	
Actuated g/C Ratio		0.27			0.27		0.62	0.62		0.62	0.62	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.5			2.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		373			333		127	1156		193	1159	
v/s Ratio Prot								0.47			c0.52	
v/s Ratio Perm		0.02			c0.11		0.08			0.01		
v/c Ratio		0.07			0.41		0.13	0.75		0.02	0.84	
Uniform Delay, d1		23.0			25.4		6.6	11.3		6.1	12.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.6		0.5	2.7		0.0	5.4	
Delay (s)		23.4			26.1		7.1	14.0		6.1	18.0	
Level of Service		C			C		A	B		A	B	
Approach Delay (s)		23.4			26.1			13.9			17.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		
Description: Molalla Avenue/Pearl Street			
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEU	NEL	NET	NER
Vol, veh/h	0	4	8	7	0	7	17	13	0	5	10	2
Peak Hour Factor	0.90	0.67	0.67	0.67	0.90	0.67	0.67	0.67	0.90	0.67	0.67	0.67
Heavy Vehicles, %	2	2	13	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	6	12	10	0	10	25	19	0	7	15	3
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	SE	NW	NE
Opposing Approach	NW	SE	SW
Opposing Lanes	1	1	1
Conflicting Approach Left	SW	NE	SE
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NE	SW	NW
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.1	7.2	7.3
HCM LOS	A	A	A

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	29%	19%	21%	31%
Vol Thru, %	59%	46%	42%	55%
Vol Right, %	12%	35%	37%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	17	37	19	42
LT Vol	10	17	8	23
Through Vol	2	13	7	6
RT Vol	5	7	4	13
Lane Flow Rate	25	55	28	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.029	0.06	0.031	0.071
Departure Headway (Hd)	4.115	3.936	3.951	4.074
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	865	905	900	876
Service Time	2.161	1.983	2.002	2.113
HCM Lane V/C Ratio	0.029	0.061	0.031	0.072
HCM Control Delay	7.3	7.2	7.1	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SWU	SWL	SWT	SWR
Vol, veh/h	0	13	23	6
Peak Hour Factor	0.90	0.67	0.67	0.67
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	19	34	9
Number of Lanes	0	0	1	0

Approach	SW
Opposing Approach	NE
Opposing Lanes	1
Conflicting Approach Left	NW
Conflicting Lanes Left	1
Conflicting Approach Right	SE
Conflicting Lanes Right	1
HCM Control Delay	7.4
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEU	NEL	NET	NER
Vol, veh/h	0	16	1	3	0	0	15	1	0	4	7	1
Peak Hour Factor	0.90	0.72	0.72	0.72	0.90	0.72	0.72	0.72	0.90	0.72	0.72	0.72
Heavy Vehicles, %	2	6	2	2	2	0	2	2	2	2	2	2
Mvmt Flow	0	22	1	4	0	0	21	1	0	6	10	1
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	SE	NW	NE
Opposing Approach	NW	SE	SW
Opposing Lanes	1	1	1
Conflicting Approach Left	SW	NE	SE
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NE	SW	NW
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.4	7.1	7.2
HCM LOS	A	A	A

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	33%	0%	80%	10%
Vol Thru, %	58%	94%	5%	37%
Vol Right, %	8%	6%	15%	53%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	16	20	30
LT Vol	7	15	1	11
Through Vol	1	1	3	16
RT Vol	4	0	16	3
Lane Flow Rate	17	22	28	42
Geometry Grp	1	1	1	1
Degree of Util (X)	0.019	0.025	0.032	0.043
Departure Headway (Hd)	4.07	4.019	4.191	3.734
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	879	890	854	958
Service Time	2.099	2.045	2.215	1.761
HCM Lane V/C Ratio	0.019	0.025	0.033	0.044
HCM Control Delay	7.2	7.1	7.4	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SWU	SWL	SWT	SWR
Vol, veh/h	0	3	11	16
Peak Hour Factor	0.90	0.72	0.72	0.72
Heavy Vehicles, %	2	2	9	2
Mvmt Flow	0	4	15	22
Number of Lanes	0	0	1	0

Approach	SW
Opposing Approach	NE
Opposing Lanes	1
Conflicting Approach Left	NW
Conflicting Lanes Left	1
Conflicting Approach Right	SE
Conflicting Lanes Right	1
HCM Control Delay	6.9
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	0.9

Movement	SEL	SET	NWT	NWR	SWL	SWR
Vol, veh/h	3	426	235	28	36	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	479	264	31	40	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	296	0	-	0	765	280
Stage 1	-	-	-	-	280	-
Stage 2	-	-	-	-	485	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1265	-	-	-	371	759
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	619	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1265	-	-	-	370	759
Mov Cap-2 Maneuver	-	-	-	-	370	-
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	617	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1265	-	390
HCM Lane V/C Ratio	-	-	0.003	-	0.115
HCM Control Delay (s)	-	-	7.9	0	15.4
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	478	124	0	363	236	90	190	14	278	262	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	10	12	10	10	10	11	1	10	11	1
Total Lost time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.95		1.00	0.94	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1739	1402		1739	1385	1652	1778		1652	1777	
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1739	1402		1739	1385	1652	1778		1652	1777	
Peak-hour factor, PHF	0.90	0.92	0.92	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	520	135	0	395	257	98	207	15	302	285	20
RTOR Reduction (vph)	0	0	28	0	0	133	0	2	0	0	2	0
Lane Group Flow (vph)	0	520	107	0	395	124	98	220	0	302	303	0
Confl. Peds. (#/hr)			8			11	9		4	4		9
Turn Type		NA	Perm		NA	Perm	Split	NA		Split	NA	
Protected Phases		2			4		1	1		3	3	
Permitted Phases			2			4						
Actuated Green, G (s)		57.3	57.3		57.3	57.3	20.4	20.4		27.3	27.3	
Effective Green, g (s)		57.3	57.3		57.3	57.3	20.4	20.4		27.3	27.3	
Actuated g/C Ratio		0.48	0.48		0.48	0.48	0.17	0.17		0.23	0.23	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		840	677		840	669	284	306		380	409	
v/s Ratio Prot		c0.30			0.23		0.06	c0.12		c0.18	0.17	
v/s Ratio Perm			0.08			0.09						
v/c Ratio		0.62	0.16		0.47	0.19	0.35	0.72		0.79	0.74	
Uniform Delay, d1		22.6	17.1		20.5	17.4	43.2	46.3		43.0	42.3	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.4	0.5		0.4	0.1	0.7	7.8		10.9	7.0	
Delay (s)		26.0	17.6		20.9	17.5	43.9	54.1		53.9	49.4	
Level of Service		C	B		C	B	D	D		D	D	
Approach Delay (s)		24.2			19.5			51.0			51.6	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

Description: Washington Street/7th Street

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.9

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	8	751	20	16	585	8	4	2	22	4	2	10
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	6	6	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	808	22	17	629	9	4	2	24	4	2	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	644	0	0	835	0	0	1521	1519	828	1528	1526	645
Stage 1	-	-	-	-	-	-	841	841	-	674	674	-
Stage 2	-	-	-	-	-	-	680	678	-	854	852	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	941	-	-	798	-	-	97	119	371	96	118	472
Stage 1	-	-	-	-	-	-	359	380	-	444	454	-
Stage 2	-	-	-	-	-	-	441	452	-	353	376	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	936	-	-	796	-	-	89	112	368	84	111	467
Mov Cap-2 Maneuver	-	-	-	-	-	-	89	112	-	84	111	-
Stage 1	-	-	-	-	-	-	351	371	-	434	437	-
Stage 2	-	-	-	-	-	-	413	435	-	321	367	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.1	0.3	23.2	26.6
HCM LOS			C	D

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	228	796	-	-	936	-	-	184
HCM Lane V/C Ratio	0.132	0.022	-	-	0.009	-	-	0.094
HCM Control Delay (s)	23.2	9.6	0	-	8.9	0	-	26.6
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	0.6

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	2	772	4	21	595	4	4	1	15	2	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	70	-	-	70	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	7	2	0	2
Mvmt Flow	2	813	4	22	626	4	4	1	16	2	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	631	0	0	817	0	0	1495	1494	815	1500	1494	628
Stage 1	-	-	-	-	-	-	819	819	-	673	673	-
Stage 2	-	-	-	-	-	-	676	675	-	827	821	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.27	7.12	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.5	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.363	3.518	4	3.318
Pot Cap-1 Maneuver	951	-	-	811	-	-	101	123	370	100	124	483
Stage 1	-	-	-	-	-	-	369	389	-	445	457	-
Stage 2	-	-	-	-	-	-	443	453	-	366	391	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	951	-	-	811	-	-	97	119	370	93	120	483
Mov Cap-2 Maneuver	-	-	-	-	-	-	97	119	-	93	120	-
Stage 1	-	-	-	-	-	-	368	388	-	444	445	-
Stage 2	-	-	-	-	-	-	425	441	-	349	390	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.3	22.9	20.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	222	811	-	-	951	-	-	236
HCM Lane V/C Ratio	0.095	0.027	-	-	0.002	-	-	0.036
HCM Control Delay (s)	22.9	9.6	-	-	8.8	-	-	20.8
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	4.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	17	798	3	6	608	31	3	21	8	20	27	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	3	2	2	2	5	2	2
Mvmt Flow	18	840	3	6	640	33	3	22	8	21	28	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	673	0	0	843	0	0	1569	1562	842	1562	1548	656
Stage 1	-	-	-	-	-	-	877	877	-	669	669	-
Stage 2	-	-	-	-	-	-	692	685	-	893	879	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.15	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.545	4.018	3.318
Pot Cap-1 Maneuver	918	-	-	793	-	-	90	112	364	89	114	465
Stage 1	-	-	-	-	-	-	343	366	-	442	456	-
Stage 2	-	-	-	-	-	-	434	448	-	332	365	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	918	-	-	793	-	-	68	109	364	72	111	465
Mov Cap-2 Maneuver	-	-	-	-	-	-	68	109	-	72	111	-
Stage 1	-	-	-	-	-	-	336	359	-	433	453	-
Stage 2	-	-	-	-	-	-	388	445	-	298	358	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.2	0.1	44.5	73.3
HCM LOS			E	F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	124	793	-	-	918	-	-	115
HCM Lane V/C Ratio	0.272	0.008	-	-	0.019	-	-	0.586
HCM Control Delay (s)	44.5	9.6	-	-	9	-	-	73.3
HCM Lane LOS	E	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1	0	-	-	0.1	-	-	2.9

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	124	38	606	134	28	755
Conflicting Peds, #/hr	5	5	0	0	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	120	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	11	2	2	2	2
Mvmt Flow	137	41	672	149	30	837

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1649	756	0	0	825	0
Stage 1	751	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Critical Hdwy	6.42	6.31	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.399	-	-	2.218	-
Pot Cap-1 Maneuver	~ 109	394	-	-	805	-
Stage 1	466	-	-	-	-	-
Stage 2	398	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 105	391	-	-	801	-
Mov Cap-2 Maneuver	239	-	-	-	-	-
Stage 1	464	-	-	-	-	-
Stage 2	383	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.3	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	239	391	801	-
HCM Lane V/C Ratio	-	-	0.575	0.106	0.038	-
HCM Control Delay (s)	-	-	38.7	15.3	9.7	-
HCM Lane LOS	-	-	E	C	A	-
HCM 95th %tile Q(veh)	-	-	3.2	0.4	0.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	4	17	109	3	16	15	782	18	3	881	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	1	10	1	1	10	1	10	12	1	10	12	1
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Frt		0.94			0.98		1.00	1.00		1.00	1.00	
Flt Protected		0.98			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1534			1622		1652	1854		1652	1860	
Flt Permitted		0.88			0.73		0.10	1.00		0.16	1.00	
Satd. Flow (perm)		1379			1233		173	1854		277	1860	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	102%	100%	100%	102%	100%
Adj. Flow (vph)	17	4	19	122	3	18	17	896	20	3	1010	8
RTOR Reduction (vph)	0	14	0	0	6	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	26	0	0	137	0	17	915	0	3	1018	0
Confl. Peds. (#/hr)	5		3	3		5	11		17	17		11
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			4			1			3	
Permitted Phases	2			4			1			3		
Actuated Green, G (s)		22.0			22.0		54.0	54.0		54.0	54.0	
Effective Green, g (s)		22.0			22.0		54.0	54.0		54.0	54.0	
Actuated g/C Ratio		0.26			0.26		0.64	0.64		0.64	0.64	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.5			2.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		356			319		109	1177		175	1181	
v/s Ratio Prot								0.49			c0.55	
v/s Ratio Perm		0.02			c0.11		0.10			0.01		
v/c Ratio		0.07			0.43		0.16	0.78		0.02	0.86	
Uniform Delay, d1		23.8			26.3		6.3	11.2		5.7	12.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.7		0.7	3.3		0.0	6.7	
Delay (s)		24.2			26.9		6.9	14.5		5.8	19.1	
Level of Service		C			C		A	B		A	B	
Approach Delay (s)		24.2			26.9			14.3			19.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
Description: Molalla Avenue/Pearl Street			

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEU	NEL	NET	NER
Vol, veh/h	0	4	8	7	0	7	17	13	0	5	10	2
Peak Hour Factor	0.90	0.67	0.67	0.67	0.90	0.67	0.67	0.67	0.90	0.67	0.67	0.67
Heavy Vehicles, %	2	2	13	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	6	12	10	0	10	25	19	0	7	15	3
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	SE	NW	NE
Opposing Approach	NW	SE	SW
Opposing Lanes	1	1	1
Conflicting Approach Left	SW	NE	SE
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NE	SW	NW
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.1	7.2	7.3
HCM LOS	A	A	A

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	29%	19%	21%	31%
Vol Thru, %	59%	46%	42%	55%
Vol Right, %	12%	35%	37%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	17	37	19	42
LT Vol	10	17	8	23
Through Vol	2	13	7	6
RT Vol	5	7	4	13
Lane Flow Rate	25	55	28	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.029	0.06	0.031	0.071
Departure Headway (Hd)	4.115	3.936	3.951	4.074
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	865	905	900	876
Service Time	2.161	1.983	2.002	2.113
HCM Lane V/C Ratio	0.029	0.061	0.031	0.072
HCM Control Delay	7.3	7.2	7.1	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SWU	SWL	SWT	SWR
Vol, veh/h	0	13	23	6
Peak Hour Factor	0.90	0.67	0.67	0.67
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	19	34	9
Number of Lanes	0	0	1	0

Approach	SW
Opposing Approach	NE
Opposing Lanes	1
Conflicting Approach Left	NW
Conflicting Lanes Left	1
Conflicting Approach Right	SE
Conflicting Lanes Right	1
HCM Control Delay	7.4
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEU	NEL	NET	NER
Vol, veh/h	0	16	1	3	0	0	15	1	0	4	7	1
Peak Hour Factor	0.90	0.72	0.72	0.72	0.90	0.72	0.72	0.72	0.90	0.72	0.72	0.72
Heavy Vehicles, %	2	6	2	2	2	0	2	2	2	2	2	2
Mvmt Flow	0	22	1	4	0	0	21	1	0	6	10	1
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	SE	NW	NE
Opposing Approach	NW	SE	SW
Opposing Lanes	1	1	1
Conflicting Approach Left	SW	NE	SE
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NE	SW	NW
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.4	7.1	7.2
HCM LOS	A	A	A

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	33%	0%	80%	10%
Vol Thru, %	58%	94%	5%	37%
Vol Right, %	8%	6%	15%	53%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	16	20	30
LT Vol	7	15	1	11
Through Vol	1	1	3	16
RT Vol	4	0	16	3
Lane Flow Rate	17	22	28	42
Geometry Grp	1	1	1	1
Degree of Util (X)	0.019	0.025	0.032	0.043
Departure Headway (Hd)	4.07	4.019	4.191	3.734
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	879	890	854	958
Service Time	2.099	2.045	2.215	1.761
HCM Lane V/C Ratio	0.019	0.025	0.033	0.044
HCM Control Delay	7.2	7.1	7.4	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SWU	SWL	SWT	SWR
Vol, veh/h	0	3	11	16
Peak Hour Factor	0.90	0.72	0.72	0.72
Heavy Vehicles, %	2	2	9	2
Mvmt Flow	0	4	15	22
Number of Lanes	0	0	1	0

Approach	SW
Opposing Approach	NE
Opposing Lanes	1
Conflicting Approach Left	NW
Conflicting Lanes Left	1
Conflicting Approach Right	SE
Conflicting Lanes Right	1
HCM Control Delay	6.9
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	0.9

Movement	SEL	SET	NWT	NWR	SWL	SWR
Vol, veh/h	3	426	235	28	36	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	479	264	31	40	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	296	0	-	0	765	280
Stage 1	-	-	-	-	280	-
Stage 2	-	-	-	-	485	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1265	-	-	-	371	759
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	619	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1265	-	-	-	370	759
Mov Cap-2 Maneuver	-	-	-	-	370	-
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	617	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1265	-	390
HCM Lane V/C Ratio	-	-	0.003	-	0.115
HCM Control Delay (s)	-	-	7.9	0	15.4
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	483	124	0	366	238	90	191	17	283	262	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	10	12	10	10	10	11	1	10	11	1
Total Lost time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.95		1.00	0.94	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1739	1402		1739	1385	1652	1774		1652	1777	
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1739	1402		1739	1385	1652	1774		1652	1777	
Peak-hour factor, PHF	0.90	0.92	0.92	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	525	135	0	398	259	98	208	18	308	285	20
RTOR Reduction (vph)	0	0	29	0	0	135	0	3	0	0	2	0
Lane Group Flow (vph)	0	525	106	0	398	124	98	223	0	308	303	0
Confl. Peds. (#/hr)			8			11	9		4	4		9
Turn Type		NA	Perm		NA	Perm	Split	NA		Split	NA	
Protected Phases		2			4		1	1		3	3	
Permitted Phases			2			4						
Actuated Green, G (s)		56.7	56.7		56.7	56.7	20.6	20.6		27.7	27.7	
Effective Green, g (s)		56.7	56.7		56.7	56.7	20.6	20.6		27.7	27.7	
Actuated g/C Ratio		0.48	0.48		0.48	0.48	0.17	0.17		0.23	0.23	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		832	670		832	662	287	308		386	415	
v/s Ratio Prot		c0.30			0.23		0.06	c0.13		c0.19	0.17	
v/s Ratio Perm			0.08			0.09						
v/c Ratio		0.63	0.16		0.48	0.19	0.34	0.72		0.80	0.73	
Uniform Delay, d1		23.1	17.4		20.9	17.7	43.0	46.3		42.8	41.9	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.6	0.5		0.4	0.1	0.7	8.1		10.9	6.3	
Delay (s)		26.7	17.9		21.3	17.8	43.7	54.4		53.7	48.3	
Level of Service		C	B		C	B	D	D		D	D	
Approach Delay (s)		24.9			20.0			51.2			51.0	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

Description: Washington Street/7th Street

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	8	754	30	18	590	8	4	2	35	4	2	10
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	6	6	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	811	32	19	634	9	4	2	38	4	2	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	649	0	0	849	0	0	1540	1538	837	1553	1549	651
Stage 1	-	-	-	-	-	-	850	850	-	683	683	-
Stage 2	-	-	-	-	-	-	690	688	-	870	866	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	937	-	-	789	-	-	94	116	367	92	114	469
Stage 1	-	-	-	-	-	-	355	377	-	439	449	-
Stage 2	-	-	-	-	-	-	435	447	-	346	370	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	932	-	-	787	-	-	86	108	364	77	107	464
Mov Cap-2 Maneuver	-	-	-	-	-	-	86	108	-	77	107	-
Stage 1	-	-	-	-	-	-	347	368	-	429	430	-
Stage 2	-	-	-	-	-	-	405	428	-	302	362	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.1	0.3	22.1	27.9
HCM LOS			C	D

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	254	787	-	-	932	-	-	174
HCM Lane V/C Ratio	0.174	0.025	-	-	0.009	-	-	0.099
HCM Control Delay (s)	22.1	9.7	0	-	8.9	0	-	27.9
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	0.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	2	782	10	35	601	4	4	1	24	2	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	70	-	-	70	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	7	2	0	2
Mvmt Flow	2	823	11	37	633	4	4	1	25	2	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	637	0	0	834	0	0	1545	1544	828	1554	1546	635
Stage 1	-	-	-	-	-	-	833	833	-	708	708	-
Stage 2	-	-	-	-	-	-	712	711	-	846	838	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.27	7.12	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.5	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.363	3.518	4	3.318
Pot Cap-1 Maneuver	947	-	-	799	-	-	93	115	363	92	116	478
Stage 1	-	-	-	-	-	-	363	384	-	426	441	-
Stage 2	-	-	-	-	-	-	423	436	-	357	384	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	947	-	-	799	-	-	88	109	363	82	110	478
Mov Cap-2 Maneuver	-	-	-	-	-	-	88	109	-	82	110	-
Stage 1	-	-	-	-	-	-	362	383	-	425	421	-
Stage 2	-	-	-	-	-	-	398	416	-	331	383	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.5	22.2	22.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	240	799	-	-	947	-	-	217
HCM Lane V/C Ratio	0.127	0.046	-	-	0.002	-	-	0.039
HCM Control Delay (s)	22.2	9.7	-	-	8.8	-	-	22.3
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	4.6

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	17	832	3	6	628	31	3	21	8	20	27	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	3	2	2	2	5	2	2
Mvmt Flow	18	876	3	6	661	33	3	22	8	21	28	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	694	0	0	879	0	0	1626	1619	877	1618	1605	677
Stage 1	-	-	-	-	-	-	913	913	-	690	690	-
Stage 2	-	-	-	-	-	-	713	706	-	928	915	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.15	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.545	4.018	3.318
Pot Cap-1 Maneuver	901	-	-	769	-	-	82	103	348	82	105	453
Stage 1	-	-	-	-	-	-	328	352	-	431	446	-
Stage 2	-	-	-	-	-	-	423	439	-	317	352	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	901	-	-	769	-	-	61	100	348	65	102	453
Mov Cap-2 Maneuver	-	-	-	-	-	-	61	100	-	65	102	-
Stage 1	-	-	-	-	-	-	321	345	-	422	443	-
Stage 2	-	-	-	-	-	-	377	436	-	284	345	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.2	0.1	49.9	86.7
HCM LOS			E	F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	113	769	-	-	901	-	-	105
HCM Lane V/C Ratio	0.298	0.008	-	-	0.02	-	-	0.642
HCM Control Delay (s)	49.9	9.7	-	-	9.1	-	-	86.7
HCM Lane LOS	E	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.1	0	-	-	0.1	-	-	3.2

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	126	40	624	134	31	801
Conflicting Peds, #/hr	5	5	0	0	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	120	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	11	2	2	2	2
Mvmt Flow	137	43	678	146	34	871

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1694	761	0	0	829	0
Stage 1	756	-	-	-	-	-
Stage 2	938	-	-	-	-	-
Critical Hdwy	6.42	6.31	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.399	-	-	2.218	-
Pot Cap-1 Maneuver	~ 102	391	-	-	803	-
Stage 1	464	-	-	-	-	-
Stage 2	381	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 97	388	-	-	799	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	462	-	-	-	-	-
Stage 2	365	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35.1	0	0.4
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	230	388	799	-
HCM Lane V/C Ratio	-	-	0.595	0.112	0.042	-
HCM Control Delay (s)	-	-	41.3	15.4	9.7	-
HCM Lane LOS	-	-	E	C	A	-
HCM 95th %tile Q(veh)	-	-	3.4	0.4	0.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	4	17	109	3	18	15	813	18	6	926	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	1	10	1	1	10	1	10	12	1	10	12	1
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Frt		0.94			0.98		1.00	1.00		1.00	1.00	
Flt Protected		0.98			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1534			1620		1652	1854		1652	1860	
Flt Permitted		0.88			0.73		0.09	1.00		0.15	1.00	
Satd. Flow (perm)		1377			1235		151	1854		268	1860	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	17	4	19	122	3	20	17	913	20	7	1040	8
RTOR Reduction (vph)	0	14	0	0	7	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	26	0	0	138	0	17	932	0	7	1048	0
Confl. Peds. (#/hr)	5		3	3		5	11		17	17		11
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			4			1			3	
Permitted Phases	2			4			1			3		
Actuated Green, G (s)		21.5			21.5		54.5	54.5		54.5	54.5	
Effective Green, g (s)		21.5			21.5		54.5	54.5		54.5	54.5	
Actuated g/C Ratio		0.25			0.25		0.64	0.64		0.64	0.64	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.5			2.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		348			312		96	1188		171	1192	
v/s Ratio Prot								0.50			c0.56	
v/s Ratio Perm		0.02			c0.11		0.11			0.03		
v/c Ratio		0.07			0.44		0.18	0.78		0.04	0.88	
Uniform Delay, d1		24.2			26.7		6.2	11.0		5.6	12.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.7		0.9	3.5		0.1	7.6	
Delay (s)		24.6			27.4		7.1	14.5		5.7	20.2	
Level of Service		C			C		A	B		A	C	
Approach Delay (s)		24.6			27.4			14.3			20.1	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
Description: Molalla Avenue/Pearl Street			
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEU	NEL	NET	NER
Vol, veh/h	0	6	11	7	0	9	20	20	0	7	14	5
Peak Hour Factor	0.90	0.67	0.67	0.67	0.90	0.67	0.67	0.67	0.90	0.67	0.67	0.67
Heavy Vehicles, %	2	2	13	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	9	16	10	0	13	30	30	0	10	21	7
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	SE	NW	NE
Opposing Approach	NW	SE	SW
Opposing Lanes	1	1	1
Conflicting Approach Left	SW	NE	SE
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NE	SW	NW
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.3	7.4	7.4
HCM LOS	A	A	A

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	27%	18%	25%	36%
Vol Thru, %	54%	41%	46%	42%
Vol Right, %	19%	41%	29%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	26	49	24	55
LT Vol	14	20	11	23
Through Vol	5	20	7	12
RT Vol	7	9	6	20
Lane Flow Rate	39	73	36	82
Geometry Grp	1	1	1	1
Degree of Util (X)	0.044	0.08	0.041	0.093
Departure Headway (Hd)	4.125	3.962	4.074	4.094
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	860	895	869	869
Service Time	2.19	2.028	2.146	2.15
HCM Lane V/C Ratio	0.045	0.082	0.041	0.094
HCM Control Delay	7.4	7.4	7.3	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.1	0.3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SWU	SWL	SWT	SWR
Vol, veh/h	0	20	23	12
Peak Hour Factor	0.90	0.67	0.67	0.67
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	30	34	18
Number of Lanes	0	0	1	0

Approach	SW
Opposing Approach	NE
Opposing Lanes	1
Conflicting Approach Left	NW
Conflicting Lanes Left	1
Conflicting Approach Right	SE
Conflicting Lanes Right	1
HCM Control Delay	7.6
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEU	NEL	NET	NER
Vol, veh/h	0	21	4	9	0	0	15	4	0	4	7	1
Peak Hour Factor	0.90	0.72	0.72	0.72	0.90	0.72	0.72	0.72	0.90	0.72	0.72	0.72
Heavy Vehicles, %	2	6	2	2	2	0	2	2	2	2	2	2
Mvmt Flow	0	29	6	13	0	0	21	6	0	6	10	1
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	SE	NW	NE
Opposing Approach	NW	SE	SW
Opposing Lanes	1	1	1
Conflicting Approach Left	SW	NE	SE
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NE	SW	NW
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.4	7.2	7.3
HCM LOS	A	A	A

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	33%	0%	62%	14%
Vol Thru, %	58%	79%	12%	37%
Vol Right, %	8%	21%	26%	49%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	19	34	51
LT Vol	7	15	4	19
Through Vol	1	4	9	25
RT Vol	4	0	21	7
Lane Flow Rate	17	26	47	71
Geometry Grp	1	1	1	1
Degree of Util (X)	0.019	0.029	0.054	0.075
Departure Headway (Hd)	4.132	3.996	4.139	3.807
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	862	892	863	937
Service Time	2.178	2.038	2.175	1.845
HCM Lane V/C Ratio	0.02	0.029	0.054	0.076
HCM Control Delay	7.3	7.2	7.4	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2	0.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SWU	SWL	SWT	SWR
Vol, veh/h	0	7	19	25
Peak Hour Factor	0.90	0.72	0.72	0.72
Heavy Vehicles, %	2	2	9	2
Mvmt Flow	0	10	26	35
Number of Lanes	0	0	1	0

Approach	SW
Opposing Approach	NE
Opposing Lanes	1
Conflicting Approach Left	NW
Conflicting Lanes Left	1
Conflicting Approach Right	SE
Conflicting Lanes Right	1
HCM Control Delay	7.2
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	0.9

Movement	SEL	SET	NWT	NWR	SWL	SWR
Vol, veh/h	3	439	244	28	36	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	493	274	31	40	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	306	0	-	0	790	290
Stage 1	-	-	-	-	290	-
Stage 2	-	-	-	-	500	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1255	-	-	-	359	749
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	609	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1255	-	-	-	358	749
Mov Cap-2 Maneuver	-	-	-	-	358	-
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	607	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1255	-	378
HCM Lane V/C Ratio	-	-	0.003	-	0.119
HCM Control Delay (s)	-	-	7.9	0	15.8
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.4

Intersection	
Int Delay, s/veh	1.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER
Vol, veh/h	8	754	30	18	590	8	4	2	35
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	811	32	19	634	9	4	2	38

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	649	0	0	849	0	0	1540	1538	837
Stage 1	-	-	-	-	-	-	850	850	-
Stage 2	-	-	-	-	-	-	690	688	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	937	-	-	789	-	-	94	116	367
Stage 1	-	-	-	-	-	-	355	377	-
Stage 2	-	-	-	-	-	-	435	447	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	932	-	-	787	-	-	87	110	364
Mov Cap-2 Maneuver	-	-	-	-	-	-	87	110	-
Stage 1	-	-	-	-	-	-	347	368	-
Stage 2	-	-	-	-	-	-	411	434	-

Approach	SE	NW	NE
HCM Control Delay, s	0.1	0.3	22
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	256	787	-	-	932	-	-	175
HCM Lane V/C Ratio	0.172	0.025	-	-	0.009	-	-	0.098
HCM Control Delay (s)	22	9.7	-	-	8.9	0	-	27.8
HCM Lane LOS	C	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	

Movement	SWL	SWT	SWR
Vol, veh/h	4	2	10
Conflicting Peds, #/hr	6	0	4
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	93	93	93
Heavy Vehicles, %	2	2	2
Mvmt Flow	4	2	11

Major/Minor	Minor2		
Conflicting Flow All	1553	1549	651
Stage 1	683	683	-
Stage 2	870	866	-
Critical Hdwy	7.12	6.52	6.22
Critical Hdwy Stg 1	6.12	5.52	-
Critical Hdwy Stg 2	6.12	5.52	-
Follow-up Hdwy	3.518	4.018	3.318
Pot Cap-1 Maneuver	92	114	469
Stage 1	439	449	-
Stage 2	346	370	-
Platoon blocked, %			
Mov Cap-1 Maneuver	78	108	464
Mov Cap-2 Maneuver	78	108	-
Stage 1	429	436	-
Stage 2	302	362	-

Approach	SW
HCM Control Delay, s	27.8
HCM LOS	D

Minor Lane/Major Mvmt

Crash Rate Calculations

General & Site Information	
Analyst:	ADB
Agency/Company:	DKS Associates
Date:	11/18/2014
Project Name:	Oregon City Library TIA

Intersection Crash Data

Intersection	Intersection Type	Year					Total
		2009	2010	2011	2012	2013	
7th St/Washington St	Urban 4SG	2	3	7	1	4	17
7th St/John Adams St	Urban 4ST	0	3	2	0	3	8
7th St/Jefferson St	Urban 4ST	0	1	0	1	0	2
7th St/Jackson St	Urban 4ST	0	1	1	1	0	3
7th St/Taylor St	Rural 3ST	1	0	0	0	1	2
Molalla Ave/Pearl St	Urban 4SG	5	1	8	4	3	21
6th St/John Adams St	Urban 4ST	1	0	0	0	0	1
6th St/Jefferson St	Urban 4ST	0	0	0	1	0	1
5th St/Jackson St	Urban 3ST	0	0	1	0	0	1
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
	Total	9	9	19	8	11	56

Intersection Population Type Crash Rate				
Average Crash Rate per intersection type				
Intersection Pop. Type	Sum of Crashes	Sum of 5-year MEV	Avg Crash Rate for Ref Pop.	INT in Pop
Rural 3SG	0	0		
Rural 3ST	2	34	0.0586	1
Rural 4SG	0	0		
Rural 4ST	0	0		
Urban 3ST	1	15	0.0649	1
Urban 3SG	0	0		
Urban 4ST	15	91	0.1645	5
Urban 4SG	38	79	0.4818	2

Critical Rate Calculation								
Intersection	AADT Entering Intersection	5-year MEV	Crash Total	Intersection Population Type	Intersection Crash Rate	Reference Population Crash Rate	Critical Rate	Over Critical
7th St/Washington St	22,333	40.8	17	Urban 4SG	0.42	0.48	0.67	Under
7th St/John Adams St	15,460	28.2	8	Urban 4ST	0.28	0.16	0.31	Under
7th St/Jefferson St	15,368	28.0	2	Urban 4ST	0.07	0.16	0.31	Under
7th St/Jackson St	16,862	30.8	3	Urban 4ST	0.10	0.16	0.30	Under
7th St/Taylor St	18,701	34.1	2	Rural 3ST	0.06	APM Exhibit 4-1		
Molalla Ave/Pearl St	20,885	38.1	21	Urban 4SG	0.55	0.48	0.68	Under
6th St/John Adams St	1,333	2.4	1	Urban 4ST	0.41	0.16	0.80	Under
6th St/Jefferson St	943	1.7	1	Urban 4ST	0.58	0.16	0.96	Under
5th St/Jackson St	8,437	15.4	1	Urban 3ST	0.06	0.06	0.20	Under

Turn Lane Warrants

Left Turn Lane Warrant Analysis

Project: Oregon City Library Expansion TIA
Scenario(s): 2014, 2016 Scenarios

0

Intersection	Approach (NB,SB, EB,WB)	Number of Advancing Lanes	Number of Opposing Lanes	Volume Advancing (Va)	LT Vol	LT %	Volume Opposing (Vo)	Warrant Factor	5% Warrant Va	Va Warrant Threshold	HRB Warrant Met?	ODOT Volume	ODOT LT Threshold	ODOT Criteria Met?	Max. Est. Queue	Storage Length (ft)
7th Street/John Adams Street (existir	WB	1	1	567	16	3%	726	1.32	357	470	Yes	1293	10	Yes	#N/A	#N/A
7th Street/John Adams Street (No-Bu	WB	1	1	609	16	3%	771	1.36	341	465	Yes	1380	10	Yes	3	75
7th Street/John Adams Street (Build)	WB	1	1	616	18	3%	784	1.29	338	438	Yes	1400	10	Yes	3	75
#N/A	0	0	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	0	0	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

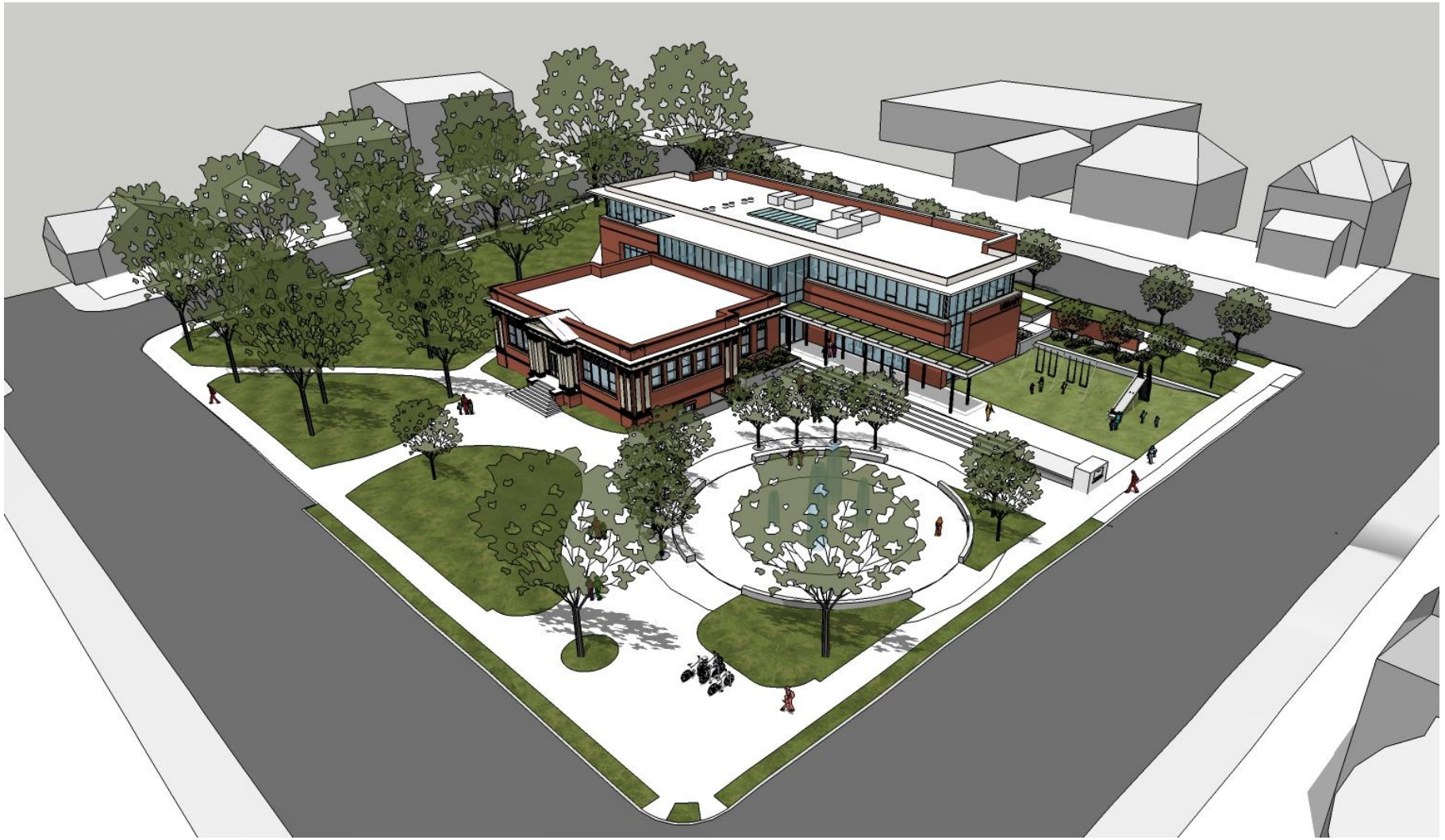
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Intersection	Approach (NB,SB, EB,WB)	Number of Advancing Lanes	Number of Opposing Lanes	Volume Advancing (Va)	LT Vol	LT %	Volume Opposing (Vo)	Warrant Factor	5% Warrant Va	Va Warrant Threshold	HRB Warrant Met?	ODOT Volume	ODOT LT Threshold	ODOT Criteria Met?	Max. Est. Queue	Storage Length (ft)
#N/A	0	0	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	0	0	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	0	0	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	0	0	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	0	0	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

*The "Consider" note applies when there are high through volumes but less than 10 left turning vehicles.

ODOT LEFT TURN CRITERIA IS BASED ON THE **8-13-03** LEFT TURN CRITERIA
MAX QUEUE AND STORAGE ESTIMATES BASED ON GARD METHOD

Oregon City Carnegie Library & Addition

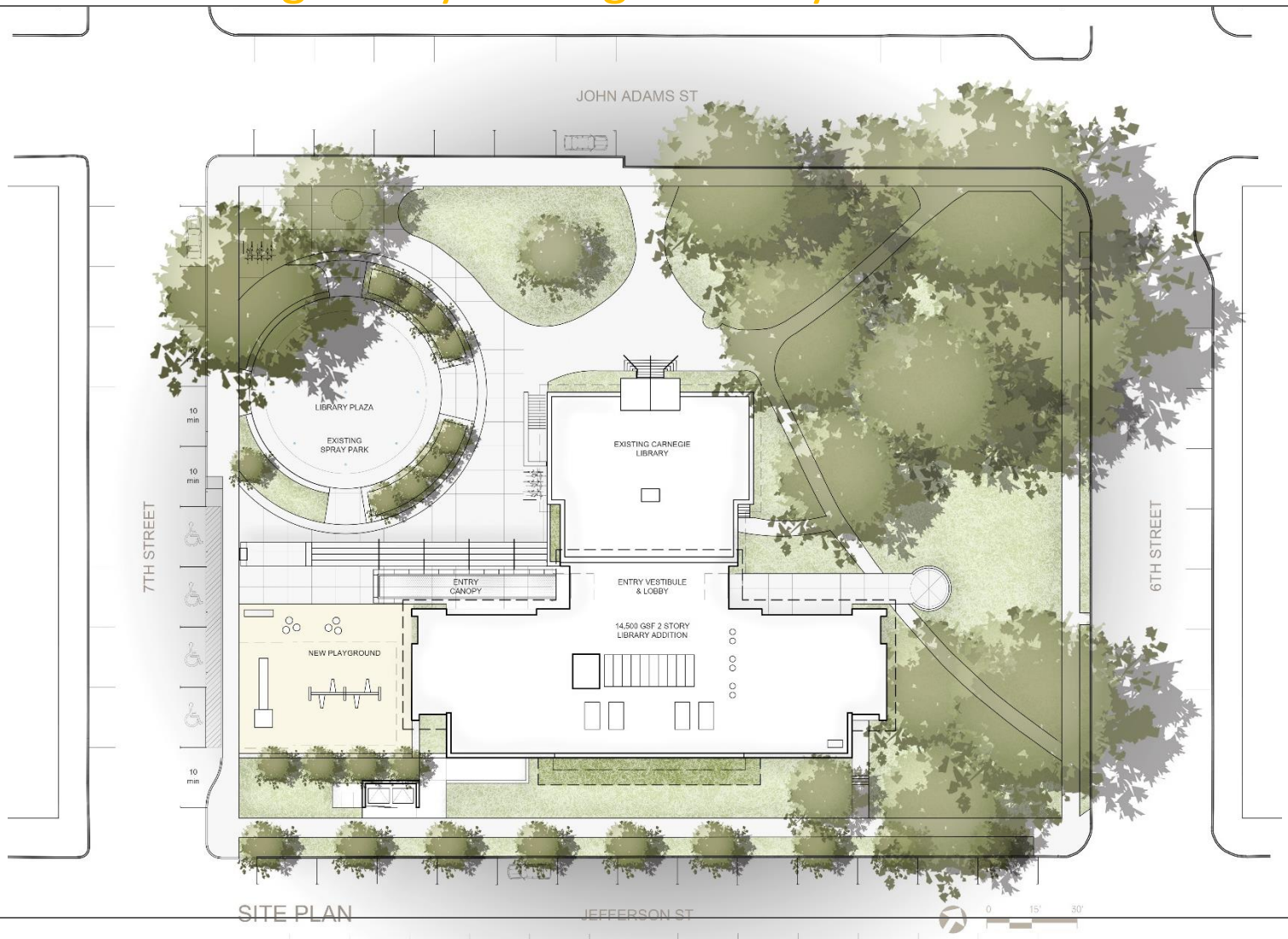


Schematic Design Presentation

January 08, 2015

SCOTT|EDWARDS ARCHITECTURE LLP

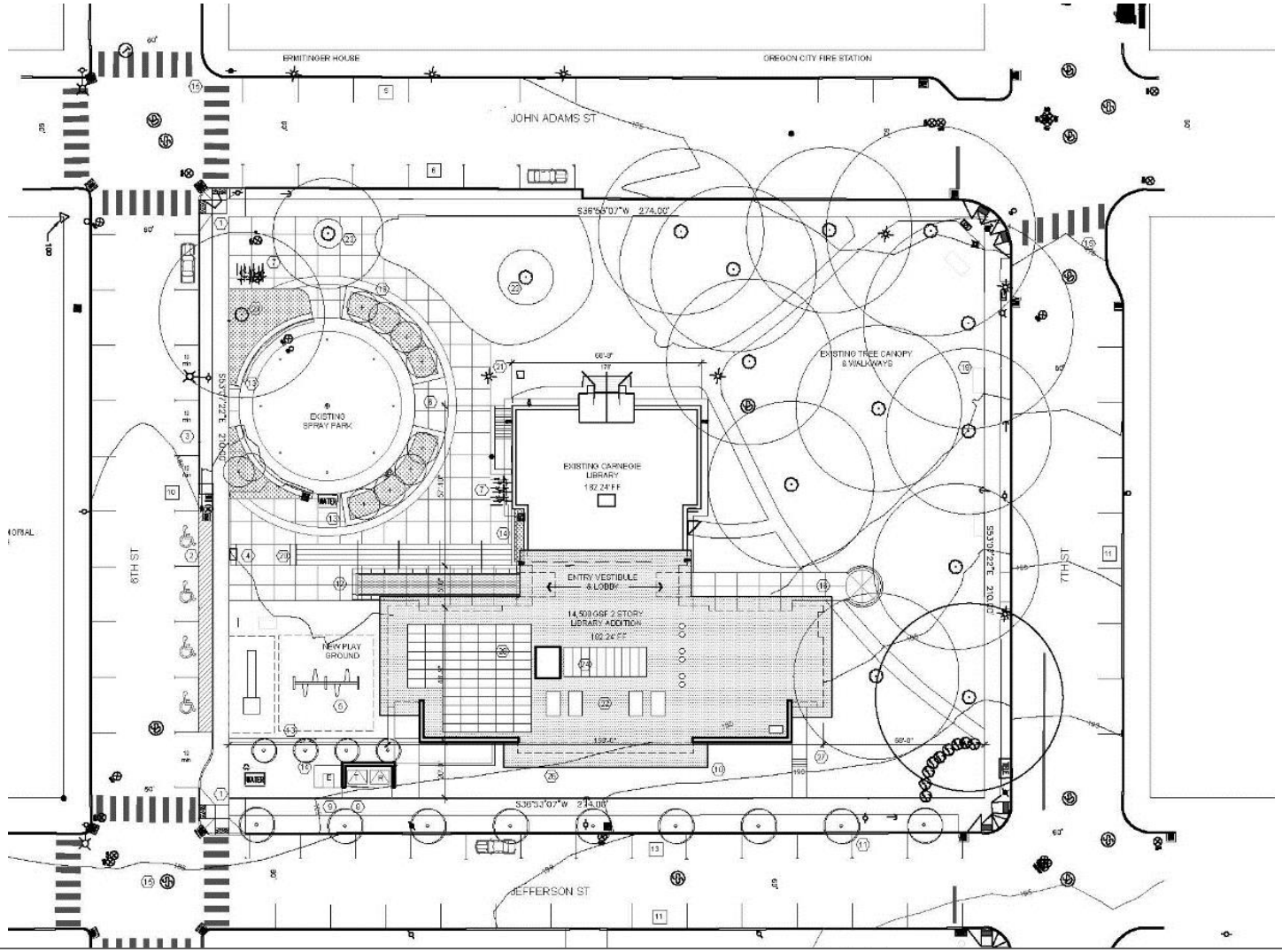
Oregon City Carnegie Library & Addition



Site Plan

SEA
SCOTT|EDWARDS ARCHITECTURE LLP

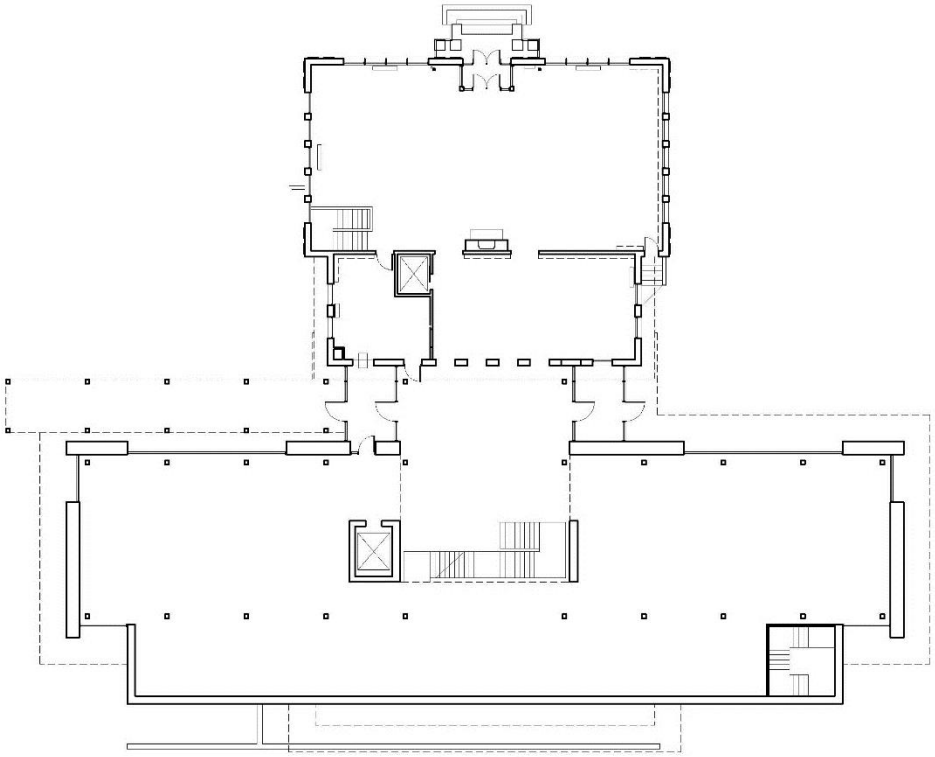
Oregon City Carnegie Library & Addition



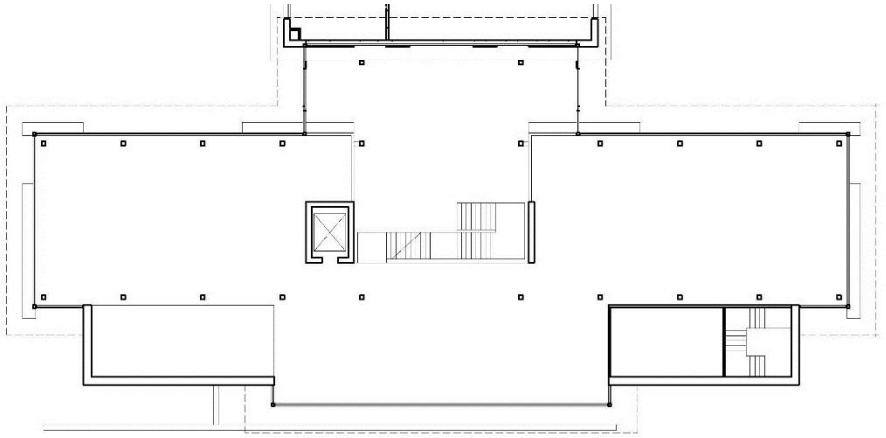
Site Roof Plan

SEA
SCOTT|EDWARDS ARCHITECTURE LLP

Oregon City Carnegie Library & Addition



Ground Floor Plan



Second Floor Plan

Schematic Floor Plans

SEA
SCOTT|EDWARDS ARCHITECTURE LLP

Oregon City Carnegie Library & Addition



View from 7th Street

SEA
SCOTT|EDWARDS ARCHITECTURE LLP

Oregon City Carnegie Library & Addition



View from John Adams & 6th

SCOTT|EDWARDS ARCHITECTURE LLP

Oregon City Carnegie Library & Addition



Option 1 –view from 6th Street

SCOTT|EDWARDS ARCHITECTURE LLP

Oregon City Carnegie Library & Addition



View from 7th & Jefferson

SCOTT|EDWARDS ARCHITECTURE LLP

Oregon City Carnegie Library & Addition



View from Entry

SCOTT|EDWARDS ARCHITECTURE LLP

Oregon City Carnegie Library & Addition



View from Entry

SCOTT|EDWARDS ARCHITECTURE LLP

Oregon City Carnegie Library & Addition



View from Children's Library

SCOTT|EDWARDS ARCHITECTURE LLP

Oregon City Carnegie Library & Addition



View from Second Floor

SEA
SCOTT|EDWARDS ARCHITECTURE LLP

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-044

Agenda Date: 1/21/2015

Status: Agenda Ready

To: City Commission

Agenda #: 7b.

From: Community Development Director Tony Konkol

File Type: Ordinance

SUBJECT:
Ordinance for Introduction, No. 14-1019, Approving the Election Results for Planning File AN 14-01 and Annexing Certain Property to the City of Oregon City

RECOMMENDED ACTION (Motion):
Staff recommends the City Commission approve the first reading of proposed Ordinance No. 14-1019.

BACKGROUND:
The City Commission approved the proposed annexation of 5.5 acres location at 19588 S. McCord Road, and the request was approved by a vote of the citizens of Oregon City on November 4th, 2014. The election results, as certified by the Clackamas County Clerk, indicated that 7,985 voted in favor of the annexation and 3,777 voted against the annexation.

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-044

Agenda Date: 1/21/2015

Status: Agenda Ready

To: City Commission

Agenda #: 7b.

From: Community Development Director Tony Konkol

File Type: Ordinance

SUBJECT:
Ordinance for Introduction, No. 14-1019, Approving the Election Results for Planning File AN 14-01 and Annexing Certain Property to the City of Oregon City

RECOMMENDED ACTION (Motion):
Staff recommends the City Commission approve the first reading of proposed Ordinance No. 14-1019.

BACKGROUND:
The City Commission approved the proposed annexation of 5.5 acres location at 19588 S. McCord Road, and the request was approved by a vote of the citizens of Oregon City on November 4th, 2014. The election results, as certified by the Clackamas County Clerk, indicated that 7,985 voted in favor of the annexation and 3,777 voted against the annexation.

ORDINANCE NO. 14-1019

AN ORDINANCE ANNEXING CERTAIN PROPERTY TO THE CITY OF OREGON CITY AND APPROVING THE ELECTION RESULTS FOR AN 14-01

OREGON CITY MAKES THE FOLLOWING FINDINGS:

WHEREAS, The City of Oregon City proposed that certain property, more fully identified in Exhibit 'A' to this Ordinance, be annexed to the City; and

WHEREAS, the City found that the proposal complied with all applicable legal requirements, as detailed in the findings attached hereto and made a part of this ordinance as Exhibit 'B'; and

WHEREAS, Chapter I, section 3 of the Oregon City Charter of 1982 requires voter approval for annexations such as the one proposed; and

WHEREAS, the annexation of the identified property was submitted to the voters of the City of Oregon City at a special election held on November 4th, 2014; and

WHEREAS, the Clackamas County Clerk has returned the official figures indicating the results of the election held on November 4th, 2014; and

WHEREAS, the official figures returned by the Clackamas County Clerk attached hereto as Exhibit "C" indicate that a majority of the voters of the City of Oregon City voted to approve the annexation of the identified property (7,985 yes: 3,777 no); and

WHEREAS, the identified property is currently within Clackamas County Fire District # 1; and will remain in said District upon annexation to the City of Oregon City; and

WHEREAS, the identified property is currently within the Clackamas County Service District for Enhanced Law Enforcement; and upon annexation the Oregon City Police Department will be responsible for police services to the identified property;

WHEREAS, the identified property is currently within and served by the Clackamas River Water (CRW) District service area; and

WHEREAS, with approval of the annexation, the property will be withdrawn from Clackamas River Water (CRW) District and future development will be connected to the Oregon City water distribution system; and

WHEREAS, the identified property is not currently within the Tri-City Service District and must petition for annexation into said District with the concurrence of the City; and

WHEREAS, the City Commission concurs that the Tri-City Service District can annex the identified property into their sewer district; and

NOW, THEREFORE, OREGON CITY ORDAINS AS FOLLOWS:

Section 1. That the area further identified in the legal description attached hereto as Exhibit "A", is hereby annexed to and made a part of the City of Oregon City.

Section 2. That the territory identified in Exhibit "A" shall hereby remain within Clackamas County Fire District # 1.

Section 3. That the territory identified in Exhibit "A" is hereby withdrawn from Clackamas County Service District for Enhanced Law Enforcement, and henceforth, the Oregon City Police Department will be responsible for police services to the identified property.

Section 4. That the territory identified in Exhibit "A" shall be withdrawn from the Clackamas River Water (CRW) District and connected to the Oregon City water distribution system upon development.

Section 5. The City hereby concurs with and approves the annexing of the territory identified in Exhibit "A" into the Tri-City Service District by the Clackamas County Board of Commissioners, to the extent allowed by law.

Section 6. That the territory identified in Exhibit "A" is designated as Low Density Residential on the Oregon City Comprehensive Plan land use map and in accordance with the findings in Exhibit "B" shall be rezoned to R-10 Single Family Residential on the Oregon City Zoning map.

Section 7. That the effective date for this annexation is the date this ordinance is submitted to the Secretary of State, as provided in ORS 222.180.

Read for the first time at a regular meeting of the City Commission held on the 21st day of January, 2015, and the foregoing ordinance was finally enacted by the City Commission this __th day of February, 2015.

_____
DAN HOLLADAY, Mayor

Attested to this _th day of _____ 2015:

_____
Nancy Ide, City Recorder

Approved as to legal sufficiency:

_____
City Attorney

ENGINEERING PLANNING
FORESTRY

13910 S.W. Galbreath Dr., Suite 100
Sherwood, Oregon 97140
Phone: (503) 925-8799
Fax: (503) 925-8969
AKS Job #3523

AKS
ENGINEERING & FORESTRY

LANDSCAPE ARCHITECTURE
SURVEYING

AKS Group of Companies:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

EXHIBIT A

A tract of land located in the Northwest One-Quarter of Section 7, Township 3 South, Range 2 East, Willamette Meridian, Clackamas County, Oregon and being more particularly described as follows:

Beginning at the easterly corner of Lot 56 of the Plat of "Pavillion Park", thence along the southeasterly line of said Plat and the city limits of Oregon City, North 43°54'17" East 202.56 feet to the westerly corner of the Plat of "Rian Park"; thence along the southwesterly line of said Plat of "Rian Park" and being the city limits of Oregon City, South 44°52'10" East 387.62 feet to the northerly corner of that tract of land conveyed to Bond A. Fisher and Kellie I. Fisher in Document Number 96-064521, Clackamas County deed records; thence along the northwesterly line of the Fisher tract and the northwesterly line of that tract land conveyed to Dennis Mark Brown in Document Number 98-101393, Clackamas County deed records, South 45°07'52" West 178.50 feet to the westerly corner of the Brown tract; thence along the southwesterly line of the Brown tract and the southeasterly extension thereof, South 44°56'19" East 288.00 feet to a point on the southeasterly right-of-way line of Leland Road (30.00 feet from centerline); thence along said southeasterly right-of-way line, South 45°07'52" West 50.00 feet to a point on the southeasterly extension of the northeasterly line of that tract of land conveyed to Judy J. Douglass in Document Number 87-03341, Clackamas County deed records; thence along said southeasterly extension and the northeasterly line of the Douglass tract, North 44°56'19" West 288.00 feet to the northerly corner thereof; thence along the northwesterly line of the Douglass tract, South 45°07'52" West 177.00 feet to the westerly corner thereof, being a point on the northeasterly line of that tract of land conveyed to Bill Creel and Dana Creel in Document Number 2008-063341, Clackamas County deed records; thence along the northeasterly line of the Creel tract, North 44°56'19" West 122.00 feet to the northerly corner thereof; thence along the northwesterly line of the Creel tract and the southwesterly extension thereof, South 45°07'52" West 275.00 feet to a point on the southwesterly right-of-way line of McCord Road (20.00 feet from centerline); thence along said southwesterly right-of-way line, North 44°56'19" West 251.04 feet to a point on the southwesterly extension of the southeasterly line of the Plat of "Pavillion Park"; thence along said southwesterly extension of the southeasterly line of said Plat, being the city limits of Oregon City, North 43°54'17" East 478.55 feet to the Point of Beginning.

The above described tract of land contains 5.50 acres, more or less.

08-01-13

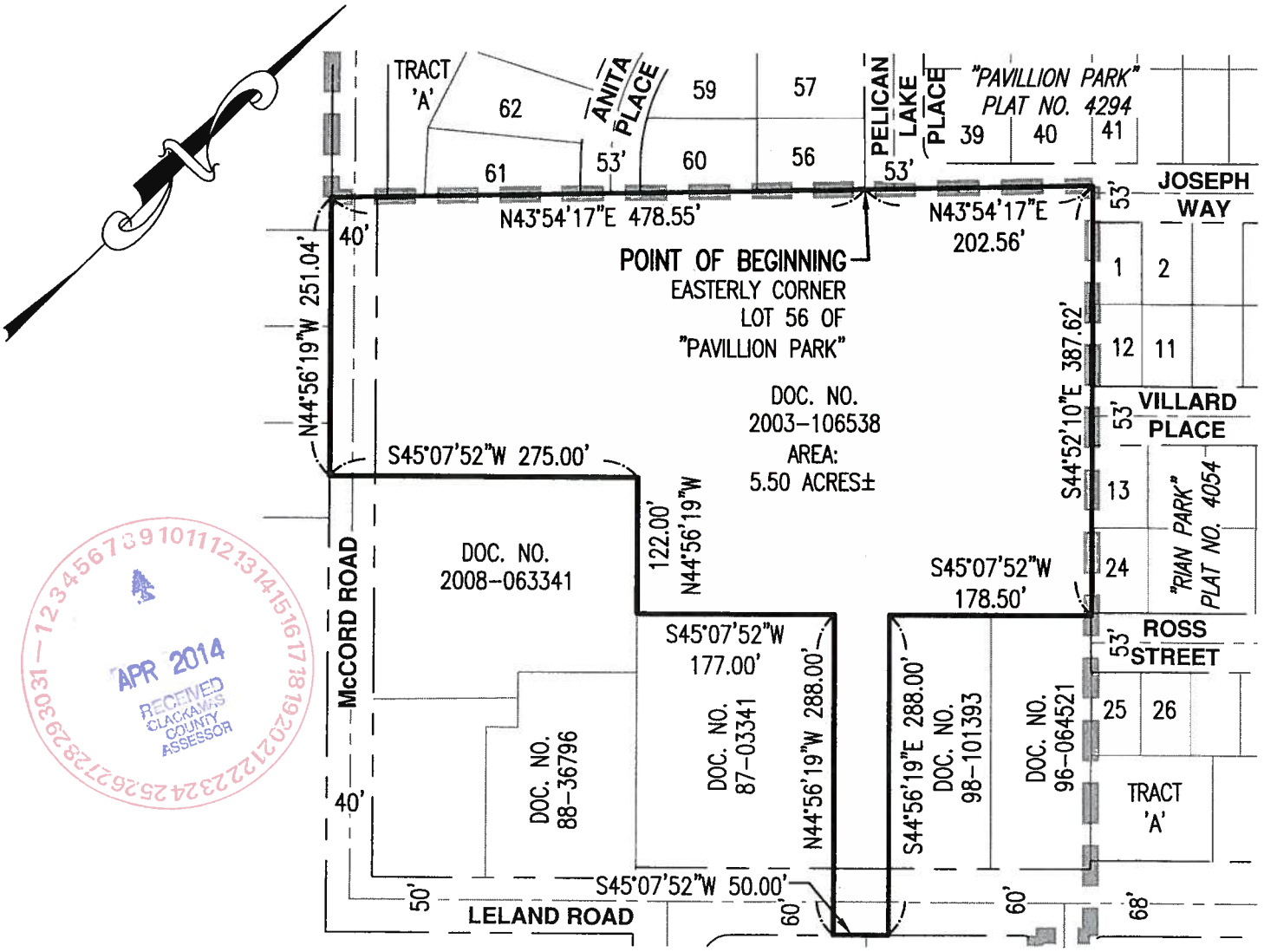
REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JANUARY 11, 2005
ROBERT D. RETTIG
60124LS
RENEWS: 12/31/14

APR 2014
RECEIVED
CLACKAMAS
COUNTY
ASSESSOR

EXHIBIT B

A TRACT OF LAND LOCATED IN THE NW 1/4 OF SEC. 7, TOWNSHIP 3 SOUTH, RANGE 2 EAST, W.M., CLACKAMAS COUNTY, OREGON



APR 2014
RECEIVED
CLACKAMAS COUNTY ASSESSOR

SCALE 1" = 150 FEET

150 0 60 90 120 150

PREPARED FOR
H&H PREFERRED REAL ESTATE

LEGEND

CITY OF OREGON CITY CITY LIMITS

08-01-13

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON
JANUARY 11, 2005
ROBERT D. RETTIG
60124LS

RENEWS: 12/31/14

JOB NAME: McCORD ROAD	
JOB NUMBER: 3523	
DRAWN BY: MSK	
CHECKED BY: RDR	
DWG NO.: ANNEX-1	

AKS ENGINEERING AND FORESTRY, LLC
13910 SW GALBREATH DR
SUITE 100
SHERWOOD, OR 97140
PHONE: 503.925.8799
FAX: 503.925.8969

AKS

ENGINEERING · PLANNING · SURVEYING
FORESTRY · LANDSCAPE ARCHITECTURE

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

NOTICE OF DECISION

DATE OF MAILING OF NOTICE OF DECISION: August 7, 2014

FILE NO.: AN 14-01

APPLICATION TYPE: Annexation (Approximately 5.5 acres)

HEARING DATE: City Commission – August 6, 2014

APPLICANT: Brian D'Ambrosio and Valerie Hunter, 3336 SE Belmont, Portland, OR 97215

REPRESENTATIVE: AKS Engineering, 13910 SW Galbreath Dr, Ste. 100, Sherwood, OR 97214

OWNER: David G. Douglass, 19588 S McCord Road, Oregon City, OR 97045

REQUEST: Annexation of approximately 5.5 acres into the City of Oregon City. The site is within the Oregon City Urban Growth Boundary and has a Comprehensive Plan designation of LR – Low Density Residential.

LOCATION: 19588 S. McCord Road, Oregon City, OR 97045
Located on the northeast side of McCord Road, west of Leland Road
Clackamas County Map 3-2E-07B -04100

DECISION: On August 6, 2014, after reviewing all of the evidence in the record and considering all of the arguments made by the applicant and citizens, the City Commission concluded that the criteria for the annexation had been met. Accordingly, the City Commission approved Resolution 14-18 sending the annexation to the voters on November 4, 2014 for final approval, adopted as its own the Staff Report and Findings, attached as exhibits to File Number AN 14-01. All materials are on file at the Planning Division.

PROCESS: Type IV decisions include only quasi-judicial plan amendments and zone changes. These applications involve the greatest amount of discretion and evaluation of subjective approval standards and must be heard by the city commission for final action. The process for these land use decisions is controlled by ORS 197.763. At the evidentiary hearing held before the planning commission, all issues are addressed. If the planning commission denies the application, any party with standing (i.e., anyone who appeared before the planning commission either in person or in writing) may appeal the planning commission denial to the city commission. If the planning commission denies the application and no appeal has been received within ten days of the issuance of the final decision then the action of the planning commission becomes the final decision of the city. If the planning commission votes to approve the application, that decision is forwarded as a recommendation to the city commission for final consideration. In either case, any review by the city commission is on the record and only issues raised before the planning commission may be raised before the city commission. The city commission decision is the city's final decision and is appealable to the land use board of appeals (LUBA) within twenty-one days of when it becomes final. The application, decision, and supporting documents are available for inspection at the Oregon City Planning Division located at 221 Molalla Avenue, Suite 200, Oregon City, OR 97045, (503) 722-3789, between the hours of 8am and 5pm. Copies of these documents are available (for a fee) upon request.

CITY COMMISSION FINDINGS, REASONS FOR DECISION, AND RECOMMENDATIONS
AN 14-01

Based on the Findings in the Staff Report, the Commission determines:

1. The Metro Code calls for consistency of the annexation with the Regional Framework Plan or any functional plan. The Commission concludes the annexation is nconsistent with this criterion because there were no directly applicable criteria for boundary changes found in the Regional Framework Plan, the Urban Growth Management Function Plan, or the Regional Transportation Plan.

2. Metro Code 3.09.050(d)(1) requires the Commission's findings to address consistency with applicable provisions of urban service agreements or annexation plans adopted pursuant to ORS 195. The Commission finds that there are no inconsistencies between these plans/agreements and this annexation.

3. The Metro Code, at 3.09.050(d)(3), requires the City's decision to be consistent with any "directly applicable standards or criteria for boundary changes contained in comprehensive land use plans and public facilities plans." The Clackamas County Comprehensive Plan also states annexation which converts Future Urban lands to Immediate Urban lands should ensure the "orderly, economic provision of public facilities and services." The property owner has demonstrated that the City can provide all necessary urban services. Nothing in the County Plan speaks directly to criteria for annexation. Therefore the Commission finds this proposal is consistent with the applicable plan as required Metro Code 3.09.050 (d)(3).

4. The Commission concludes that the annexation is consistent with the Oregon City Comprehensive Plan that calls for a full range of urban services to be available to accommodate new development as noted in the Findings above. The City operates and provides a full range of urban services.

5. The Commission notes that the Metro Code also calls for consistency of the annexation with urban planning area agreements. As stated in the Findings, the Oregon City-Clackamas County Urban Growth Management Agreement (UGMA) specifically provides for annexations by the City.

6. Metro Code 3.09.050(d)(5) states that another criterion to be addressed is "Whether the proposed change will promote or not interfere with the timely, orderly, and economic provision of public facilities and services." Based on the evidence in the Findings, the Commission concludes that the annexation will not interfere with the timely, orderly, and economic provision of services.

7. The Oregon City Code contains provisions on annexation processing. Section 6 of the ordinance requires that the City Commission consider seven factors if they are relevant. These factors are covered in the Staff Report Findings and on balance the Commission believes they are adequately addressed to justify approval of this annexation.

8. The City Commission concurs with Tri-City Service District's annexation of the subject property in the enacting City ordinance upon voter approval of the city annexation. Prior to the City approving a final zoning designation for the property, the applicant shall provide documentation that the property has been annexed into the Tri-City Service District.

9. The Commission determines that the property should be withdrawn from the Clackamas County Service District for Enhanced Law Enforcement as allowed by statute since the City will provide police services upon annexation.

10. The City Commission recognizes that the applicant has adequately addressed compliance with the Oregon Statewide Transportation Planning Rule OAR 660-012-0060.

11. The City Commission recognizes that the Urban Growth Management Agreement with Clackamas County requires that the annexation proposal shall include the adjacent road right-of-way of the property proposed for annexation.

12. The City Commission concurs with the Clackamas River Water District (CRW) recommendation that the property be served by the City and withdrawn from CRW's service area.

13. The City Commission recognizes that the Applicant shall provide all necessary mapping and legal property descriptions for approval by the Oregon Department of Revenue to ensure completion of the annexation.

14. The City Commission recognizes that the property shall be rezoned ministerially to R-10 Single Family Residential following approval of the annexation pursuant to OCMC 17.68.025(A).

Canvass Report — Election Voters — Official
Clackamas County, Oregon — General Election — November 04, 2014

Total Number of Voters : 161,652 of 229,859 = 70.33

11/24/2014 08:30 AM
Precincts Reporting 118 of 118 = 100.00%

Measure 3-463 Expand Oregon City boundary by 5.5 acres

Precinct	Election Ballots Cast	Total Ballots Cast	Registered Voters	Percent Turnout	YES	NO	Totals
001	2646	2646	3799	69.65%	1604	825	2429
002	2141	2141	3251	65.86%	1343	632	1975
003	1664	1664	2405	69.19%	1042	484	1526
004	25	25	39	64.10%	15	8	23
005	2584	2584	4043	63.91%	1678	682	2360
006	1839	1839	2498	73.62%	1142	596	1738
007	1848	1848	2757	67.03%	1152	540	1692
010	20	20	25	80.00%	9	10	19
Totals	12767	12767	18817		7985	3777	11762

CERTIFIED COPY OF THE ORIGINAL
SHERRY HALL, COUNTY CLERK
BY: Sherry Hall

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 14-675

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8a.

From: Finance Director Wyatt Parno

File Type: Resolution

SUBJECT:
Resolution No. 15-02, Adjusting Alarm System User Permit Fees and Establishing an Annual Inflationary Adjustment

RECOMMENDED ACTION (Motion):
Move to adopt Resolution No. 15-02, A Resolution Adjusting Alarm System User Permit Fees and Establishing an Annual Inflationary Adjustment.

BACKGROUND:
Oregon City Municipal Code 5.08.060(D) establishes the setting of alarm system user permit fees by City Commission Resolution. Resolution No. 01-20 adopted a schedule of fees approximately fourteen years ago. The City Commission desires to adjust rates annually for the effects of inflation so as not to unnecessarily burden customers with unpredictable and large rate increases. Adoption of this resolution would adjust alarm permit fees to the average amount of the permit fee scale within the region of surrounding jurisdictions. It would also establish an annual inflationary adjustment in an amount not to exceed 3 percent, so long as the primary objective of adherence with the alarm program is not adversely impacted.

BUDGET IMPACT:
Amount: Approximately $7,000 in annual revenue to the General Fund
FY(s): 2015 forward
Funding Source: Alarm fees

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 14-675

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8a.

From: Finance Director Wyatt Parno

File Type: Resolution

SUBJECT:
Resolution No. 15-02, Adjusting Alarm System User Permit Fees and Establishing an Annual Inflationary Adjustment

RECOMMENDED ACTION (Motion):
Move to adopt Resolution No. 15-02, A Resolution Adjusting Alarm System User Permit Fees and Establishing an Annual Inflationary Adjustment.

BACKGROUND:
Oregon City Municipal Code 5.08.060(D) establishes the setting of alarm system user permit fees by City Commission Resolution. Resolution No. 01-20 adopted a schedule of fees approximately fourteen years ago. The City Commission desires to adjust rates annually for the effects of inflation so as not to unnecessarily burden customers with unpredictable and large rate increases. Adoption of this resolution would adjust alarm permit fees to the average amount of the permit fee scale within the region of surrounding jurisdictions. It would also establish an annual inflationary adjustment in an amount not to exceed 3 percent, so long as the primary objective of adherence with the alarm program is not adversely impacted.

BUDGET IMPACT:
Amount: Approximately $7,000 in annual revenue to the General Fund
FY(s): 2015 forward
Funding Source: Alarm fees

RESOLUTION NO. 15-02

A RESOLUTION ADJUSTING ALARM SYSTEM USER PERMIT FEES AND ESTABLISHING AN ANNUAL INFLATIONARY ADJUSTMENT

WHEREAS, the Police Department currently oversees 1,400 alarm system user permits and is dispatched to an average of 75 alarm activations per month; and

WHEREAS, Oregon City Municipal Code (OCMC) 5.08.060(D) establishes the setting of alarm system user permit fees by City Commission resolution; and

WHEREAS, the City of Oregon City adopted Resolution No. 01-20 establishing the schedule of fees and assessments for alarm system user permits; and

WHEREAS, the City desires to adjust the alarm system user permit fees to the average amount of the permit fee scale within the region of surrounding jurisdictions and establish periodic inflationary adjustments to the fees and assessments.

NOW, THEREFORE, THE CITY OF OREGON CITY RESOLVES AS FOLLOWS:

Section 1. The attached Schedule of Fees and Assessments for Alarm System User Permits is hereby adopted.

Section 2. Effective January 1, 2016, and annually thereafter, the rates charged for alarm system user fees and penalty assessments shall be adjusted to account for inflation in an amount not to exceed 3 percent, so long as the primary objective of adherence with the alarm system program is not adversely impacted. Minor annual adjustments may be waived and accumulated for rounding or reasonable administration.

Approved and adopted at a regular meeting of the City Commission held on the 21st day of January, 2015.

DAN HOLLADAY, Mayor

Attested to this 21st day of January 2015:

Kattie Riggs, City Recorder

Approved as to legal sufficiency:

City Attorney

SCHEDULE OF FEES AND ASSESSMENTS FOR ALARM SYSTEM USER PERMITS

ADMINISTRATIVE ALARM FEES

Alarm System User Permit Fee (renewed annually)

a) Residential ……..... $ 20.00
b) Commercial …… $ 25.00

No Annual Permit Fee is charged if:

a) a Residential Customer is over 65, lives at the site and no business is conducted in the residence, OR
b) entity is a Government Agency

NOTE: Alarm permits are renewed yearly as established by the date the original application was processed. Annual alarm permit fees are billed at the end of the month prior to the month of expiration.

PENALTY ASSESSMENTS

1st False Alarm in permit year…….	No Charge
2nd False Alarm in permit year……	$ 25.00
3rd False Alarm in permit year……	$ 50.00
4th False Alarm in permit year……	$ 75.00
False alarms in excess of 4 in a permit year……	$100.00 each
Late Penalty…….	$ 25.00

Alarm System Permit Fees
Comparison of Neighboring Jurisdictions
January 14, 2015

JURISDICTION	Portland	Clackamas Co	Lake Oswego	Oregon City	Milwaukie	West Linn	Oregon City
				Adjusted			Current
Residential Permit Fee per year	$25	$20	$25	$20	$20	$20	$15
Commercial Permit Fee per year	$125	$50	$25	$25	$21	$20	$15

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-068

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8b.

From: Public Works Director John Lewis

File Type: Contract

SUBJECT:
Selection of On-call Consultants for Professional Engineering Services

RECOMMENDED ACTION (Motion):
Authorize the City Manager to use the Utility Infrastructure Improvements On-call Consultant List for design and engineering services for water distribution, stormwater, and watewater collection systems.

BACKGROUND:
Staff requests to establish a short list of five consultant firms to perform civil and environmental engineering and related professional services for projects involving the planning, construction, reconstruction or rehabilitation of utility infrastructure facilities and to otherwise assist the City in completing selected engineering and capital improvement projects.

On November 21, 2014 the City solicited statements of qualifications using its online bidding system and on December 12, 2014 received 14 submittals. Staff evaluated the qualifications of each firm individually and then met collectively to reach consensus on the five firms most qualified to complete the work anticipated over the next few years.

City staff reached unanimous agreement that the following five (5) consulting firms presented the best experience and offered the most qualified teams based on the projects and work types anticipated:

1) Brown and Caldwell
2) Murray, Smith & Associates, Inc.
3) RH2 Engineering, Inc.
4) Tetra Tech
5) Wallis Engineering

Oregon Administrative Rule (OAR) 137-048 requires Qualifications-Based Selection (QBS) for the procurement of engineers, architects, land surveyors, photogrammetrists, and transportation planners. OAR 137-048 prohibits the use of fees in making these kinds of procurement decision until after a firm or firms have been selected using the QBS process. This recommended action is in conformance with OAR 137-048.

Consultants selected to be on the on-call short list will actually perform work under contract

with the City using the City's standard Personal Services Agreement. The on-call short list is expected to remain in place for a three (3) year period with the option to renew up to two (2) additional one-year periods. The total time of on-call short list use is not intended to exceed five (5) years.

Following the City's selection of the Utility Infrastructure Improvements On-call Consultant List, the City will negotiate separate Personal Service Agreements for specific projects on an as needed basis. Each Agreement will identify the type of services, work scope, fee, and terms of payment for services. For specific projects, the City may determine that additional expertise is required (such as landscape architecture, electrical engineering, surveying, etc). The City can elect to assemble or augment project teams to cover all required disciplines.

Personal Service Agreements exceeding $50,000 will be presented to the City Commission for authorization.

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-068

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8b.

From: Public Works Director John Lewis

File Type: Contract

SUBJECT:
Selection of On-call Consultants for Professional Engineering Services

RECOMMENDED ACTION (Motion):
Authorize the City Manager to use the Utility Infrastructure Improvements On-call Consultant List for design and engineering services for water distribution, stormwater, and watewater collection systems.

BACKGROUND:
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Following the City's selection of the Utility Infrastructure Improvements On-call Consultant List, the City will negotiate separate Personal Service Agreements for specific projects on an as needed basis. Each Agreement will identify the type of services, work scope, fee, and terms of payment for services. For specific projects, the City may determine that additional expertise is required (such as landscape architecture, electrical engineering, surveying, etc). The City can elect to assemble or augment project teams to cover all required disciplines.

Personal Service Agreements exceeding $50,000 will be presented to the City Commission for authorization.

OREGON CITY

Public Works

625 Center Street | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7829

UTILITY INFRASTRUCTURE IMPROVEMENTS
ON-CALL CONSULTANT LIST

REVIEW TEAM: John Lewis, Aleta Froman-Goodrich, Martin Montalvo, Erik Wahrgren

Short-listed firms

1) Murray, Smith & Associates, Inc.
2) Brown & Caldwell, Inc.
3) Wallis Engineering, PLLC
4) Tetra Tech, Inc.
5) RH2 Engineers

Firms not selected to be short-listed:

1) Kennedy/Jenks
2) Carollo Engineers
3) Harper Houf Peterson Righellis
4) AKS Engineering & Forestry
5) Pace Engineering
6) Century West
7) Cardno
8) Firwood Design Group LLC
9) Riverside Engineering Inc.

P:\PublicWorks\CIP_PS_RFQ_RFP\RFP_RFQ\On Call Engineering Services 2014\Short Listed Proposals\Engineering RFQ - Master Short List.docx

Oregon City Public Works 2014 Request for Qualifications for Enginee

Evaluation Form

Utility Infrastructure Improvements

SCORED RANKING	FIRM	Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	AVERAGE RANKING
1	Murray, Smith & Assoc.*	91	95	91	97	93.5
2	Brown & Caldwell*	84	93	90	97	91
3	Wallis Engineering	83	94	85	97	89.75
4	Tetra Tech, Inc.	61	94	79	92	81.5
5	RH2 Engineers*	53	91	77	93	78.5
6	Kennedy/Jenks	62	88	56	92	74.5
7	Carollo Engineers*	44	83	69	92	72
8	Harper Houf Peterson Righellis	39	87	62	89	69.25
9	AKS Engineering & Forestry*	46	80	57	91	68.5

Oregon City Public Works 2014 Request for Qualifications for Enginee

Evaluation Form

Utility Infrastructure Improvements

SCORED RANKING	FIRM	Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	AVERAGE RANKING
10	Pace*	32	90	56	84	65.5
11	Century West	42	84	47	82	63.75
12	Cardno	33	80	52	82	61.75
13	Firwood Design Group LLC	26	80	45	87	59.5
14	Riverside Engineering Inc.	10	55	12	76	38.25

*Firms which indicated they had optional specialty services requested by City

REQUEST FOR QUALIFICATIONS (RFQ)

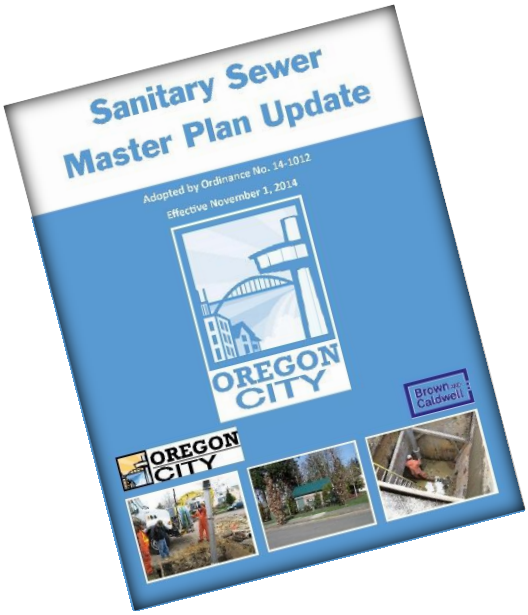
For Engineering Services

City of Oregon City

November 21, 2014

Utility Infrastructure Improvements including Design and Engineering Services for:

- Water Distribution
- Stormwater
- Wastewater Collection Systems





John M. Lewis, P.E., Public Works Director

City of Oregon City

Public Works Department

625 Center Street

P. O. Box 3040

Oregon City, OR 97045

REQUEST FOR QUALIFICATIONS (RFQ)
For Engineering Services
City of Oregon City

The City of Oregon City seeks proposals from qualified firms or individuals to provide engineering and other professional services related to Utility Infrastructure Improvements including Design and Engineering Services for Water Distribution, Stormwater, and Wastewater Collection Systems.

Proposals will be received until **4:00 P.M. local time on Friday, December 12, 2014,** at City of Oregon City Public Works Department, PO Box 3040, 625 Center Street, Oregon City Oregon 97045. Late proposals will not be considered. There will be no formal Proposal opening.

Solicitation documents may be obtained from the City's online plan center free of charge at http://bids.orcity.org/. Solicitation documents may be obtained by creating a new user account and registering for the project. General information including the planholder list is available to the public without registering.

Solicitation documents are also available for review at the City of Oregon City, Public Works Department, 625 Center Street, Oregon City, Oregon 97045 (telephone: 503.657.0891), between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday, except legal holidays.

Addenda, clarifications and notices will be distributed through the City's online planholder system. Potential proposers are responsible for ensuring contact information is registered correctly and that email updates are being received and not being sent to spam folders. It is in the best interest of potential proposers to check the website periodically to ensure all updates are received. The City is not responsible for failure of proposers to receive notifications of changes or corrections made by the City and posted as stated above.

Proposers are required to certify non-discrimination in employment practices, and identify resident status as defined in ORS 279A.120(1). Pre-qualification of proposers is not required. All proposers are required to comply with the provisions of Oregon Revised Statutes and the Oregon City Municipal Code.

In order to provide efficiencies in service with other public agencies and in order to fulfill an opportunity for cooperative purchasing, any publicly funded city, county, district, agency or similar entity shall have the authority to acquire services directly from the successful proposer(s) under the terms and conditions of this RFQ.

The City of Oregon City reserves the right to (1) reject any or all proposals not in compliance with public bidding procedures if it is in the best interest of the public to do so, (2) postpone award of the contract for a period not to exceed sixty (60) days from date of proposal opening, (3) waive informalities in the proposals, and (4) to select the proposals which appear to be in the best interest of the City.

PUBLISHED: Daily Journal of Commerce, November 21 and 24, 2014

SECTION 1
GENERAL INFORMATION

1.1 SUMMARY OF REQUEST

The City is seeking the services of qualified consultants to perform civil and environmental engineering and related professional services for projects involving the planning, construction, reconstruction or rehabilitation of utility infrastructure facilities and to otherwise assist the City in completing selected engineering and capital improvement projects.

The City seeks to establish a short list of consultants or consultant teams for Utility Infrastructure Improvements including Design and Engineering Services for Water Distribution, Stormwater and Wastewater Collection Systems.

It is the City's intent to develop a short list of between three and five qualified individuals and/or firms. Consultants selected to perform work under contract with the City using the City's standard Personal Services Agreement (attached) will agree to provide services for the City for a three (3) year period with the option to renew up to two (2) additional one-year periods. The total term of the contract shall not exceed five (5) years.

Following the City's selection of short listed individuals and/or firms, the City will negotiate separate Personal Service Agreements for specific projects on an as needed basis. Each Agreement will identify the type of services, work scope, fee, and terms of payment for services. For specific projects, the City may determine that additional expertise is required (such as landscape architecture, electrical engineering, surveying, etc). The City can elect to assemble or augment project teams to cover all required disciplines.

The City makes no representation as to the frequency or amount of service, if any, to be obtained by any short-listed consultant.

A tentative schedule for this process appears below:

November 21 and 24, 2014	Advertise RFQ
December 12, 2014 @ 4:00 PM	Proposals Due
January 6, 2015	Completion of Proposal Evaluations
January 8, 2015	Notify Consultants of Results of Selection Process
January 21, 2015	City Commission Award

SECTION 2
NATURE OF WORK

2.1 INTRODUCTION

Selected consultants will provide engineering services for City projects involving construction, reconstruction, or rehabilitation of utility infrastructure facilities as needed by the City.

The City views its relationship with consultants as a partnership where they assist the City as needed in planning, design, and construction of public improvements. The consultants will provide technical expertise, services and resources as needed. Consulting engineers will be expected to participate with the City to resolve construction issues, including construction claims, as needed.

Construction projects will normally be designed and constructed in accordance with the American Public Works Association, American Water Works Association, Oregon Administrative Rules, Oregon Department of Transportation and/or Oregon City Public Works standards. Construction contracts are currently prepared in accordance with the Oregon Standard Specifications for Construction, latest edition, and as modified by the City. The consultant shall use City provided contract forms as the base or template for construction contracts supplemented by special provisions to the applicable reference standards as needed.

2.2 PROFESSIONAL SERVICES

The consultant shall perform planning and engineering services for City utility infrastructure improvements. Improvement projects may include a variety of work that vary in size and complexity. Work tasks may include, but are not limited to, the following:

A) Project Management

1. Work scope development.
2. Preparation and maintenance of the project schedule, including adding and managing staff, subconsultants and other resources as needed to meet scheduled milestones (such as land survey, geotechnical, wetlands or other specialized consultants). These resources likely will be planned and assembled when scoping an individual project with the City.
3. Monthly progress reports and analysis of cost versus progress.
4. Scheduling and staffing project team meetings during both design and construction phases, including preparation of agendas and meeting notes.

B) Master Planning and Preliminary Engineering

1. Research “as-built” records, master plan documents, land use plans and other historical data.
2. Conduct field surveys of utility locations.

3. Coordinate and evaluate subsurface utility investigation services to verify existing utility locations and identify potential utility conflicts.
4. Identify system deficiencies and needs and develop cost estimates for improvements.
5. Perform geotechnical studies, as needed.
6. Develop alternative utility location concepts as appropriate and analyze advantages and disadvantages.
7. Review hydrology and/or hydraulics, including performance of computer modeling as necessary to review and size adequate piping or channels.
8. Prepare hydrology and/or hydraulics reports.
9. Prepare construction cost estimates for selected alternatives.
10. Establish required preconstruction monumentation survey and file map with the County Surveyor.

C) Public Involvement

1. Provide public, stakeholder and advisory committee meeting planning and facilitation.
2. Advise and facilitate outreach to private citizens and stakeholder groups, including surveys/questionnaires.
3. Perform graphic design for flyers, posters, advertisements, newsletters, etc.
4. Provide media campaign planning and deployment, including web and social media strategies.
5. Provide assistance collecting and responding to public inquiries, requests and comments.

D) Final Design Engineering

1. Prepare final engineering design, including alignment and grade, special details, detours and staging plans, and erosion control plans.
2. Prepare technical specifications, including special provisions and supplemental standard specifications for construction contract documents.
3. Prepare right-of-way or easement survey maps, descriptions, parcel maps and additional information needed to purchase right-of-way or easements.
4. Submit final plans, survey construction notes, staking details, temporary traffic control plans, and other documents to the City for review and approval.
5. Prepare permit applications as appropriate for a specific project, including City land use applications.
6. Attend pre-bid conferences, pre-construction meetings, utility coordination meetings, and be prepared to respond to technical issues and questions.

E) Construction Engineering

1. Provide construction surveying services as needed.
2. Provide engineering support during construction, to include approval and/or recommendations on engineering design changes.
3. Provide construction inspection services.

4. Review contractor's progress payment requests and certify that quantities claimed accurately reflect work performed and materials supplied during the payment period.
5. Prepare and submit to City as-built drawings for record upon completion of construction.
6. Establish required post construction monumentation survey and file maps with the County Surveyor.

2.3 CONSULTANT'S WORK PRODUCTS

Consultants shall submit work products to the City that may include but are not limited to the following:

A) Property descriptions for right-of-way acquisition including easements.

B) Preliminary and final plans, reports, exhibits and other information in digital format or hard copy reproducible media as requested by the City.

C) Construction drawings in both a 22" x 34" format and a reduced 11" x 17" format, on paper and digital format.

D) Survey maps and placement of monuments as required by the City.

E) As-built record drawings, in digital and hard copy reproducible format as requested by the City.

F) Project files, including permits, correspondence, memoranda, telephone logs, inspection reports and testing results.

G) Land use permit applications in accordance with Oregon City Municipal Code, Chapter 17.

H) Completed permit applications from other agencies.

2.4 SERVICES TO BE PROVIDED BY THE CITY

For projects contracted directly with the City, the City will provide the following services:

A) Provide a project engineer/manager who is responsible for overall project management and will provide coordination and oversight.

B) Establish the work scope and design parameters for each project, including related standards.

C) Make available mapping and design information previously developed.

D) Make available survey control data, if available, to establish road centerline.

E) Make available guidelines, policies, and regulations to be used in review and/or developing design.

F) Submit applications to the State and/or County for required permits. (Note consultant will prepare and may be requested to submit the application.)

G) Maintain records and process payment requests.

H) Provide the base or template provisions for the construction contract to which the consultant shall add terms, conditions and special provisions unique to the project.

I) Legal review of all contracts, bid forms and real property conveyances.

J) Public involvement and communication with the City Commission and private citizens.

K) Liaison between other agencies and private utility providers.

L) Provide review and comments from Operations staff and other Public Works employees on deliverables.

2.5 PROPOSED CITY PROJECTS

Projects that could be anticipated by the City over the next five years requiring the services covered by this Request for Qualifications would typically be included in adopted City master plans and associated capital improvement plans. These plans can be viewed on the City website at www.orcity.org/publicworks/public-works-master-plans.

In addition to the following projects, other public works projects will include those discovered during routine operations and maintenance or emergencies, and other projects, studies, or problem solving needs that may arise from time to time.

A) **Sanitary Sewer**

1. Sanitary Sewer Master Plan adopted in 2014 (www.orcity.org/publicworks/sanitary-sewer-master-plan-update) includes proposed capital improvement projects. The total planned costs for the next five year period are broken out as follows:
   a) Sanitary sewer main replacement and upsizing projects: ---------- ~$3,080,000
   b) Pumping station pump and control upgrade projects: ---------- ~$1,120,000

B) **Water Distribution**

1. Master Distribution Master Plan adopted in 2012 (www.orcity.org/publicworks/water-plans) includes proposed capital improvement projects for the next five year period:

a) Pressure reducing valve upgrades and new stations: ---------- ~$400,000
b) Waterline replacement and upgrades: ---------- ~$1,100,000
c) Storage reservoir, pump station and transmission pipeline site planning and preliminary design:---------- ~$500,000

2. Specialty Services – This will not be a weighted criteria. The City is seeking proposers with the ability to assist with a Water Distribution Modeling program.

C) **Stormwater**

Although the City does have a few basin master plans available online at www.orcity.org/publicworks/stormwater-plans, not all basins have a master plan and most of these plans require updating. Work in this category for the next five year period includes:

1. Stormwater Master Plan Update ---------- ~$190,000
2. Work discovered during routine operations and maintenance and work associated with paving projects---------- ~$1,000,000

SECTION 3
PROPOSAL INSTRUCTIONS

3.1 GENERAL REQUIREMENTS

A) Proposals must be computer generated, printed double-sided, and be three hole punched and unbound in an 8.5" x 11" format. Proposals with 11" by 17" pages are allowed but must be folded into an 8.5" by 11" format. Text font size of printed proposals must be 11 point font or greater.

B) No facsimile or electronic proposals will be accepted.

C) Proposals are limited to a set number of pages as identified in Section 3.7. A proposal cover page and divider pages will not be included in the count of pages. Refer to Proposal Content in Section 3.7 for further information regarding the format of proposals and the number of pages each section of the proposal is not to exceed. Each printed side of 8.5" x 11" sheets will count as one page. Each side of printed 11" x 17" sheets will count as two pages.

D) The firm may propose a consultant team. If a consultant team is proposed, resume information must be provided for each key team member from each subconsultant. Resume information may be located in the Key Personnel or Supporting Information sections (refer to Section 3.7, Proposal Content).

E) An authorized representative of the proposer must sign the proposal and their name and title must appear below the person's signature. The signing of the proposal certifies:

1. The person signing the proposal has the legal authority to do so on behalf of the proposer;

2. The proposer has not made and will not make any attempt to induce any other person or firm to submit or not submit a proposal;

3. That to the best of proposer's knowledge, no employee of the City of Oregon City, or any partnership or corporation in which a City employee has an interest, will or has received any remuneration of any description from proposer, either directly or indirectly, in connection with the letting or performance of any contract resulting from this RFQ; and

4. The statements contained in the proposal are true and complete to the best of the proposer's knowledge.

3.2 COST OF PREPARING A PROPOSAL

The RFQ does not commit the City to paying any costs incurred by Proposer in the submission or presentation of a proposal, or in making the necessary studies for the

preparation thereof.

3.3 PROPOSAL VALIDITY PERIOD

The information and costs included in the proposal remain valid for 120 days from the proposal due date or until City Commission award is made.

3.4 SUBMISSION REQUIREMENTS

Submit six (6) complete copies of proposal as identified in Section 3.1, General Requirements, in a sealed envelope marked "**SEALED QUALIFICATIONS-ENGINEERING AND RELATED SERVICES**" no later than **4:00 PM on Friday, December 12, 2014** to:

John M. Lewis, P.E., Public Works Director
City of Oregon City
625 Center Street
P. O. Box 3040
Oregon City, OR 97045

There will be no formal opening of proposals. Postmarks and late proposals will not be considered.

If the sealed proposal is forwarded by mail or messenger service, it is the responsibility of the proposer to get the sealed proposal to the above location by the proposal due date and time.

3.5 INTERPRETATIONS AND ADDENDA

Questions regarding this project proposal may be submitted through the online bid center at http://bids.orcity.org/ or they may be directed to **Erik Wahrgren, P.E., City Project Manager, at 503.496.1510 or ewahrgren@orcity.org**. If necessary, interpretations or clarifications in response to such questions will be made by issuance of an "Addendum" to all prospective proposers within a reasonable time prior to proposal closing, but in no case less than 72 hours before the proposal closing. If an addendum is necessary after that time, the City, at its discretion, can extend the closing date.

Any Addenda issued, as a result of any change in the RFP, must be acknowledged in the proposer's "Introductory Letter".

Only questions answered by formal written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

3.6 BUSINESS LICENSE/FEDERAL ID REQUIRED

A City of Oregon City Business License is required. Chapter 5.04 of the City Code states no person shall do business within the City without a current, valid City license. No

contracts shall be signed prior to the obtaining of the City of Oregon City Business License.

Upon award of proposal, contractor shall complete a W-9 form for the City.

3.7 PROPOSAL CONTENT

For consistency in proposals, please arrange content in the order listed in the table below, i.e., introductory letter first, information about insurance coverage second, etc. Please note the maximum number of pages allowed for each section. An explanation of the information sought about the content is set out below.

PROPOSAL CONTENT		**MAXIMUM NO. OF PAGES**
1.	Introductory letter	1
2.	Insurance coverage	1
3.	Firm qualifications	4
4.	Key personnel qualifications	3
5.	Subconsultant relationships	2
6.	Quality of client service	4
7.	Cost schedule	2
8.	Supporting information (including key personnel resumes)	30
9.	Specialty services qualifications [Section 2.5(B)(2) – OPTIONAL]	2

A) INTRODUCTORY LETTER

A statement in the introductory letter shall name the person or persons authorized to represent the consultant in any negotiations and sign any contract that may result. If any addenda were issued, it shall be acknowledged in this letter. Furthermore, proposers shall certify non-discrimination in employment practices and identify resident status as defined in ORS 279A.120(1).

B) INSURANCE COVERAGE

The City of Oregon City's required insurance coverage is described in the attached Exhibit 2, Standard Conditions to Oregon City Personal Services Agreement. Insurance coverage includes the following categories of insurance:

1. Comprehensive general liability
2. Professional liability - Errors and Omissions
3. Automobile liability
4. Workers' compensation

Provide a statement indicating that the firm has in effect or can obtain the insurance coverage required by the City (do not provide insurance certificates with the proposal). If the proposer is unable to provide this coverage, the proposer must describe the insurance coverage that can be provided, and explain why the City's preferred coverage cannot be provided. Under such circumstances, proposer shall propose alternative terms and conditions in lieu of the terms and conditions the City has identified in the attached personal services agreement.

The selected consultants shall provide satisfactory proof of insurance for all coverage. Moreover, on all insurance the selected consultant shall name the City, its officials, employees, and agents, as additional insureds (except workers' compensation, professional liability and professional errors and omissions policies). Affirmatively state that proposer can comply with these requirements or explain why such an affirmation cannot be provided.

C) FIRM QUALIFICATIONS

Provide a statement that portrays the firm's qualifications as related to the local office and experience in relation to the described work. The response should address the following:

1. Verification that the firm is duly licensed and certified to perform the professional services offered by the proposal.

2. General qualifications and experience of the firm. Please limit information to that which is specific to the local office.

3. Areas of expertise applicable to the described work.

   In addition to engineering and other professional services related to utility infrastructure improvements including design and engineering services, the City is also interested in proposers' experience in the following areas:

   a) <u>Wastewater Systems</u>

      The City is seeking consultants with the ability to assist with a rehabilitation and replacement (R/R) program. The City realizes that due to the age and condition of its existing infrastructure, significant cost savings can be realized when using rehabilitation technologies versus standard open trench rehabilitation.

      Consultants shall describe their experience with each technology listed below to help demonstrate your firm's ability to recognize

when each of the following methods should be a candidate for use:

- Cured-in-place pipe (CIPP)
- Pipe bursting
- Sliplining
- Point repairs (cured in place and mechanical)
- Test and seal (injection grouting)

Consultants shall also indicate their past experience and their ability to perform the following I & I investigation/abatement techniques supporting the City's development of an R/R program including:

- Condition assessment/TV inspection
- Flow monitoring
- Smoke testing
- Dye testing
- Exfiltration testing

b) Water Distribution

Water system improvements including pipeline replacement, designing water systems (including all appurtenances), reservoir planning, siting and design.

c) Stormwater

Master planning experience including current knowledge of the latest stormwater regulations (including the National Pollutant Discharge Elimination System [NPDES] requirements) and local municipal requirements.

4. Similar projects, by type, location and total project cost, which have been performed by the firm. Do not include projects that current personnel performed for another firm. Please note proposals may be excluded from further consideration if projects are included that the firm did not perform.

5. If including a subconsultant, include their role in the described work: prime consultant or sub-consultant.

6. Verification that the selected consultants' computer services and submittals are compatible with current City equipment. The City has largely converted to the Microsoft Windows 7 environment and uses the following software:

- Word processing with Microsoft Word 2013.
- Financial tracking and other spreadsheets with Microsoft Excel 2013.
- Scheduling with Microsoft Project, latest version.
- Computer aided drafting (CAD) with AutoCAD 2013 or most recent

version. As built submittals shall be in .DWG and .PDF format and include all reference and plotting files.

- Geographic information system (GIS) with ESRI ArcGIS 10.2 or most recent version.

D) KEY PERSONNEL QUALIFICATIONS

Provide a statement that portrays how the qualifications and experience of the firm's proposed key personnel relate to the described work. Only provide information for those personnel that the firm is proposing to perform the work.

The response should address qualifications and experience of principals and proposed key personnel with respect to the work as described in this RFQ. Identify any applicable registrations. Clearly note projects performed by personnel that were performed while working for another firm.

E) QUALITY OF CLIENT SERVICE

One of the City's interests will be the commitment of the consultant's project team during the life of the project. The consultant's demonstrated commitment to the project will be a consideration in future engagements with the consulting firm.

Provide examples (4 pages) that demonstrates the quality of service provided to clients and provide a minimum of five references with the names, addresses and telephone numbers of current and past clients for whom the proposer has provided similar professional services. The response should address the following:

1. Availability for a variety of project-related meetings.

2. Commitment to timely delivery of work products.

3. Commitment to timely communication with City staff.

4. Internal procedures and/or policies for quality assurance.

5. Internal procedures and/or policies for cost control.

6. Success in minimizing the number of contract change orders on design and construction projects managed by the firm. This may include company statistics for projects occurring over the previous five years to help establish project measurables on schedule, budget and cost overruns.

7. Long-term client/firm relationships. Preferably, this information shall be in the form of a matrix reflecting years (3 to 10 years) of repeat work for various clients, preferably those clients also listed as a reference. For example:

Client	2009	2010	2011	2012	2013
Clackamas County	Mt. View Reservoir	Mt. View Reservoir	Mt. View Reservoir		
City of La Grande		Main Street Wastewater Mainline Replacement	Main Street Wastewater Mainline Replacement		
ODOT				MP 278 Biofiltration Improvements	MP 278 Biofiltration Improvements
U.S. Park Service			Fort Stevens WWTP Improvements		
City of Silverton		18" Waterline Replacement Project	18" Waterline Replacement Project		

F) SUBCONSULTANT RELATIONSHIPS

1. Subconsultant Experience

   If subconsultants were used as an integral part on past projects, provide a narrative of subconsultants' history with consultant. Include the history of any successes with similar projects identified in this RFQ. List no more than three (3) projects per subconsultant meeting this criteria which have been completed in the past five years.

2. Proposed Subconsultants

   Irrespective of identifying a consultant team under 3.1, General Requirements, all proposers shall, as an example of who a firm proposes to use for future projects, provide a list of 2 to 3 subconsultants proposed to be used by the consultant in the following specialties:

   - Electrical engineering
   - Landscape architecture
   - Surveying
   - Structural engineering
   - Geotechnical engineering

   For this category, this is an example of who your firm might utilize for future services; however, the consultant shall not be limited to utilizing the services of the subconsultants identified in their proposal.

G) COST SCHEDULE

Provide a schedule of costs for services that include the following:

- Company name and address
- Date that the cost schedule is valid - example: January 1, 2015 - December 31, 2015
- Position titles
- Direct hourly rates for each position (use mid-point if range exists)
- Multiplier (e.g., overhead rate)
- Billing rate for each position
- Non-Salary Costs (e.g., travel or mileage, printing, cell phone use, etc.)

Different multipliers may be used for different positions. If a consultant does not use multipliers to calculate billing rates, the multiplier may be omitted. However, consultants not using multiplier rates shall provide the actual rates and billing rates for each position using a midpoint or range.

The Cost Schedule submitted with proposal shall remain in effect throughout the first year of the agreement. For the second, third and fourth year of the agreement (if extended), the billing rate for each position listed on the Cost Schedule shall be adjusted on the following January 1 of each year. The adjustment shall be based on the increase or decrease of the United States Bureau of Labor Statistics' Consumer Price Index for all Urban Wage Earners and Clerical Workers (CPI-W), US City Average (http://www.bls.gov/CPI/), or its successor report issued by the Federal Government covering the change for the year ending in September as follows:

- The second term January 1, 2016, to December 31, 2016, adjusted for the CPI-W US City Average Percent Change year ending September 2015.
- The third term (if contract extended) January 1, 2017, to December 31, 2017, adjusted for the CPI-W US City Average Percent Change year ending September 2016.
- The fourth term (if contract extended) January 1, 2018, to December 31, 2018, adjusted for the CPI-W US City Average Percent Change year ending September 2017.
- The fifth term (if contract extended) January 1, 2019, to December 31, 2019, adjusted for the CPI-W US City Average Percent Change year ending September 2018.

The City may, at its sole discretion, accept or reject any proposed change in cost schedule beyond the scope of adjustments described in this section.

H) SUPPORTING INFORMATION

Examples of supporting materials that should be included with the proposal include:

- graphs, charts, photos, résumés, plans, reports, or similar documentation
- a narrative explaining potential Oregon City challenges
- experience with local agency projects
- experience with each discipline (stormwater, wastewater, water distribution)

- project examples and materials that illustrate innovative solutions
- any litigation to which the firm is a party
- any bankruptcy settlements or unpaid judgments against the firm or its principals
- any previous contracts that the firm defaulted on and/or was terminated and reasons for the default(s) and/or terminations(s)

I) SPECIALTY SERVICES QUALIFICATIONS [OPTIONAL]

Qualifications for Water Distribution Modeling specialty services to be included with the proposal include:

- List of computer software applications with which the firm is experienced and proficient.
- A list of client references with which the firm has provided modeling services.

SECTION 4
EVALUATION AND SELECTION OF CONSULTANTS, AND ADMINISTRATION OF PERSONAL SERVICE AGREEMENTS

4.1 EVALUATION CRITERIA

Based on the evaluations, between three and five firms will be selected as on-call consultants. Scoring will be as follows:

PROPOSAL CONTENT AND EVALUATION CRITERIA		MAXIMUM SCORE
1.	Introductory letter	Pass/Fail
2.	Insurance coverage	Pass/Fail
3.	Firm qualifications	25
4.	Key personnel qualifications	20
5.	Quality of client service / subconsultant relationships	25
6.	Long-term client/firm relationships	20
7.	Cost schedule	Pass/Fail
8.	Supporting information	10
9.	Specialty services qualifications [optional]	0
Total Possible Points		100

NOTE: Each proposal will initially be reviewed based upon the criteria of correct number of pages, insurance coverage, and computer equipment compatibility. Firms may be excluded from further consideration or no points awarded in the applicable section if the number of pages in each section are not correct or if the firm's insurance coverage is unsatisfactory.

4.2 CITY MAY REQUEST MORE INFORMATION

It is the intent of the City to make selections from the proposals submitted. However, more information may be requested to fully and accurately evaluate proposals if two or more proposals seem to be equally qualified. The City reserves the right to obtain clarification of any point in a firm's proposal or to obtain additional information necessary to properly evaluate a particular proposal. Failure of a Proposer to respond to such a

request for additional information or clarification could result in rejection of the firm's proposal.

4.3 INTERVIEWS

Interviews of selected proposers may be held at the City's option for informational purposes only and will not be scored.

The City reserves the right to investigate the references and past performance of any proposer with respect to its successful performance of similar services, compliance with specifications and contractual obligations, and its lawful payment of suppliers, subcontractors, and workers. The City may postpone the award or execution of the Contract to complete the investigation of references.

4.4 AWARD RECOMMENDATION

The City's Notice of Intent to Award shall be posted on the City's bid site at http://bids.orcity.org/. Official award is anticipated to occur at the City Commission meeting of January 21, 2015.

The decision by the City Commission to award contracts to on-call consultants shall constitute the final decision of the City.

4.5 CONSULTANT SELECTION FOR SPECIFIC WORK

To maximize distribution of City work among all consultants, a list will be maintained by the City for each project. Project contracts will be awarded on an as-needed basis, and the City makes no representations as to the actual amount of work, if any, to be obtained from any particular firm. While the City intends to rotate through the short-list of firms as projects come up, the City may ask for proposals and fee estimates for individual projects. The City reserves the right to not rotate the firms, depending on proven expertise, previous involvement in a similar project, or if it is in the best interest of the City to do so. If a firm is offered a project and declines it, they will lose their turn in the rotation list and the City will offer the project to the next consultant on the list.

As the need may arise with regard to a particular project, the City reserves the right to award work covered under this solicitation using a different procurement method, if use of such alternative solicitation process for the particular project is deemed by the City to be in the best interest of the City.

4.5 COOPERATIVE PURCHASING ARRANGEMENT

Proposers shall understand that a cooperative purchasing arrangement is available as follows:

- Any publicly funded city, county, district, agency or similar entity shall have the authority to acquire services from the short-listed proposers under the terms and conditions of this proposal.

- The proposer(s) agrees to extend identical pricing to local public agencies for the same terms.
- Each contracting agency will execute a separate contract with the successful proposer(s) for its requirements.
- Any proposer, by written notification at the time of the proposal due date and time, may decline to extend the prices and terms of their proposal to any, and/or all other public agencies.
- Additional costs may be incurred by the successful proposer(s) in contracting with another public agency. All demonstrable costs (shipping, etc.) may be passed on to that public agency.
- Proposer(s) shall provide information regarding total usage of proposal upon request of the City of Oregon City.

4.6 RESERVATION OF CITY RIGHTS

The City reserves all rights regarding this RFQ, including without limitation, the right:

A) To waive any minor irregularity, informality, or non-conformity with the provisions or procedures of this RFQ, and to seek clarification from the proposer if required.

B) To reject any proposal that fails to substantially comply with all prescribed solicitation procedures and requirements.

C) To base awards with due regard to quality of services, experience, compliance with specifications, and other such factors as may be necessary in the circumstances.

D) To make the award to any vendor whose proposal, in the opinion of the Commission, is in the best interest of the City.

To investigate the references and past performance of any proposer with respect to its successful performance of similar services, compliance with specifications and contractual obligations, and its lawful payment of suppliers, subcontractors, and workers, the City may postpone the award or execution of the contract after the announcement of the apparent successful proposer in order to complete its investigation.

SECTION 5
ATTACHMENTS

Exhibit 1 Standard Personal Services Agreement
Exhibit 2 Standard Conditions to Oregon City Personal Services Agreement

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OREGON CITY PUBLIC WORKS
PERSONAL SERVICES AGREEMENT

(Insert Name of Project & Contract Number)

This PERSONAL SERVICES AGREEMENT ("Agreement") is entered into between:

CITY OF OREGON CITY ("City")

City of Oregon City
PO Box 3040
625 Center Street
Oregon City, OR 97045
Attention: _____

and

_____ ("Consultant")

_____
_____
_____
_____

RECITALS

A. City requires services that Consultant is capable of providing under the terms and conditions hereinafter described.

B. Consultant is able and prepared to provide such services as City requires under the terms and conditions hereinafter described.

The parties agree as follows:

AGREEMENT

1. Term. The term of this Agreement shall be from the date the contract is fully executed until _____, unless sooner terminated pursuant to provisions set forth below. However, such expiration shall not extinguish or prejudice City's right to enforce this Agreement with respect to (i) breach of any warranty; or (ii) any default or defect in Consultant's performance that has not been cured.

2. Compensation. City agrees to pay Consultant on a time-and-materials basis for the services required. Total compensation, including reimbursement for expenses incurred, shall not exceed $_____.

3. Scope of Services. Consultant's services under this Agreement shall consist of services as detailed in Exhibit A, attached hereto and by this reference incorporated herein.

4. Standard Conditions. This Agreement shall include all of the standard conditions as detailed in Exhibit B, attached hereto and by this reference incorporated herein.

5. Schedule. The components of the project described in the Scope of Services shall be completed according Term, above.

6. Integration. This Agreement, along with the description of services to be performed attached as Exhibit A and the Standard Conditions to Oregon City Personal Services Agreement attached as Exhibit B, contain the entire agreement between and among the parties, integrate all the terms and conditions mentioned herein or incidental hereto, and supersede all prior written or oral discussions or agreements between the

parties or their predecessors-in-interest with respect to all or any part of the subject matter hereof.

7. Notices. Any notices, bills, invoices, reports or other documents required by this Agreement shall be sent by the parties by United States mail, by hand delivery or by electronic means. All notices shall be in writing and shall be effective when delivered. If mailed, notices shall be deemed effective forty-eight (48) hours after mailing, unless sooner received.

Consultant shall be responsible for providing the City with a current address. Either party may change the address set forth in this Agreement by providing notice to the other party in the manner set forth above.

8. Governing Law. This Agreement shall be governed and construed in accordance with the laws of the state of Oregon without resort to any jurisdiction's conflicts of law, rules or doctrines.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly appointed officers on this _____ day of _____, 20__.

CITY OF OREGON CITY

By: _____
(Insert Name)
Title: (Insert Title)

DATED: _____, 20__.

By: _____
David W. Frasher
Title: City Manager

DATED: _____, 20__.

APPROVED AS TO LEGAL SUFFICIENCY:

By: _____
City Attorney

(FILL IN CONSULTANT NAME)

By: _____

Title: _____

DATED: _____, 20__.

ORIGINAL CITY COMMISSION APPROVAL (IF APPLICABLE):

DATE: _____

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11/1/2012 3:09 PM

STANDARD CONDITIONS TO OREGON CITY PERSONAL SERVICES AGREEMENT

1. Consultant Identification. Consultant shall furnish to City its taxpayer identification number, as designated by the Internal Revenue Service, or Consultant's social security number, as City deems applicable.

2. Payment.

(a) Invoices submitted in connection with this Agreement shall be properly documented and shall identify the pertinent agreement and/or purchase order numbers.

(b) City agrees to pay Consultant within thirty (30) days after receipt of Consultant's itemized statement. Amounts disputed by City may be withheld pending settlement.

(c) City certifies that sufficient funds are available and authorized for expenditure to finance the cost of the services to be provided pursuant to this Agreement.

(d) City shall not pay any amount in excess of the compensation amounts set forth above, nor shall City pay Consultant any fees or costs that City reasonably disputes.

3. Independent Contractor Status.

(a) Consultant is an independent contractor and is free from direction and control over the means and manner of providing labor or services, subject only to the specifications of the desired results.

(b) Consultant represents that it is customarily engaged in an independently established business and is licensed under ORS chapter 671 or 701, if the services provided require such a license. Consultant maintains a business location that is separate from the offices of the City and bears the risk of loss related to the business as demonstrated by the fixed price nature of the contract, requirement to fix defective work, warranties provided and indemnification and insurance provisions of this Agreement. Consultant provides services for two or more persons within a 12 month period or routinely engages in advertising, solicitation or other marketing efforts. Consultant makes a significant investment in the business by purchasing tools or equipment, premises or licenses, certificates or specialized training and Consultant has the authority to hire or fire persons to provide or assist in providing the services required under this Agreement.

(c) Consultant is responsible for obtaining all assumed business registrations or professional occupation licenses required by state or local law (including applicable City or Metro business licenses as per Oregon City Municipal Code Chapter 5.04). Consultant shall furnish the tools or equipment necessary for the contracted labor or services. Consultant agrees and certifies that:

(d) Consultant is not eligible for any federal social security or unemployment insurance payments. Consultant is not eligible for any PERS or workers' compensation benefits from compensation or payments made to Consultant under this Agreement.

(e) Consultant agrees and certifies that it is licensed to do business in the state of Oregon and that, if Consultant is a corporation, it is in good standing within the state of Oregon.

4. Early Termination.

(a) This Agreement may be terminated without cause prior to the expiration of the agreed-upon term by mutual written consent of the parties or by the City upon ten (10) days written notice to the Consultant, delivered by certified mail or in person.

(b) Upon receipt of notice of early termination, Consultant shall immediately cease work and submit a final statement of services for all services performed and expenses incurred since the date of the last statement of services.

(c) Any early termination of this Agreement shall be without prejudice to any obligation or liabilities of either party already accrued prior to such termination.

(d) The rights and remedies of City provided in this Agreement and relating to defaults by Consultant shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement.

EXHIBIT B

STANDARD CONDITIONS TO OREGON CITY PERSONAL SERVICES AGREEMENT

5. No Third-Party Beneficiaries. City and Consultant are the only parties to this Agreement and are the only parties entitled to enforce its terms. Nothing in this Agreement gives, is intended to give, or shall be construed to give or provide, any benefit or right, whether directly or indirectly or otherwise, to third persons unless such third persons are individually identified by name herein and expressly described as intended beneficiaries of the terms of this Agreement.

6. Payment of Laborers; Payment of Taxes.

(a) Consultant shall:

(i) Make payment promptly, as due, to all persons supplying to Consultant labor and materials for the prosecution of the services to be provided pursuant to this Agreement.

(ii) Pay all contributions or amounts due to the State Accident Insurance Fund incurred in the performance of this Agreement.

(iii) Not permit any lien or claim to be filed or prosecuted against City on account of any labor or materials furnished.

(iv) Be responsible for all federal, state, and local taxes applicable to any compensation or payments paid to Consultant under this Agreement and, unless Consultant is subject to back-up withholding, City will not withhold from such compensation or payments any amount(s) to cover Consultant's federal or state tax obligation.

(v) Pay all employees at least time and one-half for all overtime worked in excess of forty (40) hours in any one week, except for individuals excluded under ORS 653.100 to 653.261 or under 29 U.S.C. §§ 201 to 209 from receiving overtime.

(b) If Consultant fails, neglects or refuses to make prompt payment of any claim for labor or services furnished by any person in connection with this Agreement as such claim becomes due, City may pay such claim to the person furnishing the labor or services and shall charge the amount of the payment against funds due or to become due Consultant by reason of this Agreement.

(c) The payment of a claim in this manner shall not relieve Consultant or Consultant's surety from obligation with respect to any unpaid claims.

(d) Consultant and subconsultants, if any, are subject employers under the Oregon workers' compensation law and shall comply with ORS 656.017, which requires provision of workers' compensation coverage for all workers.

7. Subconsultants and Assignment. Consultant shall neither subcontract any of the work, nor assign any rights acquired hereunder, without obtaining prior written approval from City. City, by this Agreement, incurs no liability to third persons for payment of any compensation provided herein to Consultant.

8. Access to Records. City shall have access to all books, documents, papers and records of Consultant that are pertinent to this Agreement for the purpose of making audits, examinations, excerpts and transcripts.

9. Ownership of Work Product; License. All work products of Consultant that result from this Agreement (the "Work Products") are the exclusive property of City. In addition, if any of the Work Products contain intellectual property of Consultant that is or could be protected by federal copyright, patent, or trademark laws, or state trade secret laws, Consultant hereby grants City a perpetual, royalty-free, fully paid, nonexclusive and irrevocable license to copy, reproduce, deliver, publish, perform, dispose of, use and re-use, in whole or in part (and to authorize others to do so), all such Work Products and any other information, designs, plans, or works provided or delivered to City or produced by Consultant under this Agreement. The parties expressly agree that all works produced (including, but not limited to, any taped or recorded items) pursuant to this Agreement are works specially commissioned by City, and that any and all such works shall be works made for hire in which all rights and copyrights belong exclusively to City. Consultant shall not publish, republish, display or otherwise use any work or Work Products resulting from this Agreement without the prior written agreement of City.

10. Compliance With Applicable Law. Consultant shall comply with all federal, state, and

EXHIBIT B

local laws and ordinances applicable to the services to be performed pursuant to this Agreement, including, without limitation, the provisions of ORS 279B.220, 279C.515, 279B.235, 279B.230 and 279B.270. Without limiting the generality of the foregoing, Consultant expressly agrees to comply with (i) Title VI of the Civil Rights Act of 1964; (ii) Section V of the Rehabilitation Act of 1973; (iii) the Americans With Disabilities Act of 1990 (Pub. L No. 101-336), ORS 659.425, and all regulations and administrative rules established pursuant to those laws; and (iv) all other applicable requirements of federal and state civil rights and rehabilitation and other applicable statutes, rules and regulations.

11. Professional Standards. Consultant shall be responsible, to the level of competency presently maintained by others practicing in the same type of services in City's community, for the professional and technical soundness, accuracy and adequacy of all services and materials furnished under this authorization.

12. Modification, Supplements or Amendments. No modification, change, supplement or amendment of the provisions of this Agreement shall be valid unless it is in writing and signed by the parties hereto.

13. Indemnity and Insurance.

(a) Indemnity. Consultant acknowledges responsibility for liability arising out of Consultant's negligent performance of this Agreement and shall hold City, its officers, agents, Consultants, and employees harmless from, and indemnify them for, any and all liability, settlements, loss, costs, and expenses, including attorney fees, in connection with any action, suit, or claim caused or alleged to be caused by the negligent acts, omissions, activities or services by Consultant, or the agents, Consultants or employees of Consultant provided pursuant to this Agreement.

(b) Workers' Compensation Coverage. Consultant certifies that Consultant has qualified for workers' compensation as required by the state of Oregon. Consultant shall provide the Owner, within ten (10) days after execution of this Agreement, a certificate of insurance evidencing coverage of all subject workers under Oregon's workers' compensation statutes. The insurance certificate and policy shall indicate that the policy shall not be terminated by the insurance carrier without thirty (30) days' advance written notice to City. All agents or Consultants of Consultant shall maintain such insurance.

(c) Comprehensive, General, and Automobile Insurance. Consultant shall maintain comprehensive general and automobile liability insurance for protection of Consultant and City and for their directors, officers, agents, and employees, insuring against liability for damages because of personal injury, bodily injury, death, and broad-form property damage, including loss of use, and occurring as a result of, or in any way related to, Consultant's operation, each in an amount not less than $1,000,000 combined, single-limit, per-occurrence/annual aggregate. Such insurance shall name City as an additional insured, with the stipulation that this insurance, as to the interest of City, shall not be invalidated by any act or neglect or breach of this Agreement by Consultant.

(d) Errors and Omissions Insurance. Consultant shall provide City with evidence of professional errors and omissions liability insurance for the protection of Consultant and its employees, insuring against bodily injury and property damage arising out of Consultant's negligent acts, omissions, activities or services in an amount not less that $500,000 combined, single limit. Consultant shall maintain in force such coverage for not less than three (3) years following completion of the project. Such insurance shall include contractual liability.

Within ten (10) days after the execution of this Agreement, Consultant shall furnish City a certificate evidencing the dates, amounts, and types of insurance that have been procured pursuant to this Agreement. Consultant will provide for not less than thirty (30) days' written notice to City before the policies may be revised, canceled, or allowed to expire. Consultant shall not alter the terms of any policy without prior written authorization from City. The provisions of this subsection apply fully to Consultant and its Consultants and agents.

14. Legal Expenses. In the event legal action is brought by City or Consultant against the other to

EXHIBIT B

enforce any of the obligations hereunder or arising out of any dispute concerning the terms and conditions hereby created, the losing party shall pay the prevailing party such reasonable amounts for attorney fees, costs, and expenses as may be set by a court. "Legal action" shall include matters subject to arbitration and appeals.

15. Severability. The parties agree that, if any term or provision of this Agreement is declared by a court to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected.

16. Number and Gender. In this Agreement, the masculine, feminine or neuter gender, and the singular or plural number, shall be deemed to include the others or other whenever the context so requires.

17. Captions and Headings. The captions and headings of this Agreement are for convenience only and shall not be construed or referred to in resolving questions of interpretation or construction.

18. Hierarchy. The conditions contained in this document are applicable to every Personal Services Agreement entered into by the City of Oregon City in the absence of contrary provisions. Should contrary provisions be included in a Personal Services Agreement, those contrary provisions shall control over these conditions.

19. Calculation of Time. All periods of time referred to herein shall include Saturdays, Sundays and legal holidays in the state of Oregon, except that, if the last day of any period falls on any Saturday, Sunday or legal holiday, the period shall be extended to include the next day that is not a Saturday, Sunday or legal holiday.

20. Notices. Any notices, bills, invoices, reports or other documents required by this Agreement shall be sent by the parties by United States mail, postage prepaid, or personally delivered to the addresses listed in the Agreement attached hereto. All notices shall be in writing and shall be effective when delivered. If mailed, notices shall be deemed effective forty-eight (48) hours after mailing, unless sooner received.

21. Nonwaiver. The failure of City to insist upon or enforce strict performance by Consultant of any of the terms of this Agreement or to exercise any rights hereunder shall not be construed as a waiver or relinquishment to any extent of its rights to assert or rely upon such terms or rights of any future occasion.

22. Information and Reports. Consultant shall, at such time and in such form as City may require, furnish such periodic reports concerning the status of the project, such statements, certificates, approvals, and copies of proposed and executed plans and claims, and other information relative to the project as may be requested by City. Consultant shall furnish City, upon request, with copies of all documents and other materials prepared or developed in relation with or as a part of the project. Working papers prepared in conjunction with the project are the property of City, but shall remain with Consultant. Copies as requested shall be provided free of cost to City.

23. City's Responsibilities. City shall furnish Consultant with all available necessary information, data, and materials pertinent to the execution of this Agreement. City shall cooperate with Consultant in carrying out the work herein and shall provide adequate staff for liaison with Consultant.

24. Arbitration. All disputes arising out of or under this Agreement shall be timely submitted to nonbinding mediation prior to commencement of any other legal proceedings. The subsequent measures apply if disputes cannot be settled in this manner.

(a) Any dispute arising out of or under this Agreement shall be determined by binding arbitration.

(b) The party desiring such arbitration shall give written notice to that effect to the other party and shall in such notice appoint a disinterested person of recognized competence in the field as arbitrator on its behalf. Within fifteen (15) days thereafter, the other party may, by written notice to the original party, appoint a second disinterested person of recognized competence as arbitrator on its behalf. The arbitrators thus appointed shall appoint a third disinterested

EXHIBIT B

person of recognized competence, and the three arbitrators shall, as promptly as possible, determine such matter, provided, however, that:

(i) If the second arbitrator is not appointed as described above, then the first arbitrator shall proceed to determine such matter; and

(ii) If the two arbitrators appointed by the parties are unable to agree, within fifteen (15) days after the second arbitrator is appointed, on the appointment of a third arbitrator, they shall give written notice of such failure to agree to the parties and, if the parties fail to agree on the selection of the third arbitrator within fifteen (15) days after the arbitrators appointed by the parties give notice, then, within ten (10) days thereafter, either of the parties, on written notice to the other party, may request such appointment by the presiding judge of the Clackamas County Circuit Court.

(c) Each party shall each be entitled to present evidence and argument to the arbitrators. The determination of the majority of the arbitrators or the sole arbitrator, as the case may be, shall be conclusive on the parties, and judgment on the same may be entered in any court having jurisdiction over the parties. The arbitrators or the sole arbitrator, as the case may be, shall give written notice to the parties, stating the arbitration determination, and shall furnish to each party a signed copy of such determination. Arbitration proceedings shall be conducted pursuant to ORS 33.210 et seq. and the rules of the American Arbitration Association, except as provided otherwise.

(d) Each party shall pay the fees and expenses of the arbitrator appointed by such party and one-half of the fees and expenses of the third arbitrator, if any.

25. Governing Law. This Agreement shall be governed and construed in accordance with the laws of the state of Oregon without resort to any jurisdiction's conflicts of law, rules or doctrines.

EXHIBIT B

OREGON CITY

625 Center Street | PO Box 3040 | Oregon City OR 97045
Ph: (503) 657-0891 | TOLL FREE (888) 873-1676 | Fax (503) 657-3339

2014 APPLICATION FOR BUSINESS LICENSE

No._____

RENEWAL ☐ NEW ☐ OWNERSHIP CHANGE ☐ ADDRESS CHANGE ☐ NAME CHANGE ☐

Business Name	Name
Site Address	Driver's License # and State
Mailing Address	Home Address
City, State, Zip	City, State, Zip
Phone	Phone
Business E-Mail	E-Mail
Federal ID No. (EIN) __ __ - __ __ __ __ __ __ __	Metro Contractor's License
4 Digit SIC Code (if known) __ __ __ __	State License # (if applicable)

Detailed Description of Business:

Business Based in Home	No ☐	Yes ☐	☞☞☞	If Yes, Home Occupation Form Required (if in City Limits)
Is this a Rental Property?	No ☐	Yes ☐		Hours of Operation?
Hazardous Materials	No ☐	Yes ☐	☞☞☞	List
Coin-Op Machines	No ☐	Yes ☐	☞☞☞	Type # of Machines

Is your business located within the City limits of Oregon City? No ☐ Yes ☐	Total number of persons doing business in Oregon City?

Please indicate type of ownership ☞ ☞ ☞ ☞ ☞ ☞ ☞ ☞ ☞	Individual ☐	Partnership ☐	Corporation ☐	Non-Profit ☐	LLC ☐

I CERTIFY THE ABOVE INFORMATION IS CORRECT ☞ ☞	Applicant's Signature:

In case of emergency regarding your business, please furnish after hours contact information.

Name (primary) Emergency Phone	Name (secondary) Emergency Phone

Credit Card Information (if paying with credit card)	Account Number	Exp. Date	3 Digit CSC (back of card)
		____/____	
	Visa ☐ M/C ☐	Using payment schedule, list amount paid	FEE $

PAYMENTS MUST ACCOMPANY APPLICATION. MAKE CHECKS PAYABLE TO: City of Oregon City
A business license does not authorize the holder to conduct business in violation of any zoning ordinance or other state, federal, or local law.

OFFICE USE ONLY

Amount Paid	Receipt #	☐ Cash ☐ Check	☐ Visa ☐ MasterCard	Approval No.	Date Paid

WHO NEEDS A BUSINESS LICENSE?

Oregon City Municipal Code Title 5, Chapter 5.04 requires all businesses conducting business inside the city limits of Oregon City to obtain an Oregon City business license.

HOW DO I GET A BUSINESS LICENSE?

Submit a completed application with the applicable fee:

- In person to the City Finance Department at 625 Center Street;
- By mail to Business Licensing, PO Box 3040, Oregon City, OR 97045; or
- Online at **www.orcity.org**.

Businesses operating in the City must comply with all building, zoning, signage, fire and police requirements. Completion of the application does not imply business license approval. The business may not begin until the business license and all necessary permits, signs and inspections are approved by the City. Home-based businesses located in the City are required to fill out the Home Occupation Worksheet annually.

BUSINESS LICENSE RATES

The cost of the business license is dependent on the location of your business and the number of employees. When figuring the number of employees, include all persons involved in your business including owners, officers, employees and others operating within the City of Oregon City. **New businesses that begin** after June 30th of the current year may pay ½ of the annual fee listed below. Please verify your business location as it refers to Oregon City's jurisdictional boundary.

NO. OF EMPLOYEES	INSIDE CITY LIMITS	OUTSIDE CITY LIMITS
1 – 25 persons	$ 80.00	$ 120.00
26 – 50 persons	$ 160.00	$240.00
51 – 100 persons	$ 240.00	$ 360.00
101 or more	$ 320.00	$ 450.00

QUESTIONS?

Contact business licensing at 503-657-0891 or visit us at 625 Center Street.

BROWN AND CALDWELL HOURLY BILLING RATES FOR OREGON CITY

		Range of 2015 Rates Without APC			Rate Information Based on Midpoint of Range			
Grade	**2015 Job Title**	**Low**	**Mid**	**High**	**2015 Direct Hourly Rate[1]**	**2015 Billing Rate[2]**	**Non-Salary Costs (APC)[3]**	**2015 Billing Rate With APC**
A	Office/Support Services I	$ 41	$ 51	$ 61	$ 16	$ 51	$ 8	$ 59
B	Office/Support Services II / Project Aide	$ 47	$ 59	$ 71	$ 19	$ 59	$ 8	$ 67
C	Office/Support Services III / Sr. Project Aide	$ 54	$ 68	$ 81	$ 21	$ 68	$ 8	$ 76
D	Project Coordinator I / Office/Support Services IV / Accountant I	$ 63	$ 79	$ 95	$ 25	$ 79	$ 8	$ 87
E	Engineer I / Project Coordinator II / Marketing Coordinator II	$ 75	$ 94	$ 112	$ 29	$ 94	$ 8	$ 102
F	Engineer II / Designer / Lead Illustrator / Supervisor, Word Processing / Area Bus Ops Mgr I	$ 87	$ 108	$ 130	$ 34	$ 108	$ 8	$ 116
G	Engineer III / Geologist/Hydrogeologist III / Senior Designer / Administrative Manager	$ 101	$ 126	$ 151	$ 39	$ 126	$ 8	$ 134
H	Senior Engineer / Senior Scientist / Principal Designer / Communications Manager	$ 118	$ 148	$ 177	$ 46	$ 148	$ 8	$ 156
I	Principal Engineer / Principal Scientist	$ 139	$ 174	$ 208	$ 54	$ 174	$ 8	$ 182
J	Supervising Engineer / Supervising Construction Engin / Supv Geol/Hydrogeologist	$ 163	$ 204	$ 245	$ 64	$ 204	$ 8	$ 212
K	Managing Engineer	$ 181	$ 227	$ 272	$ 71	$ 227	$ 8	$ 235
L	Executive Engineer / Chief Scientist[4]	$ 200	$ 250	$ 300	$ 80	$ 250	$ 8	$ 258
M	Vice President[4]	$ 200	$ 250	$ 300	$ 92	$ 250	$ 8	$ 258

[1]Rates valid January 1, 2015 through December 31, 2015

[2]Standard overhead multiplier of 3.2

[3]Brown and Caldwell utilizes an Associated Project Cost (APC) in its billings based on the number of direct labor hours billed on each invoice in lieu of detailed charges for CADD and computer support, telephone and cell phone charges and postage.

[4]Billing rates capped at $250

[5]Mileage costs are based on the IRS standard mileage rate, currently $0.575 per mile

Brown and Caldwell
6500 SW Macadam Avenue, Suite 200
Portland, OR 97239
503-244-7005

Personnel:

Labor will be invoiced by staff classification at the following hourly rates, which are valid from January 1, 2015 to December 31, 2015. After this period, the rates are subject to adjustment. Our firm does not use multiplier rates. We have provided a range of direct salaries for each classification.

Classification	Direct Hourly Salary (Range)	Billing Rate
Principal Engineer VI	$83.99 - $83.99	$220.00
Principal Engineer V	75.00 - 77.74	212.00
Principal Engineer IV	67.31 - 67.31	205.00
Principal Engineer III	64.90 - 69.71	197.00
Principal Engineer II	58.17 - 62.50	189.00
Principal Engineer I	56.15 - 57.93	180.00
Professional Engineer IX	54.09 - 54.57	174.00
Professional Engineer VIII	46.00 - 54.33	165.00
Professional Engineer VII	45.43 - 50.00	156.00
Professional Engineer VI	39.66 - 44.23	148.00
Professional Engineer V	33.65 - 41.11	140.00
Professional Engineer IV	34.13 - 36.06	134.00
Engineering Designer IV	no current staff	134.00
Professional Engineer III	31.49 - 34.04	125.00
Engineering Designer III	28.85 - 32.40	125.00
Engineering Designer II	26.92 - 30.29	115.00
Engineering Designer I	25.77 - 26.68	105.00
Technician IV	33.80 - 52.84	125.00
Technician III	30.63 - 30.63	112.00
Technician II	24.04 - 24.04	98.00
Technician I	22.60 - 22.60	82.00
Administrative III	31.25 - 49.52	88.00
Administrative II	17.79 - 24.04	82.00
Administrative I	12.26 - 22.31	72.00

The hourly rate for each position listed above shall be adjusted on the following January 1 of each year. The adjustment shall be based on the increase or decrease of the United States Bureau of Labor Statistics' Consumer Price Index for all Urban Wage Earner and Clerical Workers (CPI-W), US City average (http://www.bls.gov/CPI/), or its successor report issued by the Federal Government covering the change for the year ending in September as follows:

- The second term January 1, 2016, to December 31, 2016, adjuste4d for the CPI-W US City Average Percent Change year ending September 2015.
- The third term (if contract extended) January 1, 2017, to December 31, 2017, adjusted for the CPI-W City Average Percent Change year ending September 2016.
- The Fourth term (if contract extended) January 1, 2018, to December 31, 2018, adjusted for the CPI-W City Average Percent Change year ending September 2017.
- The fifth term (if contract extended) January 1, 2019, to December 31, 2019, adjusted for the CPI-W City Average Percent Change year ending September 2018.

The City may, at its sole discretion, accept or reject any proposed change in cost schedule beyond the scope of adjustments described in this section.

Project Expenses:

Expenses incurred in-house that are directly attributable to the project will be invoiced at actual cost. These expenses include the following:

CADD Hardware/Software	$18.00/hour
Modeling and GIS Hardware/Software	$10.00/hour
Mileage	Current IRS Rate
Postage and Delivery Services	At Cost
Printing and Reproduction	At Cost
Travel, Lodging and Subsistence	At Cost

Outside Services:

Outside technical, professional and other services will be invoiced at actual cost plus 10 percent to cover administration and overhead.

EXHIBIT C
RH2 ENGINEERING, INC.
SCHEDULE OF RATES AND CHARGES

2015 HOURLY RATES

CLASSIFICATION		RATE	CLASSIFICATION		RATE
Professional	IX	$214.00	Technician	IV	$138.00
Professional	VIII	$214.00	Technician	III	$130.00
Professional	VII	$206.00	Technician	II	$97.00
			Technician	I	$92.00
Professional	VI	$190.00			
Professional	V	$181.00	Administrative	V	$129.00
Professional	IV	$171.00	Administrative	IV	$108.00
			Administrative	III	$93.00
Professional	III	$161.00	Administrative	II	$77.00
Professional	II	$150.00	Administrative	I	$65.00
Professional	I	$138.00			

IN-HOUSE SERVICES

In-house copies (each)	8.5" X 11"	$0.09	CAD Plots	Large	$25.00
In-house copies (each)	8.5" X 14"	$0.14	CAD Plots	Full Size	$10.00
In-house copies (each)	11" X 17"	$0.20	CAD Plots	Half Size	$2.50
In-house copies (color) (each)	8.5" X 11"	$0.90	CAD System	Per Hour	$27.50
In-house copies (color) (each)	8.5" X 14"	$1.20	GIS System	Per Hour	$27.50
In-house copies (color) (each)	11 X 17"	$2.00	Technology Charge		2.5% of Direct Labor
			Mileage		Current IRS Rate

OUTSIDE SERVICES

Outside direct costs for permit fees, reports, maps, data, reprographics, couriers, postage, and non-mileage related travel expenses that are necessary for the execution of the project and are not specifically identified elsewhere in the contract will be invoiced at cost.

All Subconsultant services are billed at cost plus 15%.

CHANGES IN RATES

Rates listed here are adjusted annually. The current schedule of rates and charges is used for billing purposes. Payment for work accomplished shall be based on the hourly rates and expenses in effect at the time of billing as stated in this Exhibit.

Exhibit B

2015 Custom Schedule of Charges

PERSONNEL COMPENSATION

	Average Rate
Program Manager	$215
Senior Project Manager	$195
Wetland Scientist, Permit Specialist	$168
Civil Engineer IV	$145
Civil Engineer III	$120
Sr CAD Designer	$124
Sr Technician	$120
Project Administrator	$90

In addition to the above hourly rates, a $3.51 per hour computer usage charge will be added to personnel compensation for normal and incidental copies, communications and postage.

Direct expenses

Reimbursement for direct expenses, as listed below, incurred in connection with the work, will be at cost plus ten percent for items such as:

a. Maps, photographs, 3rd party reproductions, 3rd party printing, equipment rental, and special supplies related to the work.
b. Consultants, soils engineers, surveyors, contractors, and other outside services.
c. Rented vehicles, local public transportation and taxis, travel and subsistence.
d. Project specific telecommunications and delivery charges.
e. Special fees, insurance, permits, and licenses applicable to the work.
f. Outside computer processing, computation, and proprietary programs purchased for the work.

Reimbursement for vehicles used in connection with the work will be at the federally approved mileage rates or at a negotiated monthly rate.

Rates for professional staff for legal proceedings or as expert witnesses will be at rates one and one-half times the Hourly Rates specified above.

Excise and gross receipts taxes, if any, will be added as a direct expense.

The foregoing Schedule of Charges is incorporated into the agreement for the services provided, effective thru December 31, 2015.

wallis engineering

2015 RATE SCHEDULE

Staff	Rate
Quality Control Manager	$185.00/hour
Engineer 1	$145.00/hour
Engineer 2	$135.00/hour
Engineer 3	$118.00/hour
Engineer 4	$96.00/hour
Engineer 5	$90.00/hour
Engineer 6	$80.00/hour
Inspector	$90.00/hour
Senior Designer	$115.00/hour
Technician 1	$90.00/hour
Technical Writer	$80.00/hour
Clerical 1	$66.00/hour

- These hourly rates include in-house office expenses, photocopying, and other incidental items. Mileage will be reimbursed at the current standard IRS rate. Outside expenses will be billed at cost plus 10%.

215 W 4th Street, Suite 200 Vancouver, WA 98660 Office (360) 695-7041 Fax (360) 694-1043 www.walliseng.net

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-042

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8c.

From: Public Works Director John Lewis

File Type: Contract

SUBJECT:
Contract Modification #3, 2014 Pavement Improvements Project

RECOMMENDED ACTION (Motion):
Authorize the City Manager to execute Contract Modification #3 for the 2014 Pavement Improvements Project in the amount of $62,524.26 (increase).

BACKGROUND:
On June 18, 2014 the City Commission awarded the contract for construction of the 2014 Pavement Improvements Project to S-2 Contractors, Inc. in the amount of $1,430,085. The contractor had approximately 4.5 months to complete a variety of tasks that generally included the following improvements at various locations throughout Oregon City:

1) Storm sewer and water line installations
2) Curb ramps, roadway reconstruction, and pavement restoration
3) Temporary traffic control and erosion control
4) Striping, signing and signalization improvements

Two prior contract modifications have been approved by staff for this project in the amount of $46,735.09 authorizing negotiated differences for concrete curbing, additional water and stormwater facilities, and additional signage, landscaping and paving. This final contract modification is necessary to reconcile the actual contract unit quantities installed with the contract specific estimated quantities. The final unit quantity reconciliation is mostly attributed to additional work associated with unanticipated and problematic subsurface conditions at several locations along Jackson Street, Washington Street, and 9th Street. Overall the unit quantity overruns included in Contract Modification #3 have result in a $62,524.26 payment obligation for the City. The overall project increase including Contract Modifications 1, 2 and 3 for the 2014 Pavement Improvements Project is $109,259.35 representing a 7.6% contract increase.

In total 58 calendar days were added to the contract schedule to ensure the Contractor had sufficient time to complete the work.

BUDGET IMPACT:
Amount: $62,524.26
FY(s): 2014/15

Funding Source: Pavement Maintenance Utility Fee

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-042

Agenda Date: 1/21/2015

Status: Consent Agenda

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BUDGET IMPACT:
Amount: $62,524.26
FY(s): 2014/15

Funding Source: Pavement Maintenance Utility Fee

CONTRACT MODIFICATION

Contract Modification No.: 3 **Date:** December 19, 2014

Job No.: 14-1533.0901

Contract Project: 2014 Pavement Improvements (CI 14-001)

Owner: City of Oregon City

To: S2 Contractors, Inc.
(Contractor)
6860 S Anderson Rd., Aurora, OR 97002
(Address)

You are instructed to comply with the following changes to the contract. With acceptance and approval, this contract modification becomes a supplement to the contract and all its provisions.

Item	Decrease in Contract Price	Increase in Contract Price
ITEM 1 – Resolve Estimated to Final Quantity of Bid Items - Change in contract price accounts for quantity overruns and underruns of all bid items in the contract. Overrun bid item quantities to note include Jackson Street subgrade stabilization items and rock excavation within the storm trench on Washington Street and 9th Street. Underrun bid item quantities to note include deduction of quantity for damaged/cracked separate street curb (36 LF) and grade curb (18 LF). See Attachment A for final quantities for more information.		**$65,767.65**
ITEM 2 – Resolve Estimated to Final Quantity of Contract Modification #1- Change in price accounts for underrun of items (V-lock sign anchors and pipe sign supports) associated with Contract Modification #1 and deduction of quantity for damaged/cracked separate street curb (36 LF).	**-$3,243.39**	

Reason for Contract Modification: As described above, this contract modification addresses resolution of estimated to final quantities.

Contract Time

Original Substantial Completion Date:	September 15, 2014	
Original Final Completion Date:	October 15, 2014	
Previous Time Adjustments:	58	Days
Adjustment for this Contract Modification:	0	Days
Substantial Completion Date: (No Change)	September 29, 2014	
Final Completion Date:	December 12, 2014	

Contract Amount

Original Contract Amount:	$1,430,085.00
Previous Adjustments (Increase/~~Decrease~~):	$46,735.09
Adjustment for this Contract Modification (Increase/~~Decrease~~):	$62,524.26
Modified Contract Amount:	$1,539,344.35

Recommended	Gabriel Crop, P.E.	Murray, Smith & Associates, Inc. (Engineer)	12/23/14 Date
Accepted	Bill Shum	S2 Contractors, Inc. (Contractor)	12-22-14 Date
Approved	John Lewis, P.E.	City of Oregon City (Owner's Representative)	12-23-14 Date
Approved	David Frasher	City of Oregon City, City Manager (Owner's Representative)	Date

CITY OF OREGON CITY
2014 PAVEMENT IMPROVEMENTS PROJECT NO. CI 14-001
FINAL QUANTITY ADJUSTMENT
Contractor: S-2 Contractors, Inc.
Final Completion Date: December 12, 2014

Item No.	Item Description	Units	Unit Price	Original Estimated Quantity	Original Estimated Value of Work	Final % Complete or Units Installed	Final Value of Work	Adjustment
1	MOBILIZATION	LS	$76,400.00	1.00	$76,400.00	100%	$76,400.00	$0.00
2	TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE FOR HOLCOMB BLVD	LS	$10,000.00	1.00	$10,000.00	100%	$10,000.00	$0.00
3	TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE FOR WASHINGTON STREET	LS	$40,000.00	1.00	$40,000.00	100%	$40,000.00	$0.00
4	TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE FOR 9TH STREET	LS	$5,000.00	1.00	$5,000.00	100%	$5,000.00	$0.00
5	TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE FOR JACKSON STREET	LS	$10,000.00	1.00	$10,000.00	100%	$10,000.00	$0.00
6	TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE FOR EAST STREET	LS	$6,000.00	1.00	$6,000.00	100%	$6,000.00	$0.00
7	TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE FOR CHARMAN STREET	LS	$10,000.00	1.00	$10,000.00	100%	$10,000.00	$0.00
8	EROSION CONTROL	LS	$5,000.00	1.00	$5,000.00	100%	$5,000.00	$0.00
9	POLLUTION CONTROL PLAN	LS	$1,000.00	1.00	$1,000.00	100%	$1,000.00	$0.00
10	CONSTRUCTION SURVEY WORK	LS	$20,000.00	1.00	$20,000.00	100%	$20,000.00	$0.00
11	REMOVAL OF SURFACINGS	SY	$5.00	2,050.00	$10,250.00	2,286.20	$11,431.00	$1,181.00
12	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	$50,000.00	1.00	$50,000.00	100%	$50,000.00	$0.00
13	CLEARING AND GRUBBING	LS	$10,000.00	1.00	$10,000.00	100%	$10,000.00	$0.00
14	GENERAL EXCAVATION	CY	$30.00	1,220.00	$36,600.00	879.30	$26,379.00	-$10,221.00
15	12 INCH SUBGRADE STABILIZATION	SY	$60.00	250.00	$15,000.00	940.00	$56,400.00	$41,400.00
16	SUBGRADE GEOTEXTILE	SY	$1.00	2,610.00	$2,610.00	1,982.10	$1,982.10	-$627.90
17	ROCK EXCAVATION	CY	$250.00	30.00	$7,500.00	67.00	$16,750.00	$9,250.00
18	10 INCH STORM SEWER PIPE, 5 FT DEPTH	LF	$80.00	100.00	$8,000.00	102.00	$8,160.00	$160.00
19	12 INCH STORM SEWER PIPE, 5 FT DEPTH	LF	$90.00	541.00	$48,690.00	305.00	$27,450.00	-$21,240.00
20	12 INCH STORM SEWER PIPE, 10 FT DEPTH	LF	$130.00	20.00	$2,600.00	240.00	$31,200.00	$28,600.00
21	VIDEO INSPECTION	LF	$5.00	661.00	$3,305.00	513.00	$2,565.00	-$740.00
22	LATERAL LAUNCH VIDEO INSPECTION	EA	$250.00	10.00	$2,500.00	7.00	$1,750.00	-$750.00
23	CONCRETE INLETS, TYPE G-1	EA	$2,200.00	4.00	$8,800.00	4.00	$8,800.00	$0.00
24	CONCRETE STORM SEWER MANHOLES	EA	$3,200.00	3.00	$9,600.00	3.00	$9,600.00	$0.00
25	ADD OR REPLACE MANHOLE PAVING RINGS	EA	$200.00	16.00	$3,200.00	37.00	$7,400.00	$4,200.00
26	MINOR ADJUSTMENT OF MANHOLES	EA	$150.00	29.00	$4,350.00	7.00	$1,050.00	-$3,300.00
27	ADJUST WATER OR GAS VALVE BOXES	EA	$100.00	90.00	$9,000.00	48.00	$4,800.00	-$4,200.00
28	ADJUST CLEANOUT BOXES	EA	$100.00	2.00	$200.00	1.00	$100.00	-$100.00
29	REPLACE WATER OR GAS VALVE BOX	EA	$200.00	2.00	$400.00	9.00	$1,800.00	$1,400.00
30	FILLING ABANDONED STRUCTURES	CY	$400.00	10.00	$4,000.00	3.00	$1,200.00	-$2,800.00
31	STORM SERVICE LINE RECONNECTIONS	EA	$400.00	10.00	$4,000.00	0.00	$0.00	-$4,000.00
32	TRENCH RESURFACING	SY	$60.00	480.00	$28,800.00	293.00	$17,580.00	-$11,220.00
33	COLD PLANE PAVEMENT REMOVAL, 0 - 2 INCHES DEEP	SY	$15.00	470.00	$7,050.00	544.00	$8,160.00	$1,110.00
34	COLD PLANE PAVEMENT REMOVAL, 2 INCHES DEEP	SY	$2.50	18,660.00	$46,650.00	24,516.30	$61,290.75	$14,640.75
35	COLD PLANE PAVEMENT REMOVAL, 4 INCHES DEEP	SY	$4.00	4,720.00	$18,880.00	4,970.00	$19,880.00	$1,000.00
36	AGGREGATE SHOULDERS	TON	$50.00	20.00	$1,000.00	56.22	$2,811.00	$1,811.00
37	3/4 INCH - 0 AGGREGATE BASE	TON	$30.00	2,230.00	$66,900.00	1,129.06	$33,871.80	-$33,028.20
38	LEVEL 2, 1/2 INCH DENSE HMAC, PG 64-22	TON	$74.00	4,040.00	$298,960.00	4,549.01	$336,626.74	$37,666.74
39	LEVEL 3, 1/2 INCH DENSE HMAC, PG 70-22	TON	$75.00	1,140.00	$85,500.00	712.76	$53,457.00	-$32,043.00
40	LEVEL 3, 1/2 INCH DENSE HMAC, PG 70-22 WITH FIBERS	TON	$86.00	1,840.00	$158,240.00	2,030.82	$174,650.52	$16,410.52
41	EXTRA FOR ASPHALT BERMS	LF	$8.00	500.00	$4,000.00	520.00	$4,160.00	$160.00
42	CONCRETE CURBS, STANDARD CURB	LF	$30.00	1,700.00	$51,000.00	2,112.10	$63,363.00	$12,363.00
43	CONCRETE DRIVEWAYS, REINFORCED	SF	$20.00	1,200.00	$24,000.00	1,313.50	$26,270.00	$2,270.00
44	CONCRETE WALKS	SF	$20.00	6,500.00	$130,000.00	7,784.00	$155,680.00	$25,680.00
45	MONO-DIRECTIONAL WHITE TYPE 1AR MARKERS	EA	$6.00	40.00	$240.00	51.00	$306.00	$66.00
46	BI-DIRECTIONAL YELLOW TYPE 1AR MARKERS	EA	$6.00	180.00	$1,080.00	36.00	$216.00	-$864.00
47	LONGITUDINAL PAVEMENT MARKINGS - PAINT	LF	$0.30	21,600.00	$6,480.00	21,420.00	$6,426.00	-$54.00
48	THERMOPLASTIC, EXTRUDED, SURFACE, NON-PROFILED	LF	$1.10	9,800.00	$10,780.00	7,377.04	$8,114.74	-$2,665.26
49	PAVEMENT LEGEND, TYPE B: ARROWS	EA	$270.00	16.00	$4,320.00	16.00	$4,320.00	$0.00
50	PAVEMENT LEGEND, TYPEB-HS: BICYCLE LANE STENCIL	EA	$290.00	9.00	$2,610.00	13.00	$3,770.00	$1,160.00
51	PAVEMENT BAR, TYPE B	SF	$8.00	2,770.00	$22,160.00	2,046.50	$16,372.00	-$5,788.00
52	CROSSWALK CLOSURE BARRICADES	EA	$800.00	2.00	$1,600.00	2.00	$1,600.00	$0.00
53	REMOVE EXISTING SIGNS	LS	$300.00	1.00	$300.00	100%	$300.00	$0.00
54	REMOVE AND REINSTALL EXISTING SIGNS	LS	$800.00	1.00	$800.00	100%	$800.00	$0.00
55	PIPE BREAKAWAY SIGN SUPPORTS	LS	$2,000.00	1.00	$2,000.00	100%	$2,000.00	$0.00
56	TYPE "W1" SIGNS IN PLACE	SF	$30.00	18.00	$540.00	16.00	$480.00	-$60.00
57	TYPE "W2" SIGNS IN PLACE	SF	$40.00	8.00	$320.00	8.00	$320.00	$0.00
58	TYPE "Y1" SIGNS IN PLACE	SF	$30.00	9.00	$270.00	9.00	$270.00	$0.00
59	TRAFFIC SIGNAL LOOP DETECTOR REPLACEMENTS AT HOLCOMB & REDLAND	LS	$7,000.00	1.00	$7,000.00	100%	$7,000.00	$0.00
60	TRAFFIC SIGNAL LOOP DETECTOR REPLACEMENTS AT WASHINGTON & 7TH	LS	$6,500.00	1.00	$6,500.00	100%	$6,500.00	$0.00
61	6 INCH POTABLE WATER PIPE, FITTINGS AND COUPLINGS WITH RESTRAINED JOINTS AND C	LF	$100.00	35.00	$3,500.00	42.00	$4,200.00	$700.00
62	8 INCH POTABLE WATER PIPE, FITTINGS AND COUPLINGS WITH RESTRAINED JOINTS AND C	LF	$120.00	25.00	$3,000.00	27.00	$3,240.00	$240.00
63	6 INCH CONNECTION TO 6 INCH EXISTING MAIN	EA	$1,000.00	1.00	$1,000.00	1.00	$1,000.00	$0.00
64	3/4 INCH PRESSURE RELIEF VALVE	EA	$300.00	2.00	$600.00	2.00	$600.00	$0.00
65	6 INCH TAPPING SLEEVE AND 6 INCH VALVE ASSEMBLY	EA	$2,000.00	2.00	$4,000.00	1.00	$2,000.00	-$2,000.00
66	HYDRANT ASSEMBLIES	EA	$3,000.00	1.00	$3,000.00	1.00	$3,000.00	$0.00
67	1 INCH WATER SERVICE CONNECTIONS	EA	$1,000.00	2.00	$2,000.00	2.00	$2,000.00	$0.00
68	2 INCH WATER SERVICE CONNECTIONS	EA	$1,000.00	1.00	$1,000.00	1.00	$1,000.00	$0.00
	Totals				$1,430,085.00	105%	$1,495,852.65	$65,767.65
					Original Estimated Value of Work		Final Value of Work	Adjustment (Increase)

CONTRACT MODIFICATION

Contract Modification No.: 2 **Date**: November 18, 2014

Job No.: 14-1533.0901

Contract Project: 2014 Pavement Improvements

Owner: City of Oregon City

To: S2 Contractors, Inc.
(Contractor)
6860 S Anderson Rd., Aurora, OR 97002
(Address)

You are instructed to comply with the following changes to the contract. With acceptance and approval, this contract modification becomes a supplement to the contract and all its provisions.

Item	Decrease in Contract Price	Increase in Contract Price
ITEM 1 – Replace Damaged PRV Controller Cabinet at 11th and Washington – Grinding operations damaged the existing pole mounted PRV cabinet at the NE quadrant of 11th and Washington. Contractor agreed to have City forces replace the cabinet and reimburse the City for all related expenses. See Attachment A for Invoice No. 3867. Estimated Quantity 1 LS Invoice Unit Price $1,546.00 Subtotal This Item $1,546.00	**- $1,546.00**	
ITEM 2 – Construct Channel in New Manhole at 9th and John Adams – As a follow-up to Item 3 in the previous Contract Modification No. 1 for the new manhole at 9th and John Adams, channelize flow through the manhole per the Standard Drawing. See Attachment B for more information. Estimated Quantity 1 LS Agreed Unit Price $732.16 Subtotal This Item $732.16		**$732.16**
ITEM 3 – Additional Landscaping at 6th and Washington – Per City direction, provide additional furnishing zone improvements in the SW quadrant of 6th and Washington (524 Washington). Item includes removing existing surfacing as directed and installing landscape fabric, black plastic edging and 2-6" river rock. Cut and cap drip irrigation lines within work area in the furnishing zone as necessary. See Attachment B for more information. Estimated Quantity 1 LS Agreed Unit Price $1,202.35 Subtotal This Item $1,202.35		**$1,202.35**

ITEM 4 – Paving Around Charman Inlet – Per City direction, improve flow to existing inlet by paving around inlet. Item includes removing 2" of existing surfacing and installing 2" thick AC pavement around existing catch basin located on Charman Street at STA 4+70, RT. Sand seal all joints. Raised pavement markers installed at this location will be paid for at the Contract Unit Price in the Bid Schedule. See Attachment B for more information. Estimated Quantity 1 LS Agreed Unit Price $2,339.48 Subtotal This Item $2,339.48			**$2,339.48**

Reason for Contract Modification: As described above, this contract modification addresses the replacement of the damaged PRV cabinet by City forces, installing a channel in the new manhole, additional landscaping and paving around an existing inlet.

This contract modification also extends the final completion date to December 12th to complete the extra work and items on the punch list.

Contract Time

Original Substantial Completion Date:	September 15, 2014	
Original Final Completion Date:	October 15, 2014	
Previous Time Adjustments:	14	Days
Adjustment for this Contract Modification:	44	Days
Substantial Completion Date: (No Change)	September 29, 2014	
Final Completion Date:	December 12, 2014	

Contract Amount

Original Contract Amount:	$1,430,085.00
Previous Adjustments (Increase/~~Decrease~~):	$44,007.10
Adjustment for this Contract Modification (Increase/~~Decrease~~):	$2,727.99
Modified Contract Amount:	$1,476,820.09

Recommended		Murray, Smith & Associates, Inc.	12/4/14
	Gabriel Crop, P.E.	(Engineer)	Date
Accepted		S2 Contractors, Inc.	12-4-14
	Bill Shum	(Contractor)	Date
Approved		City of Oregon City	12-5-14
	John Lewis, P.E.	(Owner's Representative)	Date
Approved	N/A	City of Oregon City, City Manager	N/A
	David Frasher	(Owner's Representative)	Date

FRAHLER ELECTRIC COMPANY
11860 SW GREENBURG RD
TIGARD, OR 97223
PHONE (503) 639 - 4627 | FAX (503) 639 - 4673
CCB# 197172

Invoice No.	3867
Page	1

ATTACHMENT A: ITEM 1

BILL TO

OREGON CITY PUBLIC WORKS
122 SOUTH CENTER STREET
OREGON CITY OR 97045

COPY

JOB NO

72576
OR CITY PW/CONTROLLER CABINET
PRV SITE
11th AND WASHINGTON
OREGON CITY, OR

Invoice Date	Invoice No.	Customer No.	Payment Terms	Contract No.
10/30/14	3867	OREGCI	NET 30 DAYS	

Quantity	Description	Unit Price	Extended Price
	LABOR AND MATERIAL TO REPLACE CABINET FOR CONTROLLER AT 11th AND WASHINGTON PRV SITE		1,546.00
	PO #63205		

Payment due within 30 days of invoice date. Interest will be charged at a rate of 1 1/2 percent (minimum $1.00 charge) per month, from date of invoice on past due amounts. If Invoice must be turned over for collection, the customer will pay reasonable collection costs and attorney fees in addition to amounts owing.

Gross	Retainage	Tax	Net Amount
1,546.00	.00	.00	1,546.00

ATTACHMENT B: ITEM 2

MARK UP FOR 9th st MH Beaver Slide

		cost	mark up		price per
1	labor	$ 186.20	22%	$	227.17
2	equipment	$ 130.64	17%	$	152.84
3	subs	$ 326.06	8%	$	352.14
			TOAL:	$	732.16

FORCE ACCOUNT WORK RECORD

JOB

L	$	186	
E	$	131	70%
[	$	326	
N	$	-	

PROJECT:
CONTRACTOR: S-2 CONTRACTORS, INC.

DATE: 11/04/14

DESCRIPTION OF WORK: Beaver Slide 9th ST Manhole

DESCRIPTION			HOURS	Reg Rate	OT Rate	Plus burden 26%	TOTAL
SUPER	MIKE	Reg	1.50	$50.26		$ 63.33	$94.99
		OT			$ 68.54	$ 86.36	$0.00
FOREMAN / OPER		Reg		$49.26		$ 62.07	$0.00
		OT			$ 67.04	$ 84.47	$0.00
OPERATOR	MARTY	Reg	1.50	$48.26		$ 60.81	$91.21
		OT			$ 65.54	$ 82.58	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
Oper Apprentice 80%		Reg				$ -	$0.00
		OT				$ -	$0.00
Oper Apprentice 85%		Reg				$ -	$0.00
		OT				$ -	$0.00
Oper Apprentice 90%		Reg				$ -	$0.00
		OT				$ -	$0.00

All Equipment used is charged at minimum 1/2 day rate.
If using Daily rate: Equip used over 3 hrs charged for 1 day. OT charged as % of day

CONTRACTORS OWNED EQUIPMENT

DESCRIPTION	Quan	RATE		TOTAL
KOBELCO SK 115SRDZ				$0.00
jd backhoe with breaker				$0.00
PICKUP	4.50	$ 29.03	hr	$130.64

OUTSIDE RENTALS, MATERIAL, SUBS

	Quan	Rate	Units	
concrete sub	1.00	$326.06	ea	$326.06
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00

Sub-Total	$642.90					
			Labor	Equip	SUB	Mat/Other
Total	$642.90	$	186.20	$130.64	$326.06	$0.00

ATTACHMENT B: ITEM 3

MARK UP FOR WASHINGTON ST RIVER ROCK

		cost	mark up		price per
1	labor	$ 578.31	22%	$	705.54
2	equipment	$ 367.18	17%	$	429.60
3	materials	$ 57.44	17%	$	67.20
			TOAL:	$	1,202.35

FORCE ACCOUNT WORK RECORD

JOB 1440

L	$ 578	
E	$ 367	63%
C	$ -	
M	$ 57	

PROJECT:
CONTRACTOR: S-2 CONTRACTORS, INC.

DATE: 10/02/14

DESCRIPTION OF WORK: WASHINGTON ST RIVER ROCK

DESCRIPTION			HOURS	Reg Rate	OT Rate	Plus burden 26%	TOTAL
SUPER	MIKE	Reg	2.50	$50.26		$ 63.33	$158.32
		OT			$ 68.54	$ 86.36	$0.00
FOREMAN / OPER	MARTY	Reg	0.50	$49.26		$ 62.07	$31.03
		OT			$ 67.04	$ 84.47	$0.00
OPERATOR	CODY	Reg	3.50	$48.26		$ 60.81	$212.83
		OT			$ 65.54	$ 82.58	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR	LAWRENCE	Reg	3.50	$39.94		$ 50.32	$176.14
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
Oper Apprentice 80%		Reg				$ -	$0.00
		OT				$ -	$0.00
Oper Apprentice 85%		Reg				$ -	$0.00
		OT				$ -	$0.00
Oper Apprentice 90%		Reg				$ -	$0.00
		OT				$ -	$0.00

All Equipment used is charged at minimum 1/2 day rate.
If using Daily rate: Equip used over 3 hrs charged for 1 day. OT charged as % of day

CONTRACTORS OWNED EQUIPMENT

DESCRIPTION	Quan	RATE		TOTAL
5 TON DUMP TRAILER	2.00	$ 27.85	HR	$55.70
jd backhoe with breaker	3.00	$ 65.12	hr	$195.36
PICKUP	4.00	$ 29.03	hr	$116.12

OUTSIDE RENTALS, MATERIAL, SUBS

		Quan	Rate	Units	
					$0.00
					$0.00
					$0.00
					$0.00
DUMP FEES		1.00	$4.00	CY	$4.00
2-6" RIVER ROCK		0.50	$33.00	CY	$16.50
LANDSCAPE FABRIC		1.00	$25.00	LS	$25.00
PLASTIC EDGING		1.00	$11.94	LS	$11.94
					$0.00

Sub-Total $1,002.93

		Labor	Equip	SUB	Mat/Other
Total	$1,002.93	$ 578.31	$367.18	$0.00	$57.44

ATTACHMENT B: ITEM 4

MARK UP FOR CHARMAN FORCE ACCOUNT

		cost	mark up		price per
1	labor	$ 755.50	22%	$	921.71
2	equipment	$ 606.48	17%	$	709.58
3	subs	$ 200.00	8%	$	216.00
4	materials	$ 420.68	17%	$	492.20
			TOAL:	$	2,339.48

FORCE ACCOUNT WORK RECORD

JOB 1440

L	$ 755	
E	$ 606	80%
E	$ 200	
M	$ 421	

PROJECT:
DATE: 09/29/14
CONTRACTOR: S-2 CONTRACTORS, INC.

DESCRIPTION OF WORK: CHARMAN ST FORCE ACCOUNT WORK

DESCRIPTION			HOURS	Reg Rate	OT Rate	Plus burden 26%	TOTAL
SUPER	MIKE	Reg	1.00	$50.26		$ 63.33	$63.33
		OT			$ 68.54	$ 86.36	$0.00
FOREMAN / OPER	LONNY	Reg	3.50	$49.26		$ 62.07	$217.24
		OT			$ 67.04	$ 84.47	$0.00
OPERATOR	MATT	Reg	3.00	$48.26		$ 60.81	$182.42
		OT			$ 65.54	$ 82.58	$0.00
OPERATOR	SEAN	Reg	1.50	$48.26		$ 60.81	$91.21
		OT			$ 65.54	$ 82.58	$0.00
LABOR	DEREK	Reg	1.00	$39.94		$ 50.32	$50.32
		OT			$ 53.49	$ 67.40	$0.00
LABOR	EFRAIN	Reg	3.00	$39.94		$ 50.32	$150.97
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00

All Equipment used is charged at minimum 1/2 day rate.
If using Daily rate: Equip used over 3 hrs charged for 1 day. OT charged as % of day

CONTRACTORS OWNED EQUIPMENT

DESCRIPTION		Quan	RATE	TOTAL
ROLLER		3.00	$ 27.85 hr	$83.55
TACK TRAILER		3.00	$ 22.10 hr	$66.30
BOBCAT MINI EX		3.00	$ 65.12 hr	$195.36
PICKUP	3 EA / 3 HOURS	9.00	$ 29.03 hr	$261.27

OUTSIDE RENTALS, MATERIAL, SUBS

		Quan	Rate	Units	
DUMP TRUCK		2.50	$80.00	HR	$200.00
					$0.00
					$0.00
					$0.00
DUMP FEES		10.00	$4.00	CY	$40.00
ASPHALT		6.59	$52.00	TON	$342.68
TACK		5.00	$6.00	GAL	$30.00
SAND		2.00	$4.00	BAGS	$8.00
					$0.00

Sub-Total $1,982.66

		Labor	Equip	SUB	Mat/Other
Total	$1,982.66	$ 755.50	$606.48	$200.00	$420.68

CONTRACT MODIFICATION

Contract Modification No.: 1 **Date:** September 29, 2014

Job No.: 14-1533.0901

Contract Project: 2014 Pavement Improvements

Owner: City of Oregon City

To: S2 Contractors, Inc.
(Contractor)
6860 S Anderson Rd., Aurora, OR 97002
(Address)

You are instructed to comply with the following changes to the contract. With acceptance and approval, this contract modification becomes a supplement to the contract and all its provisions.

Item	Decrease in Contract Price	Increase in Contract Price
ITEM 1 – Revised Curb Price for Separate Curb and Sidewalk – Per City direction, curbs and sidewalk are to be poured separately. Bid price for curb assumed a monolithic pour with curb and sidewalk. The contract does not pre-approve monolithically poured curb and sidewalk, however all bid prices reflect an assumed monolithic pour. Negotiated price below for separate curb reflects a compromise between the Contractor and the City. See Attachment A for more information. Estimated Quantity 1,000 LF Original Contract Price $30.00 Additional Cost $27.94 Agreed Unit Price $57.94 Subtotal This Item $27,940.00		**$27,940.00**
ITEM 2 – Water Service Relocation at 11th and Washington – Existing water meter box is in conflict with the proposed curb ramp location. Work included moving 2" water meter 8 feet south and reconnection. See Attachment B for more information. Estimated Quantity 1 LS Agreed Unit Price $2,597.93 Subtotal This Item $2,597.93		**$2,597.93**
ITEM 3 – Manhole at 9th and John Adams – The existing brick storm sewer manhole at this location was in poor condition and needed to be replaced to accommodate a new storm sewer connection. Price includes demolition of existing brick manhole, replacement of 14 feet of pipe downstream of the manhole, rock/CDF excavation, working around other live pipes and all pipe connections. The quantity of pipe trench will be reduced accordingly and no extra payment will be made for rock excavation in this area. See Attachment C for more information. Estimated Quantity 1 LS Agreed Unit Price $10,731.03 Subtotal This Item $10,731.03		**$10,731.03**

ITEM 4 – Additional V-lock Sign Anchors – Provide V-lock anchors for existing signs where curb ramps are reconstructed. Signs needed to be temporarily removed as part of the curb ramp work and no V-lock anchors were previously there. See Attachment D for more information. Estimated Quantity 7 EA Agreed Unit Price $135.00 Subtotal This Item $945.00		**$945.00**
ITEM 5 – Additional Pipe Sign Supports – Provide pipe sign supports for existing signs to be re-installed where curb ramps are reconstructed. Signs needed to be temporarily removed as part of the curb ramp work and some of the supports were damaged. See Attachment E for more information. Estimated Quantity 7 EA Agreed Unit Price $162.00 Subtotal This Item $1,134.00		**$1,134.00**
ITEM 6 – Welded Steel Grates for Catch Basins at 9th and Washington – Replace two previously provided cast steel grates with welded grates. One of the cast grates was damaged by traffic and the other cast grate will be left with the City. See Attachment F for more information. Estimated Quantity 1 LS Agreed Unit Price $659.14 Subtotal This Item $659.14		**$659.14**

Reason for Contract Modification: As described above, this contract modification addresses pouring curb and sidewalk separately, moving a 2" water service, installing a new manhole, replacing sign supports and anchors, and replacing two catch basin grates.

This contract modification also extends the substantial and final completion dates to September 29th and October 29th respectively to complete the described curb ramp and manhole work.

Contract Time			**Contract Amount**	
Original Substantial Completion Date:	September 15, 2014		Original Contract Amount:	$1,430,085.00
Original Final Completion Date:	October 15, 2014			
Previous Time Adjustments:	0	Days	Previous Adjustments (Increase/Decrease):	$0
Adjustment for this Contract Modification:	14	Days	Adjustment for this Contract Modification (Increase/~~Decrease~~):	$44,007.10
Substantial Completion Date:	September 29, 2014		Modified Contract Amount:	$1,474,092.10
Final Completion Date:	October 29, 2014			

Recommended		Murray, Smith & Associates, Inc.	10/1/14
	Gabriel Crop, P.E.	(Engineer)	Date
Accepted		S2 Contractors, Inc.	10-1-14
	Bill Shum	(Contractor)	Date
Approved		City of Oregon City	9-30-14
	John Lewis, P.E.	(Owner's Representative)	Date
Approved		City of Oregon City, City Manager	9-30-14
	David Frasher	(Owner's Representative)	Date

Mark up

	cost	mark up	price
1 Labor	$ 4,496	22%	$ 5,484.73
2 equipment	$ 726.00	17%	$ 849.42
3 subs	$18,660.00	8%	$ 20,152.80
4 testing	$ 1,250.00	17%	$ 1,462.50
		total:	$ 27,949.45

Item 1

S-2 CONTRACTORS INC

CHANGE ORDER #1

To: **City of Oregon City**

Project: Oregon City Pavement Improvement

Date: 8/7/2014

Location: Oregon City

We hereby submit a proposal for the specified project. The work shall be done in accordance with the specifications with the type of work quoted and or as noted in the proposal below. We shall provide all labor, equipment and materials required for the items quoted and or as noted below. We propose the following:

DESCRIPTION	ESTIMATED QUANTITIES	UNIT PRICE	TOTAL
Change order # 1 Revision 1			
Original Contract Price	1,000 LF	$ 30.00	**$ 30,000.00**
Additional work to Install Curb	1,000 LF	$ 27.94	**$ 27,940.00**
New Curb Price	1,000 LF	$ 57.94	**$ 57,940.00**

FORCE ACCOUNT WORK RECORD

JOB 1440

L $ 4,496
E $ 726 16%
DP $ 18,660
M $ 1,250

PROJECT: Oregon City Paving
CONTRACTOR: S-2 CONTRACTORS, INC.

DATE: 08/19/14

DESCRIPTION OF WORK: Additional Work for Curb

DESCRIPTION		HOURS	Reg Rate	OT Rate	Plus burden 26%	TOTAL	BOLI 1-14 Reg Rate	BOLI 1-14 OT Rate
FOREMAN / OPER	Reg	40.00	$49.26		$ 62.07	$2,482.70	$49.26	
	OT			$ 67.04	$ 84.47	$0.00		$ 67.04
OPERATOR	Reg		$48.26		$ 60.81	$0.00	$48.26	
	OT			$ 65.54	$ 82.58	$0.00		$ 65.54
LABOR	Reg		$39.94		$ 50.32	$0.00	$39.94	
	OT			$ 53.49	$ 67.40	$0.00		$ 53.49
LABOR	Reg		$39.94		$ 50.32	$0.00	$39.94	
	OT			$ 53.49	$ 67.40	$0.00		$ 53.49
LABOR	Reg		$39.94		$ 50.32	$0.00	$39.94	
	OT			$ 53.49	$ 67.40	$0.00		$ 53.49
LABOR	Reg		$39.94		$ 50.32	$0.00	$39.94	
	OT			$ 53.49	$ 67.40	$0.00		$ 53.49
Flagger	Reg	40.00	$39.94		$ 50.32	$2,012.98	$39.94	
	OT			$ 53.49	$ 67.40	$0.00		$ 53.49
Oper Apprentice 80%	Reg				$ -	$0.00		
	OT				$ -	$0.00		
Oper Apprentice 85%	Reg				$ -	$0.00		
	OT				$ -	$0.00		
Oper Apprentice 90%	Reg				$ -	$0.00		
	OT				$ -	$ -		

All Equipment used is charged at minimum 1/2 day rate.
If using Daily rate: Equip used over 3 hrs charged for 1 day. OT charged as % of day

CONTRACTORS OWNED EQUIPMENT

DESCRIPTION	Quan	by Day RATE	TOTAL
SEQ. ARROW BOARD		$ 22.41	$0.00
Trailmax Trailer (Eq. Trlr)		$ 26.88	$0.00
PICKUP	5.00	$ 145.13	$725.65

OUTSIDE RENTALS, MATERIAL, SUBS

		Quan	Rate	Units	
Lee Contractors Additional Cost	see attached	1,000.00	$18.66	sy	$18,660.00
extra testing		5.00	$250.00	days	$1,250.00
					$0.00

Sub-Total $25,131.33
$0.00
Total $25,131.33

	Labor	Equip	sub	Mat/Other
spa	$ 4,496	$ 726	$18,660.00	$1,250.00

LEE CONTRACTORS

LEE Contractors LLC
34203 ne 127th Ave
LaCenter, Wa 98629
P (360) 852-2317
LEECOCL884C1

REQUEST FOR CHANGE ORDER

Date: 8/6/2014
Project: Oregon City

Request For Change Order Summary

	Category Total	ODOT Markup %	Markup Total	Total
Special Services Total	$ -	8%	$ -	$ -
Labor Total	$ 2,601.16	11%	$ 286.13	$ 2,887.29
Equipment Total	$ 364.78	10%	$ 36.48	$ 401.26
Materials Total	$ 525.00	10%	$ 52.50	$ 577.50

TOTAL		$	3,866.05
Units	**100**	**$**	**38.66**
Original Unit Price	**100**	**$**	**20.00**
Price Increase	**100**	**$**	**18.66**
GRAND TOTAL		**$**	**3,866.05**

Notes:

Cost Impact
Yes No Unknown

Schedule Impact
Yes No Unknown Approximate Days: 10 Days

LEE Contractors LLC
34203 ne 127th Ave
LaCenter, Wa 98629
P (360) 852-2317
LEECOCL884C1

LEE CONTRACTORS

REQUEST FOR CHANGE ORDER

Date: 8/6/2014
Project: Oregon City

Price Summarization

Original Unit Price	1700	$ 20.00	$ 34,000.00
Aproximate Effected Units	1000	$ 38.66	$ 38,660.46
Uneffected Units	700	$ 20.00	$ 14,000.00
Revised Unit Price	1700	$ 30.98	$ 52,660.46

Description

This is based apon 100 lf (aprox LF of curb in 4 ramps) as the total curb footage would include the back of sidewalks/ramps curb although the effected curbs are only the street curb along the front The unit price was then extended to the aprox quantities of the effected and uneffected Curbs

Contractor Signature	Customer Signature Date
Print Name	Print Name Date

Project Wage rates

Classification	Base + Fringe		Liab. Ins	Taxes	W/ Comp	Loaded Wage
Carpenter	$ 47.05		$ 3.20	$ 4.45	$ 1.85	$ 56.55
Cement Mason	$ 48.05		$ 3.27	$ 4.54	$ 1.85	$ 57.71
General Laborer	$ 38.12		$ 2.61	$ 3.60	$ 1.85	$ 46.19

MARK UP FOR MOVING 2" METER

		cost	mark up		price
1 Labor	$	905.52	22%	$	1,104.74
2 equipment	$	353.18	17%	$	413.22
3 subs	$	450.00	8%	$	486.00
4 material	$	507.66	17%	$	593.96
			total:	$	2,597.93

Item 2

FORCE ACCOUNT WORK RECORD

JOB

L	$	906
E	$	353
DP	$	450
M	$	508

39%

PROJECT:

DATE: _____

CONTRACTOR: S-2 CONTRACTORS, INC.

DESCRIPTION OF WORK: MOVE 2" WATER METER BOX

DESCRIPTION			HOURS	Reg Rate	OT Rate	Plus burden 26%	TOTAL
FOREMAN / OPER	JF	Reg	2.50	$49.26		$ 62.07	$155.17
		OT	5.00		$ 67.04	$ 84.47	$422.35
OPERATOR		Reg		$48.26		$ 60.81	$0.00
		OT			$ 65.54	$ 82.58	$0.00
OPERATOR		Reg		$48.26		$ 60.81	$0.00
		OT			$ 65.54	$ 82.58	$0.00
OPERATOR		Reg		$48.26		$ 60.81	$0.00
		OT			$ 65.54	$ 82.58	$0.00
LABOR	EFRAIN	Reg	2.50	$39.94		$ 50.32	$125.81
		OT	3.00		$ 53.49	$ 67.40	$202.19
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00

EQUIPMENT

DESCRIPTION	Quan	RATE		TOTAL
PICKUP	7.00	$ 29.03	HR	$203.18
				$0.00
				$0.00
LIGHT & GENERATOR / WERBIN WEST RENTAL	1.00	$ 150.00	DAY	$150.00
				$0.00
				$0.00
				$0.00

OUTSIDE RENTALS, MATERIAL, SUBS

		Quan	Rate	Units	TOTAL
PLUMBER		1.00	$450.00	LS	$450.00
WERBIN WEST LIGHTING				DAY	$0.00
				hr	$0.00
				hr	$0.00
2" PARTS		1.00	$507.66	LS	$507.66
				bags	$0.00
				tons	$0.00
					$0.00
					$0.00

Sub-Total $2,216.37

		Labor	Equip	SUB	Mat/Other
Total	$2,216.37	spa $ 905.52	$ 353.18	$450.00	$507.66

MARK UP FOR 9th ST MANHOLE

	cost	mark up		price
1 Labor	$ 2,957.47	22%	$	3,608.11
2 equipment	$2,173.10	17%	$	2,542.53
3 subs	$1,318.20	8%	$	1,423.66
4 material	$2,698.07	17%	$	3,156.74
		total:	$	10,731.03

Item 3

FORCE ACCOUNT WORK RECORD

JOB

PROJECT:
CONTRACTOR: S-2 CONTRACTORS, INC.

DATE: 09/05/14

DESCRIPTION OF WORK: 9th Additional Manhole

DESCRIPTION			HOURS	Reg Rate	OT Rate	Plus burden 26%	TOTAL
SUPER	MIKE C	Reg	3.00	$50.26		$ 63.33	$189.98
		OT	3.50		$ 68.54	$ 86.36	$302.26
FOREMAN / OPER	LONNY S	Reg	8.00	$49.26		$ 62.07	$496.54
		OT	4.50		$ 67.04	$ 84.47	$380.12
OPERATOR	NICK W	Reg	4.50	$48.26		$ 60.81	$273.63
		OT	2.50		$ 65.54	$ 82.58	$206.45
LABOR	SEAN HADLEY	Reg	8.00	$39.94		$ 50.32	$402.60
		OT	4.00		$ 53.49	$ 67.40	$269.59
LABOR	EPHRAIN	Reg	8.00	$39.94		$ 50.32	$402.60
		OT	0.50		$ 53.49	$ 67.40	$33.70
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
Oper Apprentice 80%		Reg				$ -	$0.00
		OT				$ -	$0.00
Oper Apprentice 85%		Reg				$ -	$0.00
		OT				$ -	$0.00
Oper Apprentice 90%		Reg				$ -	$0.00
		OT				$ -	$0.00

All Equipment used is charged at minimum 1/2 day rate.
If using Daily rate: Equip used over 3 hrs charged for 1 day. OT charged as % of day

CONTRACTORS OWNED EQUIPMENT

DESCRIPTION	Quan	RATE		TOTAL
KOBELCO SK 115SRDZ	10.00	$ 75.25	hr	$752.50
jd backhoe with breaker	6.00	$ 140.00	hr	$840.00
PICKUP	20.00	$ 29.03	hr	$580.60

OUTSIDE RENTALS, MATERIAL, SUBS

		Quan	Rate	Units		
Sawcutting		1.00	$43.20	LS		$43.20
Trucking		15.00	$85.00	hr		$1,275.00
						$0.00
						$0.00
Manhole		1.00	$1,624.00	EA		$1,624.00
pipe & grout		1.00	$340.00	FT		$340.00
3/4" gravel		20.98	$9.25	ton		$194.07
dump fees		20.00	$1.50	cy		$30.00
SHORING		1.00	$510.00	LS		$510.00
					Sub-Total	$9,146.83

		Labor	Equip	SUB	Mat/Other
Total	$9,146.83	$ 2,957.47	$2,173.10	$1,318.20	$2,698.07

L	$	2,957
E	$	2,173
E	$	1,318
M	$	2,698

73%

Date: 9-5-14

DAILY CREW REPORT

S-2 Contractors, Inc.

JOB NAME: Oregon City Force Account JOB # 1440

EQUIPMENT	HRS
PU & Small Tools [2]ea	18.5
1 Ton Tool Trk [1]ea	12.5
Roller Trailer [ ] ea	
Plate Wacker	
Tack Trailer	
BOMAG ROLLER BW120AD-4	
Sakai SW350 AC Roller	
Cat Roller CB534DXW Drum	
Cat Roller CB334E	
Volvo DD22 Asph Roller	
SD150D Drum Roller	
Volvo DD90HF Dbl Drum Comp	
Tr Patch Paver & Trlr	
Lee Boy Pavr	
650 Cat Paver	
1055 Cat Paver	
Layton Box	
Kobelco 115	10
Volvo Excav 88	
Cat 303.5 mini Exc	
Backhoe	6
Cat 226b2 Skid Steer	
Huber/Motor Grader	
JD Skip Loader	
Steel Sheets	2
72" Shores	4

MATERIAL	Price	Quan	Unit	Supplier
Asphalt			Tons	
Asphalt			Tons	
Tack			Gal	
Sand			Bags	
Dump Fee				
Gravel	3/4"	21	Tons	Canby
Rock ex		6.5	cy	
12" c900		14	Feet	
48" manhole		1		

Any Equipment Mob or Demob by Others or on Other Date?

Equip	Who Hauled it?	Date or Best guess

Street Name	NOTES/WORK COMPLETED	✓ Prep	✓ Pave
	Finished 12" storm by removing old manhole encased in CDF, installed new manhole and 14 feet of new pipe. Spent 2 extra hours working around 8" clay pipe that the city discovered to be abandoned.		
	Additional Note Area on back		

DAMAGED UTILITY: _____

Address _____ Marked: Yes or No (circle)

SIGNATURE: _____

Flaggers	HRS

DUMPTRUCKS	Rate	HRS
NB Rock Solo 252	85	4.5
NB Rock Solo 249	85	10.5

LABOR/EMPLOYEES ONLY

Name	start Time	End Time	HRS
Mike C	1	7:30	6.5
Lonny S	7	7:30	12.5
Sean H	7	7	12
Nick W	11:30	6:30	7
Efrain M	8	4:30	8.5

Wage Rate (BOLI / or): _____

ADVANTAGE PRECAST INC.
SERVICE, CONCRETE PRODUCTS & ACCESSORIES
P.O. Box 21713 • Keizer, OR 97307 • (503) 390-2048 • Fax (503) 390-1645

COPY

INVOICE

Date	Invoice #
8/29/2014	29538

Bill To
S-2 Contractors, Inc 6860 S Anderson Rd Aurora OR 97002

Project
2014 Pavement Improvements Washington St & 9th St Oregon City, OR

P.O. #	Terms	Rep	Ship Date	Ship Via	Job Name
	NET 30	DWC	8/29/2014	#5 F-450	2014 Pavement Improvements

Item	Description	Qty	Rate	Amount
ROMJS	Joint Mastic 1¼" x 14.5', Roll	1	19.50	19.50
RBOOT12x	KNS Boot S106-16A, 12" PVC, 16" O.D., Loose	1	79.00	79.00
RBOOT10x	KNS Boot S106-16B, 10" PVC/DI, 16" O.D., Loose	1	69.00	69.00
FREIGHT5	Freight/Delivery	1	75.00	75.00

Our terms are Net 30 days. If these terms can not be followed, we must be contacted in advance. Alternative arrangements must be made and accepted by management. A past due balance on your account may cause additional shipments to be delayed. Thank you for your cooperation.

Total	$242.50
Payments/Credits	$0.00
Balance Due	$242.50

Web Site	www.advantageprecast.com	E-mail	accounting@advantageprecast.com

Please remit from our invoice. Your patronage is highly regarded. Call if we can be of service (503) 390-2048.
Thank you, Rick & Crew

"A Locally Owned Small Business, Where Service Comes First"

ADVANTAGE PRECAST INC
PO BOX 21713
KEIZER, OR 97307
PHONE: 503-390-2048
FAX: 503-390-1645

COPY

Invoice

Date	Invoice #
8/28/2014	29518

Bill To	Project
S-2 Contractors, Inc 6860 S Anderson Rd Aurora OR 97002	2014 Pavement Improvements Washington St & 9th St Oregon City, OR

P.O. #	Terms	Rep	Ship Date	Ship Via	Job Name
	NET 30	DWC	8/28/2014	#5 F-450	2014 Pavement Improvements

Item	Description	Qty	Rate	Amount
RBOOT12Ax	KNS Boot S106-16, 12" C900/DI, 16" O.D.	1	69.00	69.00
	Coring, per diameter inch (billed on invoice #29478)	60	0.00	0.00
FREIGHT1	Freight/Delivery	1	160.00	160.00
MH486B	48" x 6' Manhole Base w/ steps (SDMH #4)	1	420.00	420.00

Our terms are Net 30 days. If these terms can not be followed, we must be contacted in advance. Alternative arrangements must be made and accepted by management. A past due balance on your account may cause additional shipments to be delayed. Thank you for your cooperation.

Total	$649.00
Payments/Credits	$0.00
Balance Due	$649.00

Web Site	www.advantageprecast.com	E-mail	accounting@advantageprecast.com

ADVANTAGE PRECAST INC
PO BOX 21713
KEIZER, OR 97307
PHONE: 503-390-2048
FAX: 503-390-1645

COPY

Invoice

Date	Invoice #
8/26/2014	29478

Bill To

S-2 Contractors, Inc
6860 S Anderson Rd
Aurora OR 97002

Project

2014 Pavement Improvements
Washington St & 9th St
Oregon City, OR 9

P.O. #	Terms	Rep	Ship Date	Ship Via	Job Name
	NET 30	DWC	8/26/2014	#23 94 M...	2014 Pavement Improvements

Item	Description	Qty	Rate	Amount
MH48FT	48" x 25" Manhole Flattop	1	165.00	165.00
MHGR2503	25" x 3" Grade Ring	1	29.00	29.00
RCIMHSTD16H	Standard Cast Set w/ 16H Lid	1	269.00	269.00
ROMJS	Joint Mastic 1¼" x 14.5', Roll	1	19.50	19.50
MHCORE	Coring, per diameter inch	60	1.50	90.00
FREIGHT1	Freight/Delivery	1	160.00	160.00
RSTCBG1FG	G-1 Frame & Grate Set (2 Grates On Back Order)	~~4~~	~~270.00~~	~~1,080.00~~
RWPALLET	Pallet	~~2~~	~~5.00~~	~~10.00~~

Our terms are Net 30 days. If these terms can not be followed, we must be contacted in advance. Alternative arrangements must be made and accepted by management. A past due balance on your account may cause additional shipments to be delayed. Thank you for your cooperation.

Total	$1,822.50
Payments/Credits	$0.00
Balance Due	~~$1,822.50~~

Web Site	www.advantageprecast.com	E-mail	accounting@advantageprecast.com

732.50

Cascade Shoring LLC
Underground Safety Equipment

SALEM: 4605 Turner Rd. SE Salem, OR 97317
PORTLAND: 7410 B. SE Johnson Creek Blvd., Portland OR 97206
Toll Free (877) 711-4011 Fax (503) 485-0823
www.cascadeshoring.com

Company Information

S-2 Contractors, Inc.
6860 S. Anderson Rd.
Aurora OR 97002

FINAL INVOICE

Print Date:	09/24/2014
Invoice Number:	18615
Start Date:	09/05/2014
Start Time:	12:00 PM
Returned:	09/08/2014
Terms:	Net 30
Shipped Via:	Best Way

Job Information

1440 / Washington And 9TH
Washington And 9TH
Oregon City OR 97045
Mike 503-740-3930

						Price Per Unit			Totals	
Qty	Item Description		Item #	Weight	Total Wt	Day	Week	4 Week	Ext Amt	Total
2	6X10 STEEL PLATE		P610	2540	5080				60.00	60.00
	From:	09/05/14 12:00 PM								
	Off-Rent Date:	09/08/14 8:54 AM								
4	1.5' SHORE 76-112 X		15X1	42	168				208.00	208.00
	From:	09/05/14 12:00 PM								
	Off-Rent Date:	09/08/14 8:54 AM								
1	48" RELEASE TOOL		RT48	0	0				23.00	23.00
	From:	09/05/14 12:00 PM								
	Off-Rent Date:	09/08/14 8:54 AM								
1	2-LEG LIFTING SLING		SLG1	0	0				54.00	54.00
	From:	09/05/14 12:00 PM								
	Off-Rent Date:	09/08/14 8:54 AM								
	Sales Items:									
1	Hourly Pickup Charge ($110/Hr)		101			110.00			165.00	165.00
	Also picked up contract #'s 18344, 18326, & 18420.									
	---- Payments ----									

Rentals	345.00
Sales	165.00
Delivery/Other	0.00
Damage Waiver	0.00
Env. Charges	0.00
Sales Tax	0.00
Total	510.00
Amount Billed	510.00

MARK UP FOR ADDITIONAL V-LOC

	cost	mark up		price per
1 subs	$125.00	8%	$	135.00

Item 4

FORCE ACCOUNT WORK RECORD

JOB

L	$	-
E	$	- #DIV/0!
[	$	125
M	$	-

PROJECT:
CONTRACTOR: S-2 CONTRACTORS, INC.

DATE: 09/05/14

DESCRIPTION OF WORK: NEW V-LOC

DESCRIPTION		HOURS	Reg Rate	OT Rate	Plus burden 26%	TOTAL
SUPER	Reg		$50.26		$ 63.33	$0.00
	OT			$ 68.54	$ 86.36	$0.00
FOREMAN / OPER	Reg		$49.26		$ 62.07	$0.00
	OT			$ 67.04	$ 84.47	$0.00
OPERATOR	Reg		$48.26		$ 60.81	$0.00
	OT			$ 65.54	$ 82.58	$0.00
LABOR	Reg		$39.94		$ 50.32	$0.00
	OT			$ 53.49	$ 67.40	$0.00
LABOR	Reg		$39.94		$ 50.32	$0.00
	OT			$ 53.49	$ 67.40	$0.00
LABOR	Reg		$39.94		$ 50.32	$0.00
	OT			$ 53.49	$ 67.40	$0.00
LABOR	Reg		$39.94		$ 50.32	$0.00
	OT			$ 53.49	$ 67.40	$0.00
LABOR	Reg		$39.94		$ 50.32	$0.00
	OT			$ 53.49	$ 67.40	$0.00
Oper Apprentice 80%	Reg				$ -	$0.00
	OT				$ -	$0.00
Oper Apprentice 85%	Reg				$ -	$0.00
	OT				$ -	$0.00
Oper Apprentice 90%	Reg				$ -	$0.00
	OT				$ -	$0.00

All Equipment used is charged at minimum 1/2 day rate.
If using Daily rate: Equip used over 3 hrs charged for 1 day. OT charged as % of day

CONTRACTORS OWNED EQUIPMENT

DESCRIPTION	Quan	RATE	TOTAL
KOBELCO SK 115SRDZ			$0.00
jd backhoe with breaker			$0.00
PICKUP			$0.00

OUTSIDE RENTALS, MATERIAL, SUBS

	Quan	Rate	Units	TOTAL
V-LOCS	1.00	$125.00	EA	$125.00
NEW POST FOR EXISTING SIGN				$0.00
				$0.00
				$0.00
Manhole				$0.00
pipe & grout				$0.00
3/4" gravel				$0.00
dump fees				$0.00
				$0.00
			Sub-Total	$125.00

		Labor	Equip	SUB	Mat/Other
Total	$125.00	$ -	$0.00	$125.00	$0.00

MARK UP FOR NEW POSTS

	cost	mark up		price per
1 subs	$150.00	8%	$	162.00

Item 5

FORCE ACCOUNT WORK RECORD

JOB

L	$	-	
E	$	-	#DIV/0!
D	$	150	
N	$	-	

PROJECT:
CONTRACTOR: S-2 CONTRACTORS, INC.

DATE: 09/05/14

DESCRIPTION OF WORK: NEW POST

DESCRIPTION		HOURS	Reg Rate	OT Rate	Plus burden 26%	TOTAL
SUPER	Reg		$50.26		$ 63.33	$0.00
	OT			$ 68.54	$ 86.36	$0.00
FOREMAN / OPER	Reg		$49.26		$ 62.07	$0.00
	OT			$ 67.04	$ 84.47	$0.00
OPERATOR	Reg		$48.26		$ 60.81	$0.00
	OT			$ 65.54	$ 82.58	$0.00
LABOR	Reg		$39.94		$ 50.32	$0.00
	OT			$ 53.49	$ 67.40	$0.00
LABOR	Reg		$39.94		$ 50.32	$0.00
	OT			$ 53.49	$ 67.40	$0.00
LABOR	Reg		$39.94		$ 50.32	$0.00
	OT			$ 53.49	$ 67.40	$0.00
LABOR	Reg		$39.94		$ 50.32	$0.00
	OT			$ 53.49	$ 67.40	$0.00
LABOR	Reg		$39.94		$ 50.32	$0.00
	OT			$ 53.49	$ 67.40	$0.00
Oper Apprentice 80%	Reg				$ -	$0.00
	OT				$ -	$0.00
Oper Apprentice 85%	Reg				$ -	$0.00
	OT				$ -	$0.00
Oper Apprentice 90%	Reg				$ -	$0.00
	OT				$ -	$0.00

All Equipment used is charged at minimum 1/2 day rate.
If using Daily rate: Equip used over 3 hrs charged for 1 day. OT charged as % of day

CONTRACTORS OWNED EQUIPMENT

DESCRIPTION	Quan	RATE	TOTAL
KOBELCO SK 115SRDZ			$0.00
jd backhoe with breaker			$0.00
PICKUP			$0.00

OUTSIDE RENTALS, MATERIAL, SUBS

	Quan	Rate	Units		
NEW POST FOR EXISTING SIGN	1.00	$150.00	EA		$150.00
NEW POST FOR EXISTING SIGN					$0.00
					$0.00
					$0.00
Manhole					$0.00
pipe & grout					$0.00
3/4" gravel					$0.00
dump fees					$0.00
					$0.00
				Sub-Total	$150.00

		Labor	Equip	SUB	Mat/Other
Total	$150.00	$ -	$0.00	$150.00	$0.00

MARK UP FOR STEEL GRATES

		cost	mark up		price per
1 labor	$	126.66	22%	$	136.79
2 equipment	$	58.06	17%	$	62.70
3 subs	$	425.60	8%	$	459.65
			TOAL:	$	659.14

Item 6

FORCE ACCOUNT WORK RECORD

JOB

PROJECT:

DATE: 09/23/14

CONTRACTOR: S-2 CONTRACTORS, INC.

DESCRIPTION OF WORK: STEEL G-1 GRATES

DESCRIPTION			HOURS	Reg Rate	OT Rate	Plus burden 26%	TOTAL
SUPER	MIKE	Reg	2.00	$50.26		$ 63.33	$126.66
		OT			$ 68.54	$ 86.36	$0.00
FOREMAN / OPER		Reg		$49.26		$ 62.07	$0.00
		OT			$ 67.04	$ 84.47	$0.00
OPERATOR		Reg		$48.26		$ 60.81	$0.00
		OT			$ 65.54	$ 82.58	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
LABOR		Reg		$39.94		$ 50.32	$0.00
		OT			$ 53.49	$ 67.40	$0.00
Oper Apprentice 80%		Reg				$ -	$0.00
		OT				$ -	$0.00
Oper Apprentice 85%		Reg				$ -	$0.00
		OT				$ -	$0.00
Oper Apprentice 90%		Reg				$ -	$0.00
		OT				$ -	$0.00

All Equipment used is charged at minimum 1/2 day rate.
If using Daily rate: Equip used over 3 hrs charged for 1 day. OT charged as % of day

CONTRACTORS OWNED EQUIPMENT

DESCRIPTION	Quan	RATE		TOTAL
KOBELCO SK 115SRDZ				$0.00
jd backhoe with breaker				$0.00
PICKUP	2.00	$ 29.03	hr	$58.06

OUTSIDE RENTALS, MATERIAL, SUBS

		Quan	Rate	Units	
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00
STEEL WELDED GRATES FROM OLMPIC FOUNDRY		2.00	$212.80	EA	$425.60
					$0.00
					$0.00

Sub-Total $610.32

		Labor	Equip	SUB	Mat/Other
Total	$610.32	$ 126.66	$58.06	$0.00	$425.60

$	127	
$	58	46%
$	-	
$	426	

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-067

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8d.

From: Public Works Director John Lewis

File Type: Contract

SUBJECT:
Settler's Point Sewage Pump Station Improvements Project Contract Award

RECOMMENDED ACTION (Motion):
Authorize the City Manager to execute the contract agreement with R & G Excavating for the construction of the Settler's Point Pump Station Improvements Project in the amount of $197,990.

BACKGROUND:
The recently adopted 2014 Sanitary Sewer Master Plan (SSMP) identified pump station upgrades for the Settler's Point Pump Station. Based on these recommendations and the request for future residential development in this sanitary sewer drainage basin, staff hired Murray, Smith and Associates (MSA) to perform an investigation of the Settler's Point Pump Station. Based on their investigation, they provided staff with findings that recommend additional pumping capacity upgrades and other pump station improvements.

The project goals are to increase firm capacity to the station as well as upgrades to the pumps and electrical control system. The project also incorporates improvements with operational data logging and reporting to assist with station diagnosis, maintenance, and overall performance of the station.

With the design complete, the City solicited bids for this project in accordance with City and State contracting procedures. Four bids were received and were found to be responsive and responsible. The responsive bidders and their bid amounts are as follows:

R & G Excavating	$197,990.00
McClure & Sons, Inc.	$229,768.00
Stettler Supply Co.	$238,967.00
Bateson Enterprises, LLC.	$329,593.00

The Engineer's recommended estimated range for bids was from $175,000.00 to $225,000.00

MSA has provided the City of Oregon City with a letter recommending award of the contract to the low bidder, R & G Excavating, in the amount of $197,990.00.

BUDGET IMPACT:

Amount: $197,990.00
FY(s): 14/15
Funding Source: Sewer SDC, Sewer Fund

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-067

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8d.

From: Public Works Director John Lewis

File Type: Contract

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BUDGET IMPACT:

Amount: $197,990.00
FY(s): 14/15
Funding Source: Sewer SDC, Sewer Fund

SECTION IIIA
CONTRACT AGREEMENT

This Agreement, made and entered into this _____ day of _____, 2015, between the CITY OF OREGON CITY ("CITY"), acting by and through the City Commission and R & G EXCAVATING INC. ("CONTRACTOR").

Witnesseth, that the CONTRACTOR and the CITY, for the considerations stated herein, agree as follows:

ARTICLE I - Scope of Work

The CONTRACTOR hereby agrees to furnish all of the materials, equipment and labor necessary, and to perform all of the work for the project entitled **Settler's Point Sewage Pump Station Improvements Project (CI 14-006)** in accordance with the contract documents which are hereby made a part of this agreement.

The contract documents consist of:

Invitation to Bid	Performance Bond
Scope of Work	Payment Bond
Instructions to Bidders	State of Oregon Statutory Public Works Bond
Bid Proposal and Bid Schedule	Prevailing Wage Rates for Public Works Contracts in Oregon dated July 1, 2014
Compliance with ORS 279C.840	Prevailing Wage Rate Amendment dated October 1, 2014
Resident Bidder Status	Prevailing Wage Rates Apprenticeship Rates dated July 1, 2014
Certification of Drug Testing Program	Prevailing Wage Rates Apprenticeship Amendments dated October 1, 2014 and November 10, 2014
Non-Collusion Statement	Definitions of Covered Occupations for Public Works Contracts in Oregon dated July 1, 2014
Asbestos Certification	Special Provisions
Registrations	Contract Drawings
Certification of Non-Discrimination	City of Oregon City Standard Details
Certification of Compliance with Tax Law	Technical Specifications
Bidder Responsibility Form	2008 Oregon Standard Specifications for Construction (ODOT and APWA) as referenced by these documents
Bid Bond	Addenda: None
First Tier Subcontractor Disclosure Form	All items included within these Contract Documents.
Qualifications of Bidder Form	
Contract Agreement	
Oregon City Public Improvement Standard Conditions	
Statutory Conditions to Contract Agreement	

The order of items cited above does not constitute an order of precedence different than that established in the special or standard specifications. Equivalent titles, which may be substituted for the above listed items, are included as if specifically named.

ARTICLE II - Time of Completion

After the contract has been signed and the "Notice to Proceed" has been issued, the project shall be commenced within ten days. The project shall be at substantial completion **150 consecutive calendar days** after "Notice to Proceed". For every day after this time limit that the Contractor has not achieved Substantial Completion, Owner will assess Liquidated Damages in the amount specified in Section III B – Oregon City Public Improvement Standard Conditions.

Substantial Completion: Shall be defined as when the Sewage Pump Station has successfully completed operational testing.

Final Acceptance: The project shall be ready for final acceptance within **170 consecutive calendar days** after "Notice to Proceed". For Final Acceptance, all work shall be completed.

ARTICLE III – Contract Amount

The Contract Amount for the work covered by this Agreement is estimated to be **one hundred ninety-seven thousand nine hundred ninety and 00/100 dollars ($197,990.00)**.

ARTICLE IV - Warranty and Quality of Work

In addition to all other warranties, express or implied, that are part of this Agreement, the Contractor expressly warrants to the City for a period of one year from acceptance of the work by the City that all materials and equipment furnished under this contract will be new, unless otherwise specified, and that the work will be of good quality, free from faults and defects and in conformance with the City's specifications. Work that does not conform to these standards shall be considered defective.

Contractor shall, at its own expense, make good and repair any and all defects arising from faulty workmanship or materials, if the defective work is discovered within the one-year warranty period and notice thereof is given to the Contractor within 60 days after the expiration of the warranty period. If required by the City, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment used to repair the defect**.**

In witness whereof, the parties hereto have executed this agreement, the day and year first above written.

CITY OF OREGON CITY

by: _____
David W. Frasher
City Manager

by: _____
John M. Lewis, P.E.
Public Works Director

Approved as to Legal Sufficiency:

By: _____
City Attorney

City Commission Award Date:

January 21, 2015

R & G EXCAVATING INC.

_____
Printed Name

by: _____
Authorized signature

_____
Title

Federal Taxpayer ID Number:

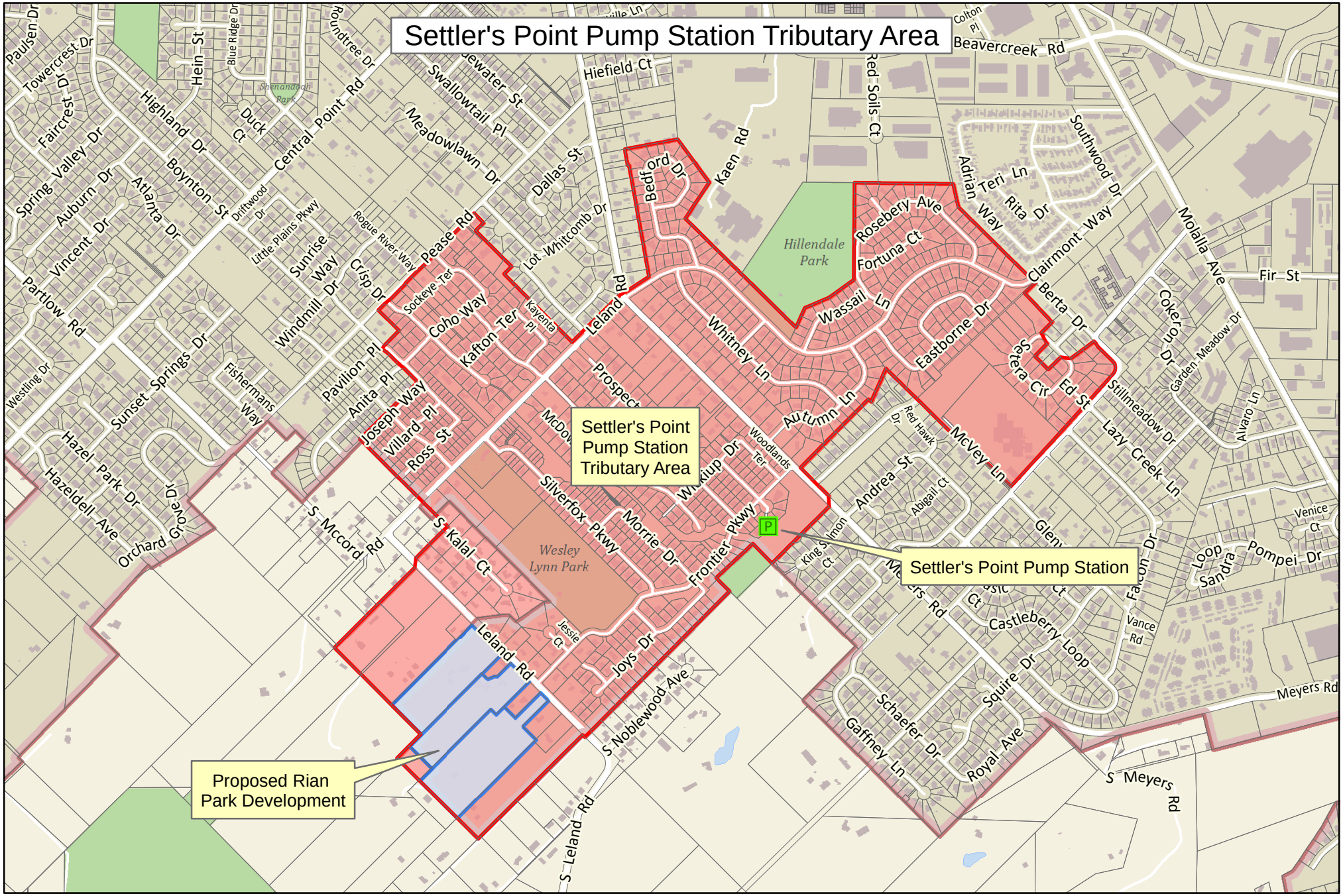
93-0954235

Address:

39300 Montgomery Drive
Scio, Oregon 97374

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Settler's Point Pump Station Tributary Area



The City of Oregon City makes no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.

N W E S

0 0.25 0.5 Miles

0 500 1,000 1,500 2,000 2,500 3,000 Feet

1 inch = 1,000 feet

City of Oregon City
P.O. Box 3040
625 Center St
Oregon City, OR 97045
503-657-0891 phone
503-657-6629 fax
www.orcity.org

Plot date: August 12, 2014
Plot name: Settlers Point Pump Station Boundaries - 8.5x11L - 20140812.pdf
Map name: Settlers Point Pump Station Boundaries - 8.5x11L.mxd

MSA
Murray, Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 ■ Portland, Oregon 97204-2919 ■ PHONE 503.225.9010 ■ FAX 503.225.9022

14-1541.302
January 13, 2015

Mr. Erik Wahrgren, P.E.
Project Manager
City of Oregon City
625 Center Street
Oregon City, Oregon 97045

Re: Settler's Point Sewage Pump Station Improvements Project (CI 14-006)
Recommendation of Award

Dear Erik:

On January 7, 2015, the City of Oregon City received four submitted bids for the above referenced project. A summarized bid tabulation of the submitted bids is attached.

We have reviewed the bids and have determined R & G Excavating to be the lowest responsible bidder in accordance with ORS 279C.375. Therefore we recommend the City award the contract to R & G Excavating in the amount of $197,990.00.

If you have any questions or comments, please do not hesitate to call.

Sincerely,

MURRAY, SMITH & ASSOCIATES, INC.

Eddie P. Kreipe, P.E.
Civil Engineer

EPK:epk

encl.

CITY OF OREGON CITY
PUBLIC WORKS

BID OPENING CHECK LIST

PROJECT NAME: Settler's Point Sewage Pump Station Improvement Project
PROJECT NUMBER: CI 14-006
DATE: 1/7/2015
TIME: 2:00 PM

	BIDDER'S NAME	Bid Total
4	Stettler Supply Co	238,967.00
1	R & G Excavating	197,990.00
3	McClure & Sons, Inc.	229,768.00
2	Bateson Enterprises, LLC	219,000.00
	Engineer's Estimate	**$175 to $225 K**

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-059

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8e.

From: Public Works Director John Lewis

File Type: Contract

SUBJECT:
Personal Services Agreement for Transportation Engineering Services Related to the Meyers Road Extension Alternatives Analysis

RECOMMENDED ACTION (Motion):
Award a contract in the amount of $150,029 to David Evans and Associates, Inc. to complete a Transportation Engineering Study on the Meyers Road Extension Alternatives Analysis

BACKGROUND:
The extension of both Meyers Road and Loder Road westerly to Highway 213 were identified in the Oregon City Transportation Master Plan adopted in 2012. Staff from the City of Oregon City, Clackamas Community College (CCC) and the Oregon City School District (OCSD) (Project Partners) have been working collaboratively to reach consensus on the selection of a qualified transportation engineering consultant to begin work on a roadway extension alternatives analysis. Work to be completed includes preparation of a concept plan analyzing and selecting a preferred alternative for the extension of either of these roadways out to Highway 213 in order to improve transportation and infrastructure in the area, but specifically to serve the Caufield neighborhood, CCC and Oregon City High School.

The preferred alternative will need support from the project partners and private property stakeholders on the location and road section alignments of new transportation facilities and infrastructure improvements to improve connectivity. This project will assist the City in determining the appropriate use of the neighboring areas and connecting streets and help the other project partners move forward with their own development plans.

In February, 2014, the City requested proposals from three transportation engineering firms in accordance with City and State contracting procedures. Proposals were received from all three firms and reviewed by staff from the City of Oregon City, CCC and OCSD. Following a formal review process, the project partners agreed to award the work to David Evans and Associates, Inc. (DEA). Following the submittal of several versions of the scope of work and cost schedule, the project partners finally agreed that the attached scope of work and fee schedule was a reasonable and responsible approach to completing the work.

The attached scope outlines the process by which the project team will move through the design and decision process. It is a roadmap that the project partners and staff will use to reach agreement on the alignment and elements of the new roadway extension.

BUDGET IMPACT:
Amount: $150,029
FY(s): 2014-15 and 2015-16
Funding Source: Transportation SDCs, Reimbursement of 1/3rd each via a cost share agreement with Clackamas Community College and the Oregon City School District

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City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

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Agenda Date: 1/21/2015

Status: Consent Agenda

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Agenda #: 8e.

From: Public Works Director John Lewis

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FY(s): 2014-15 and 2015-16
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OREGON CITY PUBLIC WORKS
PERSONAL SERVICES AGREEMENT

Meyers Road Extension Alternatives Analysis (CI 14-012)

This PERSONAL SERVICES AGREEMENT ("Agreement") is entered into between:

CITY OF OREGON CITY ("City")	City of Oregon City PO Box 3040 625 Center Street Oregon City, OR 97045 Attention: John M. Lewis
and	
DAVID EVANS AND ASSOCIATES, INC. ("Consultant")	David Evans and Associates, Inc. 2100 SW River Parkway Portland, Oregon 97201

RECITALS

A. City requires services that Consultant is capable of providing under the terms and conditions hereinafter described.

B. Consultant is able and prepared to provide such services as City requires under the terms and conditions hereinafter described.

The parties agree as follows:

AGREEMENT

1. Term. The term of this Agreement shall be from the date the contract is fully executed until **August 30, 2015**, unless sooner terminated pursuant to provisions set forth below. However, such expiration shall not extinguish or prejudice City's right to enforce this Agreement with respect to (i) breach of any warranty; or (ii) any default or defect in Consultant's performance that has not been cured.

2. Compensation. City agrees to pay Consultant on a time-and-materials basis for the services required. Total compensation, including reimbursement for expenses incurred, shall not exceed **one hundred fifty thousand twenty-nine and 16/100 dollars ($150,029.16)**.

3. Scope of Services. Consultant's services under this Agreement shall consist of services as detailed in Exhibit A, attached hereto and by this reference incorporated herein.

4. Standard Conditions. This Agreement shall include all of the standard conditions as detailed in Exhibit B, attached hereto and by this reference incorporated herein.

5. Schedule. The components of the project described in the Scope of Services shall be completed according to Term, above.

6. Integration. This Agreement, along with the description of services to be performed attached as Exhibit A and the Standard Conditions to Oregon City Personal Services Agreement attached as Exhibit B, contain the entire agreement between and among the parties, integrate all the terms and conditions mentioned herein or incidental hereto, and supersede all prior written or oral discussions or agreements between the

parties or their predecessors-in-interest with respect to all or any part of the subject matter hereof.

7. Notices. Any notices, bills, invoices, reports or other documents required by this Agreement shall be sent by the parties by United States mail, by hand delivery or by electronic means. All notices shall be in writing and shall be effective when delivered. If mailed, notices shall be deemed effective forty-eight (48) hours after mailing, unless sooner received.

Consultant shall be responsible for providing the City with a current address. Either party may change the address set forth in this Agreement by providing notice to the other party in the manner set forth above.

8. Governing Law. This Agreement shall be governed and construed in accordance with the laws of the state of Oregon without resort to any jurisdiction's conflicts of law, rules or doctrines.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly appointed officers on this _____ day of _____, 2015.

CITY OF OREGON CITY

By: _____
John M. Lewis, P.E.
Title: Public Works Director

DATED: _____, 2015.

By: _____
David W. Frasher
Title: City Manager

DATED: _____, 2015.

APPROVED AS TO LEGAL SUFFICIENCY:

By: _____
City Attorney

DAVID EVANS AND ASSOCIATES, INC.

By: _____

Title: _____

DATED: _____, 2015.

ORIGINAL CITY COMMISSION APPROVAL (IF APPLICABLE):

DATE: January 21, 2015

PDX_DOCS:309433.2 [34758-00100]
11/1/2012 3:09 PM

DAVID EVANS AND ASSOCIATES INC.

SCOPE OF SERVICES
Meyers Road Extension
(Linking Education and the Community)





Project Description

The project will analyze and select a preferred alternative for the extension of either Meyers Road/ Loder Road in accordance with the City's Transportation System Plan (TSP) to improve transportation and infrastructure in the Caufield neighborhood. The preferred alternative will need support from the public entities and private property stakeholders on the location and road section alignments of new transportation facilities and infrastructure improvements to increase connectivity. This project will assist the City of Oregon City (the City) in determining the feasibility of potentially placing a public works facility in the area and help other stakeholders, such as Clackamas Community College (CCC) and Oregon City High School, move forward with their development plans. The project assumes a six-month timeline, with the start date in early February 2015.

This scope outlines the process by which the project team will move through the design and decision process. It is a roadmap that the project partners and staff will use to reach agreement on the alignment and elements of the new roadway. Time is of the essence, and delays outside of the contractor's control may require re-scoping. Project NTE is $150,029.16 and refer to the Meyers Rd. BOC for level of effort for details.

Assumptions:

- John Lewis is the City's project manager (APM) and Mike Hickey shall be the Consultant project manager (PM)

Task 1 Project Management

The Consultant project manager (PM) shall provide direction to the Consultant project development team that is focused on gathering and disseminating information needed to move the project forward, analyzing alternatives, and providing information needed for the adoption of the preferred alternative.

Communication Protocol

The Consultant project team shall copy APM on all important email communication, and shall take direction from John with regard to contact frequency and dissemination of information to the public, CCC, OCHS, ODOT, City staff, and property owners that are directly affected.

Documents that are to be submitted to external stakeholders shall be provided to the City for review and/or approval prior to their dissemination. The Consultant shall maintain a record of project-related contacts. Agendas shall be developed for review prior to project meetings, and the Consultant shall develop meeting notes for review and/or approval in a timely manner. Six (6) monthly project check-ins between the APM and Consultant shall be held in Oregon City or by phone.

Project Groups

Communications for the Meyers Road project is designed to focus on the stakeholders (public and private): (1) who are financial participants, and (2) who may have property impacts related to the new road. Given the potential of many diverse interests, we will apply the Systematic Development of Informed Consent (SDIC) techniques, which measure levels of acceptance to proposed alternatives. Stakeholders will provide information to help guide the process. The goal is to arrive at consent for the final project preferred alternative, even if it may not be optimal for all parties.

Project Management Team (PMT)

Each funding jurisdiction will designate a project manager to serve on the Project Management Team (PMT). The PMT will be convened to meet four (4) times at City Hall. In addition, presentations before the following boards will be appropriate when process is at 80% completion:

- Clackamas Community College (CCC)
- Oregon City School District

The PMT will help develop project screening criteria, provide information, review, and shepherd the project through their agencies as needed during the baseline conditions development, alternatives analysis, and design of the project, and will represent the project to their jurisdictions in the final approval process. The PMT will be composed of staff from the project partners and will keep their elected officials informed throughout the process.

City Transportation Advisory Committee (TAC)

The Consultant shall attend the City's Transportation Advisory Committee (TAC) meetings (up to two (2) meetings) to provide updates on the Meyers Road project process.

Other Stakeholders

In addition to the PMT, the following groups will be encouraged to provide input into the alternatives decision:

Citizen Involvement Council (CIC)

The APM will update the council that represents all neighborhood associations, the CIC, on project process and will promote opportunities for input. The first presentation by City staff will be at the beginning of alternatives development, and the second presentation by City staff will be during the final alternative selection process.

Caufield Neighborhood Association

City staff will meet with the neighborhood association affected by the new road design and construction. The first meeting will be early in the process in order to identify issues and needs. The second meeting will occur when alternatives have been developed in order to gather neighborhood feedback.

Interested Public

The interested public includes those who live or work in the impacted area, those who may travel through the area, and those with other interests (regulatory agencies, environmental and alternative mode advocates, etc.). Opportunities for input will be announced through the project website, email blast list, and local media.

Deliverables:

- Seven (7) monthly invoices and progress reports
- Project contact list
- Project work plan/schedule

Task 2 Baseline Conditions (first two (2) months from NTP – Feb./Mar.)

The Consultant shall develop a memo to summarize and maps to illustrate the existing conditions of the area, based on information received from the City. The project team will convene PMT Meeting #1 to discuss issues, opportunities and constraints, the review process, and the timeline for determining the preferred alternative.

The Consultant shall develop a messaging matrix to be used in communications with agencies, the public, and the media, and for any informational materials. Through stakeholder interviews and PMT meetings, a list of criteria for alternative selection will be developed and vetted through all parties to provide a structure for alternative development and decision making.

At PMT Meeting #2, the PMT will reach concurrence on the decision making criteria and will review the process for alternatives analysis. PMT members will brief their elected officials in advance of this meeting.

Existing Conditions

Consultant shall determine existing conditions by utilizing, as necessary, information compiled from but not restricted to jurisdictional interviews, Oregon City plans and policies, mapping, available databases, and preliminary information from the land use and environmental review tasks (below). The existing conditions will be summarized, analyzed, and assessed to provide a framework that will inform alternatives analysis development by identifying design development parameters, including issues, constraints, and opportunities.

2.1 Transportation

Because the Meyers Road Extension is already included in the adopted Oregon City TSP and the focus of the project is to select the preferred alternative, the existing conditions analysis will be only a minor element of the proposed scope. The following five existing intersections (and their jurisdictions) are expected to be impacted by the Meyers Road Extension:

- Beavercreek Road/Meyers Road (Clackamas County and ODOT)
- Beavercreek Road/Glen Oak Road (Clackamas County)
- Highway 213/Molalla Avenue/CCC Entrance (ODOT)
- Highway 213/Meyers Road (ODOT)
- Highway 213/Glen Oak Road (ODOT)
- Beavercreek Road/Loder Road (to a lesser extent) (Clackamas County)

No new traffic counts are proposed. Recent counts will be assembled from existing sources such as TSP base year counts, signal data, and traffic impact analyses performed in recent years. Both AM and PM peak hour volumes will be assembled where available.

Traffic operations analysis of the intersections will be summarized. Analyses will be conducted using Synchro and SimTraffic. The LOS, v/c, and queuing will be reported.

2.2 Environmental Review

Consultant shall analyze potential natural resource-related permitting constraints within the various project alignments under review. Work will occur at a reconnaissance level suitable for highlighting potential issues for each alternative and providing a fair comparison between alternatives. Review will focus on streams, wetlands, riparian areas, and, potentially, upland habitats that may be regulated by the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Oregon Department of Fish & Wildlife, Oregon Department of Environmental Quality, Oregon Department of State Lands, and/or Oregon City. Consultant shall conduct a review of potential sensitive species and their habitats (aquatic and terrestrial), and this review will be supported by data from the Oregon Biodiversity Information Center (ORBIC) database. Research will include review of publicly available datasets and mapping, such as National and Local Wetland Inventory data and Oregon City Natural Resource Overlay District (NROD) maps. A site reconnaissance field visit will be conducted on public properties and on private properties, when permission is granted. Potential mitigation opportunities within the project vicinity will be highlighted if available. Results will be provided in a report format, including a natural resources constraints map.

2.3 Land Use Analysis

The adopted plans and policies for the project area will be reviewed by the Consultant to understand how the different roadway alignments line up with those plans and policies. In particular, the project will review the TSP, the neighborhood plans (such as the Beavercreek Road Concept Plan), the Clackamas Community College Master Plan, and other relevant documents that have outlined the proposed development of the area. This review assumes that the City will provide all relevant planning documents, studies, and background materials.

2.4 Set Cost

The Consultant shall confirm the unit costs to be used for order of magnitude costing of alternative alignments and preliminary costing of the preferred alternative conceptual design. The metro roadway cost estimating guide and the City's bid tabulation history will be used as a basis for costs.

2.5 Pre-application Conference

The Consultant shall prepare for and attend one pre-application conference with the City to discern constraints, City permitting requirements, comprehensive plan and zoning code issues, and City plan adoption requirements, in order to tailor the level of detail required of the products throughout this project.

- Assumes one Consultant planner attends. Ideally, APM attends as well.

2.6 Meetings

- 2.6.1 PMT Meeting #1:
  - Project kickoff
  - Confirm the work plan and schedule
  - Discuss potential project decision criteria
  - Communication protocols (website, outreach, etc.)
  - Confirm that PMT members will keep their elected officials informed and bring their concerns to the group
- 2.6.2 TAC meetings (quarterly):
  - Presentational updates by Consultant (two (2) meetings)
- 2.6.3 APM meetings (monthly, or as needed, check-ins with APM)
- 2.6.4 PMT Meeting #2:
  - Draft decision making criteria
  - Edits to maps/information
  - Alternatives analysis process review

2.7 Baseline Memo (draft and final)

- Consultant shall prepare a Baseline Conditions Memo summarizing the transportation, environmental, land use, and regulatory environment. The memo will include a summary of the issues identified in the pre-application conference (Task 2.5).
  - The City will provide one set of consolidated non-contradictory comments on the draft memo.

- The final memo will address comments from the City.

Assumptions:

- City will identify any plans/documents it would like reviewed and will provide materials if they are not available online.
- City will assist in selection of PMT representatives and provide contact information.
- City will arrange the venue for all committee meetings.
- City will provide relevant materials and drawings related to development of the baseline conditions memo.
- Consultant shall send materials/agendas to committees, will facilitate the PMT meetings, and will provide meeting summaries and action lists.
- City will arrange time on City TAC committee agenda for informational presentations.
- Approval from jurisdictions or major stakeholders other than the City will be required.
- City will create a project page and upload information to the project website, including meeting agendas, minutes, and materials and media releases.
- City will maintain a list of interested parties (accrued from the website sign-up function, and from sign-up sheets and public meetings) and will send notices about public involvement opportunities in advance of meetings.
- City will disseminate consultant-drafted media releases and assign a City employee as the point of contact for all media inquiries.
- Consultant shall develop a draft list of project values/criteria that best represent the input from stakeholders. The criteria will be reviewed by the PMT for incorporation into the jurisdictional evaluation and decision criteria, and then finalized after interviews with property owners.
- City, working with Consultant, shall develop a clear project boundary to be used in assessing baseline conditions.
- Environmental Review includes a single site reconnaissance visit. Formal resource field mapping will not occur (e.g., wetland delineation, etc.).

Deliverables:

- Draft and Final Baseline Conditions Memo
- Draft and Final Environmental Review Analysis
- Base maps with existing conditions for PMT review
- Meeting agendas, materials, and meeting summaries for PMT Meetings #1 and #2
- Project decision criteria
- Project messaging
- Draft Jurisdictional Decision Criteria
- Text for project website
- Talking points for PMT for advance briefing(s) of elected officials

Task 3 Alternatives Analysis (Apr./May)

The Consultant shall develop up to three (3) road alignment alternatives based on input from the existing conditions review and goals/criteria of the project partners. The three alternatives will be compared and contrasted based on how well they meet the decision-making criteria agreed to by the PMT.

Alternatives Comparison

The alternatives will be compared and assessed based on their ability to meet the agreed-upon project decision making criteria, and an analysis of:

- Land use plans, policies, and conditions;
- Environmental issues;
- Transportation issues;
- Stakeholder concerns;,
- Engineering issues; and
- Anticipated costs.

The assessment will be presented on maps and in a matrix that summarizes the relative performance of each alternative. Technical analysis in each of these areas is described below.

3.1 Transportation

A transportation analysis will be conducted to inform the development of the alternatives, and the advantages and disadvantages of transportation impacts will be determined by alternative. Future year volumes will be developed for the TSP planning horizon year. For Meyers Road and the five existing intersections identified above, the primary basis for the development of the future year volumes will be the future year volumes indicated in the TSP. Based on a single land use scenario for parcels abutting or adjacent to the Meyers Road corridor, adjustments to the TSP volumes will be made to account for the Clackamas Community College Master Plan and anticipated land use in the immediate vicinity. In addition to the five existing intersections, future year volumes will be developed where the proposed southerly connection to the CCC is planned to intersect Meyers Road.

Operations analyses will be conducted for the five existing intersections as well as for the planned intersection of the southerly CCC access and Meyers Road. For the five existing intersections, the basic intersection configuration analyzed will be as specified in the TSP. The analyses for these intersections will include the identification of various lane configurations to achieve satisfactory performance, but it will not, for example, include analyses of a roundabout in place of a signalized intersection. For the planned intersection of the southerly CCC access and Meyers Road, both a roundabout and a conventional intersection will be analyzed. Both stop-control and signalization will be evaluated if signal warrants are met. Analyses for conventional intersections will be conducted using Synchro and SimTraffic. Roundabouts will be analyzed using Sidra.

The focus of the traffic operations analysis will be to inform the design of the Meyers Road facility and help select the preferred alternative. The key information obtained from this traffic analysis will consist of the intersection type (at southerly CCC access/Meyers Road); the number of lanes and lane configuration appropriate at the intersection of Meyers Road and Highway 213; and the appropriate lane configuration for Meyers Road Extension between High School Road and Highway 213.

Information on the traffic volumes and the performance of other intersections will be presented for future use in other studies and refinement planning efforts, although this information is not expected to be of critical importance for the decisions associated with the selection of a preferred alternative for the Meyers Road Extension. Information about the predicted performance of intersections at Highway 213/Molalla Avenue, Highway 213/Glen Oak Road, Beavercreek Road/Meyers Road, and Beavercreek Road/Glen Oak Road may prove useful for analyses of the Highway 213 and Beavercreek Road corridors.

3.2 Environmental Review

Environmental resources identified during the Task 2 Baseline Conditions will be reviewed relative to the different project alternatives. An order of magnitude assessment of impacts will be conducted to highlight potential environmental benefits and concerns of each alternative. Estimates of potential mitigation requirements of each alternative will be outlined. Environmental review work will be coordinated with the Land Use Analysis to reduce duplication of NROD review.

3.3 Land Use Analysis

Consultant shall review each alternative to understand its consistency with adopted plans and integration with community plans (including those for CCC and the Oregon City School District). The team will work with the City of Oregon City Planning Department to identify the potential land use permitting requirements for the proposed alternatives and whether they would vary by alignment. The area includes several sections of the Natural Resource Overlay District, which, if crossed, will likely require additional land use and environmental permitting, including mitigation plans for affected areas. Based on previous discussions with City Planning staff, the project will likely require a Type III planning process, which requires Planning Commission approval, in addition to the NROD clearance requirements identified in Section 17.49 of the Oregon City Municipal Code.

3.4 Plan Year Conditions Analysis

Future year volumes will be developed for the TSP planning horizon year. For Meyers Road and the same five existing intersections identified above, the primary basis for the development of the future year volumes will be the future year volumes indicated in the TSP. Based on a single land use scenario for parcels abutting or adjacent to the Meyers Road corridor, adjustments to the TSP volumes will be made to account for the Clackamas Community College Master Plan and anticipated land use in the immediate vicinity. In addition to the five existing intersections, future

year volumes will be developed where the proposed southerly connection to the CCC is planned to intersect Meyers Road.

Up to three (3) technical memoranda will be produced that summarize the results of the existing conditions, the future traffic volumes, and the future year operations analyses.

3.5 Engineering

Conceptual designs for up to three (3) conceptual roadway alignment alternatives will be developed. The alternatives will be developed to a level sufficient to determine the relative footprint and costs of the alternatives, including water and sewer.

3.6 Cost

An order of magnitude cost will be developed for the three alternative roadway alignments using unit costs (lineal foot or square foot) agreed to with the City.

3.7 Meetings

3.7.1 PMT Meeting # 3

The Consultant shall prepare materials for and facilitate a PMT review of the alternatives and lead the PMT through a process to rank alternatives and help screen to draft alternatives. Materials will include a revised performance matrix comparing the alternatives and maps.

3.8 Other Stakeholder Outreach

Stakeholder outreach will be targeted and focused on identifying any public and property issues related to alternatives development, and on achieving acceptance of the project decision criteria.

3.8.1 Stakeholder Interviews

The Consultant shall conduct up to five (5)) stakeholder interviews with property owners and other stakeholders, as identified by the City, to assess issues (access, future uses, impacts, and restrictions) and information to assist in alternatives development. Two to three follow-ups with interviewees are anticipated during the alternatives selection process.

3.8.2 Neighborhood Presentations

The Consultant shall provide meeting materials from existing documents and maps developed for other tasks for City staff to attend the Caufield Neighborhood Association and CIC meetings: (1) to present background on the project, (2) to describe the decision process, and (3) to get feedback on the alternatives.

3.8.3 Website Update/Media

The Consultant shall provide text for the City to post on the project website, and a media release for dissemination to the interested parties list and to the local media that updates project progress.

Meetings

- PMT Meeting #3

- Stakeholder interviews (5)
- One CIC and one Caufield Neighborhood Association briefing by City staff
- One City TAC briefing

Assumptions

- City will assist in selection of stakeholder interviewees and provide contact and property information.
- City will update website, and send media release to local media and interested parties.
- City will assist in identifying stakeholder interviewees, and provide contact and property information for each.
- Consultant shall notify interviewees, and design and conduct interviews with input from City.
- City will help facilitate public meeting and provide technical staff to assist.
- City will meet with the CIC.
- City will provide the Consultant with the City's newsletter publishing schedule for potential inclusion of articles about the project.
- Analyses of the performance of these corridors are ***not*** proposed as a part of the scope of work for the Meyers Road Extension project.

Deliverables

- Summary and maps of the alternatives
- Performance matrix for alternatives
- Draft and final of Alternatives Comparison Memorandum, summarizing advantages based on technical analyses and stakeholder input
- One draft and final set of interview questions, tailored to public and/or private entities
- One combined summary of results from interviews to include a list of issues, needs, and values/criteria suggested for alternatives selection
- Agendas, materials, and summaries for PMT Meeting #3
- One website update and one media release
- Powerpoint presentation on alternatives
- Maps/materials for committee meetings, consisting of existing materials created for other tasks
- Up to three (3) transportation technical memoranda that summarize the results of the existing conditions, the future traffic volumes, and the future year operations analyses
- Talking points for PMT to present project progress to their elected officials

Task 4 Selecting the Preferred Alternative (Jun.-Jul.)

The Consultant shall, based on feedback from the PMT Meeting #3 and stakeholder input, refine the alternatives to one preferred alternative, based on the agreed-upon project decision criteria.

Once the final preferred alternative is refined and approved by the PMT, the project team will present it to the boards and commissions from which approval is necessary.

4.1 Meetings

4.1.1 PMT Meeting #4

The PMT will recommend a preferred alternative based on outreach, stakeholder input, and performance.

Contingency: Technical analysis may be required to answer any questions prior to the PMT/ Project Leadership Group (PLG) making their selection of the preferred alternative alignment.

4.2 Finalize Conceptual Design

Consultant shall determine the limits of construction and the approximate cost of the preferred conceptual alternative.

4.3 Potential Funding Sources

The Consultant shall write a short memorandum identifying potential funding sources for the preferred alternative.

4.4 Other Stakeholder Outreach

4.4.1 Property Owners

The Consultant shall provide a letter and rendering of the preferred alternative to the property owners, and make follow-up calls to discuss any other issues that arise.

4.4.2 Commission/Board Presentations

The Consultant shall make one (1) presentation each to the CCC and Oregon City School District boards to explain the process and the proposed final alternative selection.

4.4.3 Community Presentations

The City staff will make one (1) presentation each to the CIC and the Caufield Neighborhood Association to explain the process and proposed final alternative selection.

4.4.4 Website

The website will be updated with information and the preferred alternative.

4. 5 Final Report – Draft and Final (Summary of Alternatives Analysis Memo with Preferred Alternative)

The Consultant shall create a report summarizing the alternatives analysis and the recommended preferred alternative. The report will include appendices: a summary of the outreach process, the Baseline Conditions Memo, and the traffic/transportation analysis.

- Draft #1

- Final version, incorporating City comments

Meetings

- PMT Meeting #4
- CIC meeting and neighborhood association meeting
- Stakeholder contacts (property owners)
- Presentations to the CCC and Oregon City School District boards

Assumptions

- City APM will participate in stakeholder meetings as needed.
- Consultant shall provide meeting reminder, agenda, and materials for PMT meeting in advance to committee members.
- City will arrange times with, and lead presentations for, the CIC and the Caufield Neighborhood Association.
- Consultant shall prepare maps and charts for City-led neighborhood and CIC presentations.
- Consultant shall prepare one (1) draft media release to provide notice of opportunity to comment on alternatives at the CIC and neighborhood association meetings.
- City will post the website update provided by Consultant.
- City will coordinate notification (media releases, email blast to interested parties) to publicize presentations at CIC and neighborhood association meetings.
- City will provide one set of non-conflicting comments on the draft final report (Summary of Alternatives Analysis Memo with Preferred Alternative).
- Costs of the preferred alternative will be developed by the consultant to prospectus level costs.
- Footprint of the preferred alternative will be developed by the consultant sufficient to determine approximate land needed for the project.

Deliverables

- Agenda materials, maps, and summary sheets of alternatives for PMT Meeting #4
- Talking points for PMT to brief elected officials
- Draft and final Summary of Alternatives Analysis Memo with Preferred Alternative
- Up to six (6) displays for presentations (draft and final versions)
- One (1) draft media release
- Draft and final text for website update
- Draft and final Powerpoint for jurisdictional presentations
- One (1) summary of additional issues from property owner calls
- One (1) draft and final letter and information mailing to property ownersDraft and final copies of PMT meeting agendas, displays, and materials

Task 5 Adoption Process (Aug.)

5.1 Transportation System Plan Adoption

Based on the selected preferred alternative, the Consultant shall prepare a packet for amendment of the Oregon City TSP. The packet will include documentation of the alternatives analysis process, including public involvement, and will identify insertion and deletion modifications for the TSP to implement the project. Consultant shall assist the City with the adoption process, including attending the Planning Commission meeting to answer questions on the project. We assume that the City staff will present on the project.

- Draft adoption language for preferred alignment amendment.
- Finalize adoption language after review by City.
- Planning Commission Meeting. (Develop findings for the Planning Commission (one (1) meeting) and provide one person to attend to answer questions in support of staff presenting on the project.)
- Other formal approvals required from the partners will be the responsibility of the City.

Deliverables

- Draft and Final Adopted Preferred Alternative Amendment Package, paper and PDF versions, with links to the table of contents suitable for uploading to the City website
- Attendance at City Planning Commission meeting to support staff presentation

Meyers Road - OR City

		Hours										Cost			
		Stakeholder Involvement, KC Cooper	Sr. Planner, Elizabeth Mros-O'Hara	Land Use Planner, Anneke Van der Mast	Sr. Engineer, Mike Hickey	Engineer, John Replinger	Engineer, Josh Anderson	EIT, Jake Johnston	Resource Specialist Ethan Rosenthal	Graphics/GIS, Melissa Foltz	Project Assistant, Angie Jones	Total Labor Hours	Labor Cost	Expenses	Total Cost
		$57.72	$43.98	$30.45	$54.20		$36.90	$29.50	$37.70	$28.80	$25.20				
		$176.36	$134.38	$93.04	$165.61	$170.00	$112.75	$90.14	$115.19	$88.00	$77.00				
	Tasks	*150*	*116*	*206*	*162*	*107*	*62*	*156*	*74*	*46*	*127*	*1206*	*$149,629.16*	*$400.00*	*$150,029.16*
1	Project Management	20	20		80	5					48	173	$24,009.28		$24,009.28
2	Baseline Conditions												$0.00		$0.00
2.1	Transportation		4	8		22	20					54	$7,276.77		$7,276.77
2.2	Environmental		2						24	6	2	34	$3,715.34		$3,715.34
2.3	Land Use Analysis		4	12								16	$1,653.99		$1,653.99
2.4	Set Cost				8			24				32	$3,488.13		$3,488.13
2.5	Pre-application Conference		4	8					2		1	15	$1,589.21	$50.00	$1,639.21
2.6	Meetings												$0.00		$0.00
2.6.1	*PMT #1*	10	10	18	16	12			6	16	12	100	$12,494.92	$25.00	$12,519.92
2.6.2	*TAC Meetings (quarterly)*				2							2	$331.21	$25.00	$356.21
2.6.3	*APM Meetings (monthly, or as needed)*	16	2		24							42	$7,065.11	$100.00	$7,165.11
2.6.4	*PMT #2*	8	8	16	4				4	4	8	52	$6,065.73	$50.00	$6,115.73
2.7	*Baseline Memo (draft and final)*	2	4	8							8	22	$2,250.54		$2,250.54
3	Alternatives Analysis												$0.00		$0.00
3.1	Transportation		4	4		44	36					88	$12,448.57		$12,448.57
3.2	Environmental			4				2	16	4	2	28	$2,901.48		$2,901.48
3.3	Land Use Analysis			4								4	$372.16		$372.16
3.4	Plan Year Conditions Analysis		10	24	4				12			50	$5,621.46		$5,621.46
3.5	Engineering				8			40				48	$4,930.32		$4,930.32
3.6	Cost				8			8				16	$2,045.95		$2,045.95
3.7	Meetings												$0.00		$0.00
3.7.1	*PMT #3*	10	4	12		4	6		4	8	8	56	$6,554.82	$50.00	$6,604.82
												0	$0.00		$0.00
												0	$0.00		$0.00
3.8	Other Stakeholder Outreach												$0.00		$0.00
3.8.1	*Stakeholder Interviews(5)*	24	2									26	$4,501.45	$50.00	$4,551.45
3.8.2	*Neighborhood Presentations*	4		8							2	14	$1,603.76		$1,603.76
3.8.3	*Website update / Media*	6								2	2	10	$1,388.16		$1,388.16
4	Selecting the Preferred Alternative														$0.00
4.1	Meetings														$0.00
4.1.1	*PMT #4*	16	10	18		6			4	4	4	62	$7,981.05	$50.00	$8,031.05
												0	$0.00		$0.00
												0	$0.00		$0.00
4.2	Finalize Conceptual Design		4		4			80			2	90	$8,564.86		$8,564.86
4.3	Potential funding sources											0	$0.00		$0.00
4.4	Other Stakeholder Outreach														$0.00
4.4.1	*Property Owners*	14		6							4	24	$3,335.30		$3,335.30
4.4.2	*Commission/board presentations (assume 2*	12	8	6							4	30	$4,057.61		$4,057.61
4.4.3	*Community presentations*	4									2	6	$859.44		$859.44
4.5	*Final Report (draft and final)*	4	6	28	2	2		2	2	2	14	62	$6,452.66		$6,452.66
5	Adoption Process														$0.00
5.1	Transportation System Plan Adoption		10	22	2	12					4	50	$6,069.87		$6,069.87
	TOTAL	150	116	206	162	107	62	156	74	46	127	1206	$149,629.16	$400.00	$150,029.16

STANDARD CONDITIONS TO OREGON CITY PERSONAL SERVICES AGREEMENT

1. Consultant Identification. Consultant shall furnish to City its taxpayer identification number, as designated by the Internal Revenue Service, or Consultant's social security number, as City deems applicable.

2. Payment.

(a) Invoices submitted in connection with this Agreement shall be properly documented and shall identify the pertinent agreement and/or purchase order numbers.

(b) City agrees to pay Consultant within thirty (30) days after receipt of Consultant's itemized statement. Amounts disputed by City may be withheld pending settlement.

(c) City certifies that sufficient funds are available and authorized for expenditure to finance the cost of the services to be provided pursuant to this Agreement.

(d) City shall not pay any amount in excess of the compensation amounts set forth above, nor shall City pay Consultant any fees or costs that City reasonably disputes.

3. Independent Contractor Status.

(a) Consultant is an independent contractor and is free from direction and control over the means and manner of providing labor or services, subject only to the specifications of the desired results.

(b) Consultant represents that it is customarily engaged in an independently established business and is licensed under ORS chapter 671 or 701, if the services provided require such a license. Consultant maintains a business location that is separate from the offices of the City and bears the risk of loss related to the business as demonstrated by the fixed price nature of the contract, requirement to fix defective work, warranties provided and indemnification and insurance provisions of this Agreement. Consultant provides services for two or more persons within a 12 month period or routinely engages in advertising, solicitation or other marketing efforts. Consultant makes a significant investment in the business by purchasing tools or equipment, premises or licenses, certificates or specialized training and Consultant has the authority to hire or fire persons to provide or assist in providing the services required under this Agreement.

(c) Consultant is responsible for obtaining all assumed business registrations or professional occupation licenses required by state or local law (including applicable City or Metro business licenses as per Oregon City Municipal Code Chapter 5.04). Consultant shall furnish the tools or equipment necessary for the contracted labor or services. Consultant agrees and certifies that:

(d) Consultant is not eligible for any federal social security or unemployment insurance payments. Consultant is not eligible for any PERS or workers' compensation benefits from compensation or payments made to Consultant under this Agreement.

(e) Consultant agrees and certifies that it is licensed to do business in the state of Oregon and that, if Consultant is a corporation, it is in good standing within the state of Oregon.

4. Early Termination.

(a) This Agreement may be terminated without cause prior to the expiration of the agreed-upon term by mutual written consent of the parties or by the City upon ten (10) days written notice to the Consultant, delivered by certified mail or in person.

(b) Upon receipt of notice of early termination, Consultant shall immediately cease work and submit a final statement of services for all services performed and expenses incurred since the date of the last statement of services.

(c) Any early termination of this Agreement shall be without prejudice to any obligation or liabilities of either party already accrued prior to such termination.

(d) The rights and remedies of City provided in this Agreement and relating to defaults by Consultant shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement.

EXHIBIT B

STANDARD CONDITIONS TO OREGON CITY PERSONAL SERVICES AGREEMENT

5. No Third-Party Beneficiaries. City and Consultant are the only parties to this Agreement and are the only parties entitled to enforce its terms. Nothing in this Agreement gives, is intended to give, or shall be construed to give or provide, any benefit or right, whether directly or indirectly or otherwise, to third persons unless such third persons are individually identified by name herein and expressly described as intended beneficiaries of the terms of this Agreement.

6. Payment of Laborers; Payment of Taxes.

(a) Consultant shall:

(i) Make payment promptly, as due, to all persons supplying to Consultant labor and materials for the prosecution of the services to be provided pursuant to this Agreement.

(ii) Pay all contributions or amounts due to the State Accident Insurance Fund incurred in the performance of this Agreement.

(iii) Not permit any lien or claim to be filed or prosecuted against City on account of any labor or materials furnished.

(iv) Be responsible for all federal, state, and local taxes applicable to any compensation or payments paid to Consultant under this Agreement and, unless Consultant is subject to back-up withholding, City will not withhold from such compensation or payments any amount(s) to cover Consultant's federal or state tax obligation.

(v) Pay all employees at least time and one-half for all overtime worked in excess of forty (40) hours in any one week, except for individuals excluded under ORS 653.100 to 653.261 or under 29 U.S.C. §§ 201 to 209 from receiving overtime.

(b) If Consultant fails, neglects or refuses to make prompt payment of any claim for labor or services furnished by any person in connection with this Agreement as such claim becomes due, City may pay such claim to the person furnishing the labor or services and shall charge the amount of the payment against funds due or to become due Consultant by reason of this Agreement.

(c) The payment of a claim in this manner shall not relieve Consultant or Consultant's surety from obligation with respect to any unpaid claims.

(d) Consultant and subconsultants, if any, are subject employers under the Oregon workers' compensation law and shall comply with ORS 656.017, which requires provision of workers' compensation coverage for all workers.

7. Subconsultants and Assignment. Consultant shall neither subcontract any of the work, nor assign any rights acquired hereunder, without obtaining prior written approval from City. City, by this Agreement, incurs no liability to third persons for payment of any compensation provided herein to Consultant.

8. Access to Records. City shall have access to all books, documents, papers and records of Consultant that are pertinent to this Agreement for the purpose of making audits, examinations, excerpts and transcripts.

9. Ownership of Work Product; License. All work products of Consultant that result from this Agreement (the "Work Products") are the exclusive property of City. In addition, if any of the Work Products contain intellectual property of Consultant that is or could be protected by federal copyright, patent, or trademark laws, or state trade secret laws, Consultant hereby grants City a perpetual, royalty-free, fully paid, nonexclusive and irrevocable license to copy, reproduce, deliver, publish, perform, dispose of, use and re-use, in whole or in part (and to authorize others to do so), all such Work Products and any other information, designs, plans, or works provided or delivered to City or produced by Consultant under this Agreement. The parties expressly agree that all works produced (including, but not limited to, any taped or recorded items) pursuant to this Agreement are works specially commissioned by City, and that any and all such works shall be works made for hire in which all rights and copyrights belong exclusively to City. Consultant shall not publish, republish, display or otherwise use any work or Work Products resulting from this Agreement without the prior written agreement of City.

10. Compliance With Applicable Law. Consultant shall comply with all federal, state, and

EXHIBIT B

local laws and ordinances applicable to the services to be performed pursuant to this Agreement, including, without limitation, the provisions of ORS 279B.220, 279C.515, 279B.235, 279B.230 and 279B.270. Without limiting the generality of the foregoing, Consultant expressly agrees to comply with (i) Title VI of the Civil Rights Act of 1964; (ii) Section V of the Rehabilitation Act of 1973; (iii) the Americans With Disabilities Act of 1990 (Pub. L No. 101-336), ORS 659.425, and all regulations and administrative rules established pursuant to those laws; and (iv) all other applicable requirements of federal and state civil rights and rehabilitation and other applicable statutes, rules and regulations.

11. Professional Standards. Consultant shall be responsible, to the level of competency presently maintained by others practicing in the same type of services in City's community, for the professional and technical soundness, accuracy and adequacy of all services and materials furnished under this authorization.

12. Modification, Supplements or Amendments. No modification, change, supplement or amendment of the provisions of this Agreement shall be valid unless it is in writing and signed by the parties hereto.

13. Indemnity and Insurance.

(a) Indemnity. Consultant acknowledges responsibility for liability arising out of Consultant's negligent performance of this Agreement and shall hold City, its officers, agents, Consultants, and employees harmless from, and indemnify them for, any and all liability, settlements, loss, costs, and expenses, including attorney fees, in connection with any action, suit, or claim caused or alleged to be caused by the negligent acts, omissions, activities or services by Consultant, or the agents, Consultants or employees of Consultant provided pursuant to this Agreement.

(b) Workers' Compensation Coverage. Consultant certifies that Consultant has qualified for workers' compensation as required by the state of Oregon. Consultant shall provide the Owner, within ten (10) days after execution of this Agreement, a certificate of insurance evidencing coverage of all subject workers under Oregon's workers' compensation statutes. The insurance certificate and policy shall indicate that the policy shall not be terminated by the insurance carrier without thirty (30) days' advance written notice to City. All agents or Consultants of Consultant shall maintain such insurance.

(c) Comprehensive, General, and Automobile Insurance. Consultant shall maintain comprehensive general and automobile liability insurance for protection of Consultant and City and for their directors, officers, agents, and employees, insuring against liability for damages because of personal injury, bodily injury, death, and broad-form property damage, including loss of use, and occurring as a result of, or in any way related to, Consultant's operation, each in an amount not less than $1,000,000 combined, single-limit, per-occurrence/annual aggregate. Such insurance shall name City as an additional insured, with the stipulation that this insurance, as to the interest of City, shall not be invalidated by any act or neglect or breach of this Agreement by Consultant.

(d) Errors and Omissions Insurance. Consultant shall provide City with evidence of professional errors and omissions liability insurance for the protection of Consultant and its employees, insuring against bodily injury and property damage arising out of Consultant's negligent acts, omissions, activities or services in an amount not less that $500,000 combined, single limit. Consultant shall maintain in force such coverage for not less than three (3) years following completion of the project. Such insurance shall include contractual liability.

Within ten (10) days after the execution of this Agreement, Consultant shall furnish City a certificate evidencing the dates, amounts, and types of insurance that have been procured pursuant to this Agreement. Consultant will provide for not less than thirty (30) days' written notice to City before the policies may be revised, canceled, or allowed to expire. Consultant shall not alter the terms of any policy without prior written authorization from City. The provisions of this subsection apply fully to Consultant and its Consultants and agents.

14. Legal Expenses. In the event legal action is brought by City or Consultant against the other to

EXHIBIT B

enforce any of the obligations hereunder or arising out of any dispute concerning the terms and conditions hereby created, the losing party shall pay the prevailing party such reasonable amounts for attorney fees, costs, and expenses as may be set by a court. "Legal action" shall include matters subject to arbitration and appeals.

15. Severability. The parties agree that, if any term or provision of this Agreement is declared by a court to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected.

16. Number and Gender. In this Agreement, the masculine, feminine or neuter gender, and the singular or plural number, shall be deemed to include the others or other whenever the context so requires.

17. Captions and Headings. The captions and headings of this Agreement are for convenience only and shall not be construed or referred to in resolving questions of interpretation or construction.

18. Hierarchy. The conditions contained in this document are applicable to every Personal Services Agreement entered into by the City of Oregon City in the absence of contrary provisions. Should contrary provisions be included in a Personal Services Agreement, those contrary provisions shall control over these conditions.

19. Calculation of Time. All periods of time referred to herein shall include Saturdays, Sundays and legal holidays in the state of Oregon, except that, if the last day of any period falls on any Saturday, Sunday or legal holiday, the period shall be extended to include the next day that is not a Saturday, Sunday or legal holiday.

20. Notices. Any notices, bills, invoices, reports or other documents required by this Agreement shall be sent by the parties by United States mail, postage prepaid, or personally delivered to the addresses listed in the Agreement attached hereto. All notices shall be in writing and shall be effective when delivered. If mailed, notices shall be deemed effective forty-eight (48) hours after mailing, unless sooner received.

21. Nonwaiver. The failure of City to insist upon or enforce strict performance by Consultant of any of the terms of this Agreement or to exercise any rights hereunder shall not be construed as a waiver or relinquishment to any extent of its rights to assert or rely upon such terms or rights of any future occasion.

22. Information and Reports. Consultant shall, at such time and in such form as City may require, furnish such periodic reports concerning the status of the project, such statements, certificates, approvals, and copies of proposed and executed plans and claims, and other information relative to the project as may be requested by City. Consultant shall furnish City, upon request, with copies of all documents and other materials prepared or developed in relation with or as a part of the project. Working papers prepared in conjunction with the project are the property of City, but shall remain with Consultant. Copies as requested shall be provided free of cost to City.

23. City's Responsibilities. City shall furnish Consultant with all available necessary information, data, and materials pertinent to the execution of this Agreement. City shall cooperate with Consultant in carrying out the work herein and shall provide adequate staff for liaison with Consultant.

24. Arbitration. All disputes arising out of or under this Agreement shall be timely submitted to nonbinding mediation prior to commencement of any other legal proceedings. The subsequent measures apply if disputes cannot be settled in this manner.

(a) Any dispute arising out of or under this Agreement shall be determined by binding arbitration.

(b) The party desiring such arbitration shall give written notice to that effect to the other party and shall in such notice appoint a disinterested person of recognized competence in the field as arbitrator on its behalf. Within fifteen (15) days thereafter, the other party may, by written notice to the original party, appoint a second disinterested person of recognized competence as arbitrator on its behalf. The arbitrators thus appointed shall appoint a third disinterested

EXHIBIT B

person of recognized competence, and the three arbitrators shall, as promptly as possible, determine such matter, provided, however, that:

(i) If the second arbitrator is not appointed as described above, then the first arbitrator shall proceed to determine such matter; and

(ii) If the two arbitrators appointed by the parties are unable to agree, within fifteen (15) days after the second arbitrator is appointed, on the appointment of a third arbitrator, they shall give written notice of such failure to agree to the parties and, if the parties fail to agree on the selection of the third arbitrator within fifteen (15) days after the arbitrators appointed by the parties give notice, then, within ten (10) days thereafter, either of the parties, on written notice to the other party, may request such appointment by the presiding judge of the Clackamas County Circuit Court.

(c) Each party shall each be entitled to present evidence and argument to the arbitrators. The determination of the majority of the arbitrators or the sole arbitrator, as the case may be, shall be conclusive on the parties, and judgment on the same may be entered in any court having jurisdiction over the parties. The arbitrators or the sole arbitrator, as the case may be, shall give written notice to the parties, stating the arbitration determination, and shall furnish to each party a signed copy of such determination. Arbitration proceedings shall be conducted pursuant to ORS 33.210 et seq. and the rules of the American Arbitration Association, except as provided otherwise.

(d) Each party shall pay the fees and expenses of the arbitrator appointed by such party and one-half of the fees and expenses of the third arbitrator, if any.

25. Governing Law. This Agreement shall be governed and construed in accordance with the laws of the state of Oregon without resort to any jurisdiction's conflicts of law, rules or doctrines.

EXHIBIT B

OREGON CITY

625 Center Street | PO Box 3040 | Oregon City OR 97045
Ph: (503) 657-0891 | TOLL FREE (888) 873-1676 | Fax (503) 657-3339

WHO NEEDS A BUSINESS LICENSE?

Oregon City Municipal Code Title 5, Chapter 5.04 requires all businesses conducting business inside the city limits of Oregon City to obtain an Oregon City business license.

HOW DO I GET A BUSINESS LICENSE?

Submit a completed application with the applicable fee:

- In person to the City Finance Department at 625 Center Street;
- By mail to Business Licensing, PO Box 3040, Oregon City, OR 97045; or
- Online at **www.orcity.org**.

Businesses operating in the City must comply with all building, zoning, signage, fire and police requirements. Completion of the application does not imply business license approval. The business may not begin until the business license and all necessary permits, signs and inspections are approved by the City. Home-based businesses located in the City are also required to fill out the Home Occupation Worksheet annually.

BUSINESS LICENSE RATES

The cost of the business license is dependent on the location of your business and the number of employees. When figuring the number of employees, include all persons involved in your business including owners, officers, employees and others operating within the City of Oregon City. **New businesses that begin** after June 30th of the current year may pay ½ of the annual fee listed below. Please verify your business location as it refers to Oregon City's jurisdictional boundary.

NO. OF EMPLOYEES	INSIDE CITY LIMITS	OUTSIDE CITY LIMITS
1 – 25 persons	$ 80.00	$ 120.00
26 – 50 persons	$ 160.00	$ 240.00
51 – 100 persons	$ 240.00	$ 360.00
101 or more	$ 320.00	$ 450.00

OREGON CITY

625 Center Street | PO Box 3040 | Oregon City OR 97045
Ph: (503) 657-0891 | TOLL FREE (888) 873-1676 | Fax (503) 657-3339

2015 APPLICATION FOR BUSINESS LICENSE

No._____

RENEWAL ☐ NEW ☐ OWNERSHIP CHANGE ☐ ADDRESS CHANGE ☐ NAME CHANGE ☐

Business Name	Name
Site Address	Driver's License # and State
Mailing Address	Home Address
City, State, Zip	City, State, Zip
Phone	Phone
Business E-Mail	E-Mail
Federal ID No. (EIN) __ __ - __ __ __ __ __ __ __	Metro Contractor's License
4 Digit SIC Code (if known) __ __ __ __	State License # (if applicable)

Detailed Description of Business

Business Based in Home	No ☐	Yes ☐	☞☞☞	If Yes, Home Occupation Form Required (if in City Limits)
Is this a Rental Property?	No ☐	Yes ☐		Hours of Operation?
Hazardous Materials	No ☐	Yes ☐	☞☞☞	List
Coin-Op Machines	No ☐	Yes ☐	☞☞☞	Type # of Machines

Is your business located within the City limits of Oregon City? No ☐ Yes ☐	Total number of persons doing business in Oregon City?				
Please indicate type of ownership ☞ ☞ ☞ ☞ ☞ ☞ ☞ ☞ ☞	Individual ☐	Partnership ☐	Corporation ☐	Non-Profit ☐	LLC ☐

I CERTIFY THE ABOVE INFORMATION IS CORRECT ☞ ☞	Applicant's Signature:

In case of emergency regarding your business, please furnish after hours contact information.

Name (primary) Emergency Phone	Name (secondary) Emergency Phone

Credit Card Information (if paying with credit card)	Account Number	Exp. Date	3 Digit CSC (back of card)
		____/____	
	Visa ☐ M/C ☐	Using payment schedule, list amount paid	FEE $

PAYMENTS MUST ACCOMPANY APPLICATION. MAKE CHECKS PAYABLE TO: City of Oregon City

OFFICE USE ONLY

Amount Paid	Receipt #	☐ Cash ☐ Check	☐ Visa ☐ Mastercard	Approval No.	Date Paid
Comments			By	Date Issued	License Number

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-060

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8f.

From: Public Works Director John Lewis

File Type: Contract

SUBJECT:
Meyers Road Concept Plan Cost Sharing Agreement

RECOMMENDED ACTION (Motion):
Authorize the Mayor to execute the Cost Sharing Agreement on behalf of the City of Oregon City and between Clackamas Community College and the Oregon City School District to complete a transportation engineering analysis of extension alternatives for Meyers Road

BACKGROUND:
The extension of both Meyers Road and Loder Road westerly to Highway 213 were identified in the Oregon City Transportation Master Plan adopted in 2012. Staff from the City of Oregon City, Clackamas Community College (CCC) and the Oregon City School District (OCSD) (Project Partners) have been working collaboratively to reach consensus on the selection of a transportation engineering consultant to begin work on a roadway extension alternatives analysis. Work to be completed includes preparation of a concept plan analyzing and selecting a preferred alternative for the extension of either of these roadways out to Highway 213 in order to improve transportation and infrastructure in the area, but specifically to serve the Caufield neighborhood, CCC and Oregon City High School.

The preferred alternative will need support from the project partners and private property stakeholders on the location and road section alignments of new transportation facilities and infrastructure improvements to improve connectivity. This project will assist the City in determining the appropriate use of the neighboring areas and connecting streets and help the other project partners move forward with their own development plans.

The City is moving forward to award a personal services agreement for the concept study to David Evans and Associates, Inc. (DEA). The project partners have agreed to execute the attached Cost Sharing Agreement based on the following findings:

A. The City operates a public road system within Oregon City and has adopted a Transportation System Plan (“TSP”) that identifies current transportation capacity and identifies transportation improvements in Oregon City as shown on the map attached to this report as Exhibit A (TSP Figure 21).
B. Both CCC and the OCSD own property that is adjacent to the expected alignment of the

Meyers Road extension within Oregon City.
C. CCC has a Main Campus Master Plan which includes a description of a new Meyers Road access and a proposal that the college make and use the new Meyers Road access improvements to mitigate for its future traffic impacts.
D. OCSD has plans for the construction of a new Transportation Maintenance Facility and associated vehicle parking and site work located along Meyers Road and High School Lane.
E. The City has begun the land use approval process for the Glen Oak Community Park Master Plan which will include conditions associated with the extension of Meyers Road and the widening of High School Lane.

BUDGET IMPACT:
Amount: $50,009.67; The City's 1/3 share of the Personal Service Agreement associated with this Cost Share Agreement
FY(s): 2014/15 and 2015/16
Funding Source: Transportation SDC's

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-060

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

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B. Both CCC and the OCSD own property that is adjacent to the expected alignment of the

Meyers Road extension within Oregon City.
C. CCC has a Main Campus Master Plan which includes a description of a new Meyers Road access and a proposal that the college make and use the new Meyers Road access improvements to mitigate for its future traffic impacts.
D. OCSD has plans for the construction of a new Transportation Maintenance Facility and associated vehicle parking and site work located along Meyers Road and High School Lane.
E. The City has begun the land use approval process for the Glen Oak Community Park Master Plan which will include conditions associated with the extension of Meyers Road and the widening of High School Lane.

BUDGET IMPACT:
Amount: $50,009.67; The City's 1/3 share of the Personal Service Agreement associated with this Cost Share Agreement
FY(s): 2014/15 and 2015/16
Funding Source: Transportation SDC's

COST SHARING AGREEMENT

THIS COST SHARING AGREEMENT (this "Agreement") is made and entered into this ____ day of _____, 2015, by and between the CITY OF OREGON CITY, an Oregon municipal corporation ("City"), the OREGON CITY SCHOOL DISTRICT ("District"), and CLACKAMAS COMMUNITY COLLEGE, ("College") (The City, District and College sometimes collectively or individually referred to hereafter as the "Parties" or "Party", as context requires).

RECITALS

A. The City operates a public road system within Oregon City and has adopted a Transportation System Plan ("TSP") that identifies current transportation capacity and identifies transportation improvements in the City, as shown on the Map attached to this Agreement as Exhibit A (TSP Figure 21).

B. One of the transportation improvements identified in the City's TSP is an extension of Meyers Road from Molalla Avenue to Highway 213.

C. Both the College and the District own property that is adjacent to expected alignment of the Meyers Road extension within the City.

D. The College has a Main Campus Master Plan which includes a description of a new Meyers Road access and a proposal that the College make and use the new Meyers Road access improvements to mitigate for its future traffic impacts.

E. The District presented plans for the construction of a new Transportation Maintenance Facility and associated vehicle parking and site work located along Meyers Road and High School Lane at an October 14, 2014 land use pre-application meeting.

F. The City has begun the land use approval process for the Glen Oak Community Park Master Plan which will include conditions associated with the extension of Meyers Road and widening of High School Lane.

G. The City has begun the process of creating the Meyers Road Concept Plan, more fully described in David Evan's and associates Scope of Work; Exhibit B (the "Project").

H. The District and the College are willing to contribute to the cost of creating the Project on the terms and conditions set forth in this Agreement.

I. The City is willing to agree to such arrangement in addition to other matters in consideration thereof, all as more fully set forth in this Agreement.

AGREEMENT

NOW, THEREFORE, in consideration of the premises and the mutual covenants, terms and conditions hereof, the District, the College and the City agree as follows:

1. **District and College Contribution**. Subject to the terms and conditions set forth in this Agreement, the District and College agree to share in the cost of the Project. As such, the District, the College and the City shall each pay a proportionate share or thirty-three percent (33%) of the total actual planning and engineering costs for creating the Project ("Proportionate Share"). The current anticipated cost of the Project is $150,029. In accordance with agreement item #6 Modification; any additional costs beyond that figure must be approved by a written instrument signed by all Parties.

2. **Payment Terms**. Within thirty (30) days following the receipt of an invoice for Project costs approved by the City's civil engineer designated for such purposes, the District and College shall pay their respective Proportionate Share of such invoice pertaining to costs for this Project.

3. **Right to Terminate**. As the Party undertaking the Project, the City retains the right to terminate the Project and the Agreement at any time. Should the City terminate either the Project or Agreement, the City agrees to refund any unexpended portions of the funds collected by the City from the other Parties and to provide both the District and the College with all work product that has been developed under the Project.

4. **Notices**. All notices or other communications required or permitted under this Agreement will be in writing and will be (a) personally delivered (including by means of professional messenger service), which notices and communications will be deemed received on receipt at the office of the addressee; (b) sent by registered or certified mail, postage prepaid, return receipt requested, which notices will be deemed received on the date of receipt or rejection set forth on the return receipt; or (c) sent by overnight delivery using a nationally recognized overnight courier service, which notices and communications will be deemed received one business day after deposit with such courier, all as provided below:

If to the District: Oregon City School District

Attn: Wes Rogers
1417 12th St.
Oregon City, Oregon 97045

If to the College: Clackamas Community College
Attn: Bob Cochran
19600 Molalla Ave
Oregon City, OR 97045

If to the City: City of Oregon City
Attn: John Lewis
PO Box 3040
Oregon City, OR 97045

5. **No Partnership or Agency**. The Parties do not intend to create and no terms of this Agreement shall be construed as creating a partnership or joint venture or any agency between the Parties. Neither the District, nor the College shall have any liability or obligation under any contract or other agreement not entered into by the Parties in connection with the Project, including without limitation the contract or contracts for construction or engineering of the Project.

6. **Modification; Waiver; Termination**. Neither this Agreement nor any rights or obligations hereunder may be altered, modified, amended, waived, or terminated (except as provided by law in the event of a default) except by a written instrument signed by both Parties.

7. **No Third Party Beneficiaries**. The Parties do not intend to confer any benefit or rights hereunder to or on any person other than the Parties hereto.

8. **Attorneys' Fees**. In the event suit, arbitration or action is instituted to interpret or enforce the terms of this Agreement or to rescind this Agreement, the prevailing Party shall be entitled to recover from the other Party such attorneys' fees as the court may adjudge reasonable at trial, on any appeal, on any petition for review, or in any arbitration or bankruptcy proceeding, in addition to all other sums provided by law.

9. **Entire Agreement**. This Agreement is the complete and final agreement of the Parties with respect to its subject matter and supersedes and replaces any and all written and oral agreements previously made or existing between the Parties.

10. **Severability**. If any term or provision of this Agreement or the application to any person or circumstance will, to any extent, be invalid or

unenforceable, the remainder of this Agreement, or the application of such term or provision to persons or circumstances other than those to which it is held invalid or unenforceable, will not be affected thereby, and each such term and provision of this Agreement will be valid and be enforced to the fullest extent permitted by law.

11. **Survival**. This Agreement will be binding on and will inure to the benefit of the Parties and their respective successors and assigns.

12. **Time for Performance**. If the time for performance of any of the terms, conditions and provisions of this Agreement shall fall on a Saturday, Sunday or legal holiday, then the time of such performance shall be extended to the next day thereafter that is not a Saturday, Sunday or legal holiday.

13. **Negation of Drafting Presumptions**. This Agreement is to be deemed to have been prepared jointly by the Parties with benefit of legal counsel representing their several interests and any ambiguities or inconsistencies will not be construed against any Party as the drafter.

14. **Counterparts**. This Agreement may be executed in multiple counterparts, each of which shall be deemed an original, but all of which, together, shall constitute but one and the same instrument. Delivery of an executed signature page to this Agreement by facsimile transmission shall be as effective as delivery of a manually signed counterpart of this Agreement.

IN WITNESS WHEREOF the District, the College and the City have caused this Agreement to be executed each by its duly authorized undersigned officer or agent as of the date hereinabove first written.

CITY OF OREGON CITY

By:_____
Name:_____
Title:_____

OREGON CITY SCHOOL DISTRICT

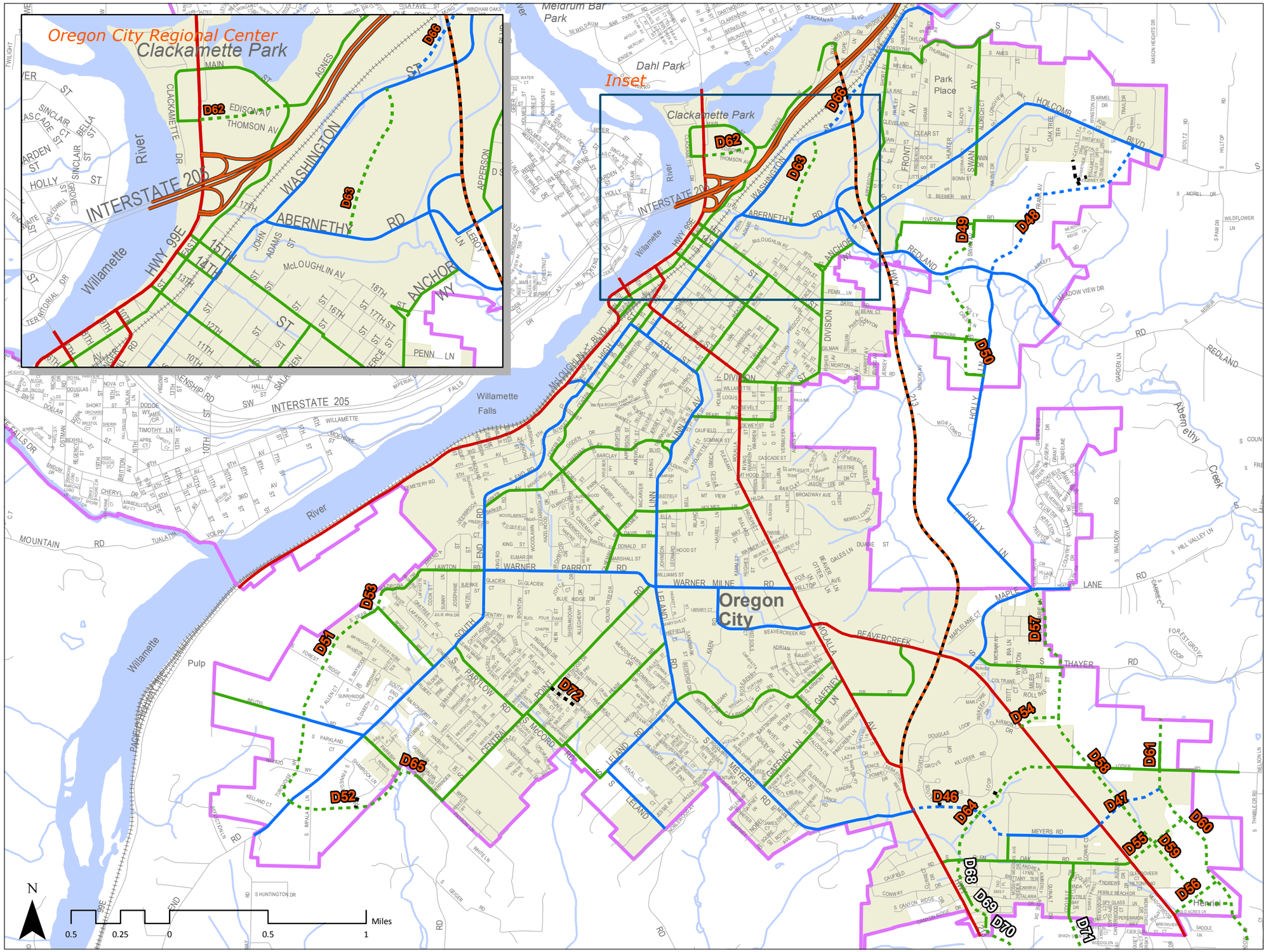
By:_____
Name:_____
Title:_____

CLACKAMAS COMMUNITY COLLEGE

By:_____
Name:_____

Title:_____

Exhibits:
Exhibit A – Map
Exhibit B – Scope of work



OREGON CITY TRANSPORTATION PLAN

FIGURE 21

Planned Street Extensions

Legend

Existing Functional Classification

- Freeway
- Expressway
- Major Arterial
- Minor Arterial
- Collector
- Local Roadway

Planned Street Extensions (Conceptual Alignment)

- Planned Minor Arterial
- Planned Collector
- Planned Local Street

Likely to be Funded System Project # (See Table 2)

Not Likely to be Funded System Project # (See Section I of the TSP Volume 2)

- Railroad
- City Limit
- Urban Growth Boundary

Exhibit A

DAVID EVANS AND ASSOCIATES INC.

SCOPE OF SERVICES
Meyers Road Extension
(Linking Education and the Community)





Project Description

The project will analyze and select a preferred alternative for the extension of either Meyers Road/ Loder Road in accordance with the City's Transportation System Plan (TSP) to improve transportation and infrastructure in the Caufield neighborhood. The preferred alternative will need support from the public entities and private property stakeholders on the location and road section alignments of new transportation facilities and infrastructure improvements to increase connectivity. This project will assist the City of Oregon City (the City) in determining the feasibility of potentially placing a public works facility in the area and help other stakeholders, such as Clackamas Community College (CCC) and Oregon City High School, move forward with their development plans. The project assumes a six-month timeline, with the start date in early February 2015.

This scope outlines the process by which the project team will move through the design and decision process. It is a roadmap that the project partners and staff will use to reach agreement on the alignment and elements of the new roadway. Time is of the essence, and delays outside of the contractor's control may require re-scoping. Project NTE is $150,029.16 and refer to the Meyers Rd. BOC for level of effort for details.

Assumptions:

- John Lewis is the City's project manager (APM) and Mike Hickey shall be the Consultant project manager (PM)

Task 1 Project Management

The Consultant project manager (PM) shall provide direction to the Consultant project development team that is focused on gathering and disseminating information needed to move the project forward, analyzing alternatives, and providing information needed for the adoption of the preferred alternative.

Communication Protocol

The Consultant project team shall copy APM on all important email communication, and shall take direction from John with regard to contact frequency and dissemination of information to the public, CCC, OCHS, ODOT, City staff, and property owners that are directly affected.

Documents that are to be submitted to external stakeholders shall be provided to the City for review and/or approval prior to their dissemination. The Consultant shall maintain a record of project-related contacts. Agendas shall be developed for review prior to project meetings, and the Consultant shall develop meeting notes for review and/or approval in a timely manner. Six (6) monthly project check-ins between the APM and Consultant shall be held in Oregon City or by phone.

Project Groups

Communications for the Meyers Road project is designed to focus on the stakeholders (public and private): (1) who are financial participants, and (2) who may have property impacts related to the new road. Given the potential of many diverse interests, we will apply the Systematic Development of Informed Consent (SDIC) techniques, which measure levels of acceptance to proposed alternatives. Stakeholders will provide information to help guide the process. The goal is to arrive at consent for the final project preferred alternative, even if it may not be optimal for all parties.

Project Management Team (PMT)

Each funding jurisdiction will designate a project manager to serve on the Project Management Team (PMT). The PMT will be convened to meet four (4) times at City Hall. In addition, presentations before the following boards will be appropriate when process is at 80% completion:

- Clackamas Community College (CCC)
- Oregon City School District

The PMT will help develop project screening criteria, provide information, review, and shepherd the project through their agencies as needed during the baseline conditions development, alternatives analysis, and design of the project, and will represent the project to their jurisdictions in the final approval process. The PMT will be composed of staff from the project partners and will keep their elected officials informed throughout the process.

City Transportation Advisory Committee (TAC)

The Consultant shall attend the City's Transportation Advisory Committee (TAC) meetings (up to two (2) meetings) to provide updates on the Meyers Road project process.

Other Stakeholders

In addition to the PMT, the following groups will be encouraged to provide input into the alternatives decision:

Citizen Involvement Council (CIC)

The APM will update the council that represents all neighborhood associations, the CIC, on project process and will promote opportunities for input. The first presentation by City staff will be at the beginning of alternatives development, and the second presentation by City staff will be during the final alternative selection process.

Caufield Neighborhood Association

City staff will meet with the neighborhood association affected by the new road design and construction. The first meeting will be early in the process in order to identify issues and needs. The second meeting will occur when alternatives have been developed in order to gather neighborhood feedback.

Interested Public

The interested public includes those who live or work in the impacted area, those who may travel through the area, and those with other interests (regulatory agencies, environmental and alternative mode advocates, etc.). Opportunities for input will be announced through the project website, email blast list, and local media.

Deliverables:

- Seven (7) monthly invoices and progress reports
- Project contact list
- Project work plan/schedule

Task 2 Baseline Conditions (first two (2) months from NTP – Feb./Mar.)

The Consultant shall develop a memo to summarize and maps to illustrate the existing conditions of the area, based on information received from the City. The project team will convene PMT Meeting #1 to discuss issues, opportunities and constraints, the review process, and the timeline for determining the preferred alternative.

The Consultant shall develop a messaging matrix to be used in communications with agencies, the public, and the media, and for any informational materials. Through stakeholder interviews and PMT meetings, a list of criteria for alternative selection will be developed and vetted through all parties to provide a structure for alternative development and decision making.

At PMT Meeting #2, the PMT will reach concurrence on the decision making criteria and will review the process for alternatives analysis. PMT members will brief their elected officials in advance of this meeting.

Existing Conditions

Consultant shall determine existing conditions by utilizing, as necessary, information compiled from but not restricted to jurisdictional interviews, Oregon City plans and policies, mapping, available databases, and preliminary information from the land use and environmental review tasks (below). The existing conditions will be summarized, analyzed, and assessed to provide a framework that will inform alternatives analysis development by identifying design development parameters, including issues, constraints, and opportunities.

2.1 Transportation

Because the Meyers Road Extension is already included in the adopted Oregon City TSP and the focus of the project is to select the preferred alternative, the existing conditions analysis will be only a minor element of the proposed scope. The following five existing intersections (and their jurisdictions) are expected to be impacted by the Meyers Road Extension:

- Beavercreek Road/Meyers Road (Clackamas County and ODOT)
- Beavercreek Road/Glen Oak Road (Clackamas County)
- Highway 213/Molalla Avenue/CCC Entrance (ODOT)
- Highway 213/Meyers Road (ODOT)
- Highway 213/Glen Oak Road (ODOT)
- Beavercreek Road/Loder Road (to a lesser extent) (Clackamas County)

No new traffic counts are proposed. Recent counts will be assembled from existing sources such as TSP base year counts, signal data, and traffic impact analyses performed in recent years. Both AM and PM peak hour volumes will be assembled where available.

Traffic operations analysis of the intersections will be summarized. Analyses will be conducted using Synchro and SimTraffic. The LOS, v/c, and queuing will be reported.

2.2 Environmental Review

Consultant shall analyze potential natural resource-related permitting constraints within the various project alignments under review. Work will occur at a reconnaissance level suitable for highlighting potential issues for each alternative and providing a fair comparison between alternatives. Review will focus on streams, wetlands, riparian areas, and, potentially, upland habitats that may be regulated by the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Oregon Department of Fish & Wildlife, Oregon Department of Environmental Quality, Oregon Department of State Lands, and/or Oregon City. Consultant shall conduct a review of potential sensitive species and their habitats (aquatic and terrestrial), and this review will be supported by data from the Oregon Biodiversity Information Center (ORBIC) database. Research will include review of publicly available datasets and mapping, such as National and Local Wetland Inventory data and Oregon City Natural Resource Overlay District (NROD) maps. A site reconnaissance field visit will be conducted on public properties and on private properties, when permission is granted. Potential mitigation opportunities within the project vicinity will be highlighted if available. Results will be provided in a report format, including a natural resources constraints map.

2.3 Land Use Analysis

The adopted plans and policies for the project area will be reviewed by the Consultant to understand how the different roadway alignments line up with those plans and policies. In particular, the project will review the TSP, the neighborhood plans (such as the Beavercreek Road Concept Plan), the Clackamas Community College Master Plan, and other relevant documents that have outlined the proposed development of the area. This review assumes that the City will provide all relevant planning documents, studies, and background materials.

2.4 Set Cost

The Consultant shall confirm the unit costs to be used for order of magnitude costing of alternative alignments and preliminary costing of the preferred alternative conceptual design. The metro roadway cost estimating guide and the City's bid tabulation history will be used as a basis for costs.

2.5 Pre-application Conference

The Consultant shall prepare for and attend one pre-application conference with the City to discern constraints, City permitting requirements, comprehensive plan and zoning code issues, and City plan adoption requirements, in order to tailor the level of detail required of the products throughout this project.

- Assumes one Consultant planner attends. Ideally, APM attends as well.

2.6 Meetings

- 2.6.1 PMT Meeting #1:
  - Project kickoff
  - Confirm the work plan and schedule
  - Discuss potential project decision criteria
  - Communication protocols (website, outreach, etc.)
  - Confirm that PMT members will keep their elected officials informed and bring their concerns to the group
- 2.6.2 TAC meetings (quarterly):
  - Presentational updates by Consultant (two (2) meetings)
- 2.6.3 APM meetings (monthly, or as needed, check-ins with APM)
- 2.6.4 PMT Meeting #2:
  - Draft decision making criteria
  - Edits to maps/information
  - Alternatives analysis process review

2.7 Baseline Memo (draft and final)

- Consultant shall prepare a Baseline Conditions Memo summarizing the transportation, environmental, land use, and regulatory environment. The memo will include a summary of the issues identified in the pre-application conference (Task 2.5).
  - The City will provide one set of consolidated non-contradictory comments on the draft memo.

- The final memo will address comments from the City.

Assumptions:

- City will identify any plans/documents it would like reviewed and will provide materials if they are not available online.
- City will assist in selection of PMT representatives and provide contact information.
- City will arrange the venue for all committee meetings.
- City will provide relevant materials and drawings related to development of the baseline conditions memo.
- Consultant shall send materials/agendas to committees, will facilitate the PMT meetings, and will provide meeting summaries and action lists.
- City will arrange time on City TAC committee agenda for informational presentations.
- Approval from jurisdictions or major stakeholders other than the City will be required.
- City will create a project page and upload information to the project website, including meeting agendas, minutes, and materials and media releases.
- City will maintain a list of interested parties (accrued from the website sign-up function, and from sign-up sheets and public meetings) and will send notices about public involvement opportunities in advance of meetings.
- City will disseminate consultant-drafted media releases and assign a City employee as the point of contact for all media inquiries.
- Consultant shall develop a draft list of project values/criteria that best represent the input from stakeholders. The criteria will be reviewed by the PMT for incorporation into the jurisdictional evaluation and decision criteria, and then finalized after interviews with property owners.
- City, working with Consultant, shall develop a clear project boundary to be used in assessing baseline conditions.
- Environmental Review includes a single site reconnaissance visit. Formal resource field mapping will not occur (e.g., wetland delineation, etc.).

Deliverables:

- Draft and Final Baseline Conditions Memo
- Draft and Final Environmental Review Analysis
- Base maps with existing conditions for PMT review
- Meeting agendas, materials, and meeting summaries for PMT Meetings #1 and #2
- Project decision criteria
- Project messaging
- Draft Jurisdictional Decision Criteria
- Text for project website
- Talking points for PMT for advance briefing(s) of elected officials

Task 3 Alternatives Analysis (Apr./May)

The Consultant shall develop up to three (3) road alignment alternatives based on input from the existing conditions review and goals/criteria of the project partners. The three alternatives will be compared and contrasted based on how well they meet the decision-making criteria agreed to by the PMT.

Alternatives Comparison

The alternatives will be compared and assessed based on their ability to meet the agreed-upon project decision making criteria, and an analysis of:

- Land use plans, policies, and conditions;
- Environmental issues;
- Transportation issues;
- Stakeholder concerns;,
- Engineering issues; and
- Anticipated costs.

The assessment will be presented on maps and in a matrix that summarizes the relative performance of each alternative. Technical analysis in each of these areas is described below.

3.1 Transportation

A transportation analysis will be conducted to inform the development of the alternatives, and the advantages and disadvantages of transportation impacts will be determined by alternative. Future year volumes will be developed for the TSP planning horizon year. For Meyers Road and the five existing intersections identified above, the primary basis for the development of the future year volumes will be the future year volumes indicated in the TSP. Based on a single land use scenario for parcels abutting or adjacent to the Meyers Road corridor, adjustments to the TSP volumes will be made to account for the Clackamas Community College Master Plan and anticipated land use in the immediate vicinity. In addition to the five existing intersections, future year volumes will be developed where the proposed southerly connection to the CCC is planned to intersect Meyers Road.

Operations analyses will be conducted for the five existing intersections as well as for the planned intersection of the southerly CCC access and Meyers Road. For the five existing intersections, the basic intersection configuration analyzed will be as specified in the TSP. The analyses for these intersections will include the identification of various lane configurations to achieve satisfactory performance, but it will not, for example, include analyses of a roundabout in place of a signalized intersection. For the planned intersection of the southerly CCC access and Meyers Road, both a roundabout and a conventional intersection will be analyzed. Both stop-control and signalization will be evaluated if signal warrants are met. Analyses for conventional intersections will be conducted using Synchro and SimTraffic. Roundabouts will be analyzed using Sidra.

The focus of the traffic operations analysis will be to inform the design of the Meyers Road facility and help select the preferred alternative. The key information obtained from this traffic analysis will consist of the intersection type (at southerly CCC access/Meyers Road); the number of lanes and lane configuration appropriate at the intersection of Meyers Road and Highway 213; and the appropriate lane configuration for Meyers Road Extension between High School Road and Highway 213.

Information on the traffic volumes and the performance of other intersections will be presented for future use in other studies and refinement planning efforts, although this information is not expected to be of critical importance for the decisions associated with the selection of a preferred alternative for the Meyers Road Extension. Information about the predicted performance of intersections at Highway 213/Molalla Avenue, Highway 213/Glen Oak Road, Beavercreek Road/Meyers Road, and Beavercreek Road/Glen Oak Road may prove useful for analyses of the Highway 213 and Beavercreek Road corridors.

3.2 Environmental Review

Environmental resources identified during the Task 2 Baseline Conditions will be reviewed relative to the different project alternatives. An order of magnitude assessment of impacts will be conducted to highlight potential environmental benefits and concerns of each alternative. Estimates of potential mitigation requirements of each alternative will be outlined. Environmental review work will be coordinated with the Land Use Analysis to reduce duplication of NROD review.

3.3 Land Use Analysis

Consultant shall review each alternative to understand its consistency with adopted plans and integration with community plans (including those for CCC and the Oregon City School District). The team will work with the City of Oregon City Planning Department to identify the potential land use permitting requirements for the proposed alternatives and whether they would vary by alignment. The area includes several sections of the Natural Resource Overlay District, which, if crossed, will likely require additional land use and environmental permitting, including mitigation plans for affected areas. Based on previous discussions with City Planning staff, the project will likely require a Type III planning process, which requires Planning Commission approval, in addition to the NROD clearance requirements identified in Section 17.49 of the Oregon City Municipal Code.

3.4 Plan Year Conditions Analysis

Future year volumes will be developed for the TSP planning horizon year. For Meyers Road and the same five existing intersections identified above, the primary basis for the development of the future year volumes will be the future year volumes indicated in the TSP. Based on a single land use scenario for parcels abutting or adjacent to the Meyers Road corridor, adjustments to the TSP volumes will be made to account for the Clackamas Community College Master Plan and anticipated land use in the immediate vicinity. In addition to the five existing intersections, future

year volumes will be developed where the proposed southerly connection to the CCC is planned to intersect Meyers Road.

Up to three (3) technical memoranda will be produced that summarize the results of the existing conditions, the future traffic volumes, and the future year operations analyses.

3.5 Engineering

Conceptual designs for up to three (3) conceptual roadway alignment alternatives will be developed. The alternatives will be developed to a level sufficient to determine the relative footprint and costs of the alternatives, including water and sewer.

3.6 Cost

An order of magnitude cost will be developed for the three alternative roadway alignments using unit costs (lineal foot or square foot) agreed to with the City.

3.7 Meetings

3.7.1 PMT Meeting # 3

The Consultant shall prepare materials for and facilitate a PMT review of the alternatives and lead the PMT through a process to rank alternatives and help screen to draft alternatives. Materials will include a revised performance matrix comparing the alternatives and maps.

3.8 Other Stakeholder Outreach

Stakeholder outreach will be targeted and focused on identifying any public and property issues related to alternatives development, and on achieving acceptance of the project decision criteria.

3.8.1 Stakeholder Interviews

The Consultant shall conduct up to five (5)) stakeholder interviews with property owners and other stakeholders, as identified by the City, to assess issues (access, future uses, impacts, and restrictions) and information to assist in alternatives development. Two to three follow-ups with interviewees are anticipated during the alternatives selection process.

3.8.2 Neighborhood Presentations

The Consultant shall provide meeting materials from existing documents and maps developed for other tasks for City staff to attend the Caufield Neighborhood Association and CIC meetings: (1) to present background on the project, (2) to describe the decision process, and (3) to get feedback on the alternatives.

3.8.3 Website Update/Media

The Consultant shall provide text for the City to post on the project website, and a media release for dissemination to the interested parties list and to the local media that updates project progress.

Meetings

- PMT Meeting #3

- Stakeholder interviews (5)
- One CIC and one Caufield Neighborhood Association briefing by City staff
- One City TAC briefing

Assumptions

- City will assist in selection of stakeholder interviewees and provide contact and property information.
- City will update website, and send media release to local media and interested parties.
- City will assist in identifying stakeholder interviewees, and provide contact and property information for each.
- Consultant shall notify interviewees, and design and conduct interviews with input from City.
- City will help facilitate public meeting and provide technical staff to assist.
- City will meet with the CIC.
- City will provide the Consultant with the City's newsletter publishing schedule for potential inclusion of articles about the project.
- Analyses of the performance of these corridors are ***not*** proposed as a part of the scope of work for the Meyers Road Extension project.

Deliverables

- Summary and maps of the alternatives
- Performance matrix for alternatives
- Draft and final of Alternatives Comparison Memorandum, summarizing advantages based on technical analyses and stakeholder input
- One draft and final set of interview questions, tailored to public and/or private entities
- One combined summary of results from interviews to include a list of issues, needs, and values/criteria suggested for alternatives selection
- Agendas, materials, and summaries for PMT Meeting #3
- One website update and one media release
- Powerpoint presentation on alternatives
- Maps/materials for committee meetings, consisting of existing materials created for other tasks
- Up to three (3) transportation technical memoranda that summarize the results of the existing conditions, the future traffic volumes, and the future year operations analyses
- Talking points for PMT to present project progress to their elected officials

Task 4 Selecting the Preferred Alternative (Jun.-Jul.)

The Consultant shall, based on feedback from the PMT Meeting #3 and stakeholder input, refine the alternatives to one preferred alternative, based on the agreed-upon project decision criteria.

Once the final preferred alternative is refined and approved by the PMT, the project team will present it to the boards and commissions from which approval is necessary.

4.1 Meetings

4.1.1 PMT Meeting #4

The PMT will recommend a preferred alternative based on outreach, stakeholder input, and performance.

Contingency: Technical analysis may be required to answer any questions prior to the PMT/ Project Leadership Group (PLG) making their selection of the preferred alternative alignment.

4.2 Finalize Conceptual Design

Consultant shall determine the limits of construction and the approximate cost of the preferred conceptual alternative.

4.3 Potential Funding Sources

The Consultant shall write a short memorandum identifying potential funding sources for the preferred alternative.

4.4 Other Stakeholder Outreach

4.4.1 Property Owners

The Consultant shall provide a letter and rendering of the preferred alternative to the property owners, and make follow-up calls to discuss any other issues that arise.

4.4.2 Commission/Board Presentations

The Consultant shall make one (1) presentation each to the CCC and Oregon City School District boards to explain the process and the proposed final alternative selection.

4.4.3 Community Presentations

The City staff will make one (1) presentation each to the CIC and the Caufield Neighborhood Association to explain the process and proposed final alternative selection.

4.4.4 Website

The website will be updated with information and the preferred alternative.

4. 5 Final Report – Draft and Final (Summary of Alternatives Analysis Memo with Preferred Alternative)

The Consultant shall create a report summarizing the alternatives analysis and the recommended preferred alternative. The report will include appendices: a summary of the outreach process, the Baseline Conditions Memo, and the traffic/transportation analysis.

- Draft #1

- Final version, incorporating City comments

Meetings

- PMT Meeting #4
- CIC meeting and neighborhood association meeting
- Stakeholder contacts (property owners)
- Presentations to the CCC and Oregon City School District boards

Assumptions

- City APM will participate in stakeholder meetings as needed.
- Consultant shall provide meeting reminder, agenda, and materials for PMT meeting in advance to committee members.
- City will arrange times with, and lead presentations for, the CIC and the Caufield Neighborhood Association.
- Consultant shall prepare maps and charts for City-led neighborhood and CIC presentations.
- Consultant shall prepare one (1) draft media release to provide notice of opportunity to comment on alternatives at the CIC and neighborhood association meetings.
- City will post the website update provided by Consultant.
- City will coordinate notification (media releases, email blast to interested parties) to publicize presentations at CIC and neighborhood association meetings.
- City will provide one set of non-conflicting comments on the draft final report (Summary of Alternatives Analysis Memo with Preferred Alternative).
- Costs of the preferred alternative will be developed by the consultant to prospectus level costs.
- Footprint of the preferred alternative will be developed by the consultant sufficient to determine approximate land needed for the project.

Deliverables

- Agenda materials, maps, and summary sheets of alternatives for PMT Meeting #4
- Talking points for PMT to brief elected officials
- Draft and final Summary of Alternatives Analysis Memo with Preferred Alternative
- Up to six (6) displays for presentations (draft and final versions)
- One (1) draft media release
- Draft and final text for website update
- Draft and final Powerpoint for jurisdictional presentations
- One (1) summary of additional issues from property owner calls
- One (1) draft and final letter and information mailing to property ownersDraft and final copies of PMT meeting agendas, displays, and materials

Task 5 Adoption Process (Aug.)

5.1 Transportation System Plan Adoption

Based on the selected preferred alternative, the Consultant shall prepare a packet for amendment of the Oregon City TSP. The packet will include documentation of the alternatives analysis process, including public involvement, and will identify insertion and deletion modifications for the TSP to implement the project. Consultant shall assist the City with the adoption process, including attending the Planning Commission meeting to answer questions on the project. We assume that the City staff will present on the project.

- Draft adoption language for preferred alignment amendment.
- Finalize adoption language after review by City.
- Planning Commission Meeting. (Develop findings for the Planning Commission (one (1) meeting) and provide one person to attend to answer questions in support of staff presenting on the project.)
- Other formal approvals required from the partners will be the responsibility of the City.

Deliverables

- Draft and Final Adopted Preferred Alternative Amendment Package, paper and PDF versions, with links to the table of contents suitable for uploading to the City website
- Attendance at City Planning Commission meeting to support staff presentation

Meyers Road - OR City

		Hours										Cost			
		Stakeholder Involvement, KC Cooper	Sr. Planner, Elizabeth Mros-O'Hara	Land Use Planner, Anneke Van der Mast	Sr. Engineer, Mike Hickey	Engineer, John Replinger	Engineer, Josh Anderson	EIT, Jake Johnston	Resource Specialist Ethan Rosenthal	Graphics/GIS, Melissa Foltz	Project Assistant, Angie Jones	Total Labor Hours	Labor Cost	Expenses	Total Cost
		$57.72	$43.98	$30.45	$54.20		$36.90	$29.50	$37.70	$28.80	$25.20				
		$176.36	$134.38	$93.04	$165.61	$170.00	$112.75	$90.14	$115.19	$88.00	$77.00				
	Tasks	*150*	*116*	*206*	*162*	*107*	*62*	*156*	*74*	*46*	*127*	*1206*	*$149,629.16*	*$400.00*	*$150,029.16*
1	Project Management	20	20		80	5					48	173	$24,009.28		$24,009.28
2	Baseline Conditions												$0.00		$0.00
2.1	Transportation		4	8		22	20					54	$7,276.77		$7,276.77
2.2	Environmental		2						24	6	2	34	$3,715.34		$3,715.34
2.3	Land Use Analysis		4	12								16	$1,653.99		$1,653.99
2.4	Set Cost				8			24				32	$3,488.13		$3,488.13
2.5	Pre-application Conference		4	8					2		1	15	$1,589.21	$50.00	$1,639.21
2.6	Meetings												$0.00		$0.00
2.6.1	*PMT #1*	10	10	18	16	12			6	16	12	100	$12,494.92	$25.00	$12,519.92
2.6.2	*TAC Meetings (quarterly)*				2							2	$331.21	$25.00	$356.21
2.6.3	*APM Meetings (monthly, or as needed)*	16	2		24							42	$7,065.11	$100.00	$7,165.11
2.6.4	*PMT #2*	8	8	16	4				4	4	8	52	$6,065.73	$50.00	$6,115.73
2.7	*Baseline Memo (draft and final)*	2	4	8							8	22	$2,250.54		$2,250.54
3	Alternatives Analysis												$0.00		$0.00
3.1	Transportation		4	4		44	36					88	$12,448.57		$12,448.57
3.2	Environmental			4				2	16	4	2	28	$2,901.48		$2,901.48
3.3	Land Use Analysis			4								4	$372.16		$372.16
3.4	Plan Year Conditions Analysis		10	24	4				12			50	$5,621.46		$5,621.46
3.5	Engineering				8			40				48	$4,930.32		$4,930.32
3.6	Cost				8			8				16	$2,045.95		$2,045.95
3.7	Meetings												$0.00		$0.00
3.7.1	*PMT #3*	10	4	12		4	6		4	8	8	56	$6,554.82	$50.00	$6,604.82
												0	$0.00		$0.00
												0	$0.00		$0.00
3.8	Other Stakeholder Outreach												$0.00		$0.00
3.8.1	*Stakeholder Interviews(5)*	24	2									26	$4,501.45	$50.00	$4,551.45
3.8.2	*Neighborhood Presentations*	4		8							2	14	$1,603.76		$1,603.76
3.8.3	*Website update / Media*	6								2	2	10	$1,388.16		$1,388.16
4	Selecting the Preferred Alternative														$0.00
4.1	Meetings														$0.00
4.1.1	*PMT #4*	16	10	18		6			4	4	4	62	$7,981.05	$50.00	$8,031.05
												0	$0.00		$0.00
												0	$0.00		$0.00
4.2	Finalize Conceptual Design		4		4			80			2	90	$8,564.86		$8,564.86
4.3	Potential funding sources											0	$0.00		$0.00
4.4	Other Stakeholder Outreach														$0.00
4.4.1	*Property Owners*	14		6							4	24	$3,335.30		$3,335.30
4.4.2	*Commission/board presentations (assume 2*	12	8	6							4	30	$4,057.61		$4,057.61
4.4.3	*Community presentations*	4									2	6	$859.44		$859.44
4.5	*Final Report (draft and final)*	4	6	28	2	2		2	2	2	14	62	$6,452.66		$6,452.66
5	Adoption Process														$0.00
5.1	Transportation System Plan Adoption		10	22	2	12					4	50	$6,069.87		$6,069.87
	TOTAL	150	116	206	162	107	62	156	74	46	127	1206	$149,629.16	$400.00	$150,029.16

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-054

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8g.

From: City Recorder Nancy Ide

File Type: Resolution

SUBJECT:
Resolution No. 15-01, Amending Resolution No. 09-31, Establishing and Authorizing the Use of the General Records Retention Schedule for the Cities of Oregon, Adopted as OAR Chapter 166, Division 200

RECOMMENDED ACTION (Motion):
Staff recommends approval of Resolution No. 15-01, amending Resolution No. 09-31, establishing and authorizing the use of the General Records Retention Schedule for cities of Oregon.

BACKGROUND:
In 2003, the City Commission approved Resolution No. 03-15 authorizing use of the State's General Records Retention Schedule for Cities in Oregon (Schedule). The Schedule authorizes cities to dispose of records that have reached their retention. The Commission's action in 2003 implemented the use of the State's Retention Schedule for Cities as a means of systematic control of the creation, acquisition, processing, use, protection, storage, and final disposition of all public records. Since 2003, the City Recorder's Office has utilized the Schedule in disposing of City records and trained staff accordingly.

In 2009, the City Commission amended Resolution No. 09-31 establishing an exception to the State's Schedule to require permanent retention of recordings of executive sessions and written minutes. The State's Records Retention Schedule for Cities maintains a ten-year minimum requirement for these documents. Staff recommends the Commission approve Resolution No. 15-01 which eliminates the permanent retention exception and re-establishes the State's recommended ten-year retention for the executive session minutes. The reasons for staff's recommendation are:

1. Executive session records are exempt from public disclosure.
2. Decisions are not made in executive sessions, but forwarded to a regular meeting for a vote. The record of the Commission's action in the formal meeting is a permanent record.
3. Executive sessions are an administrative tool for city governing bodies.
4. Permanent retention sets a city up for error, theft, and misuse and is costly to maintain.
5. The official record of the City Commission is the regular meeting minutes.
6. The cost to maintain audio of the executive sessions increases with each added year and creates an unnecessary burden on the City.

The State Archivist's Office was not aware of any other city in Oregon that maintained its

executive session records beyond the ten years. Staff recommends the City Commission reinstate the State's recommended retention of executive session minutes to ten years by approving Resolution No. 15-01.

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-054

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8g.

From: City Recorder Nancy Ide

File Type: Resolution

SUBJECT:
Resolution No. 15-01, Amending Resolution No. 09-31, Establishing and Authorizing the Use of the General Records Retention Schedule for the Cities of Oregon, Adopted as OAR Chapter 166, Division 200

RECOMMENDED ACTION (Motion):
Staff recommends approval of Resolution No. 15-01, amending Resolution No. 09-31, establishing and authorizing the use of the General Records Retention Schedule for cities of Oregon.

BACKGROUND:
In 2003, the City Commission approved Resolution No. 03-15 authorizing use of the State's General Records Retention Schedule for Cities in Oregon (Schedule). The Schedule authorizes cities to dispose of records that have reached their retention. The Commission's action in 2003 implemented the use of the State's Retention Schedule for Cities as a means of systematic control of the creation, acquisition, processing, use, protection, storage, and final disposition of all public records. Since 2003, the City Recorder's Office has utilized the Schedule in disposing of City records and trained staff accordingly.

In 2009, the City Commission amended Resolution No. 09-31 establishing an exception to the State's Schedule to require permanent retention of recordings of executive sessions and written minutes. The State's Records Retention Schedule for Cities maintains a ten-year minimum requirement for these documents. Staff recommends the Commission approve Resolution No. 15-01 which eliminates the permanent retention exception and re-establishes the State's recommended ten-year retention for the executive session minutes. The reasons for staff's recommendation are:

1. Executive session records are exempt from public disclosure.
2. Decisions are not made in executive sessions, but forwarded to a regular meeting for a vote. The record of the Commission's action in the formal meeting is a permanent record.
3. Executive sessions are an administrative tool for city governing bodies.
4. Permanent retention sets a city up for error, theft, and misuse and is costly to maintain.
5. The official record of the City Commission is the regular meeting minutes.
6. The cost to maintain audio of the executive sessions increases with each added year and creates an unnecessary burden on the City.

The State Archivist's Office was not aware of any other city in Oregon that maintained its

executive session records beyond the ten years. Staff recommends the City Commission reinstate the State's recommended retention of executive session minutes to ten years by approving Resolution No. 15-01.

RESOLUTION NO. 15-01

A RESOLUTION AMENDING RESOLUTION NO. 09-31, ESTABLISHING AND AUTHORIZING THE USE OF THE GENERAL RECORDS RETENTION SCHEDULE FOR THE CITIES OF OREGON, ADOPTED AS OAR CHAPTER 166, DIVISION 200

WHEREAS, the City of Oregon City desires to implement the use of the Records Retention Schedule as a means of systematic control of the creation, acquisition, processing, use, protection, storage and final disposition of all public records; and

WHEREAS the Municipal Code of Oregon City, Chapter 2.04 – Administration, Section 2.04.010 Records requires the City Recorder to keep an accurate record of the Commission's proceedings and file and keep all books, papers, maps and records connected with the business of the Commission; and

WHEREAS the Oregon State Archivist has statutory responsibility and authority to authorize destruction of public records per ORS 192.105 and the Records Retention Schedule published by Oregon Administrative Rules Chapter 166, Division 200, is the mechanism by which that authority is given to cities; and

WHEREAS, the Records Retention Schedule developed by the Oregon State Archives and Oregon Association of Municipal Recorders revised and adopted August 7, 2014, as set out in OAR Chapter 166, Division 200, provides the legal authority for the destruction of records after such records have reached the end of their minimum required retention period; and

WHEREAS, The Record Retention Schedule (the Schedule) authorizes the destruction of certain records, it does not require destruction, but allows the City to retain documents for a longer period of time if desired by the City; and

WHEREAS, the City adopted the Schedule as developed by the Oregon state Archives in Resolution No. 03-15; amended the resolution in Resolution No. 09-31, and now wishes to amend the Schedule to remove the requirement to retain Executive Session minutes longer than the State's recommended retention of ten years; and

WHEREAS, no original records will be removed or destroyed until the required retention is met and a request for destruction has been approved by the City Recorder and the City Manager or until the original record has been digitally saved in compliance with OAR 166-017-0080.

NOW, THEREFORE, THE CITY OF OREGON CITY RESOLVES AS FOLLOWS:

1. The City Commission reestablishes and reauthorizes the use of the State Archivist's General Records Retention Schedule for the Cities of Oregon, for determining the length of time records created by the City of Oregon City are to be retained.

2. No records will be removed or destroyed until they have reached the end of their

specific retention period and a request for destruction has been approved by the City Recorder and the City Manager.

3. The City Commission hereby removes the exception to the State Archivist's General Records Retention Schedule adopted in Resolution No. 09-31 requiring permanent retention of recordings of Executive Sessions and written minutes. Executive Session minutes will now be subject to the State Archivist's General Records Retention Schedule for the Cities of Oregon, resulting in a retention period of 10 years for such documents.

Adopted, signed and approved this 21st day of January 2015.

DANIEL HOLLADAY, Mayor

Attested to this 21st day of January 2015:

Nancy Ide, City Recorder

Approved as to legal sufficiency:

City Attorney

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-022

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8h.

From: Police Chief and Public Safety Director James Band

File Type: Contract

SUBJECT:
RegJIN Participant - Intergovernmental Agreement between the City of Portland and the City of Oregon City.

RECOMMENDED ACTION (Motion):
Staff recommends the City Commission approve the Intergovernmental Agreement between the City of Portland and the City of Oregon City.

BACKGROUND:
RegJIN is a new, paperless law enforcement Records Management System that maintains a multi-agency, multi-jurisdictional set of law enforcement applications and associated databases. There are approximately 40 participating law enforcement agencies in Multnomah, Clackamas, Washington, and Clark Counties.

The police department has always utilized a free program that has been provided by the Clackamas County Sheriff's Office, who is also making this switch to RegJIN. The fact that this system is paperless will keep us from shredding hundreds of reams of wasted paper every year. For the officers in the field, they will have access to information in their vehicles that they have never had; grossly improving their abilities in the field. It will also save considerable staff time for our records department. The cost will be around $30,000 annually.

BUDGET IMPACT:
Amount: $30,000.00
FY(s): 2014-15
Funding Source: General Fund - Police Contract Services

City of Oregon City

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RegJIN PARTICIPANT INTERGOVERNMENTAL AGREEMENT
REGIONAL PARTNER AGENCY – FULL ENTRY

This Intergovernmental Agreement ("Agreement") is made effective on 01-01-15 ("Effective Date") by and between the City of Portland, a municipal corporation of the State of Oregon, and its successors or assigns (hereinafter referred to as "City") and City of Oregon City (hereinafter referred to as "RPA"), a(n) municipal corporation, by and through their duly authorized representatives. Authority to enter into the Agreement is pursuant to Oregon Revised Statues ("ORS") 190.003.

This Agreement may refer to the City and RPA individually as a "Party" or jointly as the "Parties."

This Agreement shall be perpetual and remain in effect unless otherwise terminated per the terms of this Agreement.

RPA Contact:	City of Portland Contact:
Chief Jim Band	Captain John Brooks
Oregon City Police Department	Portland Police Bureau
320 Warner Milne Road	1111 SW 2nd Avenue
Portland, OR 97045	Portland, OR 97204
TEL: (503) 496-1686	TEL: (503) 823 - 0000
E-MAIL: jband@orcity.org	E-MAIL: john.brooks@portlandoregon.gov

RECITALS

WHEREAS, the City has acquired a law enforcement Records Management System ("System") to maintain a multi-agency, multi-jurisdictional set of law enforcement applications and associated databases; and

WHEREAS, the City and the RPA are both signatories to the Intergovernmental Agreement for the User Board of the Regional Justice Information Network (RegJIN); and

WHEREAS, the RPA is an Entry RPA as defined in the Intergovernmental Agreement for the User Board of the RegJIN and herein; and

WHEREAS, the RPA desires to fully use the System; and

WHEREAS, the City and the RPA desire to enter into this Agreement and being fully advised; and

NOW THEREFORE, IN CONSIDERATION of the mutual promises and covenants contained herein, it is agreed as follows:

1. **DEFINITIONS:**

The following is a definition of terms used herein:

A. "Access" means the authority granted by the City to the RPA's Authorized Users to review or receive information from the System.

B. "Agreement" means this Participating Intergovernmental Agreement and all the Terms and Conditions, including all the documents referenced in the Order of Precedence.

C. "Amendment" means a written document required to be signed by both Parties when in any way altering the Terms and Conditions or provisions of the Agreement.

D. "Authorized Use" means functions and capabilities that a User is assigned and able to perform based on User ID and Password, as established by a System Administrator.

E. "Authorized System User" means any User that has passed the authentication process of the System and is thereby authorized to Use the System's functions and components based on the permissions established by that User's credentials (User ID and password, fingerprints, etc.).

F. "City Confidential Information" means any information, in any form or media, including verbal discussions, whether or not marked or identified by the City, which is reasonably described by one or more of the following categories of information: (1) financial, statistical, personnel, human resources data or Personally Identifiable Information as described in the Oregon Consumer Identity Theft Protection Act of 2007; (2) business plans, negotiations, or strategies; (3) unannounced pending or future products, services, designs, projects or internal public relations information; (4) trade secrets, as such term is defined by ORS 192.501(2) and the Uniform Trade Secrets Act ORS 646.461 to 646.475; (5) Exempt per ORS 192.501 and/or ORS 192.502 (6) attorney/client privileged communications, (7) exempt per federal laws (including but not limited to Copyright, HIPAA) and (8) information relating to or embodied by designs, plans, configurations, specifications, programs, or systems developed for the benefit of the City including without limitation, data and information systems, any software code and related materials licensed or provided to the City by third parties; processes; applications; codes, modifications and enhancements thereto; and any work products produced for the City.

G. "Confidential Information" means any information that is disclosed in written, graphic, verbal, or machine-recognizable form, and is marked, designated, labeled or identified at the time of disclosure as being confidential or its equivalent; or if the information is in verbal form, it is identified as confidential or proprietary at the time of disclosure and is confirmed in writing within thirty (30) days of the disclosure. Confidential Information does not include any information that: is or becomes publicly known through no wrongful or negligent act of the receiving party; is already known to the receiving party without restriction when it is disclosed; is, or subsequently becomes, rightfully and without breach of this Contract or any other agreement between the Parties or of any applicable protective or similar order, in the receiving party's possession without any obligation restricting disclosure; is independently developed by the receiving party without breach of this Contract; or is explicitly approved for release by written authorization of the disclosing party.

H. "Cost Allocation Formula" means the Plan, adopted by the City based on recommendations by the User Board that apportions capital, operation, maintenance, repair and equipment replacement costs and use of grant funding among the Entry

RPAs and Inquiry Only RPAs. The Cost Allocation Formula may be amended as provided for in the User Board Master IGA.

I. "Criminal History Record Information" means information collected by criminal justice agencies and stored or available through the System on individuals consisting of identifiable descriptions and notations of arrests, detentions, indictments, information, or other formal criminal charges and any dispositions arising therefrom, including, but not limited to sentencing, correctional supervision, and release.

J. "Criminal Justice Information" means information collected by criminal justice agencies that is needed for their legally authorized and required functions. This includes Criminal History Record Information and investigative and intelligence information. It does not include agency personnel or administrative records used for agency operations or management.

K. "Days" shall mean calendar days, including weekdays, weekends and holidays, beginning at midnight and ending at midnight twenty-four hours later, unless otherwise specified by the Agreement.

L. Defects means one of the five types of Defects listed below and as outlined in Exhibit E, Defect Definitions and Versaterm Responses:

1) "Material Defect" means an Error that impairs the Products as described in Critical Defect and for which no fix is available or forthcoming.

2) "Critical Defect" means an Error as defined in the System maintenance and support agreement between the City and the System Contractor and at least 25% of the User base of the Production System are impacted in the same manner as defined in the System maintenance and support agreement for a Critical Defect.

3) "High Defect" means an Error as defined in the System maintenance and support agreement between the City and the System Contractor and at least 25% of the active User base of the Production System and/or Hot Standby System environment are impacted in the same manner as defined in the System maintenance and support agreement for a High Defect.

4) "Medium Defect" means an Error as defined in the System maintenance and support agreement between the City and the System Contractor.

5) "Low Defect" means a Defect as defined in the System maintenance and support agreement between the City and the System Contractor. "Dissemination (Disseminate)" means the transmission of information, whether in writing, or electronically, to anyone outside the RPA that maintains the information, except reports to an authorized repository.

M. "Documentation" means User manuals, and other written and electronic materials in any form that describe the features or functions of the System, including but not limited to published specifications, technical manuals, training manuals, and operating instructions.

N. "Entry RPA" means a law enforcement agency that has signed the User Board IGA and this Participant IGA with the City. Entry RPA, the City and their Authorized Users enter

data into the System.

O. "Equipment" means any hardware, machinery, device, tool, computer, computer components, computer system or other high-technology equipment, including add-ons, or peripherals of tangible form together with the necessary supplies for upkeep and maintenance, and other apparatus necessary for the proper execution, installation and acceptable completion of the System.

P. "Error" means any defect, problem, condition, bug, or other partial or complete inability of the System to operate in accordance with the applicable Specifications and Documentation.

Q. "Interface" means a point of interaction between System components or the device or code which enables such interaction; applicable to both Equipment and Software.

R. "Inquiry Only RPA" means a law enforcement agency that has signed a Participant IGA with the City, providing Access to view System data but does not input any agency data into the System.

S. "Intelligence and Investigative Information" means information compiled in an effort to anticipate, prevent, or monitor possible criminal activity, or compiled in a course of investigation of known or suspected crimes.

T. "Material Breach" means any breach of this Contract that (a) causes or may cause substantial harm to the non-breaching party; or (b) substantially deprives the non-breaching party of the benefit it reasonably expected under this Contract.

U. "Mobile Data Computer (MDC)" means commercial grade mobile computers operating in a law enforcement vehicle or otherwise not connected via a local or wide area network that are capable of Accessing System servers via a network connection that is compliant with the Federal Bureau of Investigation's Criminal Justice Information System (CJIS) security policies.

V. "Operation and Maintenance Cost" shall mean the budgeted amount required for the operation, maintenance, and support of the System which may include, but not be limited to, the direct cost for: license fees, vendor support costs, software and hardware upgrade and/or replacement costs, administrative support of the User Board, maintenance, personnel, direct costs, facilities use and rental costs, and training for the upcoming year.

W. "Personal Computer (PC)" means commercial grade desk top computers that are capable of accessing System servers via a CJIS compliant connection.

X. "Person" means an individual of any age, concerning whom Criminal History Record Information is contained in, or accessible through the System.

Y. "RPA Asset" shall mean hardware, software, equipment, real property and fixtures, owned or leased by the RPA.

Z. "Specifications" shall mean the specifications contained in the contract between the City and the Contractor for the System governing its implementation and use by the City, Entry RPA, and Inquiry Only RPA.

AA. "System" is the law enforcement records management system acquired and implemented by the City of Portland for use by the Portland Police Bureau and the RPA.

BB. "System Administrator" shall mean a specially trained Authorized User that is authorized to perform System administrative functions.

CC. "System Manager" is the individual with designated named backups appointed by the City of Portland to manage and operate the System on a daily basis.

DD. "Use" means the City authorized Access given to RPA to assign Users, permission levels, enter data, and receive information from the System.

EE. "User" shall mean any person employed by or working on behalf of the City or an RPA, the City's and RPA's Bureaus and Divisions, Officers, Directors, and any person or entity authorized by the City and/or RPA to provide it with Services requiring use of the System, and to use the City's or an RPA's resources in whole or in part, in the course of assisting the City or an RPA.

FF. "User Board" shall mean the advisory body for the System that operates under the Master Intergovernmental Agreement for the User Board of the Regional Justice Information System Network (RegJIN).

GG. "User Fees" are fees set by the City for RPA Access and use of the System and as agreed to between the City and a RPA in a Participating IGA. User Fees shall be updated annually based on the Cost Allocation Formula and do not require an Amendment.

HH. "Withdrawal Plan" is a plan outlined in the User Board Master IGA, providing the manner of complete withdrawal of the RPA from this Agreement or for the RPA to change to an Inquiry Only RPA.

2. ORDER OF PRECEDENCE:

In the event there is a conflict between the terms and conditions of one portion of this Agreement with another portion of this Agreement, the conflict will be resolved by designating which portion of the Agreement documents takes precedence over the other for purposes of interpretation, except where a clear statement of precedence other than that set forth in this section is included in the document. In this Agreement the order of precedence shall be:

Exhibit A – User Fees (Fiscal Year 2014-2015)

Exhibit B – Use Policy for LInX Northwest

Exhibit C – System Procedures and Use Policy*

Exhibit D – Equipment and Security Requirements*

Exhibit E – Exhibit E, Defect Definitions and Versaterm Responses

*Exhibits C and D are available on the System's website at: http://www.portlandonline.com/regjinrc/index.cfm?&c=51409. Exhibits C and D will be revised as necessary to conform to updated requirements and procedures.

3. STATEMENT OF PURPOSE:

The purpose of this Agreement is to define the terms and conditions under which the System will be Accessed and Used by the RPA.

4. SYSTEM ACCESS:

The City will contract with the System Contractor and will own all licenses to Access the System. The City will provide the RPA's Users Access to the System.

5. PROVIDED SERVICES:

A. Enable Access via Equipment, including PCs, MDC, and other hand held devices for Authorized Use of the System by RPA Users.

B. Provide the capability through the System to generate Oregon National Incident Reporting System (O-NIBRS) data for the RPA and to upload the O-NIBRS data to the State of Oregon in the proper format.

C. Provide procedures, instructions and other documents to the RPA regarding the methods available and minimum requirements for RPA PCs and MDCs to gain Access to the System.

D. Provide instructions, documents, and arrange for the necessary training to certify one or more RPA System Administrators to perform limited administrative functions such as adding and removing Users from the System, establishing User IDs and passwords, setting up each User's Authorized Uses, and resetting passwords. RPA System Administrators will be trained as required, but not more than five (5) RPA employees will be trained at any one time.

E. Support the RPA's System Administrators in the performance of their System related administrative functions.

F. Provide training materials, training mentors and access to the System's training environment to enable RPA trainers to provide System training and instruction to RPA Users.

G. Maintain and administer the System according to City of Portland Information Technology policies and procedures including backup and restore, operating system patches, and System version upgrades as required and certified by the System Contractor.

H. Monitor, audit, and trouble-shoot the upload of appropriate information from the System to the Oregon Law Enforcement Data System (LEDS), NCIC, and other interfaced crime and public safety databases and systems including but not limited to LInX Northwest.

I. Ensure that audit logs are maintained in the System in accordance with CJIS requirements.

J. The City will provide a 24-hour, 365 days per year phone line for RPAs to report System problems, Errors or Defects. Protocol for addressing System problems, Errors or Defects is established in Exhibit E**,** RegJIN Support Model.

6. RPA RESPONSIBILITY:

A. Compliance with Applicable Law. RPA warrants it has complied and shall comply with all applicable law, ordinances, orders, decrees, labor standards and regulations of its domicile and wherever performance occurs in connection with the execution, delivery, and performance of this Agreement.

B. The RPA acknowledges and agrees that RPA employees will only use the System for Authorized Uses. Permission to use the information available in or through the System other than for Authorized Use shall be obtained in writing from the City prior to any such use.

C. The RPA acknowledges and agrees that RPA employees and subcontractors will only Access the System and information available in or through the System as authorized in this Agreement. Permission to Access the System or information available in or through the System other than as authorized in this Agreement shall be obtained in writing from the City prior to any such Access.

D. The RPA acknowledges and agrees that the RPA, RPA employees, and RPA subcontractors will not modify through computer programming or other techniques the functions, capabilities, and operations of the System unless written authorization is provided by the System Manager prior to performing such modifications.

E. The RPA acknowledges and agrees that; pursuant to the directions of the Oregon State Police and Part IV of the National Crime Information Center (NCIC) Computerized Criminal History, Program Concepts and Policy; the City shall establish policy and exercise management control over all operations of the System. The System Procedures and Use Policy is attached as Exhibit C.

F. RPA Administrators shall be responsible for creating User IDs, passwords, and establishing the Authorized Uses of the System for RPA Users within the constraints of the policies and procedures established by the City for such Users.

G. RPA is responsible for providing its own Equipment, including PCs, MDCs, printers, and other RPA located devices required by RPA Users of the System.

H. The RPA acknowledges and agrees that all RPA Equipment such as PCs and MDCs with Access to the System will be configured to meet the System's minimum requirements to gain Access as specified in Exhibit D: Equipment and Security Requirements.

I. The RPA acknowledges and agrees that all RPA Users shall meet the Personnel Security requirements specified in Exhibit D: Equipment and Security Requirements.

J. RPA is responsible for maintaining RPA PCs and MDCs according to City established requirements as specified in Exhibit D: Equipment and Security Requirements for the System.

K. RPA is responsible for installing, configuring and providing network access to devices located in RPA facilities and vehicles including, but not limited to, printers, scanners, and image capture devices.

L. RPA is responsible for providing secure network Access that 1) meets CJIS security requirements and 2) enables RPA PCs to reach the System's network demarcation

points.

M. RPA is responsible for providing network connectivity that meets CJIS security policies and for providing all network communication devices and Equipment between RPA MDCs and the System.

N. RPA is responsible for ensuring that all RPA network infrastructure and workstations with Access to the System comply with the most current CJIS security policy including, but not limited to, the physical security of workstations and MDCs that are able to Access the System, access control, identification and authentication, information flow enforcement, and system and information integrity. RPA may contact the City to determine how to obtain the most current version of the CJIS security policy document. The RPA is responsible for curing any problems uncovered as a result of an FBI audit. The City reserves the right to request and receive within a reasonable period, verification of RPA's compliance with CJIS policies.

O. RPA is responsible for correcting any O-NIBRS data identified by the System or by the State.

P. RPA is responsible for providing the City with the most current contact information for the RPA's security personnel and any changes thereof within seven (7) days of the change.

Q. RPA is responsible for ensuring that all RPA Users that are granted Authorized Use of the System comply with the appropriate CJIS security requirements.

R. RPA is responsible for checking the accuracy of, and generating standard O-NIBRS data for RPA and for the upload of the O-NIBRS information to the State of Oregon through the System.

S. RPA acknowledges and agrees that data entered into the System by RPA Users shall conform to the standards and procedures established for the System as described in Exhibit C, System Procedures and Use Policy. The City shall notify the RPA in writing if data entered by RPA Users is found to be nonconforming to the established standards and procedures. The RPA shall, at its option, 1) Correct such data using RPA resources as soon as practicable, but not to exceed thirty (30) days, or 2) request assistance by the City and reimburse the City for any costs associated with the City's removing or performing remedial actions on RPA data required to bring the data into conformance with established standards and procedures.

7. LInX NORTHWEST:

A. The RPA acknowledges and agrees to abide by all use policies set forth for participation in the NCIS Law Enforcement Information Exchange (LInX Northwest) system as stipulated in Exhibit B: Use Policy for LInX Northwest.

B. The RPA authorizes the City to provide the RPA's public records category data that is contained in the RegJIN RMS to LInX Northwest for Access and authorized Use by LInX Northwest users.

8. CONFIDENTIALITY:

A. Maintenance of Confidentiality. The City and RPA shall treat as confidential any

Confidential information that has been made known or available to them or that an Entry RPA has received, learned, heard or observed; or to which an RPA has had access. The City and RPA shall use Confidential information exclusively for the City or RPA's benefit and in furtherance of this Agreement. Except as may be expressly authorized in writing by the City or RPA, in no event shall the City or RPA publish, use, discuss or cause or permit to be disclosed to any other person such Confidential information. The City and RPA shall (1) limit disclosure of the Confidential information to those directors, officers, employees and agents of the City or RPA who need to know the Confidential information, (2) exercise reasonable care with respect to the Confidential Information, at least to the same degree of care as the City or RPA employs with respect to protecting its own proprietary and confidential information, and (3) return immediately to the City or RPA who provided the information, upon its request, all materials containing Confidential Information in whatever form, that are in the City or RPA's possession or custody or under its control. The City and RPA are expressly restricted from and shall not use Confidential intellectual property of the City or providing RPA without the City or that RPA's prior written consent.

B. The RPA acknowledge that each RPA is subject to the Oregon or Washington Public Records Acts, as applicable, and Federal law. Third persons may claim that the Confidential Information may be, by virtue of its possession by the City or a RPA, a public record and subject to disclosure. RPA receiving a public records request agrees, consistent with its state public records law, not to disclose any information that includes a written request for confidentiality and as described above and specifically identifies the information to be treated as Confidential. A RPA's commitments to maintain information confidential under this Agreement are all subject to the constraints of Oregon or Washington Statutes and Federal laws. Within the limits and discretion allowed by those laws, the City and RPA will maintain the confidentiality of information.

C. The RPA acknowledge and agree that the City and each RPA owns its own data in the System. RMS data can only be disclosed by the agency that entered it. In the event of a public record request for System data which belongs to the City or another RPA, the City or receiving RPA shall inform both the requestor and the appropriate RPA within two business days that it is not the custodian of record for the requested data and identify the RPA that may be able to comply with the public record request.

D. The RPA acknowledge that unauthorized disclosure of Confidential Information will result in irreparable harm to the City or providing RPA. In the event of a breach or threatened breach of this Agreement, the City or affected RPA may obtain equitable relief prohibiting the breach, in addition to any other appropriate legal or equitable relief.

9. LIMITS ON DISSEMINATION:

The RPA's Dissemination of Criminal Justice Information available in or through the RegJIN RMS shall follow current Criminal Justice Information policies and procedures and/or other applicable State and/or Federal Laws.

10. INFORMATION CONTROL AND RESPONSIBILITY:

Additions, modifications, and deletions of information stored in the RegJIN RMS shall be restricted to specifically authorized RPA Users and devices. The City will provide the RPA with a list of RPA sworn personnel, Users and devices that are permitted Access to the System on an annual basis. The RPA shall verify the list and report any discrepancies within 60 days. The responsible Party shall update the list of authorized Users and devices in a timely manner.

11. EQUITABLE REMEDIES:

The RPA acknowledges that unauthorized disclosure of City Confidential Information or misuse of a City computer system or network will result in irreparable harm to the City. In the event of a breach or threatened breach of this Contract, the City may obtain equitable relief prohibiting the breach, in addition to any other appropriate legal or equitable relief.

12. SECURITY:

A. Physical Security – the RPA shall be responsible for maintaining the physical security of all devices that are authorized to Access the System, as well as any printed output or System Documentation which might permit unauthorized Access to, or use of the System from within the RPA.

B. On-Line Security – The System contains procedures and tools to ensure that only authorized RPA Users and RPA devices can Access the information available in or through the System. RPA Users will be required to enter System User IDs and passwords before gaining Access to the System. System functions and System data. The RPA is responsible for issuing individual System User IDs and passwords to RPA Users. The RPA acknowledges and agrees that RPA employees will not share System User IDs and passwords.

C. Personnel Security – Any individuals that are provided Access to the System by the RPA through the issuing of System IDs and passwords shall undergo the following security checks:

1) A personal background investigation equivalent to a background investigation that would enable them to access the RPA's own confidential information.

2) Be fingerprinted and their identification and personal history verified through a check of the System's master name index, Oregon LEDS, the National Crime Information Center, and the FBI's Criminal Identification files.

3) Obtain appropriate certifications from the Oregon State Police for any LEDS and NCIC transactions for which the User is authorized to perform within the System.

D. The RPA acknowledges and agrees to comply with applicable CJIS Security Policy, including, but not limited to, verifying identification, performing a state of residency and national fingerprint-based record check within 30 days of assignment for all personnel who have direct access to Criminal Justice Information through RegJIN and for those RPA employees or contractors who have direct responsibility to configure and maintain computer systems and networks with direct access to Criminal Justice Information through RegJIN. If applicable, RPA shall deny or terminate Access and deny issuing or revoke a System User ID and password if, upon investigation, any RPA employee requesting or currently Using a System User ID and password is found to be in violation of current CJIS policy.

E. The RPA acknowledges and agrees to immediately deactivate the System USER ID and password of any employee or contractor who is no longer an RPA employee, an RPA contractor, or who no longer requires Access to the System.

F. RPA shall provide immediate notification to the System Manager of any security breach

that affects the System or any other City systems. RPA shall provide notification to the System Manager of any incident relating to System integrity such as a computer virus.

G. Failure to comply with the Security and Access specifications contained in the Agreement and Exhibit D: Equipment and Security Requirements may, at the sole discretion of the City, result in the suspension of the RPA and the RPA Users' Access to the System until such failures are corrected to the City's satisfaction.

13. PROPRIETARY RIGHTS:

All trademarks, service marks, patents, copyrights, trade secrets, and other proprietary rights in or related to each Party are and will remain the exclusive property of that Party.

14. PAYMENT:

A. RPA acknowledges and agrees to pay the City the amount set out in Exhibit A: User Fees, which shall conform to the Entry RPA cost allocations contained in the Cost Allocation Formula in the User Board Master IGA in effect at the time of billing.

B. Additional RegJIN services and/or System functions that are not routinely provided to other Entry RPAs under this Agreement shall be added via Amendment and billed as a separate line item identified in Exhibit A.

C. Exhibit A, User Fees, shall be adjusted to conform to changes in the Cost Allocation Formula or in the services and/or System functions provided by the City to the RPA.

D. The City will invoice the RPA annually in conformance with Exhibit A: User Fees.

E. The RPA shall submit payment within thirty (30) days of receipt of the invoice from the City.

F. Failure to pay the City as due will suspend the RPA's Access to the System until fully paid up.

G. In order to conform to the Cost Allocation Formula in the User Board Master IGA and to enable the invoice preparation per Exhibit A, RPA shall provide the City with the RPA's number of authorized sworn personnel plus any correctional deputies that will Access the System by April 1 of the calendar year before the next fiscal year during which the invoices apply.

15. CITY AUDITS:

The City, either directly or through a designated representative, may conduct financial and performance audits. City audits shall be conducted in accordance with generally accepted auditing standards. RPA shall provide the City's internal auditor or external auditor, and their designees with a copy of all reports, including any management letters issued as a result of the specified audits.

Access to Records – The City internal auditor or City external auditor, and their designees, shall be given the right, and the necessary access, to review the work papers of RPA audits if the City deems it necessary. Copies of applicable records shall be made available upon request at no cost to the City.

16. DURATION, WITHDRAWAL AND TERMINATION:

A. This Agreement is perpetual and shall continue from year to year unless otherwise terminated.

B. This Agreement may be terminated by either Party by the provision of a 90-Day written notice of termination to the other Party. Termination notices must be provided in writing and sent by either certified US mail, return receipt requested, or by personal delivery.

C. The effective date of termination shall be on January 1 of the year following the year during which the 90-day written notice expired.

D. Upon the effective date of termination, the RPA may remove its RPA assets from the System including any System data belonging to the RPA. All costs associated with the reasonable removal of the RPA's assets including System data owned by the RPA will be the responsibility of the RPA, unless termination notice is provided by the City in which case the City will either keep the data or the RPA will be responsible for all costs associated with the reasonable removal of the RPA's assets including System data owned by the RPA.

E. A minimum of 180 days shall be allocated for the System Manager to withdraw an RPA's assets including System data owned by the RPA from the System after the date upon which the termination becomes effective. The RPA may, at its option, continue to Access the System during this period.

F. In the event of termination, RPA shall pay the City for work performed in accordance with the Agreement prior to the effective date of termination.

17. FORCE MAJEURE:

A. In the event that either Party is unable to perform any of its obligations under this Agreement (or in the event of loss of Use) due to natural disaster, actions or decrees of governmental bodies or communications line failure not the fault of the affected Party (hereinafter referred to as a "Force Majeure Event"), the Party who has been so affected immediately shall give notice to the other Party and shall do everything possible to resume performance.

B. If the period of nonperformance exceeds fifteen (15) Calendar Days from the receipt of notice of the Force Majeure Event, the Party whose ability to perform has not been so affected may, by giving written notice, terminate this Agreement.

18. VIOLATIONS OF THE AGREEMENT:

In the event of violation of the provisions of this Agreement, or violation of the security policy by the RPA, RPA employees, and/or RPA contractors, the City shall have the authority to immediately restrict or prohibit Access to the System by RPA Users, RPA PCs, RPA MDCs, and other RPA devices until resolution of the problem to the satisfaction of the City. The RPA shall be notified in writing of such action, given 30 days in which to cure the violation before Access is restricted or prohibited, and there shall be no charge for Access during any time that Access is prohibited.

19: ROLLING ESTOPPEL:

Unless otherwise notified by the RPA, it shall be understood that the City shall have met all its obligations under the Agreement. The City will be conclusively deemed to have fulfilled its obligations, unless it receives a deficiency report from the RPA within ninety (90) Days of the alleged deficiency and the RPA identifies the specific deficiency in the City's fulfillment of its obligations in that report. Deficiencies must be described in terms of how they have affected a specific performance requirement of City.

20. <u>DISPUTE RESOLUTION:</u>

The RPA shall cooperate with the City to assure that all claims and controversies which arise under this Agreement and which might affect the quality of such Services will be resolved as expeditiously as possible in accordance with the following resolution procedure:

A. Any dispute between the City and RPA under this Agreement shall be resolved, if possible by the System Manager or their designee on behalf of the City and Captain Bill Kler or designee on behalf of the RPA.

B. If the System Manager or the System Manager's designee and RPA are unable to resolve any dispute within three (3) Business Days, or such other time as mutually agreed upon, after notice of such dispute is given by either Party to the other, the matter shall be submitted to Bureau of Technology Services Chief Technology Officer on behalf of the City and Information Services Director, Captain Bill Kler or City of Oregon City designee on behalf of the RPA for resolution, if possible.

C. If the City's Chief Technology Officer and RPA's Captain Bill Kler, or designee, are unable to resolve any dispute within fourteen (14) Calendar Days, or such other time as mutually agreed upon, the dispute shall be escalated to the Chief of Police/Sheriff.

D. Should any dispute arise between the Parties concerning this Agreement that is not resolved by mutual agreement above within thirty (30) Calendar Days, or such other time as mutually agreed upon, it is agreed that such dispute will be submitted to mandatory mediated negotiation prior to any Party's commencing binding arbitration or litigation. In such an event, the Parties to this Agreement agree to participate in good faith in a non-binding mediation process. The mediator shall be selected by mutual agreement of the Parties, but in the absence of such agreement each Party shall select a temporary mediator and those mediators shall jointly select the permanent mediator. All costs of mediation shall be borne equally by the Parties.

E. Should an equitable solution not result from the foregoing, the City and Contractor shall be free to agree to pursue either binding arbitration, litigation, or other remedies allowed under this Agreement.

F. In the event the Parties elect to use arbitration to settle the dispute, within thirty (30) Days of a notice by either Party to the other requesting arbitration, the affected RPA shall select an arbitrator from a list of three (3) obtained from Arbitration Services of Portland, Inc. (ASP). For the avoidance of doubt, issues related to technology require an arbitrator with a background in computer systems or technology. The arbitrator shall, for purposes of the arbitration proceedings, apply the rules of mandatory arbitration as adopted by the ASP in effect at the time of the arbitration. Within sixty (60) Days of the appointment of the arbitrator, the Parties shall concurrently submit to the arbitrator (supplying a copy to each other) a written statement of their respective

legal and factual positions on the dispute. The arbitrator shall determine, after a hearing on the merits and within forty-five (45) Days after receipt of the statements, the determination of the dispute which determination shall be final and binding. Each Party shall bear equally the expense of the arbitrator and all other expenses of conducting the arbitration. Each Party shall bear its own expenses for witnesses, depositions, other costs incurred and attorney's fees.

G. Unless ordered by the City to suspend Access, the RPA shall proceed with Use without any interruption or delay during the pendency of any of the foregoing dispute resolution. During the pendency of any of the foregoing dispute resolution procedures, the RPA shall continue to make all payments that are not in dispute, in accordance with the provisions of the Agreement.

21. NOTICE:

Any notice provided for under this Agreement shall be sufficient if in writing and delivered personally to the following address or deposited in the United States Mail, postage prepaid, certified mail, return receipt requested, addressed as follows, or to such other address as the receiving Party hereafter shall specify in writing:

If to the Provider:	RegJIN System Manager Portland Police Bureau 1111 SW Second Avenue, Room 1156 Portland, Oregon 97204-3232
If to the RPA:	**Agency Contact Info** Bill Kler, Captain 320 Warner Milne Road Oregon City, OR 97045

22. AMENDMENTS:

Except as a section or subsection may otherwise specifically provide, limit, or prohibit, the City and RPA may amend this Agreement at any time only by written Amendment executed by the City and the RPA.

Any changes to the provisions of this Agreement shall be in the form of an Amendment. No provision of this Agreement may be amended unless such Amendment is approved as to form by the City Attorney and executed in writing by authorized representatives of the Parties. If the requirements for Amendment of this Agreement as described in this section are not satisfied in full, then such Amendments automatically will be deemed null, void, invalid, non-binding, and of no legal force or effect.

23. INTERPRETATION:

The terms and conditions of this Agreement shall be liberally construed in accordance with the general purposes of this Agreement and according to Oregon law**.** This Agreement shall be construed according to the laws of the State of Oregon without reference to its conflict of law provisions. Any litigation between the City and RPA arising under this Agreement shall occur, if in the state courts, in the Multnomah County Circuit Court, and if in the federal courts, in the

United States District Court for the District of Oregon.

24. INDEMNIFICATION:

To the extent permitted by the Constitutions and laws of Oregon the RPA and the City shall hold each other harmless and indemnify each other for the negligent acts, actions or omissions to act of their respective entity's, commissioners, officers, employees, and agents in the performance of their respective responsibilities and duties under this Agreement. Notwithstanding the foregoing, neither Party shall in any way be liable to hold harmless or indemnify the other Party for any costs or claims arising directly, or indirectly, out of any System related activities in which they are not participating.

25. ASSIGNMENT:

The rights and obligations of each party under this Agreement may not be assigned in whole or in part. Any attempted transfer shall be null and void, of no force or effect. Attempted transfer of this Agreement shall be considered Material Breach of contract.

26. WAIVER:

No waiver or any breach of Agreement shall be held to be a waiver of any other or subsequent breach of this Agreement.

27. REMEDIES:

The remedies provided in this Agreement are cumulative, and may be exercised concurrently or separately. The exercise of any one remedy shall not constitute an election of one remedy to the exclusion of any other.

28. SURVIVAL:

All obligations relating to confidentiality; indemnification; publicity; representations and warranties; proprietary rights as stated in this Agreement shall survive the termination or expiration of this Agreement.

29. NO THIRD PARTY BENEFICIARIES:

The Parties expressly agreed that nothing contained in the Agreement shall create any legal right or inure to the benefit of any third party.

This Agreement is entered into for the benefit of the City and RPA. Except as set forth herein, nothing in this Agreement shall be construed as giving any benefits, rights, remedies or claims to any other person, firm, corporation or other entity, including, without limitation, the general public or any member thereof, or to authorize anyone not a party to this Agreement to maintain a suit for breach of contract, personal injuries, property damage, or any other relief in law or equity in connection with this Agreement.

30. SEVERABILITY:

The terms of this Agreement are severable and a determination by an appropriate body having jurisdiction over the subject matter of this Agreement that results in the invalidity of any part, shall not affect the remainder of this Agreement.

Signature Page

31. INTEGRATION:

This Agreement and the User Board IGA constitutes the entire Agreement between RPA and the City and supersedes all prior written or oral discussions, proposals, presentations, understandings or agreements between the Parties on this subject.

The Parties acknowledge that they have read and understand this Agreement and agree to be bound by the terms and conditions contained herein.

The Parties agree that they may execute this Agreement, and any Amendments to this Agreement, by electronic means, including the use of electronic signatures.

The Parties hereby cause this Agreement to be executed.

The City: City of Portland	**RPA:** City of Oregon City, Oregon
By: Mike Reese	**By:**
Name: Mike Reese	**Name:** James Band
Title: Chief of Police	**Title:** Chief of Police
Date: 12/19/14	**Date:**
By: C. Kalei Taylor	**By:**
Name: Kalei Taylor	**Name:** William Kabeiseman
Title: Deputy City Attorney for the City of Portland	**Title:** Deputy City Attorney for the City of Oregon City
Date: 12/4/2014	**Date:**

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-023

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8i.

From: Police Chief and Public Safety Director James Band

File Type: License

SUBJECT:
OLCC: Liquor License Application - Full On-Premises Sales, New Outlet, Applying as a Corporation; MLB, Inc., DBA McAnulty & Barry's, 820 Main Street, Oregon City, OR 97045

RECOMMENDED ACTION (Motion):
Staff recommends the City Commission approve OLCC Application for MLB, Inc., DBA McAnulty & Barry's, 820 Main Street, Oregon City, OR 97045, for a Full On-Premises, New Outlet, Liquor License.

BACKGROUND:
The Oregon City Police Department ran a background check on the corporate officer. Barbara Duval is eligible to hold a Liquor License.

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

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OREGON LIQUOR CONTROL COMMISSION

LIQUOR LICENSE APPLICATION

Application is being made for:

LICENSE TYPES

- [x] Full On-Premises Sales ($402.60/yr)
  - [ ] Commercial Establishment
  - [ ] Caterer
  - [ ] Passenger Carrier
  - [ ] Other Public Location
  - [ ] Private Club
- [ ] Limited On-Premises Sales ($202.60/yr)
- [ ] Off-Premises Sales ($100/yr)
  - [ ] with Fuel Pumps
- [ ] Brewery Public House ($252.60)
- [ ] Winery ($250/yr)
- [ ] Other: _____

ACTIONS

- [ ] Change Ownership
- [x] New Outlet
- [ ] Greater Privilege
- [ ] Additional Privilege
- [ ] Other _____

90-DAY AUTHORITY

- [ ] Check here if you are applying for a change of ownership at a business that has a current liquor license, or if you are applying for an Off-Premises Sales license and are requesting a 90-Day Temporary Authority

APPLYING AS:

- [ ] Limited Partnership
- [x] Corporation
- [ ] Limited Liability Company
- [ ] Individuals

CITY AND COUNTY USE ONLY

Date application received: _____

The City Council or County Commission:

_____
(name of city or county)

recommends that this license be:

❑ Granted ❑ Denied

By: _____
(signature) (date)

Name: _____

Title: _____

OLCC USE ONLY

Application Rec'd by: _____

Date: 12-15-14

90-day authority: ❑ Yes ❑ No

1. Entity or Individuals applying for the license: [See SECTION 1 of the Guide]

① MLB Inc ③ _____

② _____ ④ _____

2. Trade Name (dba): McAnulty & Barry's

3. Business Location: 820 MAIN street Oregon City Clack ORegon 97045
(number, street, rural route) (city) (county) (state) (ZIP code)

4. Business Mailing Address: 7825 SE 114th Ave Portland Oregon 97266
(PO box, number, street, rural route) (city) (state) (ZIP code)

5. Business Numbers: 503-723-7192 - Cell # 503-866-1944
(phone) (fax)

6. Is the business at this location currently licensed by OLCC? ☐ Yes ☑ No

7. If yes to whom: MLB Inc Type of License: Full On-Premises

8. Former Business Name: McAnulty & Barry's

9. Will you have a manager? ☑ Yes ☐ No Name: Barbara Duval
(manager must fill out an Individual History form)

10. What is the local governing body where your business is located? Oregon City
(name of city or county)

11. Contact person for this application: Barbara Duval 503-866-1944
(name) (phone number(s))

7825 SE 114th AVE PDX, OR 97266 BarbJDuval@ComCast.Net
(address) (fax number) (e-mail address)

I understand that if my answers are not true and complete, the OLCC may deny my license application.

Applicant(s) Signature(s) and Date:

① Barbara Duval Date 12-5-14 ③ _____ Date _____

② _____ Date _____ ④ _____ Date _____

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-072

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8j.

From: City Recorder Nancy Ide

File Type: Minutes

Minutes of the January 7, 2015 Regular Meeting

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: 15-072

Agenda Date: 1/21/2015

Status: Consent Agenda

To: City Commission

Agenda #: 8j.

From: City Recorder Nancy Ide

File Type: Minutes

Minutes of the January 7, 2015 Regular Meeting

City of Oregon City
Meeting Minutes

625 Center Street
Oregon City, OR
97045
503-657-0891

Dan Holladay, Mayor
Carol Pauli, Commission President
Commissioners Rocky Smith, Jr., Brian Shaw,
and Daphne Wuest

Wednesday, January 7, 2015 7:00 PM Commission Chambers

1. Convene Regular Meeting and take Roll Call

Mayor Doug Neeley called the meeting to order at 7:00 PM. Present at the dais with Mayor Neeley were Commissioners Betty Mumm, Rocky Smith, Jr., Carol Pauli, and Kathy Roth.

2. Presentation of the Colors - Junior Reserve Officer Training Corps. (JROTC)

The Junior Reserve Officer Training Corps presented the colors.

3. Ceremonies, Proclamations

3a. National Anthem - Josh Santos, Apparatus Operator with Clackamas County Fire District #1

Josh Santos, Apparatus Operator with Clackamas County Fire District #1, sang the national anthem.

3b. Oath of Office - The Honorable Laraine McNiece Officiating

Mayor:	Daniel Holladay
Commission Position No. 1:	Brian Shaw
Commission Position No. 4:	Daphne Wuest

The Honorable Laraine McNiece administered the oath of office to Dan Holladay for Mayor; Brian Shaw for Commission Position No. 1; and Daphne Wuest for Commission Position No. 4. The newly sworn officials took their seats at the dais and Doug Neeley, Betty Mumm, and Kathy Roth sat in the audience.

Roll Call:

Present: 5 - Mayor Dan Holladay, Commissioner Rocky Smith, Commissioner Carol Pauli, Commissioner Brian Shaw, and Commissioner Daphne Wuest

Staffers: 12- City Manager David Frasher, City Attorney William Kabeiseman, Police Chief and Public Safety Director James Band, Public Works Director John Lewis, Community Development Director Tony Konkol, Community

Services Director Scott Archer, City Recorder Nancy Ide, Human Resources Director Jim Loeffler, Finance Director Wyatt Parno, Library Director Maureen Cole, Economic Development Manager Eric Underwood and Administrative Assistant Kattie Riggs

3c. Election of Commission President for 2015

A motion was made by Commissioner Wuest, seconded by Commissioner Smith, to nominate Carol Pauli for Commission President for 20125. The motion carried by the following vote:

Aye: Mayor Dan Holladay, Commissioner Rocky Smith, Commissioner Carol Pauli, Commissioner Brian Shaw, and Commissioner Daphne Wuest

3d. Oath of Office for 2015 Commission President – The honorable Laraine McNiece Officiating

Judge McNiece administered the oath of office to Carol Pauli for 2015 Commission President.

3e. Commission Appointments for 2015

1. Metro Policy Advisory Committee (MPAC)
   Mayor Dan Holladay; Alternate: Commissioner Carol Pauli

2. South Fork Water Board
   Mayor Dan Holladay; Commissioner Brian Shaw; Commissioner Rocky Smith, Jr.

3. Clackamas County Coordinating Committee (C4)
   Mayor Dan Holladay; Alternate: Commissioner Daphne Wuest

4. Regional Wastewater Advisory Committee
   Mayor Dan Holladay

5. Downtown Oregon City Board
   Commissioner Carol Pauli

6. Willamette Falls Heritage Coalition
   Representative and Alternate: Commissioner Daphne Wuest

7. Willamette Falls Legacy Project Liaison
   Mayor Dan Holladay and Commissioner Carol Pauli

8. Clackamas Heritage Partners
   Commissioner Rocky Smith, Jr.

9. Oregon City Tourism Council
   Commissioner Rocky Smith, Jr.

10. Citizen Involvement Council Liaison
    Commissioner Brian Shaw

11. Natural Resources Committee Liaison
    Mayor Dan Holladay

3f. Mayor Appointments to City Boards and Commissions

Mayor Holladay made the following appointments

1. Appointment of Joanne McCall to the Budget Committee for a 4-year term of January 1, 2015 to December 31, 2018, and Barb Streeter for a 2-year term of January 1, 2015 to December 31, 2016.

2. Appointment of Bob Mahoney to the Urban Renewal Budget Committee for a 4-year term of January 1, 2015 to December 31, 2018.

3. Reappointment of Don Wright and appointment of Janet Wallinder to the Library Board for a 4-year term of January 1, 2015 to December 31, 2018.

4. Reappointment of Joyce Gifford and appointment of Blane Meier and Doug Neeley to the Parks & Recreation Advisory Committee for a 3-year term of January 1, 2015 to December 31, 2017.

5. Reappointment of Paul Espe, Zach Henkin, Denyse McGriff, and Damon Mabee to the Planning Commission for a 4-year term of January 1, 2015 to December 31, 2018.

6. Reappointment of John Anderson and appointment of Gary Johnson for the at-large position and Thomas Batty for the Oregon City Chamber of Commerce representative, to the Transportation Advisory Committee for a 3-year term of January 1, 2015 to December 31, 2017.

4. **Citizen Comments**

Jerry Herrmann, resident of Oregon City, hoped that the Commission would allow all of the City Committees to give a brief presentation at the Commission Retreat.

Mike Jarrett, representing the Friends of the Ermatinger House, explained a few months ago the organization was formed to help with the continued preservation, education, and interpretation of this unique architectural and historical asset. He extended an invitation to meet and collaborate with the Commission in order to develop a program for the house.

William Gifford, resident of Oregon City, was asked to relay a message from Larry Hanlon and Larry Long extending congratulations and a welcome to the new Commission.

Doug Neeley, resident of Oregon City, congratulated the new Commission on their appointments. He reflected on Commissioners Pauli and Smith's tenure and the good work they had done on the Commission so far.

Bob Mahoney, resident of Oregon City, said they all had to come together to make things work. These were interesting and difficult times, especially for funding and maintaining the City's infrastructure. He suggested forming a coalition to work with Metro and State delegates to find the funding and rebuild the community. He also encouraged the Commission to listen to the citizens.

5. **Adoption of the Agenda**

The agenda was adopted as presented.

6. **General Business**

There was no General Business.

7. **Consent Agenda**

A motion was made by Commissioner Pauli, seconded by Commissioner Wuest, to approve the consent agenda. The motion carried by the following vote:

Aye: Mayor Dan Holladay, Commissioner Rocky Smith, Commissioner Carol Pauli, Commissioner Brian Shaw, and Commissioner Daphne Wuest

7a. Minutes of the December 3, 2014 Regular Meeting

7b. Minutes of the December 9, 20124 Work Session

7c. Minutes of the December 17, 2014 Regular Meeting

8. **Communications**

8a. City Manager

John Lewis, Public Works Director, gave an update on the Meyers Road Concept Plan. This was a collaborative effort with the High School, Community College, and City. A personal Services Contract would be brought back for Commission approval to complete a study that would help with the new realignment.

David Frasher, City Manager, said the illumination art project at the Elevator would soon be dismantled. He handed out a list of topics for the Commission Retreat. Due to time constraints, he thought the committees could come to a regular meeting or work session to report to the Commission instead of the Retreat.

8b. Mayor

Mayor Holladay recognized former Commissioner Mumm, Mayor Neeley, Dan Fowler, Blane Meier, Nick Dierkman, William Gifford, Don Slack, several associations, and his family for their support and help during his campaign. He thought the Commission had the same goals and would get things done.

8c. Commission

Commissioner Smith congratulated the new members of the Commission. He was excited to move forward with the projects that had been set in motion by the last Commission.

Commissioner Pauli also welcomed the new Commissioners. She thought this was an exciting time to be on the Commission. There would be a public meeting regarding the Economic Improvement District and downtown visioning on January 14th.

Commissioner Shaw thanked the outgoing members of the Commission for their time and work. He discussed the reasons he decided to run for Commissioner and how he thought a lot of good things would be accomplished. He wanted to maintain the integrity of the past Commissions and keep Oregon City as Oregon City.

9. **Adjournment**

Mayor Holladay adjourned the meeting at 7:44 PM.

Respectfully Submitted,

_____

Nancy Ide, City Recorder

4. Citizen Comments

January 7, 2015

Citizens are allowed up to 3 minutes to present information relevant to the City but not listed as an item on the agenda. Prior to speaking, citizens shall complete a comment form and deliver it to the City Recorder. The City Commission does not generally engage in dialog with those making comments, but may refer the issue to the City Manager. Complaints shall first be addressed at the department level prior to addressing the City Commission.

5. Adoption of the Agenda

6. General Business

7. Consent Agenda

This section allows the City Commission to consider routine items that require no discussion and can be approved in one comprehensive motion. An item may only be discussed if it is pulled from the consent agenda.

7a. 15-017 Minutes of the December 3, 2014 Regular Meeting

Sponsors: City Recorder Nancy Ide

Attachments:

Minutes of January 7, 2015

Minutes of 12-03-2014

7b. 15-018 Minutes of the December 9, 2014 Work Session

Sponsors: City Recorder Nancy Ide

Attachments:

Minutes of 12-09-14

7c. 15-020 Minutes of the December 17, 2014 Regular Meeting

Sponsors: City Recorder Nancy Ide

Attachments:

Minutes of 12-17-2014

8. Communications

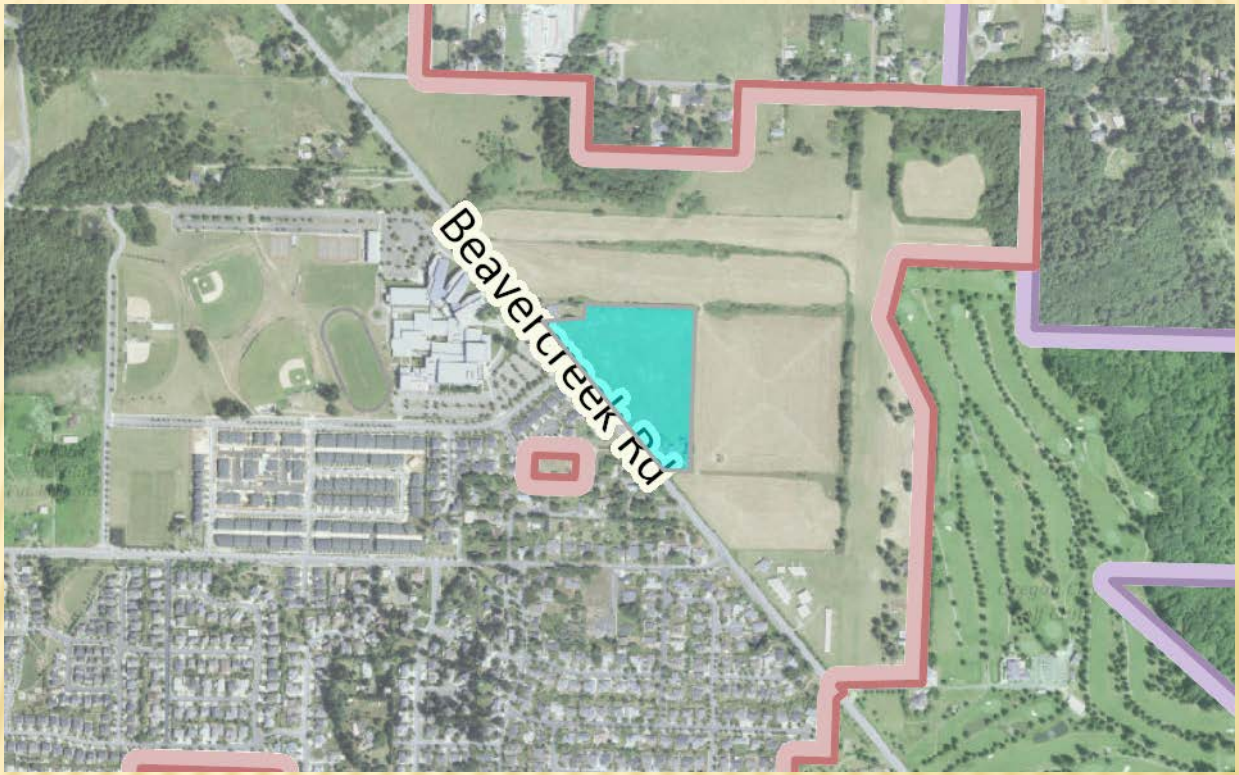
a. City Manager

b. Mayor

c. Commission

9. Adjournment

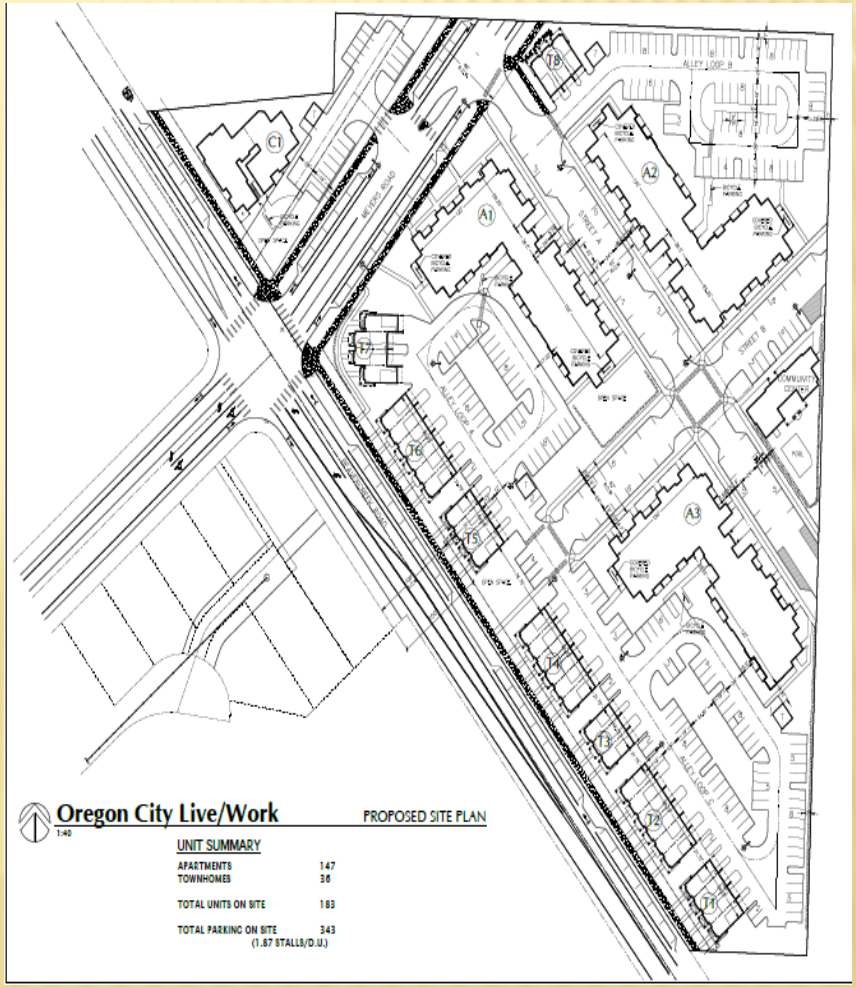
TWO APPEALS OF PLANNING FILE SP 14-01



Proposed 121 apartment and 59 live-work units located at 19896 Beavercreek Road.

PROJECT SITE

- Property is zoned MUC-1.
- Approximately 9.7 acres.
- Property was included in the UGB in 1979, prior to Metro Title 11 concept planning requirements.
- Identified as outer neighborhood, not industrial or employment, on the Metro 2040 Design Type Map.
- Annexed into Oregon City in 2008, this decision was not appealed.
- Zone changed approved to MUC-1 in 2010, this decision was not appealed.



AP 14-02: MS. GRASER-LINDSEY

Issues raised:

- Urbanization of the property cannot precede adoption of a concept plan.
- Compliance with the Oregon City Comprehensive Plan.
- Violation of findings from annexation (planning file AN 07-02).
- Violation of the Land Use Board of Appeals remand of the Beavercreek Road Concept Plan.
- Public facilities and services are not being coordinated nor adequate.
- The application is incomplete.

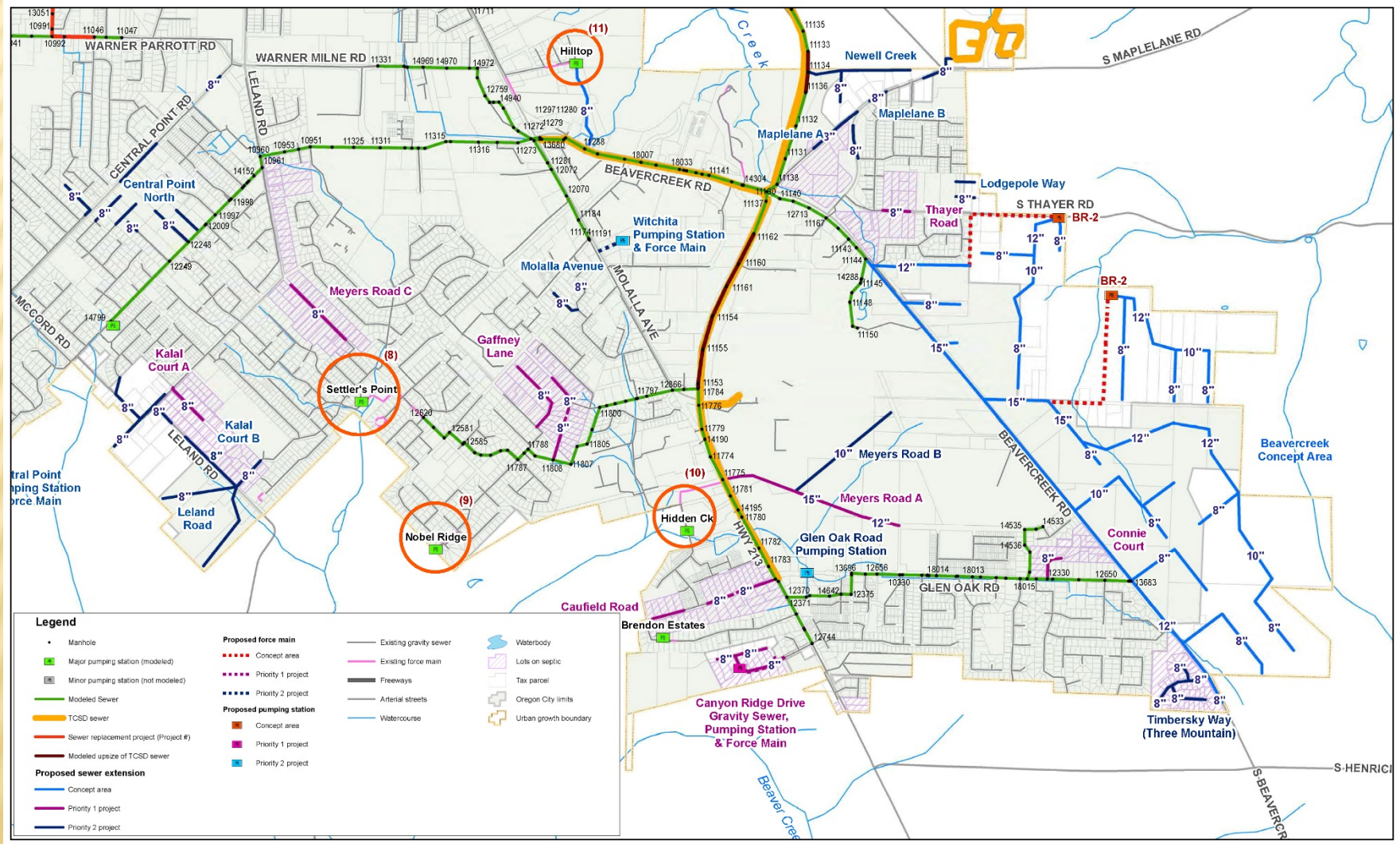
AP 14-01: BEAVERCREEK ROAD LLC

Issues raised:

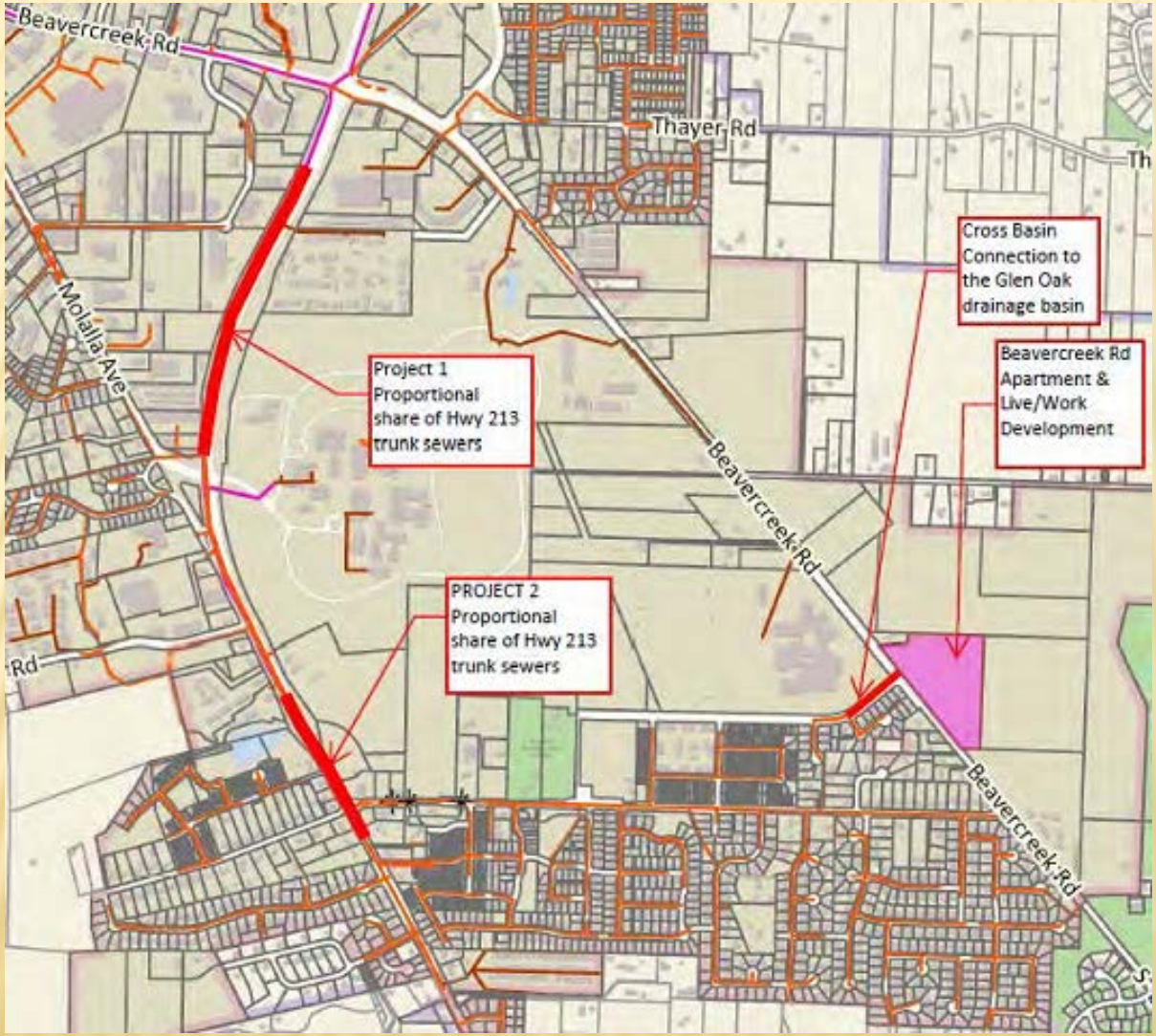
- The city erred in imposing a fee in lieu of $545,000 to modify and upsize portions of the off-site sewer system (condition of approval 37).
  - *Condition of approval 37. The applicant shall pay fee-in-lieu of downstream improvements in the Glen Oak basin required due to the cross basin connection. The amount of the fee-in-lieu shall be $545,000 in accordance with the documentation provided in the "Public Works Engineering Memorandum" (November 5, 2014)*

- The location of the new sewer connection in Meyers Road (condition of approval 34).
  - *Condition of approval 34. The applicant shall provide 8-inch sanitary sewer collection system in the existing and future public right-of-way with the connection to the existing collection system at the manhole located in Meyers Road at Emerson Court. A short section of the collection system shall be located in a 15-foot wide public easement that extends from the western end of "B" Street to the Beavercreek Road ROW.*

SANITARY SEWER



SANITARY SEWER



CONCLUSION

- Staff Recommendation: Deny both appeals and uphold the Community Development Director's decision to conditionally approve planning file SP 14-01.

AP 14-02 Graser-Lindsey Appeal

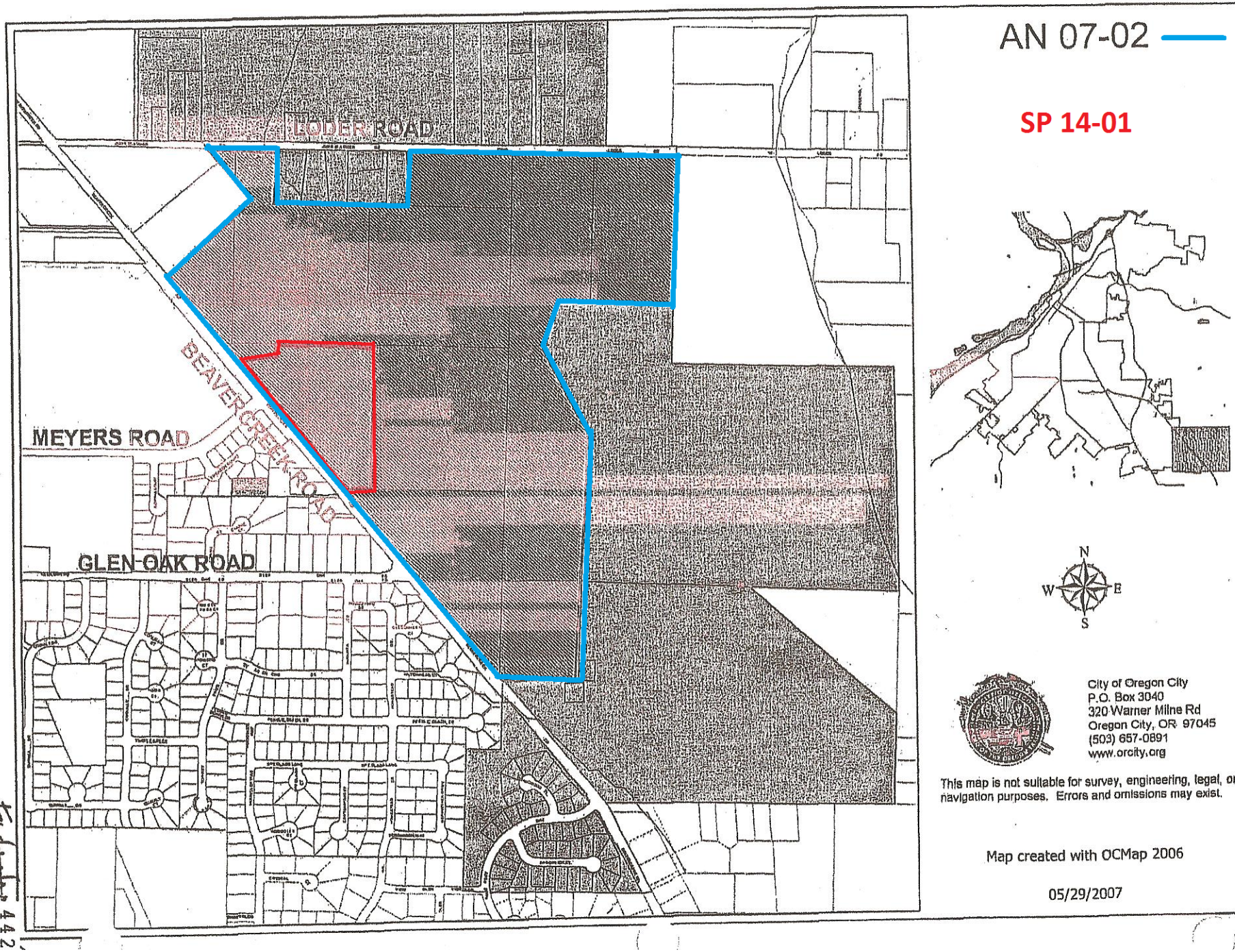
of Planning File SP 14-01

Beavercreek Rd. Live/Work Apartments

Jan. 21, 2015

Problem #1:

Application cannot be approved
because the concept plan
must proceed
urbanization and development.



LU04 2007-171 record page

Annexation Law considered by LUBA #1

OCCP Goal 14.4 “Annex lands to the city through a process that considers the effects on public services and the benefits to the city as a whole and ensures that development within the annexed area is consistent with the Oregon City Comprehensive Plan, City ordinances, and the City Charter.”

“Policy 14.4.2 Include an assessment of the fiscal impacts of providing public services to unincorporated areas upon annexation, including the costs and benefits to the city as a whole as a requirement for concept plans.”

LUBA's interpretation of OCCP Goal 14.4 and similar law:

"The underlying purpose of OCCP Goal 14.4 and related city and Metro provisions appears to be to ensure that

(1) **a concept plan will procede actual urbanization of the annexed areas**,

(2) concept plans will provide the basis for planning and zoning of annexed areas for urban development, and

(3) adequate and sufficient public facilities are extended to annexed areas as they urbanize in a way that does not financially burden or adversely affect public facilities and services in other parts of the city.

As we have explained elsewhere in this opinion, **the city took steps to ensure that urbanization cannot occur until the Beavercreek Road Concept Plan has been completed**." (LUBA 2007-171 Final Opinion and Order, p. 20)

Annexation Law considered by LUBA #2

OCMC 14.04.060(A) Annexation factors

A. When reviewing a proposed annexation, the commission shall consider the following factors, as relevant:

1. Adequacy of access to the site;
2. Conformity of the proposal with the city's comprehensive plan;
3. Adequacy and availability of public facilities and services to service potential development;
4. Compliance with applicable sections of ORS Ch. 222, and Metro Code Section 3.09;
5. Natural hazards identified by the city, such as wetlands, floodplains and steep slopes;
6. Any significant adverse effects on specially designated open space, scenic, historic or natural resource areas by urbanization of the subject property at time of annexation;
7. Lack of any significant adverse effects on the economic, social and physical environment of the community by the overall impact of the annexation.

LUBA's interpretation of OCMC 14.04.060(A)

"…**the city interprets OCMC 14.04.060(A)** to require that the city 'consider' the ultimate comprehensive planning for the annexed area and to 'consider' the adequacy and availability of public services and facilities to serve that urban development as 'relevant factors.'

We understand the city to argue that since (1) annexation, in and of itself, authorizes no additional urban development of the annexed property, (2) no urban development of the 122 annexed acres is allowed or will be allowed under the existing FU-10 zoning, (3) **no urban development will be possible before the Beavercreek Road Concept Plan is adopted** and necessary comprehensive plan and zoning amendments are adopted to allow urbanization of the annexed area, and (4) **the Beavercreek Road Concept Plan will be required to address the public facilities and services** that will be needed for the urbanization of the plan area, the city's findings that recognize and point out **these facts are sufficient to** 'consider' the 'relevant factors' set out in **OCMC 14.04.060(A)**." (LUBA 2007-171 Final Opinion and Order, p. 24).

LUBA's Reiteration

"We ultimately conclude in rejecting subassignments of error B and C under the first assignment of error that **the city** did not violate its obligations under those OCCP and OCMC requirements because it **has ensured that the 122 acres will not urbanize until the required land use and public facilities planning is completed under the Beavercreek Road Concept Plan**." LUBA 2007-171 Final Opinion and Order, p. 2 line 13-17).

On OCMC 14.04.050(E), the annexation application and its references to "anticipated development" and "proposed development", LUBA notes: "**The city concedes that the Metro Code and the OCCP require that the Beavercreek Road Concept Plan must be adopted before the annexed territory can be planned and zoned in a manner that would allow the annexed property to be developed with urban uses.**" (LUBA 2007-171 Final Opinion and Order, p. 13-14).

Other laws requiring concept plan prior to development

OCCP Policy 14.1.2

Concept plans that provide more detail than the city's Comprehensive Plan **will be required prior to development** of lands within the Urban Growth Boundary.

OCCP Goal 14.3 Orderly Provision of Services to Growth Areas

Plan for public services to lands within the Urban Growth Boundary **through adoption of a concept plan** and related Capital Improvement Program, as amendments to the Comprehensive Plan.

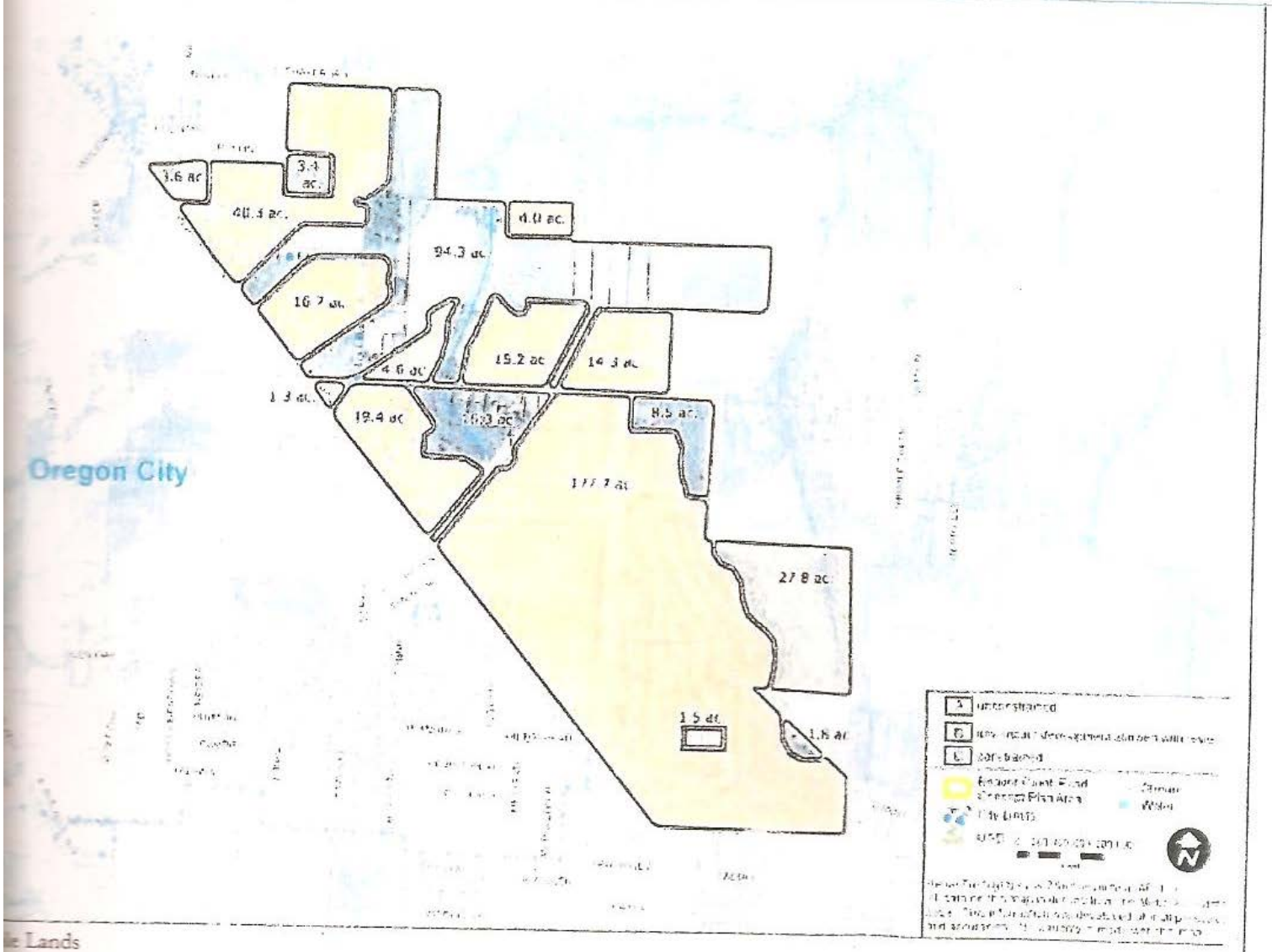
Problem #2:

Public services and facilities are not planned properly for the development.

Problem #3:

This development would hamper, block and preempt needed concept planning.

This could prevent meeting Oregon City's needs and compliance with the law.



Note: Buildable Lands

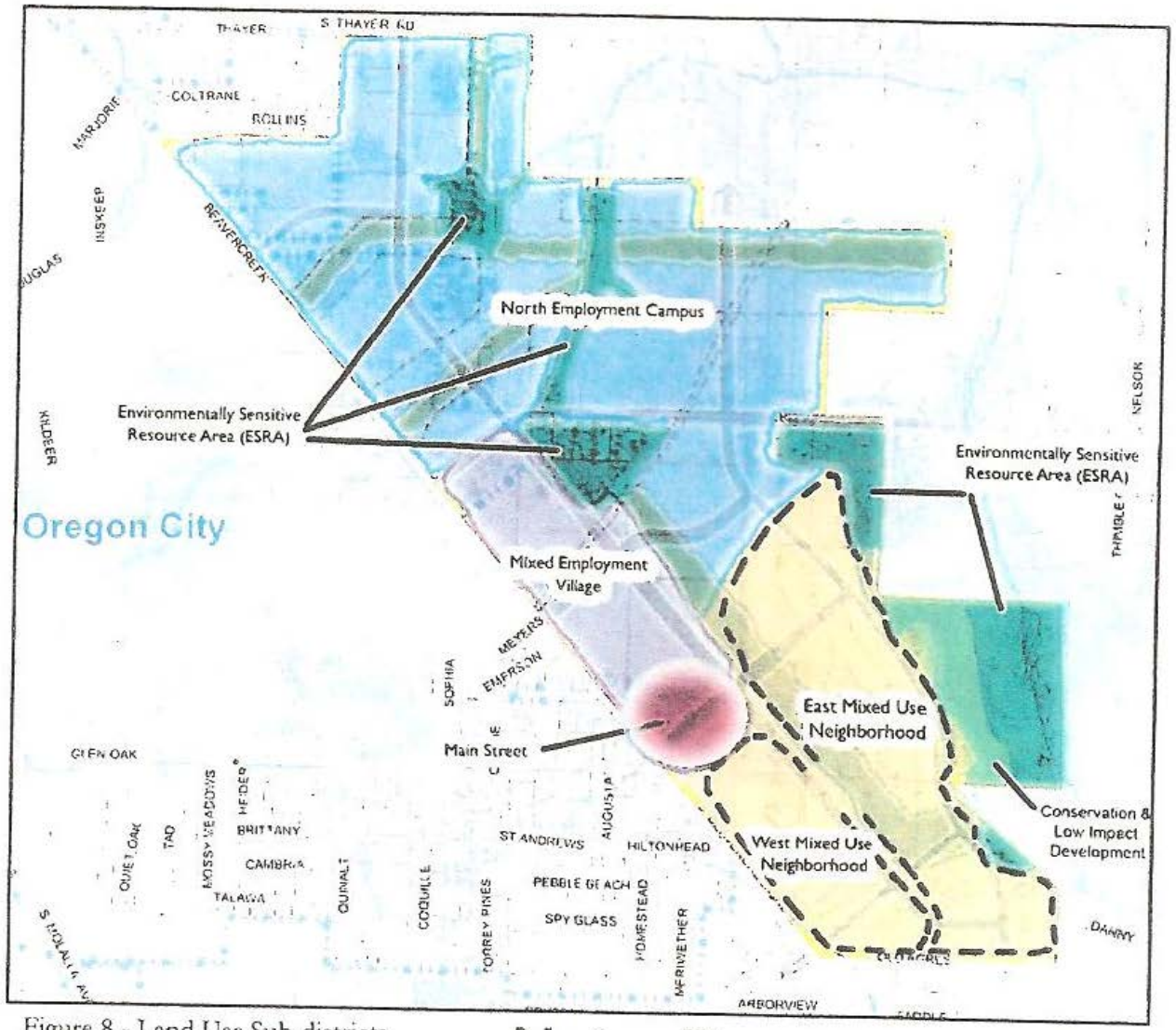
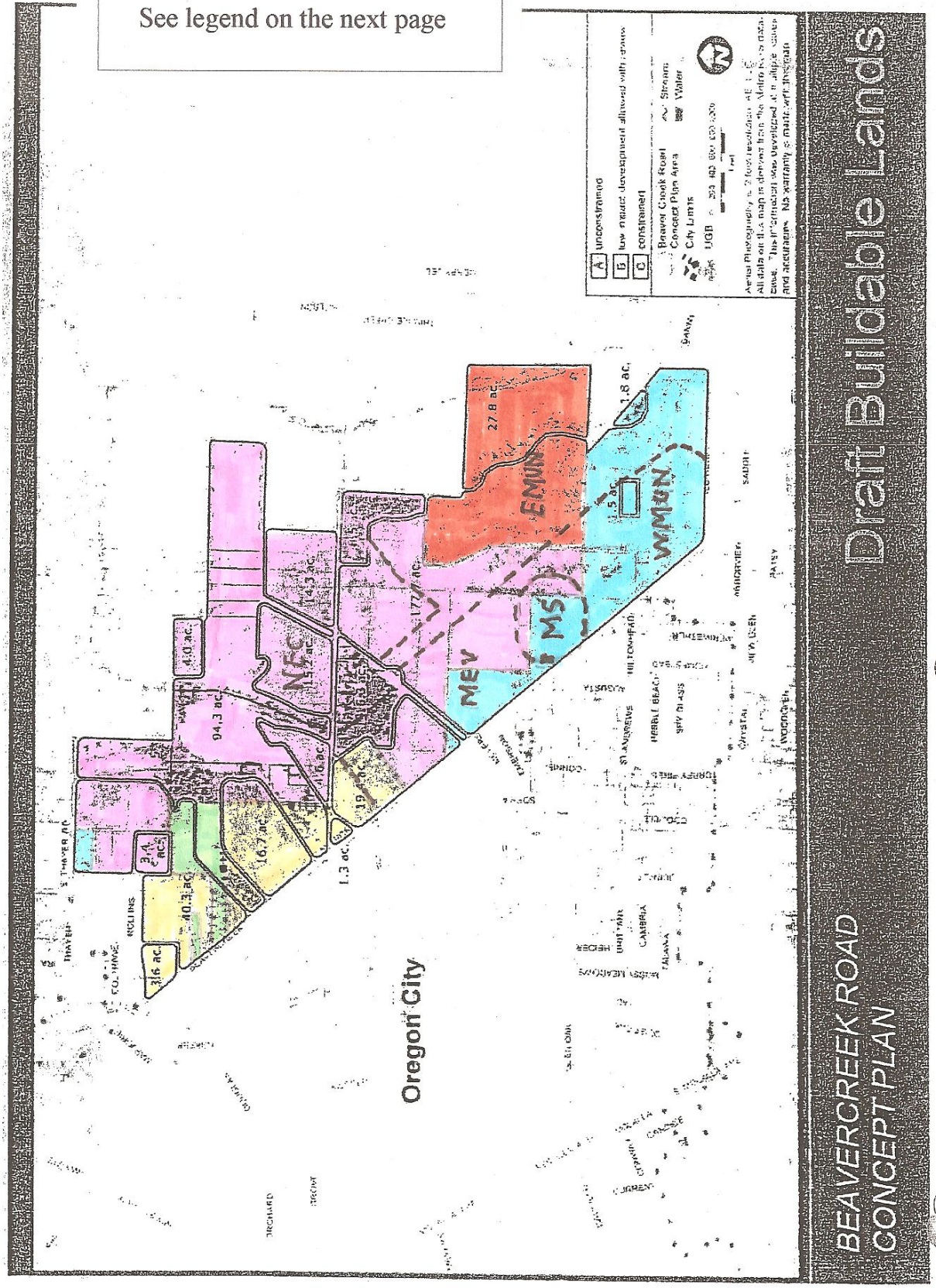


Figure 8 - Land Use Sub-districts

Note: Beavercreek Road Concept Road

See legend on the next page



AP 14-02 Graser-Lindsey Appeal of Planning File SP 14-01
Beavercreek Rd. Live/Work Apartments
Jan. 21, 2015

PROBLEM (Or STAFF ERROR) #1:
Consideration or approval of application SP 14-01 does not comply with law. According to OC law, LUBA's interpretation of OC law, and OC commitments made during an appeal of the annexation of this land, the Beavercreek Road Concept Plan must procede any urbanization and development of this property.

MAP 1. This map shows that this property (the subject of SP 14-01) is part of the land annexed to Oregon City by annexation AN 07-02[1] which was appealed to the Oregon's Land Use Board of Appeal (or LUBA) (which was appealed and affirmed).
This land is also a central part of the Beavercreek Rd. Concept Plan area that the City adopted in 2008, but LUBA remanded in Aug. 2009; i.e., LUBA rejected the concept plan as it was and sent it back to Oregon City to be revised.

Like me (the appellant), the City's own Planning Commission felt that annexing the land (in blue), which includes this property (red), before the concept plan was completed put the "cart before the horse".
Consequently, I appealed this annexation to LUBA.
LUBA affirmed the annexation and allowed it to proceed the adoption of the concept plan,
but LUBA found "the question is a reasonably close one" and it found that the annexation required very specific interpretations of OC law which it provided. (LUBA 2007-171 Final Opinion and Order, p. 19 line 13).

LAW #1
LUBA looked at Oregon City Comprehensive Plan (OCCP) Goal 14.4 and provided its interpretation based on the City's interpretation and argument:

[1] Appeal Memorandum from City Staff of Jan. 15, 2015, p. 2, cites Ord. #1021.

ENTERED INTO THE RECORD
DATE RECEIVED: 1/21/15
SUBMITTED BY: Elizabeth Graser-Lindsey
SUBJECT: Item 6a.

Oregon City Comprehensive Plan (OCCP) Goal 14.4 "Annex lands to the city through a process that considers the effects on public services and the benefits to the city as a whole and ensures that development within the annexed area is consistent with the Oregon City Comprehensive Plan, City ordinances, and the City Charter."
"Policy 14.4.2 Include an assessment of the fiscal impacts of providing public services to unincorporated areas upon annexation, including the costs and benefits to the city as a whole as a requirement for concept plans." LUBA, p. 17

LUBA'S INTERPRETATION of OCCP Goal 14.4 and similar law:

"The underlying purpose of OCCP Goal 14.4 and related city and Metro provisions appears to be to ensure that
(1) a concept plan will procede actual urbanization of the annexed areas,
(2) concept plans will provide the basis for planning and zoning of annexed areas for urban development, and
(3) adequate and sufficient public facilities are extended to annexed areas as they urbanize in a way that does not financially burden or adversely affect public facilities and services in other parts of the city.

As we have explained elsewhere in this opinion, the city took steps to ensure that urbanization cannot occur until the Beavercreek Road Concept Plan has been completed." (LUBA 2007-171 Final Opinion and Order, p. 20)

LAW #2

LUBA also looked at the Oregon City Municipal Code (OCMC)

OCMC 14.04.060(A) "14.04.060 - Annexation factors.

A. When reviewing a proposed annexation, the commission shall consider the following factors, as relevant:
1. Adequacy of access to the site;
2. Conformity of the proposal with the city's comprehensive plan;
3. Adequacy and availability of public facilities and services to service potential development;
4. Compliance with applicable sections of ORS Ch. 222, and Metro Code Section 3.09;
5. Natural hazards identified by the city, such as wetlands, floodplains and steep slopes;
6. Any significant adverse effects on specially designated open space, scenic, historic or natural resource areas by urbanization of the subject property at time of annexation;
7. Lack of any significant adverse effects on the economic, social and physical environment of the community by the overall impact of the annexation.

LUBA'S INTERPRETATION of OCMC 14.04.060(A)

In the absence of the City's express interpretation of this law, LUBA supplied the City's interpretation:
"...**the city interprets OCMC 14.04.060(A)** to require that the city 'consider' the ultimate comprehensive planning for the annexed area and to 'consider' the adequacy and availability of public services and facilities to serve that urban development as 'relevant factors.' We understand the city to argue that since (1) annexation, in and of itself, authorizes no additional urban development of the annexed property, (2) no urban development of the 122 annexed acres is allowed or will be allowed under the existing FU-10 zoning, (3) **no urban development will be possible before the Beavercreek Road Concept Plan is adopted** and necessary comprehensive plan and zoning amendments are adopted to allow urbanization of the annexed area, and (4) **the Beavercreek Road Concept**

Plan will be required to address the public facilities and services that will be needed for the urbanization of the plan area, the city's findings that recognize and point out **these facts are sufficient to** 'consider' the 'relevant factors' set out in **OCMC 14.04.060(A)**." (LUBA 2007-171 Final Opinion and Order, p. 24).

LUBA'S REITERATION

LUBA reiterated this opinion in several further statements:

"We ultimately conclude in rejecting subassignments of error B and C under the first assignment of error that **the city** did not violate its obligations under those OCCP and OCMC requirements because it **has ensured that the 122 acres will not urbanize until the required land use and public facilities planning is completed under the Beavercreek Road Concept Plan**." LUBA 2007-171 Final Opinion and Order, p. 2 line 13-17).

On OCMC 14.04.050(E), the annexation application and its references to "anticipated development" and "proposed development", LUBA notes: "**The city concedes that the Metro Code and the OCCP require that the Beavercreek Road Concept Plan must be adopted before the annexed territory can be planned and zoned in a manner that would allow the annexed property to be developed with urban uses.**" (LUBA 2007-171 Final Opinion and Order, p. 13-14).

OTHER LAWS REQUIRING THE CONCEPT PLAN PRIOR TO DEVELOPMENT

And regardless of the Annexation requirements outstanding for the city, other city laws require the concept plan before development:

OCCP Policy 14.1.2
Concept plans that provide more detail than the city's Comprehensive Plan will be required prior to development of lands within the Urban Growth

Boundary.

Goal 14.3 Orderly Provision of Services to Growth Areas
Plan for public services to lands within the Urban Growth Boundary through adoption of a concept plan and related Capital Improvement Program, as amendments to the Comprehensive Plan.

STAFF CLAIM NOT RELEVANT: REZONING IS INADEQUATE

(City specifically promised to have a concept plan before urbanization and development and LUBA's opinion specifically requires a concept plan before urbanization – LUBA found this necessary to approve the annexation in a close decision. (LUBA 2007-171 Final Opinion and Order, p. 19 line 13.)

The City's staff suggests that the 2010 re-zoning of this land with conditions[2] was sufficient to allow urbanization and development of this land.
(Appeal Memorandum from City Staff of Jan. 15, 2015, p. 3-4)

- The City gave one argument before LUBA for the annexation. The City did not divide the annexation into subzones that could receive reduced planning.
- A rezone with conditions is not the concept plan that the City's law requires -- neither as written or as interpreted by LUBA or mentioned in LUBA's Final Opinion and Order. (It did not need to be appealed; it was irrelevant to LUBA's requirements and the City's law).
- At no point did LUBA say rezoning could substitute for a concept plan and the City's law does not state that either.
- The staff report acknowledges, that without a concept plan, "compliance with the concept plan cannot be require" (p. 4 ¶2)[3].
- In addition, the conditions that the City applied with the rezone do not constitute an entire concept plan nor do they serve to coordinate the property with the whole concept plan area.

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[2] Staff says, "The conditions attached to the plan amendment/zone change explain that development of the property may procede adoption of the Beavercreek Road Concept Plan…" (p. 4 ¶4). Conditions do not supercede pre-existing law or create law.
[3] "[t]he City's more recently adopted sewer, water, and stormwater master plans" themselves potentially would need revising to conform with the concept plan.

or preadoption

- Finally, since a LUBA-affirmable concept plan has not yet been considered or adopted, there is no reason to think:
    - that the provisions of an old, remanded plan meet the City's current needs or
    - that an old plan adequately deals with public facilities and services.
    - LUBA anticipated that the creation of a new, legally-compliant concept plan could remedy potential additional errors in the old plan's handling of public facilities and services and citizen involvement[4]

The City itself is in error to consider this application (site plan design review) when the time is not right. The City is wrong to guide the applicant toward applying and approval criteria at a time when an application cannot yet be received due to the needed concept planning being incomplete and the concept plan, not adopted.

It is the concept plan which "identifies the effects of the full build-out ... on public services and any benefit to the city as a whole..." and which guides updating of appropriate Master Plans, such as the Transportation System Plan, Water and Sewer Master Plans. Without the concept plan being finalized these updates can't be properly planned[5].

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[4] LUBA 2008-170 Final Opinion and Order for the Remand of the Beavercreek Rd. Concept Plan. "The petition for review also includes two more assignments of error that we have not addressed. The issues presented by those arguments may or may not arise if the city on remand adopts a new concept plan that complies with MC 3.07.1120 and 3.07.430... We therefore remand the decision without considering petitioner's remaining arguments." p. 26.

[5] The city's findings addressing OCCP 14.4 are set out below:
'The city annexation process is set out in Chapter 14 of the [OCMC]. By requiring compliance with that code, the Metro Code, and the statewide Planning Rules, the city is **identifying the effects of the full build-out of these annexed properties will have on public services and any benefit to the city as a whole**. As part of the Beavercreek Road Concept Plan adoption, appropriate Master Plans, such as the **Transportation System Plan, Water and Sewer Master Plans for example, will be updated to address the anticipated impacts**." Record 63. (LUBA 2007-171 Final Opinion and Order, p. 19 FN 11)] ___ see OC reports on this.

Without the concept plan, this area is not planned compatibly with the surrounding area and the city's purposes for the area and urban services and facilities are uncoordinated and not planned for adequacy, proper design, or , properly designed.

ERROR 2: Public services and facilities are not planned and designed properly and are not adequate.

The application indicates

- the plans and designs for providing of public facilities are not proper or adequate[6],[7],
- are not without adverse impacts on existing residents of the city,
- are not coordinated, and
- are without plans for funding[8] to accomplish the plans.

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[6] **Goal 14.3 Orderly Provision of Services to Growth Areas**
Plan for public services to lands within the Urban Growth Boundary through adoption of a concept plan and related Capital Improvement Program, as amendments to the Comprehensive Plan.
Policy 14.3.1
Maximize new public facilities and services by encouraging new development within the Urban Growth Boundary at maximum densities allowed by the Comprehensive Plan.
Policy 14.3.2
Ensure that the extension of new services does not diminish the delivery of those same services to existing areas and residents in the city.
Policy 14.3.3
Oppose the formation of new urban services districts and oppose the formation of new utility districts that may conflict with efficient delivery of city utilities within the Urban Growth Boundary.
Policy 14.3.4
Ensure the cost of providing new public services and improvements to existing public services resulting from new development are borne by the entity responsible for the new development to the maximum extent allowed under state law for Systems Development Charges.

[7] An adopted concept plan is not providing this function. In addition, the remanded concept plan did an inadequate job of planning how the necessary public facilities will be provided and paid for, ensuring that delivery of those services would not diminish services to existing residents, and ensuring costs were borne by the developer.

[8] LUBA 2007-171 Final Opinion and Order, p. 27 "the Beavercreek Road concept Plan planning process... will establish the nature of that urbanization and how the necessary public facilities will be provided and paid for is complete." p.28 line 13 adequate and available

This puts the application out of compliance with OCMC 12.04 (streets), 17.62.050 (sewer and water), and 13.12 stormwater.

TRANSPORTATION

Beavercreek Rd., despite being crowded already, isn't getting a new lane to handle the new traffic volumes.
In fact, the development is being planned so close to the road right-of-way that it effectively will prevent or make enormously expensive a future widening of BC Rd
Past traffic analyses from your consultant predicted that 10s of thousands of VTD vehicles trips per day would be generated by the concept plan area.
The ODOT reviewer believed that the trip load was underestimated (numbers lower than usual were used for unit trip generation) due to the an assumption that the residents would largely work on site.
There was no evidence for that assumption before. And now,
with residential being prioritized over family-wage job creation and proceding family-wage job creation,
there won't be family wage jobs on the site.
This increased congestion is devastating for the Beavercreek community and Oregon City neighborhoods
and frightening to the Holly Lane community as well that gets the overflow traffic and, if BC Rd. can't accommodate all the traffic, potentially becomes a thoroughfare.
During the next 20 years the state and county predict that Hwy 213 through Newell Creek canyon and I205 past Oregon City will reach terrible levels of congestion which required a drop in the traffic standards.

SEWER

OCMC 17.62.050[9] provides for the city to require over sizing of facilities to meet standards in the master plan or needed to be orderly and efficient in

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[9] OCMC 17.62.050 ...A development may be required to modify or replace existing offsite systems if necessary to provide adequate public facilities. **The city may require**

provision of services. "Per the [City's] 2014 SSMP [Sanitary Sewer Master Plan], the BRCP [Beavercreek Road Concept Plan] area, including the Beavercreek Rd. Apts, is planned to be served by the Beavercreek Rd. basin from a future 15" sanitary sewer main extension in Beavercreek Rd...." (City Engineer Aleta Froman-Goodrich Memorandum, Nov. 5, 2014). The applicant instead selected the Glen Oaks basin sewer system. To make it work they indicate that manhole covers will needed to be welded shut due to sewage being 2 feet down. ___ "Bolting down the manholes does not resolve the capacity deficieincies of the sewer pipes." (p. 4) "The SSMP has committed the existing remaining capacity of the Glen Oak collection system fo the planned developments that must flow to the Gen Oaks basin and Hwy 213 sewers." (p. 4) "The results predict there are additional impacts to the existing collection system that cause excessive surcharging of gravity sewers that **could lead to basement backups**." (Memorandum from City Engineer Aleta Froman-Goodrich, January 5, 2015, p. 3 paragraph 3). The applicant would be charged 25% of the cost (shared with other BRCP development) for increasing the capacity of the Hwy 213 sewers to prevent the back up. However, what if the other 75% of the 213/Glen Oak solution does not manifest nor pay (so there is insufficient funds to do the fix) before the sewage system begins backing in basements and streets? Timing is a problem: "...very little flow" from the BRCP area is expected "within the next 10 years" (p. 5 vii 5) which implies that "very little flow" of dollars from the BRCP area can be expected to supplement the applicant's fee in lieu which will leave the Glen Oaks sewage line with bolted down manhole covers and sewage backing up in basements for 10 years (or possibly more). The City requires the development sewage line "shall incorporate the design of the future 15-inch sanitary sewer so in the future the Beavercreek Apts can be transferred to

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over sizing of facilities if necessary to meet standards in the city's facility master plan or to allow for the orderly and efficient provision of public facilities and services. Where over sizing is required, the developer may request reimbursement from the city for over sizing based on the city's reimbursement policy and fund availability, or provide for recovery of costs from intervening properties as they develop.

the Beavercreek basin..." (p. 5 vii 2) If the developer pays for the Hwy 213 capacity increase now, it is not clear they are paying for the BC line in the future.

[Previously, at one of your hearings, one of the adjacent BRCP land owners proposed putting treated sewage into the creek.]

The City should require the normal approach, that is, that the developer put in the needed Beavercreek Rd. line with cost reimbursements, because this protects the public from sewage backups and overflows and it prepares the concept plan area for future development with the proper necessary infrastructure.

WATER

The City needs more water and more water pressure to serve this area. It needs to build a reservoir to the south to achieve this according to the experts. It needs to address this short- and long-term need to serve this development with city water and to be able to serve the BRCP area. If the City allows the water to be bought from a rural water district, which has the priority function of meeting rural needs, it could come up short under various scenarios such as

- build out in the Beavercreek area,
- drought,
- increase irrigation demand for more local food production,
- others

leaving this development without water, or other city residents with reduced water to serve this development.

This "solution" lacks a contract (a firm commitment) with the Clackamas River Water District. In the recent response from Clackamas River Water (1-14-2015), the district gave "no comment" regarding most aspects of supplying water; it would not serve BRCP needs.

Avoiding making a long-term plan leaves the concept plan area without a workable water solution for the whole area and it leaves this development not contributing financially to the solution..

[Earlier in the process one of the adjacent BRCP land owners indicated they would build a well to get water.]

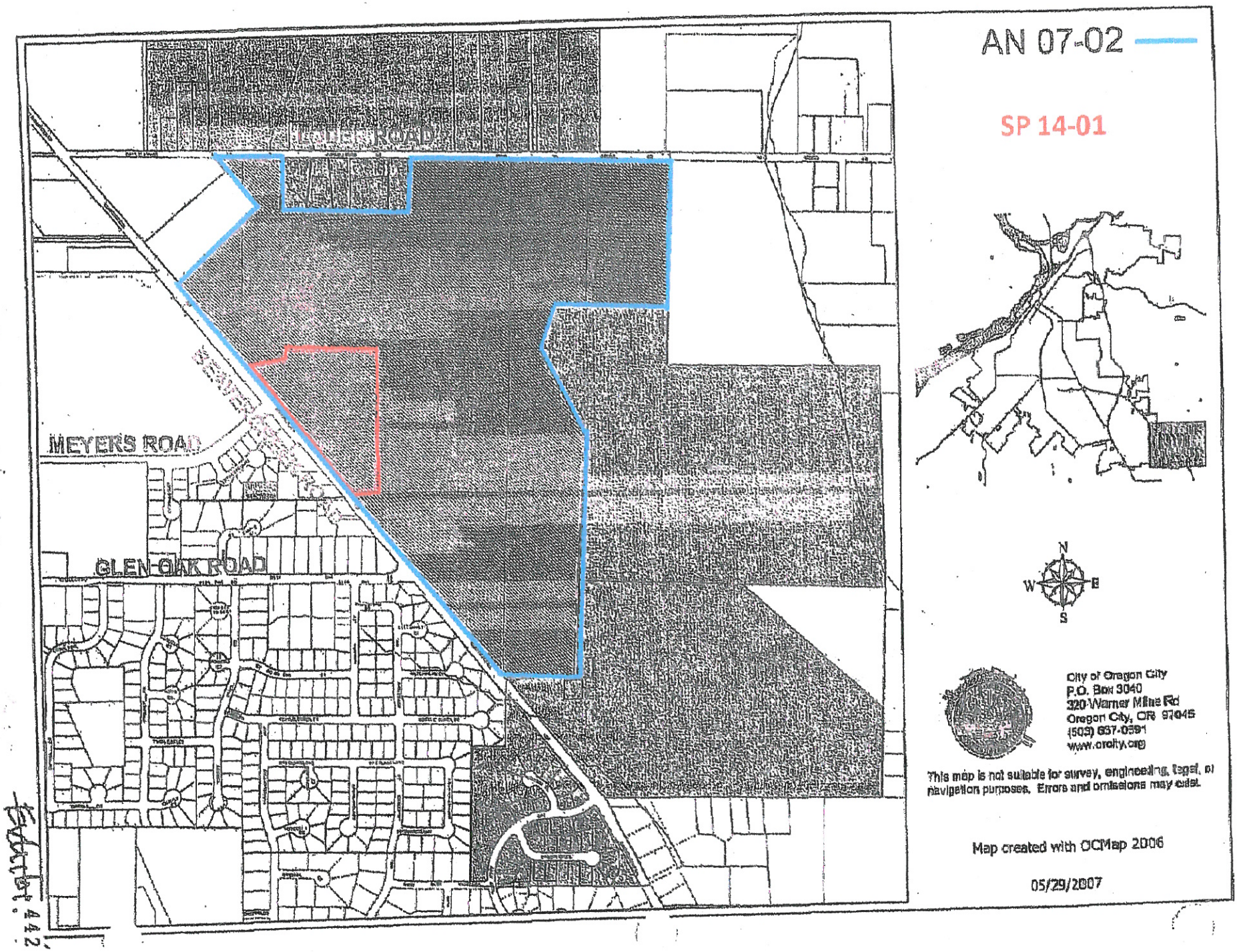
It appears the City could be left not providing necessary urban services.

POLICE AND FIRE. There was no word from the police or fire until after the application was approved by Planning. The constrained traffic flow on Beavercreek Rd. constitutes a hazard to life and safety in Beavercreek which receives fire services from Oregon City (and vice versa).

ERROR #3 This development would hamper, block and preempt needed concept planning. This could prevent meeting Oregon City's needs and compliance with the law.

This land is part of the flat and un-bisected part of the site where much of the northern and eastern part of the site is unbuildable due to severe slopes of ravines and canyons and/or due to multiple regional power-line corridors. Its specific use greatly constrains the development of the concept plan.

ERROR #4: Oregon City did not get notice of the appeal to the Caufield Neighborhood Association although they submitted testimony in the file.


AN 07-02
SP 14-01
MEYERS ROAD
GLEN OAK ROAD
N
W
E
S
City of Oregon City
P.O. Box 3040
320 Warner Milne Rd
Oregon City, OR 97045
(503) 657-0891
www.orcity.org
This map is not suitable for survey, engineering, legal, or navigation purposes. Errors and omissions may exist.
Map created with OCMap 2006
05/29/2007

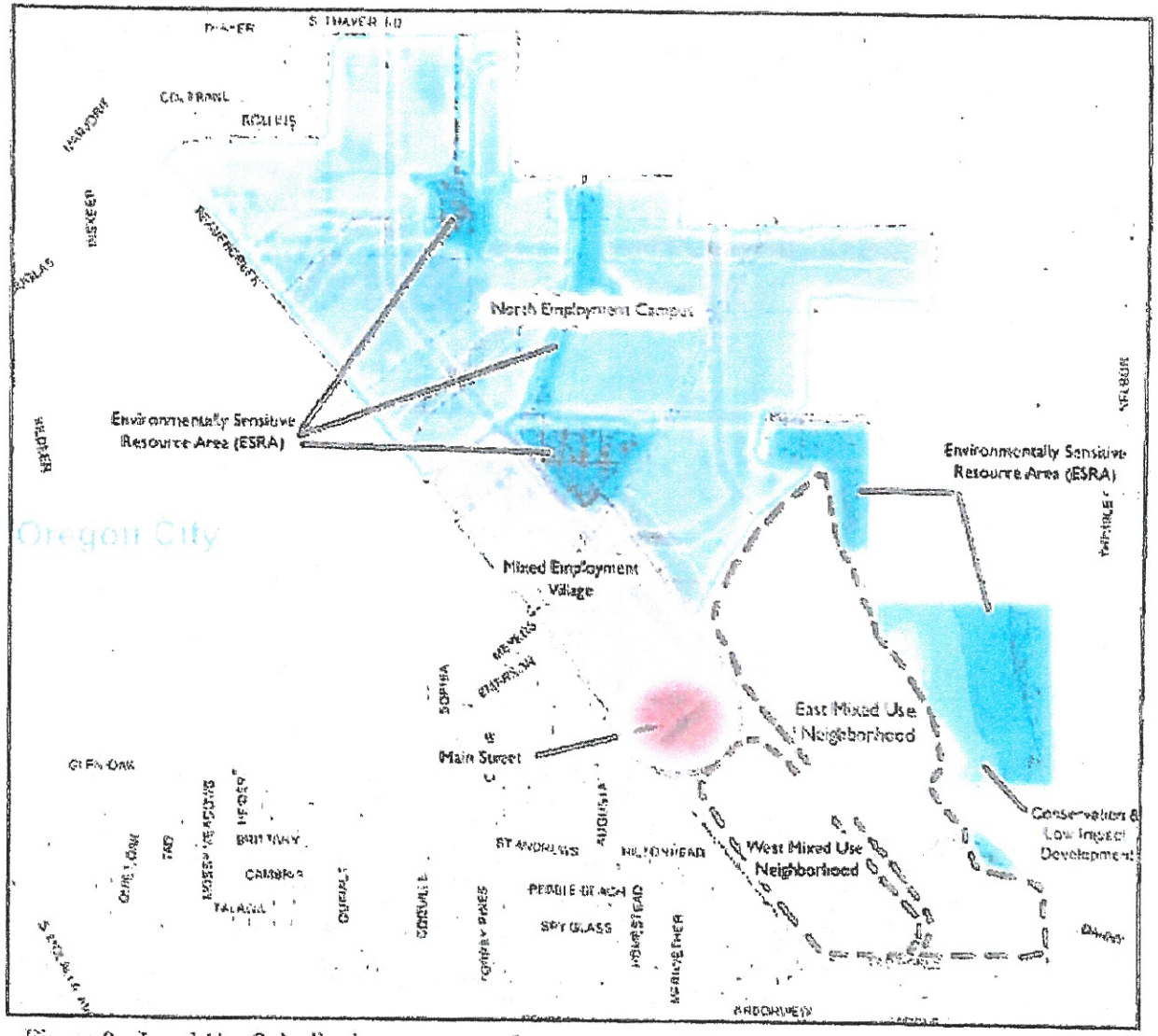
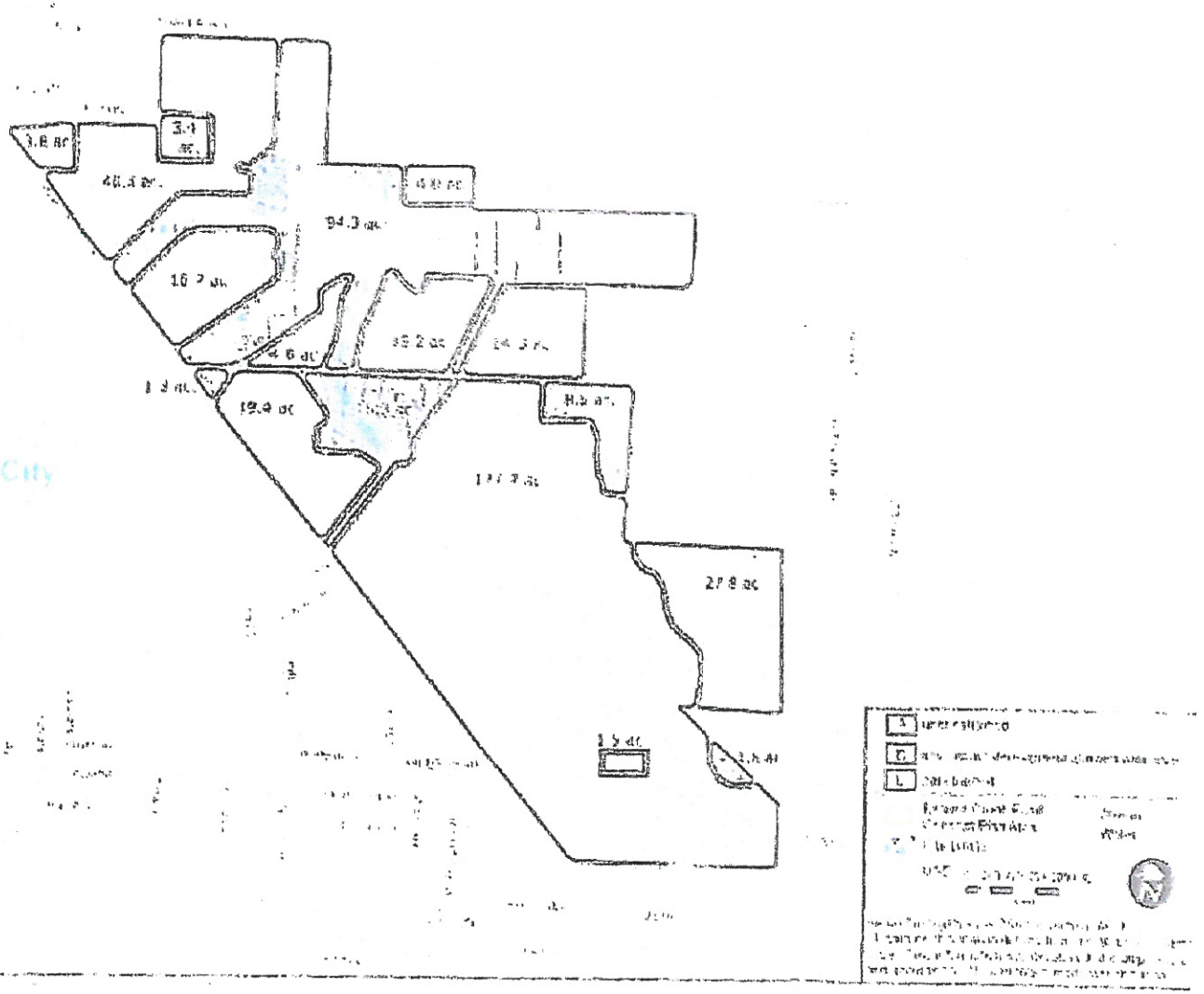


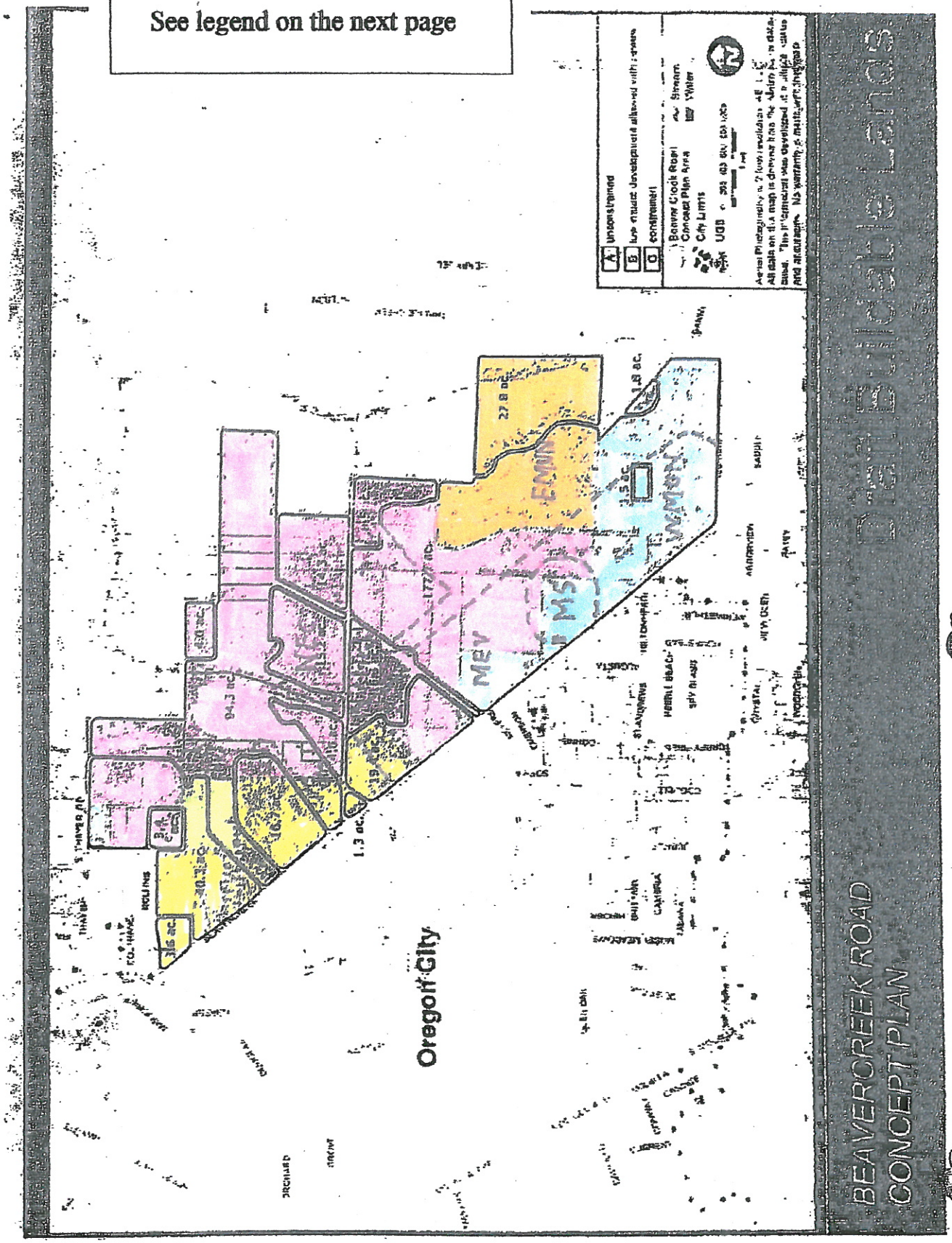
Figure 8 - Land Use Sub-districts

Note: Beavercreek Road Concept Road



Note: Buildable Lands

See legend on the next page



See map on previous page

Legend to APPENDIX C. Comparison of Maps in the Record Showing the 2002 and 2004 Metro Title-4 Industrial UGB Expansions and Other Lands in the Beavercreek Road Concept Plan Area.

Map Color	Metro 2040 Growth Concept Design Type	UGB Expansion	City Zoning or County	Acreage	Record page
Pink	Industrial	2002		245	42, 1524 & 725, Appendix B
Orange	Industrial	2004		63	42, 1524 & 725, Appendix B
Yellow	Employment	Pre-existing	Campus Industrial	~50	44, Appendix B, 1524
Green	Employment	Pre-existing	County	~14	Appendix B
Blue	Outer Neighborhood	Pre-existing	County	~74 ~2	1524 & 725, 42, 801, 1525, Appendix B
			Loder Rd.	5	Rec. 44

The Base Map is taken from Rec. 728 which is cleaner than other versions of the same thing.

The City limits and property lines are evident at Record pages 1778, 1512, 1402, 1404, 727, 248.

The concept plan dotted lines come from Rec. 49.

Acreages

Blue ~74. This land in the south is part of the total annexation area of 114 acres litigated in *Graser-Lindsey v. City of Oregon City.* 2007-257. Final Order and Opinion page 2. Rec. 801. The 2004 UGB expansion was 63 acres. Rec. 42. The balance is 51 acres. Two additional wedge shaped properties along Beavercreek Road are estimated as 23 acres. In total that gives 74 acres. FN 6.

Green. This is estimated off the map. FN 6.

Blue. This is estimated off the map at the top left corner. FN 6.

Oregon City's zoning can be seen most clearly at http://www.ci.oregon-city.or.us/gis-mapping/pdf/atlas_zoning/Zoning_Atlas_Page_21.pdf and pages 22 and 28.

The Metro's adopted 2040 Growth Concept map can be seen most clearly at http://www.oregonmetro.gov/files/planning/2040_growth_concept.pdf

Elizabeth Graser-Lindsey
21341 S. Ferguson Rd.
Beavercreek, OR 97004
(503) 632-5568

Gmail by Google

Elizabeth Graser-Lindsey <egraserlindsey@gmail.com>

Beavercreek Rd. Development Appeal

3 messages

Elizabeth Graser-Lindsey <egraserlindsey@gmail.com> Thu, Jan 15, 2015 at 2:51 PM
To: Larry Hanlon <larryhanlon@hotmail.com>, Mike Mermelstein <mike1376@aol.com>

Dear Mike and Larry:
By now you have most likely received word of the appeal of the Beavercreek Rd. Development from Oregon City. Can the Caufield Neighborhood Association please bring its concerns to the attention of the Oregon City Commission which will newly be hearing the matter on January 21?
Elizabeth Graser-Lindsey

Mike Mermelstein <mike1376@aol.com> Thu, Jan 15, 2015 at 7:15 PM
To: Elizabeth Graser-Lindsey <egraserlindsey@gmail.com>

Have not seen the appeal yet.
Mike

Sent from my iPhone
[Quoted text hidden]

Elizabeth Graser-Lindsey <egraserlindsey@gmail.com> Fri, Jan 16, 2015 at 11:56 AM
To: Mike Mermelstein <mike1376@aol.com>

They were supposed to have send you notice a while back as they document in their appeal report. As of today the appeal is shown in the Jan. 21 agenda for the City Commission: https://oregon-city.legistar.com/Calendar.aspx
[Quoted text hidden]

RADLER WHITE PARKS & ALEXANDER LLP
ATTORNEYS AT LAW
PO BOX 2007 BEND, OREGON 97709 P 541.585.3697 F 541.585.3698

Steven P. Hultberg
shultberg@radlerwhite.com
541-585-3697

ENTERED INTO THE RECORD
DATE RECEIVED: 1/21/15
SUBMITTED BY: Steve Hultberg
SUBJECT: Item 6a

January 21, 2015

VIA HAND DELIVERY

Honorable Mayor Dan Holladay
and City Commissioners
City of Oregon City
625 Center Street
Oregon City, OR 97045

RE: AP 14-01/14-02 Beavercreek Road LLC

Dear Mayor Holladay and City Commissioners:

This office represents the applicant in this matter, Beavercreek Road, LLC. Please add this letter to the record in the above matter.

Two appeals are before the City Commission. One filed by an opponent of the project, and one filed by the applicant. This letter first addresses the applicant's appeal and then addresses the issues raised by the appellant.

Applicant's Appeal

Cross Basin Fee-in-lieu

The applicant has proposed to provide sanitary sewer service through a cross-basin connection into the Glen Oaks Basin rather than the Beavercreek Basin. Presently, there is adequate capacity in the Glen Oaks Basin to serve the project. The project, however, will utilize capacity that the City has reserved for the full build-out of the Glen Oaks Basin. Full build-out of the Glen Oaks Basis is not anticipated for many years. The City has identified certain future improvements in the Glen Oaks Basis necessary to serve the project, to maintain long-term capacity in the Glen Oaks Basin and has identified the applicant's proportionate share of those improvements (the "Glen Oaks Improvements"). Because there will be sufficient capacity in the Glen Oaks Basin when the project is completed (and for the foreseeable future), the timing of construction of the Glen Oaks Improvements is unknown. The Glen Oak Improvements are not required to be in place at the time of completion of the applicant's project, but will be completed at a later date as the Glen Oaks Basin approaches full build-out.

To be absolutely clear, the applicant is not contesting the requirement to pay a fee-in-lieu for the Glen Oaks Improvements, nor is the applicant contesting the amount of the fee-in-lieu. As required by Condition of Approval No. 37, the applicant will pay the fee-in-lieu in the amount of $545,000. The applicant is merely requesting that if the City later determines that the Glen Oaks Improvements are not necessary due to the construction of alternate sewer

improvements, and if the Glen Oaks Improvements are not constructed, that the applicant be entitled to a refund of the fee-in-lieu payment.

It is altogether possible that prior to construction of the Glen Oaks Improvements, the City or another developer could complete sewer improvements within the Beavercreek Basin which would serve the applicant's project and obviate the need for the Glen Oaks Improvements. At such time, the applicant's project would be disconnected from the Glen Oaks Basin and connected to the Beavercreek Basin sewer lines. In that case, it would not be equitable for the City to retain the fee-in-lieu payment for construction of improvements that were never completed. This would be especially true were the City to collect SDCs from the applicant, a portion of which are attributable to the Beavercreek Basin improvements, or impose an LID on the project for connection to the Beavercreek Basin improvements.

To address this situation, the applicant is merely requesting the ability to enter into a development agreement with the City which would provide for a refund or partial refund of the fee-in-lieu if the Glen Oaks Improvements are not constructed and the Glen Oaks Improvements are no longer necessary to serve the project.

The applicant proposes the following condition of approval. The applicant's proposed language is underlined:

37. The applicant shall pay fee-in-lieu of downstream improvements in the Glen Oak Basin required due to the cross basin connection. The amount of the fee-in-lieu shall be $545,000 in accordance with the documentation provided in the "Public Works Engineering File Memorandum" (November 5, 2014). <u>The payment of the fee-in-lieu may be made in connection with a development or other agreement with the City which may provide for a refund or partial refund of the fee-in-lieu payment if (a) the project is connected to improvements within the Beavercreek Basin sufficient to serve the project and (b) at the time of such connection the improvements in the Glen Oak Basin for which the fee-in-lieu has been paid have not yet been constructed.</u>

The express intent of the above condition is only to provide a mechanism in the future for a return of the fee-in-lieu if the Glen Oaks Improvements are never completed and sufficient alternative improvements serving the Beavercreek Basin are constructed instead.

Location of New Sewer Connection

Condition No. 34 requires the applicant to connect to the existing sanitary system on Meyers Road, west of Beavercreek Road. The applicant had proposed making this connection within an easement off of Emerson Court in a location adjacent to Beavercreek Road. The applicant's selected connection point saves considerable money due to the relative difference in length of sewer line between the City's proposed location and the applicant's. The applicant is requesting that Condition No. 34 be amended to permit the applicant to make the connection at Emerson Court if, and only if, the City determines that such location is feasible and will not result in additional costs to the City. The location of the connection is entirely in the City's hands. If the applicant is unable to persuade the City Engineer, then the City can mandate the connection be as required by Condition No. 34. The manhole on Meyers Road and the manhole within Emerson Court both connect to the same 8" PVC line that runs down

Meyers Road and Sophia Court, so the impacts to the overall system are identical. The only question is whether the connection at Emerson Court is feasible due to depth and other engineering issues unrelated to the capacity of the 8" line in Emerson Court.

The applicant proposes the following condition of approval. The applicant's proposed language is underlined:

34. The applicant shall provide 8-inch sanitary sewer collection system in the existing and future public right-of-way with the connection to the existing collection system at the manhole located in Meyers Road at Emerson Court. A short section of the collection system shall be located in a 15-foot wide public easement that extends from the western end of "B" Street to the Beavercreek Road ROW. The applicant shall have the option of making this connection within the easement off of Emerson Court if Public Works/Engineering Development Services Division determines such connection is feasible, will not result in additional costs to the City and approves such connection prior to the time of construction.

Appellant's Appeal

The appellant alleges that the City's decision violates the Oregon City Comprehensive Plan, the Oregon City Municipal Code, the Metro Code and State Law. The appellant's arguments provide no basis to overturn the decision of the Community Development Director.

As a starting point, the present application is a "limited land use decision," meaning that the proposed use is permitted outright on the subject property. The City's decision is limited to approval or denial of the application based on discretionary site and design standards that regulate the physical characteristics of the use. *See* ORS 197.015(12)(B). As a limited land use decision, neither the City's Comprehensive Plan nor any of its goals or policies apply to this application. ORS 197.195(1). Consequently, the appellant's arguments under the Comprehensive Plan have no bearing on this application and the City Commission is prohibited from applying the Comprehensive Plan to this application.

Beavercreek Road Concept Plan

The appellant generally argues that the subject property, due to its inclusion in the Beavercreek Road Concept Plan (the "BRCP"), cannot be developed until the BRCP is approved. The appellant's argument has no legal merit.

An overwhelming majority of the 453 acres in the BRCP was added to the regional urban growth boundary by Metro in 2002 and 2004. The subject property, however, was added to the City's UGB in 1979, predating Metro's Title 11 requirements applicable to urban reserve areas and areas added to the UGB. Thus, while the balance of the property within the BRCP area may be subject to Metro's Title 11 planning requirements, the subject property is not. Moreover, the subject property does not carry Metro's Title 4 Significant Industrial Lands designation. The Metro Code simply has no application to the present request. Indeed, the appellant has not identified with any specificity how a site and design review application would violate the Metro Code.

Even if the applicant's property were subject to Metro's Title 11 standards, approval of a site and design review application would not violate Title 11. Metro Code 3.07.1130 provides the standards for planning in areas added to the UGB, but for which no concept plan has been approved. Title 11 provides that local jurisdictions may not approve the following:

> A. A land use regulation or zoning map amendment that allows higher residential density in the area than allowed by regulations in effect at the time of addition of the area to the UGB;
>
> B. A land use regulation or zoning map amendment that allows commercial or industrial uses not allowed under regulations in effect at the time of addition of the area to the UGB;
>
> C. A land division or partition that would result in creation of a lot or parcel less than 20 acres in size, except for public facilities and services as defined in section 3.07.1010 of this chapter, or for a new public school;
>
> D. In an area designated by the Metro Council in the ordinance adding the area to the UGB as Regionally Significant Industrial Area:
>
> 1. A commercial use that is not accessory to industrial uses in the area; and
> 2. A school, a church, a park or any other institutional or community service use intended to serve people who do not work or reside in the area.

None of the above standards would prohibit the City from approving a site and design review application on MUC-zoned land. In short, the Metro Code provides no basis to overturn the City's decision. Other than merely referencing the Metro Code, the appellant has not provided any legal argument as to why the Metro Code would apply to the present site and design review application.

The appellant relies heavily on LUBA's decision affirming the City's annexation of 122 acres to the City—including the applicant's property—in 2008. *See*, *Grazer-Lindsay v. City of Oregon City*, 56 Or. LUBA 504 (2008). The appellant's reliance on *Grazer-Lindsay* is misplaced because LUBA's decision has no relevance to the present application. The primary question before LUBA in *Grazer-Lindsay* was whether it was permissible to annex 122 acres to the City prior to adoption of the BRCP. LUBA held that it was permissible to do so. LUBA did not hold or otherwise mandate that the BRCP be adopted before the applicant's property is developed. While portions of the 122 acres may have such a requirement due to the fact that such property is subject to Metro's Title 11 rules, the applicant's property carries no such restriction. Consequently, LUBA's decision has no influence on the present case.

2010 Zone Change

In 2010, the City approved a Comprehensive Plan Amendment and Zone Change for the subject property from Future Urban (FU) to Mixed Use Corridor (MUC). The 2010 zone change was not appealed and has been acknowledged by LCDC. Members of the Hamlet of Beavercreek opposed the rezoning application, arguing, among other things, that Metro's Title 11 regulations prohibited rezoning until adoption of the BRCP. The City rejected the opponents' arguments for the same reasons stated above, namely, that Title 11 does not apply to the subject property. The opponents did not appeal the City's decision and the decision is final. To the extent that the appellant or other opponents believe that the City should not have rezoned the property, they should have appealed the City's 2010 zone change. They did not and cannot now challenge the application of the City's acknowledged MUC zone. The MUC zone is acknowledged and the City has every right to approve a site and design review application on the property.

Statewide Planning Goals

The appellant argues that the City's decision violates Statewide Planning Goals 1 and 2. The Statewide Planning Goals have no application to a limited land use decision where the City's land use regulations and zoning maps have been acknowledged. The goals simply do not apply. ORS 197.175(2)(d); *Byrd v. Stringer*, 295 Or. 311, 316, 666 P.2d 1332 (1982).

Applicable Criteria

Approval or denial of the present application must be based on the standards and criteria in effect on the date the application was filed. Testimony, in turn, must be directed to the applicable standards and criteria. The appellant's testimony does not identify any relevant standard or explain why the applicant has not met its burden of proof with respect to an applicable standard. The appellant's testimony, therefore, falls far short of identifying any basis upon which to overturn the decision of the Community Development Director.

The applicant respectfully requests that the City Commission amend the decision of the Community Development Director to include the amended conditions proposed by the applicant and to deny the appeal.

Very truly yours,

Steven P. Hultberg

cc: Andrew Brand
City Attorney

ENTERED INTO THE RECORD
DATE RECEIVED: 1/21/15
SUBMITTED BY: Christine Kosinski
SUBJECT: Item 6a

Oregon City Commission Meeting of January 21, 2015

RE: Appeal of Proposed Development, File SP 14-01- Beavercreek Road Live/Work Apartments
Planning Files AP 14-01 and AP 14-02

Testimony of: Christine Kosinski, Unincorporated Clackamas County

This lot for development is 9.7 acres, but if it were 10 acres or more, Oregon City Municipal Code states the proposed development must be Master Planned. When looking at the boundaries of this parcel, one has to wonder why the lot on the Northwest corner was left out of the plan, even though it is owned by a separate party.

Without a doubt, the lack of necessary Infrastructure for development in this area, is of huge concern. This property was part of a 122 acre Annexation measure on the November, 2007 Ballot, a measure that won only by 43 votes, Yes= 4,ll6 No = 4,073. This should have never gone to ballot since the "factors for annexation could not be met for Infrastructure". Again, in 2010, when the City changed the zoning from FU-10 to MUC, the glaring lack of Infrastructure could not have been more apparent, and yet the City erroneously approved the zone change knowing that needed infrastructure would not be in place

On August 18th, 2014, a letter was sent from Beavercreek Road LLC to Clackamas River Water. The letter states "that the City of Oregon City may have difficulty providing adequate water service to the proposed development for both residential water and possibly for fire services". Beavercreek Road LLC went on to formally request exterritorial water service from CRW.

For Sewer capacity, I cite the Keller Associates Technical Memo of September 9, 2014 where they speak of (pg 3) "Glen Oak road sewer discharges into the Hwy 213 sewer nodes". Keller Associartes recommends that the manholes with only two feet of cover be equipped with **Bolted down, sealed manholes if these are currently not in place.**

The transportation plan for this development is poor and severely underfunded, the City had to cut many projects from their TSP to "not likely to be funded" due to lack of funds. Out of 360 projects costing $221 Million, only $73 Million can reasonably be expected to be funded.

Take this development, a new Bus Barn on Meyers, an Industrial Enterprise zone, add proposed development at the old bus barn at Maplelane, Beavercreek and Hwy 213. All together these call for Master Planning this entire area of Oregon City. To do anything less, would be irresponsible. Now consider all of this development being served by only **ONE ROAD** where Tri-Met, school buses and parking on Beavercreek will be allowed. Now toss in traffic from an Enterprise zone and from development at the old bus barn and what do you have? A recipe for disaster.

The Hamlet of Beavercreek has submitted 24 pages of testimony with concerns about this development and the fact that they are being held hostage by irresponsible development from Oregon City, development that will leave them stranded and open to long response times for emergency help. This is why Master Planning is extremely vital.

The LUBA decision (in Case No. 2007-171) makes it crystal clear, they agreed the annexation could proceed the Beavercreek Concept Plan, with the understanding that the concept plan would proceed urbanization. So why is the City proposing spot development on these 9.7 acres without the concept plan, and master planning, going first?

Statewide Goal I, requirements for Citizen Involvement, have not been met. Oregon City did not reach out to the people of Holly Ln, to participate in any planning for this development, even though the next phase of development will directly link traffic to Holly Lane, a small and windy country road filled with landslides. May I remind you that I have testified on numerous occasions about the many serious landslides that line the street of Holly Lane, and I have notified you on numerous occasions that the people of Holly Lane are unable to obtain "Difference in Conditions" Insurance to cover losses due to any landslides you may re-activate on Holly Lane since you continue to state that you want to widen the road to carry the plethora of cars that you intend to stuff down this only North/South connector. This is an extremely serious legal question, and one that Oregon City has refused to answer for all the residents living in and near Holly Lane.

The transportation report for this 9.7 acre development has grossly understated the Average Daily Trip counts of 810 trips per day. Trip counts must be added for the new bus facility, for the enterprise zone, for trips to and from the live-work units and for trips coming from proposed development at Maplelane, Beavercreek and Hwy 213.

Annexation of this land should never have been approved by the City since you were unable to meet the "annexation factors" found in City Municipal Code 14.04.060, especially annexation factor number three, "adequacy and availability of public facilities and services to service potential development".

Zone change from FU-10 to MUC also should never have been approved, due to lack of Infrastructure. LUBA decision allowed annexation to FU-10, however NO urbanization was to go before the Concept Plan which would have called for Master Planning.

I believe the City continues to levy an additional $3500 fee per new home to provide policy coverage. This certainly was part of the original Beavercreek Concept Plan. This has been brought up in several City Commission meetings, by Commissioners who wondered if this type of levy is allowable by State Laws.

I refer you to an e-mail to Pete Walter, from Doug Whiteley, Fire Marshall and Administrative Battalion Chief, Clackamas Fire District #1. This is regarding response times to various communities, I bring to your attention that he states it takes them 14 minutes and 38 seconds to response

In the October 13, 2010 letter from The Hamlet of Beavercreek to Oregon City, at the top of Pg 3, it is noted that testimony was given at both the September 15th and October 6th, 2010 hearings regarding financial concerns on the part of the applicant. The applicant exlained that he is seeking a zone change for this property which will allow him to obtain the necessary financing for this parcel and that apparently without a zone change the lender may consider foreclosure. City Attorney, Ed Sullivan, quickly brought to the attention of the Commission that they cannot consider the financial concerns of the applicant a part of their decision to approve, or disapprove, these land use applications. Also, on the same page, Regarding Condition 2, the Hamlet seeks clarification. If the applicant is seeking zone change for financial reasons, can the applicant financially contribute funding to the City for the construction of the westound right turn lane at the OR 213/Meyers Rd intersection? This was never answered.

I submitted testimony to Pete Walter, on August 11, 2014 and on October 31, 2014 regarding the Landslides that plague Holly Lane since in the 2nd phase of development in the Beavercreek/Meyers/Concept Plan area will dramatically effect all the peoples who live on Holly Ln. I spoke of the fact that these people cannot obtain Insurance for losses due to landslides and the concerns that the people have if the City should come in and excavate and widen the roads. We have, on numerous occasions, asked the City who will pay the damages if they create a landslide to re-activate and the City has given the people of Holly Ln NO answers. This must be addressed now prior to the Concept Plan being re-approved which the City is anticipating soon.

I do not support proposed development of 121 3-story apartments and 62 live-work units at Beavercreek & Meyers, It is not master planned, you are holding 6700 citizens in Beavercreek ransom by overwhelming the only road they have to get in and out of their community. Emergency response times will be greater due to Beavercreek Road being inundated with traffic. These people were never invited as a Stakeholder. You held meetings with your Caufield Neighborhood, who does not support this development, but you failed to invite even one person from the community of Beavercreek to participate in meetings regarding this proposed development along Beavercreek Road, rather the City has chosen to sacrifice the Safety and Livability of all the 6,700 people of Beavercreek, as well as the hundreds of people on Holly Ln who have asked for answers for years, and do get recognized.

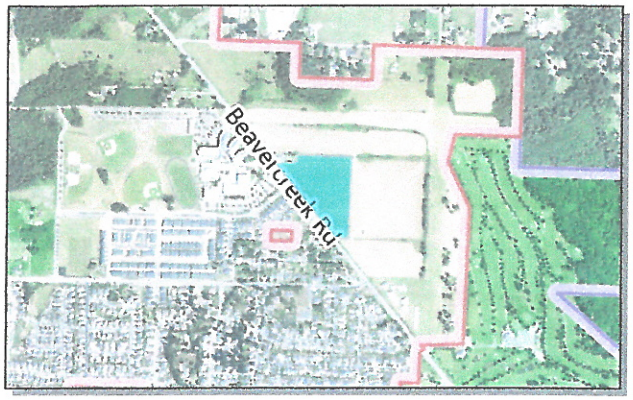
The City cannot provide Water, adequate Sewer, nor the necessary roads to support such development. The City is recklessly developing.

Enclosed:

Boundaries of tax lot 800
Letter from Beavercreek Road LLC to Clackamas River Water dated August 18, 2014
Keller Associates manhole recommendation
E-mail to Pete Walter from Clackamas Fire District #1 – response times
City of Oregon City Staff Report dated 4/4/13

Taxlot Detail Report

Taxlot: 3-2E-10C -00800



Overview Map



Taxlot highlighted in blue

Taxlot Information

APN: 3-2E-10C -00800
Alt ID: 00870711
Site Address: 19896 BEAVERCREEK RD
OREGON CITY, OR 97045
Year Built: 1945

Taxpayer Information

Taxpayer: BEAVERCREEK ROAD LLC
Address: 159 CIVITAS ST STE 212
MT PLEASANT, SC 29464

Reference Information

Parcel Area (acres - approx): 9.7
Parcel Area (sq. ft. - approx): 423,403
Twn/Rng/Sec: 03S 02E 10
Tax Map Reference: 32E10C

Values

Values as of: 12/20/2013
Land Value (Mkt): $816,438
Building Value (Mkt): $1,500
Exempt Amount: $0
Net Value (Mkt): $817,938
Note: The values above are Market, NOT Assessed values.
Assessed Value: $230,820

Planning Designations

Zoning: MUC1
- Mixed Use Corridor District

Comprehensive Plan: muc
- Mixed Use - Corridor

Subdivision: NONE
PUD (if known):
Neighborhood Assn: Caufield NA
Urban Renewal District:
Historic District:
Historic Designated Structure? N
In Willamette Greenway? N
In Geologic Hazard? N
In Nat. Res. Overlay District (NROD)? N
In 1996 Floodplain? N

The City of Oregon City makes no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, surveying or navigation purposes. Notification of any errors is appreciated.

Report generated 7/23/2014 1:20 PM

City of Oregon City
PO Box 3040
625 Center St
Oregon City, OR 97045
(503) 657-0891
www.orcity.org

Beavercreek Road LLC
600 University St, Suite 1708
Seattle, WA 98101
206-535-6348

August 18, 2014

Bob George
Clackamas River Water District
16770 SE 82nd Dr. #100
Clackamas, OR 97015

RE: Request for Water Service at 19896 Beavercreek Road, Oregon City, OR

Bob,

I am writing today as the representative for Beavercreek Road LLC, the owner of an approximately 11 acre parcel of land at 19896 Beavercreek Road in Oregon City and land use applicant to develop approximately 186 units of multi-family rental housing on this same site.

It has come to our attention that the City of Oregon City may have difficulty providing adequate water service to meet the needs of our proposed development both for residential domestic water and possibly for fire services. Before our parcel was annexed to Oregon City it was under the jurisdiction of CRW. As such, it still has an abandoned water line running to it from the CRW pump station on Beavercreek Road.

I am writing to formally ask for exterritorial water service from CRW to supply our project. I would appreciate having a formal decision from the CRW board as soon as possible stating CRW's willingness to provide water services to our project.

I appreciate your time on this matter. Please let me know if I can clarify any questions you may have about our proposed project or this request for exterritorial service.

Sincerely,

Andrew Brand
Authorized Representative
Beavercreek Road LLC
andrew@evergreenhd.com

location where the Glen Oak Road sewer discharges into the Hwy 213 sewer (nodes 12371 and 12372). Regardless of the source of additional flows in the Glen Oak Road sewer, Keller Associates recommends that the manholes with only two feet of cover be equipped with bolted down, sealed manholes if these are currently not in place.

The City desires to reserve approximately 20 gpm of the available 225 gpm capacity for the existing Three Mountains subdivision (currently on septic systems). This would leave approximately 205 gpm of uncommitted capacity that could be used to service a portion of Areas 1 and 2 of the Beavercreek Development. **Allowing the proposed Beavercreek Apartment Development to gravity flow to Glen Oak Road would still leave approximately 100+ gpm of uncommitted capacity for future downstream development.**

While accommodating the Beavercreek Apartment Development in the Glen Oak Road sewer would direct flows across sewer basins on a short-term basis, it is worth noting that the area can gravity flow to the Glen Oak Road sewer system. Additionally, in the short-term there may be operational benefits to the City to direct flow into the Glen Oak Road sewer. Allowing flow from Beavercreek Development to go to the Glen Oak Road sewer would also allow the large capital expenditures of the Beavercreek Sewer Trunkline project to be delayed without exceeding the capacity of the existing pipelines, giving the City and development community more time to plan for and fund the new trunkline. Flow from the Beavercreek Development could eventually be routed into the Beavercreek Sewer Trunkline, and provisions for this transfer should be incorporated into the design of the Beavercreek Development.

Accommodating the Beavercreek Apartment Development in the Glen Oak Road sewer does not obligate the City to service other future developments in Areas 1 and 2 within the Glen Oak Road sewer. Should Areas 1 and 2 be committed long-term to the Glen Oak Road sewer, then as an alternative to the Beavercreek Sewer Trunkline, it may be possible to complete downstream improvements in Hwy 213 to alleviate surcharged conditions in the City's Glen Oak Road sewer. In their June 30, 2014 technical memorandum, BC estimated that a $537,000 pipe upsizing project in Hwy 213 would alleviate the surcharged conditions in the City-owned Glen Oak Road sewer.

One of the concerns expressed by the City in allowing Beavercreek Apartment Development to discharge into the Glen Oak Road sewer is that the flow utilizes available downstream capacity in HWY 219 that could be dedicated to other developments. The City also recognizes that significant contributions of I/I utilize available pipe capacity. Reducing the amount of I/I could free up pipe capacity for development. The cost to reduce flow by reducing I/I is a function of a number of factors, including the presence of direct storm water connections, topography, climate, groundwater levels, soil conditions, and pipe material conditions.

Keller Associates investigated whether there are benchmarks for estimating typical cost per gallon for I/I removed from a wastewater collection system. Contact was made with the City of Eugene, City of Springfield, City of Salem, City of Portland, and Clean Water Services. All of these entities desire to obtain this information, but do not have it at the present time. Clean Water Services reported that they have done similar research on the

From: Whiteley, Doug
To: Pete Walter
Subject: FW: SOC
Date: Monday, January 12, 2015 1:11:34 PM

Hi Pete,
Here is the language directly from our Standards Of Coverage document. The highlighted line references our urban response area which the area in questions falls within.
Let me know if you need anything else.
Thanks,

Doug Whiteley
Fire Marshal - Administrative Battalion Chief
Direct: 503.742.2660
main: 503 742 2600

To Safely Protect & Preserve Life & Property

CLACKAMAS FIRE DISTRICT #1
www.clackamasfire.com

Here is the info we discussed, this is our BASELINE published in 2013 SOC with 2012 data.

Baseline EMS Objectives:
DISTRIBUTION- Baseline EMS
For 90 percent of EMS responses, total response time of the first arriving apparatus arrives within:
7 minutes and 15 seconds in **URBAN** communities
7 minutes and 37 seconds in **SUBURBAN** communities
14 minutes and 38 seconds in **RURAL** communities.
The first arriving unit is staffed with two, three, or four personnel and is capable of providing advanced life
support and treatment for a one or two patient medical incident while providing for the safety of victims and
responders in accordance with department policy and procedures.

City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: PC 13-032

Agenda Date: 4/9/2013

Status: Agenda Ready

To: City Commission

Agenda #: 3a.

From: Public Works Director John Lewis

File Type: Planning Item

SUBJECT:
Transportation System Plan Update (File L 13-01, Ordinance No. 13-1002)

RECOMMENDED ACTION (Motion):
This is a work session presentation; no action is required.

BACKGROUND:
The Transportation System Plan (TSP) provides a long term guide for transportation investments for an equitable and efficient transportation system. Over the past year, City staff has been working with the community to evaluate the current transportation system and outline policies and projects to protect and enhance the quality of life in Oregon City through 2035. Approximately 360 potential transportation improvements were identified totaling an estimated $221 million. With approximately $73 million worth of investments reasonably expected to be funded, approval criteria created by the public identified the transportation improvements which best reflect our community goals and are anticipated to be constructed by 2035.

The purpose of this work session is to provide background on the creation and recommendations of the Transportation System Plan. The Planning Commission has been reviewing the document and will share their thoughts on the document.

The proposed amendments to the Oregon City Municipal Code associated with the Transportation System Plan (file L 13-02, Ordinance No. 13-003) will be discussed at the May 7, 2013 City Commission Work Session. The first City Commission hearing is expected to be on May 15, 2013.

The full document may be found at www.OCTransportationPlan.org.

2015 State Senators

			District	Phone	Email
Sen.	Herman	Baertschiger Jr.	SD 02	503-986-1702	sen.hermanbaertschiger@state.or.us
Sen.	Alan	Bates	SD 03	503-986-1703	sen.alanbates@state.or.us
Sen.	Lee	Beyer	SD 06	503-986-1706	sen.leebeyer@state.or.us
Sen.	Brian	Boquist	SD 12	503-986-1712	sen.brianboquist@state.or.us
Sen.	Ginny	Burdick	SD 18	503-986-1718	sen.ginnyburdick@state.or.us
Sen.	Peter	Courtney	SD 11	503-986-1600	sen.petercourtney@state.or.us
Sen.	Michael	Dembrow	SD 23	503-986-1723	sen.michealdembrow@state.or.us
Sen.	Richard	Devlin	SD 19	503-986-1719	sen.richarddevlin@state.or.us
Sen.	Chris	Edwards	SD 07	503-986-1707	sen.chrisedwards@state.or.us
Sen.	Ted	Ferrioli	SD 30	503-986-1950	sen.tedferrioli@state.or.us
Sen.	Sara	Gelser	SD 08	503-986-1708	sen.saragelser@state.or.us
Sen.	Fred	Girod	SD 09	503-986-1709	sen.fredgirod@state.or.us
Sen.	Bill	Hansell	SD 29	503-986-1729	sen.billhansell@state.or.us
Sen.	Mark	Hass	SD 14	503-986-1714	sen.markhass@state.or.us
Sen.	Betsy	Johnson	SD 16	503-986-1716	sen.betsyjohnson@state.or.us
Sen.	Tim	Knopp	SD 27	503-986-1727	sen.timknopp@state.or.us
Sen.	Jeff	Kruse	SD 01	503-986-1701	sen.jeffkruse@state.or.us
Sen.	Laurie	Monnes Anderson	SD 25	503-986-1725	sen.lauriemonnesanderson@state.or.us
Sen.	Rod	Monroe	SD 24	503-986-1724	sen.rodmonroe@state.or.us
Sen.	Alan	Olsen	SD 20	503-986-1720	sen.alanolsen@state.or.us
Sen.	Floyd	Prozanski	SD 04	503-986-1704	sen.floydprozanski@state.or.us
Sen.	Chuck	Riley	SD 15	503-986-1715	sen.chuckriley@state.or.us
Sen.	Arnie	Roblan	SD 05	503-986-1705	sen.arnieroblan@state.or.us
Sen.	Diane	Rosenbaum	SD 21	503-986-1700	sen.dianerosenbaum@state.or.us
Sen.	Chip	Shields	SD 22	503-986-1722	sen.chipshields@state.or.us
Sen.	Elizabeth	Steiner Hayward	SD 17	503-986-1717	sen.elizabethsteinerhayward@state.or.us
Sen.	Kim	Thatcher	SD 13	503-986-1713	sen.kimthatcher@state.or.us
Sen.	Chuck	Thomsen	SD 26	503-986-1726	sen.chuckthomsen@state.or.us
Sen.	Doug	Whitsett	SD 28	503-986-1728	sen.dougwhitsett@state.or.us
Sen.	Jackie	Winters	SD 10	503-986-1710	sen.jackiewinters@state.or.us

2015 State Representatives

			District	Phone	Email
Rep.	Jeff	Barker	HD 28	503-986-1428	rep.jeffbarker@state.or.us
Rep.	Phil	Barnhart	HD 11	503-986-1411	rep.philbarnhart@state.or.us
Rep.	Greg	Barreto	HD 58	503-986-1458	rep.gregbarreto@state.or.us
Rep.	Brent	Barton	HD 40	503-986-1440	rep.brentbarton@state.or.us
Rep.	Cliff	Bentz	HD 60	503-986-1460	rep.cliffbentz@state.or.us
Rep.	Deborah	Boone	HD 32	503-986-1432	rep.deborahboone@state.or.us
Rep.	Peter	Buckley	HD 05	503-986-1405	rep.peterbuckley@state.or.us
Rep.	Knute	Buehler	HD 54	503-986-1454	rep.knutebuehler@state.or.us
Rep.	Brian	Clem	HD 21	503-986-1421	rep.brianclem@state.or.us
Rep.	John	Davis	HD 26	503-986-1426	rep.johndavis@state.or.us
Rep.	Margaret	Doherty	HD 35	503-986-1435	rep.margaretdoherty@state.or.us
Rep.	Sal	Esquivel	HD 06	503-986-1406	rep.salesquivel@state.or.us
Rep.	Paul	Evans	HD 20	503-986-1420	rep.paulevans@state.or.us
Rep.	Shemia	Fagan	HD 51	503-986-1451	rep.shemiafagan@state.or.us
Rep.	Lew	Frederick	HD 43	503-986-1443	rep.lewfrederick@state.or.us

Rep.	Joe	Gallegos	HD 30	503-986-1430	rep.joegallegos@state.or.us
Rep.	Vic	Gilliam	HD 18	503-986-1418	rep.vicgilliam@state.or.us
Rep.	David	Gomberg	HD 10	503-986-1410	rep.davidgomberg@state.or.us
Rep.	Chris	Gorsek	HD 49	503-986-1449	rep.chrisgorsek@state.or.us
Rep.	Mitch	Greenlick	HD 33	503-986-1433	rep.mitchgreenlick@state.or.us
Rep.	Jodi	Hack	HD 19	503-986-1419	rep.jodihack@state.or.us
Rep.	Cedric	Hayden	HD 07	503-986-1407	rep.cedrichayden@state.or.us
Rep.	Dallas	Heard	HD 02	503-986-1402	rep.dallasheard@state.or.us
Rep.	Ken	Helm	HD 34	503-986-1434	rep.kenhelm@state.or.us
Rep.	Paul	Holvey	HD 08	503-986-1408	rep.paulholvey@state.or.us
Rep.	Val	Hoyle	HD 14	503-986-1900	rep.valhoyle@state.or.us
Rep.	John	Huffman	HD 59	503-986-1459	rep.johnhuffman@state.or.us
Rep.	Mark	Johnson	HD 52	503-986-1452	rep.markjohnson@state.or.us
Rep.	Bill	Kennemer	HD 39	503-986-1439	rep.billkennemer@state.or.us
Rep.	Alissa	Keny-Guyer	HD 46	503-986-1446	rep.alissakenyguyer@state.or.us
Rep.	Betty	Komp	HD 22	503-986-1422	rep.bettykomp@state.or.us
Rep.	Tina	Kotek	HD 44	503-986-1200	rep.tinakotek@state.or.us
Rep.	Wayne	Krieger	HD 01	503-986-1401	rep.waynekrieger@state.or.us
Rep.	Ann	Lininger	HD 38	503-986-1438	rep.annlininger@state.or.us
Rep.	John	Lively	HD 12	503-986-1412	rep.johnlively@state.or.us
Rep.	Caddy	McKeown	HD 09	503-986-1409	rep.caddymckeown@state.or.us
Rep.	Susan	McLain	HD 29	503-986-1429	rep.susanmclain@state.or.us
Rep.	Mike	McLane	HD 55	503-986-1400	rep.mikemclane@state.or.us
Rep.	Nancy	Nathanson	HD 13	503-986-1413	rep.nancynathanson@state.or.us
Rep.	Mike	Nearman	HD 23	503-986-1423	rep.mikenearman@state.or.us
Rep.	Rob	Nosse	HD 42	503-986-1442	rep.robnosse@state.or.us
Rep.	Andy	Olson	HD 15	503-986-1415	rep.andyolson@state.or.us
Rep.	Julie	Parrish	HD 37	503-986-1437	rep.julieparrish@state.or.us
Rep.	Carla	Piluso	HD 50	503-986-1450	rep.carlapiluso@state.or.us
Rep.	Bill	Post	HD 25	503-986-1425	rep.billpost@state.or.us
Rep.	Dan	Rayfield	HD 16	503-986-1416	rep.danrayfield@state.or.us
Rep.	Tobias	Read	HD 27	503-986-1427	rep.tobiasread@state.or.us
Rep.	Jeff	Reardon	HD 48	503-986-1448	rep.jeffreardon@state.or.us
Rep.	Greg	Smith	HD 57	503-986-1457	rep.gregsmith@state.or.us
Rep.	Barbara	Smith Warner	HD 45	503-986-1445	rep.barbarasmithwarner@state.or.us
Rep.	Sherrie	Sprenger	HD 17	503-986-1417	rep.sherriesprenger@state.or.us
Rep.	Duane	Stark	HD 04	503-986-1404	rep.duanestark@state.or.us
Rep.	Kathleen	Taylor	HD 41	503-986-1441	rep.kathleentaylor@state.or.us
Rep.	Jessica	Vega Pederson	HD 47	503-986-1447	rep.jessicavegapederson@state.or.us
Rep.	Jim	Weidner	HD 24	503-986-1424	rep.jimweidner@state.or.us
Rep.	Gene	Whisnant	HD 53	503-986-1453	rep.genewhisnant@state.or.us
Rep.	Gail	Whitsett	HD 56	503-986-1456	rep.gailwhitsett@state.or.us
Rep.	Jennifer	Williamson	HD 36	503-986-1436	rep.jenniferwilliamson@state.or.us
Rep.	Carl	Wilson	HD 03	503-986-1403	rep.carlwilson@state.or.us
Rep.	Brad	Witt	HD 31	503-986-1431	rep.bradwitt@state.or.us

COMMENT FORM

PLEASE PRINT CLEARLY

- SPEAK INTO THE MICROPHONE AND STATE YOUR NAME AND RESIDING CITY
- Limit Comments to ***3 MINUTES***.
- Give to the Clerk in Chambers ***prior*** to the meeting.

Date of Meeting Jan 21 2015

Item Number From Agenda 4

NAME: Tim DeLano

ADDRESS: **Street:** 724 VanBuren St

City, State, Zip: OR CITY 97045

PHONE NUMBER: 971·267-8594

E-MAIL ADDRESS: TimDelano@hotmail.com

SIGNATURE: Tim DeLano

COMMENT FORM

PLEASE PRINT CLEARLY

- SPEAK INTO THE MICROPHONE AND STATE YOUR NAME AND RESIDING CITY
- Limit Comments to ***3 MINUTES***.
- Give to the Clerk in Chambers ***prior*** to the meeting.

Date of Meeting 1-21-15

Item Number From Agenda 6a PC 15-147

NAME: Elizabeth Graser-Lindsey

ADDRESS: **Street:** 21391 S. Ferguson Rd

City, State, Zip: Beavercreek OR 97004

PHONE NUMBER: 503 632-5568

E-MAIL ADDRESS: egraserlindsey@gmail.com

SIGNATURE: Elizabeth Graser-Lindsey

COMMENT FORM

PLEASE PRINT CLEARLY

- SPEAK INTO THE MICROPHONE AND STATE YOUR NAME AND RESIDING CITY
- Limit Comments to ***3 MINUTES***.
- Give to the Clerk in Chambers ***prior*** to the meeting.

Date of Meeting 1/21/15

Item Number From Agenda Beaver Creek Project Area

NAME: Andrew Brand Andrew Brand

ADDRESS: **Street:** 600 University St, Ste 1700

City, State, Zip: Seattle, WA 98101

PHONE NUMBER: 206-575-6244

E-MAIL ADDRESS: andrew@evergreenkd.com

SIGNATURE:

COMMENT FORM

PLEASE PRINT CLEARLY

- SPEAK INTO THE MICROPHONE AND STATE YOUR NAME AND RESIDING CITY
- Limit Comments to ***3 MINUTES***.
- Give to the Clerk in Chambers ***prior*** to the meeting.

Date of Meeting 1-21-15

Item Number From Agenda —

NAME: Steve Hultberg Steve Hultberg

ADDRESS: **Street:** PO Box 2007

City, State, Zip: Bend, OR 97709

PHONE NUMBER: 541.585.3697

E-MAIL ADDRESS: shultberg@rodeowhite.com

SIGNATURE:

COMMENT FORM

PLEASE PRINT CLEARLY

- SPEAK INTO THE MICROPHONE AND STATE YOUR NAME AND RESIDING CITY
- Limit Comments to ***3 MINUTES***.
- Give to the Clerk in Chambers ***prior*** to the meeting.

Date of Meeting 1-21-15

Item Number From Agenda 6A

NAME: CHRISTINE KOSINSKI

ADDRESS: **Street:**

City, State, Zip:

PHONE NUMBER:

E-MAIL ADDRESS:

SIGNATURE: Christine Kosinski

COMMENT FORM

PLEASE PRINT CLEARLY

- SPEAK INTO THE MICROPHONE AND STATE YOUR NAME AND RESIDING CITY
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- Give to the Clerk in Chambers ***prior*** to the meeting.

Date of Meeting JAN 21, 2015

Item Number From Agenda 6-A

NAME: MARY JOHNSON

ADDRESS: **Street:** 19921 BEAVERCREEK RD

City, State, Zip: OR CITY, OR 97045

PHONE NUMBER: 503-882-7321

E-MAIL ADDRESS: amj@centurylink.net

SIGNATURE: A. Mary Johnson

COMMENT FORM

PLEASE PRINT CLEARLY

- SPEAK INTO THE MICROPHONE AND STATE YOUR NAME AND RESIDING CITY
- Limit Comments to ***3 MINUTES***.
- Give to the Clerk in Chambers ***prior*** to the meeting.

Date of Meeting 21 JAN 15

Item Number From Agenda 6a

NAME: WILLIAM GIFFORD

ADDRESS: **Street:** 1324 BEAVERLN

City, State, Zip: OC OR 97045

PHONE NUMBER: 503 723 3456

E-MAIL ADDRESS: william@gmALLFLAGS.com

SIGNATURE:

COMMENT FORM

PLEASE PRINT CLEARLY

- SPEAK INTO THE MICROPHONE AND STATE YOUR NAME AND RESIDING CITY
- Limit Comments to ***3 MINUTES***.
- Give to the Clerk in Chambers ***prior*** to the meeting.

Date of Meeting 1/21/15

Item Number From Agenda 7a

NAME: Sid Scott

ADDRESS: **Street:**

City, State, Zip:

PHONE NUMBER:

E-MAIL ADDRESS:

SIGNATURE:

COMMENT FORM

PLEASE PRINT CLEARLY

- SPEAK INTO THE MICROPHONE AND STATE YOUR NAME AND RESIDING CITY
- Limit Comments to ***3 MINUTES***.
- Give to the Clerk in Chambers ***prior*** to the meeting.

Date of Meeting January 21, 2015

Item Number From Agenda 6.a.

NAME: Dave Nalley

ADDRESS: **Street:** 11614 Parrish Road

City, State, Zip: Oregon City, Oregon 97045

PHONE NUMBER: 503-650-5035

E-MAIL ADDRESS: intstuts@sbcglobal.net

SIGNATURE: Dave Nalley