CITY OF MILWAUKIE

PLANNING COMMISSION MINUTES

Meeting held online via Zoom
www.milwaukieoregon.gov

October 27, 2020

Present: Robert Massey, Chair
Lauren Loosveldt, Vice Chair
Greg Hemer
Joseph Edge
Amy Erdt
Adam Khosroabadi
Jacob Sherman

Staff: Laura Weigel, Planning Manger
Vera Kolias, Senior Planner
Steve Adams, City Engineer
Dalton Vodden, Associate Engineer

1.0 Call to Order – Procedural Matters

Chair Massey called the meeting to order at 6:30 pm and read the conduct of meeting format into the record.

Note: The information presented constitutes summarized minutes only. The meeting video is available by clicking the Video link at *http://www.milwaukieoregon.gov/meetings*.

2.0 Planning Commission Minutes – Motion Needed

2.1 August 11, 2020

Commissioner Sherman stated a correction. On page 3 regarding his remarks, he would like them to read, "and the Planning Commissioner should look at variances and modifications as public benefits."

Commissioner Hemer recommended approval of the minutes (as amended in 2.1 which is correct) and Commissioner Edged seconded the motion.

2.2 September 22, 2020

Commissioner Hemer recommended approval of the minutes (as amended in 2.1 which is correct) and Commissioner Edged seconded the motion..

3.0 Information Items

Vera Kolias encouraged members to read the November Pilot when it is released next week. There is an article about the Comprehensive Plan Implementation Project and an invitation to an upcoming public participation event.

4.0 Audience Participation

- Chair Massey shared information from an email exchange between staff and a member of the public. It was regarding ADU utility pricing.

- Commissioner Hemer does not believe it is under his purview to comment on utility rates for ADUs. The individual mentioned that ADUs are paying the same amount in utilities as a residential home and Commissioner Hemer agreed that Council should investigate this.
- Commissioner Sherman would like to know if it is possible for the County to set up a larger billing framework that is applied to the city?

Chair Massey read that as well and is not aware of the agreements between the County and City. The City was communicating with the County regarding how residents are being billed and if any changes were needed. He is unsure where that conversation went. This does not seem to be in the Planning Commissioner's purview and it is an important conversation for City staff to have.

- Steve Adams will take the request to the Finance Department.

5.0 Public Hearings

5.1 Summary

Vera Kolias, Senior Planner and Dalton Vodden, Associate Engineer shared a staff report.

The purpose of this hearing is to consider a proposal for Waverly Woods Development, which is located at 10415 SE Waverly Court and is zoned Residential R-2, and a portion of the site is in the Willamette Greenway. The proposal is a multi-family development consisting of four residential buildings with 100 dwelling units and a community center with a swimming pool. This is a three-phase proposal. The proposal includes a Property Line Adjustment which would alter the existing 3 parcels so that the existing Dunbar Woods development would be on its own parcel, the proposed Waverly Woods development would be on a separate parcel, and a third vacant parcel accessed from Lava Dr would be developed at some point in the future. The applicant is seeking a Type IV Review and accommodations for more flexibility regarding the building height and a Willamette greenway conditional use.

The following criteria is what the city is considering, and testimony should be based on. Milwaukie Municipal Code:

- Title 12: Street, Sidewalk, and Public Places
- Section 19.1007: Type IV Review
- Section 19.311: Planned Development Zone PD
- Section 19.302: Medium and High Residential Zones, including the Residential R-2 zone
- Title 17: Land Division
- Section 19.401: Willamette Greenway Zone WG
- Chapter 19.500: Supplementary Development Regulations
- Chapter 19.600: Off-Street Parking and Loading
- Chapter 19.700: Public Facility Improvements
- Section 19.902: Amendments to Maps and Ordinances

- Section 19.905: Conditional Uses

Staff Recommendation is that the Planning Commission recommends an approval of the project to the City Council.

Applicant's presentation: Duncan Wyse, Scott Wyse, Wendy Wyse, "the applicant," presented. Ms. Wyse shared the history of the applicant's company and developments. Waverly Greens is owned by Ms. Wyse and her brothers. Scott Wyse presented about the current project, which is a 6.7-acre parcel. Since 2008, they have explored how to develop the part of the land. The applicant decided to build a four-story building with underground parking to achieve their density goals, and ensure the land is not completely covered with buildings. The applicant wanted to retain as much as the natural environment as possible. The applicant met with the Neighborhood District Association, neighboring residents, and the City to discuss their development plans and to hear the community's and city's thoughts.

Commissioners questions to the applicant:

Commissioner Hemer asked which LEED standards the applicant planned to use and what are the plans for developing environmentally friendly buildings?

The applicant responded, they were unsure which LEED standards the development would achieve because they are waiting to complete an environmental study. The applicant is interested in the heating and air conditioning system, photovoltaic cells for the roof, and there will be significant insulation in the buildings. They are also interested in electric vehicle stations in the garage, innovative transportation, and having a bicycle room onsite.

Commissioner Loosveldt asked, has the applicant studied what rent would be for this project phrase.

The applicant responded, they have talked generally about rents. They have considered rents because that is important when thinking if a project is feasible. The apartments will be high end and will be priced similar to the Dunbar Woods apartment and perhaps even higher due to the price of developing the building.

Commissioner Loosveldt asked about an affordable housing component of the development because she read something about affordable housing in their plans.

The applicant responded, they would not advertise the project as affordable housing.

Commissioner Loosveldt asked about the building heights and if the applicant considered building level one underground or other options to get below the requirement.

Nels Hall, the applicant's architect, shared the study they completed suggesting options for meeting the building standards. There is uneven basalt, which makes it difficult to build. The applicant plans to have additional studies to understand what options are available to them.

Commissioner Loosveldt added if it would be possible to move the mechanical units from the roof to the ground or sub-graded in order to accommodate a low-pitched roof.

Mr. Hall responded that is an option and they were looking at a vertical roof and split system, which would have heat exchangers on the roof. Mr. Hall believed the roof was as flat as it could be and shed water properly. The roof being proposed offers cross ventilation and vaulted ceilings that would allow the middle units cross ventilation. When looking at the building from the river or a helicopter, the building will look small. Also, the roof is waterproof. Mr. Hall does not see the roof as a problem with discussing the scale of the building because they are almost flat.

Commissioner Khosroabadi asked about the variance and trade-off for building a four-story building. He was unsure what the trade-off was when the proposed development is building high end apartments.

The applicant responded with more housing options some people will move in. It was their understanding that Milwaukie wanted more housing. The fourth floor was designed as the primary benefit to the City of Milwaukie because there will be open space.

Commissioner Khosroabadi had an additional question about the stormwater system and the effect it will have on the city's existing stormwater system. He believed there was a lot that still needed to be figured out. He wondered when the applicant met with the Neighborhood Association District.

The applicant responded they met with the Historic Milwaukie NDA last summer.

Commissioner Khosroabadi added was there a lot of input from that meeting because a lot of comments he read stated that the meeting had low attendance.

T**he applicant** shared it was a zoom meeting and they were unsure how many people attended. They also added that energy efficiency was important to them and they have the building with the largest solar system in the state according to the Energy Trust of Oregon. The proposed development will be energy efficient and follow the City's stormwater requirements.

Commissioner Sherman asked how many trees would have been removed with previous proposals for the site?

The applicant answered, the original plan would have required more pavement and therefore, removal of a lot of trees. The current proposed development is compacted with the goal to protect the trees.

Commissioner Sherman added that there are few things under studied, such as the solar and electric vehicle charging. He asked when these things would be completed as the applicant moves forward with the development.

The applicant shared, that they were putting electric charges in and will determine how many to implement based on their tenants' needs. They were waiting on approval before deciding on the design of the buildings, which include the solar system.

Mr. Hall added the applicant has completed all studies required by the City of Milwaukie. The additional studies are for the applicant's benefit to make the building as sustainable as possible. Also, this is normally something the Planning Commission would not normally see.

The applicant added their goal was to work with the Planning Commission and neighbors to bring something that is beneficial to the city.

Commissioner Sherman asked, if there were any discussion about family sized units, such as three-bedroom options in any of the buildings?

Mr. Hall responded, there was and that could be an option for phrase three. For phrase one, they are large units and a possibility for one of the rooms to be a guestroom.

Commissioner Sherman added, the phrase three building does not include four stories. He asked if the applicant has considered changing the plan to include additional bedrooms to provide more affordable family size units.

Mr. Hall responded, there was a limit to 100 units they could have and it was possible to build three-bedroom units for another phase.

The applicant added, they would look into three bedrooms.

Commissioner Edge asked, what were the plans for the forested area, the trees that were being removed, and trail amenity that was being proposed. He asked if the general public would be invited to use the trail.

The applicant answered, they hired an arborist to assist with protecting the native trees and the other plants on the property. Most of the trees and plants being removed were unhealthy or invasive. The ivy plants were growing up the trees and damaged some of those. They planned to remove those trees. The trail was designed for the residents of the building.

Commissioner Edge asked if it was true that the building would be dwarfed by the surrounding trees?

Mr. Hall answered, that was true.

Commissioner Edge proposed a five minute recess and it was granted by Chair Massey. After the break, the Commissioners listened to the public comments.

Lyndon Murray testified, he was a resident of Cambridge lane and a member of the country club. He asked Ms. Kolias about the code and how the applicant has taken full of advantage of the code as it relates to density. The applicant is also obligated to have 30% of the property as green space and possibly setting separate deeds for the land. It appears the applicant can meet the obligation for green space. Why wasn't the applicant meeting the requirement? He was very concerned that there would be a flow of people on the driving range and would be dangerous. Lastly, he suggested, the applicant to look into Tesla solar tiles as the roofing.

Patricia Justice testified, her home is close to the development. She wrote a letter about the project to the Planning Commissioner and the applicant. The applicant met with her. She stated, the code mentioned that new development should fit the neighborhood character and have minimal impact. She believed the proposed development would have an impact on the surrounding homes. The applicant was proposing a multi-story development in a single-family residential neighborhood. This would have a significant negative impact on the neighbors and this needed to be addressed. She asked for a reduction in height for buildings A1 and A2 by one story as it would lessen the visual impact from the river and the nearby homes. She requested, to move the buildings closer to Waverly Court, which would expand the buffer between the neighbors' homes and the apartments.

Gloria Stone testified, she sent a lot of materials to the Planning Commission. She focused on four key issues. The first issue was the Willamette Greenway criteria should be compatible with and have minimal impact and this criteria was not met. The development plan stated it was compatible and did not have any impact on the surrounding community this also was not true. Parts of the building were inconsistent with the R-10 and existing open space zoning regulations. The regulations provided in the plan did not include elevations from surrounding properties. Lastly, she was concerned about the economic impact on the nearby properties, which could have a 20% negative impact to their land. She asked that the applicant addresses her concerns.

Maria Nash testified, she represented the Shore Side East Condominium Development. She submitted written testimony and had additional questions that did not receive an answer. She asked about the trees, maintaining some of the dead trees, and if the fruit trees were native. She hasn't heard much about wildlife and wondered if the Willamette Green Review was completed. If not, she wanted to know if the public receive a report, especially as it is related to the wildlife.

Mike Nugent testified, he was a Waverly member and was a Real Estate Developer and Broker. He was concerned about the negative impacts on the neighborhood, the future developments and their impacts, the phrasing of the development. A multi-phrase development could tax residents with ongoing construction. He was also concerned about height, trees buffer, and storm water sound attenuation. He planned to meet with the family to further discuss his concerns.

Peggy (did not state their last name) testified, she was concerned about the rents and how this would impact individuals. She was also concerned about the trees and what would happen to them. She stated that the development does impact the neighborhood.

Michael Robinson testified, he represented the Waverly Country Club as a Land Use Attorney and sent a letter to the Planning Commissioner. He requested that the hearing continues to another date to allow for more deliberation. This request was being made under ORS 197.763 since this was the first hearing. He stated, the current Comprehensive Plan could not be applied to the proposed development because the applicant submitted their proposal two weeks before the Comprehensive Plan went into effect. He discussed the size of the building, vegetation based on phrase three, and affordability. He was unsure if the applicant would deliver phase three and it is not something the city should count on. Also, the apartments are designed as high end and not affordable. He shared he would like the applicant to provide more details and to not use vague language.

Nancy Dalton testified, her concerns about the Willamette Greenway, the vegetation, scenic views, the additional height, and the length of the building. The building is 75% higher than previous developments and what was allowed previously. She requested that the Planning Commission oppose the application.

Mark Hudspith testified, he owned a property near the development. He encouraged the Commissioners to look at the photos and wonder if the buildings were proportional to what would be built. He did not think the photos were accurate. He wondered if the residents of Milwaukie, Clackamas County, and Oregon receiving a benefit from the property? He wanted the Commissioner to ensure the proposed development is beneficial for the area and the code is being followed.

Alexander Pitts testified, she agreed with what her neighbors shared. She questioned why we have greenways if we keep bending the rules to allow for development. She was concerned about the auditory creep and its impact to the residents and animals in the area. This needed to be considered since construction will take place between seven and ten years. She was also concerned about the trees and their relation to the bald eagles in the area.

Steve Reaume testified, he met with the applicant and discussed his concerns. He felt good going into his driveway and believed a tall building with 50 apartments would impact how he felt as a homeowner. The proposed development would have a significant impact on his property. He encouraged the applicant to have more setbacks and create a divide between the property and his. He hoped that the applicant would write their greenway plans to ensure it is developed in phrase three.

Testimony concluded.

Commissioner Edge started the conversation about next steps, which included Mr. Robinson's assertion that the Commissioner needed to leave the record open after the hearing. If yes, does that mean the Commission would deliberate during another hearing?

Justin Gericke, the City Attorney, responded, Mr. Robinson is correct. The Oregon revised statutes provide an opportunity for an additional hearing to allow for more testimony and more evidence to be presented.

Commissioner Edge shared the Commission would collect more evidence and wondered if the applicant should respond to the comments received or wait until a later time.

Chair Massey agreed to allow the applicants to respond to questions.

The applicant responded to the public testimony. The applicant believed the proposed plan addressed and allowed for open space. There wasn't any access to the driving range and they committed to designing a strong bramble bush fence to ensure no one could access the range, if that was needed. They were not familiar with the economics of a Tesla solar system and would investigate it. The applicant restated that they were committed to bringing a landscape architect in to minimize the impact on the neighborhood and save as many trees as possible. Lastly, the applicant stated they were committed to working with the neighborhoods

Chair Massey asked Ms. Weigel and Ms. Kolias about next steps, which are below.

The Commission voted to continue the hearing to December 8, 2020 with a comment process as follows:

- November 10 – deadline for submittal of written testimony.
- November 17 – deadline for written responses to Nov 10 submittals.
- November 24 – deadline for applicants' final written rebuttal.
- December 8 – hearing date for Planning Commission deliberations (no oral testimony).

6.0 Planning Department Other Business/Updates

There were no updates.

7.0 Planning Commission Committee Updates and Discussion

There were no updates.

8.0 Forecast for Future Meetings

The forecaster will be shared later.

Meeting adjourned at approximately 10:10 PM

Respectfully submitted,
N. Janine Gates
Assistant Planner

Robert Massey, Chair

CITY OF MILWAUKIE

AGENDA

October 27, 2020

PLANNING COMMISSION

milwaukieoregon.gov

Zoom Video Meeting: due to the governor's "Stay Home, Stay Healthy" order, the Planning Commission will hold this meeting through Zoom video. The public is invited to watch the meeting online through the City of Milwaukie YouTube page (https://www.youtube.com/channel/UCRFbfqe3OnDWLQKSB_m9cAw) or on Comcast Channel 30 within city limits.
If you wish to provide comments, the city encourages written comments via email at planning@milwaukieoregon.gov. Written comments should be submitted before the Planning Commission meeting begins to ensure that they can be provided to the Planning Commissioners ahead of time.
To speak during the meeting, visit the meeting webpage (https://www.milwaukieoregon.gov/bc-pc/planning-commission-61) and follow the Zoom webinar login instructions.

1.0 Call to Order - Procedural Matters — 6:30 PM

2.0 Planning Commission Minutes — Motion Needed

- 2.1 August 11, 2020 – Page 3 Amended
- 2.2 September 22, 2020

3.0 Information Items

4.0 Audience Participation — This is an opportunity for the public to comment on any item not on the agenda

- 4.1 E-mailed comments submitted by Sarah Roller

5.0 Public Hearings — Public hearings will follow the procedure listed on the reverse side

5.1

Summary:	Waverly Woods Planned Development
Applicant:	Walker Ventures, LLC
Address:	10415 SE Waverly Ct
File:	PD-2020-001
Staff:	Senior Planner Vera Kolias

6.0 Work Session Items

6.1

Summary:	Planning Commission Workplan and Bylaws Update, Laura Weigel
Staff:	Planning Manager Laura Weigel

6.2

Summary:	Comprehensive Plan Implementation Project Discussion (overall project schedule)
Staff:	Senior Planner Vera Kolias

7.0 Planning Department Other Business/Updates

8.0 Planning Commission Committee Updates and Discussion Items — This is an opportunity for comment or discussion for items not on the agenda.

9.0 Forecast for Future Meetings

November 10, 2020	VR-2020-004, ADU-2020-005 – 43rd Ave ADU
November 24, 2020	Work Session Items: Comprehensive Plan Implementation Project Update – tentative; Central Milwaukie Bikeways Concept Plan - tentative

Milwaukie Planning Commission Statement

The Planning Commission serves as an advisory body to, and a resource for, the City Council in land use matters. In this capacity, the mission of the Planning Commission is to articulate the Community's values and commitment to socially and environmentally responsible uses of its resources as reflected in the Comprehensive Plan

1. **PROCEDURAL MATTERS.** If you wish to register to provide spoken comment at this meeting or for background information on agenda items please send an email to planning@milwaukieoregon.gov.
2. **PLANNING COMMISSION and CITY COUNCIL MINUTES.** City Council and Planning Commission minutes can be found on the City website at www.milwaukieoregon.gov/meetings.
3. **FORECAST FOR FUTURE MEETINGS.** These items are tentatively scheduled but may be rescheduled prior to the meeting date. Please contact staff with any questions you may have.
4. **TIME LIMIT POLICY.** The Commission intends to end each meeting by 10:00pm. The Planning Commission will pause discussion of agenda items at 9:45pm to discuss whether to continue the agenda item to a future date or finish the agenda item.

Public Hearing Procedure

Those who wish to testify should attend the Zoom meeting posted on the city website, state their name and address for the record, and remain available until the Chairperson has asked if there are any questions from the Commissioners.

1. **STAFF REPORT.** Each hearing starts with a brief review of the staff report by staff. The report lists the criteria for the land use action being considered, as well as a recommended decision with reasons for that recommendation.
2. **CORRESPONDENCE.** Staff will report any verbal or written correspondence that has been received since the Commission was presented with its meeting packet.
3. **APPLICANT'S PRESENTATION.**
4. **PUBLIC TESTIMONY IN SUPPORT.** Testimony from those in favor of the application.
5. **NEUTRAL PUBLIC TESTIMONY.** Comments or questions from interested persons who are neither in favor of nor opposed to the application.
6. **PUBLIC TESTIMONY IN OPPOSITION.** Testimony from those in opposition to the application.
7. **QUESTIONS FROM COMMISSIONERS.** The commission will have the opportunity to ask for clarification from staff, the applicant, or those who have already testified.
8. **REBUTTAL TESTIMONY FROM APPLICANT.** After all public testimony, the commission will take rebuttal testimony from the applicant.
9. **CLOSING OF PUBLIC HEARING.** The Chairperson will close the public portion of the hearing. The Commission will then enter into deliberation. From this point in the hearing the Commission will not receive any additional testimony from the audience but may ask questions of anyone who has testified.
10. **COMMISSION DISCUSSION AND ACTION.** It is the Commission's intention to make a decision this evening on each issue on the agenda. Planning Commission decisions may be appealed to the City Council. If you wish to appeal a decision, please contact the Planning Department for information on the procedures and fees involved.
11. **MEETING CONTINUANCE.** Prior to the close of the first public hearing, *any person* may request an opportunity to present additional information at another time. If there is such a request, the Planning Commission will either continue the public hearing to a date certain or leave the record open for at least seven days for additional written evidence, argument, or testimony. The Planning Commission may ask the applicant to consider granting an extension of the 120-day time period for making a decision if a delay in making a decision could impact the ability of the City to take final action on the application, including resolution of all local appeals.

Meeting Accessibility Services and Americans with Disabilities Act (ADA) Notice

The city is committed to providing equal access to public meetings. To request listening and mobility assistance services contact the Office of the City Recorder at least 48 hours before the meeting by email at ocr@milwaukieoregon.gov or phone at 503-786-7502. To request Spanish language translation services email espanol@milwaukieoregon.gov at least 48 hours before the meeting. Staff will do their best to respond in a timely manner and to accommodate requests. Most Council meetings are broadcast live on the city's YouTube channel and Comcast Channel 30 in city limits.

Servicios de Accesibilidad para Reuniones y Aviso de la Ley de Estadounidenses con Discapacidades (ADA)

La ciudad se compromete a proporcionar igualdad de acceso para reuniones públicas. Para solicitar servicios de asistencia auditiva y de movilidad, favor de comunicarse a la Oficina del Registro de la Ciudad con un mínimo de 48 horas antes de la reunión por correo electrónico a ocr@milwaukieoregon.gov o llame al 503-786-7502. Para solicitar servicios de traducción al español, envíe un correo electrónico a espanol@milwaukieoregon.gov al menos 48 horas antes de la reunión. El personal hará todo lo posible para responder de manera oportuna y atender las solicitudes. La mayoría de las reuniones del Consejo de la Ciudad se transmiten en vivo en el canal de YouTube de la ciudad y el Canal 30 de Comcast dentro de los límites de la ciudad.

Milwaukie Planning Commission:
Robert Massey, Chair
Lauren Loosveldt, Vice Chair
Joseph Edge
Greg Hemer
Amy Erdt
Adam Khosroabadi
Jacob Sherman

Planning Department Staff:
Laura Weigel, Planning Manager
Vera Kolias, Senior Planner
Brett Kelver, Associate Planner
Mary Heberling, Assistant Planner
Janine Gates, Assistant Planner
Tempest Blanchard, Administrative Specialist II
Alicia Martin, Administrative Specialist II

CITY OF MILWAUKIE

PLANNING COMMISSION MINUTES

Meeting held online via Zoom
www.milwaukieoregon.gov

August 11, 2020

Present: Robert Massey, Chair
Greg Hemer
Joseph Edge
Amy Erdt
Adam Khosroabadi
Jacob Sherman

Staff: Denny Egner, Planning Director
Vera Kolias, Senior Planner
Justin Gericke, City Attorney

Absent: Lauren Loosveldt, Vice Chair

1.0 Call to Order – Procedural Matters

Chair Massey called the meeting to order at 6:30 pm and read the conduct of meeting format into the record.

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1.1 Announcements:

Denny Enger, Planning Director retirement: He discussed his career as a Planner and time with the City of Milwaukie.

New membership: Chair Massey mentioned Adam Kosovobody and Jacob Sherman as the newest Commissioners. Below are their introductions:

Commissioner Kosovobody and his wife brought their first home in Milwaukie. He wanted to get more involved in his community and decided to join the Planning Commission. He works at Portland State University as a Football Coach.

Commissioner Sherman has lived in Milwaukie for the last two years and really loves the city. He has experience working in government and combating transportation, housing, and environmental issues. He would like to bring his experiences from living and working in Portland to his home and community in Milwaukie.

2.0 Review of Past Meeting Minutes

2.1 April 28, 2020
2.2 May 12, 2020
2.3 May 26, 2020

Commissioner Hemer approved the minutes and Commissioner Edge second the motion.

3.0 Information Items

Mr. Enger shared Council will most likely adopt the Comprehensive Plan next Tuesday. He also talked about the application process for hiring a new Planning Manager and the Oregon Chapter of the American Planning Association conference. If members are interested, they should contact Mr. Enger.

4.0 Audience Participation

5.0 Hearing Items

5.1 Summary: Milwaukie/ El Puente Elementary Parking
Applicant: Leif Palmer, North Clackamas School District
Address: 11250 SE 27th Ave
File: CSU-2020-005
Staff: Vera Kolias, Senior Planner

Chair Massey opened the hearing and read the conduct of quasi-judicial hearing format into the record. He asked if any commissioner wished to declare any bias, ex parte contact, or conflict of interest. None of the commissioners reported any such conflicts.

Vera Kolias, Senior Planner, presented the staff report via PowerPoint. She noted the following main points:

- The applicant would like to expand the parking lot by adding 18 stalls for a total of 59 parking spaces, relocate the trash to a more convenient place for pick up, and build a new futsal court.
- Two key issues were identified by staff: the maximum parking is 50 and they are seeking 9 more parking spots. 1) Does the exceeding maximum off-street parking meet the approval criteria and 2) How are the impacts of the proposal being mitigated?
- It is important to note that there is not another option regarding parking due to no parking and/or loading signs on the street.
- The futsal court is supported by the community and they have raised money for it. The expansion of the court is to provide more play area for the students, which staff wondered about.
- Staff recommended the Planning Commission to approve the application as it is and gave other decision-making options.

Applicant's Testimony

- **Cena Meyer, Project Architect** is with Opsis Architecture. Also, on the line was their civil engineer and community members who belonged to the parent teacher organization of the school.
- The project will provide new basketball hoops under a covered area. Also, the futsal court is planned for an area currently filled with bark dust and metal, which has been deemed unsafe.

Attendees' Testimony

- **Ben Johnson** lives in the back of the school and agrees that the lack of parking is an issue. He shared, teachers and others were parking on the streets, which was a problem for people who lived in the neighborhood. The neighborhood lacked open space and the planned new field is a great community resource.
- **Kelly Sullivan** lives a few blocks behind the school. She submitted a letter in support of the futsal court and assisted with fund raising.

Planning Commission Deliberation

The Commissioner agreed with the statements heard above.

Commissioner Hemer moved to approve the application with the conditions listed in the staff report. Commissioner Edge seconded the motion. The Planning Commission voted 6-0 in favor of the motion.

After voting, the Commissioner discussed the importance of offering electrical charging stations.

Commissioner Sherman mentioned that the applicant could have had a greater public benefit by offering an electrical vehicle charging station, (next part of statement amended from 9/22 Planning Commission meeting) and the Planning Commissioner should look at variances and modifications as public benefits.

Mr. Egner believed staff could bring this up and prepare applications to provide a better range of benefits. This could be discussed during pre-app appointments.

Commissioner Hemer agreed with Mr. Egner and recommended us to look through the climate action plan and ensure we are accomplishing our goals.

Commissioner Edge shared the City recently adopted new policies (the Comprehensive Plan) and it will be implemented soon. Once, that happens, we will judge applicants based on the new criteria.

Commissioner Hemer moved to approve the application with the conditions listed in the staff report. Commissioner Edge seconded the motion. The Planning Commission voted 6-0 in favor of the motion.

6.0 Planning Department Other Business/Updates

There were no updates.

7.0 Planning Commission Committee Updates and Discussion

Mr. Egner shared about the Blue Ribbon team meeting. Scott Stauffer, City Recorder has planned a nice program and he looks forward to attending.

8.0 Forecast for Future Meetings

Aug 25, 2020	No agenda items are currently scheduled for this meeting
Sept 8, 2020	No agenda items are currently scheduled for this meeting.
Sept 22, 2020	Work Session Item: Bylaws Update; NDA Leaders Meeting

Meeting adjourned at approximately 7:43 PM

Respectfully submitted,
Janine Gates
Assistant Planner

Robert Massey, Chair

CITY OF MILWAUKIE

PLANNING COMMISSION MINUTES

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September 22, 2020

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Adam Khosroabadi
Jacob Sherman

Staff: Leila Aman, Community Development Director
Laura Weigel, Planning Manger
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2.0 Planning Commission Minutes – Motion Needed

2.1 June 23, 2020

Commissioner Sherman approved the minutes and Commissioner Edge second the motion.

2.2 August 11, 2020

Commissioner Sherman stated a correction. On page 3 regarding his remarks, he would like them to read, "and the Planning Commissioner should look at variances and modifications as public benefits."

Commissioner Hemer approved the minutes as amended and Commissioner Edge second the motion.

3.0 Information Items

There were not any updates from the staff at the moment.

4.0 Audience Participation

No public testimony was presented for this portion of the meeting.

5.0 Public Hearings

5.1 Summary

The purpose of the meeting is for the Planning Commission and Planning Department to formally meet each other.

Below are the introductions:

- **Leila Aman** oversees the Community Development Department which includes two staff people, a Development Project Manager and Housing and Economic Development Assistant. She also is the Director of the Building Department, which includes a Permit Technician, Plans Examiner, and Building Official. Lastly, the Planning Department is under her leadership, which includes a Planning Manager, Senior Planner, Associate Planner, and two Assistant Planners. Mrs. Aman's background is in Urban Redevelopment and she has spent most of her career in the public sector. Mrs. Aman has been with the City of Milwaukie for a little over three years.
- **Chair Robert Massey** has been on the Planning Commission for a year and a half. He joined the Commission because he believed land use decisions are often the most important decisions that the city must make. He is passionate about sustainable solutions, such as affordable housing, economic development, and environmental protection. Professionally, he was a naval officer and worked in the corporate sector. He has lived in Milwaukie for five years.
- **Commissioner Greg Hemer** has lived in Milwaukie for 23 years and has been a very involved resident. He has worked on a downtown parking initiative, the Citizen Advisory Committee with the light rail, and currently, serves on the board of Milwaukie Environmental Stewards and Clackamas County Historical Council. He is also very active in the Linwood Neighborhood District Association (Linwood NDA). Lastly, he and his wife own Hemer Helping Hands, which is a cleaning services business. He was 2018 Milwaukie volunteer of the year and joined the Planning Commission years ago because he believes in community.
- **Commissioner Joseph Edge** is a software engineer and volunteers for a variety of commissions and committees, such as the McLoughlin Area Plan Implementation Team, the Chair of the Oak River Community Council, and the Chair of the North Clackamas Watersheds Council. His interests are the intersection of land use and transportation initiatives. He joined the Planning Commission because he was inspired by the 2017 vision statement and wanted to help the City implement the Comprehensive Plan. He grew up in the Oak Grove area and went to Milwaukie Junior High.
- **Vice Chair Lauren Loosveldt** has lived in Milwaukie for eight years. She appreciates the community and moved near the light rail because she was excited for the project. She is an architect by trade. Previously, she was an Interior Designer and a Sustainable Building Advisor. She was Chair and Vice Chair of the Design and Landmarks Committee for about three years. Her key goals are related to sustainability, affordable housing, and housing the houseless.
- **Commissioner Amy Erdt** was an Accounts Receivable Analyst for five years for a surgeon and worked for 10 years in emotional and behavior health. She grew up in Clackamas County and moved to Milwaukie in 2012 or 2013. She selected Milwaukie because it is the best, her family connections, and there are so many passionate and caring community members here. She

does a lot of online design work and is active on social media. Commissioner Erdt oversees the Milwaukie ChitChat group on Facebook. It is a community group that was started five years ago. The group has 7,000 active residents of Milwaukie participating. She was drawn to the Planning Commission because of its connections to the past and future, transportation, environmental health, and she wants to learn more about the code.

- **Commissioner Adam Khosrobadi** was appointed in August. He works at Portland State University as a Football Coach. He served in the United States Marine Corps, and served in Iraq in 2004. He joined the Commission because he wanted to get involved in his new city. Him and his wife moved to Milwaukie in September 2019. As a veteran, he is passionate about houseless veterans and homelessness in general. He believes the Planning Commission plays a key role in affordable housing because they deal with so many housing developments. He is also passionate about economic development and has a small business. He believes in the importance of listening and hearing people out. He is a member of the Linwood NDA, Advisory Council for Clackamas County, and was a former Linwood NDA representative before joining the Commission.
- **Commissioner Jacob Sherman** has a professional background in government, academia, and non-profits. Currently, he works for City of Portland and has worked on state policies regarding autonomous vehicles, scooters, and other transportation initiatives. He joined the Commission in August. He has lived in Milwaukie for the last 2.5 years. He is interested in the Commission because the power of this body with the variances they are offering, parking modifications being granted, and the legislative decisions they are helping inform with the goal of implementing the Community's vision.
- **Laura Weigel** is the Planning Manager. Before her current role, she worked for the City of Hillsboro for six years as the Long-Range Planner Manager. She updated the Comprehensive Plan, worked on their Transportation Plan, and concept planning. Prior to that, she was a Planner for the City of Lake Oswego for six years. Her assignments included the Comprehensive and Transportation Plans. She enjoys working on Comprehensive Planning and with all the various parties involved in creating, completing, and implementing the plan. It gives her a vision about who a city wants to be. She looks forward to engaging with Milwaukie's Comprehensive Plan. She is excited to work for the City of Milwaukie because of the work the City has done over the years on climate and transportation.
- **Janine Gates** was born and raised in Portland. Janine served on a non-profit board with Mrs. Aman who advised her to take a development course while obtaining her Masters in Urban and Regional Planning (MURP). She graduated in June and decided to continue with the Master's in Real Estate Development program. Janine is interested in the intersection of development and planning. She has a passion for small cities and the ability to be a Jill or Jack of all trades. She shared it was too soon to state a key goal or issue of hers, but one goal is to listen and understand how she can be the best servant for the residents of Milwaukie.
- **Mary Herberling** is also an Assistant Planner. She graduated with her Mater's of Urban and Regional Planning in 2016 and started working in her current role. She was one of the main assistants working on the Milwaukie Vision and the Comprehensive Plan update. She will be assisting Ms. Kolias with the

implementation of the Comprehensive Plan. She is also assisting Mr. Kelver on transportation plan that is coming forward in the near future. She does development reviews and will continue to present future developments to the Planning Commission.

- **Vera Kolias** has been with the City for 6 ½ years and has been in Oregon for 7. She moved from Massachusetts. She has been a planner in the public sector since 1998. Most of her work at the City is current planning and she has presented many development reviews and projects before the Planning Commission. Her work has included economic development and long-range planning. Moving forward, most of her work will focus on the implementation of the Comprehensive Plan with an initial focus on housing, parking, and tree code
- **Brett Kelver** started with the City as an Assistant Planner in 2005. He moved to Oregon in 1997 from central Kentucky to study Community and Regional Planning at the University of Oregon. He enjoys working for the City because of the people and the ability to get to know everyone. Some of his projects includes current planning, the staff liaison to the Design Landmarks Committee, updating the Transportation System Plan, Neighborhood Greenways, and Central Milwaukie Bikeways. He looks forward to working with the new Commission and Planning Team and ensuring we all are on the same page, delivering the same messages to land use applicants, and helping the applicants to the best of our knowledge.
- **Justin Gericke** is the City Attorney and has been here for 2 years. Moved to Oregon in 1994 for law school at Lewis and Clark. For 24 years or so, he has represented 38 or 40 different governmental entities around the state. He works closely with the Planning staff as they prepare to bring applications for review to the Planning Commission. He makes sure the Planning Commissioners are following the rules. His door is always open for any Planning Commissioner or staff.

6.0 Planning Department Other Business/Updates

There were no updates.

7.0 Planning Commission Committee Updates and Discussion

Commissioner Hemer attended his second meeting for the City Hall Blue Ribbon Committee. They discussed the standards if they must sell the building. They are moving forward and the next thing they will discuss is real estate evaluation.

Commissioner Edge attended the second Comprehensive Plan Implementation Committee (CPIC). This was an opportunity to meet the consultants on the project and discuss phrase 1 implementation of the project. Housing, tree, and parking codes are priorities based on Council's direction. The city host public meetings, web surveys, and other public engagement activities.

- **Ms. Kolias** shared that the purpose of the meeting was to explain the field of planning and our current code. This will allow the committee to be prepared for future conversations about the code and how it applies to policies regarding housing, House Bill 2001, tree, and parking codes.
- **Commissioner Sherman** is interested in learning more and asked about attending.

- **Mr. Gericke** said Planning Commissioners can attend (although and must be aware that if there is a quorum the meeting is subject to public meeting laws).
- The Committee agreed for other Commissioners to attend as long as there is not a quorum.

Commissioner Hemer shared that on October 8th via Zoom the NDAs are hosting a candidate forum for those who are running for City Council. Individuals can also view the forum on Channel 30, Willamette Falls tv channel, and Milwaukie cable channel access.

8.0 Forecast for Future Meetings

Oct 13, 2020	No agenda items were scheduled for this meeting
Oct 27, 2020	Hearing Items: PD-2020-001 – Waverly Woods Planned Development Work Session Items: Annual Planning Commission Bylaws Update; NDA Leadership Meeting; Comprehensive Plan Implementation Project Discussion

Meeting adjourned at approximately 8:00 PM

Respectfully submitted,
N. Janine Gates
Assistant Planner

Robert Massey, Chair

From: Milwaukie Planning
To: Tempest Blanchard
Subject: FW: dwelling unit increase
Date: Tuesday, October 13, 2020 8:07:18 AM

Happy Tuesday Tempest,

I hope you are well. Will you please include this email as a PDF in the Planning Commission's packet for their 10/27 meeting?

Thank you,
Janine

From: Sarah Roller <lander_007@hotmail.com>
Sent: Tuesday, October 6, 2020 10:09 AM
To: Angel Falconer <FalconerA@milwaukieoregon.gov>; Lisa Batey <BateyL@milwaukieoregon.gov>; Wilda Parks <ParksW@milwaukieoregon.gov>; Kathy Hyzy <HyzyK@milwaukieoregon.gov>; Mark Gamba <GambaM@milwaukieoregon.gov>; OCR <OCR@milwaukieoregon.gov>; Milwaukie Planning <Planning@milwaukieoregon.gov>; Laura Weigel <WeigelL@milwaukieoregon.gov>
Subject: Fw: dwelling unit increase

This Message originated outside your organization.

Councilors and Planning Commission,

It is unclear if my emails we sent on to City Council and the Planning Commission as requested by me of Ann Ober. Therefore, I and sending you this email chain for your knowledge with the possibility that you will be able to take action to better the situation around affordable housing as it relates to average people being able to legally construct and continually afford owning an ADU. Current policy results in utility fees for ADUs that isn't consistent to the process and fees to construct a legal ADU and they are not proportional to the type of dwelling unit.

Please contact me with any questions, I welcome the chance to talk to any of you about the process I've had to go through to have and afford an ADU.

Sarah Roller
11630 SE 27th Ave. Milwaukee, OR 97222
971-563-2409

From: Keith McClung <McClungK@milwaukieoregon.gov>
Sent: Wednesday, August 19, 2020 12:51 PM
To: Sarah Roller <lander_007@hotmail.com>; Ann Ober <OberA@milwaukieoregon.gov>; Steve Adams <AdamsS@milwaukieoregon.gov>; Dennis Egner <EgnerD@milwaukieoregon.gov>; Milwaukie Community Development <CommunityDevelopment@milwaukieoregon.gov>

Cc: Bonnie Dennis <DennisB@milwaukieoregon.gov>
Subject: RE: dwelling unit increase

Hi Sarah – thank you for the follow up. I am happy to discuss the rates tied to ADU's and how the City bills this scenario. Would you like to chat sometime this week on the phone?

My team and I have been trying to pinpoint specific language in the code and master fee schedule that relates to your ADU question. You are correct in that utility billing does not follow the same logic as the SDC fees (.65, .80, etc.). We were not able to find specifics on the utility billing piece, only language around SDC fees.

In terms of billing, the City treats ADU's as duplexes or multi-family in the system. This means two units are billed at approved rates. The City does not have a separate category or pricing for ADU's. The ADU is considered a separate unit for billing purposes in part due to the County's pass through fees for wastewater. The City reports new sewer connections on a quarterly basis and would have reported this ADU as a new connection. At this point, the County assesses our fee on two units. If the City provided a discounted rate for an ADU in this scenario, the City would be losing money as the requirement to the pay County still exists. To stay consistent with all fees, not just wastewater, the City maintains the same definition of a unit for billing.

The issue I think centers on the definition of a 'unit' and should an ADU be different from a 'multi-family' unit in terms of fee billing? The City will certainly take into consideration all of this feedback going forward. Again, thank you for voicing your concerns Sarah. Take care,

Keith

From: Sarah Roller <lander_007@hotmail.com>
Sent: Tuesday, August 18, 2020 4:51 PM
To: Ann Ober <OberA@milwaukieoregon.gov>; Keith McClung <McClungK@milwaukieoregon.gov>; Steve Adams <AdamsS@milwaukieoregon.gov>; Dennis Egner <EgnerD@milwaukieoregon.gov>; Milwaukie Community Development <CommunityDevelopment@milwaukieoregon.gov>
Subject: Re: dwelling unit increase

Hello all,

I haven't heard from anyone since I emailed on August 4, since it's been two weeks it seemed reasonable to ask for an update.

Thank you
Sarah Roller

Sent from my iPhone

On Aug 4, 2020, at 11:01 AM, Sarah Roller <lander_007@hotmail.com> wrote:

Keith, Ann, Denny and Steve,

The process to put in an ADU for housing my mom has now resulted in an increase in my utility bill by a full dwelling unit. That doesn't make sense when other calculations for the huge fees we had to pay were not for a full dwelling unit (because logically it should not be). The SDC calculations were .8 for county and .65 for the City why isn't this the same for utility billing? I could not find documentation to support an ADU being calculated as a full dwelling unit on the City website or in the municipal code. When I called Joyce in utility billing, she said that this is the way it has always been. I asked for documentation and she said she would try to find some.

I have already paid the city huge amounts of money to be able to legally provide my mom a place to live. Getting an increase of a full unit simply doesn't make sense or seem appropriate. As a former Code Enforcement officer, I didn't really understand why people would lie and hide ADUs, after all I have been through oh my I understand!

You need to begin to seriously think about your stewardship of the city and its affordability. You're not setting average people up to be able to afford and thieve living here. Taking care of one's family should be far more financially accessible then the city of Milwaukie makes it. Council and City leadership talk about fair housing and wanting people to be able to do just what I have done, but the implementation of regulations and fees makes Milwaukie a hard place to afford living in let alone legally build an ADU for their family.

I was saddened to see in the Pilot that the City passed utility fee increases during the pandemic and while so many people are losing their jobs, experiencing reduced incomes and other hardships. Those increases may make sense (I definitely understand them), but where is the humanity in implementing an increase right now. All of these actions no matter how much they make financial sense and provide infrastructure for the city push Milwaukie toward gentrification. They push the middle-income households down and the low-income households even further down. Milwaukie used to be a pretty middle to low income city, very white and it was rough, it is way better now and quite a bit more diverse (which isn't very much), but now it isn't very affordable to middle income households as it gets less affordable the bit of diversity that we have will likely begin to slip away (seems like we are headed toward an example like

Portland as far affordability and gentrification goes).

Ann, I would like you share my concerns and comments with City Council and Planning Commission as well, they should know. I would be happy talk to them if they would like to know more.

I hope you take my comments about Milwaukie to heart and think about them. Please send answers to my question about utility billing increases of a full unit for our ADU as soon as you can so I can figure out what my next steps need to be, thank you.

Take Care,
Sarah Roller
971-563-2409

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CITY OF **MILWAUKIE**

To: Planning Commission

Through: Laura Weigel, Planning Manager

From: Vera Kolias, Senior Planner and Dalton Vodden, Associate Engineer

Date: October 20, 2020, for October 27, 2020, Public Hearing

Subject: **File:** PD-2020-001
Applicant/Owner: Walker Ventures, LLC
Address: 10415 SE Waverly Ct
Legal Description (Map & Tax Lot): 11E26DC 02100, 02200, 02400
NDA: Historic Milwaukie

ACTION REQUESTED

Review the final development plan proposed with land use application master file #PD-2020-001 and its associated applications and forward a recommendation to City Council based on the recommended Findings and Conditions of Approval found in Attachments 1 and 2. This action would allow for development of a 100-unit multifamily apartment planned development, pending approval of the final development plan by City Council.

BACKGROUND INFORMATION

The proposed development is an addition to the existing Waverly Greens Apartment communities. The 10.8-acre subject property at 10415 SE Waverly Ct is made up of three parcels and is currently developed with the Dunbar Woods apartments. As part of this proposal, the applicant is adjusting the boundaries of the site to establish Dunbar Woods on its own lot, use 6.77 acres for the planned development, and establish a third parcel for a future development (see Figure 1). The proposal is for Waverly Woods, which would be the phased construction of four multifamily apartment buildings with a total of 100 dwelling units. The project would be phased so that Building A.1 (32 units) will be built along the Ridge in phase 1 and Building A.2 (32 units) and the associated community building will occur in phase 2. The two Gardens Buildings B.1 (18 units) and B.2 (18 units) and the community center with pool would be developed in Phase 3 (see Figure 2).

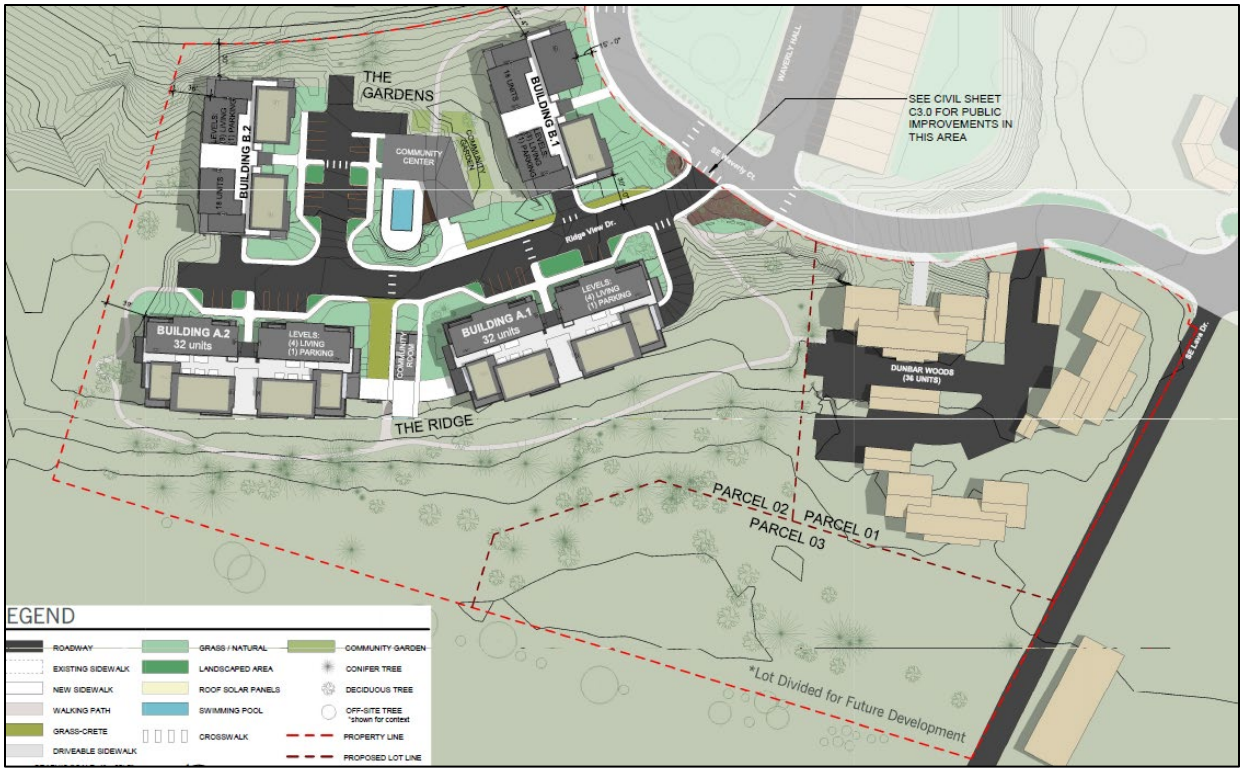

Figure 1. Development Plan

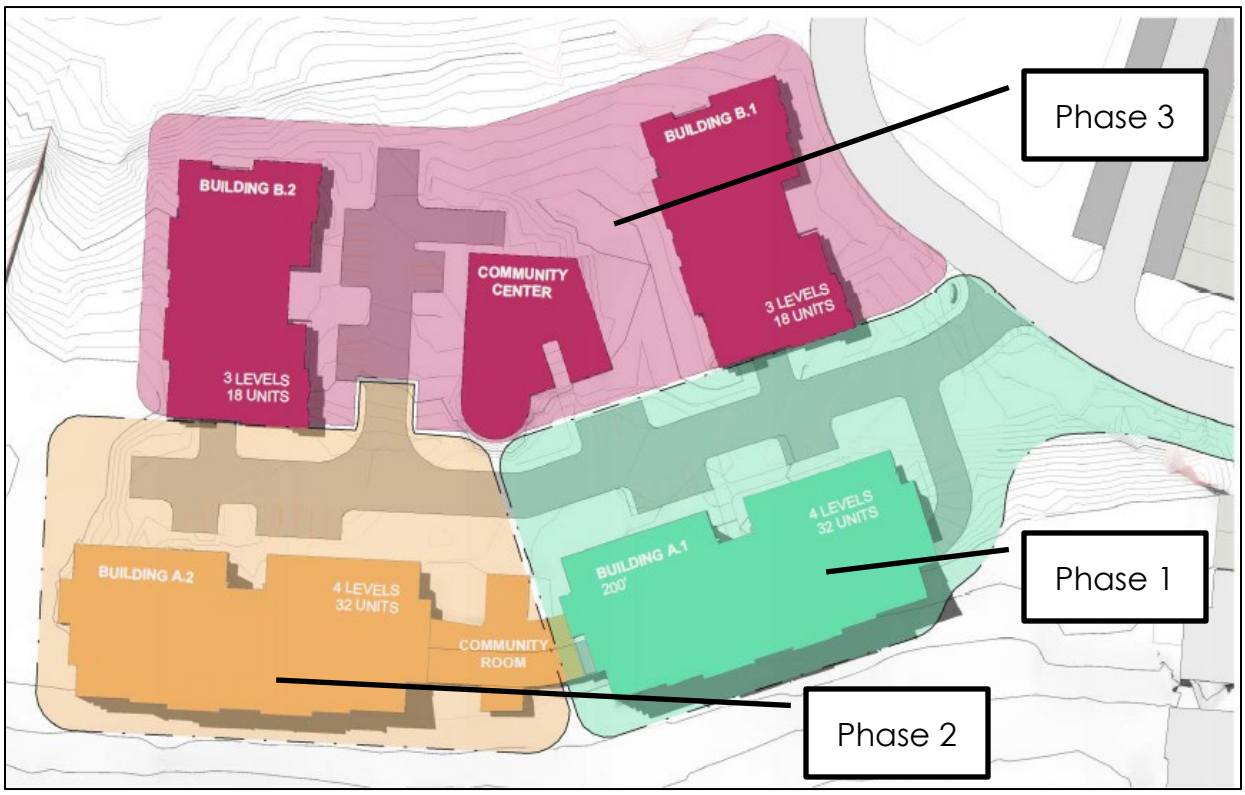

Figure 2. Phasing Plan

A. Site and Vicinity

The subject property is located at 10415 SE Waverly Ct and is surrounded by residential development on three sides (both single family and multifamily) and Waverly Country Club to the west (see Figure 3). As described above, a portion of the subject property contains Dunbar Woods; the remainder of the site is undeveloped. Access to the development is proposed from Waverly Ct off Lava Dr. Given its proximity to the Willamette River, a portion of the site is in the Willamette Greenway Overlay Zone (WG Zone).

Figure 3. Site and Vicinity

The site is located in the Historic Milwaukie neighborhood in the northwest part of the city.

B. Zoning Designation

Residential R-2 and Willamette Greenway Overlay WG

(see Figure 4)

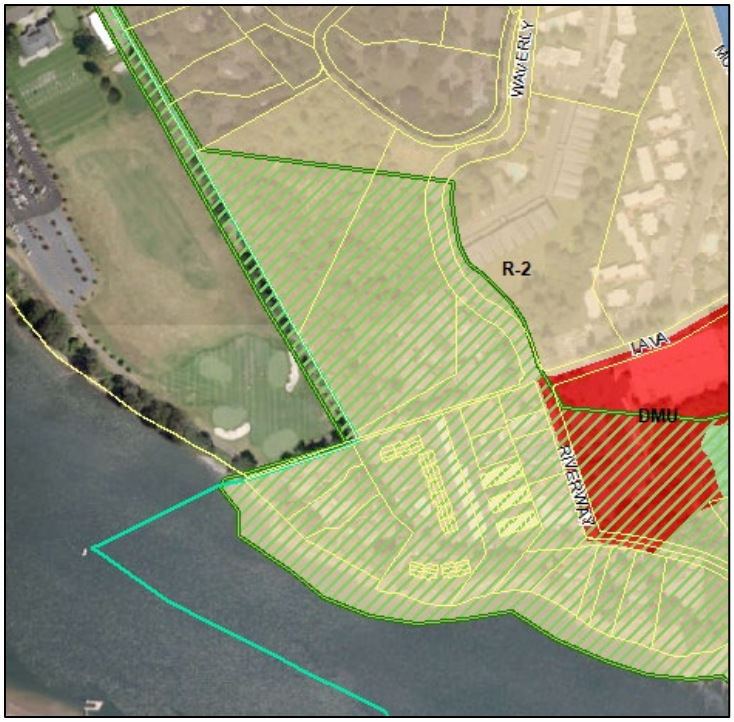

Figure 4. Zoning designation

C. Comprehensive Plan Designation

High Density Residential (HD)

D. Land Use History

The Waverly Greens Apartments development has occurred in phases since 1967. The following land use application relates specifically to the subject property.

- **1989 (file #CU-89-01):** The construction of 165 apartment dwelling units in the Waverly Greens development (the existing Dunbar Woods community) in the Willamette Greenway was approved. Once the first 36 units were constructed, no additional units were built.

E. Proposal

The applicant is seeking land use approval to develop a 100-unit apartment community. The applicant is using the Planned Development (PD) process, which allows greater flexibility in design that would otherwise be possible through the standards of the underlying zone in the Willamette Greenway.

The project requires approval of the following applications:

1. Planned Development (master file #PD-2020-001)

   The Planned Development process allows for adjustments in lot sizes, lot dimensions, and some development standards, including building height; and a potential increase in density (up to 20% above the maximum normally allowed).

2. Zoning Map Amendment (ZC-2020-001)

   The City's Zoning Map would be changed, adding the PD designation to the existing R-2 designation for the site.

3. Willamette Greenway review (WG-2020-001)

   Much of the site is located in the Willamette Greenway Overlay zone. Development in the WG requires conditional use approval.

4. Property Line Adjustment (PLA-2020-001)

   As part of this proposal, the applicant is adjusting the boundaries of the site to establish Dunbar Woods on its own lot, use 6.77 acres for the planned development, and establish a third parcel for a future development. The number of lots is not changing.

5. Transportation Facilities Review (TFR-2020-002)

   The project's impacts on transportation (vehicular, bicycle, and pedestrian) must be evaluated to determine whether improvements to the transportation system are warranted.

F. Land Use Review Process

Milwaukie Municipal Code (MMC) Section 19.311 outlines the review process for approval of a Planned Development. Ordinarily, after receiving "approval in principle" from the Planning Commission of a preliminary development plan, the applicant would initiate a Type IV review process by submitting a final development plan along with a proposed subdivision and any other applicable reviews. The Planning Commission would consider the application package and make a recommendation to the City Council for a final decision. In this case, the applicant has opted to move directly into the Type IV process and has presented its preliminary development plan as the final development plan. The applicant is aware of the risks associated with the possibility that the Planning Commission may not approve the development plan in principle and may not forward a recommendation for approval to City Council. All of the other associated land use applications are also subject to the Type IV review process.

KEY ISSUES

Summary

Staff has identified the following key issue for the Planning Commission's deliberation. Aspects of the proposal not listed below are addressed in the Findings (see Attachment 1) and generally require less analysis and discretion by the Commission.

A. Have the project's impacts on traffic been thoroughly evaluated?

B. Does the project design adequately address the approval criteria for review of a development in the Willamette Greenway?

C. Does the project provide enough "exceptional advantages in living conditions and amenities not found in similar developments" to warrant the additional proposed density and building height as allowed by MMC Subsection 19.311.3?

Analysis

A. Have the project's impacts on traffic been thoroughly evaluated?

The Transportation Facilities Review process required the applicant to prepare a Transportation Impact Study (TIS), which involves estimates and forecasting based on traffic modeling and actual count data at specific intersections. City staff and DKS, the City's traffic consultant, coordinated with the applicant to define a scope of work for the TIS and then reviewed the results as part of the application submittal process. Intersections included in the TIS are:

- 17th Ave. / Harrison St. / McLaughlin Blvd.
- 17th Ave. / Lava Dr.
- 17th Ave. / OR-224
- Lava Dr. / Waverly Ct.
- Waverly Ct. / proposed site access
- Lava Dr. / proposed site access

The proposed project was found to increase the number of vehicle trips in the area by 45 (12 in/33 out) weekday AM peak hour vehicle trips, 58 (35 in/23 out) weekday PM peak hour trips. Added daily trips are estimated at 359 trips. These estimates were based on applying ITE trips rate (Land Use Code 221) for Multifamily Housing (mid-rise).

According to the TIS, prepared by Kittleson & Associates, all study intersections were found to operate at an acceptable level of service through the 2021 AM and PM peak hours with full buildout of the proposed development. Both city staff and DKS reviewed the TIS and concur with its conclusions; while the four existing intersections studied will increase slightly in volume to capacity ratios, all four are anticipated to operate at Level of Service D or better. Level of Service D is the operating requirement. Additionally, ODOT staff reviewed the intersections of 17th Ave. / OR-224 and 17th Ave. / Harrison St. / McLoughlin Blvd. and concurs that the development does have a significant impact on these two intersections. Historical crash data for the study area intersections indicate no patterns or trends that require mitigation associated with the proposed development. No significant safety issues were found from the review of the last five years of available collision data at study intersections.

The proposed site driveway would meet the City's spacing standard of 100 feet for local streets due to the property location on a corner. However, the driveway on Waverly Ct was shown to be offset from the existing Waverly Greens driveway on the opposite side of the street. The proposed new driveway at Waverly Ct was found to meet stopping sight distance but intersection sight distance for turning vehicles was not met. Kittleson & Associates cited the following AASHTO guidance, "if the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for

the major road, then drivers have sufficient sight distance to anticipate and avoid collisions." Their study specified that any new landscaping, above ground utilities, and signage should be located and maintained along the site frontage to maximize sight distance.

Given the impacted traffic pattens due to the current COVID-19 pandemic, current traffic counts could not be collected, historic 2014 counts were used to estimate 2020 existing counts. A 2.7% annual growth rate was applied over six years (2014 to 2020) for the AM peak hour. A 2.7% annual growth rate was applied over four years (2014 to 2018) for the PM peak hour. No growth was assumed from 2018 to 2020 based on PM peak hour signal detector data at two study intersections along 17th Avenue. An annual growth rate of 2.7% for AM peak period and 0% for the PM peak period was applied to 2020 existing volumes to estimate 2021 background volumes. No additional trips from in-process developments were included in background volume.

The City's traffic consultant recommends the minimum AASHTO sight distance requirements should be met at the proposed driveways and final acceptance should be made by the City Engineer prior to final site plan approval.

B. Does the project design adequately address the approval criteria for review of a development in the Willamette Greenway?

Approval of a project in the Willamette Greenway (WG) is a conditional use, subject to the provisions of MMC 19.905. The conditional use approval criteria are found in MMC 19.905.4. The key criteria that apply to this project and that must be addressed by the application are:

- Are the characteristics of the lot suitable for the proposed use considering size, shape, location, topography, existing improvements, and natural features?
- Will the operating and physical characteristics of the proposed use be reasonably compatible with, and have minimal impact on, nearby uses?
- Will all identified impacts be mitigated to the extent practicable?

The purpose of the WG is to protect, conserve, enhance, and maintain the natural, scenic, historic, economic, and recreational qualities of lands along the Willamette River and major courses flowing into the Willamette River. The subject property is entirely within the Willamette Greenway. The WG section (MMC 19.401) of the code functions as an overlay zone and is combined with the base zone. MMC 19.401.6 includes a list of criteria that are to be taken into account in the consideration of a greenway conditional use:

- Compatibility with the scenic, natural, historic, economic, and recreational character of the river;
- Protection of views both toward and away from the river;

- Landscaping, aesthetic enhancement, open space, and vegetation between the activity and the river, to the maximum extent practicable;
- Public access to and along the river, to the greatest possible degree, by appropriate legal means;
- Emphasis on water-oriented and recreational uses;
- Maintain or increase views between the Willamette River and downtown;
- Protection of the natural environment according to regulations in Section 19.402;
- Conformance to applicable Comprehensive Plan policies;
- The request is consistent with applicable plans and programs of the Division of State Lands;
- A vegetation buffer plan.

As the crow flies, the proposed development would be more than 1,000 ft from the river. There is currently no access to the river from the subject property. The applicant's materials state that the proposal is consistent with the multi-family character of the surrounding area and in its relationship with the river. Images were provided with the application materials showing that the proposed development would be set back from the river with a buffer of the existing Waverly Country Club golf course and multiple existing multi-family developments closer and more exposed to the river.

Maintaining the natural tree canopy and forested nature of the site are important aspects to this development, which includes the addition of recreational walking paths through the forested site (See Figure 5). The application materials show that by maintaining the existing forest and purposefully orienting the new development, the views to and from the river will be minimally impacted. New opportunities for views to the river are proposed through the creation of recreational paths in the existing forest removing invasive species and dead or diseased trees along with enhancing views from the development itself. Overall, the project will minimally impact the views from and/or across the river (See Figure 6).

Figure 5. Surrounding development and Willamette R.

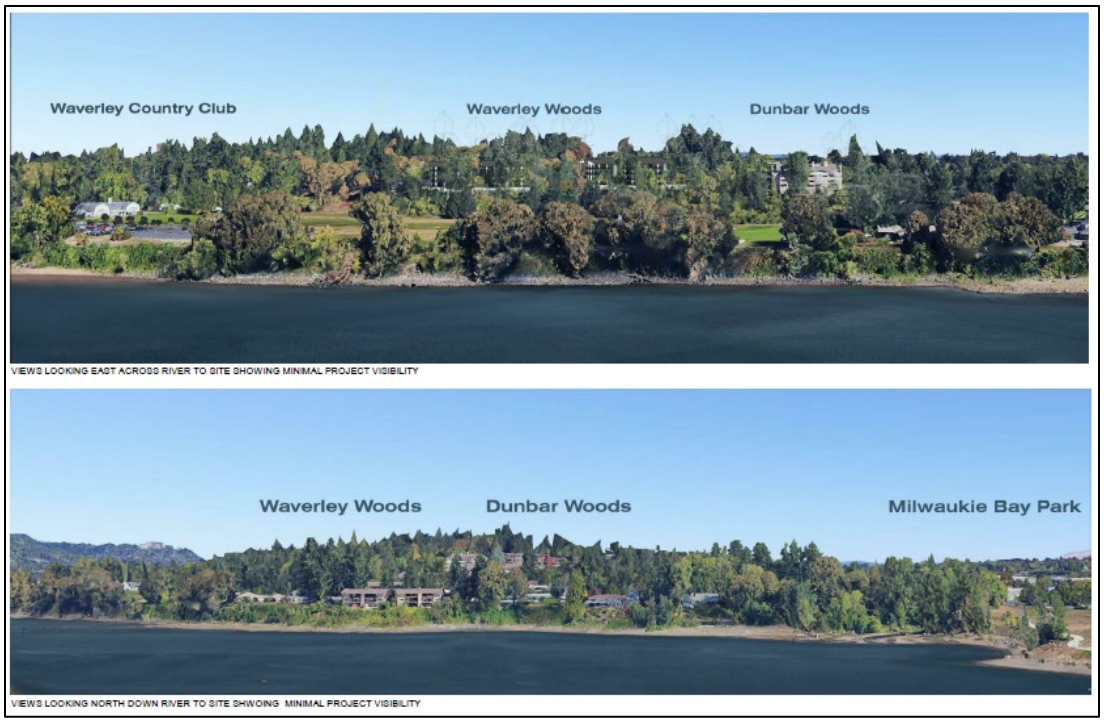

Figure 6. Views from the River

Based on the criteria for both the WG and for conditional uses, the subject property is appropriate for the proposed development, and its design takes into account the necessary considerations for development in the Willamette Greenway Zone.

C. Does the project provide enough "exceptional advantages in living conditions and amenities not found in similar developments" to warrant the additional proposed density and building height as allowed by MMC Subsection 19.311.3?

- The subject property is in the Residential R-2 zone as well as the Willamette Greenway (WG)zone. The Planned Development process allows the applicant to effectively create new development standards for the project, including:
    - An increase to the maximum the building height, which in the R-2 is permitted up to 45 ft but is limited to 35 ft in the WG. The proposed development would include a building height along the ridge of just under 44 ft as measured on sloped sites (see detailed discussion below).
    - If the applicant can demonstrate exceptional design in the project, there is an opportunity to increase the density up to 20% above the maximum normally allowed. The proposal exceeds the maximum density of 84 dwelling units by 20%, equal to 16 units, for a total of 100 dwelling units (see detailed discussion below).
    - The proposal also includes an increase to the maximum overall building length of the two ridge buildings (Buildings A.1 and A.2) by 50 ft so that they would be 200 ft from end wall to end wall instead of the maximum of 150 ft (see detailed discussion below).
- The applicant has asserted that the proposed development provides the following exceptional features:
    - In lieu of developing a fifth residential building, the project proposes to add an additional story to the two ridge buildings and increase their length to 203 ft. As a result, the overall lot coverage is decreased and the amount of pervious surface is increased, which are both clear advantages to a more compact development type.
    - The development takes advantage of the naturally sloping topography by tucking most of the required parking under the building to minimize surface parking which further increases the vegetated area.
    - The proposed development retains 54% of the vegetated area and the existing tree canopy west of the development extends above the building heights which minimizes the visual impact of the additional building height from the Willamette River.
    - The proposal includes relocating and enlarging the existing community garden which is an extremely popular amenity and creating walkable paths

through the forested area with strategic views of the Willamette River in an area which was once impassable.

- This development seeks to maximize density and minimize its footprint to create "an urban development within an urban forest." Fulfilling the need for more housing while providing more natural recreation spaces to improve occupant health and exposure to and appreciation for the natural environment. Through the project's sustainable design, the project will also reduce its operational footprint. Through the approval of the additional height allowance and width of the buildings the project is able to take advantage of the natural topography on the site to tuck parking under the buildings. Tucking the parking under the building saves the development from surface parking allowing the project to maintain the forested areas, add additional community spaces, community gardens and other amenities.
- The proposed development includes100 units of much-needed housing with a range of different sized units and affordability.

- Building Height

  In Section 19.202.2, the zoning code provides for an alternative way of measuring building height for structures on sloped sites. It establishes a new base point to compensate for slope (See Figure 7).

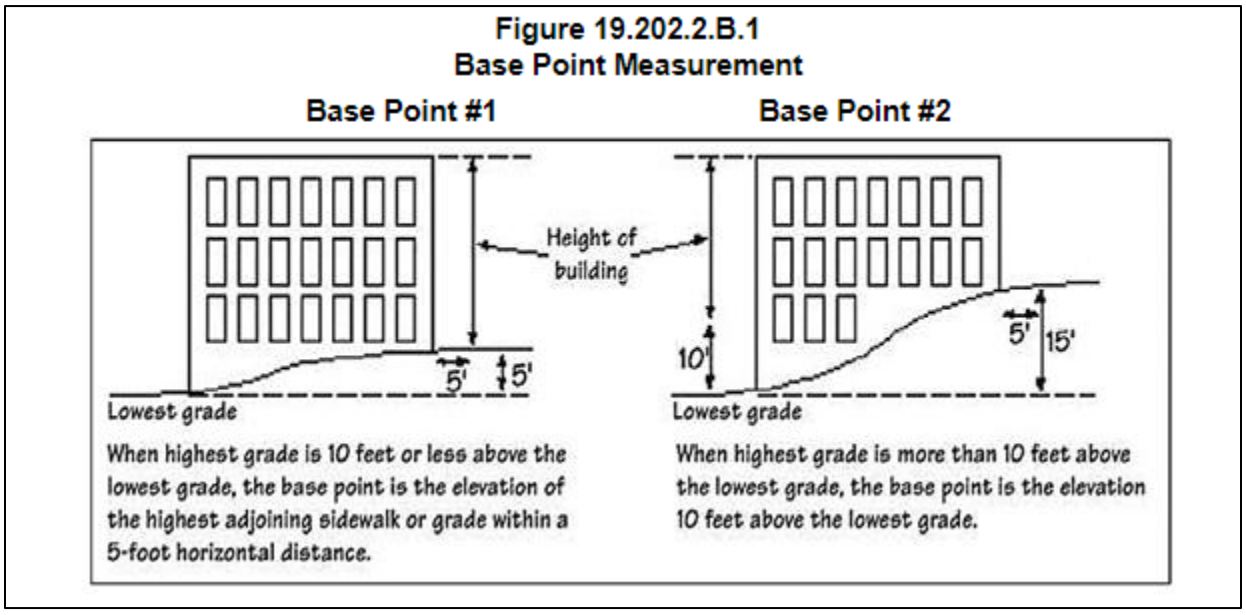

Figure 7. Building height measurement

Section 19.302.5.E also allows for one story of additional height if an additional 10% of site area beyond the minimum is retained in vegetation. The proposed development maintains 54% of the total site as vegetation, well above the

minimum of 15% in the R-2 zone. Therefore, an additional story beyond the 3 story/45 ft maximum height would be allowed, for a total height of 4 stories/55 ft. However, the site is also in the WG zone, which prohibits buildings taller than a maximum height of 35 ft.

Through the Planned Development process, the proposed development would have buildings along the ridge of 43 ft 8 inches in height rather than the maximum of 35 ft in the WG zone (see Figure 8).

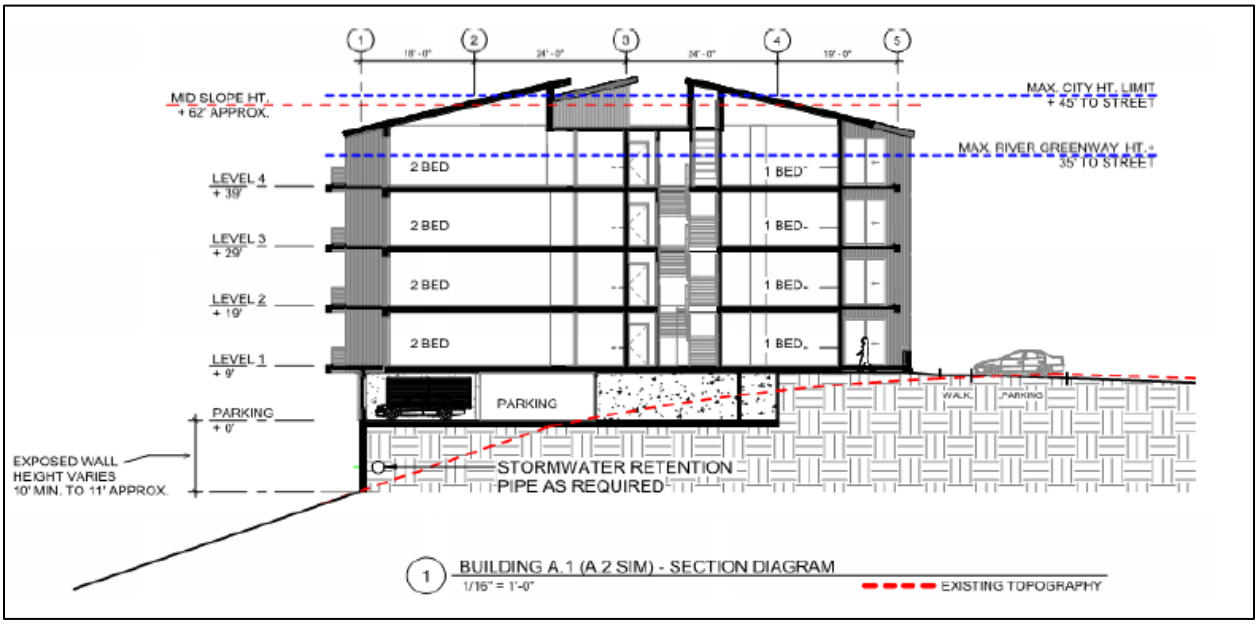

Figure 8. Proposed building height

The proposed building height is in keeping with the base code requirements and, as detailed above in the Willamette Greenway discussion, the additional height does not impact views to and from the river.

- Density

The maximum density in the R-2 zone is 17.4 units per acre. Parcel 3 is not proposed for development at this time, and Parcel 1 is the existing Dunbar Woods development site, so the density calculation focuses on Parcel 2.

Parcel 2 includes steep slopes over 25%, which is an area of 1.9 acres. The net area of Parcel 2 when subtracting the area of steep slopes is 4.855 acres. The maximum density allowed on Parcel 2 is 84 units. As a Planned Development, a 20% increase in density is permitted if the applicant can demonstrate exceptional design in the project. This increase would allow 100 units. The applicant is proposing 100 new units of housing in four buildings on Parcel 2.

- Building Length

  Subsection 19.302.5.H.2 limits the overall horizontal length of multifamily buildings to 150 linear ft as measured from end wall to end wall.

  Through the Planned Development process, the applicant seeks approval to extend the overall length of the two ridge buildings to 203 ft. The application materials show that the buildings would be broken up into two smaller 89-ft sections with a 23-ft wide entry access area at the street, so from the street the building will not have the appearance of a 200-ft long building (see Figure 9). Approval would allow for an overall reduction in development footprint, which provides more open space and natural area.

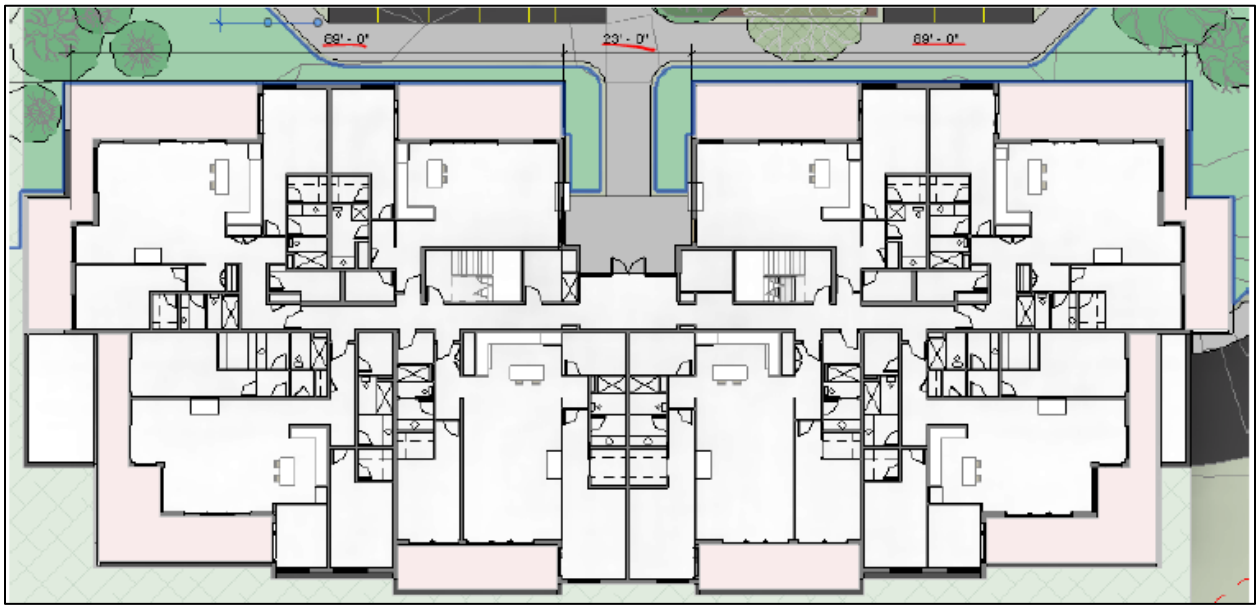

Figure 9. Building A-1 footprint

Based on the proposed design, the proposed building length is reasonable and is consistent with the purpose of minimizing the bulk of a building. It is also worth noting that buildings in the original Waverly Greens development exceed 280 ft in width, so the additional 50 ft is not out of context.

- Conclusion

  The purpose of the Planned Development zone is to encourage greater flexibility in design, to promote variety in the physical development pattern of the city, and to provide a more desirable environment than is possible through the strict application of the zoning requirements. Except for the Willamette Greenway zone restriction on building height, the proposed development could be permitted via review of variances rather than the application of a planned development review. The proposal meets the base requirements for off-street parking as well as the

design guidelines for multifamily development. The proposed design is in keeping with the purpose and goals of a planned development.

CONCLUSIONS

A. Staff recommendation to the Planning Commission is as follows:

1. Recommend that the City Council approve the final development plan for the Waverly Woods Planned Development. This action would allow for development of a 100-unit multifamily apartment planned development in the Willamette Greenway Zone.
2. Recommend that the City Council adopt the attached Findings and Conditions of Approval.

CODE AUTHORITY AND DECISION-MAKING PROCESS

The proposal is subject to the following provisions of the Milwaukie Municipal Code (MMC):

- MMC 19.302 - Medium and High Density Residential Zones
- MMC 19.311 - Planned Development Zone
- MMC 19.401 - Willamette Greenway Zone
- MMC 19.505.3 - Multifamily Housing
- MMC 19.600 - Off Street Parking and Loading
- MMC 19.700 - Public Facility Improvements
- MMC 19.1007 - Type IV Review
- MMC 17 - Land Division (Property Line Adjustment)
- MMC 12.16 - Access Management

This application is subject to Type IV review, which requires the Planning Commission to consider whether the applicant has demonstrated compliance with the code sections shown above and make a recommendation to City Council for a final decision. In Type IV reviews, the Commission assesses the application against review criteria and development standards and evaluates testimony and evidence received at the public hearing, in order to determine what recommendation to forward to the Council.

The Commission has four decision-making options as follows:

A. Continue the hearing, to allow for additional public testimony and/or the provision of additional information from the applicant. The Commission may be able to identify specific information needs or suggested revisions to the proposed development plan. The applicant may need to provide a waiver to the 120-day clock in the future.

B. Recommend approval of the application subject to the recommended Findings and Conditions of Approval.

C. Recommend approval of the application with minor modifications to the recommended Findings and Conditions of Approval. Such modifications need to be read into the record.

D. Recommend denial of the application upon finding that it does not meet approval criteria.

The final decision on these applications, which includes any appeals to the City Council, must be made by January 9, 2021 in accordance with the Oregon Revised Statutes and the Milwaukie Zoning Ordinance. The applicant can waive the time period in which the application must be decided.

COMMENTS

Notice of the proposed modifications was given to the following agencies and persons: City of Milwaukie Building, Engineering, and Public Works Departments; Historic Milwaukie Neighborhood District Association Chairperson & Land Use Committee; Clackamas Fire District #1 (CFD#1); Metro; Clackamas County; Oregon Department of Transportation; North Willamette Watershed District, Oregon Department of Fish and Wildlife; Oregon Division of State Lands Wetlands and Waterways; Oregon Parks and Recreation; North Clackamas School District; Oregon Department of Land Conservation and Development; and properties within 300 ft of the site.

Comments received are summarized as follows:

- **Kate Hawkins, Development Review Planner and Avi Tayar, P.E., Oregon Department of Transportation:** Comments related to crash history analysis and Year 2021 queuing analysis in the submitted TIS. Recommendations were that the applicant should evaluate any contributing factors and demands and identify potential improvements. The applicant submitted a response to the review memo and ODOT stated that they agreed with the supplemental analysis. While there may be concerns with queues and crashes at the intersection of the 17th Ave/Harrison St/OR-99E, the proposed development does not appear to have a significant impact on these conditions and no additional mitigation is necessary.
- **Merrie Loboy, 1400 SE Lava Dr:** comments related to request for improvements to Lava Dr and the roadbed.
- **Gloria Stone, Cambridge Ln:** lengthy comments related to: the fact that the residential R-10 zone is adjacent to the R-2 zone; views and the Willamette Greenway; impacts on the forest resource on the property; light and noise pollution; impacts on solar access and views; and impacts on stormwater and drainage. Overall impacts of this development on nearby single-unit dwellings.
- **Steve Reaume, 10240 SE Cambridge Ln:** Concerns related to density, building height, setbacks to adjacent properties, and impacts to privacy. Comments included recommendations for increased setbacks and additional plantings.
- **Rosie McGee, 1400 SE Lava Dr., Bldg A:** Questions regarding access from Lava Dr and plans for construction access.

- **Richard Recker:** Comments related to: economic impact of the development on city residents and area businesses; measuring the merits of the proposal relative to equity in the future; and impacts to natural resources and climate change.

ATTACHMENTS

Attachments are provided as indicated by the checked boxes. All material is available for viewing upon request.

	Early Web Posting	Packet
1. Recommended Findings in Support of Approval	☐	☒
2. Recommended Conditions of Approval	☐	☒
3. Recommended Other Requirements	☐	☒
4. Applicant's Narrative and Supporting Documentation (received August 4, 2020)		
a. Application forms (incl. pre-app conf. waiver)	☒	☒
b. Narrative	☒	☒
c. Preliminary development plans (incl. street improvements, tree removal plan, floor plans, elevations, utilities)	☒	☒
d. Transportation Impact Study	☒	☒
e. Arborist Report – Tree removal and protection plan	☒	☒
f. Pre-application conference notes	☒	☒
5. DKS Associates TIS review memo dated September 25, 2020	☐	☒
6. ODOT Review memo dated October 1, 2020	☐	☒
7. Applicant response to ODOT dated October 9, 2020	☐	☒
8. ODOT Review memo dated October 15, 2020	☐	☒
9. Public Comments Received	☐	☒
10. Section showing setbacks to adjacent homes	☐	☒

Key:
Early Web Posting = Materials posted to the land-use application webpage at the time of public notice 20 days prior to the hearing.
Packet = packet materials available online at https://www.milwaukieoregon.gov/bc-pc/planning-commission-61.

Recommended Findings for Approval
File #PD-2020-001, Waverly Woods

Sections of the Milwaukie Municipal Code not addressed in these findings are found to be inapplicable to the decision on this application.

1. The applicant, Scott Wyse, representing Walker Ventures LLC, has applied for approval of a Planned Development in the Willamette Greenway Overlay Zone at 10415 SE Waverly Ct. This site is in the R-2 Zone. The land use application file number is PD-2020-001.

2. The proposal is for a multi-unit dwelling development consisting of four (4) residential buildings, a community center with swimming pool, and a community room built over three (3) phases totaling 100 dwelling units. The proposed development is being submitted as a Planned Development application to provide more flexibility related to development standards, such as building height in the Willamette Greenway Zone. The site is in the Willamette Greenway Zone and is also subject to Willamette Greenway review.

3. The proposal is subject to the following provisions of the Milwaukie Municipal Code (MMC):
    - MMC Title 12 Streets, Sidewalks, and Public Places
    - MMC Section 19.1007 Type IV Review
    - MMC Section 19.311 Planned Development Zone (PD)
    - MMC Section 19.302 Medium and High Density Residential Zones (including R-2)
    - MMC Title 17 Land Division
    - MMC Section 19.401 Willamette Greenway Zone
    - MMC Chapter 19.500 Supplementary Development Regulations
    - MMC Chapter 19.600 Off-Street Parking and Loading
    - MMC Chapter 19.700 Public Facility Improvements
    - MMC Section 19.902 Amendments to Maps and Ordinances
    - MMC 19.905 Conditional Uses

    Only the sections relevant to the decision for denial of the application are addressed below.

4. The application submittal includes a proposed Planned Development, Zoning Map Amendment, Property Line Adjustment, Willamette Greenway Conditional Use Review, and Transportation Facilities Review. Of all of the application components, the Planned Development and Zoning Map Amendment require the highest level of review (Type IV); as per MMC Subsection 19.1001.6.B, all are being processed with Type IV review.

    The application has been processed and public notice provided in accordance with MMC Section 19.1007 Type IV Review. As required by MMC Subsection 19.1002.2, a preapplication conference was held on May 14, 2020. Public notice was sent to property owners and current residents within 400 ft of the subject property. As required by law, a public hearing with the Planning Commission was held on October 27, 2020, resulting in a

recommendation for final decision by the City Council. A public hearing with the City Council was held on *[month/day]*, 2020, as required by law.

These findings are worded to reflect the City Council's role as final decision-maker; they represent the Planning Commission's recommendation to the City Council.

5. MMC Title 12 Streets, Sidewalks, and Public Places

   a. MMC Chapter 12.16 Access Management

      MMC Section 12.16.040 establishes standards for access (driveway) requirements, including access spacing, number and location of accessways, and limitations for access onto local and neighborhood streets. For multifamily properties accessing local and neighborhood streets, new driveways must be spaced at least 100 ft from the nearest intersection.

      The subject property has frontage on both Waverly Ct and Lava Dr, but development accessing Waverly Ct is the only development proposed at this time. Waverly Ct is a local street. The proposed site driveway would meet the City's spacing standard of 100 ft for local streets due to the property location on a corner. However, the driveway on Waverly Ct was shown to be offset from the existing Waverly Greens driveway on the opposite side of the street. The proposed new driveway at Waverly Ct was found to meet stopping sight distance but intersection sight distance for turning vehicles was not met. In the submitted Transportation Impact Study (TIS) Kittleson & Associates cited the following AASHTO guidance, "if the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions." Their study specified that any new landscaping, above ground utilities, and signage should be located and maintained along the site frontage to maximize sight distance.

      The City's traffic consultant recommends the minimum AASHTO sight distance requirements should be met at the proposed driveways and final acceptance should be made by the City Engineer prior to final site plan approval.

      As conditioned, the development is consistent with the applicable standards of MMC 12.16.

   b. MMC Chapter 12.24 Clear Vision at Intersections

      MMC 12.24 establishes standards for maintenance of clear vision at intersections to protect the safety and welfare of the public in their use of City streets.

      As conditioned, all driveways, accessways, and intersections associated with the proposed development conform to the applicable standards of MMC 12.24.

   The City Council finds that, as conditioned, the development meets all applicable requirements of MMC Title 12. This standard is met.

6. MMC Title 17 establishes the regulations governing land division.

   a. MMC Chapter 17.12 Application Procedure and Approval Criteria

MMC Section 17.12.030 establishes the approval criteria for property line adjustment. The proposed plans meets these criteria as described below.

(1) MMC Subsection 17.12.030.A.1 requires that the proposed property line adjustment complies with Title 19 Zoning and other applicable ordinances, regulations, and design standards.

As demonstrated by the applicant's submittal materials and evidenced by these findings, the proposed property line adjustment complies with the applicable ordinances, regulations, and design standards. As proposed, this criterion is met.

(2) MMC Subsection 17.12.030.A.2 requires that the proposed boundary will allow reasonable development and will not create the need for a variance of any land division or zoning standard.

The proposed boundary will provide sufficient area on each parcel to accommodate future development in accordance with the standards of the underlying R-2 zone. The parcels do not have physical constraints or dimensional limitations that would necessitate the need for variances in the future. As proposed, this criterion is met.

(3) MMC Subsection 17.12.030.A.3 requires that the proposed boundary change not reduce residential density below minimum density requirements of the zoning district in which the property is located.

The proposed boundary results in three parcels. Parcel 1 contains the existing Dunbar Woods development with 36 units. The minimum density on this parcel would be 25 units. Parcel 2 is proposed to contain the proposed development of 100 units, which exceeds the minimum density of 78 units. Parcel 3 is 1.84 acres and will be developed as part of a future development.

As proposed, this criterion is met.

As proposed, the City Council finds that the proposed boundary meets the applicable criteria.

b. MMC Chapter 17.28 Design Standards

MMC 17.28, particularly MMC Section 17.28.040, establishes standards for lot design for land divisions and boundary changes.

(1) MMC Subsection 17.28.040.A requires that the lot size, width, shape, and orientation shall be appropriate for the location and the type of use contemplated, as well as that minimum lot standards shall conform to Title 19.

The proposed lots are generally rectangular in shape and meet the minimum area requirements for the underlying R-2 zone. All lots conform to the relevant standards of the R-2 zone as described in Finding 7 and to other applicable standards of Title 19 as described elsewhere in these findings.

(2) MMC Subsection 17.28.040.B requires that lot shape shall be rectilinear, except where not practicable due to location along a street radius, or existing lot shape. The sidelines of lots, as far as practicable, shall run at right angles to the street

upon which the lots face. As far as practicable, the rear lot line shall run parallel to the street.

The proposed lots are generally rectangular in shape and meet the minimum lot standards in Title 19. The proposed new lot lines are at a 90-degree angle to Waverly Ct or Lava Dr and the rear lot lines are generally parallel to the street.

(3) MMC Subsection 17.28.040.C limits compound lot lines for side or rear lot lines.

No compound lot lines are proposed for the side or rear lot lines.

(4) MMC Subsection 17.28.040.D allows lot shape standards to be varied pursuant to MMC 19.911.

No variances to the lot shape standards are requested in this application.

(5) MMC Subsection 17.28.040.E limits double frontage and reversed frontage lots, stating that they should be avoided except in certain situations.

None of the proposed lots is a double frontage or reversed frontage lot.

(6) MMC Subsection 17.28.040.F requires that, pursuant to the definition and development standards contained in Title 19 for frontage, required frontage shall be measured along the street upon which the lot takes access. This standard applies when a lot has frontage on more than one street.

As proposed all of the lots comply with the minimum required 35 ft of frontage.

As proposed, the City Council finds that the new lots presented in the applicant's preliminary plat meet the applicable design standards established in MMC 17.28.

c. MMC Chapter 17.32 Improvements

MMC 17.32 establishes procedures for public improvements, including a requirement that work shall not begin until plans have been approved by the City.

As discussed in Finding 11, physical improvements are required as a result of the proposed Planned Development.

As conditioned, the City Council finds that the applicable standards of MMC 17.32 are met.

7. MMC Chapter 19.300 Base Zones

As a Planned Development, the proposed subdivision is subject to the requirements for Planned Developments as established in MMC Section 19.311. The Planned Development (PD) zone is a superimposed zone applied in combination with regular existing zones. The subject property is zoned R-2, so the underlying zone requirements of MMC Section 19.302 are relevant and must be addressed as well.

a. MMC Section 19.311 Planned Development Zone (PD)

The purpose of a Planned Development (PD) zone is to provide a more desirable environment than is possible through the strict application of Zoning Ordinance requirements, encouraging greater flexibility of design and providing a more

desirable use of public and private common open space. PD zones can promote variety in the physical development pattern of the city and encourage a mix of housing types.

(1) MMC Subsection 19.311.2 Use

The City Council approves the final development plan of a PD zone, in consideration of the proposal's conformance to the following standards:

(a) Conformance to the City's Comprehensive Plan

As addressed in more detail in Findings 8 and 12, the proposed Planned Development conforms to the City's Comprehensive Plan and is consistent with the relevant policies and goals.

(b) Formation of a compatible and harmonious group

As proposed, the development is a new community within the Waverly Greens and Dunbar Woods "neighborhood" already located in the immediate area. The proposed development will provide 100 units of apartments in four buildings. Although the proposed structures will have different front facades from the existing developments, because each community has its own character, according to the applicant's submittal materials, the size, orientation, architecture, color palette, and articulating features will be similar and will lend a sense of group compatibility.

(c) Suitability to the capacity of existing and proposed community utilities and facilities

The existing public utilities and facilities in the vicinity of the subject property are all of sufficient size and capacity to support the proposed development. As required, the new utilities provided within the proposed development itself will be suitable to serve it.

(d) Cohesive design and consistency with the protection of public health, safety, and welfare in general

The proposed street access is cohesively designed and meets the various applicable City standards for spacing and sight-distance. Frontage improvements along the subject property's frontage on Waverly Ct, including sidewalks, landscaping, and streetlights will meet applicable City standards. A trail system through a portion of the open space area will offer recreational opportunities while limiting impacts to natural areas.

(e) Affordance of reasonable protection to the permissible uses of properties surrounding the site

No commercial or other nonresidential uses are proposed as part of the development. Surrounding properties are zoned for low-density and high-density

residential uses, and the proposed development will not limit any future development or redevelopment of those properties.

(2) MMC Subsection 19.311.3 Development Standards

MMC 19.311.3 establishes that the various applicable standards and requirements of MMC Title 19, including those of the underlying zone(s), are applicable in a PD zone, unless the Planning Commission grants a variance from said standards in its approval of the PD or the accompanying subdivision plat. The City Attorney has concurred with the conclusion of City staff that a formal variance request is not required for adjustments related to the flexibility inherent in the stated purpose of the PD zone to encourage greater flexibility of design and provide a more efficient and desirable use of common open space, with an allowance for some increase in density as a reward for outstanding design (e.g., housing type, lot size, lot dimension, setbacks, and similar standards).

(a) Minimum Size of a PD Zone

MMC Subsection 19.311.3.A requires that a PD Zone may be established only on land which is suitable for the proposed development and of sufficient size to be planned and developed in a manner consistent with the purposes of this zone.

The subject property is approximately 10.8 acres in size and provides an adequate area for development.

(b) Special Improvements

MMC Subsection 19.311.3.B establishes the City's authority to require the developer to provide special or oversize sewer lines, water lines, roads and streets, or other service facilities.

The City's Engineering Department has determined that no special or oversize facilities are required to ensure that the proposed development provides adequate public facilities.

(c) Density Increase and Control

MMC Subsection 19.311.3.C allows an increase in density of up to 20% above the maximum allowed in the underlying zone(s), if the City Council determines that the proposed Planned Development is outstanding in planned land use and design and provides exceptional advantages in living conditions and amenities not found in similar developments constructed under regular zoning.

Subtracting the area occupied by area with 25% or greater slope as required by the density-calculation standards provided in MMC Subsection 19.202.4, the maximum allowable density for the net area of the subject property is 84 units. The applicant has proposed a total of 100 units, which is a 20% increase. The applicant

has listed the following elements as evidence of the project's outstanding design and exceptional advantages:

- *The development takes advantage of the naturally sloping topography by tucking most of the required parking under the building to minimize surface parking which further increases the vegetated area.*
- *The proposed development retains 54% of the vegetated area and the existing tree canopy west of the development extends above the building heights which minimizes the visual impact of the additional building height from the Willamette River.*
- *The proposal includes relocating and enlarging the existing community garden which is an extremely popular amenity and creating walkable paths through the forested area with strategic views of the Willamette River in an area which was once impassable.*
- *This development seeks to maximize density and minimize its footprint to create "an urban development within an urban forest." Fulfilling the needs for more housing while providing more natural recreation spaces to improve occupant health and exposure to and appreciation for our natural environment. Through the project's sustainable design, the project further will also reduce its operational footprint. Through the approval of the additional height allowance and width of the buildings the project is able to take advantage of the natural topography on the site to tuck parking under the buildings. Tucking the parking under the building saves the development from surface parking allowing the project space to maintain the forested areas, add additional community spaces, community gardens and other amenities.*
- *100 units of much-needed housing with a range of affordability*

The applicant has asserted that, without the Planned Development process, the site would be difficult to develop without resulting in greater impacts to the forested areas of the site.

As per the recommendation of the Planning Commission, the City Council finds that the proposed development provides sufficiently outstanding design features and extraordinary amenities to justify the proposed density increase.

(d) Peripheral Yards

MMC Subsection 19.311.3.D requires that yards along the periphery of any Planned Development zone be at least as deep as the front yard required in the underlying zone(s). Open space may serve as peripheral yard.

The front yard requirements of the underlying R-2 zone is 15 ft. The proposed development provides large wooded setbacks, the smallest of which 30 ft.

(e) Open Space

MMC Subsection 19.311.3.E requires that a Planned Development set aside land as open space, for scenic, landscaping, or other recreational purposes within the development. A minimum of one-third of the gross area of the site must be provided as open space and/or outdoor recreational areas, with at least half of this area being of the same general character as the area containing dwelling units.

The gross area of the subject property is approximately 10.8 acres, so a minimum of 3.24 acres must be provided as open space, with at least 1.6 acres available for recreational purposes. The applicant has proposed a maintained forest area with walking paths of approximately 3.5 acres, in addition to the areas of forested steep slopes to be maintained as open areas.

(3) MMC Subsection 19.311.6 Planning Commission Review of Preliminary Development Plan and Program

MMC 19.311.6 establishes that the Planning Commission shall review an applicant's preliminary development plan and program for a PD and shall notify the applicant whether the proposal appears to satisfy the provisions of this section or has any deficiencies. Upon the Commission's approval in principle of the preliminary plan and program, the applicant shall file a final development plan and program and an application for zone change.

The applicant has submitted a development plan and program for the proposed PD and has requested that the Commission consider it to be the final development plan and program submittal, along with the accompanying application for zone change.

(4) MMC Subsection 19.311.8 Land Division

MMC 19.311.8 requires that the submittal of a final development plan and program be accompanied by an application for subdivision preliminary plat, where the PD involves the subdivision of land.

The proposal involves a 100-unit apartment development. The proposal includes a property line adjustment; the proposal does not include a subdivision.

(5) MMC Subsection 19.311.9 Approval Criteria

MMC 19.311.9 requires that the approval authority may approve, approve with conditions, or deny the proposed PD zone based on the following criteria:

(a) Substantial consistency with the proposal approved with Subsection 19.311.6

The applicant has submitted a development plan and program for the proposed PD and has requested that the Commission consider it to be the final development plan and program submittal, along with the accompanying application for zone change.

(b) Compliance with Subsections 19.311.1, 19.311.2, and 19.311.3

As demonstrated by these findings, the proposed development complies with these sections.

(c) The proposed amendment is compatible with the surrounding area based on the following factors:

(i) Site location and character of the area.

(ii) Predominant land use pattern and density of the area.

(iii) Expected changes in the development pattern for the area.

The proposed amendment is compatible with the surrounding area based upon the site location and character of the area. The existing dense, tall forest minimizes the impact of the proposed taller and wider buildings on the ridge on the views from the Willamette River and the breaking up of the length into two distinct masses minimizes the appearance from the street. As noted above, the existing multifamily structures in the neighborhood exceed the lengths proposed in this development with the existing Stuart and Waverley Hall Apartments located to the east of this development both ranging in over 284 ft in length. The proposed development is consistent with the predominant land use pattern and density of the area as it is surrounded by existing multifamily apartment complexes. There are no expected changes in the development patten for the area. The area is designated med-high density residential and this development is the last undeveloped tract of land in the surrounding neighborhood. As indicated by the 2020 City of Milwaukie Comprehensive Plan, there are no plans to change the development pattern for the area.

(d) The need is demonstrated for uses allowed by the proposed amendment

As stated in the application materials, the proponents understand the needs of the rental market as they own a large portfolio of apartment communities ranging in affordability. They have found a gap in the availability of the proposed apartment types. Within their community, they have a waiting list for the type of accommodations this project is providing. The City of Milwaukie's Comprehensive Plan recognizes increased housing is a need and the City Council has identified increased housing opportunity and supply as a top goal for the city.

(e) The subject property and adjacent properties presently have adequate public transportation facilities, public utilities, and services to support the use(s) allowed by the proposed amendment, or such facilities, utilities, and services are proposed or required as a condition of approval for the proposed amendment

The applicant team has performed preliminary investigations into the existing infrastructure including a transportation study to analyze the impacts of increased traffic on the existing city infrastructure. Increased storm water, sewer, domestic and fire water supply as a result of this 100-unit development have also been reviewed and calculated. The submitted application materials include these

analyses confirming the adequacy of the existing systems. The existing public transportation facilities, utilities, and available services are adequate to support the proposed development.

(f) The proposal is consistent with the functional classification, capacity, and level of service of the transportation system. A transportation impact study may be required subject to the provisions of Chapter 19.700

A transportation impact study has been included as part of application submittal. See Finding 11 for details.

(g) Compliance with all applicable standards in Title 17 Land Division

As detailed in Finding 5, the proposed development complies with the applicable standards in Title 17.

(h) Compliance with all applicable development standards and requirements

As conditioned, and as detailed in these Findings, the proposed development complies with the applicable development standards and requirements.

(i) The proposal demonstrates that it addresses a public purpose and provides public benefits and/or amenities beyond those permitted in the base zone

The Residential R-2 zone allows multi-unit residential development by right. As detailed by the applicant, the proposed project fulfills and expands needed amenities for the existing six communities of Waverley Greens Apartments. It would provide more places for community gathering and celebration. The proposed two new community centers and outdoor amenities provide places for the residents to garden, swim, eat, celebrate, meet, organize, and educate themselves. The existing community already partners with local educators to provide classes to its residents. This proposal will increase the number of spaces and opportunities for these experiences. The project is designed to be part of the existing natural forest. The proposal includes relocating and enlarging the community garden which is an extremely popular amenity and creating walkable paths through the forested area with views of the Willamette River in an area which was once unpassable.

The proposed development seeks to maximize density and minimize its footprint to create an urban development within an urban forest. An additional objective is to fulfill the need for more housing in Milwaukie while providing more natural recreation spaces to improve occupant health and exposure to and appreciation for the natural environment. Through the project's sustainable design, the project will also reduce its operational footprint. The approval of the additional height allowance and width of the building would allow the project to take advantage of the natural topography on the site to tuck parking under the buildings. The parking level pushes the building to exceed the Willamette Greenway Zone height limit, but still within the allowable City of Milwaukie code. Tucking the parking under the building saves the development from surface parking allowing the

project space to maintain the forested areas, add additional community spaces, community gardens and other amenities.

As conditioned, the City Council finds that the proposed development meets the approval criteria.

(6) MMC Subsection 19.311.10 Planning Commission Action on Final Development Plan and Program

MMC 19.311.10 requires that the Planning Commission hold a public hearing using Type IV review to consider a final development plan and program, zone change application, and subdivision preliminary plat. If the Planning Commission finds that the final development plan and program is in compliance with the preliminary approval and with the intent and requirements of the applicable provisions of the zoning ordinance, it shall forward a recommendation for approval to the City Council for adoption.

As required, the Planning Commission held a public hearing on October 27, 2020, in accordance with the Type IV process outlined in MMC Section 19.1007 and considered the proposed development plan and program, zone change application, property line adjustment, and Willamette Greenway review. The Planning Commission found that the development plan and program is in compliance with the intent and requirements of the applicable provisions of MMC Title 19 Zoning and forwarded a recommendation of approval to the City Council for adoption.

(7) MMC Subsection 19.311.11 Council Action on Final Development Plan and Program

MMC 19.311.11 requires that the City Council consider the final development plan and program and zone change application through the Type IV review process, upon receipt of a recommendation from the Planning Commission. Upon consideration of the proposal, the Council may adopt an ordinance applying the PD zone to the subject property and adopt the final development plan and program as the standards and requirements for that PD zone. The Council may also continue consideration and refer the matter back to the Planning Commission with recommendations for amendment, or may reject the proposal and abandon further hearings and proceedings.

The Council considered the final plan and program and zone change application, as well as the accompanying applications for subdivision preliminary plat and associated reviews, in accordance with the Type IV review process outlined in MMC Section 19.1007. The Council held a public hearing on [month/day], 2020, and adopted an ordinance applying the PD zone to the subject property, which adopted the final development plan and program as the standards and requirements for the new PD zone (Ordinance ####).

The City Council finds that the applicable standards and requirements of MMC 19.311 are met. As per Ordinance ####, the final development plan and program is adopted as the standards and requirements and the PD zone designation is applied to the subject property.

b. MMC Section 19.302 Medium and High Density Residential Zones (including R-2)

The subject property is zoned Residential R-2. MMC 19.302 establish the allowable uses and development standards for the residential R-3 zone. As noted in Finding 7-a(2), although the underlying zone standards are primarily applicable, the PD zone allows adjustment to some of those standards. This applies to such underlying zone limitations as housing type, lot size, lot dimension, setbacks, and similar standards that relate to flexibility of design, greater efficiency in the use of common open space, and minor increases in density allowed as a reward for outstanding design.

(1) Permitted Uses

As per MMC Table 19.302.2, multifamily development is an outright permitted use in the R-3 zone.

The proposal is a 100-unit multifamily development.

(2) Lot and Development Standards

As discussed in Finding 7-a(2), above, adjustments to underlying zone standards that are related to the flexibility of design afforded by the PD process are allowed and do not require a formal variance request. Table 7-b(2) compares the applicable standards for development in the R-2 zone with the standards proposed as the final development plan and program for this PD zone.

Table 7-b(2)

Standard	R-2 Requirement	Proposed PD Requirement – Parcel 2
1. Minimum Lot Size	5,000 sq ft	294,350 sq ft
2. Minimum Lot Width	50 ft	300+ ft
3. Minimum Lot Depth	80 ft	300+ ft
4. Minimum street frontage	35 ft	300+ ft
5. Front Yard	15 ft	15.08 ft
6. Side Yard	5 ft	30 ft
7. Rear Yard	15 ft	36 ft
8. Maximum Building Height	3.5 stories or 45 ft	4 stories; 62 ft

	(whichever is less; with additional 10% vegetation)	
9. Side yard height plane limit	45 degree slope at 25 ft height	Exceeds this standard – see PD request for additional building height.
10. Maximum lot coverage	45%	21.9%
11. Minimum vegetation	15%	54%
12. Minimum density	11.6 units per acre	Minimum of 78 units for entire site
13. Maximum density	17.4units per acre	Maximum of 84 units for entire site (Applicant has requested a 20% density increase to a total of 100 units)

The lots and development standards that will govern development on the subject property are shown in Table 7-b(2) and effectively establish a component of the final development plan and program for this PD zone.

8. MMC 19.400 Overlay Zones and Special Areas

   a. MMC 19.401 Willamette Greenway Overlay Zone

      MMC 19.401 establishes criteria for reviewing and approving development in the Willamette Greenway.

      (1) MMC Subsection 19.401.5 Procedures

      MMC 19.401.5 establishes procedures related to proposed uses and activities in the Willamette Greenway zone. Development in the Willamette Greenway zone requires conditional use review, subject to the standards of MMC Section 19.905 and in accordance with the approval criteria established in MMC Subsection 19.401.6.

      To construct a multi-unit apartment community constitutes "development" as defined in MMC Subsection 19.401.4 and is subject to the conditional use review standards of MMC 19.905 and the approval criteria of MMC 19.401.6.

      (2) MMC Subsection 19.401.6 Criteria

      MMC 19.401.6 establishes the criteria for approving conditional uses in the Willamette Greenway zone.

      (a) Whether the land to be developed has been committed to an urban use, as defined under the State Willamette River Greenway Plan

      The State Willamette River Greenway Plan defines "lands committed to urban use" in part as "those lands upon which the economic,

developmental and locational factors have, when considered together, made the use of the property for other than urban purposes inappropriate."

The land for the proposed project has been committed to an urban use as defined under the State Willamette River Greenway Plan. The City of Milwaukie has designated the use of this land as Residential R-2, medium and high-density development.

(b) Compatibility with the scenic, natural, historic, economic, and recreational character of the river

The proposed development would be more than 1,000 ft from the river and there is currently no access to the river from the subject property. The proposed development is consistent with the multi-unit residential character of the surrounding area and in its relationship with the river. The proposed development is set back from the river with a buffer of an existing adjacent golf course and multiple existing multi-unit residential developments that are closer and more exposed to the river. The proposed development maintains 54% of the site in its vegetated and forested state. The proposed development includes the addition of recreational walking paths through the forested site.

(c) Protection of views both toward and away from the river

By maintaining the existing forest and specifically orienting the new development, the views from the river will be minimally impacted. New opportunities for views to the river are proposed through the creation of recreational paths in the existing forest and removing invasive species and dead/diseased trees along with curating views from the development itself. Overall, the project will increase the opportunities for visual enjoyment of the river and its surrounding environment while minimally impacting the views from and/or across the river.

(d) Landscaping, aesthetic enhancement, open space, and vegetation between the activity and the river, to the maximum extent practicable

The proposed development footprint is located to the northeast portion of the site, which is the farthest corner away from the river. The south and west of the site are devoted to walking paths and recreational uses for future residents along with maintaining habitat corridors. The development site has no direct connection to the river.

(e) Public access to and along the river, to the greatest possible degree, by appropriate legal means

There is no public access from the site to the river from the proposed development or its surrounding area. The subject property is not directly adjacent to the river.

(f) Emphasis on water-oriented and recreational uses

There is no direct access to the river from the site. Increased access to views of the river will be created by the development.

(g) Maintain or increase views between the Willamette River and downtown

The site is not in the downtown.

(h) Protection of the natural environment according to regulations in Section 19.402

Section 19.402 does not apply to the site; there are no mapped resource areas on the site. However, as part of the project, the proposed development would remove invasive species, dead and diseased trees, and improve the overall health of the forested area on the site.

(i) Advice and recommendations of the Design and Landmarks Committee, as appropriate

The subject properties are not within a downtown zone and the proposed activity does not require review by the Design and Landmarks Committee.

(j) Conformance to applicable Comprehensive Plan policies

The Willamette Greenway Element in the Milwaukie Comprehensive Plan includes policies related to land use, public access and view protection, and maintenance of private property.

The Climate Change and Energy Element includes policies that encourage the use of innovative design and flexibility in standards for projects that address energy conservation. prohibit development in known areas of natural disasters and hazards without appropriate safeguards.

The Housing Element includes policies to provide opportunities for a wider range of rental housing choices in Milwaukie.

The proposed development is being reviewed through the Willamette Greenway conditional use process as provided in MMC Subsection 19.401.5. The project will not impact visual corridors from Waverly Ct given the limited view opportunities that currently exist. The proposed development maximizes density while minimizing development footprint to increase urban tree canopy, recreational areas, and also provide additional community spaces - key aspects of the Milwaukie Comprehensive Plan. The subject property is designated as high density; increasing the number of residential units to meet future demand is an important consideration in the Comprehensive Plan.

Consistent with Goal 3.5, Sustainable Design and Development, the proposed development is designed sustainably with considerations for energy efficiency and embodied carbon. The project team has held an Energy Trust of Oregon Master Planning session to discuss sustainability strategies along with engaging a solar designer for a preliminary solar study. The project is committed to including solar

on the new development. Through the reduction of the development footprint, the project is able to increase the tree canopy, vegetated areas, natural habitat and recreational opportunities, contributing to Goal 3.4 – Healthy Urban Forest.

(k) The request is consistent with applicable plans and programs of the Division of State Lands

The proposed activity is not inconsistent with any known plans or programs of the Department of State Lands (DSL).

(l) A vegetation buffer plan meeting the conditions of Subsections 19.401.8.A through C

The subject properties are not immediately adjacent to the main channel of the Willamette River. The proposed residential development is more than 1,000 ft from the river. This criterion does not apply.

The City Council finds that, as conditioned, the proposed activity meets all relevant approval criteria provided in MMC 19.401.6.

(3) MMC Subsection 19.401.9 Private Noncommercial Docks

MMC 19.401.9 establishes the requirements for private noncommercial docks.

(a) Only 1 dock is allowed per riverfront lot of record.

No docks are proposed as part of this development.

This standard is not applicable.

The City Council finds that, as conditioned, the proposed activity meets all applicable standards of development activity in the Willamette Greenway zone.

9. MMC Chapter 19.500 Supplementary Development Regulations

a. MMC Subsection 19.505.3 Multifamily Housing

MMC 19.505.3 establishes design standards for multifamily housing, to facilitate the development of attractive housing that encourages multimodal transportation and good site and building design. The requirements of this subsection are intended to achieve the principles of livability, compatibility, safety and functionality, and sustainability. The design elements, established in MMC Subsection 19.505.3.D, are applicable to all new multifamily housing developments with 3 or more units.

(1) MMC Subsection 19.505.3.B states that all new multifamily and congregate housing developments with 3 or more dwelling units on a single lot are subject to the design elements in Table 19.505.3.D.

The proposed development will have 100 dwelling units on a single lot and is considered multifamily. The proposed development meets the applicability standards of MMC 19.505.3.B.

(2) MMC Subsection 19.505.3.D contain standards for Multifamily Design Guidelines.

The proposed multi-unit residential development is following the Design Guidelines for the Discretionary Process. The application meets the standards of this section as described in Table 2 below.

Table 19.505.3.D
Design Guidelines—Multifamily Housing

Design Element	Guideline	Findings
1. Private Open Space	The development should provide private open space for each dwelling unit, with direct access from the dwelling unit and visually and/or physically separate from common areas. The development may provide common open space in lieu of private open space if the common open space is well designed, adequately sized, and functionally similar to private open space.	*Each apartment unit has its own private balcony directly accessible from the interior of each dwelling. The balconies are separated physically and visually from other apartments. The smallest private outdoor space is 195 sq ft..*
2. Public Open Space	The development should provide sufficient open space for the purpose of outdoor recreation, scenic amenity, or shared outdoor space for people to gather.	*There are multiple open space areas proposed in the development, including large outdoor community gardens, swimming pool, walking trails, kitchen/catering space, wine cellar, permanent picnic tables, and community meeting rooms.*
3. Pedestrian Circulation	Site design should promote safe, direct, and usable pedestrian facilities and connections throughout the development. Ground-floor units should provide a clear transition from the public realm to the private dwellings.	*As designed, the proposed development will have continuous connections with adequate lighting and street crossings to site elements as required. Walkways are separated from vehicle parking with physical barriers such as planter strips and raised curbs. Walkways shall be constructed of concrete, with a minimum width of 5 ft and a width of 7 ft where parked vehicles will overhang the walkway. The walkways will be separated from parking areas and internal driveways using curbing, landscaping, or distinctive paving materials.*

Table 19.505.3.D Design Guidelines—Multifamily Housing		
Design Element	**Guideline**	**Findings**
4. Vehicle and Bicycle Parking	Vehicle parking should be integrated into the site in a manner that does not detract from the design of the building, the street frontage, or the site. Bicycle parking should be secure, sheltered, and conveniently located.	*142 off-street parking spaces are proposed for the development. A total of 106 vehicle parking spaces for residents will be located under the buildings and 36 parking spaces will be provided off the private dead-end street for the apartment buildings, community center and other amenity spaces.* *Covered, secure bike parking with permanently mounted bike racks/hangers will be provided in the parking garage. Outdoor bike racks located no further than 3 ft from the main entrance of each building, are also proposed.* *A total of 100 bicycle parking spaces are proposed, 50 of which would be covered spaces (50%).*
5. Building Orientation and Entrances	Buildings should be located with the principal façade oriented to the street or a street-facing open space such as a courtyard. Building entrances should be well-defined and protect people from the elements.	*The proposed buildings numbered A.1, A.2, and B.2 are located on a private internal dead-end drive, not a public right-of-way. Buildings A.1 and A.2 feature street facing primary entrances, which become focal points as the central element of the buildings' U-shape. Users are drawn into the building entry by an entry overhang, walking paths, and landscape elements.*
6. Building Façade Design	Changes in wall planes, layering, horizontal & vertical datums, building materials, color, and/or fenestration should be incorporated to create simple and visually interesting buildings Windows and doors should be designed to create depth and shadows and to emphasize wall thickness and give expression to residential buildings. Windows should be used to provide articulation to the façade and visibility into the street. Building facades should be compatible with adjacent building facades. Garage doors shall be integrated into the design of the larger façade in terms of color, scale, materials, and building style.	*The street facing façade is broken into two building masses flanking a recessed entry with outdoor balconies and projecting window bays providing visual interest. A minimum of 25% of the façade is glazing.*

Table 19.505.3.D Design Guidelines—Multifamily Housing		
Design Element	**Guideline**	**Findings**
7. Building Materials	Buildings should be constructed with architectural materials that provide a sense of permanence and high quality, incorporating a hierarchy of building materials that are durable. Street-facing facades should consist predominantly of a simple palette of long-lasting materials such as brick, stone, stucco, wood siding, and wood shingles. Split-faced block and gypsum reinforced fiber concrete (for trim elements) should only be used in limited quantities. Fencing should be durable, maintainable, and attractive.	*Building materials will be a mix of fiber cement board siding with wood accent siding with metal trim panels. The building is still in the design phase and specific materials and placements have to be investigated.*
8. Landscaping	Landscaping should be used to provide a canopy for open spaces and courtyards, and to buffer the development from adjacent properties. Existing, healthy trees should be preserved whenever possible. Landscape strategies that conserve water should be included. Hardscapes should be shaded where possible, as a means of reducing energy costs (heat island effect) and improving stormwater management.	*Approximately 53% of the site is proposed to be landscaped or maintained as vegetation and a detailed landscaping plan and tree plan were submitted. As part of the development, existing trees will be maintained where possible. Diseased and dead trees, as wells as, invasive species, such as English ivy and blackberries, will be removed and replaced by native plants where appropriate. New natural walking paths will be developed through the preserved wooded area for residents.*
9. Screening	Mechanical equipment, garbage collection areas, and other site equipment and utilities should be screened so they are not visible from the street and public or private open spaces. Screening should be visually compatible with other architectural elements in the development.	*Screening will be provided as per the development standards. Mechanical equipment will be housed inside the buildings with some roof top equipment located on lower roof areas that are blocked from view by adjacent high sloped roofs. Trash and recycling will be collected in trash rooms on the parking levels of each apartment building to avoid waste containers being visible from the outside.*
10. Recycling Areas	Recycling areas should be appropriately sized to accommodate the amount of recyclable materials generated by residents. Areas should be located such that they provide convenient access for residents and for waste/recycling haulers. Recycling areas located outdoors should be appropriately screened or located so they are not prominent features viewed from the street.	*Recycling collection will be provided in the trash/recycling room located on the parking level of each building. Residents will be responsible for bringing their recycling to that location and maintenance staff will collect and transport the material off site.*

Table 19.505.3.D Design Guidelines—Multifamily Housing		
Design Element	**Guideline**	**Findings**
11. Sustainability	Development should optimize energy efficiency by designing for building orientation for passive heat gain, shading, day-lighting, and natural ventilation. Sustainable materials, particularly those with recycled content, should be used whenever possible. Sustainable architectural elements should be incorporated to increase occupant health and maximize a building's positive impact on the environment. When appropriate to the context, buildings should be placed on the site giving consideration to optimum solar orientation. Methods for providing summer shading for south-facing walls, and the implementation of photovoltaic systems on the south-facing area of the roof, are to be considered.	*As proposed, sustainability is a key component in the design of the development. Building orientation and solar access along with passive strategies were the first step of the design analysis. A preliminary solar study has been completed, and the applicants are committed to installing solar panels on the roofs. Each unit is provided with operable windows and overhangs, and sunscreens will be studied to maximize efficiency as part of the building design. Retaining and re-planting the surrounding tree canopy is a key component to maintaining a cool site that takes advantage of the breezes flowing down the Willamette River and through the tree canopy to provide passive cooling for the units. On-site rainwater collection is being investigated along with applying roofing materials with an SRI of 78 where the roof has a 3/12 pitch or less and an SRI of 29 where the roof pitch is 3/12 or greater.*
12. Privacy Considerations	Development should consider the privacy of, and sight lines to, adjacent residential properties, and should be oriented and/or screened to maximize the privacy of surrounding residences.	*As proposed, all privacy considerations have been incorporated into the design, including vegetated screening provided by the existing and proposed tree canopy and plantings.*
13. Safety	Development should be designed to maximize visual surveillance, create defensible spaces, and define access to and from the site. Lighting should be provided that is adequate for safety and surveillance, while not imposing lighting impacts to nearby properties. The site should be generally consistent with the principles of Crime Prevention Through Environmental Design (CPTED): • Natural Surveillance • Natural Access Control • Territorial Reinforcement	*As proposed, all safety design considerations will be met in the final permit plans.*

The City Council finds that, as conditioned, the discretionary multifamily design guidelines have been met.

10. MMC Chapter 19.600 Off-Street Parking and Loading

MMC 19.600 regulates off-street parking and loading areas on private property outside the public right-of-way. The purpose of these requirements includes providing adequate space

for off-street parking, minimizing parking impacts to adjacent properties, and minimizing environmental impacts of parking areas.

a. MMC Section 19.602 Applicability

MMC 19.602 establishes the applicability of the provisions of MMC 19.600, and MMC Subsection 19.602.3 establishes thresholds for full compliance with the standards of MMC 19.600. Development of a vacant site is required to provide off-street parking and loading areas that conform fully to the requirements of MMC 19.600.

The proposed development consists of 100 apartment units in 4 buildings and an amenity building/clubhouse on a vacant site and is required to conform fully to the requirements of MMC 19.600.

The City Council finds that the provisions of MMC 19.600 are applicable to the proposed development.

b. MMC Section 19.605 Vehicle Parking Quantity Requirements

MMC 19.605 establishes standards to ensure that development provides adequate vehicle parking (off-street) based on estimated parking demand.

The proposed multi-unit residential development includes 100 apartments that are more than 800 sq ft.

As per MMC Table 19.605.1, the minimum number of required off-street parking spaces for multifamily housing is 1.25 spaces per unit for units more than 800 sq ft. The maximum number of spaces is 2 spaces per unit, regardless of size. According to MMC Table 19.605.1, the proposed development should provide a minimum of 125 spaces and would have a maximum of 200 spaces allowed. As proposed, the development would provide 29 surface parking spaces and 108 garage spaces, for a total of 137 spaces, which falls within that range.

The City Council finds that this standard is met.

c. MMC Section 19.606 Parking Area Design and Landscaping

MMC 19.606 establishes standards for parking area design and landscaping, to ensure that off-street parking areas are safe, environmentally sound, and aesthetically pleasing, and that they have efficient circulation.

(1) MMC Subsection 19.606.1 Parking Space and Aisle Dimension

MMC 19.606.1 establishes dimensional standards for required off-street parking spaces and drive aisles. For 90°-angle spaces, the minimum width is 9 ft and minimum depth is 18 ft, with a 9-ft minimum curb length and 22-ft drive aisles. Parallel spaces require with 22-ft lengths and a width of 8.5 ft.

The applicant has submitted a parking plan that satisfies these dimensional standards.

(2) MMC Subsection 19.606.2 Landscaping

MMC 19.606.2 establishes standards for parking lot landscaping, including for perimeter and interior areas. The purpose of these landscaping standards is to

provide buffering between parking areas and adjacent properties, break up large expanses of paved area, help delineate between parking spaces and drive aisles, and provide environmental benefits such as stormwater management, carbon dioxide absorption, and a reduction of the urban heat island effect.

(a) MMC Subsection 19.606.2.C Perimeter Landscaping

In all but the downtown zones, perimeter landscaping areas must be at least 6 ft wide where abutting other properties and at least 8 ft wide where abutting the public right-of-way. At least 1 tree must be planted for every 30 lineal ft of landscaped buffer area, with the remainder of the buffer planted with grass, shrubs, ground cover, mulch, or other landscaped treatment. Parking areas adjacent to residential uses must provide a continuous visual screen from 1 to 4 ft above the ground to adequately screen vehicle lights.

For the majority of the site, the design maintains more than 30 ft of setback to the proposed buildings. The majority of the parking spaces are covered garage spaces, but 29 surface spaces are proposed in the interior of the community. None of these spaces are located at the perimeter of the site.

This standard is met.

(b) MMC Subsection 19.606.2.D Interior Landscaping

At least 25 sq ft of interior landscaped area are required for each parking space. Planting areas must be at least 120 sq ft in area, at least 6 ft in width, and dispersed throughout the parking area. For landscape islands, at least 1 tree shall be planted per island, with the remainder of the buffer planted with grass, shrubs, ground cover, mulch, or other landscaped treatment.

The proposed development includes 29 surface parking spaces, for which a minimum of 725 sq ft of interior landscaping is required. As proposed, the site plan provides approximately 2,000 sq ft of interior landscaping in 10 individual landscaped islands, well over the minimum required. All of the interior landscaped areas are at least 120 sq ft in size, but the triangle-shaped islands at the end of the line of stalls are approximately 112 sq ft. All islands are disbursed throughout the various parking areas on the site.

This standard is met through the approval of the Planned Development.

(c) MMC Subsection 19.606.2.E Other Parking and Landscaping Provisions

Preservation of existing trees in off-street parking areas is encouraged and may be credited toward the total number of trees required. Parking area landscaping must be installed prior to final inspection, unless a performance bond is posted with the City. Required landscaping areas may serve as stormwater management facilities, and pedestrian walkways

are allowed within landscape buffers if the buffer is at least 2 ft wider than required by MMC 19.606.2.C and 19.606.2.D.

As noted in the findings above, approximately 53% of the site will be maintained with vegetation including the existing tree canopy. An arborist report was included with the application, including a tree removal and protection plan. 135 trees are proposed for protection and retention with priority given to the larger diameter Douglas firs and Oregon white oaks.

This standard is met.

As conditioned, the City Council finds that the applicable standards of MMC 19.606.2 are met.

(3) MMC Subsection 19.606.3 Additional Design Standards

MMC 19.606.3 establishes various design standards, including requirements related to paving and striping, wheel stops, pedestrian access, internal circulation, and lighting.

(a) MMC Subsection 19.606.3.A Paving and Striping

Paving and striping are required for all required maneuvering and standing areas, with a durable and dust-free hard surface and striping to delineate spaces and directional markings for driveways and accessways.

The plans submitted indicate that all parking areas will be paved and striped.

This standard is met.

(b) MMC Subsection 19.606.3.B Wheel Stops

Parking bumpers or wheel stops are required to prevent vehicles from encroaching onto public rights-of-way, adjacent landscaped areas, or pedestrian walkways. Curbing may substitute for wheel stops if vehicles will not encroach into the minimum required width for landscape or pedestrian areas.

The applicant's narrative indicates that a combination of curbs set back 2 ft or wheel stops will be installed to prevent vehicles from encroaching into pedestrian walkways and perimeter landscaping areas. This requirement will be confirmed as part of the subsequent Development Review and final inspection.

This standard is met.

(c) MMC Subsection 19.606.3.C Site Access and Drive Aisles

Accessways to parking areas shall be the minimum number necessary to provide access without inhibiting safe circulation on the street. Drive aisles shall meet the dimensional requirements of MMC 19.606.1, including a 22-ft minimum width for drive aisles serving 90°-angle stalls and a 16-ft minimum width for drive aisles not abutting a parking space. Along

collector and arterial streets, no parking space shall be located such that its maneuvering area is in an ingress or egress aisle within 20 ft of the back of the sidewalk. Driveways and on-site circulation shall be designed so that vehicles enter the right-of-way in a forward motion.

The proposed development will take its access via a driveway from Waverly Ct. The proposed drive aisles meet the minimum applicable dimensional requirements and are designed so that vehicles enter the right-of-way in a forward motion.

The submitted Transportation Impact Analysis (TIS) includes future vehicle trip distribution related to the development based on the impact of the development combined with background growth.

As conditioned, this standard is met.

(d) MMC Subsection 19.606.3.D Pedestrian Access and Circulation

Pedestrian access shall be provided so that no off-street parking space is farther than 100 ft away, measured along vehicle drive aisles, from a building entrance or a walkway that is continuous, leads to a building entrance, and meets the design standards of MMC Subsection 19.504.9.E.

As proposed, no off-street parking space is farther than 100 ft away from a building entrance or walkway that meets the standards of this subsection.

This standard is met.

(e) MMC Subsection 19.606.3.E Internal Circulation

The City Council has the authority to review the pedestrian, bicycle, and vehicular circulation of the site and impose conditions to ensure safe and efficient on-site circulation. Such conditions may include, but are not limited to, on-site signage, pavement markings, addition or modification of curbs, and modification of drive aisle dimensions.

The City Council has reviewed the proposed circulation plan and concluded that it provides safe and efficient on-site circulation.

This standard is met.

(f) MMC Subsection 19.606.3.F Lighting

Lighting is required for parking areas with more than 10 spaces and must have a cutoff angle of 90° or greater to ensure that lighting is directed toward the parking surface. Lighting shall not cause a light trespass of more than 0.5 footcandles measured vertically at the boundaries of the site and shall provide a minimum illumination of 0.5 footcandles for pedestrian walkways in off-street parking areas.

The proposed development will have continuous connections with adequate lighting and street crossings to site elements as required. The applicant's submittal

did not include a lighting plan. A condition requiring a photometric plan showing compliance to be submitted during permit review has been included.

As conditioned, this standard is met.

As conditioned, the City Council finds that the applicable standards of MMC 19.606.3 are met.

As conditioned, the City Council finds that the applicable design and landscaping standards of MMC 19.606 are met.

d. MMC Section 19.608 Loading

MMC 19.608 establishes standards for off-street loading areas and empowers the Planning Director to determine whether loading spaces are required. The purpose of off-street loading areas is to contain loading activity of goods on-site and avoid conflicts with travel in the public right-of-way; provide for safe and efficient traffic circulation on the site; and minimize the impacts of loading areas to surrounding properties. For residential development with fewer than 50 dwelling units on a site that abuts a local street, no loading space is required; otherwise, 1 space is required.

The proposed multi-unit residential development includes 100 units in 4 buildings. None of the buildings have more than 50 dwellings, but a loading zone is included adjacent to the Community Center. No impacts to the public right of way or surrounding properties are anticipated by loading activity on the site.

The City Council finds that this standard is met and that no loading spaces are required.

e. MMC Section 19.609 Bicycle Parking

MMC 19.609 establishes standards for bicycle parking for new development of various uses. Multifamily residential development with 4 or more units shall provide 1 space per unit. When at least 10 bicycle spaces are required, a minimum of 50% of the spaces shall be covered and/or enclosed. MMC Subsection 19.609.3.A provides that each bicycle parking space shall have minimum dimensions of 2 ft by 6 ft, with 5-ft-wide aisles for maneuvering. MMC Subsection 19.609.4 requires bike racks to be located within 50 ft of a main building entrance.

The proposed multi-unit residential development has 100 units, which equals a minimum of 100 bicycle spaces required, 50 of which must be covered and/or enclosed. Per Finding 10-b, a total of 100 bicycle spaces are proposed, with 50 of those spaces being covered, which will be located at the parking garage entry of each building. This secure bike parking will be on permanently mounted bike racks/hangers in the parking garage. Outdoor bike racks, located no further than 30 ft from the main entrance of each building are included to meet the required number of racks required. The submitted plans do not include details of the bike stall dimensions, so a condition has been established to require more detailed information sufficient to determine that the applicable standards are met.

As conditioned, the City Council finds that this standard is met.

f. MMC Section 19.610 Carpool and Vanpool Parking

MMC 19.610 establishes carpool parking standards for new industrial, institutional, and commercial development. The number of carpool/vanpool parking spaces shall be at least 10% of the minimum amount of required parking spaces. Carpool/vanpool spaces shall be located closer to the main entrances of the building than other employee or student parking, except ADA spaces and shall be clearly designated with signs or pavement markings for use only by carpools/vanpools.

The proposed development is a multi-unit residential development.

This standard does not apply.

As conditioned, the City Council finds that the proposed development meets all applicable standards of MMC 19.600.

11. MMC Chapter 19.700 Public Facility Improvements

MMC 19.700 is intended to ensure that development, including redevelopment, provides public facilities that are safe, convenient, and adequate in rough proportion to their public facility impacts.

a. MMC Section 19.702 Applicability

MMC 19.702 establishes the applicability of the provisions of MMC 19.700, including new construction.

The applicant proposes to develop new construction of 100 multifamily residential units as an expansion to an existing multifamily development. The proposed new construction and additional dwelling units triggers the requirements of MMC 19.700.

b. MMC Section 19.703 Review Process

MMC 19.703 establishes the review process for development that is subject to MMC 19.700, including requiring a preapplication conference, establishing the type of application required, and providing approval criteria.

The applicant had a preapplication conference with City staff on May 14, 2020, prior to application submittal. The applicant's proposal includes a Transportation Facilities Review and a transportation impact study, meeting requirements of this section.

c. MMC Section 19.704 Transportation Impact Evaluation

MMC 19.704 establishes the process and requirements for evaluating development impacts on the surrounding transportation system, including determining when a formal Transportation Impact Study (TIS) is necessary and what mitigation measures will be required.

The proposed development completed a formal TIS according to scoping developed by the City Engineer and the City's on-call traffic consultant (DKS), provided the applicant with a scope of work for the TIS. No offsite mitigation was found to be required. Adjacent frontage improvements will include 6-ft curb tight sidewalks, three new pedestrian crossings, and a ½-

street 2" mill and overlay of Waverly Court along the property frontage as shown in submitted preliminary plans dated July 28, 2020 and received by the city on August 4, 2020. Additional information regarding the TIS is presented in the accompanying staff report.

As submitted, the applicant's TIS is sufficient to meet the requirements of MMC 19.704.

d. MMC Section 19.705 Rough Proportionality

MMC 19.705 requires that transportation impacts of the proposed development be mitigated in proportion to its potential impacts.

Improvements submitted by the applicant were in rough proportion to potential impacts. Final design will be approved by the City Engineering prior to construction, including final design mitigations for any deficiency in intersection-sight distance.

e. MMC Section 19.707 Agency Notification and Coordinated Review

MMC 19.707 establishes provisions for coordinating land use application review with other agencies that may have some interest in a project that is in proximity to facilities they manage.

The application was referred to the Oregon Department of Transportation (ODOT), Clackamas County Department of Transportation and Development (DTD), TriMet, and Metro for comment. Agency comments have been incorporated into these findings and the associated conditions of approval.

f. MMC Section 19.708 Transportation Facility Requirements

MMC 19.708 establishes the City's requirements and standards for improvements to public streets, including pedestrian, bicycle, and transit facilities.

(1) MMC Subsection 19.708.1 General Street Requirements and Standards

MMC 19.708.1 provides general standards for streets, including for access management, clear vision, street layout and connectivity, and intersection design and spacing.

As proposed, the development is consistent with the applicable standards of MMC 19.708.1.

(2) MMC Subsection 19.708.2 Street Design Standards

MMC 19.708.2 provides design standards for streets, including dimensional requirements for the various street elements (e.g., travel lanes, bike lanes, on-street parking, landscape strips, and sidewalks).

The proposed Waverly Ct cross section conforms to applicable requirements and are consistent with MMC 19.708.2.

(3) MMC Subsection 19.708.3 Sidewalk Requirements and Standards

MMC 19.708.3 provides standards for public sidewalks, including the requirement for compliance with applicable standards of the Americans with Disabilities Act (ADA).

The proposed development includes ADA ramps and ADA compliant sidewalks.

As conditioned, the development is consistent with all applicable standards of MMC 19.708.3.

(4) MMC Subsection 19.708.4 Bicycle Facility Requirements and Standards

MMC 19.708.4 provides standards for bicycle facilities, including a reference to the Public Works Standards.

The City's bicycle facilities goals, objectives, and policies are found in Chapter 6 of the Transportation System Plan (TSP). No additional context is identified for the adjacent frontage of development.

As proposed, the development is consistent with all applicable standards of MMC 19.708.4.

(5) MMC Subsection 19.708.5 Pedestrian/Bicycle Path Requirements and Standards

MMC 19.708.5 provides standards for pedestrian and bicycle paths.

The proposed site plan includes pedestrian connections within the development connecting to the proposed sidewalk on Waverly Ct.

As proposed, the development is consistent with all applicable standards of MMC 19.708.5.

(6) MMC Subsection 19.708.6 Transit Requirements and Standards

MMC 19.708.6 provides standards for transit facilities.

The City's transit facilities goals, objectives, and policies are found in Chapter 7 of the TSP. No additional context is identified for the adjacent frontage of development.

As proposed, the development is consistent with all applicable standards of MMC 19.708.6.

As conditioned, the City Council finds that the proposed development meets the applicable public facility improvement standards of MMC 19.700.

12. MMC Section 19.902 Amendments to Maps and Ordinances

MMC 19.902 establishes the process for amending the City's Comprehensive Plan and land use regulations, including the zoning map. Specifically, MMC Subsection 19.902.6 establishes the review process and approval criteria for zoning map amendments.

a. MMC Subsection 19.902.6.A Review Process

MMC 19.902.6.A provides that, generally, changes to the zoning map that involve 5 or more properties or encompass more than 2 acres of land are legislative and are therefore subject to Type V review; otherwise, they are quasi-judicial in nature and subject to Type III review. The City Attorney has the authority to determine the appropriate review process for each proposed zoning map amendment.

The proposed zoning map amendment encompasses a single property of approximately 10.8 acres and is related to a proposed planned development, which requires Type IV review. The City Attorney has determined that the proposed zoning map amendment is quasi-judicial in nature and requires Type III review. The concurrent planned development requires Type IV review, which is also a quasi-judicial process. The City Council finds that the Type IV review process is appropriate for the proposed zoning map change.

b. MMC Subsection 19.902.6.B Approval Criteria

MMC 19.906.2.B establishes the following approval criteria for zoning map amendments:

(1) The proposed amendment is compatible with the surrounding area based on the following factors:

(a) Site location and character of the area

(b) Predominant land use pattern and density of the area

(c) Expected changes in the development pattern for the area

The area surrounding the subject property includes a golf course, low to moderate density residential development, as well as a number of multi-unit dwelling developments. The proposed development will preserve over half of the site area as natural open space or vegetation with access through trails for low-impact recreational use. The location offers easy access to Highway 224, downtown Milwaukie and the light rail station, the Trolley Trail and the Springwater corridor, Milwaukie Bay Park, and Hwy 99E.

The 100 units of apartments will be arranged in a compact pattern of four buildings with mostly covered parking in the lower levels of the buildings to minimize the building footprint. The development is requesting a 20% increase in overall density, but that is due to the steep slopes on the site, not the gross area of the subject property. The proposed development is consistent with the Housing element of the Comprehensive Plan and the need for more rental housing opportunities in Milwaukie.

The proposed zoning amendment is compatible with the surrounding area based on the factors listed above.

(2) The need is demonstrated for uses allowed by the proposed amendment.

The 2020 Milwaukie Comprehensive Plan notes a particular need for rental housing opportunities.

(3) The availability is shown of suitable alternative areas with the same or similar zoning designation.

Functionally, the PD designation is a form of overlay zone designation that can be applied to sufficiently sized properties for greater flexibility in developing the site. This criterion is more applicable to standard base zone designations and is intended to ensure that a suitable number of other properties with the same base zone designation will remain available for development.

This criterion is not applicable to a proposal to add the PD designation to a base zone.

(4) The subject property and adjacent properties presently have adequate public transportation facilities, public utilities, and services to support the use(s) allowed by the proposed amendment, or such facilities, utilities, and services are proposed or required as a condition of approval for the proposed amendment.

The applicant's submittal materials include a traffic impact study, utility plans, and preliminary stormwater drainage report to demonstrate that public facilities are or will be made adequate to serve the proposed development.

Existing water and sanitary sewer services in Waverly Ct are provided by the City and Clackamas County's Water and Environment Services (WES) respectively and are adequate to serve the proposed new units.

The applicant proposes to manage stormwater runoff from the new development with methods for water conservation and maintenance on-site. three large, shallow bioswale facilities.

No newly dedicated public rights-of-way are proposed to serve the proposed lots. Proposed public improvements to Waverly Ct are shown including new pedestrian crossings, pedestrian ramps, and sidewalks. All improvements will be constructed to meet applicable City standards.

The subject property and adjacent properties presently have adequate public transportation facilities, public utilities, and services to support the proposed development.

(5) The proposed amendment is consistent with the functional classification, capacity, and level of service of the transportation system. A transportation impact study may be required subject to the provisions of Chapter 19.700.

The applicant prepared a transportation impact study (TIS) to evaluate the proposed development's anticipated impacts on the transportation system. The TIS concluded that traffic volumes from the proposed development will not cause any of the intersections in the study area to fall below acceptable levels of service. Additional information is provided in the accompanying staff report.

As conditioned, the proposed amendment is consistent with the functional classification, capacity, and level of service of the transportation system.

(6) The proposed amendment is consistent with the goals and policies of the Comprehensive Plan, including the Land Use Map.

The Land Use Map within the City's Comprehensive Plan (Comp Plan) reflects the R-2 zoning of the subject property, with a High Density designation for the site. The proposed amendment would add the Planned Development (PD) designation to the zone designation for the subject property but would not affect the designation on the Land Use Map.

The Comp Plan includes a number of goals and policies that are applicable to the proposed development.

(a) Chapter 1 Engagement

The goal of Chapter 1 is to encourage and provide opportunities for citizens to participate in all phases of the planning process. Prior to submitting the application, the applicant attended a meeting of the Historic Milwaukie Neighborhood District Association on July 13, 2020 to present the project. The applicant noted that the neighbors spoke highly of the current Waverley Greens apartment properties and noted the quality landscaping and community amenities. Overall, the community reaction to the presentation was positive with attendees looking forward to walking through the wooded areas and perhaps even being future tenants.

The Type IV review process utilized for consideration of any Planned Development provides for public hearings by both the Planning Commission and City Council, where citizens have the opportunity to present testimony and participate in the decision-making process. A public hearing on the proposed development was held by the Planning Commission on October 27, 2020; a public hearing was held by the City Council on [month/day], 2020. The Commission and Council considered testimony from citizens en route to reaching the decision reflected in these findings.

(b) Chapter 3 Natural Resources and Environmental Quality

Chapter 3 focuses on conservation of the City's remaining natural resources.

(i) Goal 3.3 - Flora and Fauna Habitat

This goal is to protect and conserve aquatic, aerial, arboreal, and terrestrial wildlife and plants habitat. Policies include protecting habitat areas for native and non-invasive plants and wildlife.

The subject property is nearly entirely wooded, and the proposed development includes maintaining approximately 53% of the site in vegetation and includes removal of all invasive plants and trees.

(ii) Goal 3.5 – Sustainable Design and Development

This goal encourages and incentivizes sustainable design and development practices. Policies include incorporating sustainable and low-impact building and site planning technologies, habitat-friendly development strategies, and green infrastructure.

Consistent with Goal 3.5, Sustainable Design and Development, the proposed development is designed sustainably with considerations for energy efficiency and embodied carbon. The project team has held an Energy Trust of Oregon Master Planning session to discuss sustainability strategies along with engaging a solar designer for a preliminary solar study. The project is committed to including solar on the new development. Through the reduction of the development footprint, the project is able to increase the tree canopy, vegetated areas, natural habitat and recreational opportunities, contributing to Goal 3.4 – Healthy Urban Forest.

(c) Chapter 6 Climate Change & Energy

Chapter 6 focuses on promoting energy efficiency and mitigating the anticipated impacts of climate change in Milwaukie.

(i) Goal 6.1 – Built Environment

This goal encourages the use of innovative design and building materials as well as contributions to a 40% citywide tree canopy.

As noted above for Goal 3.5, the proposed development is designed sustainably with considerations for energy efficiency and embodied carbon. The project team has held an Energy Trust of Oregon Master Planning session to discuss sustainability strategies along with engaging a solar designer for a preliminary solar study. The project is committed to including solar on the new development. Through the reduction of the development footprint, the project is able to increase the tree canopy, vegetated areas, natural habitat and recreational opportunities, contributing to Goal 3.4 – Healthy Urban Forest.

(d) Chapter 4 – Willamette Greenway

Chapter 4 focuses on protecting, conserving, enhancing, and maintaining the lands and water that comprise the Willamette River Greenway.

The proposed development would be more than 1,000 ft from the river and there is currently no access to the river from the subject property. The proposed development is consistent with the multi-unit residential character of the surrounding area and in its relationship with the river. The proposed development is set back from the river with a buffer of an existing adjacent golf course and multiple existing multi-unit residential developments that are closer and more exposed to the river. The proposed development maintains 54% of the site in its vegetated and forested state. The proposed development includes the addition of recreational walking paths through the forested site.

By maintaining the existing forest and specifically orienting the new development, the views from the river will be minimally impacted. New opportunities for views to the river are proposed through the creation of recreational paths in the existing forest and removing invasive species and dead/diseased trees along with curating views from the development itself. Overall, the project will increase the opportunities for visual enjoyment of the river and its surrounding environment while minimally impacting the views from and/or across the river.

The proposed development footprint is located to the northeast portion of the site, which is the farthest corner away from the river. The south and west of the site are devoted to walking paths and recreational uses for future residents along with maintaining habitat corridors. The development site has no direct connection to the river.

(e) Chapter 7 - Housing

Chapter 7 focuses on providing safe, affordable, and stable housing for all Milwaukie residents. Policies include providing opportunities for a wider range of rental housing choices in Milwaukie and encouraging the development of housing types that are affordable to low or moderate-income households. Policies also include requiring that multi-unit housing developments have access to usable open space.

As stated in the application materials, the proponents understand the needs of the rental market as they own a large portfolio of apartment communities ranging in affordability. They have found a gap in the availability of the proposed apartment types. Within their community, they have a waiting list for the type of accommodations this project is providing. As addressed in Finding 7-a-(2)(c), the applicant has proposed a density increase of 20%, based on the exceptional design and special amenities of the proposed development. The proposed development includes more than half of the overall site retained as vegetation, with a trail system proposed and expanded community garden space.

(f) Chapter 10 – Public Facilities and Services

Chapter 10 focuses on the provision of high quality, consistent, and reliable public facilities and services, which are integral to the future growth and livability of Milwaukie. Policies include maintaining and enhancing levels of public facilities and services to city residents, businesses, and vulnerable populations.

The applicant team has performed preliminary investigations into the existing infrastructure including a transportation study to analyze the impacts of increased traffic on the existing city infrastructure. Increased storm water, sewer, domestic and fire water supply as a result of this 100-unit development have also been reviewed and calculated. The submitted application materials include these analyses confirming the adequacy of the existing systems. The existing public

transportation facilities, utilities, and available services are adequate to support the proposed development.

(g) Chapter 13 - Transportation

Chapter 5 addresses the City's responsibility to support a multimodal approach to transportation planning in a way that reflects how citizens think about and experience the transportation system. Policies include developing and maintaining a safe and secure transportation system and provide travel choices to allow people to reduce the number of trips made by single-occupant vehicles. Additional policies include maintaining a set of design and development regulations that are sensitive to local conditions to create a well-connected transportation system that is sustainable and meets the needs of current and future generations.

The City's Transportation System Plan (TSP) is an ancillary Comprehensive Plan document that contains the City's long-term transportation goals and policies. The applicant's TIS demonstrates consistency with the TSP and asserts that the proposed development will not result in significant impacts to the surrounding transportation system.

As conditioned, the proposed amendment is consistent with the goals and policies of the Comprehensive Plan, including the Land Use Map.

(7) The proposed amendment is consistent with the Metro Urban Growth Management Functional Plan and relevant regional policies.

The Metro Urban Growth Management Functional Plan includes a number of titles that address various aspects of the region's goals and policies for urban development.

(a) Title 1 Housing Capacity

The proposed development will provide a large number of needed housing units in a compact urban form.

(b) Title 7 Housing Choice

The proposed development will provide needed multi-unit rental housing and will support Metro's policies for expanding housing choice with a needed housing type in Milwaukie.

(c) Title 13 Nature in Neighborhoods

The proposed development supports Metro's policies for conserving and enhancing habitat areas by minimizing impacts to the wooded area via a compact development, maintaining more than one-half of the site in vegetation, removing invasive species, and developing a trail system for residents.

The proposed amendment is consistent with the Metro Urban Growth Management Functional Plan and relevant regional policies.

(8) The proposed amendment is consistent with relevant State statutes and administrative rules, including the Statewide Planning Goals and Transportation Planning Rule.

Several of the Statewide Planning Goals are relevant to the proposed amendment:

(a) Goal 2 Citizen Involvement

Prior to submitting the application, the applicant attended a meeting of the Historic Milwaukie Neighborhood District Association on July 13, 2020 to present the project. The applicant noted that the neighbors spoke highly of the current Waverley Greens apartment properties and noted the quality landscaping and community amenities. Overall, the community reaction to the presentation was positive with attendees looking forward to walking through the wooded areas and perhaps even being future tenants.

The Type IV review process utilized for consideration of any Planned Development provides for public hearings by both the Planning Commission and City Council, where citizens have the opportunity to present testimony and participate in the decision-making process. A public hearing on the proposed development was held by the Planning Commission on October 27, 2020; a public hearing was held by the City Council on [month/day], 2020. The Commission and Council considered testimony from citizens en route to reaching the decision reflected in these findings.

(b) Goal 10 Housing

As addressed in Finding 7-b(6) and elsewhere in these findings, the proposed development would provide 100 units of much-needed rental housing to the city.

(c) Goal 12 Transportation and Transportation Planning

As addressed in Finding 14 and elsewhere in these findings, the applicant's TIS demonstrates that the proposed development will not require changes to the functional classification of existing or planned transportation facilities and will not result in significant impacts on the transportation system.

(d) Goal 15 Willamette River Greenway

As addressed in Finding 8 and elsewhere in these findings, the proposed development is not incompatible with the river, particularly because it is located more than 1,000 ft from the river. By maintaining the existing forest and specifically orienting the new development, the views from the river will be minimally impacted. New opportunities for views to the river are proposed through the creation of recreational paths in the existing forest and removing invasive species and dead/diseased trees along with curating views from the development itself. Overall, the project will increase the opportunities for visual enjoyment of the river and its surrounding environment while minimally impacting the views from and/or across the river.

As conditioned, the proposed amendment is consistent with relevant State statutes and administrative rules, including the Statewide Planning Goals and Transportation Planning Rule.

The proposed amendment, as conditioned, is consistent with the applicable criteria for zoning map amendments.

As conditioned, the City Council finds that the proposed amendment to the City's Zoning Map is approvable.

13. The application was referred to the following departments and agencies on September 17, 2020:
    - Milwaukie Building Division
    - Milwaukie Engineering Department
    - Milwaukie Public Works Department
    - Clackamas County Fire District #1
    - Island Station Neighborhood District Association Chairperson and Land Use Committee
    - Oregon Marine Board
    - Oregon Department of Fish and Wildlife
    - Division of State Lands – Wetlands and Waterways
    - Oregon Parks and Recreation Department
    - North Clackamas Parks and Recreation District

    In addition, notice of the public hearing was mailed to owners and residents of properties within 400 ft of the subject property on October 7, 2020.

    Agency and NDA comments received are summarized as follows:

    - **Kate Hawkins, Development Review Planner and Avi Tayar, P.E., Oregon Department of Transportation:** Comments related to crash history analysis and Year 2021 queuing analysis in the submitted TIS. Recommendations were that the applicant should evaluate any contributing factors and demands and identify potential improvements. The applicant submitted a response to the review memo and ODOT stated that they agreed with the supplemental analysis. While there may be concerns with queues and crashes at the intersection of the 17th Ave/Harrison St/OR-99E, the proposed development does not appear to have a significant impact on these conditions and no additional mitigation is necessary.

    Public comments received are summarized as follows:

    - **Merrie Loboy, 1400 SE Lava Dr:** comments related to request for improvements to Lava Dr and the road bed.

- **Gloria Stone, Cambridge Ln:** lengthy comments related to: the fact that the residential R-10 zone is adjacent to the R-2 zone; views and the Willamette Greenway; impacts on the forest resource on the property; light and noise pollution; impacts on solar access and views; and impacts on stormwater and drainage. Overall impacts of this development on nearby single-unit dwellings.
- **Steve Reaume, 10240 SE Cambridge Ln:** Concerns related to density, building height, setbacks to adjacent properties, and impacts to privacy. Comments included recommendations for increased setbacks and additional plantings.
- **Rosie McGee, 1400 SE Lava Dr., Bldg A:** Questions regarding access from Lava Dr and plans for construction access.
- **Richard Recker:** Comments related to: economic impact of the development on city residents and area businesses; measuring the merits of the proposal relative to equity in the future; and impacts to natural resources and climate change.
- **Patti Justice, 10252 SE Cambridge Ln:** Lengthy comments similar to Ms. Stone's comments, including a recommendation to not allow the 4-story buildings.

ATTACHMENT 2
Conditions of Approval
Master File # PD-2020-001
Waverly Woods, 10415 SE Waverly Ct

1. Applicant must construct the project in compliance with all Public Works Standards and the requirements identified in Other Requirements.

2. Building Permit Submittal

   The applicant must submit a Type I Development Review application with final plans for construction of the project. The purpose of the Type I Development Review is to confirm that the final construction plans are substantially consistent with the land use approval. The final construction plans must address the following:

   a. Final plans submitted for construction permit review must be in substantial conformance with plans approved by this action, which are the plans stamped received by the City on August 4, 2020, except as otherwise modified by these conditions.

   b. Provide a narrative describing all actions taken to comply with these conditions of approval.

   c. Provide a narrative describing any changes made after the issuance of this land use decision that are not related to these conditions of approval.

   d. Final plans submitted for construction permit review must include details of the bike stall dimensions to confirm that the applicable standards are met.

   e. Final plans submitted for construction permit review must include a photometric plan showing compliance with lighting standards.

   f. Final plans submitted for construction permit review must include details of the perimeter fence which must be repaired and/or replaced and must be maintained in good condition.

   g. Final plans submitted for construction permit review must include a final landscaping plan which must include additional buffer plantings along the western boundary to mitigate visual impacts to neighboring properties.

3. Prior to issuance of development permits, the following must be resolved:

   a. Prior to commencement of any earth-disturbing activities, the applicant must obtain an erosion control permit from the City.

   b. Prior to commencement of any earth-disturbing activities, tree protection measures must be in place and maintained throughout construction. Tree protection fencing is required to be installed a minimum of 10 ft from the trunk of the existing trees on the site. Fencing must be maintained throughout the duration of construction and will be inspected. No disturbance is permitted within the fenced area.

4. Prior to final occupancy, the following must be resolved:

    a. Public Improvements as shown on the plans received by the City on August 4, 2020, except as otherwise modified by these conditions:

        (1) Where intersection site distance cannot be met, mitigation measures subject to City Engineer approval must be proposed

        (2) Sufficient asphalt repair on SE Waverly Ct fronting the development to be verified during construction (current plans show 2-inch grind and overlay).

        (3) Stormwater improvements must be reviewed and deemed compliant with MMC 12.02 and MMC 13.14, including locating assets where inspection and maintenance activities can feasibly occur (current plans locate public manholes, including filter cartridge manhole, in locations not yet approved by the City).

    b. Dedication/Easement Requirements as shown on the plans received by the City on August 4, 2020, except as otherwise modified by these conditions.

5. Expiration of Approval

    a. As per MMC Subsection 19.311.16, if substantial construction or development on Phase 1, in compliance with the approved final development plan and program, has not occurred within 12 months of its effective date, the Planning Commission may initiate a review of the PD Zone and hold a public hearing to determine whether its continuation (in whole or in part) is in the public interest. Notification and hearing shall be in accordance with MMC Section 19.1007 Type IV Review. If found not to be, the Planning Commission shall recommend to the City Council that the PD Zone be removed by appropriate amendment to the Zoning Ordinance and the property changed back to original zoning.

    b. As per MMC Subsection 19.311.17, the total time period of construction of all phases of this development shall not exceed 7 years, as measured from the date of approval of the final development plan until the date that building permit(s) for the last phase is (are) obtained. The required public infrastructure must be constructed in conjunction with or prior to each phase.

ATTACHMENT 3
Other Requirements
Master File # PD-2020-001
Waverly Woods – 10415 SE Waverly Ct

The following items are not conditions of approval necessary to meet applicable land use review criteria. They relate to other development standards and permitting requirements contained in the Milwaukie Municipal Code (MMC) and Public Works Standards that are required at various points in the development and permitting process.

1. The level of use approved by this action shall be permitted only after issuance of a certificate of occupancy.

2. Limitations on Development Activity.

   Development activity on the site shall be limited to 7:00 a.m. to 10:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. Saturday and Sunday, as provided in MMC Subsection 8.08.070(I).

3. Landscaping Maintenance.

   As provided in MMC Subsection 19.606.2.E.3, required parking area landscaping shall be maintained in good and healthy condition.

4. Applicant must submit an access and water supply plan as required by the Clackamas Fire District #1 for full review and approval.

5. Final Development Plan and Program

   As per the requirements of MMC Subsection 19.311.12 through 19.311.15, no excavation, grading, construction, improvement, or building shall begin, and no permits therefor shall be issued, until the following items must be addressed regarding the final development plan and program:

   a. Prior to the effective date of the ordinance adopting the final development plan and program and accompanying change to the zoning map, file with the City Recorder's office a final development plan and program that includes any modifications that were part of the final plan approved by City Council.

   b. The City shall prepare a notice to acknowledge that the final development plan and program approved by City Council constitutes zoning for the subject property. The notice shall contain a legal description of the property and reference to the certified copy of the final development plan and program filed in the office of the City Recorder. The applicant shall record a copy of this acknowledgment notice in the County Recorder's office.

   c. An application for approval of variations to the recorded final plan and program may be submitted in writing. Such variations may be approved by the City staff provided they do not alter dwelling unit densities, alter dwelling unit type ratios, change the

boundaries of the planned development, or change the location and area of public open spaces and recreational areas.

6. Prior to, or concurrent with, building permit submittal, the following must be resolved:
   a. Submit full-engineered plans for construction of all required public improvements, which must be reviewed and approved by the City of Milwaukie Engineering Department.
   b. Obtain a right-of-way permit for construction of all required public improvements listed in these recommended conditions of approval.
   c. Pay an inspection fee equal to 5.5% of the cost of the public improvements; at time of plan submittal, a plan review fee of 1.5% is required, the balance of the 5.5% is required at time of issuance of the right-of-way permit.
   d. Provide a payment and performance bond in the amount of 130 percent of the approved engineer's estimate or contractor's bid cost of the required public improvements.
7. Prior to final inspection, the following must be resolved:
   a. Provide a final approved set of electronic PDF red-lined "As Constructed" drawings to the City of Milwaukie.
   b. Install all underground utilities, including stubs for utility service, prior to surfacing any streets.
   c. Clear vision areas shall be maintained at all driveways and accessways and on the corners of all property adjacent to an intersection.
8. Prior to final acceptance, the following must be resolved:
   a. Provide a final approved set of digitally signed, electronic PDF "As Constructed" drawings to the City of Milwaukie.
   b. Provide a 2-year maintenance bond in the amount of 10 percent of the approved engineer's estimate or contractor's bid cost of the required public improvements.
9. Other Engineering Requirements.

   Submit a final stormwater management plan to the City of Milwaukie Engineering Department for review and approval. The plan shall be prepared in accordance with Section 2 - Stormwater Design Standards of the City of Milwaukie Public Works Standards. In the event the stormwater management system contains underground injection control devices, submit proof of acceptance of the storm system design from the Department of Environmental Quality.

   The stormwater management plan shall demonstrate that the post-development runoff does not exceed pre-development runoff, inclusive of any existing stormwater management facilities serving the development site.

The stormwater management plan shall demonstrate compliance with water quality standards in accordance with the City of Portland Stormwater Management Manual.

Development/building permits will not be issued for construction until the stormwater management plan has been approved and deemed compliant with MMC 12.02 and MMC 13.14 by the City of Milwaukie.

MILWAUKIE PLANNING
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Milwaukie OR 97206
503-786-7630
planning@milwaukieoregon.gov

Application for Land Use Action

Master File #: PD-2020-001

Review type*: ☒ I ☒ II ☑ III ☒ IV ☐ V

CHOOSE APPLICATION TYPE(S):

TFR-2020-002;
WG-2020-001;
PLA-2020-001

Planned Development

Willamette Greenway Review

Land Division: Property Line Adjustment

...

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APPLICATION ACCEPTED ON AUGUST 3, 2020
FEES PAID ON **AUGUST 4, 2020**
= **APPLICATION DATE**

Use separate application forms for:
- Annexation and/or Boundary Change
- Compensation for Reduction in Property Value (Measure 37)
- Daily Display Sign
- Appeal

RESPONSIBLE PARTIES:

APPLICANT (owner or other eligible applicant—see reverse): [redacted]

Mailing address: [redacted] State/Zip: [redacted]

Phone(s): [redacted] Email: [redacted]

Please do not include my contact information on public notices or on the City website: ☑

APPLICANT'S REPRESENTATIVE (if different than above): Phil Krueger - YGH Architecture

Mailing address: 707 SW Washington St, Suite 1200, Portland State/Zip: Oregon/97205

Phone(s): 503-715-3224 Email: philk@ygh.com

SITE INFORMATION:

Address: 10415 SE Waverley Ct Map & Tax Lot(s): 11E26DC02100,11E26DC02200, 11E26DC02400

Comprehensive Plan Designation: HD Zoning: R-2 Size of property: 10.90 Acres

PROPOSAL (describe briefly):

Multi-family apartment development consisting of 4 residential buildings, a community center with pool, and community room built over 3 phases totaling 100 units (primarily 2 BR units with some 1 BR and 3BR units).

SIGNATURE:

ATTEST: I am the property owner or I am eligible to initiate this application per Milwaukie Municipal Code (MMC) Subsection 19.1001.6.A. If required, I have attached written authorization to submit this application. To the best of my knowledge, the information provided within this application package is complete and accurate.

Submitted by: Philip H Krueger Digitally signed by Philip H Krueger DN: C=US, E=philk@ygh.com, O=YGH Architecture, CN=Philip H Krueger Date: 2020.07.17 14:48:12-07'00' Date: July 17, 2020

IMPORTANT INFORMATION ON REVERSE SIDE

*For multiple applications, this is based on the highest required review type. See MMC Subsection 19.1001.6.B.1.

WHO IS ELIGIBLE TO SUBMIT A LAND USE APPLICATION (excerpted from MMC Subsection 19.1001.6.A):

Type I, II, III, and IV applications may be initiated by the property owner or contract purchaser of the subject property, any person authorized in writing to represent the property owner or contract purchaser, and any agency that has statutory rights of eminent domain for projects they have the authority to construct.

Type V applications may be initiated by any individual.

PREAPPLICATION CONFERENCE:

A preapplication conference may be required or desirable prior to submitting this application. Please discuss with Planning staff.

REVIEW TYPES:

This application will be processed per the assigned review type, as described in the following sections of the Milwaukie Municipal Code:

- Type I: Section 19.1004
- Type II: Section 19.1005
- Type III: Section 19.1006
- Type IV: Section 19.1007
- Type V: Section 19.1008

Note: Natural Resource Review applications **may require a refundable deposit.** Deposits require completion of a Deposit Authorization Form, found at www.milwaukieoregon.gov/building/deposit-authorization-form.

THIS SECTION FOR OFFICE USE ONLY:

FILE TYPE	FILE NUMBER	AMOUNT (after discount, if any)	PERCENT DISCOUNT	DISCOUNT TYPE	DATE STAMP
Master file	PD-2020-001	~~prelim = $1,500~~ $final = $5,000	~~25%~~		
Concurrent application files	TFR-2020-002	$ 750 + 2500	25% (LU fee only) + ~~review deposit~~	PAID	
	WG-2020-001	$ 1,500			
	PLA-2020-001	$ 150			
		$ $8,150			
Deposit (NR only)				☐ Deposit Authorization Form received	
TOTAL AMOUNT RECEIVED: $			RECEIPT #:		RCD BY:

Associated application file #s (appeals, modifications, previous approvals, etc.):

Neighborhood District Association(s): Historic Milwaukie

Notes:

MILWAUKIE PLANNING
6101 SE Johnson Creek Blvd
Milwaukie OR 97206
503-786-7630
planning@milwaukieoregon.gov

Submittal Requirements

For all Land Use Applications
(except Annexations and Development Review)

All land use applications must be accompanied by a signed copy of this form (see reverse for signature block) and the information listed below. The information submitted must be sufficiently detailed and specific to the proposal to allow for adequate review. Failure to submit this information may result in the application being deemed incomplete per the Milwaukie Municipal Code (MMC) and Oregon Revised Statutes.

Contact Milwaukie Planning staff at 503-786-7630 or planning@milwaukieoregon.gov for assistance with Milwaukie's land use application requirements.

1. **All required land use application forms and fees**, including any deposits.

   Applications without the required application forms and fees will not be accepted.

2. **Proof of ownership or eligibility to initiate application** per MMC Subsection 19.1001.6.A.

   Where written authorization is required, applications without written authorization will not be accepted.

3. **Detailed and comprehensive description** of all existing and proposed uses and structures, including a summary of all information contained in any site plans.

   Depending upon the development being proposed, the description may need to include both a written and graphic component such as elevation drawings, 3-D models, photo simulations, etc. Where subjective aspects of the height and mass of the proposed development will be evaluated at a public hearing, temporary onsite "story pole" installations, and photographic representations thereof, may be required at the time of application submittal or prior to the public hearing.

4. **Detailed statement** that demonstrates how the proposal meets the following:

   A. All applicable development standards (listed below):

      1. **Base zone standards** in Chapter 19.300.
      2. **Overlay zone standards** in Chapter 19.400.
      3. **Supplementary development regulations** in Chapter 19.500.
      4. **Off-street parking and loading standards and requirements** in Chapter 19.600.
      5. **Public facility standards and requirements**, including any required street improvements, in Chapter 19.700.

   B. All applicable application-specific approval criteria (check with staff).

   These standards can be found in the MMC, here: www.qcode.us/codes/milwaukie/

5. **Site plan(s), preliminary plat, or final plat** as appropriate.

   See Site Plan, Preliminary Plat, and Final Plat Requirements for guidance.

6. **Copy of valid preapplication conference report**, when a conference was required.

APPLICATION PREPARATION REQUIREMENTS:

- Five hard copies of all application materials are required at the time of submittal. Staff will determine how many additional hard copies are required, if any, once the application has been reviewed for completeness. Provide an electronic version, if available.
- All hard copy application materials larger than 8½ x 11 in. must be folded and be able to fit into a 10- x 13-in. or 12- x 16-in. mailing envelope.
- All hard copy application materials must be collated, including large format plans or graphics.

ADDITIONAL INFORMATION:

- Neighborhood District Associations (NDAs) and their associated Land Use Committees (LUCs) are important parts of Milwaukie's land use process. The City will provide a review copy of your application to the LUC for the subject property. They may contact you or you may wish to contact them. Applicants are strongly encouraged to present their proposal to all applicable NDAs prior to the submittal of a land use application and, where presented, to submit minutes from all such meetings. NDA information: www.milwaukieoregon.gov/citymanager/what-neighborhood-district-association.
- By submitting the application, the applicant agrees that City of Milwaukie employees, and appointed or elected City Officials, have authority to enter the project site for the purpose of inspecting project site conditions and gathering information related specifically to the project site.
- Submittal of a full or partial electronic copy of all application materials is strongly encouraged.

As the authorized applicant I, (print name) Philip Krueger, attest that all required application materials have been submitted in accordance with City of Milwaukie requirements. I understand that any omission of required items or lack of sufficient detail may constitute grounds for a determination that the application is incomplete per MMC Subsection 19.1003.3 and Oregon Revised Statutes 227.178. I understand that review of the application may be delayed if it is deemed incomplete.

Furthermore, I understand that, if the application triggers the City's sign-posting requirements, I will be required to post signs on the site for a specified period of time. I also understand that I will be required to provide the City with an affidavit of posting prior to issuance of any decision on this application.

Applicant Signature: Philip H Krueger Digitally signed by Philip H Krueger DN: C=US, E=phk@ygh.com, O=YGH/Architecture, CN=Philip H Krueger Date: 2020.07.28 11:03:04-07'00'

Date: 7/28/2020

Official Use Only

Date Received (date stamp below):

Received by: _____

WAVERLEY WOODS APARTMENT DEVELOPMENT PLAN

10415 SE Waverly Ct. Milwaukie, OR 97222

Planned Development Preliminary Submission
CITY FILE# 20-003PA
July 28, 2020

WALKER VENTURES, LLC.
YGH Architecture

Development Description

The Waverley Woods residential development will be the newest addition to the existing Waverley Greens Apartment communities. The site is located within the Willamette Greenway Zone Overlay and is zoned R-2. The existing site contains a ridge with steep slopes in the middle of the property and is heavily wooded. The site includes three tax lots (11E26DC02100,11E26DC02200 and 11E26DC02400) and has a total area of approximately 10.76 acres. The application includes a lot line adjustment that would revise the three parcels to include Parcel 1 (11E26DC02400) at 2.15 acres for the existing Dunbar Woods apartments, Parcel 2 (11E26DC02100) to be 6.77 acres for this proposed development and parcel 3 (11E26DC02200) to be 1.84 acres for a future development. Without approval as a Planned Development, Parcel 2 would have a minimum density of 78 units and the maximum density of 84 units. This application refers only to development of Parcel 2, and all references to the "site," development," or "property" are to Parcel 2, unless otherwise noted.

Waverley Woods will become a new member of the Waverley Greens residential communities, currently made up of 325 apartments in six diverse apartment communities. Waverley Greens has been a Wyse family-owned business since 1971. Its mission is to provide superior apartments, grounds, services, and amenities to encourage a contented, long-term tenant population. Tenants can take advantage of a community garden, dog walk, sports court, exercise room, and a variety of free classes, ranging from water aerobics and yoga to art and writing classes. Waverley Greens has joined with the Oregon Energy Trust to upgrade units and has installed the largest solar array of any apartment complex in Oregon.

The Planned Development will involve the phased construction of (4) multifamily apartment buildings. The 100 apartments will primarily be spacious 2-bedroom units with (16) 1-bedroom units provided in Buildings A.1 and A.2 along the Ridge. The site is divided into two areas - the Ridge in the middle and the Gardens to the north. The Ridge buildings are built into the slope, allowing four residential levels over parking, which provide dramatic views toward the Willamette River. The Garden buildings have three residential levels over parking, and their lower height relates to the pedestrian scale of the adjacent public street. Access to the development will be from SE Waverly Court, and a traffic impact assessment has been provided which indicates no changes are needed in intersection traffic control based on trip increase from the development. The project will be phased so that Building A.1 (32 units) will be built along the Ridge in phase 1 and Building A.2 (32 units) and the associated community building will occur in phase 2. The two Gardens Buildings B.1 (18 units) and B.2 (18 units) and the community center with pool would be developed in Phase 3.

Secure parking for tenants will be provided below all buildings, with visitor parking adjacent to entries along the internal streets. A total of 108 parking spaces will be provided below the buildings, and there will be 30 parking spaces along the private project roads. The 138 parking spaces provided exceed the minimum parking requirement by 13 spaces. The location of parking below buildings will minimize surface parking and increase amount of landscape and tree area. The below-building parking levels will be open-air but secure for tenant-only access. Bike parking in each building will accommodate 1 bike per unit with 50% to be in secured, covered parking in the parking garage below the units and 50% to be in open bike parking in the front of each building as per section 19.609 and the Multifamily Guidelines and Standards 19.505.3.D.

Trash handling will be accommodated with a trash chute on each floor leading to a large central trash/ recycling room on the parking level. Residents will be responsible for bringing recycling to the trash/recycling room where all waste will be collected by on-site maintenance crew and disposed of off-site.

The development will feature a variety of tenant amenities, including a community center at the Garden level with a kitchen, workout space, and meeting rooms. An outdoor pool and patio with southwest views will be adjacent to the community center. The existing community garden is a popular amenity available to all Waverley Greens residents, which will be relocated in phase 3.

The new community garden area will flank the north and east sides of the Phase 3 community center with southern solar exposure. Residents will be able to access the garden easily via the community center loading area should they need to deliver planting material and tools by vehicle.

An additional community facility will be located at the Ridge, between Buildings A.1 and A.2. The facility will include a library, a warming kitchen, wine cellar, bathrooms, and meeting room opening to an expansive river view terrace. The facility will be constructed as part of phase 2. The development plan includes a series of walking paths connecting project communal areas while also allowing tenants to traverse the varied terrain and enjoy views of the river and forest reserve.

The siting of the buildings, their associated access streets, and the grading and utility routing have been laid out to minimize the removal of significant trees. An arborist, included in the design team, has conducted a tree survey of all trees with 6" diameter or larger and provided input to minimize impact to the existing retained wooded areas. A total of 391 trees were found, many of which are invasive species and trees in poor health with removal recommendations. The project is currently on track to save 135 of the existing trees that are healthy and non-invasive. The project will, over time, remove the extensive invasive ivy and blackberry bushes, providing access to the wooded areas throughout the site. Wood from the removed trees within the project will be repurposed when possible.

The Wyse family is interested in responsible, sustainable development. The project held an Energy Development Plan meeting on April 16, 2020 with the Energy Trust of Oregon (ETO), the City of Milwaukie, local utility companies, and solar, energy, water, and infrastructure specialists to discuss opportunities for an energy development plan. The discussion included solar panel locations, alternative energy solutions, an EUI target, carbon goals, aligning with the City of Milwaukie's sustainability goals and strategies to achieve targets. These discussions are on-going, and the project will benefit from additional sustainability analysis in each phase. The Wyse family has already engaged Biohabitats to examine opportunities for water conservation and for wastewater and stormwater treatment and reuse for their existing buildings as well as the new development. The Wyse family is also committed to owning and operating their apartment buildings as long-term investments, so the design incorporates durable materials such as metal wall panel, fiber cement wall panel, and metal roofs.

On July 13, 2020, the Wyse family and design team attended the Historic Milwaukie Neighborhood District Association monthly meeting to present the project. The neighbors spoke highly of the current Waverley Greens apartment properties and noted the quality landscaping and community amenities. Overall, the community reaction to the presentation was positive with attendees looking forward to walking through the wooded areas and perhaps even being future tenants.

Development Requests for Approval

The project is pursuing a Planned Development review to address four key issues: the 20% density increase allowed for exceptional project design, the 150' maximum building length for multifamily housing, the Willamette Greenway Zone 35' height limit, and the 55' maximum height on a sloped site. The project is requesting a 20% density increase to allow 100 units on Parcel 2. This narrative and associated drawings illustrate the project's "outstanding planned land use and design" and many "exceptional advantages in living conditions" that are required for City Council to approve such density increases over regular zoning. In lieu of adding a fifth residential building, the project proposes that the Ridge buildings A.1 and A.2 extend to 203' in length and exceed the 35' building height limit with the addition of a fourth level. These two buildings are the farthest away and downhill from the public street, so the height and length increases will not have a significant visual impact to the surrounding community. The

addition of this fourth floor increases the efficiency of the development's footprint and will use less materials, save more trees and provide more natural space for public walkways and gardens while maintaining the unit counts and staying consistent with the existing building context. The Two 3-level Garden buildings are 150' in length and relating in scale to Waverley Apartment communities to the north and compliant with City code requirements.

Statement on Development Standards

NOTE: The project is proposing with this application the division of the existing lots into three distinct parcels. Project is divided into three parcels (see A1.0 – Site Plan) Parcel 01 = existing Dunbar Apartment complex. Parcel 02 = new construction. Parcel 03 = future development

1.1 Title 19 Milwaukie Zoning Code

Section 19.300 Base Zones

19.302 Medium and High-Density Residential Zones (R-2)

19.302.1 Purpose:

The medium and high-density residential zones are intended to create and maintain higher density residential neighborhoods that blend a range of housing types with a limited mix of neighborhood-scale commercial, office, and institutional uses.

19.302.4 Development Standards

Table19.302.4 (R-2)

A. Lot Standards
   1. Min. Lot size
      c. All other uses = 5,000 sq.ft.
   2. Min. lot width
      b. All other lots = 50 ft.
   3. Min. lot depth
      b. All other lots = 80 ft.
   4. Min. street frontage requirements
      b. Standard Lot = 35 ft.

B. Development Standards
   1. Min. Yard Requirements for primary structures
      a. Front = 15 ft
      b. Side = 5 ft. (Subsection 19.302.5 A)
      c. Street side yard = 15 ft
      d. Rear yard = 15 ft.

   2. Max. building height for primary structures
      A. 3 stories or 45 ft. whichever is less
      Subsection 19.302.5.E Height Exceptions:

      1 additional story may be permitted in excess of the required maximum standard. For each additional story, an additional 10% of site area beyond the minimum is required to be retained in vegetation.

      Response: Through the addition of a 4th story on the Ridge Buildings, Waverley Woods can preserve in excess of 10% of the vegetation on site area beyond the minimum required. This additional area will provide a recreational amenity for residents and neighbors. (See 19.302.5.H.2 Building Limitations for height calculations)

B. Side Yard height plan limit
   a. Height above ground at min. required side yard depth 25 ft.
   b. Slope of plane 45 degrees

C. Max. lot coverage (% of total lot area) = 45%

Response:

Parcel 01 = 94,032 sq.ft. lot with 25,346sqft building = 26.9% lot coverage

Parcel 02 = 294,350 sq.ft. lot with 64,336 sq. ft building = 21.9% lot coverage

Parcel 03 = no proposed building at this time

D. Min. Vegetation (% of total lot area) = 15%
(+10% (25% site vegetation) to qualify for height increase as per 19.302.5.H.2)

Response: Parcel 02: 294,350 sq.ft. lot. 15% = 44,152 sq.ft. (Proposed: An additional story requested as per 19.302.5.E Height Exceptions**:** 25% of lot would need to have vegetation. 25% of site is 73,587.5 sq.ft. (lot vegetation = 128,912 sq.ft.-maintained forest, open recreation area + 1,960 sq.ft. community garden + 28,278 sq.ft. maintained landscaping = 159,150 sq.ft. vegetated area)

Proposed lot vegetation = 54% of the lot (exceeding 25%)

19.302.5.C Min. Vegetation
At least half of min. required vegetation area must be suitable for outdoor recreation by residence, and not have extreme topography or dense vegetation that precludes access.

Response: Area of steep slope = 25% slope or above = 58,904 sq.ft.

58,904 sq.ft. steep slope / 159,150 sq.ft. of site vegetation = 37% of vegetated area is steep slope. (less than 50% of the min required vegetation)

19.504.4 Minimum Vegetation
No more than 20% of the required vegetation area shall be covered in mulch or bark dust. Mulch or bark dust under the canopy of trees or shrubs is excluded from this limit. Plans for development shall include landscaping plans which shall be reviewed for conformance to this standard.

Response: Project will maintain most of the vegetation as natural native growth with maintenance for invasive species, walking paths, open space, and community gardens. Walking paths may be made with mulch or bark in the forested area under the canopy of trees – which is excluded from this limit.

DENSITY
Table 19.302.4 Density Calculations

C. Other Standards				
1. Density requirements (dwelling units per acre)				**Subsection 19.202.4** Density Calculations
a. Minimum	11.6	11.6	25.0	**Subsection 19.302.5.F** Residential Densities
b. Maximum	14.5	17.4	32.0	**Subsection 19.501.4** Density Exceptions

All three proposed parcels meet the required min and max development requirements. Parcel 1 encompasses the existing Dunbar Woods development (94,032 sq.ft.); Parcel 2 the current proposed development (294,250 sq.ft.) and Parcel 3 proposed future development 80,241 sq.ft. Parcel 2 includes steep slopes over 25%. This area has been subtracted from the developable area as required per (see A1.2 – Unit Density and Lot Coverage)

Minimum Density: (*11.6)

Parcel 1: 94,032 sq ft = 2.15 Acres at 11.6 units/acre = **25 Units**

Parcel 2: 294,250 sq ft = 6.755 Acres at 11.6 units/acre = **78 Units**

Parcel 3: 80,241 sq ft = 1.84 Acres at 11.6 units/acre = **21 Units**

Maximum Density: (*17.4)

Parcel 1: 2.15 Acres at 17.4 units/acre = **37 Units (36 Existing)**

Parcel 2: 19.202.4E Excludes all areas with 25% or greater slope (84,374 sq ft = 1.9 Acres)

6.755 Acres – 1.9 Acres = 4.855 Acres

4.855 Acres at 17.4 units/acre = 84 Units

84 Units/Acre with 20% increase = 100.8 (Proposed 100)

*Proposed density exceeds maximum density – Project is requesting 20% density increase as allowable by 19.311.3 C. and 19.501.4 (see below exceptions)

Parcel 3: 1.84 Acres at 17.4 units/acre = 32 Units (0 Proposed – Future Development)

19.311.3 C. Density Increase and Control

The City Council may permit residential densities which exceed those of the underlying zone, if it determines that the planned development is outstanding in planned land use and design and provides exceptional advantages in living conditions and amenities not found in similar developments constructed under regular zoning. In no case shall such density increase be more than 20% greater than the density range prescribed for the primary land use designation indicated in the Comprehensive Plan.

Subsection 19.501.4 Density Exceptions

In exchange for the dedication of parkland, residential density may be increased (and lot sizes decreased) so that overall parcel density remains the same. (Ord. 2051 § 2, 2012; Ord, 2025 § 2, 2011)

Ord. 2051: To encourage a desirable living environment by allowing flexibility in design, minimizing the impact of new construction on existing development, and assuring that natural open spaces and developed recreational areas are provided whenever feasible: Policy 2: In all Planned Unit Developments, a density bonus up to 20% over the allowable density may be granted in exchange for exceptional design quality or special project amenities.

Response: The focus of the Waverley Woods development is to design a sustainable apartment development that preserves and maintains as much of the wooded landscape and natural habitat as possible. To this end, the project team opted to minimize the development footprint by removing a 5th building along the ridge and requesting a height increase for an additional floor of apartments. This 4th residential floor allows the project to maximize the density desired for the site, while minimizing the environmental impacts. Along with maintained walking paths through the wooded areas, the project is proposing a large community garden in the central courtyard (available to the entire Waverley Greens residents), a pool with kitchen access, exercise room, and meeting spaces for teaching classes and community gatherings. The Waverley Greens owners are passionate about creating a sense of community and enriching the lives of their residents. These new spaces will facilitate an increase in the number and types of educational and community opportunities that can be provided to all their diverse residents. The owners strive to provide community experiences for all walks and stages of life.

The project has already worked with the Energy Trust of Oregon during the Development Planning phase and has consulted with an energy and solar consultant to discuss energy efficiency strategies and propose a preliminary solar design for the development.

BUILDING LENGTH

19.302.5.H.2 Building Limitations

Multifamily buildings shall not have an overall horizontal distance exceeding 150 linear ft. as measured from end wall to end wall.

Response: Project is applying for a Planned Development zoning change to allow the extension of the overall building length of the two ridge buildings by 50 ft so that they will be 200 ft from end wall to end wall instead of 150 ft. This 200 ft allows the building to be broken into two smaller massings of 89 ft through the use of a 23 ft. wide, 24 ft 6-inch deep exterior entry recess (see Image 1). This large entry recess allows the building to read as two distinct masses while limiting the footprint of the development along the ridge to two 200 ft buildings rather than three 150 ft buildings. Reducing the development footprint preserves more natural vegetation and open space while maintaining the required density. The 89 ft lengths are further broken up through the undulation of exterior balconies and interior bump outs. The proposed length of the new ridge buildings is not without precedent in the neighborhood. Waverley Hall and Stuart Hall (Image 2), the original development, both exceed 280 ft in width.

Image 1. Ridge Building A-1 entry level showing overall 203' long plan broken into two masses at street.

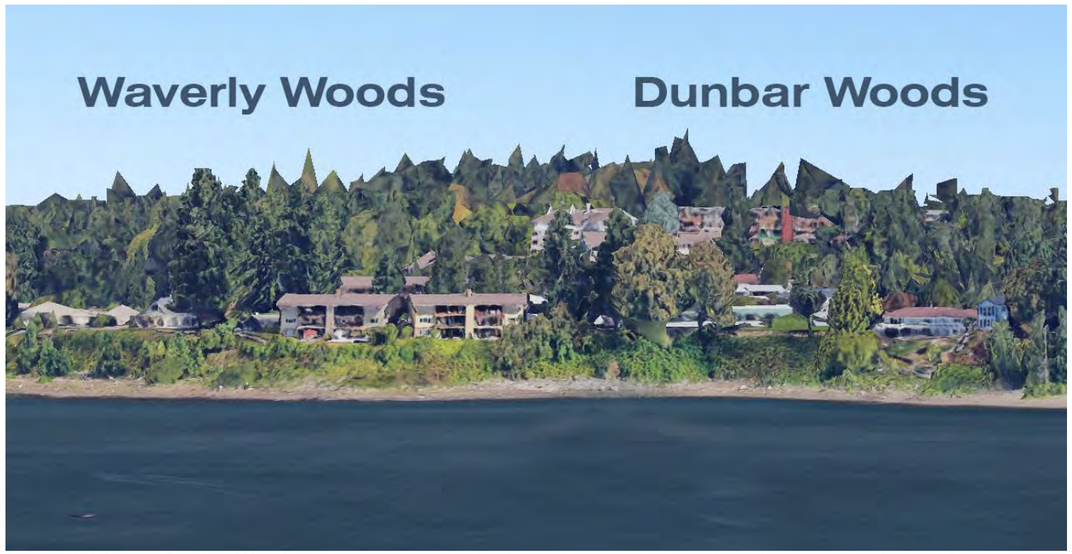


Image 2. View of Dunbar Woods and Waverley Woods site looking north downriver shows minimal visual impact.

With the preservation of tree cover, orientation along the ridge, and the development's seclusion from other private development, our investigations and modeling shows the 50' increase in length will not be perceivable from either the Willamette River or other private residences in the area (see A6.3 – Views From River and A6.1 – Rendered Views). The existing dense tree canopy west of the proposed development extends beyond the proposed building heights, minimizing the visual impact of the additional proposed height from the river (see A2.1 Site Sections).

BUILDING HEIGHT

19.202.2 Vertical Measurements

B. Exterior Height of Primary Structures

The height of a primary structure building is the vertical distance from the base point described in Subsection 19.202.2.B.1, below, to the top of a building described in Subsection 19.202.2.B.2, below.

1.a Base Point Measurement #2. Base point is 10' above lowest grade, when the sidewalk or ground surface within a 5' horizontal distance from the exterior wall of the building, when such sidewalk or ground surface is more than 10' above lowest grade.

Figure 19.202.2.B.1
Base Point Measurement

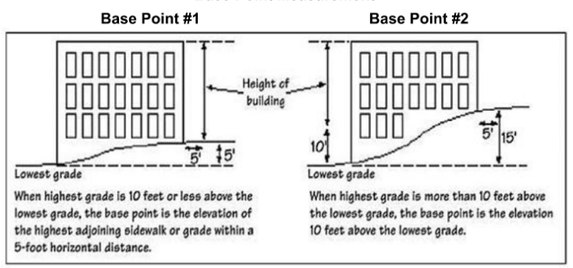
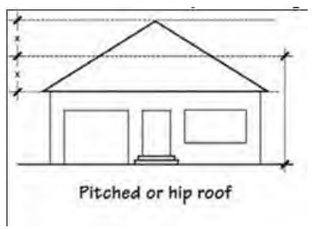


Figure 19.202.2.B.2
Top of Building Measurement



19.302.5.E Height Exceptions

One additional story may be permitted more than the maximum standard if an additional 10% of site area beyond the minimum is retained in vegetation.

Response: Waverley Woods is maintaining 54% the total site as vegetation beyond the 15% min. required (19.302.5.C Min. Vegetation) therefore allowing an extra story beyond the 45' height limit as per this code requirement, making the allowable height of the Ridge Buildings approximately 55' feet.

19.401.3A Willamette Greenway Zone:

35' max height (City of Milwaukie base point is 10' above lowest grade – making total height 45' Max from lowest Grade under Willamette Greenway Zone)

Response: The project would like to determine the height based upon the Milwaukie City code instead of the Willamette Greenway Zone. The Willamette Greenway Zone establishes a boundary 150' inland of the high-water mark of the Willamette River. The Waverly Woods development is well beyond this 150' high water mark and the Waverly Golf Course (not designated within the boundary) lies between the Willamette River and the Waverley Development. The 2018 Milwaukie Comprehensive Plan Update, a Background Report: Willamette Greenway states the "land east of Waverly Golf Course" (our proposed site) was included in the designation without being in this 150' buffer zone or having a clear connection to the river and is subject to review.

The project is requesting Planned Development zoning to increase the allowable height, along the ridge only, to be 65 ft. as measured from Base Point #2 or allow the development to measure height upon Base Point #1 due to the extreme slope of the site skewing the numbers. The height measurement difference between Base Point #1 and Base Point #2 as described in Figure 19.202.2.B.1 varies significantly. The highest grade at its steepest point is 15' above the lowest grade making the height of our building from Base Point #2 62', 18' above the maximum allowable by Milwaukie City code. By contrast, if measurement is taken from Base Point #1, the building is 43' – 8", 1' – 7" below the maximum allowable height by Milwaukie City code (see Image 3 below).

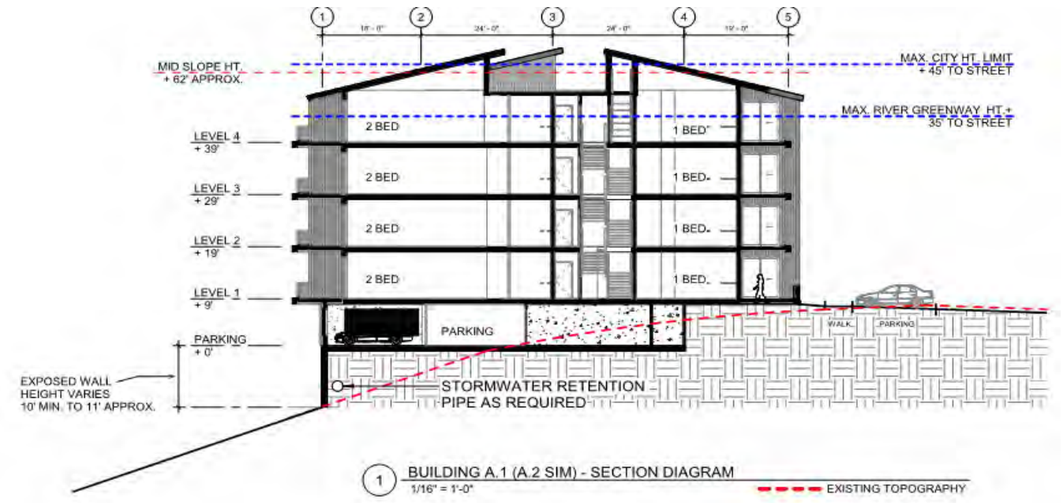


*Image 3. Section of A-1 showing maximum relative building heights between Base Point #1 and Base Point #2

19.311.9 Planned Development

A. Substantial consistency with the proposal approved with Subsection 19.311.6
Response: See below responses to ensure substantial consistency

B. Compliance with Subsections 19.311.1, 19.311.2 and 19.311.3
Response: The project is applying for a Planned Development to comply with the purposes set forth in 19.311.1.

To provide a more desirable environment than is possible through the strict application of Zoning Ordinance requirements; To provide a more efficient, aesthetic, and desirable use of public and private common open space;; and provide an alternative discretionary review process for projects requiring more flexibility than what would be provided through the standard clear and objective development review or land division process.

19.311.1 – Project is providing a more desirable environment than is possible through the strict application of the zoning ordinance requirements. The main objective of the development is to minimally impact the site to retaining as much of the existing tree canopy as possible and maximize vegetated space. Provide recreational opportunities and appreciation for the natural environment while maximizing the density opportunity. To achieve this, the project has proposed three strategies. 1. In lieu of developing a fifth residential building, the project proposes adding an additional story to the two ridge buildings and 2. increase the length of the two ridge buildings to 203'. 3. Taking advantage of the naturally sloping topography, the opportunity to tuck most of the required parking under the building minimizes surface parking, further increasing the vegetated area. Through these proposals, the site is able to retain 54% of the vegetated area while maximizing the density (see A1.5 – Forested Areas and Walkways) The existing dense tree canopy west of the proposed development extends beyond the proposed building heights, minimizing the visual impact of the additional proposed height from the river (see A2.1 Site Sections).

19.311.2 – Project complies with all use requirements laid out in this standard. See 19.401.6 J for compliance with City's Comprehensive Plan. Development proposed is a multi-family apartment complex located within a neighborhood of existing multifamily apartments all owned by the Wyse family. Each having a unique character, but cohesive and harmonious as a neighborhood. Through initial utility research, the capacity of the existing utilities have been assessed as part of the proposed development. The development is designed to serve primarily the residence of the planned development and surrounding community.

19.311.3 Development Standards. The development is on land suitable for the proposed development and is of sufficient size to be planned and developed consistent with this zone. The project recognizes the requirements the City may impose on sewer lines, water lines, roads and street or other service facilities and has done preliminary studies to ensure the sizing is known for the existing infrastructure. The project requests the allowable 20% density increase to assist with the development of the community amenities proposed. Review "Development Description" and "Development Requests for Approval" at the start of this document for additional details. The project provides ample wooded setbacks in its peripheral yards, the smallest of which is 30' in depth (See A1.0 – Site Plan). The project is proposing 54% of the site to be vegetated open space set aside for scenic, landscaping, or open recreational purposes.

C. The proposed amendment is compatible with the surrounding area based on the following factors:
1. Site location and character of the area.
2. Predominant land use pattern and density of the area.
3. Expected changes in the development pattern for the area.
Response: The proposed amendment is compatible with the surrounding area based upon the site location and character of the area. As noted above, the dense, tall forest minimizes the impact of the taller, wider buildings on the ridge from the Willamette River and the breaking up of the length into two distinct masses minimizes the appearance from the street. Regardless, the existing multifamily structures in the neighborhood exceed the lengths proposed in this development with the existing Stuart and Waverley Hall Apartments located to the east of this development both ranging in over 284' in length. The proposed development is consistent with the predominant land use pattern and density of the area as it is surrounded by existing multifamily apartment complexes. There are no expected changes in the development patten for the area. The area is designated med-high density residential and this development is the last undeveloped tract of land in the community. Reading through the May 2020 City of Milwaukie Comprehensive Plan, there are no city plans to change the development pattern for the area.

D. The need is demonstrated for uses allowed by the proposed amendment.
Response: The Wyse family understands the needs of the rental market as they own a large portfolio of apartment communities ranging in affordability. They have found a gap in the availability of the proposed apartment types. Within their community, they have a waiting list for the type of accommodations this project is providing. The City of Milwaukie's Comprehensive Plan recognizes increased housing is a need to be addressed as more people are moving to the Pacific Northwest and there is a housing shortage.

E. The subject property and adjacent properties presently have adequate public transportation facilities, public utilities, and services to support the use(s) allowed by the proposed amendment, or such facilities, utilities, and services are proposed or required as a condition of approval for the proposed amendment
Response: The development has already preformed preliminary investigations into the existing infrastructure including a traffic study to analyze the impacts of increased traffic on the existing city infrastructure. Increased storm water, sewer, domestic and fire water as a result of this 100-unit development have also been reviewed and calculated. Please review the additional submitted documentation for compliance. It is the development team's analysis that the existing public transportation facilities, utilities, and services are adequate to support the proposed development.

F. The proposal is consistent with the functional classification, capacity, and level of service of the transportation system. A transportation impact study may be required subject to the provisions of Chapter 19.700.
Response: A transportation impact study has been included as part of this submission

G. Compliance with all applicable standards in Title 17 Land Division.
Response: Project has reviewed and is complying with all applicable Title 17 Land Division Standards. Project is applying for a property boundary change as part of this Planned Development submission. Proposed boundary changes meet all criteria for approval in section 17.12.030. The boundary change will still allow reasonable development and as calculated in section 19.302.4 Density Calculations, the proposed boundaries do not impact the minimum density requirements for any of the new parcels. Reference this document for demonstrated compliance with Title 19.

H. Compliance with all applicable development standards and requirements
Response: Please review the submitted documents for compliance.

I. The proposal demonstrates that it addresses a public purpose and provides public benefits and/or amenities beyond those permitted in the base zone.
Response: The base zone – R2 allows for residential development. This project is proposing much more than a series of new buildings. It is fulfilling and expanding needed amenities for the existing six communities of Waverley Greens Apartments. It is providing more places for community gathering and celebration. The proposed two new community centers and outdoor amenities provide places for the inhabitants to garden, swim, eat, celebrate, meet, organize, and educate themselves. The existing community already partners with local educators to provide classes to its residents. This proposal will increase the number of spaces and opportunities for these experiences. The project is nestled harmoniously within an existing natural forest. The proposal includes relocating and enlarging the community garden which is an extremely popular amenity and creating walkable paths through the forested area with peak-a-boo views of the Willamette River in an area

which was once unpassable. This development is seeking to maximize density and minimize its footprint to create an urban development within an urban forest. Fulfilling the needs for more housing while providing more natural recreation spaces to improve occupant health and exposure to and appreciation for our natural environment. Through the project's sustainable design, the project further will also reduce its operational footprint. As more directly address in the subsequent sections, through the approval of the additional height allowance and width of the building the project is able to take advantage of the natural topography on the site to tuck parking under the buildings. The parking level pushes the building to exceed the Willamette Greenway Zone height limit, but still within the allowable City of Milwaukie code. Tucking the parking under the building saves the development from surface parking allowing the project space to maintain the forested areas, add additional community spaces, community gardens and other amenities.

19.401 Willamette Greenway Zone WG

19.401.6 Criteria

A. Whether the land to be developed has been committed to an urban use, as defined under the State Willamette River Greenway Plan:
Response: The land for the proposed project has been committed to an urban use as defined under the State Willamette River Greenway Plan. The City of Milwaukie has designated the use of this land as R-2, residential, medium and high-density development.

B. Compatibility with the scenic, natural, historic, economic, and recreational character of the river
Response: The proposed development is consistent with the multi-family character of the surrounding area and in its relationship with the river. As seen in Image 2 and on G0.2, there proposed development is set back from the river with a buffer of an existing golf course and multiple existing multi-family developments closer and more exposed to the river. Maintaining the natural tree canopy and forested nature of the site are important aspects to this development. This includes the addition of recreational walking paths through the forested site.

C. Protection of views both toward and away from the river
Response: As seen in Image 2 above, by maintaining the existing forest and carefully orienting the new development, the views from the river will be minimally impacted. New opportunities for views to the river are being creating by the development through the creation of recreational paths in the existing forest removing invasive species and dead/diseased trees along with curating views from the development itself. Overall, the project will increase the opportunities for visual enjoyment of the river and its surrounding environment while minimally impacting the views from and/or across the river.

D. Landscaping, aesthetic enhancement, open space and vegetation between the activity and river, to the maximum extent practicable
Response: As seen in A1.0 and Image 4 below, the development footprint is located to the north east portion, the farthest corner away from the river, of the site. The south and west of the site are devoted to walking paths and recreational uses for the residents along with maintaining habitat corridors. The development itself has no direct connection to the river as is Waverley Greens Golf course, private residences, and other multi-family developments are between the development and the river.

*Image 4. Surrounding development and proximity to the Willamette River

E. Public access to and along the river, to the greatest possible degree, by appropriate legal means
Response: See Image 4 above, there is no public access from the site to the river from the proposed development or its surrounding area.

F. Emphasis on water-oriented and recreational uses
Response: As seen in image 4 above, there is no direct access to the river from the site. Increased access to views of the river will be created by the development.

G. Maintain or increase views between the Willamette River and downtown
Response: See responses above. In addition, the added height of the development will allow for increased views of the Willamette River and to downtown Milwaukie.

H. Protection of the natural environment according to regulations in Section 19.402
Response: Project is removing invasive species, dead and diseased trees and improving the overall health of the forested area on the site. Development has chosen to reduce its development footprint through the addition of one level on two of the proposed buildings to allow more area for recreation, forest and habitat creation. Project development will adherence to Section 19.402 throughout construction and development.]

I. Advice and recommendations of the Design and Landmark Committee, as appropriate
Response: Project is not located in historic area or downtown Milwaukie. The Design and Landmark Committee was not called upon to review current project. The project did present the development plan to the Historic Milwaukie Neighborhood District Association and received a positive response. No additional advice or recommendations were made on the behalf of the Historic Milwaukie NDA for the project.

J. Conformance to applicable Comprehensive Plan policies
Response: The proposed development is striving to maximize density while minimizing development footprint to increase urban tree canopy, recreational areas, while also providing additional community spaces - key aspects of the Milwaukie Comprehensive Plan. To achieve the density goals, the project is requesting a height increase from the Willamette Greenway Zone restriction of 35'-0" to add an additional story to the project in lieu of developing a third building along the ridge. The steep topography of the site further exacerbates the code definition of height limits as there is roughly 20'-0" of grade change from the front to the back of the building.
According to the May 2020 City of Milwaukie Comprehensive Plan, see image 5 below, the site of this development is proposing to increase the density designation to High Density (currently it is medium density) Increasing the number of residential units to meet future demands is an important consideration in the Comprehensive Plan.

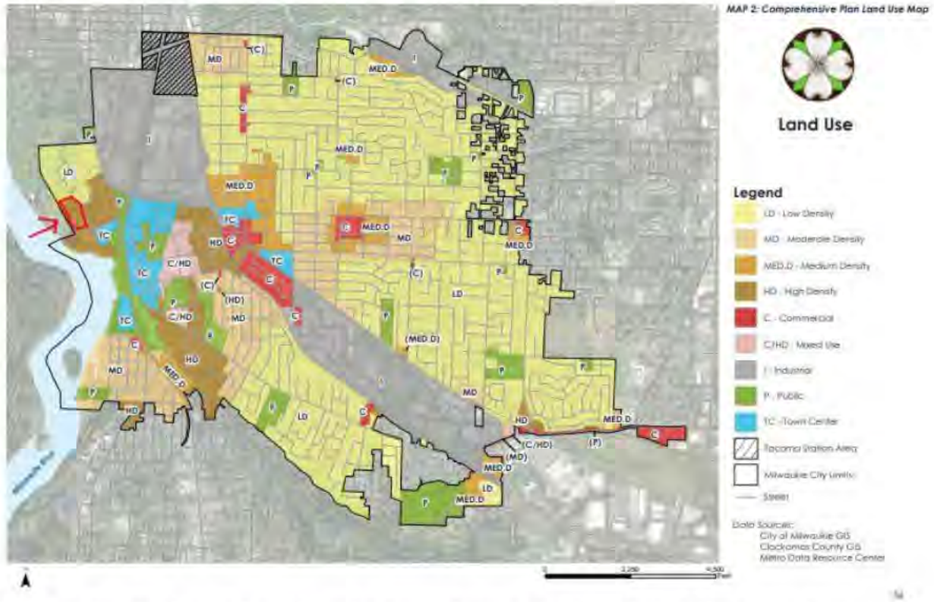


*Image 5. Density Map – City of Milwaukie Comprehensive Plan May 2020 Public Review Draft

Consistent with Goal 3.5, Sustainable Design and Development, The Waverley Woods development is committed to designing sustainably with considerations for energy efficiency and embodied carbon. The project has already held an Energy Trust of Oregon Master Planning session to discuss sustainability strategies along with engaging a solar designer for a preliminary solar study. The project is committed to including solar on the new development. Through the reduction of the development footprint, the project is able to increase the tree canopy, vegetated areas, natural habitat and recreational opportunities, contributing to Goal 3.4 – Healthy Urban Forest.

Goal 1 - Fostering Community, culture and belonging. Waverley Greens provides its existing residence with educational classes to enhance the community. This new development allows the community to grow this amenity through the development of two additional community centers providing recreation and community gathering in the form of a pool, wine cellar, event kitchen, exercise room, and multiple meeting spaces to hold additional educational classes and community events.
Goal 4 – Willamette Greenway. The Greenway Review's intended purpose focuses on areas in close proximity and visible from the river, with a less stringent review process for areas further from the river. In areas where the boundary for the WG overlay zone is further inland than the state regulated 150 feet from the ordinary high-water line minimum or the 100-year flood plane requirement, the city allows for a compatibility review to determine appropriateness and compatibility of a new proposed use addressing use, siting, size, scale, height and site improvements. As demonstrated in Image 5, this site fits within that definition for this alternative review process. As described in response C, the proposed development will limit the view impacts from the river, while increasing the public view access from the site.

K. The request in consistent with applicable plans and programs of the Division of State Lands
Response: Project development is not within the 150 feet of the ordinary high-water line of the Willamette River or within the 100 year flood plain of the Willamette River nor does it contain any types of "waters of the state" therefore, no permit or authorization for development is required from the Division of State Lands.

L. A vegetation buffer plan meeting the conditions of Subsections 19.401.8.A through C.
Response: Project is not located along the Willamette river or within 25 feet upland from the ordinary high-water line therefore does not fit within the vegetation buffer strip limits described within 19.401.8 A through C. The project intends on removing invasive species and maintaining and planting native species where landscaping occurs. Image 2 demonstrates the impact of the removal of trees on the site and the minimal impact the development will have on the of scenic views from the river within the context of the existing site. Sheet A2.1 Site sections shows the placement of the buildings on the site in relation to the tree existing tree canopy. A5.1 Tree Removal Plan and A5.1 Tree Schedule show the existing trees to be removed and the condition of the trees. Trees will be replanted to satisfy the Milwaukie City Urban Forest Management Plan.

19.505.3.D Multifamily Design Guidelines and Standards

1. **Private open space:** 96 sf ground floor, 48 sf upper floors
Response: Each apartment unit has its own private balcony directly accessible from the interior of each dwelling, and separate physically and visually from other apartments. The smallest private outdoor space is 195 sq.ft. (see A3.2 – A3.4 for floor plans)

2. **Public open space:**
Response: Community is important to the Waverley Greens Apartment complex. This new development has focused on creating many additional community spaces and amenities for the residents of the entire complex. These include, but are not limited to the following: large outdoor community gardens, swimming pool, walking trails, kitchen/catering space, wine cellar, permanent picnic tables, and community meeting rooms.

3. **Pedestrian Circulation:**
Response: Project will have continuous connections with adequate lighting and street crossings to site elements as required. Walkways are separated from vehicle parking with physical barriers such as planter strips and raised curbs. Walkways shall be constructed of concrete, with a minimum width 5 ft and 7 ft. where parked vehicles will overhang the walkway. The walkways will be separated from parking areas and internal driveways using curbing, landscaping, or distinctive paving materials.

4. **Vehicle and Bike Parking:**
Response: Waverley Woods A.1, A.2 and B.2 are located on a private internal dead-end drive, not a public right-of-way. As is typical for multifamily developments, including the other apartments in this complex, some parking spaces are outside the building entry along the private drive. A total of 106 vehicle parking spaces for

residents will be located under the buildings and 36 parking spaces will be provided off the private dead-end street for the apartment buildings, community center and other provided amenities. (See A1.3 – Parking Plans and Count)

Covered, secure bike parking with permanently mounted bike racks/hangers will be provided in the parking garage and outdoor bike racks, located no further than 30' from the main entrance of each building to meet the required number of racks required by this this code section.

5. **Building Orientation & Entrances:**
Response: Waverley Woods A.1, A.2 and B.2 are located on a private internal dead-end drive, not a public right-of-way. Buildings A.1 and A.2 feature street facing primary entrances, which become focal points as the central element of the buildings' U-shape. Users are drawn into the building entry by an entry overhang, walking paths, and landscape elements.

6. **Building Façade Design:**
Response: The street facing façade is broken into two building masses flanking a recessed entry with outdoor balconies and projecting window bays providing visual interest. A minimum of 25% of the façade is glazing. (See A4.2 – Building A Elevations)

7. **Building Materials:**
Response: Building materials will be a mix of fiber cement board siding with wood accent siding with metal trim panels. The building is still in the design phase and specific materials and placements have to be investigated.

8. **Landscaping:**
Response: Landscaping will be provided as per development standards.
As part of the development, existing trees will be maintained where possible. Diseased and dead trees, as wells as, invasive species, such as English ivy and blackberries, will be removed and replaced by native plants where appropriate. New natural walking paths will be developed through the preserved wooded area for residents. The landscape will be continually maintained by the Waverley Greens maintenance team.

9. **Screening:**
Response: Screening will be provided as per development standards. Mechanical equipment will be housed inside the buildings with some roof top equipment located on lower roof areas that are blocked from view by adjacent high sloped roofs. Trash and recycling with be collected in trash rooms on the parking levels of each apartment building to avoid waste containers being visible from the outside.

10. **Recycling Areas:**
Response: Recycling collection will be provided in the trash/recycling room located on the parking level of each building. Residents will be responsible to bring their recycling to that location and maintenance staff will collect and transport the material off site

11. **Sustainability:**
Response: Sustainability is a key component in the design of these residences. Building orientation and solar access along with passive strategies have been the first step of our design analysis. A preliminary solar study has already been completed, and the owners are committed to installing solar panels on the roofs. Each unit is provided with operable windows and overhangs, and sunscreens will be studied to maximize efficiency as part of the building design. Retaining and re-planting the surrounding tree canopy is a key component to maintaining a cool site that takes advantage of the breezes flowing down the Willamette River and through the tree canopy to provide passive cooling for the units. On-site rainwater collection is being investigated along with applying roofing materials with an SRI of 78 where the roof has a 3/12 pitch or less and an SRI of 29 where the roof pitch is 3/12 or greater.

12. **Privacy Considerations**:
Response: All privacy design considerations will be met in design.

13. **Safety**:
Response: All safety design considerations will be met in design.

Parking

19.605 Vehicle Parking Quantity Requirements:

Table 19.605.1
Minimum To Maximum Off-Street Parking Requirements

Use	Minimum Required	Maximum Allowed
2. Multifamily dwellings containing 3 or more dwelling units (includes senior and retirement housing).		
a. Dwelling units with 800 sq ft of floor area or less and all units located in the DMU Zone.	1 space per dwelling unit.	2 spaces per dwelling unit.
b. Dwelling units with more than 800 sq ft of floor area.	1.25 spaces per dwelling unit.	2 spaces per dwelling unit.

Response:

Minimum parking: 100 proposed units x 1.25 = 125 spaces

Maximum parking: 100 proposed units x 2 = 200 spaces

Proposed: 108 covered spaces and 30 on-street spaces = **138 spaces total**

(See A1.3 – Parking Plans and Count)

19.609 Bike Parking

19.609.2.A.3 Multifamily residential development with 4 or more units shall provide 1 space per unit.

19.609.2.B Covered or enclosed bicycle parking. A minimum of 50% of the bicycle spaces shall be covered and/or enclosed.

Response: The Waverley Woods project will provide a minimum of 100 bike parking spaces as specified in the code balanced to each phase development. The minimum required 50 covered parking will be located at the parking entry of each building accessible by auto ramp and sidewalk.

The exit from corridor from the central stair accessing the parking level will also provide a route for bikers to access a locker room with adjacent shower and toilet facilities prior to taking the elevator or stair to their unit above.

19.700 Public Facility Improvements

All land divisions and boundary changes that increase the number of lots shall be subject to the requirements and standards contained in Chapter 19.700 Public Facility Improvements and the Public Works Standards for improvements to streets, sidewalks, bicycle facilities, transit facilities, and public utilities.

19.703.1 Preapplication Conference

Response: The project team held a Pre-application Conference with the City of Milwaukie on May 14, 2020.

19.703.2 Application Submittal

Response: The project team is submitting lot line adjustment with Planned Development application. Transportation Facilities Review has been included in this submission.

19.703.3 Approval Criteria

A. Procedures, Requirements, and Standards
Response: Project will comply with procedures, requirements, and standards of Chapter 19.700 and the Public Works Standards.

B. Transportation Facility Improvements
Response: Review Traffic Impact Analysis included in the submission for compliance.

C. Safety and Functionality Standards

1. Adequate Street Drainage, as determined by the Engineering Director.
Response: See Civil sheet C3.0 for proposed street drainage.

2. Safe access and clear vision at intersections, as determined by the Engineering Director.
Response: Please see Traffic Impact Analysis included in this submission for safe access and clear vision at intersections.

3. Adequate public utilities, as determined by the Engineering Director.
Response: Feedback from Pre-Application Conference and information provided to the team by the city on the existing public utilities has informed the current design. It is our understanding adequate public utilities are provided to the site. Project team will provide utilities to the site which conform to all local and national codes. See Civil sheet C3.0 for utility information.

4. Access onto a public street with the minimum paved widths as stated in Subsection 19.703.3.C.5 below. **Response:** See responses below

5. Adequate frontage improvements as follows:
Response: See civil sheet C2.0 for Waverley Court Public Improvements. Requirement: Local Street Min paved width of 16' along site's frontage. Nonlocal streets min. paved 20' along site's frontage. For all streets a minimum horizontal right-of-way clearance of 20' along the site's frontage. The proposed development exceeds all of these minimum requirements. The existing SE Waverly Court is 32' in width along the site's frontage. The new Ridge View Drive is 26' in width.

6. Compliance with Level of Service D for all intersections impacted by the development, except those on Oregon Highway 99E that shall be subject to the following:
Response: Review Traffic Impact Analysis included in the submission for compliance.

19.708 Transportation Facility Requirements

19.708.1 General Street Requirements and Standards

Response: Review Traffic Impact Analysis included in the submission for compliance.

19.708.2 Street Design Standards

Response: Please review sheets A1.4 – Fire Access Diagram, A2.3 – Phase 01 Site Plan, and C2.0 – Waverly Court Public Improvements for dimensional plans showing compliance to the Street Design Standards.

19.708.3 Sidewalk Requirements and Standards

Response: Please review sheets A1.4 – Fire Access Diagram, A2.3 – Phase 01 Site Plan, and C2.0 – Waverley Court Public Improvements for dimensional plans showing compliance to the Street Design Standards. Waverley Greens will maintain all sidewalks and landscape strips in accordance with Chapter 12.04

19.708.4 Bicycle Facility Requirements and Standards

Response: Bike parking will be provided in accordance with section 19.609 Bike Parking and the requirements and standards outlined in this section.

19.708.5 Pedestrian/Bicycle Path Requirements

Response: Pedestrian/Bicycle paths as described in this section are not required or provided in this proposed development. If they are incorporated, they will meet the required conditions described in this section. Private pedestrian paths and nature trails will be provided in this project and will adhere to the safety regulations required by the City of Milwaukie.

WAVERLEY GREENS APARTMENT COMMUNITIES

1 WAVERLEY & STUART HALL
- Swimming Pool
- Covered Parking
- Solar Panels

2 DUNDEE
- Swimming Pool
- Covered Parking
- Solar Panels
- Dog Run

3 THE HIGHLANDS
- Swimming Pool
- Covered Parking
- Solar Panels
- Basketball Court

4 BANBURY
- Covered Parking

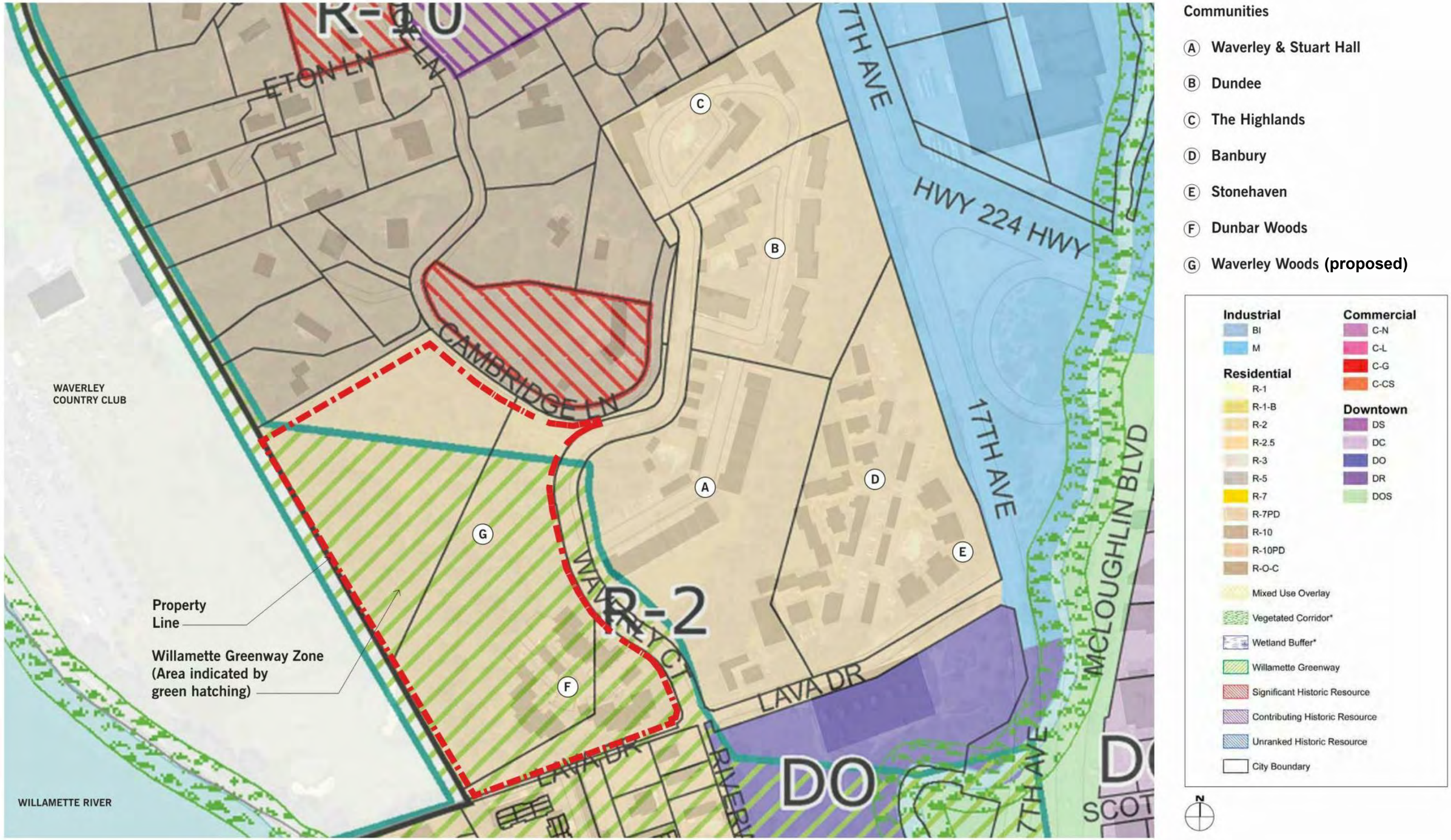
5 STONEHAVEN
- Covered Parking
- Swimming Pool

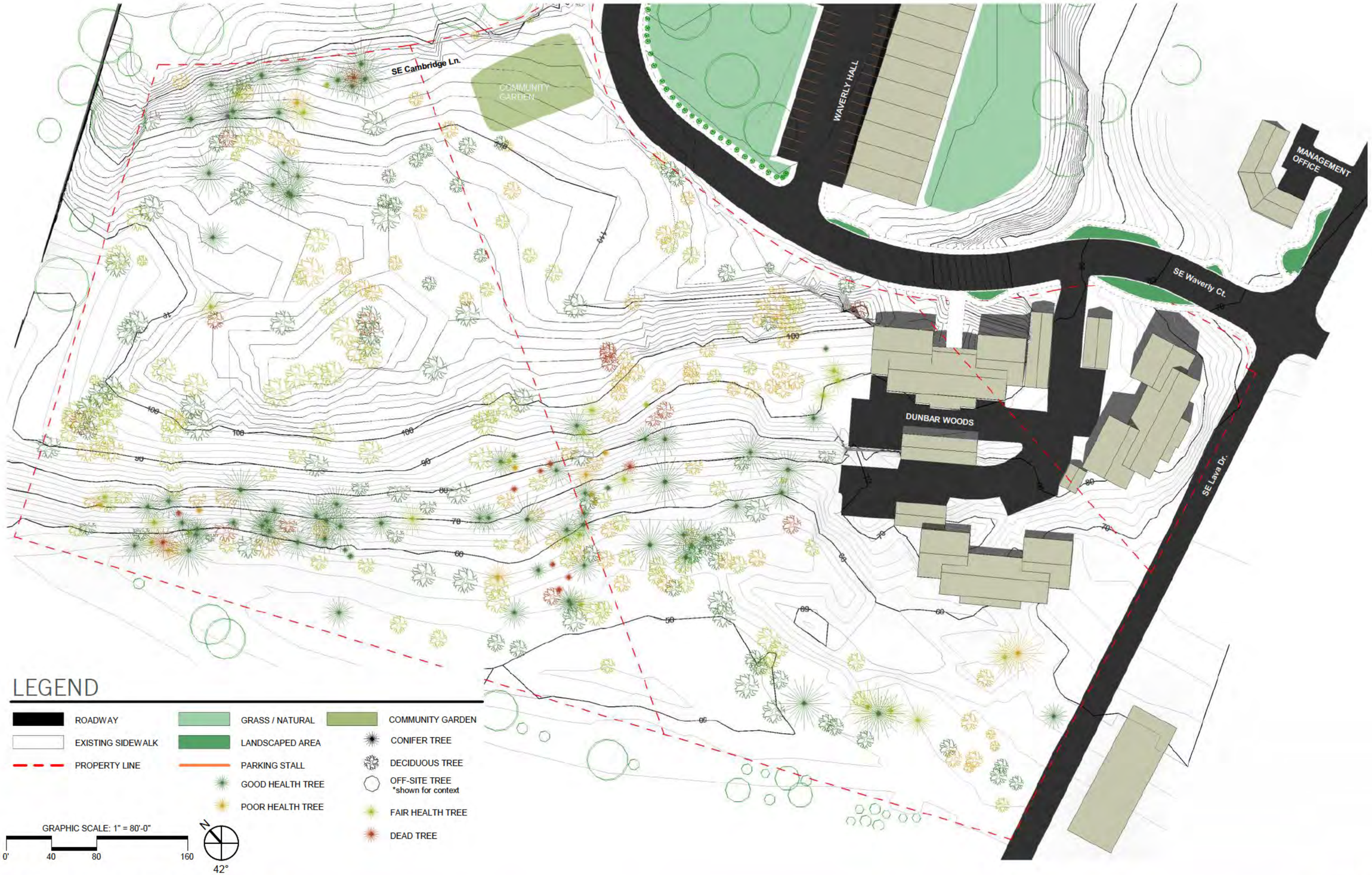
6 DUNBAR WOODS
- Covered Parking
- Solar Panels

7 WAVERLEY WOODS (PROPOSED)
- Covered Parking
- Solar Panels
- Swimming Pool
- Community Center(s)
- Walking Path
- Community Garden

N
0°

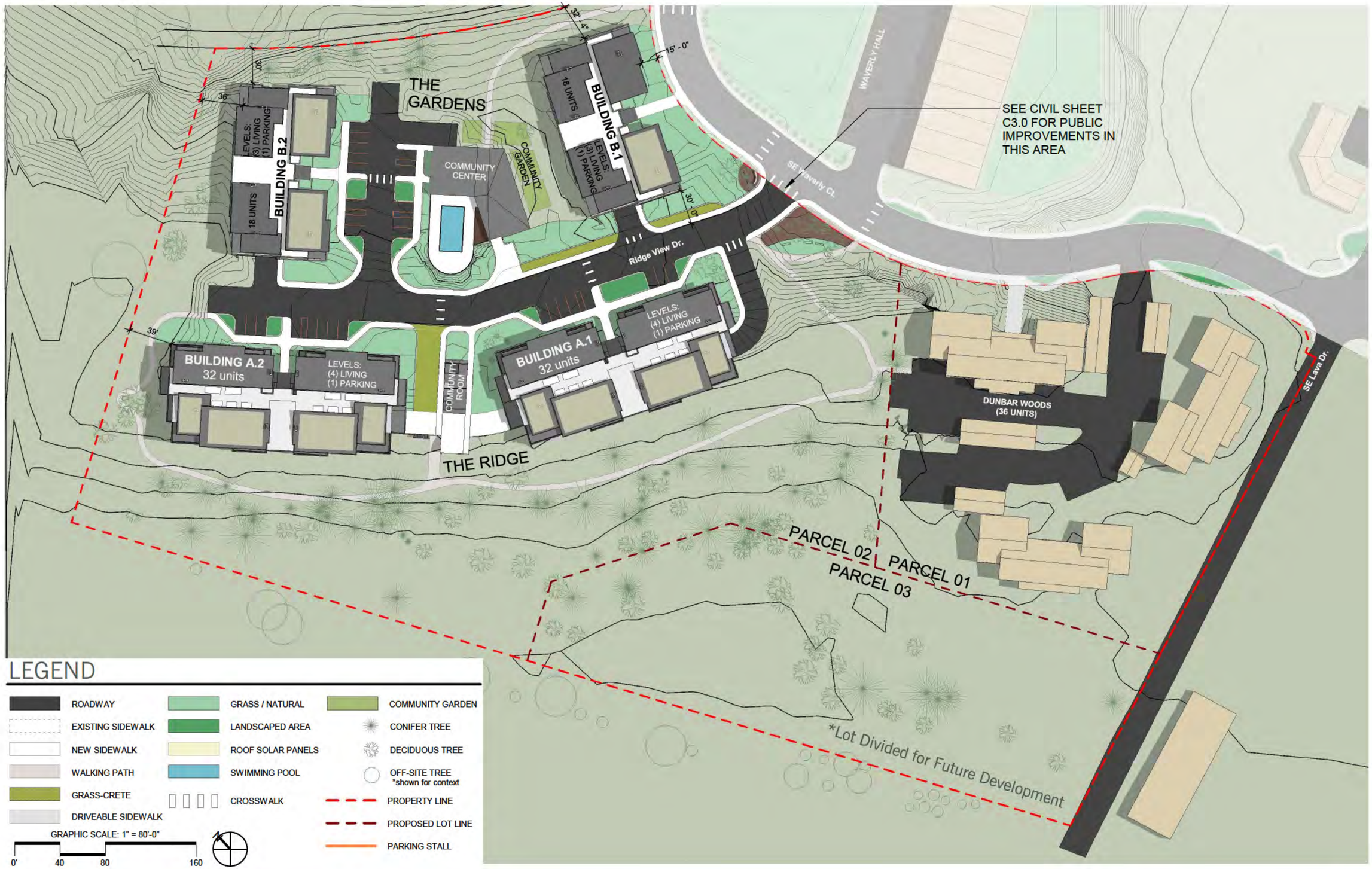
DUNDEE
THE HIGHLANDS
STUART HALL
PROPOSED WAVERLEY WOODS DEVELOPMENT
BANBURY
WAVERLEY HALL
STONEHAVEN
DUNBAR WOODS


R-10
ETON LN
CAMBRIDGE LN
WAVERLEY
COUNTRY CLUB
7TH AVE
HWY 224 HWY
17TH AVE
McLOUGHLIN BLVD
C
B
A
D
E
G
F
R-2
WAVERLEY CT
LAVA DR
DO
WILLAMETTE RIVER
Property Line
Willamette Greenway Zone (Area indicated by green hatching)
Communities
A Waverley & Stuart Hall
B Dundee
C The Highlands
D Banbury
E Stonehaven
F Dunbar Woods
G Waverley Woods (proposed)
Industrial
BI
M
Residential
R-1
R-1-B
R-2
R-2.5
R-3
R-5
R-7
R-7PD
R-10
R-10PD
R-O-C
Commercial
C-N
C-L
C-G
C-CS
Downtown
DS
DC
DO
DR
DOS
Mixed Use Overlay
Vegetated Corridor*
Wetland Buffer*
Willamette Greenway
Significant Historic Resource
Contributing Historic Resource
Unranked Historic Resource
City Boundary
N



A0.1 - EXISTING SITE PLAN AND TOPOGRAPHY

07/28/2020


THE GARDENS
BUILDING B.2
LEVELS: (3) LIVING (1) PARKING
18 UNITS
COMMUNITY CENTER
COMMUNITY GARDEN
BUILDING B.1
18 UNITS
LEVELS: (3) LIVING (1) PARKING
32' - 4"
15' - 0"
30' - 0"
36'
39'
Ridge View Dr.
SE Waverly Ct.
WAVERLY HALL
SEE CIVIL SHEET C3.0 FOR PUBLIC IMPROVEMENTS IN THIS AREA
BUILDING A.2
32 units
LEVELS: (4) LIVING (1) PARKING
COMMUNITY ROOM
BUILDING A.1
32 units
LEVELS: (4) LIVING (1) PARKING
THE RIDGE
DUNBAR WOODS (36 UNITS)
SE Lava Dr.
PARCEL 02
PARCEL 01
PARCEL 03
*Lot Divided for Future Development
LEGEND
ROADWAY
EXISTING SIDEWALK
NEW SIDEWALK
WALKING PATH
GRASS-CRETE
DRIVEABLE SIDEWALK
GRASS / NATURAL
LANDSCAPED AREA
ROOF SOLAR PANELS
SWIMMING POOL
CROSSWALK
COMMUNITY GARDEN
CONIFER TREE
DECIDUOUS TREE
OFF-SITE TREE *shown for context
PROPERTY LINE
PROPOSED LOT LINE
PARKING STALL
GRAPHIC SCALE: 1" = 80'-0"
0'
40
80
160
42°

PHASE UNIT COUNTS

PHASING OPTION 01:

	1 BR.	2 BR.	3 BR.	TOTAL
PHASE 01	8	24	-	**32**
PHASE 02*	8	24	-	**32**
PHASE 03*	-	36	-	**36**
TOTAL	**16**	**84**	**0**	**100**

* = ADDITION OF COMMUNITY CENTER WITHIN PHASE

BUILDING UNIT COUNTS

BUILDING TYPE A.1 (4 stories)				
	1 BR.	2 BR.	3 BR.	TOTAL
L4	2	6	-	8
L3	2	6	-	8
L2	2	6	-	8
L1	2	6	-	8
	8	24	0	**32**

BUILDING TYPE A.2 (4 stories)				
	1 BR.	2 BR.	3 BR.	TOTAL
L4	2	6	-	8
L3	2	6	-	8
L2	2	6	-	8
L1	2	6	-	8
	8	24	0	**32**

BUILDING TYPE B.1 (3 stories)				
	1 BR.	2 BR.	3 BR.	TOTAL
L3	-	6	-	6
L2	-	6	-	6
L1	-	6	-	6
	0	18	0	**18**

BUILDING TYPE B.2 (3 stories)				
	1 BR.	2 BR.	3 BR.	TOTAL
L3	-	6	-	6
L2	-	6	-	6
L1	-	6	-	6
	0	18	0	**18**

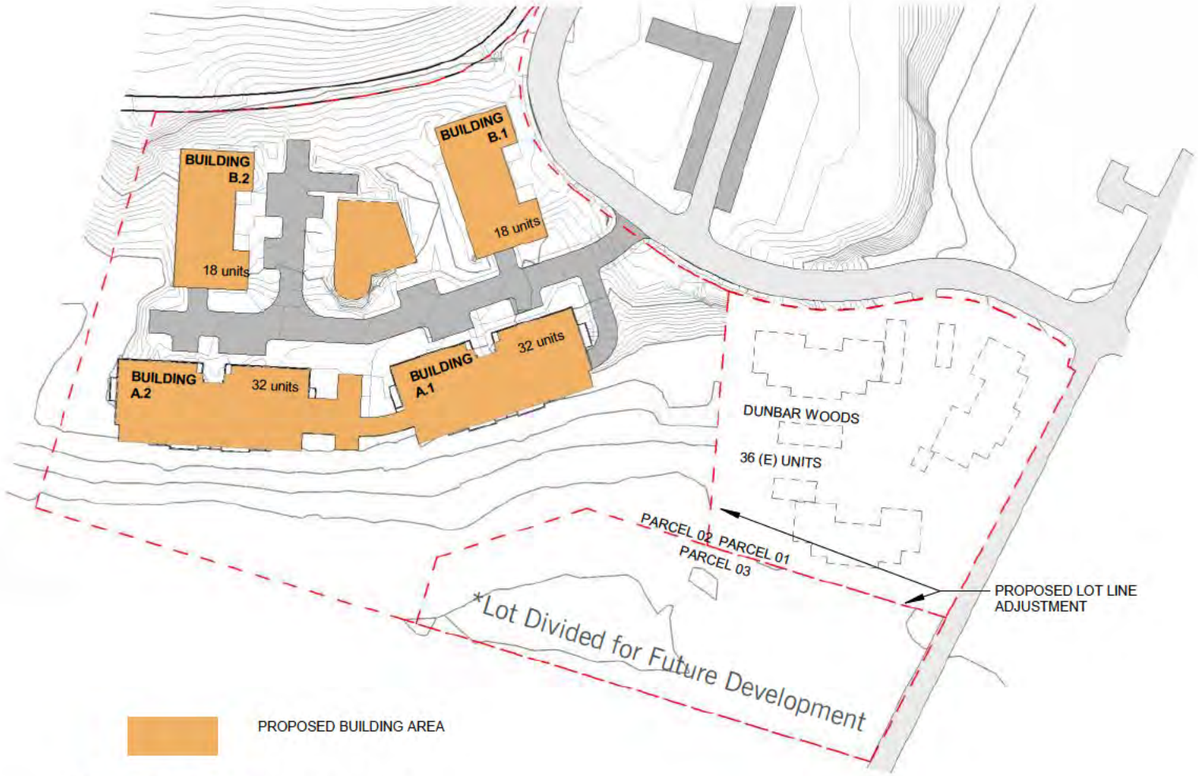
1 PHASING PLAN
NTS

LEGEND

PHASE 01
PHASE 02
PHASE 03
EXISTING ROAD
NEW ROAD
PROPERTY LINE

N
42°

1 UNIT DENSITY CALC
1" = 160'-0"



2 LOT COVERAGE CALC
1" = 160'-0"

	PARCEL AREA	PARCEL UNITS	MINIMUM DENSITY	MAXIMUM DENSITY	(PD) 20% UNIT ADD	STEEP SLOPE AREA	STEEP BUILDING AREA	BUILDING AREA	LOT COVERAGE
PARCEL 01 (E)	94,032 sq. ft.	36 (E)	25	37	-	n/a	-	25,346 sq. ft.	26.9%
PARCEL 02	294,350 sq. ft.	100 (N)	78	84	100	84,374 sq. ft.	13,026 sq. ft.	64,336 sq. ft.	21.9%
PARCEL 03	80,241 sq. ft.	n/a	21	32	n/a	-	-	n/a	n/a
TOTAL	468,623 sq. ft.	136	124	153	-	84,374 sq. ft.	13,026 sq. ft.	89,682 sq. ft.	23.1%

19.302.4 -C.1 - Density Requirements

C. Other Standards				
1. Density requirements (dwelling units per acre)				Subsection 19.202.4 Density Calculations
a. Minimum	11.6	11.6	25.0	Subsection 19.302.5.F Residential Densities
b. Maximum	14.5	17.4	32.0	Subsection 19.501.4 Density Exceptions

19.302.4 -B.4 - Lot Coverage

4. Maximum lot coverage (percent of total lot area)	40%	45%	50%	Section 19.201 "Lot coverage" definition

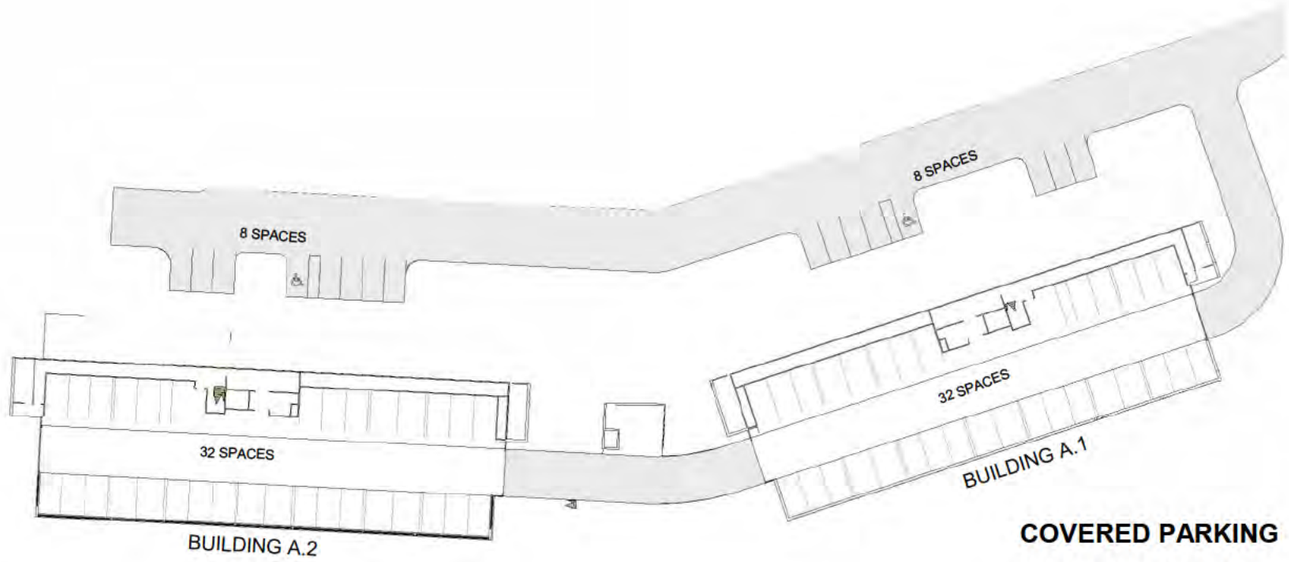
MINIMUM DENSITY CALCULATIONS FOR SITE
(PARCEL AREA / 43,560 sq. ft / AC) (11.6 units/ AC)

MAXIMUM DENSITY CALCULATIONS FOR SITE
(PARCEL AREA - STEEP SLOPE AREA) / (43,560 sq. ft / AC)) (17.6 units/ AC)

PARCEL 01 LOT COVERAGE - 26.9%
PARCEL AREA = 94,032 sq. ft.
BUILDING AREA = 25,346 sq. ft.

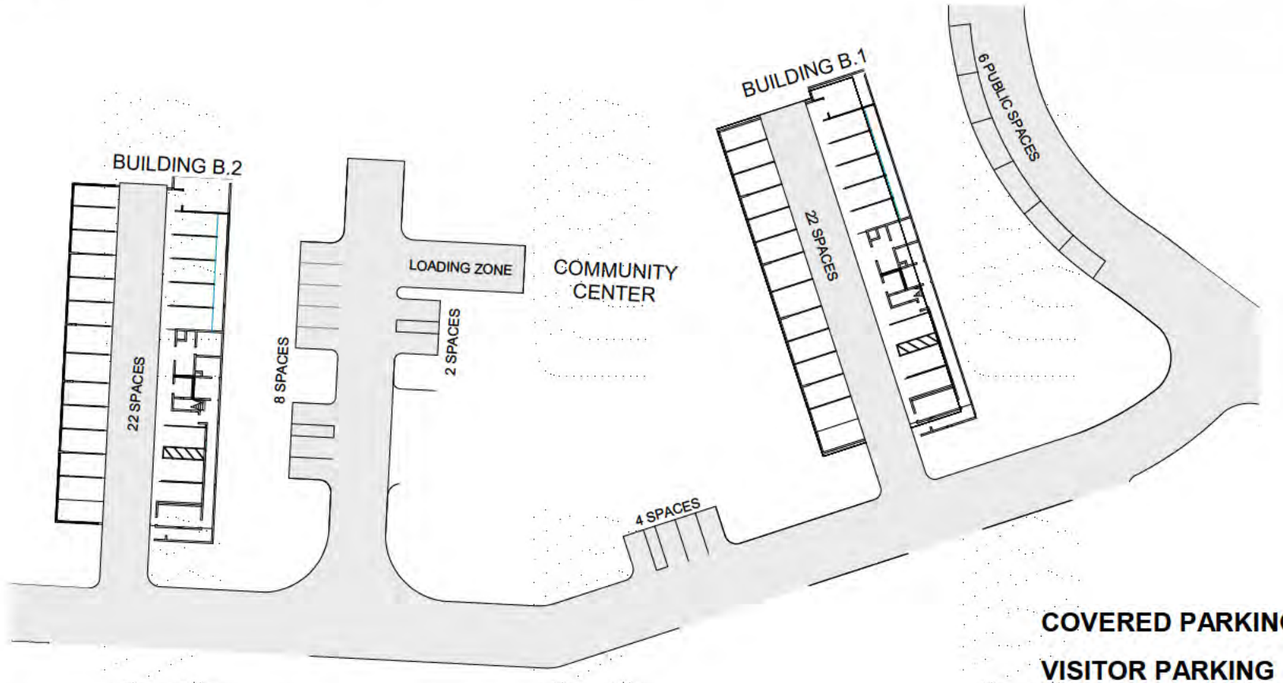
PARCEL 02 LOT COVERAGE -21.9%
PARCEL AREA = 294,350 sq. ft.
BUILDING AREA = 64,336 sq. ft.

TOTAL LOT COVERAGE - 23.1%
PARCEL AREA = 388,382 sq. ft.
BUILDING AREA = 89,682 sq. ft.



1 RIDGE BUILDINGS PARKING
NTS

COVERED PARKING 64 SPACES
VISITOR PARKING 16 SPACES
TOTAL PARKING 80 SPACES



2 GARDEN BUILDINGS PARKING
NTS

COVERED PARKING 44 SPACES
VISITOR PARKING 14 SPACES
TOTAL PARKING 58 SPACES

*EXCLUDES 6 PUBLIC STREET PARKING SPACES

Table 19.6B.1
Minimum To Maximum Off-Street Parking Requirements

Use	Minimum Required	Maximum Allowed
A. Residential Uses		
1. Single-family dwellings, including rowhouses and manufactured homes.	1 space per dwelling unit.	No maximum.
2. Multifamily dwellings containing 3 or more dwelling units (includes senior and retirement housing).		
a. Dwelling units with 800 sq ft of floor area or less and all units located in the DMU Zone.	1 space per dwelling unit.	2 spaces per dwelling unit.
b. Dwelling units with more than 800 sq ft of floor area.	1.25 spaces per dwelling unit.	2 spaces per dwelling unit.

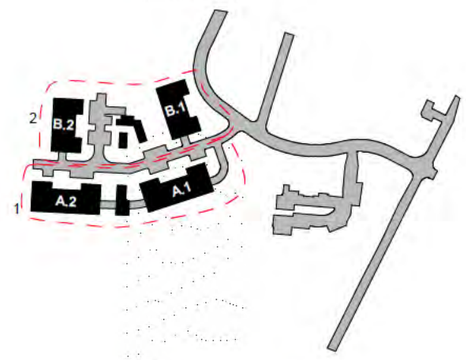
REQUIRED PARKING

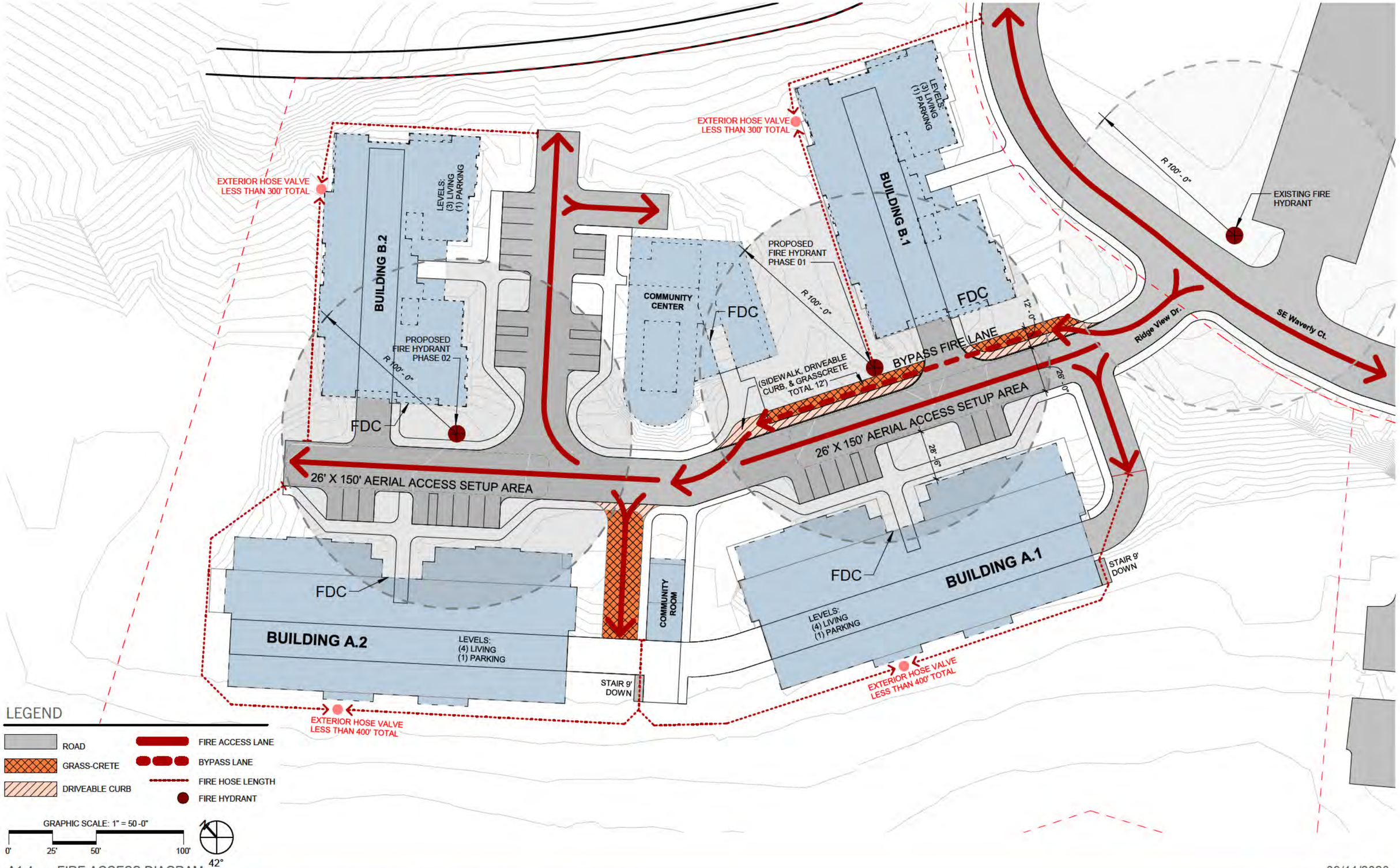
	UNITS	SPACES / UNIT	TOTAL
RIDGE BUILDINGS	64	1.25	80
GARDEN BUILDINGS	36	1.25	45
TOTAL	100	1.25	125

TOTAL PARKING COUNT

	COVERED	STREET	TOTAL
PHASE 01 - BLDG A.1	32	8	40
PHASE 02 - BLDG A.2	32	8	40
PHASE 03 - BLDG B.1 & B.2	44	14	58
SITE TOTAL	**108**	**30**	**138**

NOTE: 138 PROVIDED, 13 ABOVE MINIMUM REQUIRED PARKING COUNT

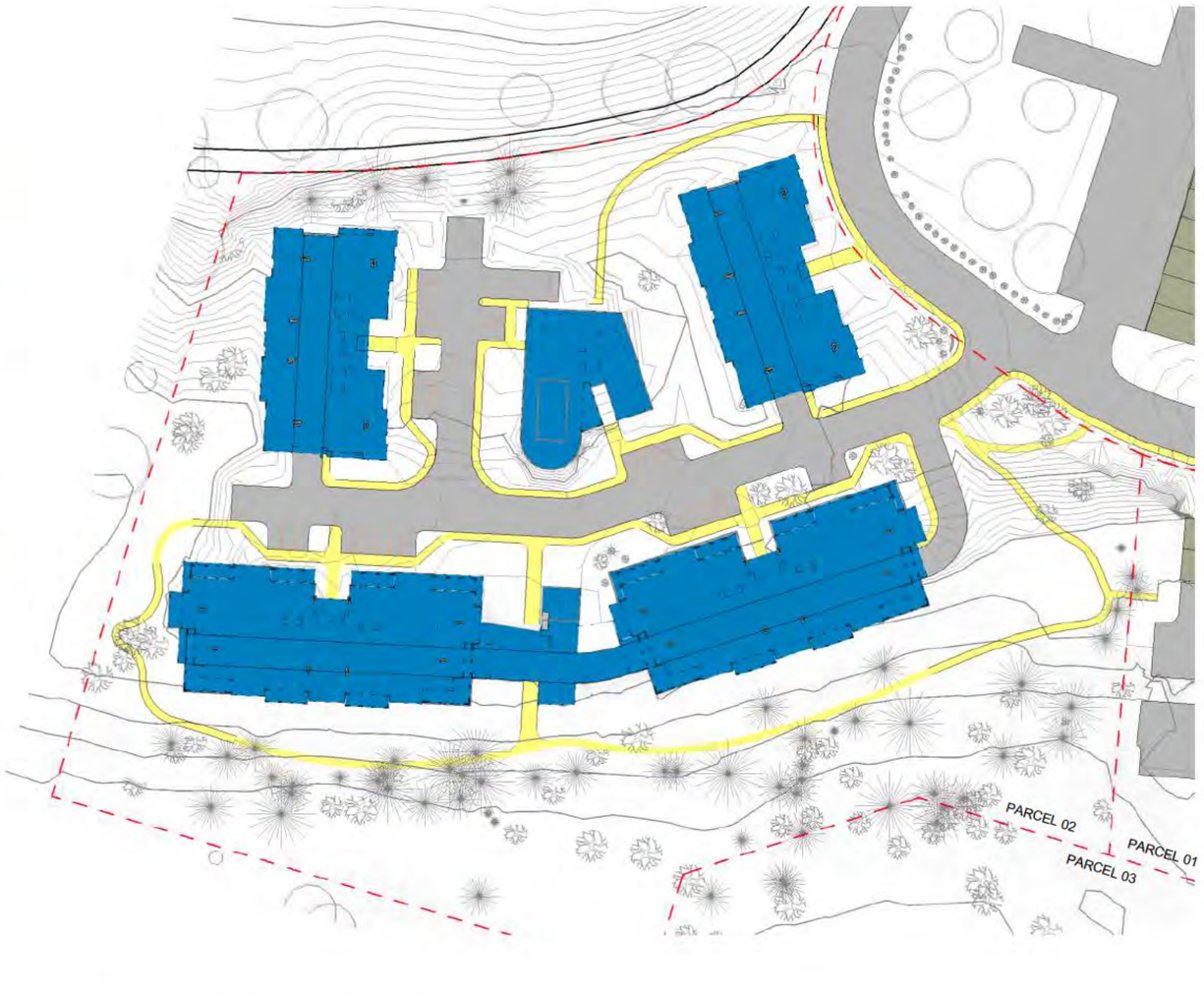




A1.4 - FIRE ACCESS DIAGRAM

09/11/2020

1 PRESERVED VEGETATED AREAS
1" = 100'-0"



2 PEDESTRIAN CIRCULATION
1" = 100'-0"

LEGEND

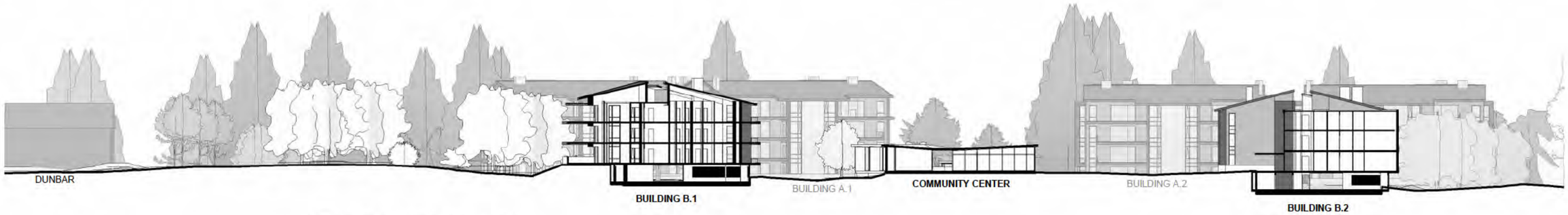
- DEVELOPMENT SITE AREA ~294,350 SQ.FT.
- MAINTAINED FORESTED AREA WITH WALKING PATHS 152,057 SQ. FT.
- GRASS / NATURAL LANDSCAPING
- LANDSCAPED AREA
- PROPERTY LINE
- STEEP AREA MAINTAINED FOREST
- COMMUNITY GARDEN
- EXISTING BUILDINGS
- SW MMING POOL
- PARKING STALL
- CONIFER TREE
- DECIDUOUS TREE
- OFF-SITE TREE *shown for context

N 42°

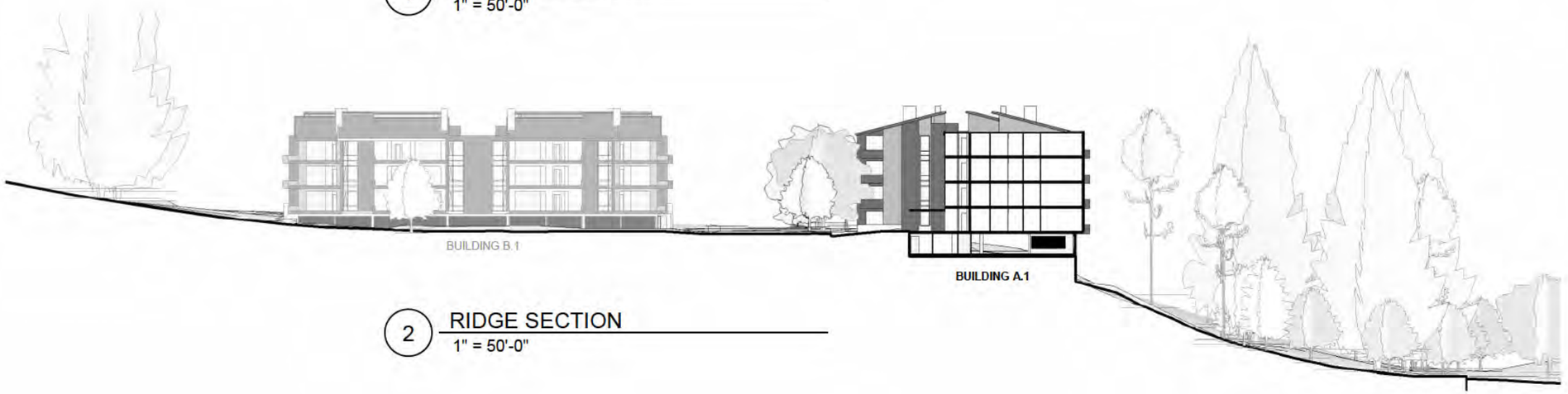
LEGEND

- SIDEWALKS / PATHS
- BUILDING FOOTPRINTS
- EXISTING BUILDINGS
- PARKING STALL
- PROPERTY LINE
- CONIFER TREE
- DECIDUOUS TREE
- OFF-SITE TREE *shown for context

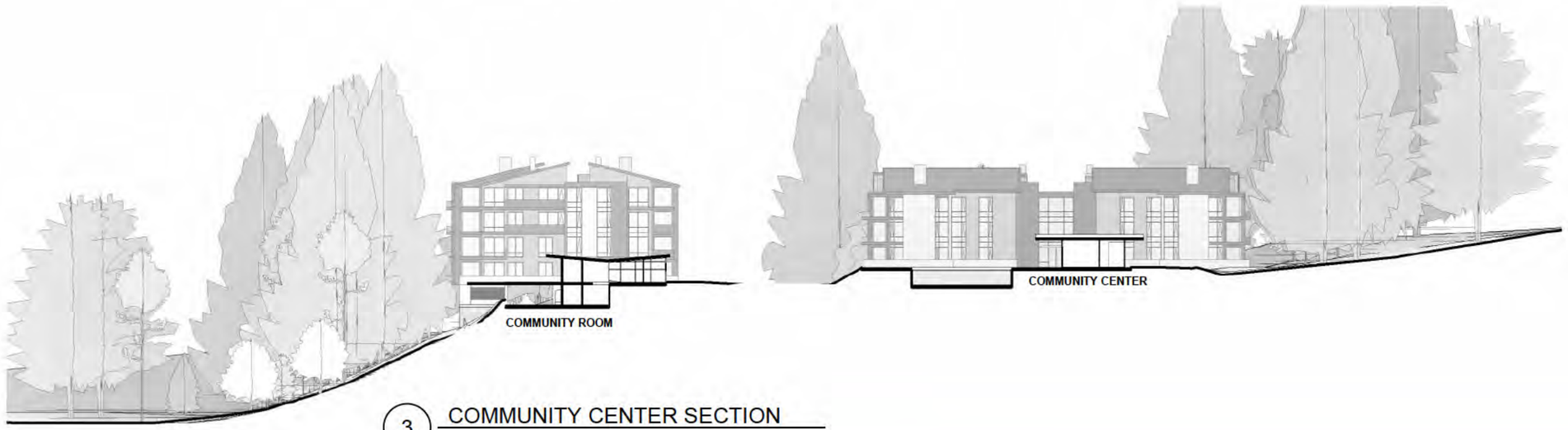
N 42°



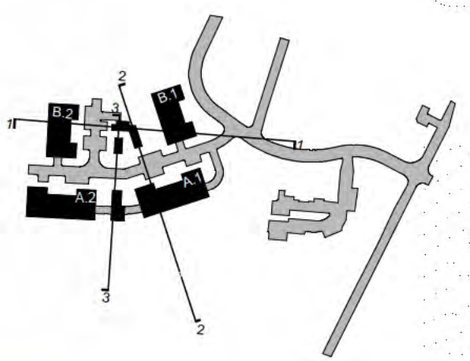
1 GARDEN SECTION
1" = 50'-0"

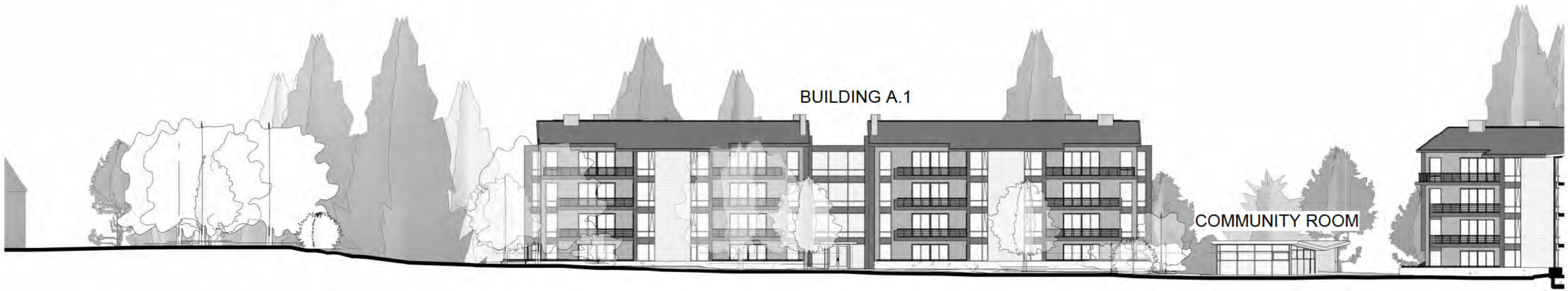


2 RIDGE SECTION
1" = 50'-0"



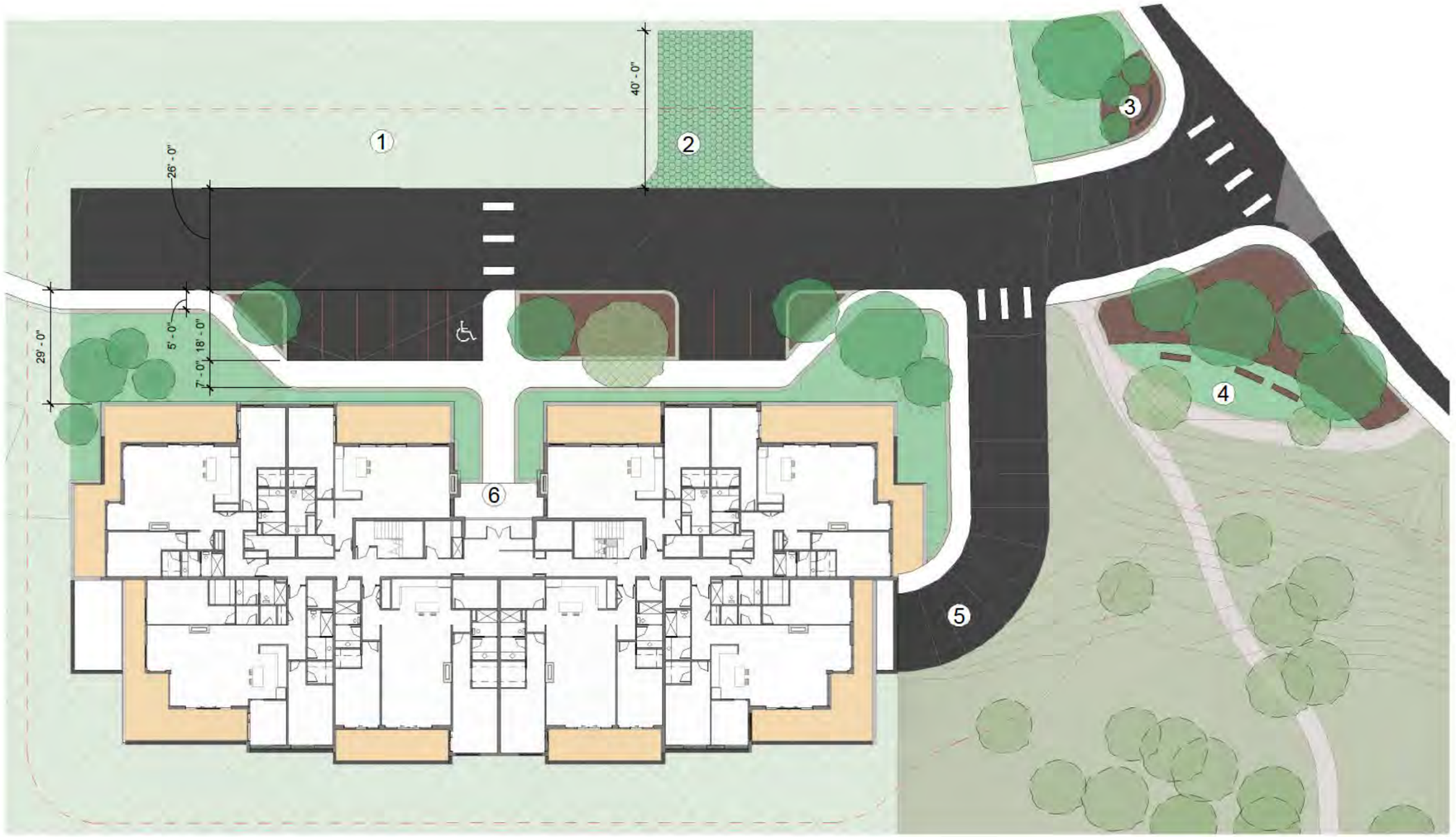
3 COMMUNITY CENTER SECTION
1" = 50'-0"





1 SITE ELVEATION - EAST
1/32" = 1'-0"

2 SITE ELEVATION - WEST
1/32" = 1'-0"



LEGEND

- ROADWAY
- NEW SIDEWALK
- MULCHED LANDSCAPE AREA
- NATURAL GRASSES / LANDSCAPING
- OUTDOOR TERRACE
- PARKING STALL
- CROSSWALK
- PHASE 01 EXTENTS

- CONIFER TREE
- DECIDUOUS TREE
- NEW PHASE 01 TREE
- EXISTING PHASE 01 TREE
- TREE OUTSIDE OF PHASE *subject to limbing / clearing for view corridors

1. CONSTRUCTION LAY DOWN ZONE COVERED WITH GRASS BETWEEN PHASES
2. 40' DEEP GRASSCRETE FIRELANE
3. ENTRY SIGNAGE / LANDSCAPING
4. WALKING PATH LANDSCAPING WITH BENCHES
5. 20' ROADWAY TO UNDERGROUND PARKING
6. BUILDING A.1 ENTRY

PHASE 01 TREE MANAGEMENT

REMOVED TREES

No.	Species	Health
105	Bigleaf Maple	DEAD
106	Bigleaf Maple	POOR
107	Bigleaf Maple	POOR
114	Bigleaf Maple	GOOD
115	Bigleaf Maple	FA R
116	Elm	POOR
117	Oregon Ash	POOR
122	Oregon White Oak	GOOD
123	Bigleaf Maple	DEAD
124	Bigleaf Maple	DEAD
127	Douglas Fir - M	GOOD
128	Douglas Fir - S	FA R
129	Bigleaf Maple	FA R
130	Bigleaf Maple	POOR
131	Oregon White Oak	GOOD
133	Douglas Fir - 20'	POOR
135	Douglas Fir - 20'	GOOD
136	Douglas Fir - S	FA R
137	Douglas Fir - S	GOOD
138	Oregon White Oak	FA R
139	Oregon White Oak	FA R
140	Oregon White Oak	FA R
141	Oregon White Oak	GOOD
214	Bigleaf Maple	GOOD
313	Oregon White Oak	GOOD
325	Oregon Ash	GOOD
326	Hawthorn	POOR
327	Hawthorn	FA R
329	Hawthorn	FA R
330	Hawthorn	FA R
331	Hawthorn	FA R
335	Bigleaf Maple	FA R
336	Hawthorn	FA R
337	Oregon Ash	GOOD
338	Bigleaf Maple	DEAD
339	Bigleaf Maple	POOR
340	Bigleaf Maple	POOR
341	Hawthorn	POOR
342	Bigleaf Maple	POOR
343	Bigleaf Maple	POOR
344	Bigleaf Maple	FA R
345	Bigleaf Maple	FA R
346	Bigleaf Maple	POOR
348	Pacific Dogwood	POOR
351	Bigleaf Maple	POOR
352	Bigleaf Maple	FA R
353	Bigleaf Maple	POOR
354	Bigleaf Maple	POOR
355	Hawthorn	POOR
357	Oregon Ash	POOR
358	Bigleaf Maple	POOR
359	Bigleaf Maple	POOR
360	Bigleaf Maple	POOR
366	Bigleaf Maple	POOR
368	Hawthorn	POOR
369	Bigleaf Maple	POOR
370	Bigleaf Maple	POOR
371	Hawthorn	FAIR
372	Hawthorn	POOR
373	Hawthorn	FAIR
374	Bigleaf Maple	POOR
375	Hawthorn	POOR
377	Hawthorn	FAIR
378	Douglas Fir - 20'	FAIR
379	Bigleaf Maple	DEAD
380	Bigleaf Maple	POOR
381	Douglas Fir - S	FAIR
382	Douglas Fir - 20'	DEAD
383	Douglas Fir - 20'	DEAD
386	Douglas Fir - 20'	POOR

TOTAL: 70

MAINTAINED TREES

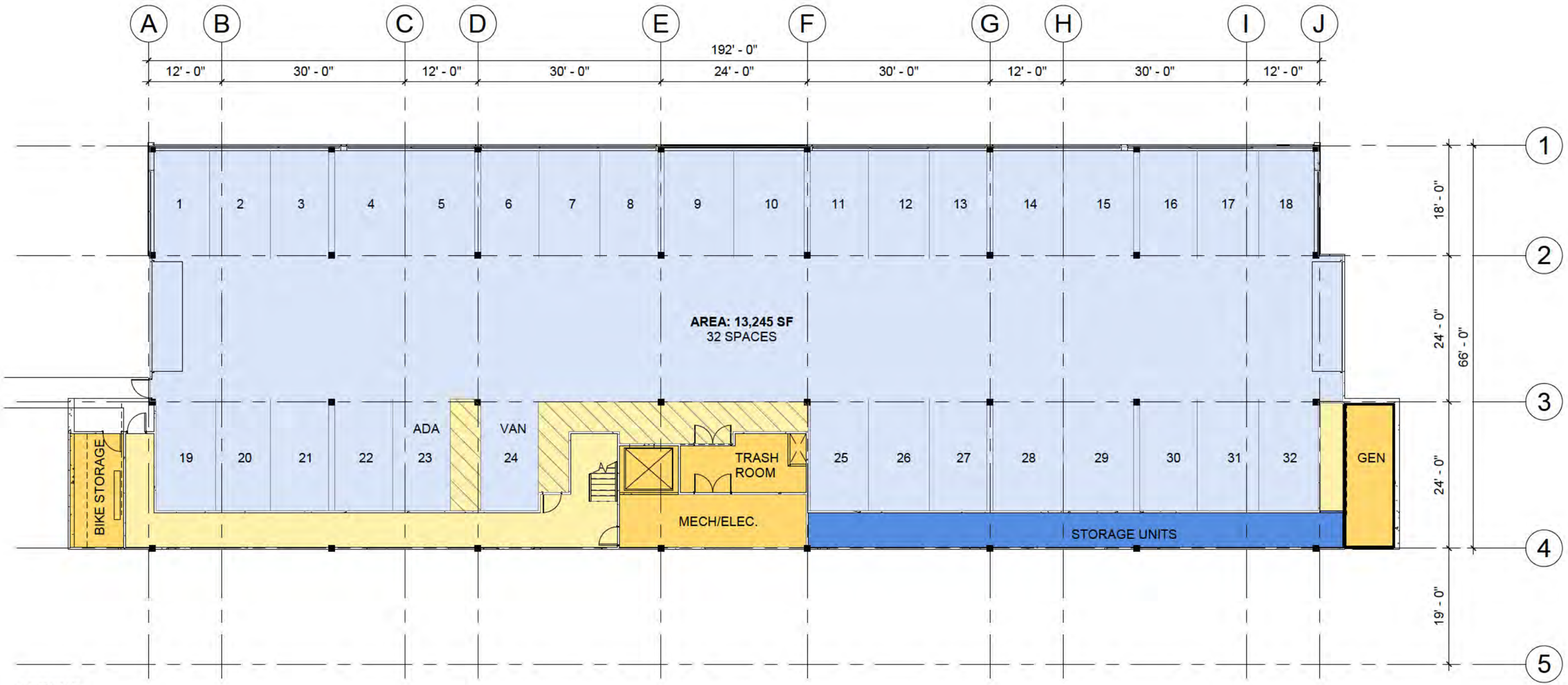
No.	Species	Health
100	Douglas Fir - M	GOOD
104	Douglas Fir - M	GOOD
113	black cottonwood	GOOD
121	Oregon White Oak	GOOD
152	Oregon White Oak	GOOD
349	Bigleaf Maple	FAIR
350	Bigleaf Maple	FAIR
356	Bigleaf Maple	GOOD
361	Douglas Fir - 20'	GOOD

TOTAL: 9

NEW PROPOSED TREES

	Bigleaf Maple	NEW
	Oregon White Oak	NEW
	Bigleaf Maple	NEW
	Oregon White Oak	NEW
	Oregon White Oak	NEW
	Bigleaf Maple	NEW
	Kousa Dogwood	NEW
	Manzanita	NEW
	Bigleaf Maple	NEW
	Oregon White Oak	NEW
	Manzanita	NEW
	Kousa Dogwood	NEW
	Kousa Dogwood	NEW
	American Beech - 20'	NEW
	Kousa Dogwood	NEW
	Manzanita	NEW
	Kousa Dogwood	NEW
	Oregon White Oak	NEW

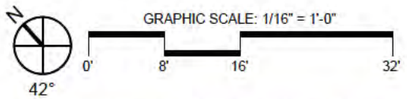
TOTAL: 18



LEGEND

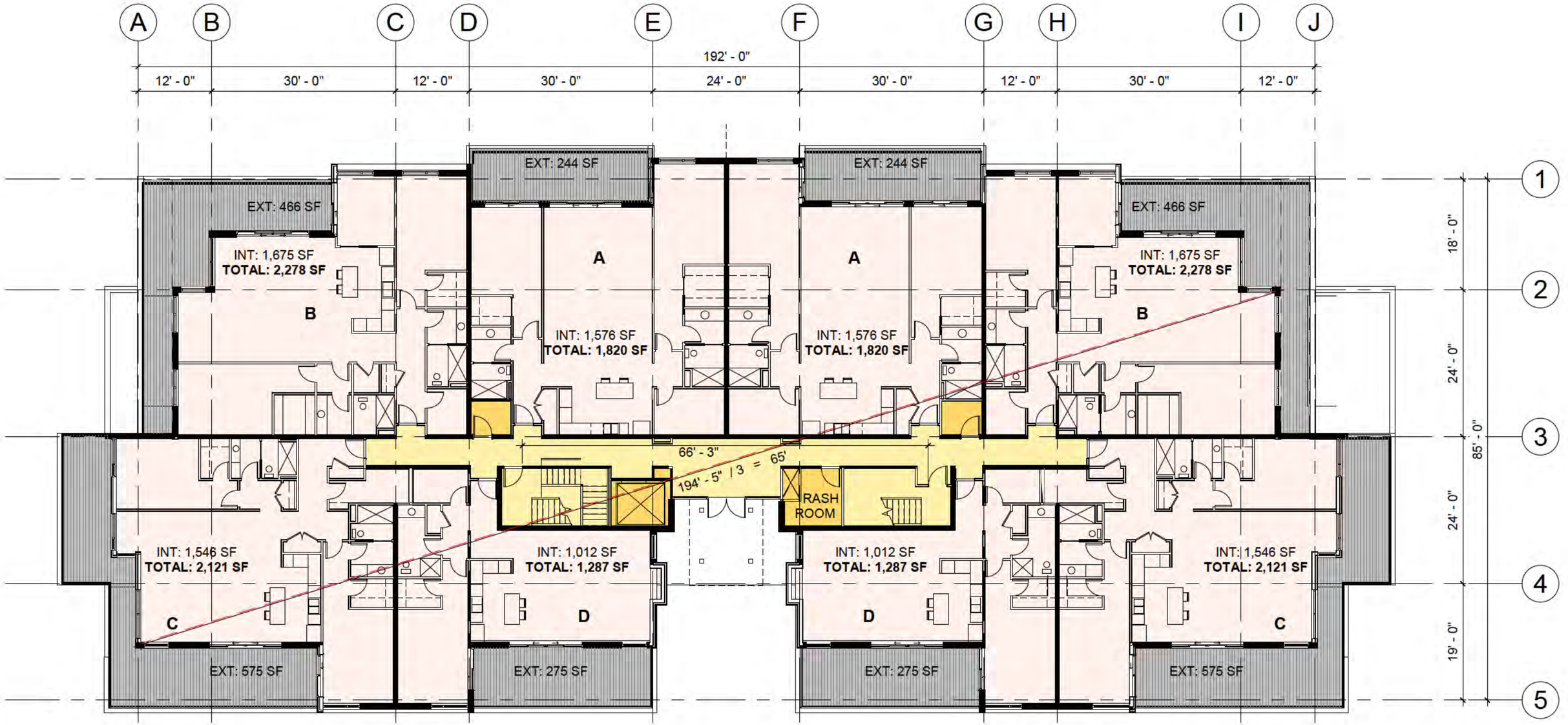
- STORAGE AREA - **498 SF**
- INTERIOR PARKING AREA - **10,750 SF**
- INTERIOR COMMON AREA - **1,062 SF**
- SERVICE AREA - **878 SF**

TOTAL AREA - **13,188 SF**



A3.1 - BUILDING A.1 PARKING LEVEL

07/28/2020



LEGEND

- EXTERIOR BALCONY AREA - **3,120 SF**
- INTERIOR LIVABLE AREA - **11,618 SF**
- INTERIOR COMMON AREA - **1,048 SF**
- SERVICE AREA - **248 SF**

TOTAL AREA - **15,582 SF**

N

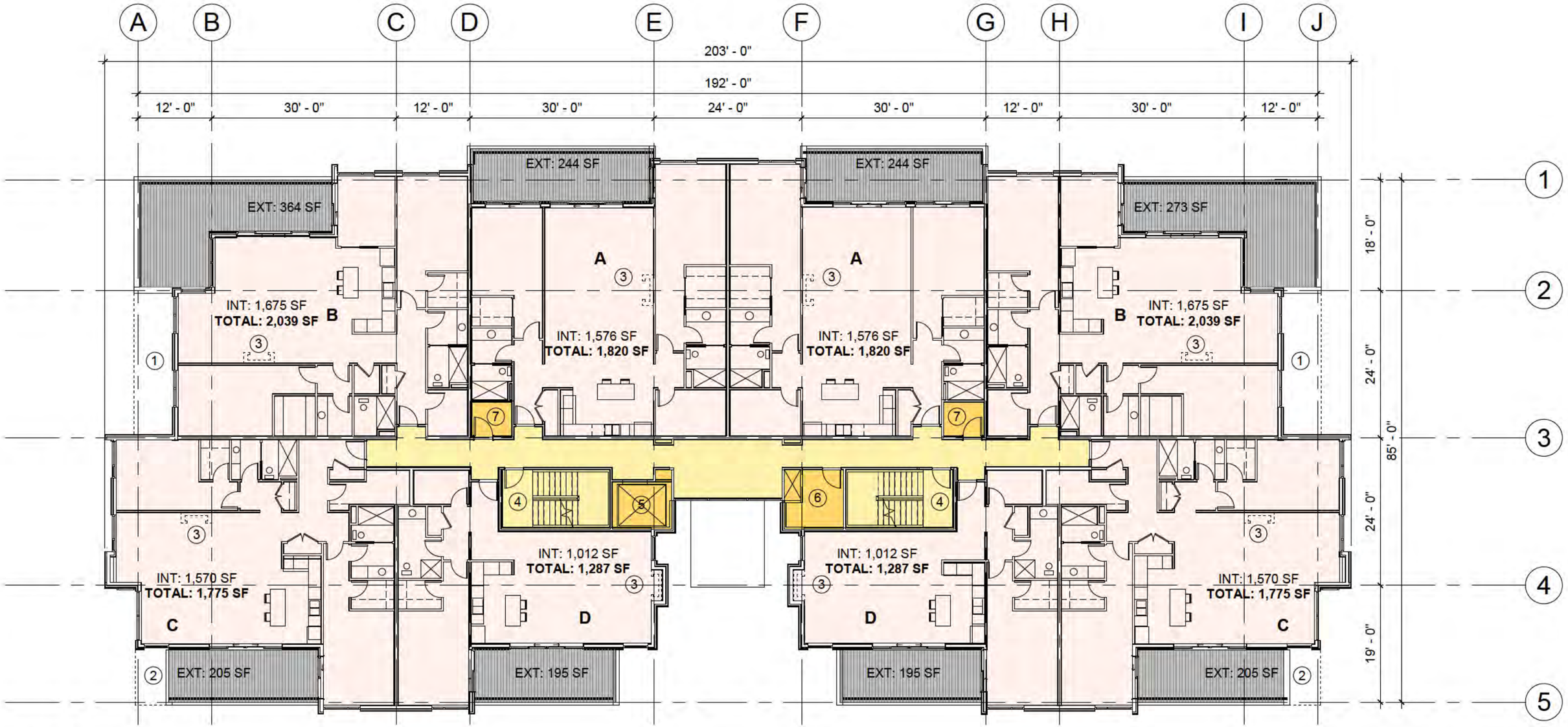
42°

GRAPHIC SCALE: 1/16" = 1'-0"

0' 8' 16' 32'

A3.2 - BUILDING A.1 GROUND LEVEL FLOOR PLAN

07/28/2020



LEGEND

- EXTERIOR BALCONY AREA - **2,016 SF**
- INTERIOR LIVABLE AREA - **11,666 SF**
- INTERIOR COMMON AREA - **1,048 SF**
- SERVICE AREA - **248 SF**

TOTAL AREA - **14,978 SF**

GRAPHIC SCALE: 1/16" = 1'-0"

0' 8' 16' 32'

42°

NOTES

1. ADDITIONAL TERRACE AT LEVEL 3 AND 4
2. ADDITIONAL TERRACE AT LEVEL 4
3. GAS FIREPLACES AT LEVEL 4
4. EXIT STAIR
5. ELEVATOR TO ALL LEVELS
6. TRASH CHUTE / RECYCLE
7. MEP EQUIPMENT

A3.3 - BUILDING A.1 TYPICAL UPPER LEVEL FLOOR PLANS

07/28/2020

LEGEND

STANDING SEAM METAL ROOF

SOLAR ARRAY

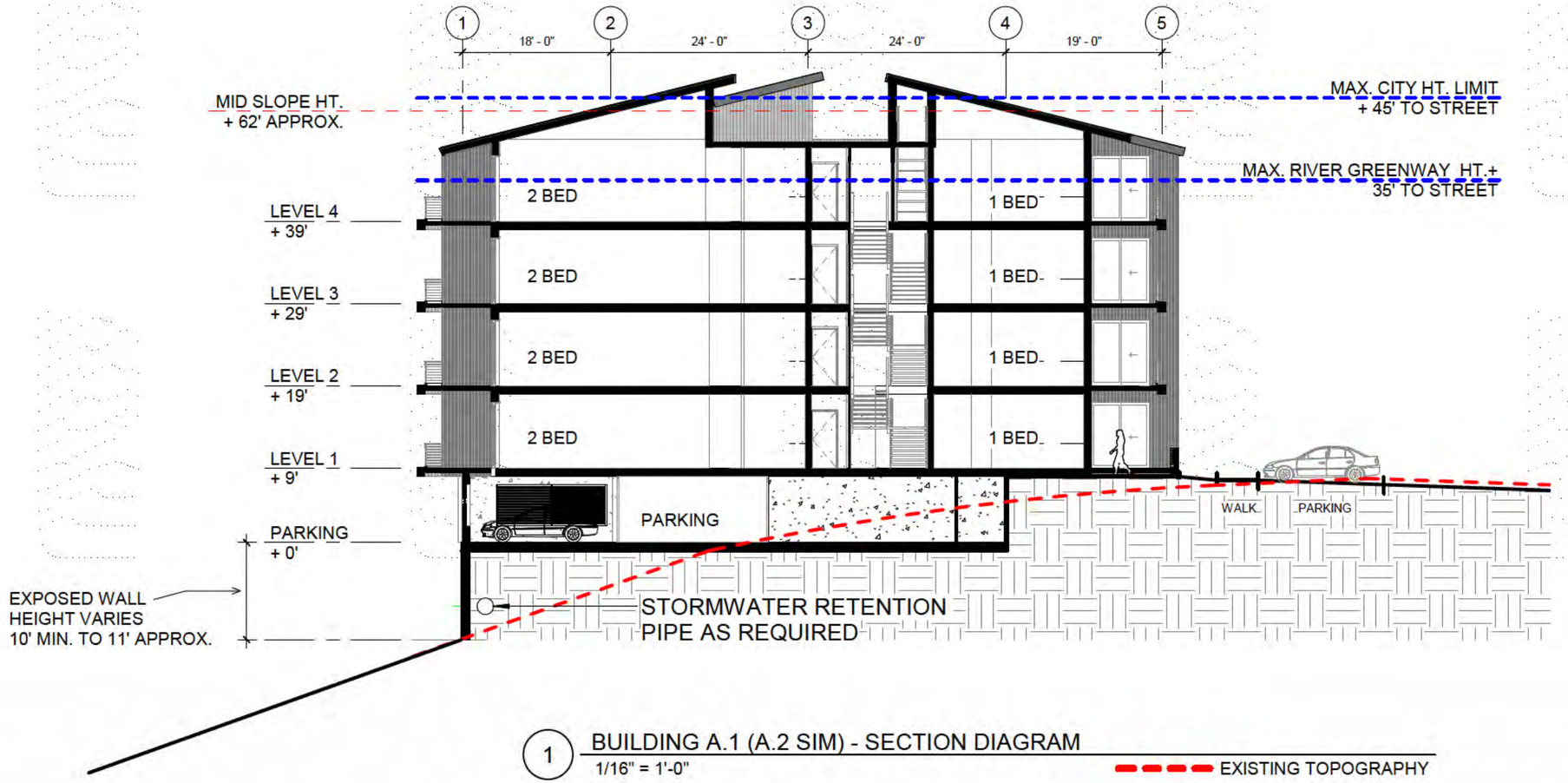
N

42°

GRAPHIC SCALE: 1/16" = 1'-0"

0' 8' 16' 32'

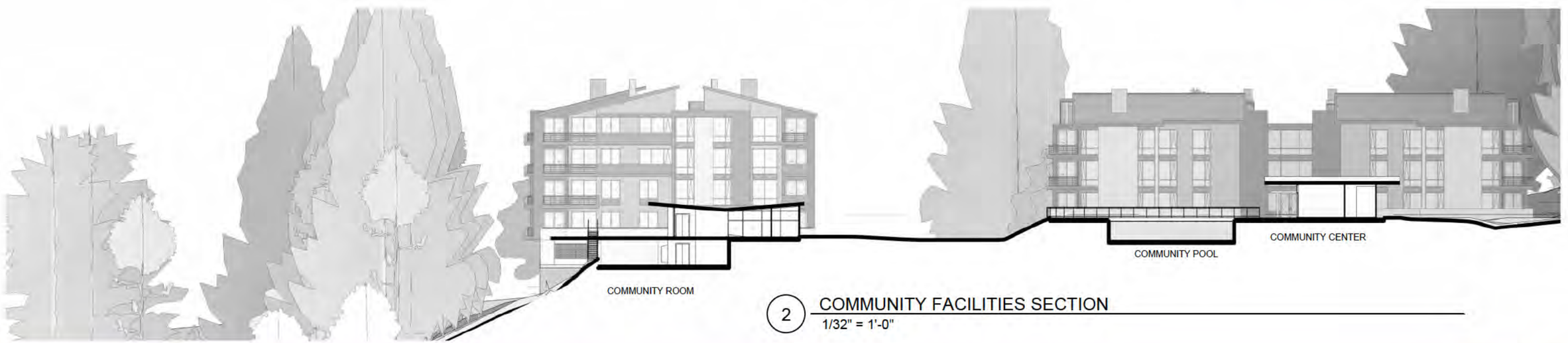
A3.4 - BUILDING A.1 ROOF LEVEL



1 BUILDING A.1 (A.2 SIM) - SECTION DIAGRAM

1/16" = 1'-0"

EXISTING TOPOGRAPHY

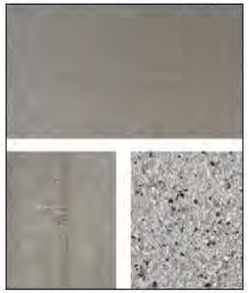


2 COMMUNITY FACILITIES SECTION

1/32" = 1'-0"

1 EAST **45.6% GLAZING**
1/16" = 1'-0"

PRELIMINARY MATERIALS AND COLORS


SITE AND PRECAST CONCRETE

METAL PANELS AND MULLIONS

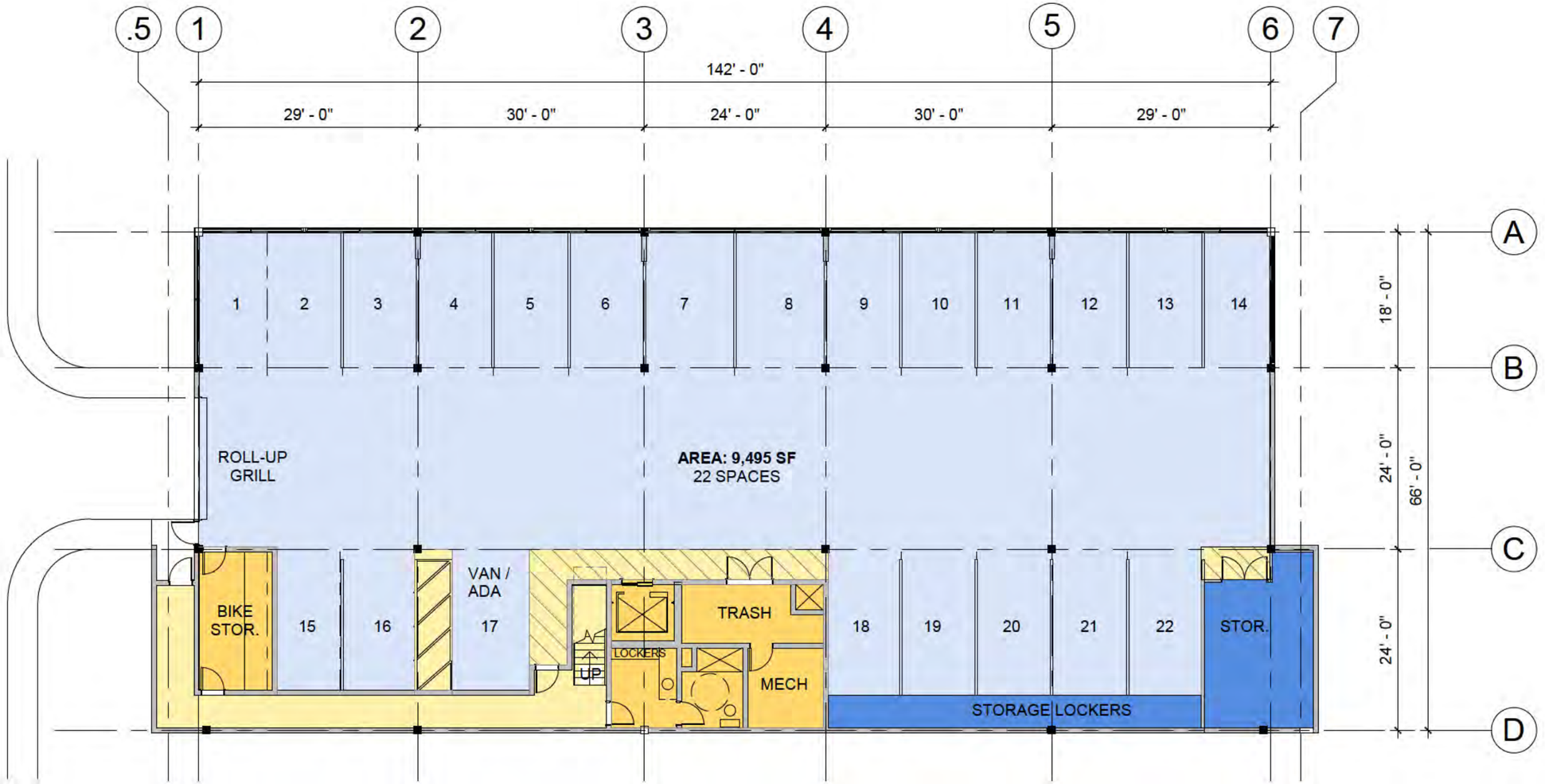
GLAZING

VERTICAL FIBER PANELS

HORIZONTAL TREATED WOOD SIDING

STANDING SEAM METAL ROOF

2 SOUTH **40.9 % GLAZING**
1/16" = 1'-0"



LEGEND

- STORAGE AREA - **468 SF**
- INTERIOR PARKING AREA - **7,464 SF**
- INTERIOR COMMON AREA - **824 SF**
- SERVICE AREA - **716 SF**

TOTAL AREA - **9,495 SF**

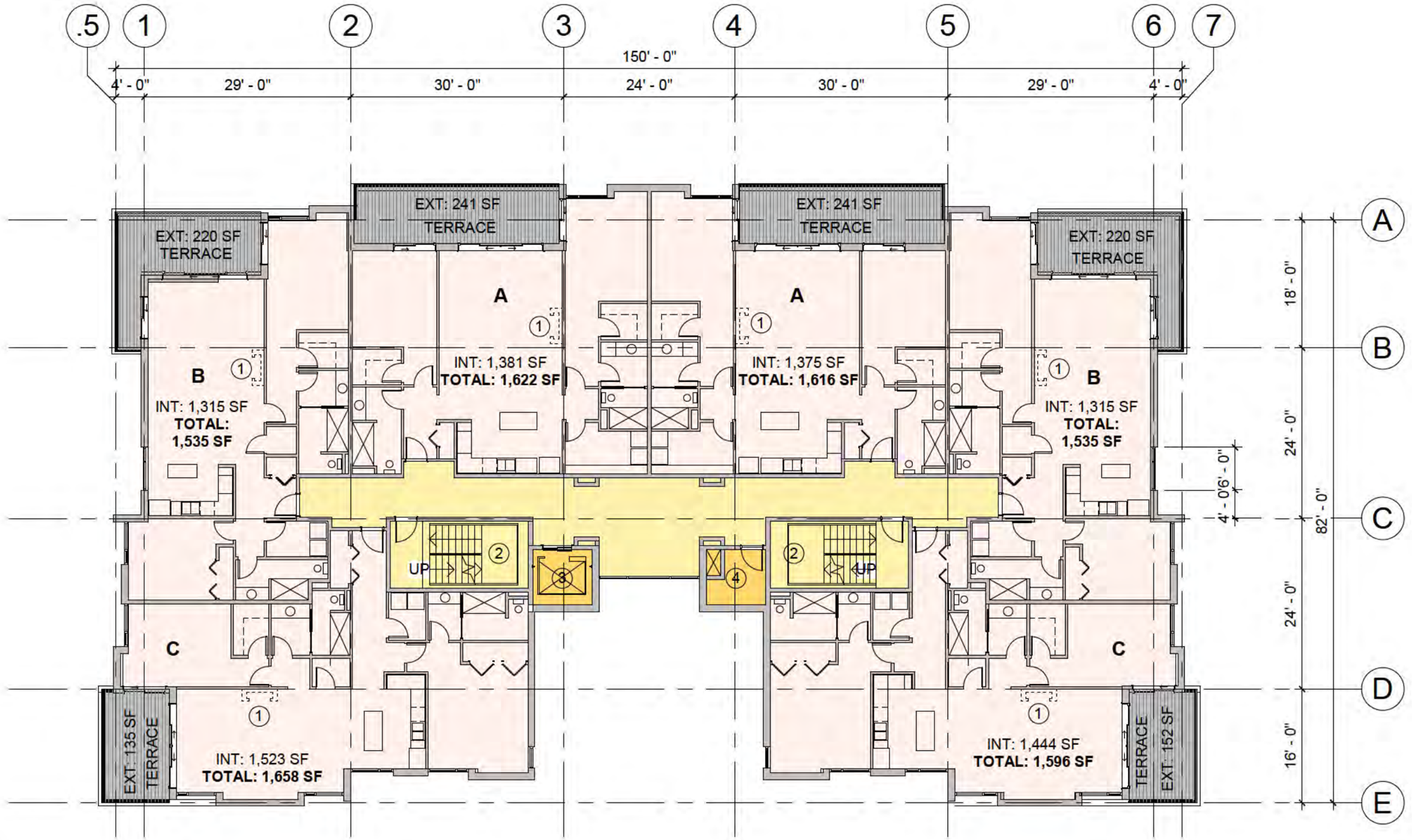
N

GRAPHIC SCALE: 1/16" = 1'-0"

0' 8' 16' 32'

42°

A4.2 - BUILDING B.1 PARKING LEVEL



LEGEND

- EXTERIOR BALCONY AREA - **1,362 SF**
- INTERIOR LIVABLE AREA - **8,666 SF**
- INTERIOR COMMON AREA - **1,147 SF**
- SERVICE AREA - **127 SF**

TOTAL AREA - **11,302 SF**

GRAPHIC SCALE: 1/16" = 1'-0"

0' 8' 16' 32'

N 42°

NOTES

1. GAS FIREPLACES AT LEVEL 3
2. EXIT STAIR
3. ELEVATOR TO ALL LEVELS
4. TRASH CHUTE / RECYCLE

A4.3 - BUILDING B.1 TYPICAL UPPER LEVEL FLOOR PLANS

1 SOUTH ELEVATION
1/16" = 1'-0"

PRELIMINARY MATERIALS AND COLORS

SITE AND PRECAST CONCRETE

METAL PANELS AND MULLIONS

GLAZING

VERTICAL FIBER PANELS

HORIZONTAL TREATED WOOD SIDING

STANDING SEAM METAL ROOF

2 WEST ELEVATION
1/16" = 1'-0"

PARCEL 02
PARCEL 01
PARCEL 03

LEGEND

- DECIDUOUS TREE
- CONIFER TREE
- OFF-SITE TREE *shown for context
- MPACT OF GRADING
- REMOVED TREE
- PROPERTY LINE

GRAPHIC SCALE: 1/16" = 1'-0"

0' 8' 16' 32'

42°

A5.1 - TREE REMOVAL PLAN

07/28/2020

REMOVED TREES

No.	Species	Health
1	Hawthorn	FAIR
3	Hawthorn	GOOD
4	Hawthorn	GOOD
5	Scouler's willow	POOR
6	Scouler's willow	POOR
7	Bigleaf Maple	POOR
8	Bigleaf Maple	POOR
9	Crabapple	POOR
10	Bigleaf Maple	POOR
12	Douglas Fir - S	FAIR
16	Hawthorn	FAIR
24	Elm	FAIR
25	Elm	FAIR
29	Elm	FAIR
33	Bigleaf Maple	POOR
40	Bigleaf Maple	FAIR
41	Bigleaf Maple	GOOD
42	Bigleaf Maple	POOR
44	Bigleaf Maple	POOR
46	Bigleaf Maple	FAIR
49	Bigleaf Maple	POOR
58	Bigleaf Maple	POOR
60	Grand Fir	DEAD
65	Bigleaf Maple	POOR
66	Bigleaf Maple	FAIR
67	Oregon White Oak	FAIR
68	Hawthorn	FAIR
72	Douglas Fir - 20'	DEAD
76	Bigleaf Maple	POOR
78	Bigleaf Maple	POOR
79	Bigleaf Maple	POOR
84	Douglas Fir - S	FAIR
85	Bigleaf Maple	POOR
86	Bigleaf Maple	POOR
88	Bigleaf Maple	POOR
93	Oregon White Oak	FAIR
94	Douglas Fir - S	POOR
97	Bigleaf Maple	POOR
99	Douglas Fir - 20'	POOR
101	Douglas Fir - S	POOR
103	Douglas Fir - M	GOOD
105	Bigleaf Maple	DEAD
106	Bigleaf Maple	POOR
107	Bigleaf Maple	POOR
114	Bigleaf Maple	GOOD
115	Bigleaf Maple	FAIR
116	Elm	POOR
117	Oregon Ash	POOR
118	Bigleaf Maple	GOOD
119	Bigleaf Maple	GOOD
120	Bigleaf Maple	FAIR
122	Oregon White Oak	GOOD
123	Bigleaf Maple	DEAD
124	Bigleaf Maple	DEAD
127	Douglas Fir - M	GOOD
128	Douglas Fir - S	FAIR
129	Bigleaf Maple	FAIR
130	Bigleaf Maple	POOR
131	Oregon White Oak	GOOD
132	Bigleaf Maple	POOR
133	Douglas Fir - 20'	POOR
135	Douglas Fir - 20'	GOOD
136	Douglas Fir - S	FAIR
137	Douglas Fir - S	GOOD
138	Oregon White Oak	FAIR
139	Oregon White Oak	FAIR
140	Oregon White Oak	FAIR
141	Oregon White Oak	GOOD
144	Bigleaf Maple	FAIR
146	Bigleaf Maple	FAIR
151	Oregon White Oak	GOOD
158	Bigleaf Maple	POOR
160	Bigleaf Maple	FA R
164	Oregon White Oak	POOR
165	Oregon White Oak	GOOD
166	Oregon White Oak	GOOD
167	Oregon White Oak	POOR
168	Oregon White Oak	FA R
169	Oregon White Oak	FA R
170	Oregon White Oak	DEAD
171	Oregon White Oak	GOOD
172	White Oak	FA R
173	Oregon White Oak	FA R
174	White Oak	FA R
175	Oregon White Oak	FA R
176	Oregon White Oak	GOOD
177	Oregon White Oak	FA R
178	Oregon White Oak	GOOD
179	White Oak	GOOD
180	Oregon White Oak	FA R
181	Bigleaf Maple	DEAD
182	Douglas Fir - M	FA R
183	White Oak	POOR
184	Hawthorn	FA R
185	Oregon White Oak	FA R
186	Bigleaf Maple	POOR
187	Bigleaf Maple	POOR
188	Hawthorn	POOR
189	White Oak	GOOD
190	Douglas Fir - M	GOOD
191	Douglas Fir - S	GOOD
192	Douglas Fir - L	GOOD
193	Douglas Fir - M	GOOD
194	Scouler's willow	FA R
195	Douglas Fir - M	GOOD
196	Bigleaf Maple	GOOD
197	Douglas Fir - S	GOOD
198	Douglas Fir - L	GOOD
199	Bigleaf Maple	GOOD
200	Douglas Fir - M	GOOD
202	Bigleaf Maple	POOR
204	Douglas Fir - S	FA R
205	Douglas Fir - L	GOOD
206	Douglas Fir - L	GOOD
208	Douglas Fir - M	GOOD
209	Douglas Fir - S	POOR
210	Douglas Fir - M	FA R
212	Sweet Cherry	FA R
213	Bigleaf Maple	DEAD
214	Bigleaf Maple	GOOD
216	Sweet Cherry	GOOD
217	Sweet Cherry	FA R
218	Sweet Cherry	FA R
219	Oregon White Oak	GOOD
220	Douglas Fir - S	DEAD
224	Douglas Fir - M	GOOD
227	Bigleaf Maple	POOR
229	Oregon Ash	GOOD
230	Oregon Ash	GOOD
231	Oregon Ash	GOOD
232	Oregon Ash	GOOD
233	Oregon Ash	FA R
234	Bigleaf Maple	POOR
235	Bigleaf Maple	FA R
236	Bigleaf Maple	FA R
237	Bigleaf Maple	POOR
243	Oregon White Oak	GOOD
244	Oregon White Oak	GOOD
245	Oregon White Oak	GOOD
246	Oregon White Oak	FA R
247	Oregon White Oak	FA R
248	Oregon White Oak	GOOD
251	Oregon White Oak	FA R
252	Oregon White Oak	FA R
253	Oregon White Oak	FAIR
254	Oregon White Oak	GOOD
255	Oregon White Oak	FAIR
257	Oregon White Oak	FAIR
258	Oregon White Oak	POOR
260	Oregon White Oak	FAIR
261	Oregon White Oak	FAIR
262	Bigleaf Maple	DEAD
267	Oregon White Oak	POOR
269	Sweet Cherry	GOOD
271	Bigleaf Maple	POOR
272	Douglas Fir - S	POOR
273	Douglas Fir - S	DEAD
276	Douglas Fir - 20'	DEAD
279	Douglas Fir - S	FAIR
280	Bigleaf Maple	POOR
281	Bigleaf Maple	FAIR
282	Oregon White Oak	POOR
283	Douglas Fir - L	GOOD
284	Bigleaf Maple	FAIR
285	Bigleaf Maple	GOOD
286	Bigleaf Maple	FAIR
287	Bigleaf Maple	POOR
289	Oregon White Oak	DEAD
291	Douglas Fir - 20'	FAIR
292	Douglas Fir - 20'	POOR
296	Douglas Fir - L	POOR
298	Douglas Fir - M	FAIR
300	Bigleaf Maple	POOR
304	Bigleaf Maple	POOR
307	Bigleaf Maple	GOOD
308	Douglas Fir - 20'	POOR
310	Bigleaf Maple	GOOD
311	Douglas Fir - S	FAIR
313	Oregon White Oak	GOOD
314	Hawthorn	POOR
315	Oregon Ash	GOOD
316	Oregon Ash	GOOD
318	Hawthorn	POOR
319	Hawthorn - 25'	GOOD
320	Crabapple	POOR
321	Bigleaf Maple	POOR
322	Bigleaf Maple	FAIR
323	Bigleaf Maple	FAIR
325	Oregon Ash	GOOD
326	Hawthorn	POOR
327	Hawthorn	FAIR
328	Hawthorn	POOR
329	Hawthorn	FAIR
330	Hawthorn	FAIR
331	Hawthorn	FAIR
335	Bigleaf Maple	FAIR
336	Hawthorn	FAIR
337	Oregon Ash	GOOD
338	Bigleaf Maple	DEAD
339	Bigleaf Maple	POOR
340	Bigleaf Maple	POOR
341	Hawthorn	POOR
342	Bigleaf Maple	POOR
343	Bigleaf Maple	POOR
344	Bigleaf Maple	FAIR
345	Bigleaf Maple	FAIR
346	Bigleaf Maple	POOR
348	Pacific Dogwood	POOR
351	Bigleaf Maple	POOR
352	Bigleaf Maple	FAIR
353	Bigleaf Maple	POOR
354	Bigleaf Maple	POOR
355	Hawthorn	POOR
357	Oregon Ash	POOR
358	Bigleaf Maple	POOR
359	Bigleaf Maple	POOR
360	Bigleaf Maple	POOR
366	Bigleaf Maple	POOR
367	Bigleaf Maple	POOR
368	Hawthorn	POOR
369	Bigleaf Maple	POOR
370	Bigleaf Maple	POOR
371	Hawthorn	FAIR
372	Hawthorn	POOR
373	Hawthorn	FAIR
374	Bigleaf Maple	POOR
375	Hawthorn	POOR
377	Hawthorn	FAIR
378	Douglas Fir - 20'	FAIR
379	Bigleaf Maple	DEAD
380	Bigleaf Maple	POOR
381	Douglas Fir - S	FAIR
382	Douglas Fir - 20'	DEAD
383	Douglas Fir - 20'	DEAD
384	Elm	FAIR
385	Douglas Fir - 20'	DEAD
386	Douglas Fir - 20'	POOR
388	Hawthorn	FAIR
390	Douglas Fir - 20'	DEAD
392	Douglas Fir - 20'	DEAD
394	Douglas Fir - 20'	POOR
397	Douglas Fir - S	FAIR
400	Bigleaf Maple	DEAD
403	Elm	GOOD
404	Oregon White Oak	DEAD
405	Oregon White Oak	GOOD
407	Hawthorn	FAIR
407.1	Sweet Cherry	FAIR
408	Hawthorn	FAIR
408.1	Sweet Cherry	FAIR
409	Oregon White Oak	POOR
410	Bigleaf Maple	DEAD
411	Hawthorn	GOOD
412	Bigleaf Maple	POOR
418	Elm	DEAD
420	purple leaf plum	POOR

TOTAL: 256

MAINTAINED TREES

No.	Species	Health
2	Bigleaf Maple	GOOD
11	Bigleaf Maple	GOOD
13	Douglas Fir - M	FAIR
14	Douglas Fir - L	GOOD
15	Douglas Fir - L	FAIR
17	Bigleaf Maple	GOOD
18	Bigleaf Maple	GOOD
19	Bigleaf Maple	GOOD
20	Douglas Fir - L	GOOD
21	Red Oak	GOOD
22	Elm	GOOD
23	Oregon White Oak	GOOD
26	Elm	GOOD
27	Elm	GOOD
28	Oregon White Oak	FAIR
30	Oregon White Oak	GOOD
31	Oregon White Oak	GOOD
32	Bigleaf Maple	GOOD
34	Bigleaf Maple	GOOD
35	Douglas Fir - M	GOOD
36	Douglas Fir - L	GOOD
37	Bigleaf Maple	N/A
38	Douglas Fir - M	GOOD
39	Bigleaf Maple	FAIR
43	Douglas Fir - M	GOOD
45	Bigleaf Maple	FAIR
47	Douglas Fir - L	GOOD
48	Bigleaf Maple	FAIR
50	Oregon White Oak	GOOD
51	Douglas Fir - M	GOOD
52	Douglas Fir - M	GOOD
53	Bigleaf Maple	FAIR
54	Bigleaf Maple	GOOD
55	Douglas Fir - L	GOOD
56	Bigleaf Maple	GOOD
57	Douglas Fir - L	GOOD
59	Douglas Fir - L	GOOD
61	Douglas Fir - S	FAIR
62	Douglas Fir - 20'	GOOD
64	Bigleaf Maple	FAIR
69	Oregon White Oak	GOOD
70	Douglas Fir - S	GOOD
71	Douglas Fir - S	GOOD
73	Grand Fir	GOOD
74	Bigleaf Maple	FAIR
75	Douglas Fir - M	GOOD
77	Bigleaf Maple	GOOD
80	Douglas Fir - S	GOOD
81	Douglas Fir - S	FAIR
82	Grand Fir	GOOD
83	Douglas Fir - M	GOOD
87	Douglas Fir - L	GOOD
89	Douglas Fir - S	GOOD
90	Bigleaf Maple	GOOD
91	Bigleaf Maple	GOOD
92	Oregon White Oak	FAIR
95	Douglas Fir - S	GOOD
96	Douglas Fir - S	GOOD
98	Douglas Fir - S	GOOD
100	Douglas Fir - M	GOOD
102	Bigleaf Maple	FAIR
104	Douglas Fir - M	GOOD
113	black cottonwood	GOOD
121	Oregon White Oak	GOOD
143	Oregon White Oak	GOOD
145	Oregon White Oak	GOOD
147	Douglas Fir - S	GOOD
148	Bigleaf Maple	FAIR
149	Douglas Fir - M	FAIR
150	Bigleaf Maple	GOOD
152	Oregon White Oak	GOOD
153	Bigleaf Maple	GOOD
154	Douglas Fir - S	GOOD
155	Douglas Fir - L	GOOD
156	Douglas Fir - L	GOOD
157	Douglas Fir - L	GOOD
159	Douglas Fir - S	GOOD
161	Douglas Fir - 20'	GOOD
162	Douglas Fir - 20'	GOOD
163	Douglas Fir - M	GOOD
201	Oregon White Oak	GOOD
203	Douglas Fir - M	GOOD
207	Douglas Fir - L	GOOD
211	Douglas Fir - M	GOOD
221	Douglas Fir - L	GOOD
222	Douglas Fir - S	GOOD
223	Douglas Fir - L	GOOD
226	Douglas Fir - 20'	FAIR
228	Bigleaf Maple	GOOD
238	Oregon White Oak	GOOD
239	Oregon White Oak	FAIR
240	Oregon White Oak	FAIR
241	Oregon White Oak	GOOD
249	Oregon White Oak	GOOD
256	Douglas Fir - L	GOOD
259	White Oak	FAIR
263	Douglas Fir - S	GOOD
264	Douglas Fir - S	GOOD
265	Douglas Fir - M	GOOD
266	Douglas Fir - L	GOOD
268	Bigleaf Maple	FAIR
270	Douglas Fir - L	GOOD
274	Douglas Fir - S	GOOD
275	Douglas Fir - S	GOOD
277	Douglas Fir - M	GOOD
278	Douglas Fir - M	GOOD
288	Oregon White Oak	GOOD
290	Grand Fir	GOOD
293	Douglas Fir - S	GOOD
294	Bigleaf Maple	FA R
295	shore pine	GOOD
301	Bigleaf Maple	FA R
302	Bigleaf Maple	FA R
303	Douglas Fir - S	FA R
306	Bigleaf Maple	FA R
309	Douglas Fir - M	GOOD
349	Bigleaf Maple	FA R
350	Bigleaf Maple	FA R
356	Bigleaf Maple	GOOD
361	Douglas Fir - 20'	GOOD
362	shore pine	FA R
363	shore pine	FA R
364	shore pine	FA R
365	shore pine	GOOD
393	Elm	GOOD
395	Bigleaf Maple	FA R
396	Bigleaf Maple	FA R
401	Elm	FA R
402	Elm	FA R
406	Oregon White Oak	FA R
413	Bigleaf Maple	GOOD
414	Bigleaf Maple	GOOD
416	Pacific Dogwood	FA R
417	Elm	GOOD
419	Bigleaf Maple	GOOD

TOTAL: 135

GRAND TOTAL: 391

VIEWS LOOKING EAST ACROSS RIVER TO SITE SHOWING MINIMAL PROJECT VISIBILITY

VIEWS LOOKING NORTH DOWN RIVER TO SITE SHWOING MINIMAL PROJECT VISIBILITY

APPROXIMATE MASTER PLAN EARTHWORK (1:1)
CUT: 5,620 CY FILL: 12,900 CY NET: - 7,280 CY

APPROXIMATE PHASE 1 EARTHWORK (1:1)
CUT: 1,170 CY FILL: 3,780 CY NET: - 2,610 CY

SCALE 1 INCH = 40 FEET
40 0 40 80

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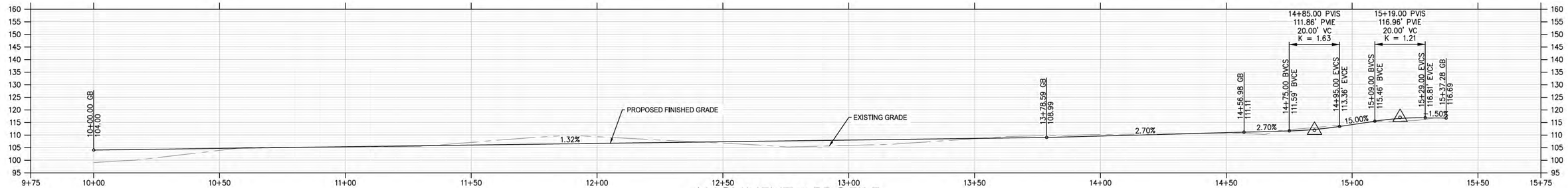
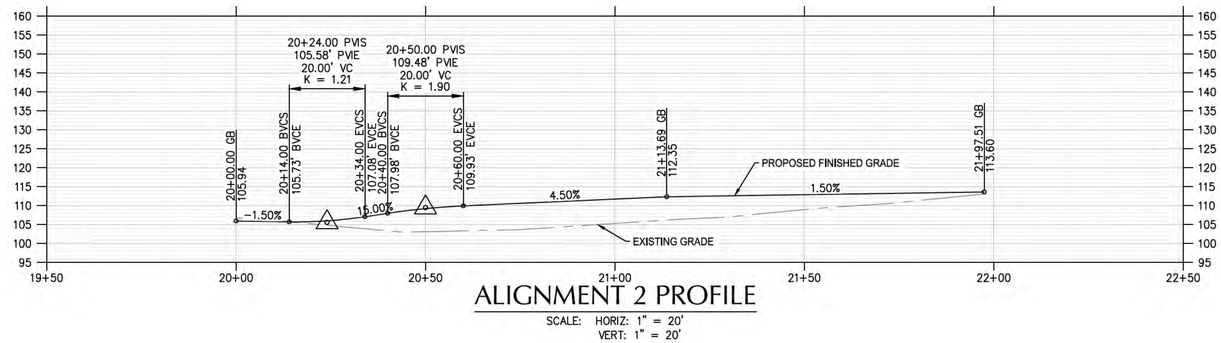


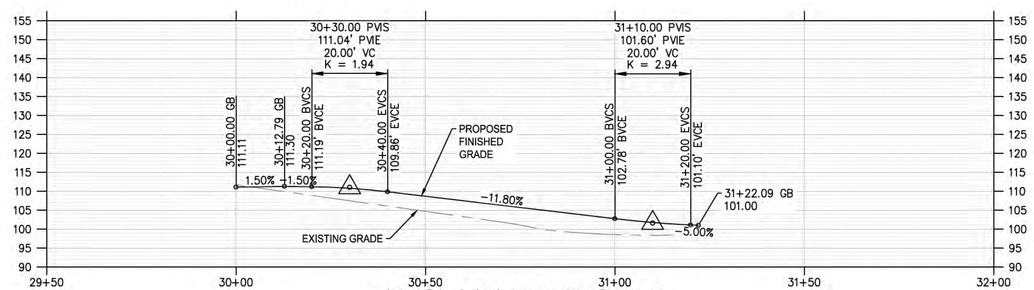
ALIGNMENT 1 PROFILE

SCALE: HORIZ: 1" = 20'
VERT: 1" = 20'



ALIGNMENT 2 PROFILE

SCALE: HORIZ: 1" = 20'
VERT: 1" = 20'



ALIGNMENT 3 PROFILE

SCALE: HORIZ: 1" = 20'
VERT: 1" = 20'

SCALE 1 INCH = 40 FEET
40 0 40 80

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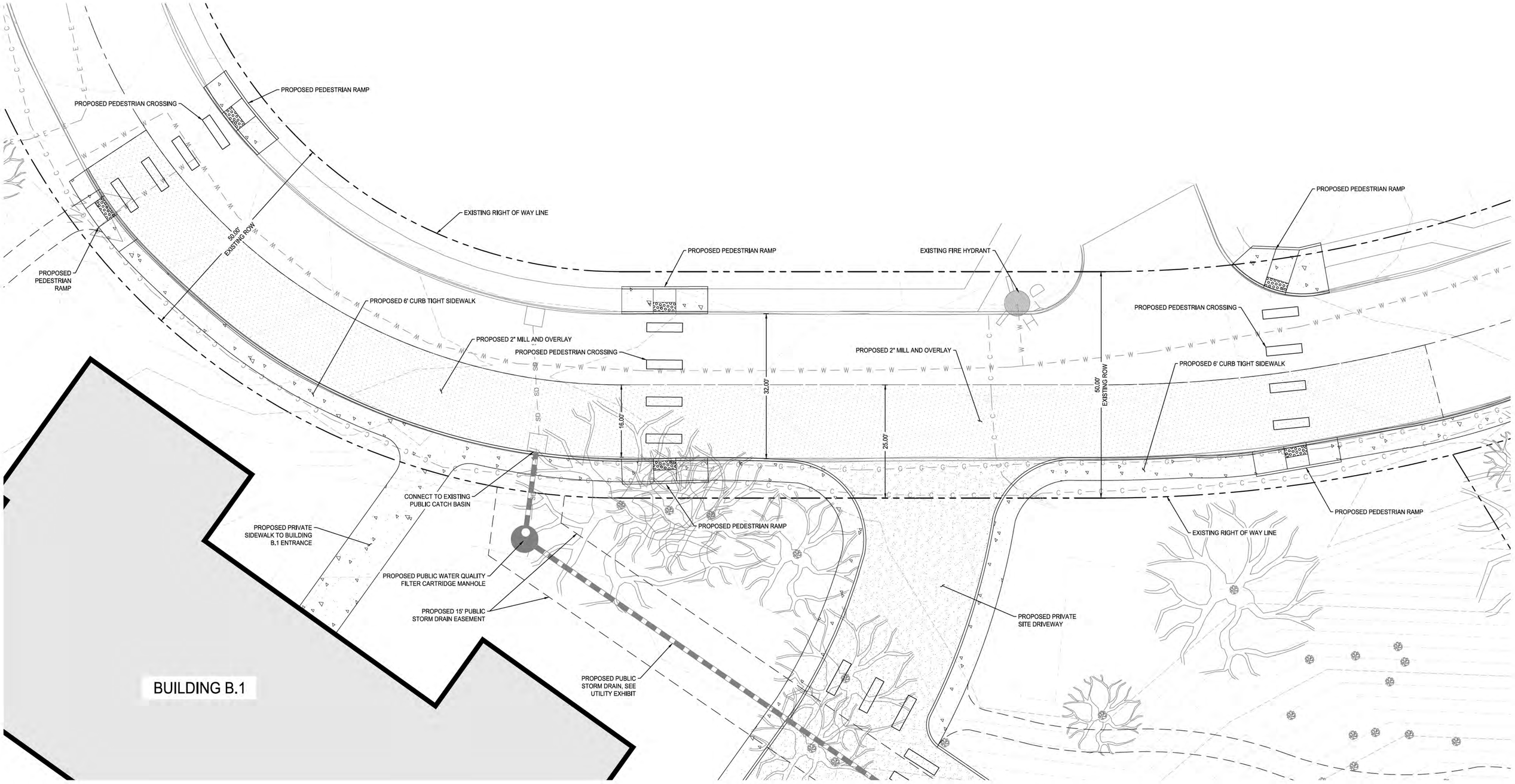

SCALE 1 INCH = 40 FEET

40 0 40 80

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LEGEND

- STORM DRAIN
- SANITARY SEWER
- W — DOMESTIC WATER
- FP — FIRE PROTECTION
- G — NATURAL GAS
- E — ELECTRIC

EXISTING FIRE HYDRANT 100' RADIUS
CONNECT TO EXISTING PUBLIC STREET CATCHBASIN
CONNECT TO EXISTING WATER MAIN FOR DOMESTIC WATER
CONNECT TO EXISTING WATER MAIN FOR FIRE PROTECTION
CONNECT TO EXISTING GAS LINE
CONNECT TO EXISTING ELECTRIC SYSTEM
EXISTING FIRE HYDRANT 100' RADIUS
PROPOSED FIRE HYDRANT 100' RADIUS
SD PUB WQ FILTER CARTRIDGE MH
W METER
W BACKFLOW
BUILDING B.1
PARKING: 108.0
LEVEL 1: 117.0
ELEC STUB-1
FP STUB-1
W STUB-1
NGAS STUB-1
S STUB-1
FP FH-1
FP BACKFLOW
15' PUBLIC STORM DRAIN EASEMENT
SD AD-2
SD AD-1
SD 45° HB
PROPOSED FIRE HYDRANT 100' RADIUS
COMMUNITY BUILDING
FFE: 114.0
TRENCH DRAIN
SD CB-1
SD MH-1
SD STUB-1
SD WYE-1
NGAS STUB-2
FP STUB-2
W STUB-2
ELEC STUB-2
SD DI-1
SD WYE-8
BUILDING B.2
PARKING: 105.0
LEVEL 1: 114.0
S STUB-5
NGAS STUB-5
SD STUB-5
ELEC STUB-5
W STUB-5
FP STUB-5
SD CB-3
SD WYE-7
S STUB-2
SD STUB-2
SD CB-2
SD WYE-4
SD WYE-2
SD WYE-3
TRENCH DRAIN
SD FLOW CONTROL MH
APPROXIMATE LOCATION OF EXISTING 15" STORM DRAIN
PROPOSED 15' PUBLIC STORM DRAIN EASEMENT OVER EXISTING STORM DRAIN SYSTEM
SD PUB-MH-2
SD PUB-MH-1
15' PUBLIC STORM DRAIN EASEMENT
SD STUB-3
FP STUB-3
W STUB-3
NGAS STUB-3
ELEC STUB-3
SD MH-2
BUILDING A.1
PARKING: 101.0
LEVEL 1: 110.0
TRENCH DRAIN
SD CB-4
FP FH-2
SD WYE-5
SD WYE-6
S MH-4
SD MH-3
SD DETENTION VAULT
SD PUB-MH-3
CONNECT TO EXISTING 15" STORM DRAIN STUB
PROPOSED 15' PUBLIC STORM DRAIN EASEMENT OVER EXISTING STORM DRAIN SYSTEM
ELEC STUB-4
FP STUB-4
W STUB-4
NGAS STUB-4
SD STUB-4
BUILDING A.2
PARKING: 99.0
LEVEL 1: 108.0
S STUB-4
S STUB-3
SD WQ FILTER CARTRIDGE MH
S MH-3
S MH-2
EXISTING FIRE HYDRANT 100' RADIUS
S MH-1
CONNECT TO EXISTING 8" SANITARY SEWER

SCALE 1 INCH = 40 FEET
40 0 40 80

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Appendix A

MEMORANDUM

Date:	July 17, 2020	Project #: 24832
To:	Steve Adams, PE – City of Milwaukie Avi Tayar, PE – Oregon Department of Transportation Reah Flisakowski, PE – DKS Associates	
CC:	Phil Krueger, AIA, LEED AP BD+C – Yost Grube Hall Architecture Scott Wyse – Walker Ventures LLC	
From:	Kristine Connolly, PE, Brian Dunn, PE, and Ali Razmpa – Kittelson & Associates, Inc.	
Project:	Waverley Woods Apartments	
Subject:	Transportation Impact Analysis	

Walker Ventures, LLC is proposing a multifamily apartment development located at 10415 SE Waverly Court. The proposed development site is part of the larger Waverley Greens Apartment complex which exists northeast of the site. The current proposal includes development of up to 100 multifamily apartment units with access via a driveway on SE Waverly Court. Future development may include up to 32 additional multifamily apartment units with access via a driveway on SE Lava Drive. The site location and overall site vicinity are shown in **Exhibit 1** and a conceptual site plan is shown in **Attachment A**. This transportation impact analysis report documents the transportation impacts associated with site development. To provide a conservative analysis, this report assumes full build-out of the site (both the current proposed and potential future development). Key findings and recommendations are summarized below.

SUMMARY OF FINDINGS

- All study intersections are forecast to operate within the applicable review agency volume-to-capacity ratio and level of service standards under existing and site build-out year 2021 conditions during the weekday AM and PM peak hours.
- Historical crash data for the study area intersections indicate no patterns or trends that require mitigation associated with the proposed development.

RECOMMENDATIONS

- Any new landscaping, above ground utilities, and signing should be located and maintained along the site frontage to maximize sight distance.

Exhibit 1. Site Vicinity Map

REPORT SCOPE

This report identifies the transportation-related impacts associated with the proposed development and was prepared in accordance with the City of Milwaukie and Oregon Department of Transportation (ODOT) requirements. Per City and ODOT staff direction, operational analyses were performed at the following study intersections during the weekday AM and PM peak periods (see **Exhibit 1**):

1. SE 17th Avenue – SE Harrison Street/SE McLoughlin Boulevard (OR-99E)
2. SE 17th Avenue/SE Lava Drive
3. SE 17th Avenue/Milwaukie Expressway (OR-224)
4. SE Lava Drive/SE Waverly Court
5. SE Waverly Court/Proposed Site Access
6. SE Lava Drive/Potential Future Site Access

This report evaluates the following transportation issues:

- Existing land use and transportation system conditions within the site vicinity during the weekday AM and PM peak periods;
- Forecast year 2021 background traffic conditions during the weekday AM and PM peak periods, considering other development and transportation improvements planned in the study area;
- Trip generation and distribution estimates for the proposed development;

- Forecast year 2021 total traffic conditions during the weekday AM and PM peak periods with build-out of the site;
- Review of applicable City of Milwaukie requirements, including sight distance and access standards; and
- Findings and recommendations.

Analysis Methodology

All level-of-service (LOS) analyses described in this report were performed in accordance with the procedures stated in the *Highway Capacity Manual, 6th Edition* (HCM – Reference 1) using PTV Vistro 2020 software. To ensure that the analyses were based on a reasonable worst-case scenario, peak 15-minute flow rates were used in the evaluation of all intersection levels of service. For this reason, the analyses reflect conditions that are only likely to occur for 15 minutes out of each average peak hour.

Applicable Operating Standards

Chapter 3 of the *City of Milwaukie Transportation System Plan* (TSP – Reference 2) defines the minimum acceptable measure of effectiveness for intersections during the peak hour as LOS "D" for both signalized and stop-controlled intersections.

The 1999 Oregon Highway Plan and all associated plan updates (OHP – Reference 3) defines ODOT v/c ratio mobility targets based on facility type. Per the OHP, a maximum v/c ratio of 0.99 is the ODOT mobility target for the SE 17th Avenue/OR-224 intersection. At SE 17th Avenue – SE Harrison Street/OR-99E, a maximum v/c ratio of 1.1 is the mobility target for the first highest hour and 0.99 for the second highest hour, due to its location within a Town Center.

Table 1 lists the study intersections, existing traffic control, jurisdictional authority, and the corresponding operating standard.

Table 1. Study Intersection Operating Standards

	Study Intersection	Traffic Control	Jurisdictional Authority	Intersection Operating Standard
1	SE 17th Avenue – SE Harrison Street/OR-99E	Signalized	ODOT	Intersection V/C ≤ 1.10 during the 1st Highest Hour Intersection V/C ≤ 0.99 during the 2nd Highest Hour
2	SE 17th Avenue/SE Lava Drive	Two Way Stop Control	City of Milwaukie	LOS D
3	SE 17th Avenue/OR-224	Signalized	ODOT	Intersection V/C ≤ 0.99 during the 1st and 2nd Highest Hours
4	SE Lava Drive/SE Waverly Court	Two Way Stop Control	City of Milwaukie	LOS D
5	SE Waverly Court/Proposed Site Access	Two Way Stop Control	City of Milwaukie	LOS D
6	SE Lava Drive/Potential Future Site Access	Two Way Stop Control	City of Milwaukie	LOS D

EXISTING CONDITIONS

This section summarizes the existing characteristics of the transportation system and adjacent land uses in the vicinity of the proposed development, including an inventory of the existing multimodal transportation facilities and options, an evaluation of existing intersection operations for motor vehicles at the study intersections, and a summary of recent study intersection crash history.

Site Conditions and Adjacent Land Uses

The proposed development site is located within the City of Milwaukie, northwest of the SE Lava Drive/SE Waverly Court intersection (see **Exhibit 1**). The development site is mostly forested and currently undeveloped. It is bounded by the Waverley Country Club to the northwest, and primarily residential development to the north, east and south.

Transportation Facilities

Table 2 summarizes the attributes of key roadways in the vicinity.

Table 2. Street Characteristics in Site Vicinity

Street	Classification[1]	Motor Vehicle Travel Lanes	Posted Speed (mph)	Sidewalks	Striped Bicycle Lanes	On-Street Parking
OR-224	Regional Route (Milwaukie) Urban Principal Arterial (ODOT)	4-5	50	No	No	No
SE 17th Avenue	Arterial (Milwaukie)	2	35	Partial[2]	Yes[3]	No
OR-99E	Regional Route (Milwaukie) Urban Principal Arterial (ODOT)	4-5	30	Partial[4]	Yes	No
SE Lava Drive	Local Street	2	NP[5]	Partial[6]	No	No
SE Waverly Court	Local Street	2	NP[5]	Partial[7]	No	No

[1]Per *City of Milwaukie Transportation System Plan*, Table 3-4 (Reference 2)
[2]There is a sidewalk on the west side of SE 17th Avenue between SE Lava Drive and OR-99E. North of SE Lava Drive, a multi-use path is provided on the west side of SE 17th Avenue.
[3]There is a striped bicycle lane on the east side and a multi-use path on the west side.
[4]There is a sidewalk on the east side of OR-99E between OR-224 interchange and SE 17th Avenue. North of the OR-224 interchange, pedestrian facilities are provided on SE Main Street which parallels OR-99E.
[5]Not posted.
[6]There are sidewalks on both sides of SE Lava Drive between SE 17th Avenue and SE Waverly Court, but no existing sidewalk west of SE Waverly Court.
[7]There are sidewalks on both sides of SE Waverly Court between SE lava Drive and the site frontage, but no existing sidewalk along the site frontage.

Roadway Cross Section Standards

The City of Milwaukie maintains typical cross-sections for roadways based on functional classification, as detailed in the City's *Transportation System Plan* (Reference 2). Milwaukie Municipal Code (MMC) Section 19.708 requires that all rights-of-way, streets, sidewalks, necessary public improvements, and other public transportation facilities located in the public right-of-way and abutting the development site shall be adequate at the time of development or shall be made adequate in a timely manner.

Per MMC Table 19.708.2, the SE Waverley Court and SE Lava Drive local street cross sections fronting the proposed development site should ultimately include 8-10 foot wide travel lanes, 6-8 foot wide parking, and 5-6 foot sidewalks (depending on the presence of landscape strips).

Transit Facilities

Per TriMet's online schedule, (Reference 4) weekday bus service is provided by TriMet Route 70 (12th/NE33rd Ave) along SE 17th Avenue between downtown Milwaukie and the Sunderland neighborhood (NE Portland) from 7:30 AM to 11:00 PM. Headways change throughout the day and range from approximately 20 to 30 minutes. The stop closest to the site is on SE 17th Avenue at SE Lava Drive, approximately ¼-mile from the site.

Approximately ½-mile from the site in downtown Milwaukie, TriMet Routes 29, 30, 32, 33, 34, 75, 99, and 152 converge, offering connection to various destinations. Additionally, the Milwaukie/Main Street MAX Station (orange line connecting Milwaukie to downtown Portland) stops approximately ¾-mile from the site.

Crash History Analysis

Reported crash history for each study intersection was reviewed in an effort to identify potential intersection safety issues. Reported crash data for the study intersections were obtained from ODOT for the five-year period from January 1, 2013 through December 31, 2017. **Table 3** summarizes the crashes reported at the study intersections. **Attachment B** contains the ODOT crash data. No crashes were reported at SE Lava Drive/SE Waverly Court (Intersection #4).

Table 3. Intersection Crash History (January 1, 2013 through December 31, 2017)

Intersection		Collision Type					Severity			Total Crashes
		Rear End	Turning	Angle	Bike/Ped	Other	PDO[1]	Injury	Fatal	
1	SE 17th Avenue – SE Harrison Street/OR-99E	14	6	4	1	1	10	16	0	26
2	SE 17th Avenue/SE Lava Drive	0	0	0	0	2	1	1	0	2
3	SE 17th Avenue/OR-224	6	1	0	1	1	4	5	0	9

[1]PDO – Property damage only

ODOT provides an annual list of safety priority index system (SPIS) locations which are based on reported crash data. The intent of the SPIS list is to identify roadway segments exhibiting an unusually high occurrence of crashes and is used to select locations for investigation. Review of the SPIS list determined that the north leg of OR-99E at SE 17th Avenue – SE Harrison Street is within the top ten percent.

Critical crash rates were calculated for each of the study intersections following the analysis methodology presented in ODOT's *SPR 667 Assessment of Statewide Intersection Safety Performance* (Reference 5). SPR 667 provided average crash rates at a variety of intersection configurations in Oregon based on number of approaches and traffic control types. The average crash rate represents the approximate number of crashes that are "expected" at a study intersection. Additionally, this average crash rate was used to calculate the critical crash rate for each study intersection, based on the *Highway Safety Manual* methodology (Reference 6). The critical crash rate is calculated for each intersection based on the average crash rate for each facility and serves as a threshold for further analysis.

Table 4 summarizes the critical crash rate for each intersection and compares those values to the observed crash rate. Per ODOT, if the observed crash rate at the study location exceeds the critical rate, it is a possible indication that the location is exceeding average crash rates. As shown in **Table 4**, the observed crash rate at all intersections is less than the critical crash rates.

Table 4. Intersection Crash Rate Assessment

	Location	Total Crashes	Critical Crash Rate by Intersection	Critical Crash Rate by Volume	Observed Crash Rate at Intersection	Observed Crash Rate>Critical Crash Rate?
1	SE 17th Avenue – SE Harrison Street/OR-99E	26	0.62	0.53	0.36	No
2	SE 17th Avenue/SE Lava Drive	2	0.29	0.40	0.11	No
3	SE 17th Avenue/OR-224	9	0.69	0.45	0.27	No

No safety-based mitigations were identified for implementation in conjunction with the proposed development based on review of the historic crash data alone.

Existing Conditions Operational Analysis

Given the impacted traffic pattens due to the current COVID-19 pandemic and State of Oregon stay at home order, new traffic counts were not collected for this analysis. Rather, historical morning (7:00-9:00 AM) and evening (4:00-6:00 PM) peak hour traffic count data was collected from June of 2014 at study Intersections #1-3. These counts are included in **Attachment C**.

A 2.7% linear annual growth rate was applied to the 2014 traffic counts to estimate year 2020 existing traffic volumes. This rate was calculated based on the average growth of ODOT Transportation Volume Tables (TVT) from 2014 to 2018 near the McLoughlin Blvd (OR-99E)/17th Ave/ Harrison St intersection. This growth rate is reflective of growth throughout a typical day. However, a comparison of more recent

signal detector count data provided by ODOT at Intersections #1 and #3 between 2018 and 2020 indicates a reduction in PM peak hour traffic volumes. To account for this reduction, a zero growth was applied to the PM peak hour traffic volumes for all years *after* year 2018, which is conservative given recent negative growth trend. These calculations are included in **Attachment C.**

Trips from SE 17th Avenue/SE Lava Drive (Intersection #3) were distributed along the SE Lava Drive corridor according to an estimation of trips associated with each existing land use according to trip rates presented in *Trip Generation Manual, 10th Edition* (Reference 7). This analysis was used to estimate existing turning movements at Intersection #4, where historical traffic count data is not available.

Table 5 summarizes the estimated 2020 existing traffic conditions for the weekday AM and PM peak hours.

Table 5. Estimated 2020 Existing Traffic Conditions

Study Intersection		Operating Requirement	Weekday AM Peak Hour		Weekday PM Peak Hour	
			V/C	LOS	V/C	LOS
1	SE 17th Avenue – SE Harrison Street/OR-99E	Intersection V/C ≤ 1.10 during the 1st Highest Hour Intersection V/C ≤ 0.99 during the 2nd Highest Hour	0.68	C	0.94	D
2	SE 17th Avenue/SE Lava Drive	LOS D	0.21 (EBL)	C	0.31 (EBL)	C
3	SE 17th Avenue/OR-224	Intersection V/C ≤ 0.99 during the 1st and 2nd Highest Hours	0.75	C	0.67	B
4	SE Waverly Court/ SE Lava Drive	LOS D	0.04 (SB)	A	0.03 (SB)	A

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right
V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)
LOS= Intersection level of service (signalized) / Critical lane group level of service (unsignalized)

As shown in **Table 5**, all of the intersections satisfy applicable City and ODOT standards under existing traffic conditions. **Attachment D** includes the 2020 existing traffic operations analysis worksheets. An illustration of existing lane configurations and traffic control devices at the study intersections is also included in **Attachment D**.

TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system would operate in the year 2021 with and without development of the site. This section of the report includes analysis of 2021 background traffic volumes and operations, an estimate of site-generated trips, and analysis of 2021 total traffic volumes and operations with the proposed development.

2021 Background Operational Analysis

Background traffic volumes include changes in volumes due to added trips from in-process developments in the vicinity of the site as well as general regional growth. Per direction from City of Milwaukie staff, no in-process developments or planned transportation improvements are included in the background traffic analysis for this development. Similar to the methodology for estimating existing traffic volumes, a 2.7% growth rate was applied to 2020 traffic volumes in the AM peak hour to estimate 2021 build-out year background traffic volumes. Zero growth was applied to the 2020 traffic volumes in the PM peak hour.

Table 6 summarizes the 2021 build-out year background traffic conditions for the weekday AM and PM peak hours.

Table 6. Year 2021 Background Traffic Conditions

Study Intersection		Operating Requirement	Weekday AM Peak Hour		Weekday PM Peak Hour	
			V/C	LOS	V/C	LOS
1	SE 17th Avenue – SE Harrison Street/OR-99E	Intersection V/C ≤ 1.10 during the 1st Highest Hour Intersection V/C ≤ 0.99 during the 2nd Highest Hour	0.70	C	0.94	D
2	SE 17th Avenue/SE Lava Drive	LOS D	0.22 (EBL)	C	0.31 (EBL)	C
3	SE 17th Avenue/OR-224	Intersection V/C ≤ 0.99 during the 1st and 2nd Highest Hours	0.76	C	0.67	B
4	SE Waverly Court/ SE Lava Drive	LOS D	0.04 (SB)	A	0.03 (SB)	A

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right
V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)
LOS= Intersection level of service (signalized) / Critical lane group level of service (unsignalized)

As shown in **Table 6**, all of the intersections are expected to continue to satisfy applicable City and ODOT standards under 2021 build-out year background traffic conditions. **Attachment E** includes the 2021 background traffic operations analysis worksheets.

Trip Generation Estimate

Trips for the proposed development were estimated using trip rates obtained from *Trip Generation Manual, 10th Edition* (Reference 7), as shown in **Table 7**.

Table 7. Trip Generation

Land Use	ITE Code	Size	Total Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total Trips	In	Out	Total Trips	In	Out
Multifamily Housing (Mid-Rise)	221	132 units	359	45	12	33	58	35	23

Trip Distribution/Assignment

A trip distribution pattern was identified for the site considering existing traffic patterns at the study intersections. Site-generated traffic was assigned to the study intersections based on the estimated distribution pattern. The proposed trip distribution and the site-generated trip assignment at each study intersection for the weekday AM and PM peak hours is included in **Attachment F**.

Year 2021 Total Traffic Conditions

The total traffic conditions analysis forecasts the operation of the study area's transportation system with the inclusion of traffic generated by the proposed site development. Total traffic conditions were determined by adding the estimated site-generated trips to the year 2021 background volumes for the weekday AM and PM peak hours. **Table 8** summarizes the 2021 total traffic conditions and corresponding operational analysis for the weekday AM and PM peak hours.

Table 8. Year 2021 Total Traffic Conditions

Study Intersection		Operating Requirement	Weekday AM Peak Hour		Weekday PM Peak Hour	
			V/C	LOS	V/C	LOS
1	SE 17th Avenue – SE Harrison Street/OR-99E	Intersection V/C ≤ 1.10 during the 1st Highest Hour Intersection V/C ≤ 0.99 during the 2nd Highest Hour	0.70	D	0.95	D
2	SE 17th Avenue/SE Lava Drive	LOS D	0.31 (EBL)	C	0.40 (EBL)	D
3	SE 17th Avenue/OR-224	Intersection V/C ≤ 0.99 during the 1st and 2nd Highest Hours	0.77	C	0.67	B
4	SE Lava Drive/SE Waverly Court	LOS D	0.07 (SB)	A	0.05 (SB)	A
5	SE Waverly Court/Proposed Site Access	LOS D	0.02 (EB)	A	0.02 (EB)	A
6	SE Lava Drive/Potential Future Site Access	LOS D	0.01 (SB)	A	0.01 (SB)	A

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right
V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)
LOS= Intersection level of service (signalized) / Critical lane group level of service (unsignalized)

As shown in **Table 8**, all of the intersections are expected to continue to satisfy applicable City and ODOT standards under 2021 total traffic conditions. **Attachment F** includes the 2021 total traffic operations analysis worksheets.

Year 2021 Queuing Analysis

95th percentile static queues reported by Vistro at each study intersection were assessed during the weekday AM and PM peak hours under 2021 total traffic conditions. The results are summarized in **Table 9**.

Table 9. Summary of 95th Percentile Queues, 2021 Total Traffic Conditions

Intersection		Movement	Available Queue Storage (feet)	95th Percentile Queue (feet)		Queue Storage Adequate?
				Weekday AM Peak Hour	Weekday PM Peak Hour	
1	SE 17th Avenue – SE Harrison Street/OR-99E	NBL	375	600	375	**No**
		NBTR	Continuous	600	350	Yes
		SBL	375	150	150	Yes
		SBTR	Continuous	300	900	Yes
		EBR	150	100	150	Yes
		EBTL	Continuous	75	250	Yes
		WBL	135	100	225	**No**
		WBLTR	Continuous	150	225	Yes
2	SE 17th Avenue/SE Lava Drive	WBL	150	50	50	Yes
		WBR	65	25	25	Yes
3	SE 17th Avenue/OR-224	NBT	Continuous	550	250	Yes
		NBR	135	75	75	Yes
		SBL	300[1]	225	250	Yes
		SBT	Continuous	150	250	Yes
		WBL	150	150	75	Yes
		WBR	Continuous	325	75	Yes
4	SE Lava Drive/SE Waverly Court	NBLTR	120	0	0	Yes
		SBLTR	140	25	25	Yes
5	SE Waverly Court/Proposed Site Access	EBLTR	75	25	25	Yes
6	SE Lava Drive/Potential Future Site Access	SBLTR	75	25	25	Yes

Where: EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left-turn, T= through, R = right-turn
Queues rounded up to the nearest vehicle length, assumed to be 25 feet
[1]Approximately 160 feet of storage is provided, however, the turn lane approach includes a striped center median allowing for approximately 140 feet of additional storage.

As shown in **Table** , all 95th percentile queues during year 2021 total traffic conditions would be accommodated by the available storage, with the exception of the northbound left-turn (AM peak) and westbound left-turn (PM peak) at SE 17th Avenue – SE Harrison Street/OR-99E. However, queues under 2021 total traffic conditions for these two movements are within 10 feet of background traffic conditions. This indicates that less than a single vehicle length is added to the queues with site development. Furthermore, both of these turn lanes extend to the next intersection. Therefore, lengthening is not appropriate as a condition of site development.

Intersection Sight Distance

The sight distance analysis documented herein for the proposed site driveways on SE Waverly Court and SE Lava Drive was conducted per the guidelines provided in the most recent edition of American Association of State Highway Transportation Officials' (AASHTO) A Policy on Geometric Design of Highways and Streets. Specifically, Sections 6 (Stopping Sight Distance, SSD) and 9 (Intersection Sight Distance, ISD) of AASHTO were applied.

Consistent with AASHTO guidelines, ISD measurements were taken in the field from the location of the proposed accesses from a viewpoint 15 feet behind the edge of the traveled way and from a height of 3.5 feet above the ground, looking toward an object that is 3.5 feet above the ground along the travel way. SSD measurements were obtained in the field from the approaching travel way from a viewpoint 3.5 feet above the ground looking toward an object that is 2 feet above the ground.

Based on field observations, sight distance measurements are documented at each of the two site access locations in **Table 10** and supporting photos are included in **Attachment G.**

Table 10: Proposed Site Driveway Observed Sight Distances

Site Driveway	Roadway Speed Limit	AASHTO Requirements			Observed Sight Distance	Satisfies AASHTO Requirements? (ISD/SSD)
		ISD[1]: Right Turn from Stop	ISD: Left turn from Stop	SSD[2]		
Proposed SE Waverly Court Site Access	25 MPH	240 feet	280 feet	155 feet	~200 feet southbound ~200 feet northbound	No/Yes
Potential Future SE Lava Drive Site Access	25 MPH	240 feet	280 feet	155 feet	~130 feet westbound >240 feet eastbound	Yes/Yes[3] Yes/Yes

[1] ISD: Intersection Sight Distance
[2] SSD: Stopping Sight Distance
[3] SE Lava Drive is a dead-end road approximately 130 feet west of the proposed SE Lava Drive access.

SE Waverly Court Access

The proposed site access on SE Waverly Court will provide full turning movements. As summarized in **Table 10**, sight distance was observed at approximately 200 feet in both the northbound and southbound directions. The ISD for traffic looking north and south along SE Waverly Court are limited by landscaping to the north, and the combined effects of horizontal and vertical curvature to the south. Although ISD requirements are not met, sight distance observations exceed the required 155-foot SSD. Photographs taken facing north and south of the proposed access location are shown in **Attachment G.**

According to the AASHTO guidelines, "if the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions."

Any new landscaping, above ground utilities, and signing should be located and maintained along the site frontage to maximize sight distance.

SE Lava Drive Access

The potential future site access on SE Lava Drive will provide full turning movements. As summarized in **Table 10**, sight distance was observed in excess of the required 240 feet to the east for ISD (with the removal of some existing bushes/shrubs). SE Lava Drive ends at a gated private access approximately 130 feet west of the future access. With the removal of some existing bushes/shrubs, drivers approaching SE Lava Drive at the site access are able to see the existing gate. Therefore, the south site access can provide sufficient sight distance. Photographs taken facing east and west of the future access location are shown in **Attachment G**.

Any new landscaping, above ground utilities, and signing should be located and maintained along the site frontage to maximize sight distance.

Analysis of Access Standards

Per Section 12.16.040 of the *City of Milwaukie Municipal Code* (Reference 8) driveway access to the nearest intersecting street face shall be a minimum of 100 feet. Both driveway access locations are at least 100 feet from the nearest intersection of SE Waverley Court and SE Lava Drive.

Safe Routes to School

With site development, sidewalks will be provided along the site frontages on SE Waverly Court (proposed) and SE Lava Drive (future). Additionally, a mid-block pedestrian crossing will be constructed across SE Waverly Court. Sidewalk connection along the north side of SE Lava Drive to existing pedestrian facilities at SE Waverly Court will also be provided upon build-out of the potential future development phase on SE Lava Drive. Pedestrian connections are shown in the site plan in **Attachment A.**

Parking Supply Analysis

The Applicant proposes a total of 193 parking spaces upon full site build-out. A minimum of 165 parking spaces (1.25 spaces per unit for units over 800 square feet) are required, and maximum of 264 (2 spaces per unit) are allowed per City Code Table 19.605.1 (Reference 8).

FINDINGS AND RECOMMENDATIONS

Based on the results of the transportation impact analysis, the proposed development can be constructed while maintaining acceptable operations at the study intersections. The analysis developed the following findings and recommendations.

Findings

- All study intersections are forecast to operate within the applicable review agency volume-to-capacity ratio and delay standards under existing and site build-out year 2021 conditions during the weekday AM and PM peak hours.
- Historical crash data for the study area intersections indicate no patterns or trends that require mitigation associated with the proposed development.

RECOMMENDATIONS

- Any new landscaping, above ground utilities, and signing should be located and maintained along the site frontage to maximize sight distance.

Please contact us if you need any additional information regarding our analyses.

REFERENCES

1. Transportation Research Board. *Highway Capacity Manual 6th Edition*. 2016.
2. *City of Milwaukie Transportation System Plan*. Revised October 2018.
3. Oregon Department of Transportation. *1999 Oregon Highway Plan.* Amended May 2015.
4. TriMet. "Bus Services." Accessed on-line at www.trimet.org. Accessed July 2020.
5. Oregon Department of Transportation Research Section. *SPR 667 Assessment of Statewide Intersection Safety Performance*. June 2011.
6. American Association of State Highway and Transportation Officials. *Highway Safety Manual*. 2010.
7. Institute of Transportation Engineers. *Trip Generation, 10th Edition.* 2017.
8. *City of Milwaukie Municipal Code*. Revised February 2020. Accessed July 2020.

ATTACHMENTS

Attachment A – Site Plan

Attachment B – Crash Data

Attachment C – Traffic Count Data

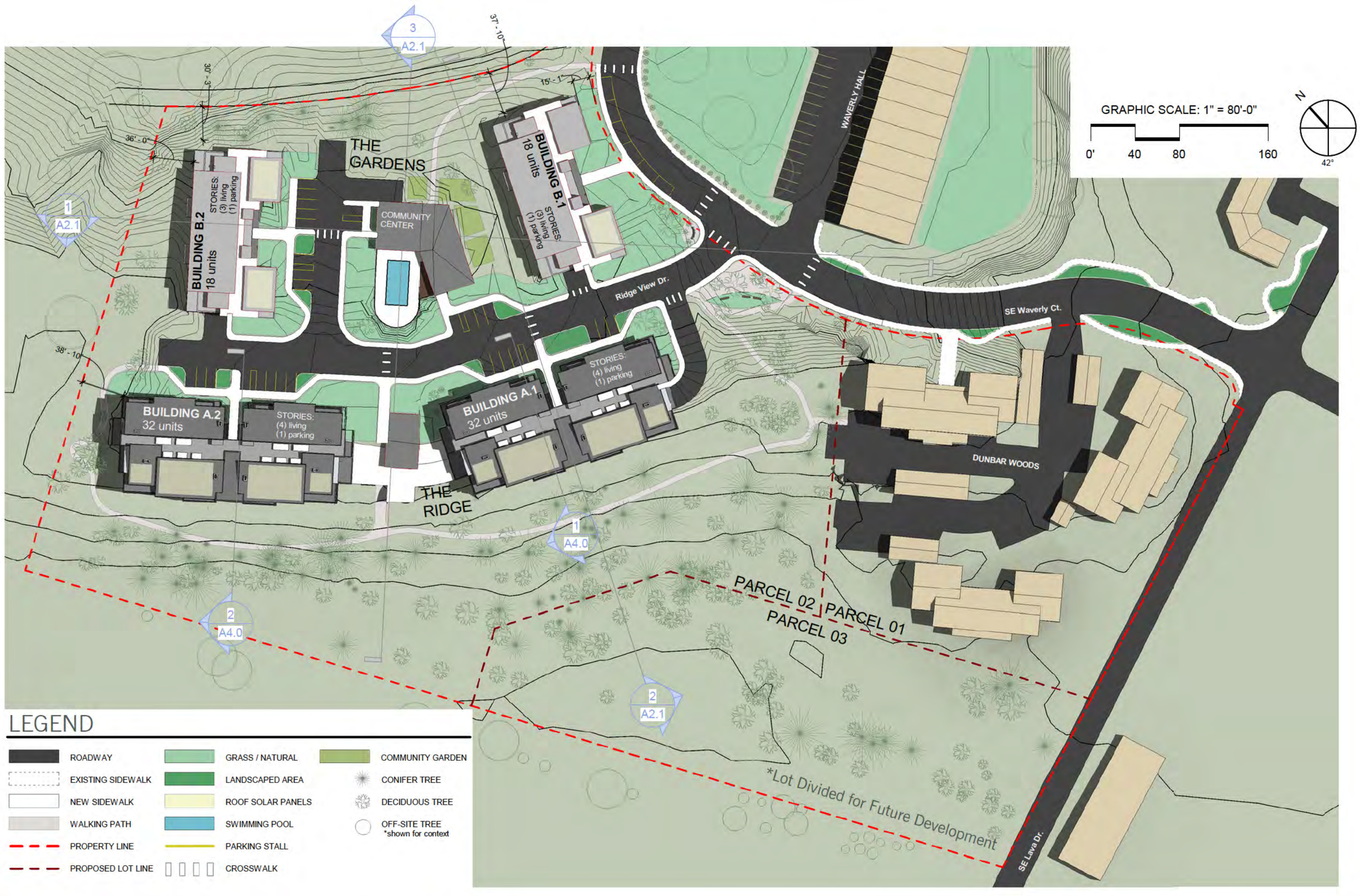
Attachment D – Existing Traffic Level-of-Service Worksheets

Attachment E – 2021 Background Traffic Level-of-Service Worksheets

Attachment F – 2021 Total Traffic Level-of-Service Worksheets

Attachment G – Sight Distance Observations

Attachment A – Site Plan



LEGEND

ROADWAY	GRASS / NATURAL	COMMUNITY GARDEN
EXISTING SIDEWALK	LANDSCAPED AREA	CONIFER TREE
NEW SIDEWALK	ROOF SOLAR PANELS	DECIDUOUS TREE
WALKING PATH	SWIMMING POOL	OFF-SITE TREE *shown for context
PROPERTY LINE	PARKING STALL	
PROPOSED LOT LINE	CROSSWALK	

Attachment B – Crash Data

171 CLACKAMAS

Intersectional Crashes at OR-224, Clackamas Hwy (#171) & SE 17th Ave
January 1, 2013 through December 31, 2017

SER# / INVEST / UNLOC?	SPEED	ALC	DRUG	SCHL	WORK	DAY/TIME / LAT/LONG	COUNTY / CITY / URBAN AREA	RD# CMPT/MLG MILEPNT LRS	FC	CONN # FIRST STREET SECOND STREET INTERSECTION SEQ#	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR	SURF	LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00655	N	N	N			02/25/2013	CLACKAMAS	2	12		INTER	3-LEG	N		N	RAIN	S-1STOP	01	NONE 0	STRGHT												07
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							PORTLAND UA	- 0.01		17TH AVE	06	1			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	UNK		026	000		07
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02593	N	N	N			07/19/2013	CLACKAMAS	1	12		INTER	3-LEG	N		N	CLR	S-1STOP	01	NONE 0	STRGHT												07
NONE		N				Fri 7P	MILWAUKIE	MN 0		CLACKAMAS HY	E		TRF SIGNAL		N	DRY	REAR		PRVTE	E W									000		00
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No	45	26	59.23	-122	38	39.95		017100100S00		1																	OR<25					
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00629	N	N	N	N	N	02/16/2017	CLACKAMAS	2	12		INTER	3-LEG	N		N	RAIN	S-1STOP	01	NONE 0	STRGHT												29,27
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02319	N	N	N			06/29/2013	CLACKAMAS	1	12		INTER	3-LEG	N		N	CLR	S-1STOP	01	NONE 0	STRGHT												07
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171 CLACKAMAS
Intersectional Crashes at OR-224, Clackamas Hwy (#171) & SE 17th Ave
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SER# / INVEST / UNLOC?	SPEED	ALCHL	DRUG	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	COUNTY / CITY / URBAN AREA	RD# / CMPT/MLG / MILEPNT / LRS	FC / FIRST STREET / SECOND STREET / INTERSECTION SEQ#	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CNTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00109	N	N	N	N	N	01/10/2015	CLACKAMAS	2 12		INTER	3-LEG	N	N	CLD	BIKE														110	04
CITY		N				Sat 4P	MILWAUKIE	MN 0	CLACKAMAS HY	CN		TRF SIGNAL	N	WET	TURN															
							PORTLAND UA	- 0.01	17TH AVE	02	1		N	DAY	INJ			STRGHT	01	BIKE	INJB	45	F		02	020		035		04
No	*45 26*		*59.69*	*-122 38*	*40.20*			017100200S00	1									S N											
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00494	N	N	N	N	N	02/06/2014	CLACKAMAS	1 12		INTER	3-LEG	N	N	SNOW	S-1STOP	01	NONE 0 PRVTE	STRGHT N S												07
CITY		N				Thu 2P	MILWAUKIE	MN 0	CLACKAMAS HY	CN		TRF SIGNAL	N	ICE	REAR														000	00
							PORTLAND UA	- 0.01	17TH AVE	03	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	20	M	OR-Y OR<25		026	000		07
No	*45 26*		*59.23*	*-122 38*	*39.95*			017100100S00	1																				
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01712	N	N	N	N	N	05/07/2015	CLACKAMAS	1 12		INTER	3-LEG	N	N	CLR	S-OTHER	01	NONE 0 PRVTE	TURN-L N E												08
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							PORTLAND UA	- 0.01	17TH AVE	03	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	39	M	OR-Y OR<25		005	000		08
No	*45 26*		*59.23*	*-122 38*	*39.95*			017100100S00	1																				
																02	NONE 0 PRVTE	TURN-L N E									000		00
																	PSNGR CAR		01	DRVR	NONE	61	F	OR-Y OR<25		000	000		00

CITY OF MILWAUKIE, CLACKAMAS COUNTY

Intersectional Crashes at OR-224, Clackamas Hwy (#171) & SE 17th Ave
January 1, 2013 through December 31, 2017

SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	FC / DISTNC	CITY STREET / FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
81588	N	N	N			09/21/2015	16	CLACKAMAS HY	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NO RPT			N			Mon 4P	0	17TH AVE	N		TRF SIGNAL	N	DRY	REAR		PRVTE	N S											00
No						*45 26 59.69* *-122 38 40.20*		1	06	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	34	F	OTH-Y N-RES		026	000		29
															02	NONE 0	STOP											
																PRVTE	N S									011		00
																PSNGR CAR		01	DRVR	INJC	39	M	OR-Y OR<25		000	000		00
																		02	PSNG	INJC	72	F			000	000		00
																		03	PSNG	INJC	49	F			000	000		00

081 PACIFIC HIGHWAY EAST — Intersectional Crashes at OR-99E, Pacific Hwy (#081), McLoughlin Blvd & SE 17th Ave / SE Harrison St
January 1, 2013 through December 31, 2017

SER# / INVEST / UNLOC?	S P E D	E A L C	D R U G / M J	S W C O H R L K	DATE / DAY/TIME / *LAT/LONG*	COUNTY / CITY / URBAN AREA	RD# FC / CMPT/MLG / MILEPNT / LRS	CONN # / FIRST STREET / SECOND STREET / INTERSECTION SEQ#	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CNTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACTN EVENT	CAUSE
04400	N	N	N		11/14/2013	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
NONE		N			Thu 4P	MILWAUKIE	MN 0	MCLOUGHLIN BLVD	N		TRF SIGNAL	N	DRY	REAR		PRVTE	N S									000	00
						PORTLAND UA	5.72	17TH AVE	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	29	F	OTH-Y		026	000	07
No					*45 26 43.37 -122 38 33.97*		008100100S00	1															N-RES				
															02	NONE 0	STOP										
																PRVTE	N S									011	00
																PSNGR CAR		01	DRVR	INJC	38	F	OR-Y		000	000	00
																							OR<25				
00440	N	N	N	N N	02/04/2015	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										35,13
CITY		N			Wed 3P	MILWAUKIE	MN 0	HARRISON ST	N		TRF SIGNAL	N	DRY	REAR		PRVTE	N S									000	00
						PORTLAND UA	5.72	MCLOUGHLIN BLVD	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	43	M	OR-Y		045	000	13
No					*45 26 43.37 -122 38 33.97*		008100100S00	1															OR<25				
															02	NONE 0	STRGHT										
																PRVTE	N S									000	00
																PSNGR CAR		01	DRVR	NONE	41	F	OR-Y		045	000	13
																							OR<25				
05280	N	Y	N		12/10/2015	CLACKAMAS	1 14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										29,07
CITY		N			Thu 2A	MILWAUKIE	MN 0	HARRISON ST	N		L-GRN-SIG	N	WET	REAR		PRVTE	N S									000	00
						PORTLAND UA	5.72	MCLOUGHLIN BLVD	06	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	23	M	OR-Y		043,026	000	29,07
No					*45 26 43.37 -122 38 33.97*		008100100S00	1															OR<25				
															02	NONE 0	STOP										
																PRVTE	N S									012	00
																PSNGR CAR		01	DRVR	NONE	51	M	OR-Y		000	000	00
																							OR<25				
84208	N	N	N		06/25/2016	CLACKAMAS	2 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
NONE		N			Sat 9A	MILWAUKIE	MN 0	HARRISON ST	N		TRF SIGNAL	N	DRY	REAR		PRVTE	N S									000	00
						PORTLAND UA	5.72	MCLOUGHLIN BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	49	M	OTH-Y		026	000	29
No					*45 26 43.37 -122 38 33.97*		008100200S00	1															N-RES				
															02	NONE 0	STOP										
																PRVTE	N S									011	00
																PSNGR CAR		01	DRVR	INJC	43	M	OR-Y		000	000	00
																							OR<25				
00401	N	N	N	N N	01/30/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT										29
CITY		N			Mon 1P	MILWAUKIE	MN 0	HARRISON ST	N		TRF SIGNAL	N	DRY	REAR		PRVTE	N S									000	00
						PORTLAND UA	5.72	MCLOUGHLIN BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	39	M	OR-Y		026	000	29
No					*45 26 43.37 -122 38 33.97*		008100100S00	1															OR<25				

081 PACIFIC HIGHWAY EAST — Intersectional Crashes at OR-99E, Pacific Hwy (#081), McLoughlin Blvd & SE 17th Ave / SE Harrison St
January 1, 2013 through December 31, 2017

SER# / INVEST / UNLOC?	SPEED	ALC	DRUG	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	COUNTY / CITY / URBAN AREA	RD# / CMPT/MLG / MILEPNT / LRS	FC / CONN # / FIRST STREET / SECOND STREET / INTERSECTION SEQ#	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CNTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
																02	NONE 0 PRVTE	STOP N S									011		00
																	PSNGR CAR		01	DRVR	INJC	63	M	OR-Y OR<25		000	000		00
02997 NONE	N	N	N			07/24/2017 Mon 5P	CLACKAMAS MILWAUKIE	2 14 MN 0	HARRISON ST	INTER N	CROSS	N TRF SIGNAL	N	CLR DRY	S-1STOP REAR	01	NONE 0 UNKN	STRGHT N S									000		29 00
							PORTLAND UA	5.72	MCLOUGHLIN BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	38	F	OR-Y	026		000		29
No	*45*	*26*				*43.37 -122 38 33.97*		008100200S00	1															UNK					
																02	NONE 0 PRVTE	STOP N S									011		00
																	PSNGR CAR		01	DRVR	INJC	47	M	OR-Y OR<25		000	000		00
05142 CITY	N	N	N	N	N	11/06/2016 Sun 9P	CLACKAMAS MILWAUKIE	2 14 MN 0	MCLOUGHLIN BLVD	INTER S	CROSS	N TRF SIGNAL	N	CLD WET	S-OTHER TURN	01	NONE 9 N/A	TURN-R W S									000		27,08 00
							PORTLAND UA	5.72	17TH AVE	05	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK	000		000		00
No	*45*	*26*				*43.37 -122 38 33.97*		008100200S00	1															UNK					
																02	NONE 9 N/A	TURN-R W S									000		00
																	PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK	000		000		00
03035 NONE	N	N	N			07/26/2017 Wed 3P	CLACKAMAS MILWAUKIE	2 14 MN 0	HARRISON ST	INTER S	CROSS	N TRF SIGNAL	N	CLR DRY	S-OTHER TURN	01	NONE 9 N/A	TURN-L E S									000		08,14 00
							PORTLAND UA	5.72	MCLOUGHLIN BLVD	05	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK	000		000		00
No	*45*	*26*				*43.37 -122 38 33.97*		008100200S00	1															UNK					
																02	NONE 9 N/A	TURN-L E S									000		00
																	PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK	000		000		00
05466 NONE	N	N	N			12/21/2017 Thu 6P	CLACKAMAS MILWAUKIE	2 14 MN 0	MCLOUGHLIN BLVD	INTER S	CROSS	N TRF SIGNAL	N	CLR DRY	S-STRGHT REAR	01	NONE 0 PRVTE	STRGHT N S									000	013	29 00
							PORTLAND UA	5.72	17TH AVE	05	0		N	DARK	INJ		PSNGR CAR		01	DRVR	INJC	33	M	OR-Y OR<25	042		000		29
No	*45*	*26*				*43.37 -122 38 33.97*		008100200S00	1																				
																02	NONE 0 PRVTE	STRGHT N S									000	013	00
																	PSNGR CAR		01	DRVR	INJC	62	F	OR-Y OR<25	000		000		00

081 PACIFIC HIGHWAY EAST — Intersectional Crashes at OR-99E, Pacific Hwy (#081), McLoughlin Blvd & SE 17th Ave / SE Harrison St
January 1, 2013 through December 31, 2017

SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHWK	DATE / DAY/TIME / *LAT/LONG*	COUNTY / CITY / URBAN AREA	RD# / CMPT/MILEPNT / LRS	FC / MLG / SECOND STREET / INTERSECTION SEQ#	CONN # / FIRST STREET	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CNTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
																03	NONE 0 / PRVTE	STRGHT / N S										022	00
																	PSNGR CAR		01	DRVR	NONE	57	F	OR-Y / OR<25		000	000	000	00
00831	N	N	N		03/10/2013	CLACKAMAS	1	14		INTER	CROSS	N		N	UNK	S-1STOP	01	NONE 0	STRGHT											07
NONE			N		Sun 9A	MILWAUKIE	MN 0	HARRISON ST		S		TRF SIGNAL		N	UNK	REAR		PRVTE	S N									000	00
						PORTLAND UA	5.72	MCLOUGHLIN BLVD		06	0			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	69	M	OR-Y / OR<25		026	000		07
No					*45 26 43.37 -122 38 33.97*		008100100	S00	1																					
																02	NONE 0 / PRVTE	STOP / S N										011	00
																	PSNGR CAR		01	DRVR	NONE	00	M	UNK / UNK		000	000		00
01567	N	N	N		05/06/2013	CLACKAMAS	1	14		INTER	CROSS	N		N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE			N		Mon 3P	MILWAUKIE	MN 0	MCLOUGHLIN BLVD		S		TRF SIGNAL		N	DRY	REAR		UNKN	S N									000	00
						PORTLAND UA	5.72	17TH AVE		06	0			N	DAY	PDO		UNKNOWN		01	DRVR	NONE	00	U	UNK / UNK		026	000		07
No					*45 26 43.37 -122 38 33.97*		008100100	S00	1																					
																02	NONE 0 / PRVTE	STOP / S N										011	00
																	PSNGR CAR		01	DRVR	NONE	48	F	OR-Y / OR<25		000	000		00
01679	N	N	N	N	N 04/13/2016	CLACKAMAS	2	14		INTER	CROSS	N		N	CLD	S-1STOP	01	NONE 0	STRGHT											29
CITY			N		Wed 10A	MILWAUKIE	MN 0	HARRISON ST		S		TRF SIGNAL		N	DRY	REAR		PRVTE	S N									000	00
						PORTLAND UA	5.72	MCLOUGHLIN BLVD		06	0			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	64	F	OR-Y / OR<25		026	000		29
No					*45 26 43.37 -122 38 33.97*		008100200	S00	1																					
																02	NONE 0 / PRVTE	STOP / S N										011	00
																	PSNGR CAR		01	DRVR	NONE	38	M	OR-Y / OR<25		000	000		00
																			02	PSNG	INJC	38	F			000	000		00
05892	N	N	N		11/29/2016	CLACKAMAS	2	14		INTER	CROSS	N		N	CLR	O-OTHER	01	NONE 9	BACK											10
NONE			N		Tue 1P	MILWAUKIE	MN 0	HARRISON ST		S		TRF SIGNAL		N	DRY	BACK		N/A	N S									000	00
						PORTLAND UA	5.72	MCLOUGHLIN BLVD		06	0			N	DAY	PDO		TRUCK		01	DRVR	NONE	00	U	UNK / UNK		000	000		00
No					*45 26 43.37 -122 38 33.97*		008100200	S00	1																					
																02	NONE 9 / N/A	STOP / S N										011	00
																	PSNGR CAR		01	DRVR	NONE	00	U	UNK / UNK		000	000		00

081 PACIFIC HIGHWAY EAST — Intersectional Crashes at OR-99E, Pacific Hwy (#081), McLoughlin Blvd & SE 17th Ave / SE Harrison St
January 1, 2013 through December 31, 2017

SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	COUNTY / CITY / URBAN AREA	RD# CMPT/MILEPNT LRS	FC / MLG / CONN # / FIRST STREET / SECOND STREET / INTERSECTION SEQ#	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CNTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR / OWNER / VEH TYPE	QTY	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
06184	N	N	N			12/28/2016	CLACKAMAS	2	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	9	STRGHT											29
NONE			N			Wed 10A	MILWAUKIE	MN 0	HARRISON ST		S		TRF SIGNAL	N	DRY	REAR		N/A		S N									000		00
							PORTLAND UA	5.72	MCLOUGHLIN BLVD		06	0		N	DAY	PDO		UNKNOWN			01	DRVR	NONE	00	U	UNK		000	000		00
No	*45*	*26*	*43.37*	*-122*	*38*	*33.97*		008100200	S00	1																UNK					
																	02	NONE	9	STOP											
																		N/A		S N									011		00
																		PSNGR CAR			01	DRVR	NONE	00	U	UNK		000	000		00
																										UNK					
00273	N	N	N			01/19/2017	CLACKAMAS	2	14		INTER	CROSS	N	N	UNK	S-1STOP	01	NONE	0	STRGHT											29
NONE			N			Thu 9A	MILWAUKIE	MN 0	MCLOUGHLIN BLVD		S		TRF SIGNAL	N	WET	REAR		PRVTE		S N									000		00
							PORTLAND UA	5.72	17TH AVE		06	0		N	DAY	INJ		PSNGR CAR			01	DRVR	NONE	26	F	OR-Y		026	000		29
No	*45*	*26*	*43.37*	*-122*	*38*	*33.97*		008100200	S00	1																OR<25					
																	02	NONE	0	STOP											
																		PRVTE		S N									011		00
																		PSNGR CAR			01	DRVR	INJC	38	F	OR-Y		000	000		00
																										OR<25					
03789	N	N	N	N	N	09/15/2015	CLACKAMAS	1	14		INTER	CROSS	N	N	CLD	O-1 L-TURN	01	NONE	0	STRGHT											04
CITY			N			Tue 7P	MILWAUKIE	MN 0	HARRISON ST		CN		TRF SIGNAL	N	DRY	TURN		PRVTE		N S									000		00
							PORTLAND UA	5.72	MCLOUGHLIN BLVD		01	0		N	DUSK	INJ		PSNGR CAR			01	DRVR	NONE	30	M	OR-Y		097	000		00
No	*45*	*26*	*43.37*	*-122*	*38*	*33.97*		008100100	S00	1																OR<25					
																	02	NONE	0	TURN-L											
																		PRVTE		S W									000		00
																		PSNGR CAR			01	DRVR	INJC	22	F	SUSP		097	000		00
																										OR<25					
02128	N	N	N	N	N	06/15/2013	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE	0	STRGHT											04
COUNTY			N			Sat 3P	MILWAUKIE	MN 0	HARRISON ST		CN		TRF SIGNAL	N	DRY	ANGL		PRVTE		S N									000		00
							PORTLAND UA	5.72	MCLOUGHLIN BLVD		02	0		N	DAY	INJ		PSNGR CAR			01	DRVR	INJC	67	F	OR-Y		000	000		00
No	*45*	*26*	*43.37*	*-122*	*38*	*33.97*		008100100	S00	1																OR<25					
																	02	POLCE	0	STRGHT											
																		PUBLC		W E									000		00
																		PSNGR CAR			01	DRVR	NONE	51	M	OR-Y		020	000		04
																										OR<25					
00218	Y	N	N	N	N	01/13/2017	CLACKAMAS	2	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE	0	STRGHT										124	01,04
CITY			N			Fri 6P	MILWAUKIE	MN 0	HARRISON ST		CN		TRF SIGNAL	N	ICE	TURN		PRVTE		S N									000	124	00
							PORTLAND UA	5.72	MCLOUGHLIN BLVD		02	0		N	DLIT	INJ		PSNGR CAR			01	DRVR	INJB	27	F	OR-Y		047,020	000		01,04
No	*45*	*26*	*43.37*	*-122*	*38*	*33.97*		008100200	S00	1																OR<25					

081 PACIFIC HIGHWAY EAST — Intersectional Crashes at OR-99E, Pacific Hwy (#081), McLoughlin Blvd & SE 17th Ave / SE Harrison St
January 1, 2013 through December 31, 2017

SER# / INVEST / UNLOC?	SPEED	ALC	DRUG	SCHL	WORK	COUNTY / CITY / URBAN AREA	RD# / CMPT/MLG / MILEPNT / LRS	FC / CONN # / FIRST STREET / SECOND STREET / INTERSECTION SEQ#	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CNTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN EVENT	CAUSE
															02	NONE 0	TURN-R										
																PUBLC	E N									000	00
																OTH BUS		01	DRVR	INJC	60	M	OR-Y		000	000	00
																							OR<25				
02771	N	N	N	N	N	07/18/2014 CLACKAMAS	1 14		INTER	CROSS	N		N	CLR ANGL-OTH	01	NONE 0	STRGHT										04
CITY		N				Fri 7P MILWAUKIE	MN 0	HARRISON ST	CN		TRF SIGNAL		N	DRY ANGL		PRVTE	N S									000	00
						PORTLAND UA	5.72	MCLOUGHLIN BLVD	03	0			N	DAY INJ		PSNGR CAR		01	DRVR	INJC	60	F	OR-Y		000	000	00
No	*45 26*		*43.37 -122*		*38 33.97*		008100100S00	1															OR<25				
															02	NONE 0	STRGHT										
																PRVTE	W E									000	00
																PSNGR CAR		01	DRVR	NONE	21	F	OR-Y		021	000	04
																							OR<25				
02339	N	N	N			05/24/2016 CLACKAMAS	2 14		INTER	CROSS	N		N	CLR S-OTHER	01	NONE 9	TURN-L										08
NONE		N				Tue 2P MILWAUKIE	MN 0	HARRISON ST	CN		TRF SIGNAL		N	DRY TURN		N/A	E S									000	00
						PORTLAND UA	5.72	MCLOUGHLIN BLVD	03	0			N	DAY PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK		000	000	00
No	*45 26*		*43.37 -122*		*38 33.97*		008100200S00	1															UNK				
															02	NONE 9	TURN-L										
																N/A	E S									000	00
																PSNGR CAR		01	DRVR	NONE	00	U	UNK		000	000	00
																							UNK				
02289	N	N	N	N	N	06/28/2013 CLACKAMAS	1 14		INTER	CROSS	N		N	CLR ANGL-OTH	01	NONE 0	STRGHT										16,04
NONE		N				Fri 11A MILWAUKIE	MN 0	HARRISON ST	CN		TRF SIGNAL		N	DRY ANGL		PRVTE	W E									000	00
						PORTLAND UA	5.72	MCLOUGHLIN BLVD	04	0			N	DAY INJ		PSNGR CAR		01	DRVR	NONE	74	M	OR-Y		020	025	16,04
No	*45 26*		*43.37 -122*		*38 33.97*		008100100S00	1															OR<25				
															02	NONE 0	STRGHT										
																PRVTE	S N									000	00
																PSNGR CAR		01	DRVR	INJC	32	F	OR-Y		000	000	00
																							OR<25				
02013	N	N	N	N	N	05/27/2014 CLACKAMAS	1 14		INTER	CROSS	N		N	CLR ANGL-OTH	01	NONE 0	STRGHT										04
CITY		N				Tue 6P MILWAUKIE	MN 0	HARRISON ST	CN		TRF SIGNAL		N	DRY ANGL		PRVTE	W E									000	00
						PORTLAND UA	5.72	MCLOUGHLIN BLVD	04	0			N	DAY INJ		PSNGR CAR		01	DRVR	NONE	00	U	UNK		020	000	04
No	*45 26*		*43.37 -122*		*38 33.97*		008100100S00	1															UNK				
															02	NONE 0	STRGHT										
																PRVTE	S N									000	00
																PSNGR CAR		01	DRVR	INJC	44	F	OR-Y		000	000	00
																							OR<25				
																		02	PSNG	INJC	09	F			000	000	00

081 PACIFIC HIGHWAY EAST — Intersectional Crashes at OR-99E, Pacific Hwy (#081), McLoughlin Blvd & SE 17th Ave / SE Harrison St
January 1, 2013 through December 31, 2017

SER# / INVEST / UNLOC?	SPEED	ALCHL	DRUG	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	COUNTY / CITY / URBAN AREA	RD# / CMPT/MLG / MILEPNT / LRS	FC / FIRST STREET / SECOND STREET / INTERSECTION SEQ#	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CNTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
																03	NONE 0 / PRVTE	STOP / E W									011		00
																	PSNGR CAR		01	DRVR	INJC	42	F	OR-Y / OR<25		000	000		00
00490 CITY	N	N	N	N	N	02/06/2017 Mon 1P	CLACKAMAS / MILWAUKIE / PORTLAND UA	2 14 / MN 0 / 5.72	HARRISON ST / MCLOUGHLIN BLVD	INTER / CN / 04	CROSS / 0	N / TRF SIGNAL	N / N	CLD / WET / DAY	O-1 L-TURN / TURN / INJ	01	NONE 0 / PRVTE	STRGHT / S N										013	02,08,04
																	PSNGR CAR		01	DRVR	NONE	28	M	OR-Y / OR<25		000	000		00
No						*45 26 43.37 -122 38 33.97*		008100200S00	1																				
																02	NONE 0 / PRVTE	TURN-L / N E									000	013	00
																	PSNGR CAR		01	DRVR	NONE	30	M	SUSP / OR<25	028,004,020		000		02,08,04
																03	NONE 0 / PRVTE	STOP / E W									022		00
																	PSNGR CAR		01	DRVR	INJB	45	M	OR-Y / OR<25		000	000		00

CITY OF MILWAUKIE, CLACKAMAS COUNTY — Intersectional Crashes at OR-99E, Pacific Hwy (#081), McLoughlin Blvd & SE 17th Ave / SE Harrison St
January 1, 2013 through December 31, 2017

SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	FC / DISTNC	CITY STREET / FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
02108	N	N	N			05/10/2016	16	HARRISON ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT										006	29
NONE			N			Tue 1P	0	MCLOUGHLIN BLVD	E		TRF SIGNAL	N	DRY	REAR		N/A	E W									000		00
No	*45 26 43.37*					*-122 38 33.97*	1		06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
															02	NONE 9	STOP											
																N/A	E W									011		00
																PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
02029	N	N	N			06/09/2013	17	MCLOUGHLIN BLVD	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE			N			Sun 1P	0	17TH AVE	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W E									000		00
No	*45 26 43.37*					*-122 38 33.97*	1		06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	OR-Y UNK		026	000		07
															02	NONE 0	STOP											
																PRVTE	W E									011		00
																PSNGR CAR		01	DRVR	NONE	55	F	OR-Y OR<25		000	000		00
01805	N	N	N	N	N	04/20/2016	16	MCLOUGHLIN BLVD	INTER	CROSS	N	N	RAIN	BIKE	01	NONE 0	STRGHT											27
CITY			N			Wed 6P	0	17TH AVE	W		TRF SIGNAL	N	WET	ANGL		PRVTE	W E									000		00
No	*45 26 43.37*					*-122 38 33.97*	1		06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	36	F	OR-Y OR<25		016,027	038		27
																	STRGHT	01	BIKE	INJB	54	M		01	000	035		00
																	S N											

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF MILWAUKIE, CLACKAMAS COUNTY

Intersectional Crashes at SE 17th Ave & SE Lava Dr
January 1, 2013 through December 31, 2017

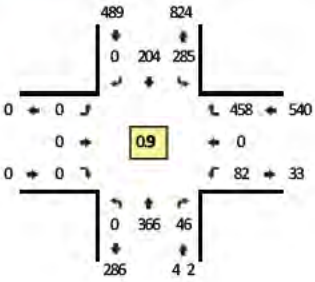
SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	FC / DISTNC	CITY STREET / FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
03993	Y	Y	N	N	N	10/09/2014	17	LAVA DR	INTER	3-LEG	N	Y	CLR	FIX OBJ	01	NONE 0	STRGHT										116,058	30,27
CITY			N			Thu 9P	0	17TH AVE	S		STOP SIGN	N	DRY	FIX		PRVTE	N S									000	058	00
No	*45 26 50.85*					*-122 38 36.30*	1		05	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	34	M	OR-Y OR<25		050,016	038	116	30,27
06111	N	N	N	N	N	12/27/2016	16	LAVA DR	INTER	3-LEG	N	Y	CLD	FIX OBJ	01	NONE 0	STRGHT										044	10
CITY			N			Tue 6P	0	17TH AVE	NW		STOP SIGN	N	WET	FIX		PRVTE	SE NW									000	044	00
No	*45 26 50.98*					*-122 38 36.35*	1		05	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	50	F	OR-Y OR<25		080	000		10

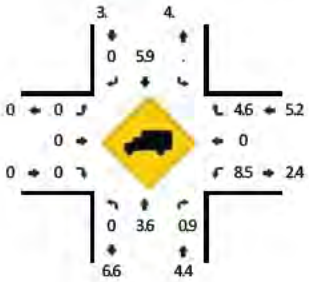
Attachment C – Traffic Count Data

LOCATION: SE 17th Ave -- Milwaukie Expy
CITY/STATE: Milwaukie, OR

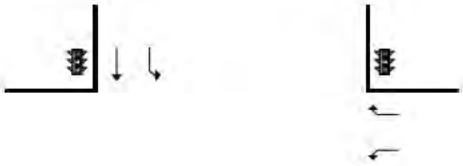
QC JOB #: 15240501
DATE: Tue, Jun 3 2014

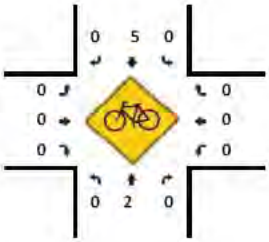
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

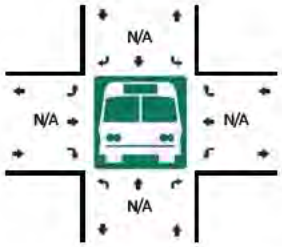




Quality Counts
DATA THAT DRIVES COMMUNITIES







5 M n Count Per od Beg nn ng At	SE 17th Ave (Northbound)				SE 17th Ave (Southbound)				M wauk e Expy (Eastbound)				M wauk e Expy (Westbound)				ota	Hour y ota s
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U		
7:00 AM	0	24	0	0	25	15	0	0	0	0	0	0	3	0	35	0	102	
7:05 AM	0	17	1	0	12	11	0	0	0	0	0	0	7	0	27	0	75	
7:10 AM	0	13	1	0	20	15	0	0	0	0	0	0	13	0	42	0	104	
7:15 AM	0	29	2	0	16	15	0	0	0	0	0	0	2	0	56	0	120	
7:20 AM	0	32	2	0	15	12	0	0	0	0	0	0	5	0	29	0	95	
7:25 AM	0	36	3	0	37	9	0	0	0	0	0	0	12	0	47	0	144	
7:30 AM	0	31	7	0	20	13	0	0	0	0	0	0	11	0	40	0	122	
7:35 AM	0	36	6	0	22	14	0	0	0	0	0	0	8	0	27	0	113	
7:40 AM	0	26	4	0	27	19	0	0	0	0	0	0	5	0	41	0	122	
7:45 AM	0	31	6	0	29	18	0	0	0	0	0	0	12	0	57	0	153	
7:50 AM	0	33	1	0	18	20	0	0	0	0	0	0	8	0	40	0	120	
7:55 AM	0	24	2	0	24	20	0	0	0	0	0	0	3	0	48	0	121	1391
8:00 AM	0	30	2	0	28	14	0	0	0	0	0	0	5	0	35	0	114	1403
8:05 AM	0	25	3	0	28	16	0	0	0	0	0	0	4	0	27	0	103	1431
8:10 AM	0	33	4	0	22	21	0	0	0	0	0	0	4	0	25	0	109	1436
8:15 AM	0	36	6	0	19	24	0	0	0	0	0	0	3	0	26	0	114	1430
8:20 AM	0	25	2	0	11	16	0	0	0	0	0	0	7	0	45	0	106	1441
8:25 AM	0	24	4	0	23	18	0	0	0	0	0	0	2	0	20	0	91	1388
8:30 AM	0	13	3	0	16	13	0	0	0	0	0	0	8	0	32	0	85	1351
8:35 AM	0	23	3	0	13	18	0	0	0	0	0	0	4	0	29	0	90	1328
8:40 AM	0	19	10	0	17	14	0	0	0	0	0	0	6	0	28	0	94	1300
8:45 AM	0	23	3	0	17	14	0	0	0	0	0	0	7	0	34	0	98	1245
8:50 AM	0	20	2	0	23	16	0	0	0	0	0	0	4	0	26	0	91	1216
8:55 AM	0	28	2	0	20	15	0	0	0	0	0	0	3	0	18	0	86	1181

Peak 15 M n F owrates	Northbound				Southbound				Eastbound				Westbound				ota
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	
A Veh c es	0	360	44	0	296	228	0	0	0	0	0	0	100	0	552	0	1580
Heavy Trucks	0	16	4		4	8	0		0	0	0		4	0	24		60
Buses																	
Pedestr ans		0				0				4				0			4
B cyc es	0	20	0		0	8	0		0	0	0		0	0	0		28
Scooters																	

Comments:

Report generated on 6/4/2020 3:20 PM

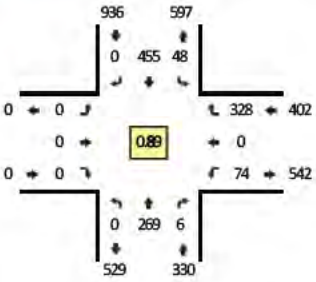
SOURCE: Qua ty Counts, LLC (http://www qua tycounts net) 1 877 580 2212

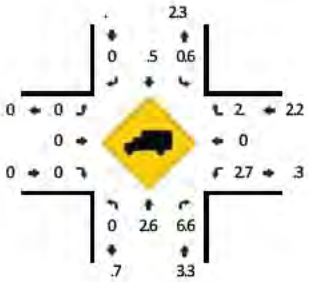
ype of peak hour be ng reported: ntersect on Peak | Method for determ n ng peak hour: ota Enter ng Vo ume

LOCATION: SE 17th Ave -- Milwaukie Expy
CITY/STATE: Milwaukie, OR

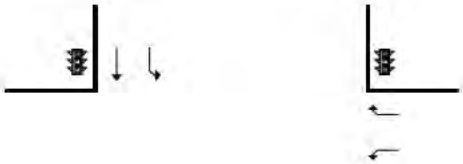
QC JOB #: 15240502
DATE: Tue, Jun 3 2014

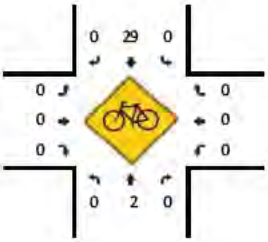
Peak-Hour: 4:55 PM -- 5:55 PM
Peak 15-Min: 5:20 PM -- 5:35 PM

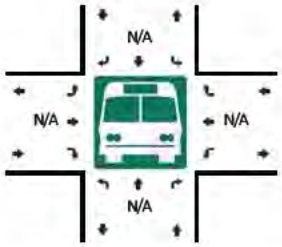




Quality Counts
DATA THAT DRIVES COMMUNITIES







S M n Count Per od Beg nn ng At	SE 17th Ave (Northbound)				SE 17th Ave (Southbound)				M wauk e Expy (Eastbound)				M wauk e Expy (Westbound)				ota	Hour y ota s
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U		
4:00 PM	0	19	5	0	25	31	0	0	0	0	0	0	6	0	27	0	113	
4:05 PM	0	15	7	0	36	31	0	0	0	0	0	0	2	0	18	0	109	
4:10 PM	0	34	6	0	46	35	0	0	0	0	0	0	5	0	20	0	146	
4:15 PM	0	14	6	0	26	28	0	0	0	0	0	0	6	0	33	0	113	
4:20 PM	0	21	7	0	38	43	0	0	0	0	0	0	4	0	20	0	133	
4:25 PM	0	15	3	0	51	38	0	0	0	0	0	0	11	0	25	0	143	
4:30 PM	0	28	7	0	32	52	0	0	0	0	0	0	8	0	18	0	145	
4:35 PM	0	22	17	0	44	38	0	0	0	0	0	0	2	0	26	0	149	
4:40 PM	0	20	4	0	31	35	0	0	0	0	0	0	9	0	18	0	117	
4:45 PM	0	23	4	0	29	37	0	0	0	0	0	0	8	0	26	0	127	
4:50 PM	0	21	10	0	28	31	0	0	0	0	0	0	6	0	24	0	120	
4:55 PM	0	23	4	0	41	42	0	0	0	0	0	0	1	0	24	0	135	1550
5:00 PM	0	19	5	0	41	40	0	0	0	0	0	0	6	0	33	0	144	1581
5:05 PM	0	25	4	0	42	40	0	0	0	0	0	0	5	0	23	0	139	1611
5:10 PM	0	10	6	0	45	31	0	0	0	0	0	0	5	0	18	0	115	1580
5:15 PM	0	19	6	0	40	43	0	0	0	0	0	0	8	0	28	0	144	1611
5:20 PM	0	20	5	0	33	45	0	0	0	0	0	0	7	0	34	0	144	1622
5:25 PM	0	20	3	0	45	31	0	0	0	0	0	0	14	0	24	0	137	1616
5:30 PM	0	40	9	0	46	60	0	0	0	0	0	0	9	0	21	0	185	1656
5:35 PM	0	24	6	0	28	24	0	0	0	0	0	0	9	0	33	0	124	1631
5:40 PM	0	26	6	0	38	36	0	0	0	0	0	0	1	0	31	0	138	1652
5:45 PM	0	19	3	0	47	29	0	0	0	0	0	0	4	0	24	0	126	1651
5:50 PM	0	24	4	0	35	34	0	0	0	0	0	0	5	0	35	0	137	1668
5:55 PM	0	18	7	0	30	35	0	0	0	0	0	0	5	0	26	0	121	1654

Peak 15 M n F owrates	Northbound				Southbound				Eastbound				Westbound				ota
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	
A Veh c es	0	320	68	0	496	544	0	0	0	0	0	0	120	0	316	0	1864
Heavy Trucks	0	16	4		4	8	0		0	0	0		0	0	12		44
Buses																	
Pedestr ans		0				0				4				0			4
B cyc es	0	0	0		0	32	0		0	0	0		0	0	0		32
Scooters																	

Comments:

Report generated on 6/4/2020 3:20 PM

SOURCE: Qua ty Counts, LLC (http://www qua tycounts net) 1 877 580 2212

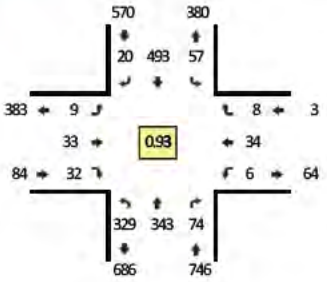
ype of peak hour be ng reported: ntersect on Peak

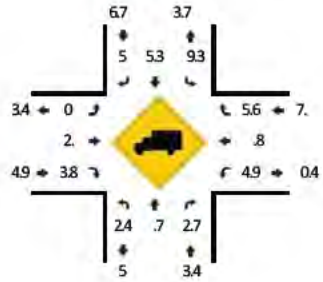
Method for determ n ng peak hour: ota Enter ng Vo ume

LOCATION: Hwy 99E -- SE Harrison St/17th St
CITY/STATE: Milwaukie, OR

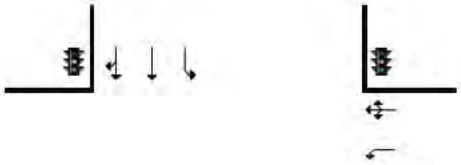
QC JOB #: 15240503
DATE: Tue, Jun 3 2014

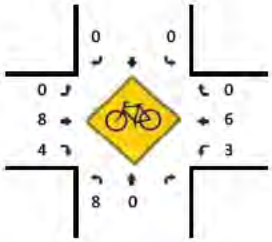
Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

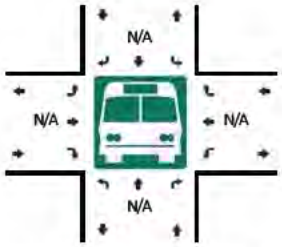


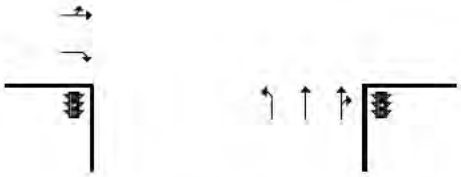


Quality Counts
DATA THAT DRIVES COMMUNITIES









5 M n Count Per od Beg nn ng At	Hwy 99E (Northbound)				Hwy 99E (Southbound)				SE Harr son St/17th St (Eastbound)				SE Harr son St/17th St (Westbound)				ota	Hour y ota s
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U		
7:00 AM	22	102	4	0	2	29	1	0	2	2	8	0	6	1	2	0	181	
7:05 AM	18	118	2	0	3	42	1	0	1	1	10	0	2	2	2	0	202	
7:10 AM	21	123	9	0	4	30	3	0	4	2	13	0	9	0	2	0	220	
7:15 AM	23	139	4	0	4	36	1	0	0	3	10	0	9	0	0	0	229	
7:20 AM	40	135	6	0	6	45	4	0	0	3	8	0	5	2	2	0	256	
7:25 AM	19	127	5	0	3	33	1	0	1	3	5	0	6	2	2	0	207	
7:30 AM	36	116	5	0	3	30	0	0	2	5	6	0	5	7	2	0	217	
7:35 AM	23	108	8	0	4	60	1	0	0	5	13	0	0	3	1	0	226	
7:40 AM	29	88	9	0	5	44	2	0	2	2	12	0	8	3	1	0	205	
7:45 AM	31	87	6	0	9	56	2	0	1	6	15	0	3	3	2	0	221	
7:50 AM	42	132	7	0	2	35	1	0	1	0	13	0	7	6	3	0	249	
7:55 AM	15	86	6	0	8	55	3	0	4	0	11	0	4	1	1	0	194	2607
8:00 AM	32	84	7	0	6	27	1	0	3	3	16	0	3	5	0	0	187	2613
8:05 AM	14	91	4	0	8	54	0	0	0	0	10	0	4	2	2	0	189	2600
8:10 AM	42	88	9	0	11	27	1	0	2	6	15	0	7	7	1	0	216	2596
8:15 AM	24	104	9	0	7	42	1	0	0	9	17	0	7	3	4	0	227	2594
8:20 AM	26	81	7	0	9	46	0	1	1	11	20	0	10	10	2	0	224	2562
8:25 AM	14	94	3	0	14	55	2	0	0	6	7	0	5	3	1	0	204	2559
8:30 AM	19	85	6	0	5	18	3	0	2	11	10	0	9	8	3	0	179	2521
8:35 AM	10	93	11	0	8	42	4	0	0	1	14	0	4	4	1	0	192	2487
8:40 AM	24	86	4	0	7	27	1	0	2	7	12	1	7	3	1	0	182	2464
8:45 AM	17	83	4	0	9	66	2	0	3	4	12	0	8	6	1	0	215	2458
8:50 AM	24	71	4	0	2	32	2	0	0	7	18	0	8	7	5	0	180	2389
8:55 AM	19	58	6	0	9	42	2	0	0	3	12	0	6	1	2	0	160	2355

Peak 15 M n F owrates	Northbound				Southbound				Eastbound				Westbound				ota
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	
A Veh c es	336	1588	76	0	56	444	32	0	16	32	124	0	92	8	16	0	2820
Heavy Trucks	8	32	0		12	28	4		0	4	0		4	4	4		100
Buses																	
Pedestr ans		12				0				0				0			12
B cyc es	12	0	0		0	4	0		0	4	12		4	4	0		40
Scooters																	

Comments:

Report generated on 6/4/2020 3:20 PM

SOURCE: Qua ty Counts, LLC (http://www qua tycounts net) 1 877 580 2212

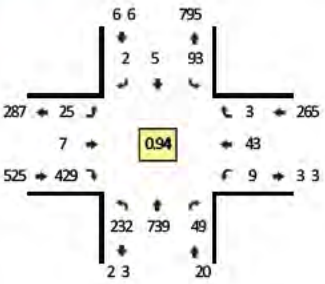
ype of peak hour be ng reported: ntersect on Peak

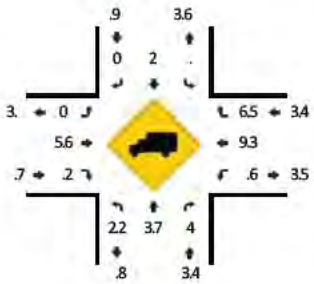
Method for determ n ng peak hour: ota Enter ng Vo ume

LOCATION: Hwy 99E -- SE Harrison St/17th St
CITY/STATE: Milwaukie, OR

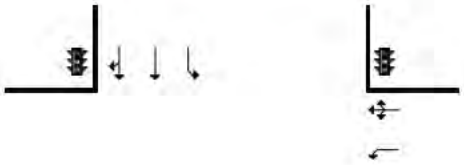
QC JOB #: 15240504
DATE: Tue, Jun 3 2014

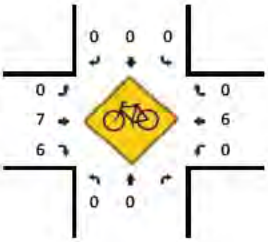
Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

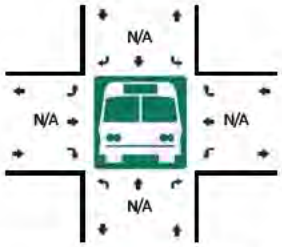




Quality Counts
DATA THAT DRIVES COMMUNITIES







5 M n Count Per od Beg nn ng At	Hwy 99E (Northbound)				Hwy 99E (Southbound)				SE Harr son St/17th St (Eastbound)				SE Harr son St/17th St (Westbound)				ota	Hour y ota s
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U		
4:00 PM	10	32	4	0	6	96	0	0	1	4	32	0	13	0	3	0	201	
4:05 PM	23	56	10	0	7	119	0	0	2	3	29	0	14	2	2	0	267	
4:10 PM	17	54	4	0	13	91	2	1	2	8	33	0	24	5	4	0	258	
4:15 PM	17	67	14	0	9	127	2	1	2	4	23	0	14	4	1	0	285	
4:20 PM	15	49	6	0	8	118	1	0	3	8	37	0	17	7	3	0	272	
4:25 PM	24	64	8	0	10	133	1	0	1	4	42	0	10	3	3	0	303	
4:30 PM	12	37	3	0	4	122	0	0	1	8	30	0	24	5	1	0	247	
4:35 PM	21	70	14	0	4	119	2	0	5	7	46	0	13	2	5	0	308	
4:40 PM	18	41	10	0	9	112	0	0	2	9	40	0	20	4	5	0	270	
4:45 PM	22	81	12	0	9	159	1	0	0	5	28	0	16	9	1	0	343	
4:50 PM	10	47	7	0	12	114	0	0	4	4	24	0	20	6	2	0	250	
4:55 PM	24	57	15	0	5	122	1	0	3	6	40	0	13	0	3	0	289	3293
5:00 PM	14	65	8	0	10	127	2	0	0	4	37	0	19	4	1	0	291	3383
5:05 PM	16	62	18	0	4	111	2	0	1	4	45	0	11	1	0	0	275	3391
5:10 PM	19	57	13	0	11	122	0	0	4	2	33	0	12	2	2	0	277	3410
5:15 PM	28	82	12	0	8	128	0	0	1	5	37	0	19	2	3	0	325	3450
5:20 PM	15	64	10	0	8	127	1	0	2	12	34	0	23	5	7	0	308	3486
5:25 PM	30	58	14	0	3	146	0	0	2	5	30	0	10	2	1	0	301	3484
5:30 PM	15	55	16	0	10	124	3	0	1	8	35	0	15	6	1	0	289	3526
5:35 PM	21	67	5	0	9	106	0	0	8	4	43	0	21	5	2	1	292	3510
5:40 PM	14	53	13	0	5	112	1	0	3	6	36	0	14	5	1	0	263	3503
5:45 PM	22	69	13	0	6	116	0	0	3	2	35	0	7	4	2	0	279	3439
5:50 PM	15	43	13	0	12	126	1	0	4	4	30	0	18	4	4	0	274	3463
5:55 PM	23	57	13	0	6	140	1	0	0	2	29	0	11	2	2	0	286	3460

Peak 15 M n F owrates	Northbound				Southbound				Eastbound				Westbound				ota
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	
A Veh c es	292	816	144	0	76	1604	4	0	20	88	404	0	208	36	44	0	3736
Heavy Trucks	4	24	0		0	32	0		0	4	0		0	4	0		68
Buses																	
Pedestr ans		4				0				0				0			4
B cyc es	0	0	4		0	0	0		0	0	12		0	8	0		24
Scooters																	

Comments:

Report generated on 6/4/2020 3:20 PM

SOURCE: Qua ty Counts, LLC (http://www qua tycounts net) 1 877 580 2212

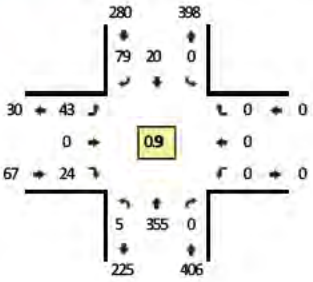
ype of peak hour be ng reported: ntersect on Peak

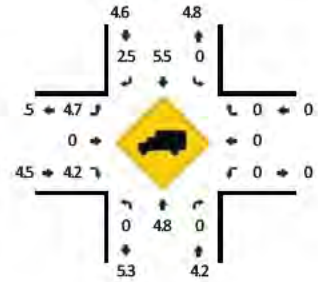
Method for determ n ng peak hour: ota Enter ng Vo ume

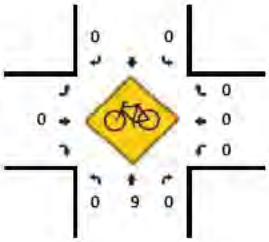
LOCATION: SE 17th Ave -- SE Lava Dr
CITY/STATE: Milwaukie, OR

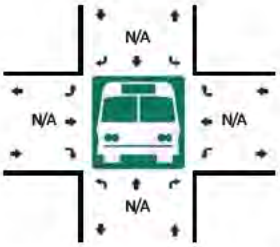
QC JOB #: 15240505
DATE: Tue, Jun 3 2014

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM









5 M n Count Per od Beg nn ng At	SE 17th Ave (Northbound)				SE 17th Ave (Southbound)				SE Lava Dr (Eastbound)				SE Lava Dr (Westbound)				ota	Hour y ota s
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U		
7:00 AM	3	22	0	0	0	15	3	0	1	0	1	0	0	0	0	0	45	
7:05 AM	3	18	0	0	0	7	9	0	0	0	3	0	0	0	0	0	40	
7:10 AM	6	17	0	0	0	16	8	0	0	0	2	0	0	0	0	0	49	
7:15 AM	1	24	0	0	0	14	8	0	4	0	0	0	0	0	0	0	51	
7:20 AM	7	33	0	0	0	9	8	0	6	0	1	0	0	0	0	0	64	
7:25 AM	4	24	0	0	0	9	12	0	6	0	2	0	0	0	0	0	57	
7:30 AM	4	35	0	0	0	9	10	0	6	0	2	0	0	0	0	0	66	
7:35 AM	2	29	0	0	0	14	12	0	6	0	3	0	0	0	0	0	66	
7:40 AM	5	30	0	0	0	14	6	0	3	0	2	0	0	0	0	0	60	
7:45 AM	5	28	0	0	0	15	6	0	1	0	2	0	0	0	0	0	57	
7:50 AM	7	30	0	0	0	18	8	0	5	0	2	0	0	0	0	0	70	
7:55 AM	7	38	0	0	0	15	16	0	1	0	4	0	0	0	0	0	81	706
8:00 AM	5	18	0	0	0	15	7	0	2	0	2	0	0	0	0	0	49	710
8:05 AM	2	35	0	0	0	15	7	0	3	0	1	0	0	0	0	0	63	733
8:10 AM	0	18	0	0	0	16	1	0	3	0	0	0	0	0	0	0	38	722
8:15 AM	6	40	0	0	0	24	4	0	5	0	2	0	0	0	0	0	81	752
8:20 AM	4	25	0	0	0	23	1	0	6	0	3	0	0	0	0	0	62	750
8:25 AM	4	29	0	0	0	23	1	0	2	0	1	0	0	0	0	0	60	753
8:30 AM	1	19	0	0	0	17	3	0	3	0	5	0	0	0	0	0	48	735
8:35 AM	8	22	0	0	0	11	7	0	2	0	1	0	0	0	0	0	51	720
8:40 AM	5	16	0	0	0	21	3	0	2	0	3	0	0	0	0	0	50	710
8:45 AM	4	22	0	0	0	20	4	0	5	0	2	0	0	0	0	0	57	710
8:50 AM	5	24	0	0	0	12	2	0	3	0	4	0	0	0	0	0	50	690
8:55 AM	4	24	0	0	0	18	5	0	1	0	3	0	0	0	0	0	55	664

Peak 15 M n F owrates	Northbound				Southbound				Eastbound				Westbound				ota
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	
A Veh c es	76	384	0	0	0	192	120	0	28	0	32	0	0	0	0	0	832
Heavy Trucks	0	12	0		0	4	4		0	0	4		0	0	0		24
Buses																	
Pedestr ans		0				0				0				0			0
B cyc es	0	24	0		0	16	0		4	0	0		0	0	0		44
Scooters																	

Comments:

Report generated on 6/4/2020 3:20 PM

SOURCE: Qua ty Counts, LLC (http://www qua tycounts net) 1 877 580 2212

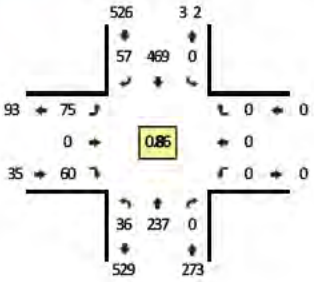
ype of peak hour be ng reported: ntersect on Peak

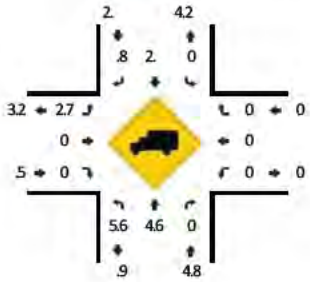
Method for determ n ng peak hour: ota Enter ng Vo ume

LOCATION: SE 17th Ave -- SE Lava Dr
CITY/STATE: Milwaukie, OR

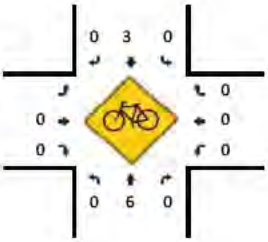
QC JOB #: 15240506
DATE: Tue, Jun 3 2014

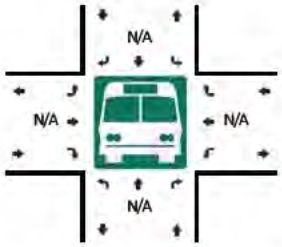
Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 4:30 PM -- 4:45 PM





Quality Counts
DATA THAT DRIVES COMMUNITIES





5 M n Count Per od Beg nn ng At	SE 17th Ave (Northbound)				SE 17th Ave (Southbound)				SE Lava Dr (Eastbound)				SE Lava Dr (Westbound)				ota	Hour y ota s
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U		
4:00 PM	1	18	0	0	0	32	4	0	6	0	5	0	0	0	0	0	66	
4:05 PM	0	16	0	0	0	32	4	0	5	0	5	0	0	0	0	0	62	
4:10 PM	2	30	0	0	0	33	3	0	11	0	4	0	0	0	0	0	83	
4:15 PM	3	13	0	0	0	27	5	0	7	0	3	0	0	0	0	0	58	
4:20 PM	3	25	0	0	0	48	2	0	2	0	4	0	0	0	0	0	84	
4:25 PM	4	15	0	0	0	41	9	0	3	0	2	0	0	0	0	0	74	
4:30 PM	3	23	0	0	0	51	4	0	13	0	8	0	0	0	0	0	102	
4:35 PM	1	16	0	0	0	34	4	0	19	0	10	0	0	0	0	0	84	
4:40 PM	0	30	0	0	0	40	6	0	2	0	8	0	0	0	0	0	86	
4:45 PM	7	16	0	0	0	39	7	0	1	0	3	0	0	0	0	0	73	
4:50 PM	3	21	0	0	0	29	3	0	11	0	6	0	0	0	0	0	73	
4:55 PM	0	17	0	0	0	36	3	0	7	0	6	0	0	0	0	0	69	914
5:00 PM	7	21	0	0	0	40	3	0	3	0	2	0	0	0	0	0	76	924
5:05 PM	2	11	0	0	0	40	4	0	8	0	3	0	0	0	0	0	68	930
5:10 PM	2	24	0	0	0	36	5	0	3	0	3	0	0	0	0	0	73	920
5:15 PM	4	18	0	0	0	35	7	0	3	0	5	0	0	0	0	0	72	934
5:20 PM	3	22	0	0	0	42	3	0	3	0	4	0	0	0	0	0	77	927
5:25 PM	1	20	0	0	0	35	5	0	4	0	3	0	0	0	0	0	68	921
5:30 PM	4	29	0	0	0	44	5	0	7	0	8	0	0	0	0	0	97	916
5:35 PM	2	19	0	0	0	37	6	0	15	0	14	0	0	0	0	0	93	925
5:40 PM	2	21	0	0	0	35	4	0	10	0	5	0	0	0	0	0	77	916
5:45 PM	3	14	0	0	0	36	3	0	6	0	5	0	0	0	0	0	67	910
5:50 PM	1	26	0	0	0	31	4	0	4	0	3	0	0	0	0	0	69	906
5:55 PM	1	19	0	0	0	33	4	0	6	0	1	0	0	0	0	0	64	901

Peak 15 M n F owrates	Northbound				Southbound				Eastbound				Westbound				ota
	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	Left	hru	R ght	U	
A Veh c es	16	276	0	0	0	500	56	0	136	0	104	0	0	0	0	0	1088
Heavy Trucks	4	8	0		0	12	4		4	0	0		0	0	0		32
Buses																	
Pedestr ans		0				0				8				0			8
B cyc es	0	4	0		0	28	0		4	0	0		0	0	0		36
Scooters																	

Comments:

Report generated on 6/4/2020 3:20 PM

SOURCE: Qua ty Counts, LLC (http://www qua tycounts net) 1 877 580 2212

Transportation Volume Tables					
TVT	0.25 mile north of Clackamas Highway (OR224)				
Year	2014	2015	2016	2017	2018
AADT	38300	41200	33000	33300	33400
GR	1	1.08	0.80	1.01	1.00
TVT	0.05 mile north of Harrison Street				
AADT	26200	28200	33700	34000	34200
GR	1	1.08	1.20	1.01	1.01
TVT	0.02 mile south of Jefferson Street				
AADT	26900	29000	30600	30800	31000
GR	1	1.08	1.06	1.01	1.01
AVERAGE GROWTH RATE			**2.7%**		

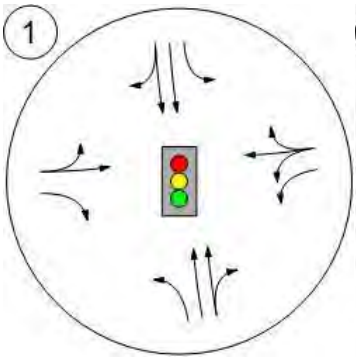
Detector Counts	OR 99E@17th St/Harrison St		Annual Growth Rate	OR 224@17th St		Annual Growth Rate
	Total Entering Volumes (TEV)			Total Entering Volumes (TEV)		
Date	Mar-18	Mar-19		Mar-19	Feb-20	
PM Peak Hour	3485	3348	**-3.9%**	1617	1492	**-7.7%**

Turning Movement Counts	OR 99E@17th St/Harrison St		Annual Growth Rate	OR 224@17th St		Annual Growth Rate
	TSP data	Historical data		TSP data	Historical data	
Date	11/29/2006	6/3/2014		11/29/2006	6/3/2014	
PM Peak Hour	3852	2598	**-4.1%**	2080	1656	**-2.5%**

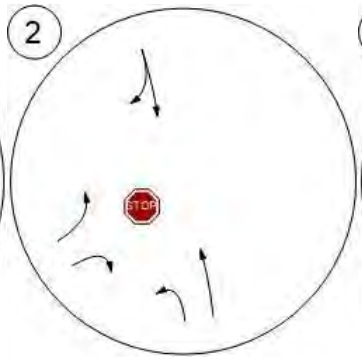
Attachment D – Existing Traffic Level-of-Service Worksheets

Lane Configuration and Traffic Control

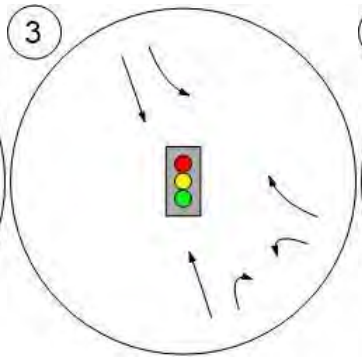
OR 99W / Harrison St / 17th



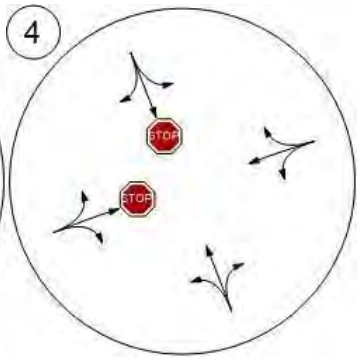
Lava Dr / 17th Ave



OR 224 / 17th Ave

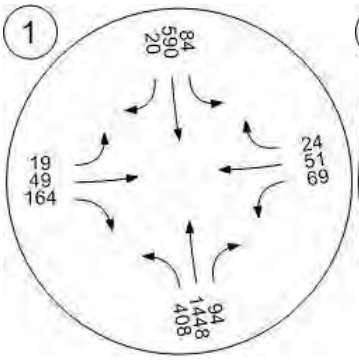


Waverly Ct / Lava Dr

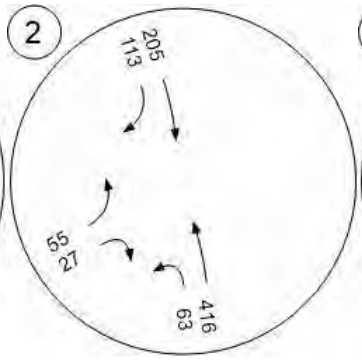


Traffic Volume

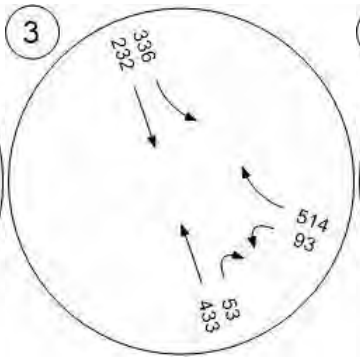
OR 99W / Harrison St / 17th



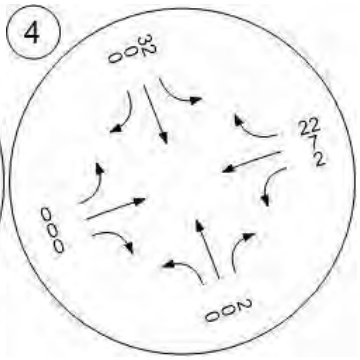
Lava Dr / 17th Ave



OR 224 / 17th Ave

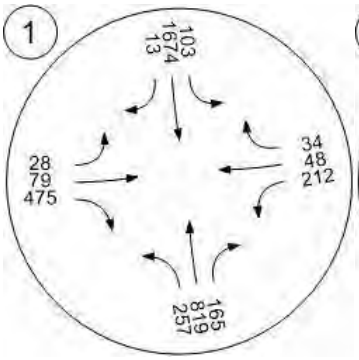


Waverly Ct / Lava Dr

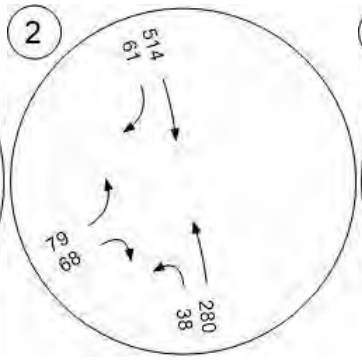


Traffic Volume

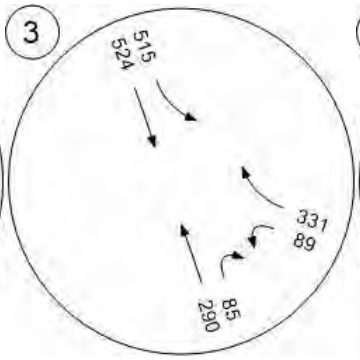
OR 99W / Harrison St / 17th



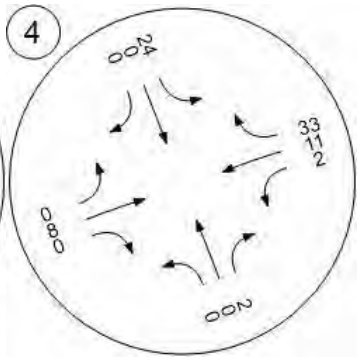
Lava Dr / 17th Ave



OR 224 / 17th Ave



Waverly Ct / Lava Dr



Intersection Level Of Service Report
Intersection 1: OR 99W / Harrison St / 17th St

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.678

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	370.00	100.00	100.00	375.00	100.00	100.00	100.00	100.00	150.00	135.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	408	1448	94	84	590	20	19	49	164	69	51	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	5.00	11.00	7.00	2.00	6.00	10.00	4.00	7.00	11.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	82	0	0	0
Total Hourly Volume [veh/h]	408	1448	94	84	590	20	19	49	82	69	51	24
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	104	369	24	21	151	5	5	13	21	18	13	6
Total Analysis Volume [veh/h]	416	1478	96	86	602	20	19	50	84	70	52	24
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	15			0			15			0		
v_di, Inbound Pedestrian Volume crossing m	15			0			15			0		
v_co, Outbound Pedestrian Volume crossing	1			0			0			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			0			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	10			0			13			8		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	93.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	8	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lag	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	10	0	6	10	0	0	6	6	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	3.5	3.5	0.0	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.5	0.0
Split [s]	34	56	0	20	42	0	0	26	26	0	18	0
Vehicle Extension [s]	2.3	6.1	0.0	2.3	6.1	0.0	0.0	2.3	2.3	0.0	2.3	0.0
Walk [s]	0	7	0	0	11	0	0	8	8	0	5	0
Pedestrian Clearance [s]	0	17	0	0	18	0	0	21	21	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.50	2.50
g_i, Effective Green Time [s]	30	71	71	8	49	49	16	63	9	9
g / C, Green / Cycle	0.25	0.60	0.60	0.06	0.41	0.41	0.13	0.52	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.24	0.43	0.44	0.05	0.17	0.17	0.04	0.05	0.04	0.06
s, saturation flow rate [veh/h]	1752	1840	1794	1652	1795	1775	1726	1549	1360	1559
c, Capacity [veh/h]	438	1096	1069	107	737	729	223	811	141	148
d1, Uniform Delay [s]	44.28	17.14	17.48	55.36	25.24	25.25	47.40	14.45	55.41	54.71
k, delay calibration	0.40	0.50	0.50	0.07	0.50	0.50	0.07	0.07	0.07	0.07
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	28.08	4.05	4.53	8.23	1.79	1.81	0.48	0.03	1.13	2.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.72	0.74	0.80	0.42	0.42	0.31	0.10	0.40	0.60
d, Delay for Lane Group [s/veh]	72.36	21.19	22.01	63.60	27.03	27.06	47.87	14.48	56.54	57.13
Lane Group LOS	E	C	C	E	C	C	D	B	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	15.48	15.80	16.20	2.81	6.71	6.65	1.91	1.16	1.73	2.75
50th-Percentile Queue Length [ft/ln]	387.08	395.06	404.97	70.31	167.86	166.24	47.72	29.09	43.29	68.78
95th-Percentile Queue Length [veh/ln]	21.94	22.32	22.80	5.06	10.96	10.88	3.44	2.09	3.12	4.95
95th-Percentile Queue Length [ft/ln]	548.41	558.04	569.98	126.55	274.10	271.97	85.89	52.36	77.91	123.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.36	21.57	22.01	63.60	27.04	27.06	47.87	47.87	14.48	56.54	57.13	57.13
Movement LOS	E	C	C	E	C	C	D	D	B	E	E	E
d_A, Approach Delay [s/veh]	32.21			31.48			29.54			56.90		
Approach LOS	C			C			C			E		
d_I, Intersection Delay [s/veh]	33.11											
Intersection LOS	C											
Intersection V/C	0.678											

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	9.0	15.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	194.31	0.00	0.00	2383.30
d_p, Pedestrian Delay [s]	48.60	51.34	45.94	49.50
l_p,int, Pedestrian LOS Score for Intersection	2.983	2.750	2.303	2.077
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	633	367	225
d_b, Bicycle Delay [s]	19.36	28.02	40.28	47.45
l_b,int, Bicycle LOS Score for Intersection	3.201	2.144	1.947	1.801
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Lava Dr / 17th Ave

Control Type:	Two-way stop	Delay (sec / veh):	20.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.212

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	50.00	100.00	100.00	100.00	100.00	65.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	63	416	205	113	55	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	5.00	3.00	6.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	416	205	113	55	27
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	116	57	31	15	8
Total Analysis Volume [veh/h]	70	462	228	126	61	30
Pedestrian Volume [ped/h]	0		1		2	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.21	0.04
d_M, Delay for Movement [s/veh]	8.15	0.00	0.00	0.00	20.88	10.07
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.18	0.00	0.00	0.00	0.79	0.13
95th-Percentile Queue Length [ft/ln]	4.59	0.00	0.00	0.00	19.68	3.16
d_A, Approach Delay [s/veh]	1.07		0.00		17.32	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.20					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: OR 224 / 17th Ave

Control Type:	Signalized	Delay (sec / veh):	24.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.751

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	100.00	160.00	100.00	130.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name						
Base Volume Input [veh/h]	433	53	336	232	93	514
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	11.00	1.00	6.00	5.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	433	53	336	232	93	514
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	116	14	90	62	25	138
Total Analysis Volume [veh/h]	466	57	361	249	100	553
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	22		18		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Overlap
Signal Group	6	0	5	2	4	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	40	0	50	40	20	20
Amber [s]	4.0	0.0	3.5	4.0	4.0	4.0
All red [s]	0.5	0.0	0.5	0.5	0.5	0.5
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk						
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.5	0.0	2.0	2.5	2.5	2.5
Minimum Recall	Yes		No	Yes	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	3
Pedestrian Walk [s]	7
Pedestrian Clearance [s]	17

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	104	104	104	104	104	104
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	0.00	2.50	2.50	0.00
g_i, Effective Green Time [s]	29	29	58	58	20	67
g / C, Green / Cycle	0.28	0.28	0.56	0.56	0.19	0.64
(v / s)_i Volume / Saturation Flow Rate	0.25	0.04	0.27	0.14	0.06	0.36
s, saturation flow rate [veh/h]	1840	1402	1321	1810	1738	1551
c, Capacity [veh/h]	508	387	621	1012	333	996
d1, Uniform Delay [s]	36.59	28.42	12.70	11.76	36.14	10.36
k, delay calibration	0.20	0.11	0.24	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.06	0.17	1.92	0.13	0.50	2.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.15	0.58	0.25	0.30	0.55
d, Delay for Lane Group [s/veh]	48.66	28.60	14.62	11.89	36.64	12.59
Lane Group LOS	D	C	B	B	D	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	12.98	1.09	4.80	2.89	2.22	7.03
50th-Percentile Queue Length [ft/ln]	324.48	27.25	120.06	72.29	55.54	175.75
95th-Percentile Queue Length [veh/ln]	18.89	1.96	8.40	5.21	4.00	11.38
95th-Percentile Queue Length [ft/ln]	472.19	49.05	209.91	130.13	99.97	284.46

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.66	28.60	14.62	11.89	36.64	12.59
Movement LOS	D	C	B	B	D	B
d_A, Approach Delay [s/veh]	46.47		13.51		16.27	
Approach LOS	D		B		B	
d_I, Intersection Delay [s/veh]	24.17					
Intersection LOS	C					
Intersection V/C	0.751					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.223	2.469	0.000
Crosswalk LOS	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	889	444
d_b, Bicycle Delay [s]	14.04	14.02	27.22
l_b,int, Bicycle LOS Score for Intersection	2.423	2.566	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	2	-	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Waverly Ct / Lava Dr

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	2	32	0	0	0	0	0	2	7	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	2	32	0	0	0	0	0	2	7	22
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	9	0	0	0	0	0	1	2	6
Total Analysis Volume [veh/h]	0	0	2	36	0	0	0	0	0	2	8	24
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Stop	Stop	Free
Flared Lane		No	No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance		No	No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.24	7.26	0.00	8.76	9.25	8.53	8.69	9.10	8.38	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.11	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.82	2.82	2.82	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			8.76			8.72			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.38											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 1: OR 99W / Harrison St / 17th St

Control Type:	Signalized	Delay (sec / veh):	42.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.935

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	370.00	100.00	100.00	375.00	100.00	100.00	100.00	100.00	150.00	135.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	257	819	165	103	1674	13	28	79	475	212	48	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	4.00	4.00	1.00	2.00	2.00	0.00	6.00	1.00	2.00	9.00	6.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	8	0	0	0	0	0	238	0	0	22
Total Hourly Volume [veh/h]	257	819	157	103	1674	13	28	79	237	212	48	12
Peak Hour Factor	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	207	40	26	423	3	7	20	60	54	12	3
Total Analysis Volume [veh/h]	260	827	159	104	1691	13	28	80	239	214	48	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			0			12			0		
v_di, Inbound Pedestrian Volume crossing m	12			0			12			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			0			13			6		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	60.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	8	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	10	0	6	10	0	0	6	6	0	6	0
Maximum Green [s]	30	63	0	16	49	0	0	11	11	0	14	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	3.5	3.5	0.0	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.5	0.0
Split [s]	23	60	0	19	56	0	0	26	26	0	15	0
Vehicle Extension [s]	2.3	6.1	0.0	2.3	6.1	0.0	0.0	2.3	2.3	0.0	2.3	0.0
Walk [s]	0	7	0	0	11	0	0	8	8	0	5	0
Pedestrian Clearance [s]	0	17	0	0	18	0	0	21	21	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.50	2.50
g_i, Effective Green Time [s]	19	69	69	9	58	58	16	39	11	11
g / C, Green / Cycle	0.16	0.57	0.57	0.07	0.48	0.48	0.13	0.32	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.15	0.27	0.28	0.06	0.46	0.46	0.06	0.15	0.08	0.08
s, saturation flow rate [veh/h]	1781	1840	1724	1795	1870	1865	1787	1571	1781	1692
c, Capacity [veh/h]	284	1050	984	130	904	902	235	508	157	149
d1, Uniform Delay [s]	49.63	15.26	15.33	54.78	29.40	29.45	48.19	32.20	54.19	54.19
k, delay calibration	0.11	0.50	0.50	0.07	0.50	0.50	0.07	0.13	0.13	0.13
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.29	1.58	1.73	6.72	18.85	19.16	0.86	0.80	18.70	19.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.48	0.49	0.80	0.94	0.94	0.46	0.47	0.90	0.90
d, Delay for Lane Group [s/veh]	60.92	16.84	17.06	61.50	48.24	48.61	49.05	33.00	72.89	73.46
Lane Group LOS	E	B	B	E	D	D	D	C	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	8.55	8.43	8.07	3.34	27.14	27.23	3.05	5.63	5.02	4.78
50th-Percentile Queue Length [ft/ln]	213.72	210.73	201.72	83.48	678.62	680.80	76.30	140.83	125.39	119.56
95th-Percentile Queue Length [veh/ln]	13.34	13.19	12.73	6.01	35.69	35.79	5.49	9.53	8.69	8.37
95th-Percentile Queue Length [ft/ln]	333.59	329.76	318.19	150.26	892.23	894.76	137.33	238.14	217.22	209.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.92	16.93	17.06	61.50	48.42	48.61	49.05	49.05	33.00	73.09	73.46	73.46
Movement LOS	E	B	B	E	D	D	D	D	C	E	E	E
d_A, Approach Delay [s/veh]	26.12			49.18			38.00			73.17		
Approach LOS	C			D			D			E		
d_I, Intersection Delay [s/veh]	42.09											
Intersection LOS	D											
Intersection V/C	0.935											

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	9.0	15.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	196.35	0.00	0.00	3272.59
d_p, Pedestrian Delay [s]	48.60	51.34	45.94	49.50
l_p,int, Pedestrian LOS Score for Intersection	3.033	2.841	2.584	2.196
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	867	367	175
d_b, Bicycle Delay [s]	17.08	19.27	40.28	50.11
l_b,int, Bicycle LOS Score for Intersection	2.594	3.051	2.525	2.048
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Lava Dr / 17th Ave

Control Type:	Two-way stop	Delay (sec / veh):	24.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.312

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	50.00	100.00	100.00	100.00	100.00	65.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	38	280	514	61	79	68
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	2.00	2.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	280	514	61	79	68
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	74	137	16	21	18
Total Analysis Volume [veh/h]	40	298	547	65	84	72
Pedestrian Volume [ped/h]	1		1		8	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.00	0.01	0.00	0.31	0.14
d_M, Delay for Movement [s/veh]	8.90	0.00	0.00	0.00	24.32	13.26
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.13	0.00	0.00	0.00	1.29	0.49
95th-Percentile Queue Length [ft/ln]	3.25	0.00	0.00	0.00	32.21	12.28
d_A, Approach Delay [s/veh]	1.05		0.00		19.21	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.03					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: OR 224 / 17th Ave

Control Type:	Signalized	Delay (sec / veh):	16.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.665

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	100.00	160.00	100.00	130.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name						
Base Volume Input [veh/h]	290	85	515	524	89	331
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	1.00	2.00	2.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	290	85	515	524	89	331
Peak Hour Factor	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	73	21	130	132	22	84
Total Analysis Volume [veh/h]	293	86	520	529	90	334
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	6		31		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Overlap
Signal Group	6	0	5	2	4	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	40	0	50	40	20	20
Amber [s]	4.0	0.0	3.5	4.0	4.0	4.0
All red [s]	0.5	0.0	0.5	0.5	0.5	0.5
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk						
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.5	0.0	2.0	2.5	2.5	2.5
Minimum Recall	Yes		No	Yes	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	3
Pedestrian Walk [s]	7
Pedestrian Clearance [s]	17

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	71	71	71	71	71	71
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	0.00	2.50	2.50	0.00
g_i, Effective Green Time [s]	14	14	36	36	9	49
g / C, Green / Cycle	0.19	0.19	0.51	0.51	0.12	0.69
(v / s)_i Volume / Saturation Flow Rate	0.16	0.06	0.35	0.28	0.05	0.21
s, saturation flow rate [veh/h]	1855	1502	1477	1870	1781	1602
c, Capacity [veh/h]	358	290	747	956	222	1102
d1, Uniform Delay [s]	27.61	24.61	12.00	11.89	28.82	4.39
k, delay calibration	0.11	0.11	0.18	0.11	0.11	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.63	0.56	1.96	0.50	1.19	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.30	0.70	0.55	0.41	0.30
d, Delay for Lane Group [s/veh]	32.24	25.18	13.97	12.39	30.01	4.73
Lane Group LOS	C	C	B	B	C	A
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.02	1.24	5.38	5.15	1.44	1.49
50th-Percentile Queue Length [ft/ln]	125.45	30.95	134.59	128.72	36.08	37.28
95th-Percentile Queue Length [veh/ln]	8.69	2.23	9.19	8.87	2.60	2.68
95th-Percentile Queue Length [ft/ln]	217.29	55.71	229.72	221.76	64.95	67.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.24	25.18	13.97	12.39	30.01	4.73
Movement LOS	C	C	B	B	C	A
d_A, Approach Delay [s/veh]	30.64		13.17		10.09	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	16.04					
Intersection LOS	B					
Intersection V/C	0.665					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.264	2.484	0.000
Crosswalk LOS	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	889	444
d_b, Bicycle Delay [s]	13.93	14.11	27.22
I_b,int, Bicycle LOS Score for Intersection	2.185	3.290	1.560
Bicycle LOS	B	C	A

Sequence

Ring 1	2	-	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Waverly Ct / Lava Dr

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	2	24	0	0	0	8	0	2	11	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	2	24	0	0	0	8	0	2	11	33
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	6	0	0	0	2	0	1	3	9
Total Analysis Volume [veh/h]	0	0	2	26	0	0	0	9	0	2	12	35
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Stop	Stop	Free
Flared Lane		No	No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance		No	No	
Number of Storage Spaces in Median	0	0	0	0

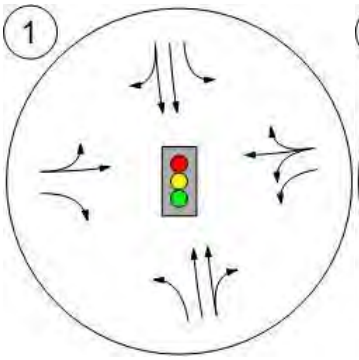
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.26	7.29	0.00	8.83	9.31	8.53	8.81	9.18	8.45	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.08	0.08	0.08	0.03	0.03	0.03	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.07	2.07	2.07	0.78	0.78	0.78	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			8.83			9.18			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	3.63											
Intersection LOS	A											

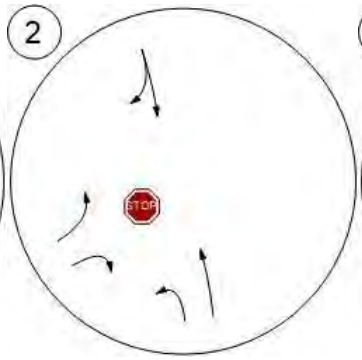
Attachment E – 2021 Background Traffic Level-of-Service Worksheets

Lane Configuration and Traffic Control

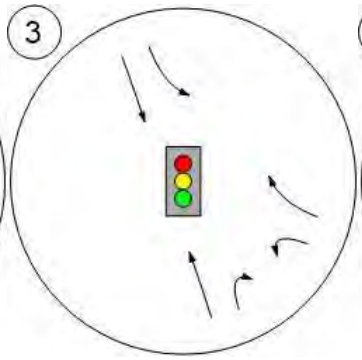
OR 99W / Harrison St / 17th



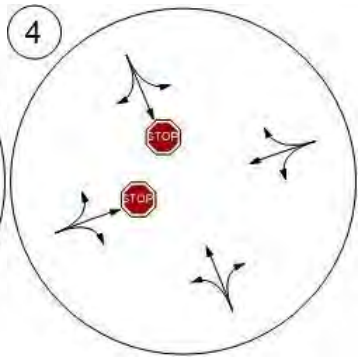
Lava Dr / 17th Ave



OR 224 / 17th Ave

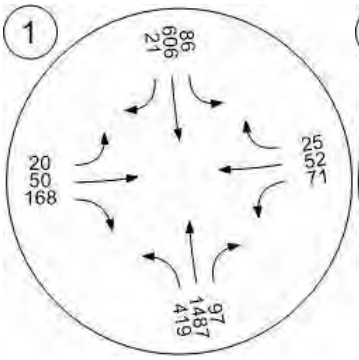


Waverly Ct / Lava Dr

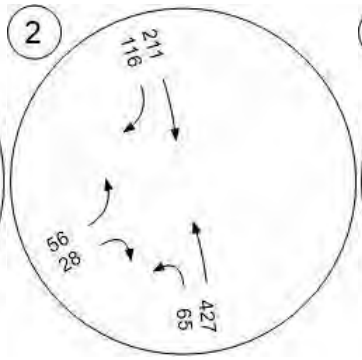


Traffic Volume

OR 99W / Harrison St / 17th



Lava Dr / 17th Ave



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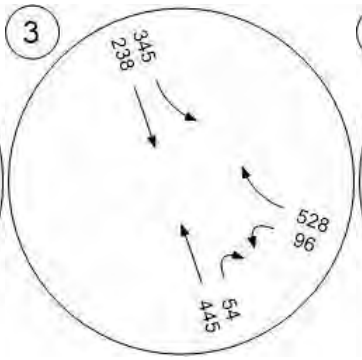
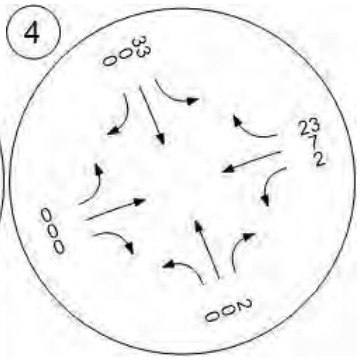
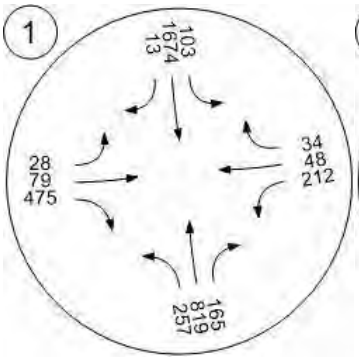


Waverly Ct / Lava Dr

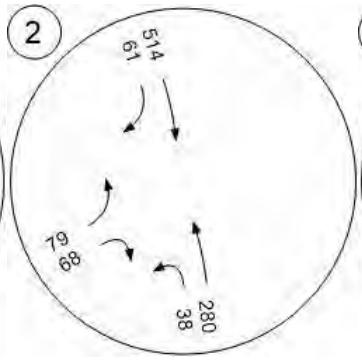


Traffic Volume

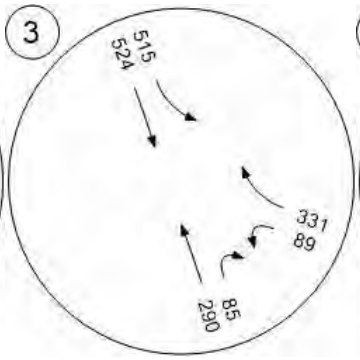
OR 99W / Harrison St / 17th



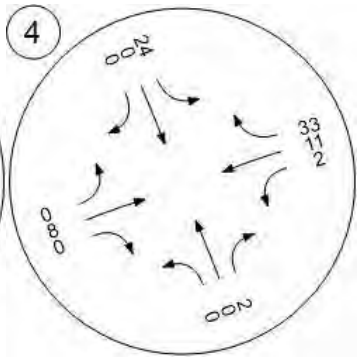
Lava Dr / 17th Ave



OR 224 / 17th Ave



Waverly Ct / Lava Dr



Intersection Level Of Service Report
Intersection 1: OR 99W / Harrison St / 17th St

Control Type:	Signalized	Delay (sec / veh):	37.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.719

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	370.00	100.00	100.00	375.00	100.00	100.00	100.00	100.00	150.00	135.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	408	1448	94	84	590	20	19	49	164	69	51	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	5.00	11.00	7.00	2.00	6.00	10.00	4.00	7.00	11.00	5.00
Growth Factor	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	84	0	0	0
Total Hourly Volume [veh/h]	419	1487	97	86	606	21	20	50	84	71	52	25
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	110	391	26	23	159	5	5	13	22	19	14	7
Total Analysis Volume [veh/h]	441	1565	102	91	638	21	21	53	88	75	55	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	15			0			15			0		
v_di, Inbound Pedestrian Volume crossing m	15			0			15			0		
v_co, Outbound Pedestrian Volume crossing	1			0			0			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			0			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	10			0			13			8		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	93.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	8	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lag	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	10	0	6	10	0	0	6	6	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	3.5	3.5	0.0	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.5	0.0
Split [s]	34	56	0	20	42	0	0	26	26	0	18	0
Vehicle Extension [s]	2.3	6.1	0.0	2.3	6.1	0.0	0.0	2.3	2.3	0.0	2.3	0.0
Walk [s]	0	7	0	0	11	0	0	8	8	0	5	0
Pedestrian Clearance [s]	0	17	0	0	18	0	0	21	21	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.50	2.50
g_i, Effective Green Time [s]	30	70	70	8	49	49	16	63	9	9
g / C, Green / Cycle	0.25	0.59	0.59	0.07	0.41	0.41	0.13	0.53	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.25	0.45	0.46	0.06	0.18	0.18	0.04	0.06	0.04	0.06
s, saturation flow rate [veh/h]	1752	1840	1794	1652	1795	1775	1725	1549	1360	1580
c, Capacity [veh/h]	438	1078	1051	113	726	718	226	820	150	156
d1, Uniform Delay [s]	45.03	18.82	19.23	55.11	26.09	26.10	47.36	14.13	54.76	54.39
k, delay calibration	0.45	0.50	0.50	0.07	0.50	0.50	0.07	0.07	0.07	0.07
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	42.67	5.40	6.16	7.83	2.06	2.09	0.51	0.03	1.06	2.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	0.77	0.79	0.80	0.46	0.46	0.33	0.11	0.40	0.61
d, Delay for Lane Group [s/veh]	87.71	24.22	25.39	62.94	28.15	28.18	47.87	14.16	55.82	56.75
Lane Group LOS	F	C	C	E	C	C	D	B	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	18.10	18.22	18.76	2.96	7.30	7.23	2.05	1.21	1.83	2.94
50th-Percentile Queue Length [ft/ln]	452.61	455.51	469.02	74.01	182.55	180.75	51.23	30.14	45.83	73.46
95th-Percentile Queue Length [veh/ln]	25.19	25.22	25.86	5.33	11.73	11.64	3.69	2.17	3.30	5.29
95th-Percentile Queue Length [ft/ln]	629.82	630.52	646.61	133.22	293.34	291.00	92.22	54.25	82.50	132.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	87.71	24.77	25.39	62.94	28.17	28.18	47.87	47.87	14.16	55.82	56.75	56.75
Movement LOS	F	C	C	E	C	C	D	D	B	E	E	E
d_A, Approach Delay [s/veh]	37.96			32.39			29.56			56.39		
Approach LOS	D			C			C			E		
d_I, Intersection Delay [s/veh]	37.12											
Intersection LOS	D											
Intersection V/C	0.719											

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	9.0	15.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	188.94	0.00	0.00	2312.16
d_p, Pedestrian Delay [s]	48.60	51.34	45.94	49.50
l_p,int, Pedestrian LOS Score for Intersection	3.024	2.776	2.318	2.085
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	633	367	225
d_b, Bicycle Delay [s]	19.36	28.02	40.28	47.45
l_b,int, Bicycle LOS Score for Intersection	3.299	2.178	1.966	1.817
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Lava Dr / 17th Ave

Control Type:	Two-way stop	Delay (sec / veh):	21.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.223

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	50.00	100.00	100.00	100.00	100.00	65.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	63	416	205	113	55	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	5.00	3.00	6.00	4.00
Growth Factor	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	427	211	116	56	28
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	119	59	32	16	8
Total Analysis Volume [veh/h]	72	474	234	129	62	31
Pedestrian Volume [ped/h]	0		1		2	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.22	0.04
d_M, Delay for Movement [s/veh]	8.18	0.00	0.00	0.00	21.67	10.13
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.19	0.00	0.00	0.00	0.84	0.13
95th-Percentile Queue Length [ft/ln]	4.77	0.00	0.00	0.00	20.93	3.31
d_A, Approach Delay [s/veh]	1.08		0.00		17.82	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.24					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: OR 224 / 17th Ave

Control Type:	Signalized	Delay (sec / veh):	26.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.772

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	100.00	160.00	100.00	130.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name						
Base Volume Input [veh/h]	433	53	336	232	93	514
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	11.00	1.00	6.00	5.00	5.00
Growth Factor	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	445	54	345	238	96	528
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	122	15	95	65	26	145
Total Analysis Volume [veh/h]	489	59	379	262	105	580
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	22		18		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Overlap
Signal Group	6	0	5	2	4	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	40	0	50	40	20	20
Amber [s]	4.0	0.0	3.5	4.0	4.0	4.0
All red [s]	0.5	0.0	0.5	0.5	0.5	0.5
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk						
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.5	0.0	2.0	2.5	2.5	2.5
Minimum Recall	Yes		No	Yes	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	3
Pedestrian Walk [s]	7
Pedestrian Clearance [s]	17

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	111	111	111	111	111	111
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	0.00	2.50	2.50	0.00
g_i, Effective Green Time [s]	32	32	65	65	20	70
g / C, Green / Cycle	0.29	0.29	0.58	0.58	0.18	0.64
(v / s)_i Volume / Saturation Flow Rate	0.27	0.04	0.29	0.14	0.06	0.37
s, saturation flow rate [veh/h]	1840	1403	1317	1810	1738	1551
c, Capacity [veh/h]	527	402	641	1058	314	988
d1, Uniform Delay [s]	38.38	29.36	12.11	11.17	39.56	11.67
k, delay calibration	0.26	0.11	0.30	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.37	0.17	2.44	0.12	0.62	2.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.15	0.59	0.25	0.33	0.59
d, Delay for Lane Group [s/veh]	53.75	29.52	14.55	11.29	40.18	14.23
Lane Group LOS	D	C	B	B	D	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	14.93	1.19	5.19	3.07	2.55	8.37
50th-Percentile Queue Length [ft/ln]	373.36	29.73	129.68	76.66	63.63	209.28
95th-Percentile Queue Length [veh/ln]	21.27	2.14	8.92	5.52	4.58	13.12
95th-Percentile Queue Length [ft/ln]	531.80	53.51	223.06	137.99	114.54	327.91

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.75	29.52	14.55	11.29	40.18	14.23
Movement LOS	D	C	B	B	D	B
d_A, Approach Delay [s/veh]	51.14		13.22		18.21	
Approach LOS	D		B		B	
d_I, Intersection Delay [s/veh]	26.13					
Intersection LOS	C					
Intersection V/C	0.772					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.237	2.495	0.000
Crosswalk LOS	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	889	444
d_b, Bicycle Delay [s]	14.04	14.02	27.22
l_b,int, Bicycle LOS Score for Intersection	2.464	2.617	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	2	-	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Waverly Ct / Lava Dr

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.037

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	2	32	0	0	0	0	0	2	7	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	2	33	0	0	0	0	0	2	7	23
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	9	0	0	0	0	0	1	2	6
Total Analysis Volume [veh/h]	0	0	2	37	0	0	0	0	0	2	8	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Stop	Stop	Free
Flared Lane		No	No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance		No	No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.24	7.27	0.00	8.77	9.26	8.53	8.70	9.11	8.38	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.12	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.91	2.91	2.91	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			8.77			8.73			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.33											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 1: OR 99W / Harrison St / 17th St

Control Type:	Signalized	Delay (sec / veh):	41.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.935

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	370.00	100.00	100.00	375.00	100.00	100.00	100.00	100.00	150.00	135.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	257	819	165	103	1674	13	28	79	475	212	48	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	4.00	4.00	1.00	2.00	2.00	0.00	6.00	1.00	2.00	9.00	6.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	9	0	0	1	0	0	238	0	0	21
Total Hourly Volume [veh/h]	257	819	156	103	1674	12	28	79	237	212	48	13
Peak Hour Factor	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	207	39	26	423	3	7	20	60	54	12	3
Total Analysis Volume [veh/h]	260	827	158	104	1691	12	28	80	239	214	48	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			0			12			0		
v_di, Inbound Pedestrian Volume crossing m	12			0			12			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			0			13			6		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	60.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	8	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	10	0	6	10	0	0	6	6	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	3.5	3.5	0.0	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.5	0.0
Split [s]	23	60	0	19	56	0	0	26	26	0	15	0
Vehicle Extension [s]	2.3	6.1	0.0	2.3	6.1	0.0	0.0	2.3	2.3	0.0	2.3	0.0
Walk [s]	0	7	0	0	11	0	0	8	8	0	5	0
Pedestrian Clearance [s]	0	17	0	0	18	0	0	21	21	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.50	2.50
g_i, Effective Green Time [s]	19	68	68	9	58	58	16	39	11	11
g / C, Green / Cycle	0.16	0.57	0.57	0.07	0.48	0.48	0.13	0.32	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.15	0.27	0.28	0.06	0.46	0.46	0.06	0.15	0.08	0.08
s, saturation flow rate [veh/h]	1781	1840	1725	1795	1870	1865	1787	1571	1781	1690
c, Capacity [veh/h]	283	1047	982	131	904	902	235	508	158	150
d1, Uniform Delay [s]	49.76	15.38	15.45	54.78	29.45	29.49	48.19	32.27	54.18	54.17
k, delay calibration	0.11	0.50	0.50	0.07	0.50	0.50	0.07	0.13	0.07	0.07
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.74	1.59	1.74	6.46	18.87	19.16	0.85	0.80	10.41	10.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.48	0.49	0.79	0.94	0.94	0.46	0.47	0.89	0.89
d, Delay for Lane Group [s/veh]	61.50	16.97	17.19	61.23	48.31	48.65	49.04	33.07	64.58	64.98
Lane Group LOS	E	B	B	E	D	D	D	C	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	8.59	8.44	8.08	3.33	27.14	27.23	3.05	5.64	4.68	4.45
50th-Percentile Queue Length [ft/ln]	214.70	211.05	202.07	83.30	678.62	680.63	76.31	140.95	116.94	111.27
95th-Percentile Queue Length [veh/ln]	13.39	13.21	12.75	6.00	35.69	35.78	5.49	9.53	8.22	7.91
95th-Percentile Queue Length [ft/ln]	334.85	330.17	318.63	149.94	892.23	894.55	137.35	238.30	205.61	197.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.50	17.05	17.19	61.23	48.48	48.65	49.04	49.04	33.07	64.72	64.98	64.98
Movement LOS	E	B	B	E	D	D	D	D	C	E	E	E
d_A, Approach Delay [s/veh]	26.35			49.22			38.04			64.78		
Approach LOS	C			D			D			E		
d_I, Intersection Delay [s/veh]	41.58											
Intersection LOS	D											
Intersection V/C	0.935											

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	9.0	15.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	196.35	0.00	0.00	3296.31
d_p, Pedestrian Delay [s]	48.60	51.34	45.94	49.50
l_p,int, Pedestrian LOS Score for Intersection	3.035	2.842	2.584	2.194
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	867	367	175
d_b, Bicycle Delay [s]	17.08	19.27	40.28	50.11
l_b,int, Bicycle LOS Score for Intersection	2.594	3.051	2.525	2.048
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Lava Dr / 17th Ave

Control Type:	Two-way stop	Delay (sec / veh):	24.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.312

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	50.00	100.00	100.00	100.00	100.00	65.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	38	280	514	61	79	68
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	2.00	2.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	280	514	61	79	68
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	74	137	16	21	18
Total Analysis Volume [veh/h]	40	298	547	65	84	72
Pedestrian Volume [ped/h]	1		1		8	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.00	0.01	0.00	0.31	0.14
d_M, Delay for Movement [s/veh]	8.90	0.00	0.00	0.00	24.32	13.26
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.13	0.00	0.00	0.00	1.29	0.49
95th-Percentile Queue Length [ft/ln]	3.25	0.00	0.00	0.00	32.21	12.28
d_A, Approach Delay [s/veh]	1.05		0.00		19.21	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.03					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: OR 224 / 17th Ave

Control Type:	Signalized	Delay (sec / veh):	16.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.665

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	100.00	160.00	100.00	130.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name						
Base Volume Input [veh/h]	290	85	515	524	89	331
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	1.00	2.00	2.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	290	85	515	524	89	331
Peak Hour Factor	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	73	21	130	132	22	84
Total Analysis Volume [veh/h]	293	86	520	529	90	334
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	6		31		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Overlap
Signal Group	6	0	5	2	4	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	40	0	50	40	20	20
Amber [s]	4.0	0.0	3.5	4.0	4.0	4.0
All red [s]	0.5	0.0	0.5	0.5	0.5	0.5
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk						
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.5	0.0	2.0	2.5	2.5	2.5
Minimum Recall	Yes		No	Yes	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	3
Pedestrian Walk [s]	7
Pedestrian Clearance [s]	17

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	71	71	71	71	71	71
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	0.00	2.50	2.50	0.00
g_i, Effective Green Time [s]	14	14	36	36	9	49
g / C, Green / Cycle	0.19	0.19	0.51	0.51	0.12	0.69
(v / s)_i Volume / Saturation Flow Rate	0.16	0.06	0.35	0.28	0.05	0.21
s, saturation flow rate [veh/h]	1855	1502	1477	1870	1781	1602
c, Capacity [veh/h]	358	290	747	956	222	1102
d1, Uniform Delay [s]	27.61	24.61	12.00	11.89	28.82	4.39
k, delay calibration	0.11	0.11	0.18	0.11	0.11	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.63	0.56	1.96	0.50	1.19	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.30	0.70	0.55	0.41	0.30
d, Delay for Lane Group [s/veh]	32.24	25.18	13.97	12.39	30.01	4.73
Lane Group LOS	C	C	B	B	C	A
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.02	1.24	5.38	5.15	1.44	1.49
50th-Percentile Queue Length [ft/ln]	125.45	30.95	134.59	128.72	36.08	37.28
95th-Percentile Queue Length [veh/ln]	8.69	2.23	9.19	8.87	2.60	2.68
95th-Percentile Queue Length [ft/ln]	217.29	55.71	229.72	221.76	64.95	67.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.24	25.18	13.97	12.39	30.01	4.73
Movement LOS	C	C	B	B	C	A
d_A, Approach Delay [s/veh]	30.64		13.17		10.09	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	16.04					
Intersection LOS	B					
Intersection V/C	0.665					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.264	2.484	0.000
Crosswalk LOS	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	889	444
d_b, Bicycle Delay [s]	13.93	14.11	27.22
I_b,int, Bicycle LOS Score for Intersection	2.185	3.290	1.560
Bicycle LOS	B	C	A

Sequence

Ring 1	2	-	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Waverly Ct / Lava Dr

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	2	24	0	0	0	8	0	2	11	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	2	24	0	0	0	8	0	2	11	33
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	6	0	0	0	2	0	1	3	9
Total Analysis Volume [veh/h]	0	0	2	26	0	0	0	9	0	2	12	35
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Stop	Stop	Free
Flared Lane		No	No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance		No	No	
Number of Storage Spaces in Median	0	0	0	0

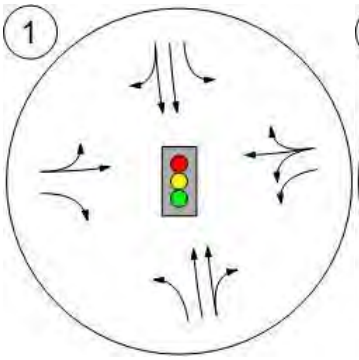
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.26	7.29	0.00	8.83	9.31	8.53	8.81	9.18	8.45	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.08	0.08	0.08	0.03	0.03	0.03	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.07	2.07	2.07	0.78	0.78	0.78	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			8.83			9.18			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	3.63											
Intersection LOS	A											

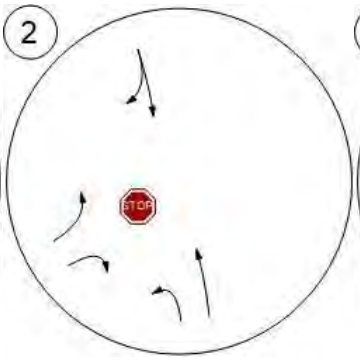
Attachment F – 2021 Total Traffic Level-of-Service Worksheets

Lane Configuration and Traffic Control

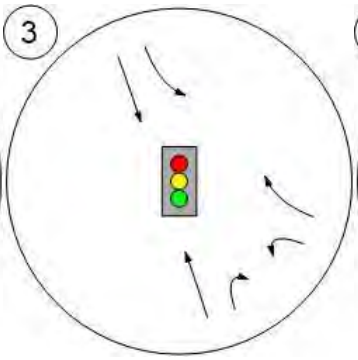
OR 99W / Harrison St / 17th



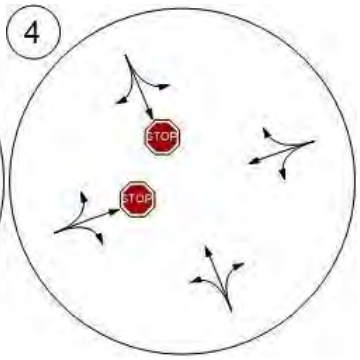
Lava Dr / 17th Ave



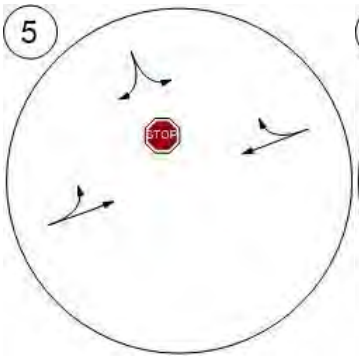
OR 224 / 17th Ave



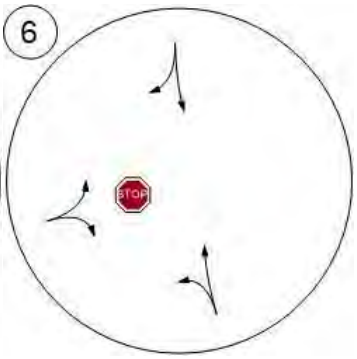
Waverly Ct / Lava Dr



Lava Dr / SIte Access Sou

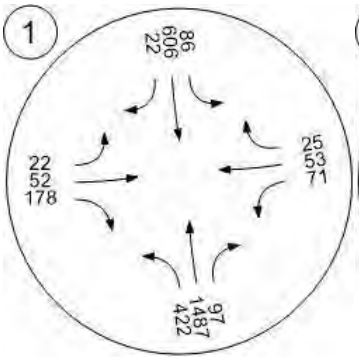


Waverly Ct / Site Access Nort

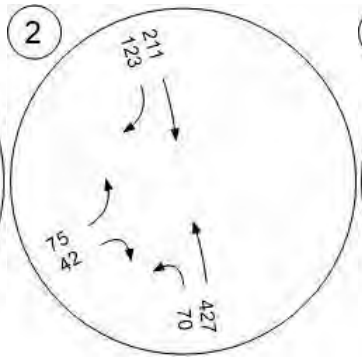


Traffic Volume

OR 99W / Harrison St / 17th



Lava Dr / 17th Ave



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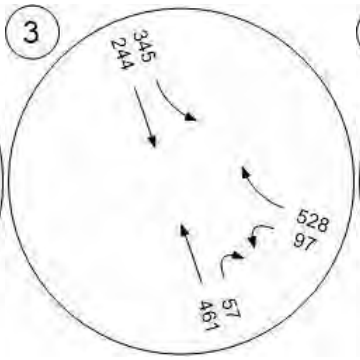

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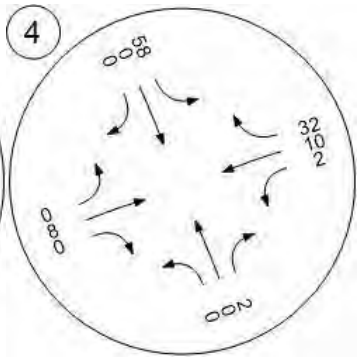

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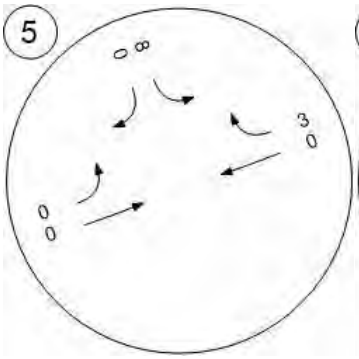
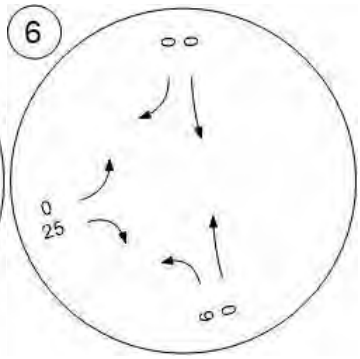
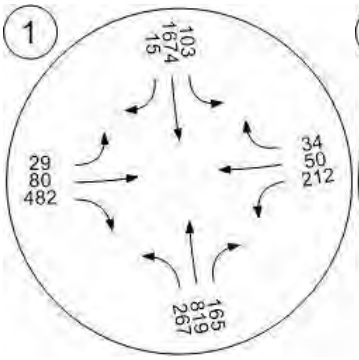


Waverly Ct / Site Access Nort



Traffic Volume

OR 99W / Harrison St / 17th



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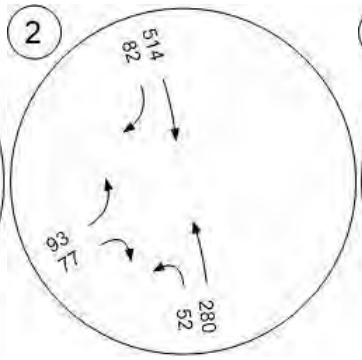

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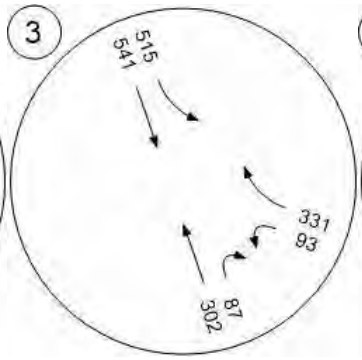
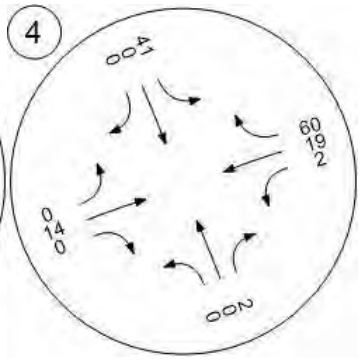
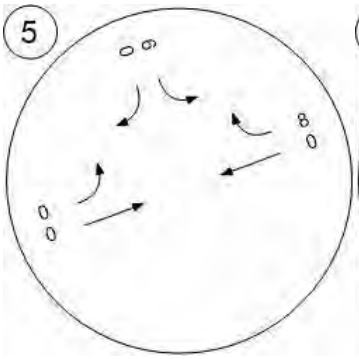


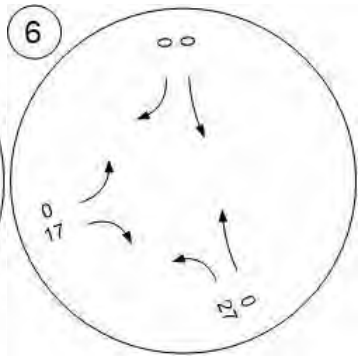
Waverly Ct / Lava Dr



Lava Dr / Site Access Sou

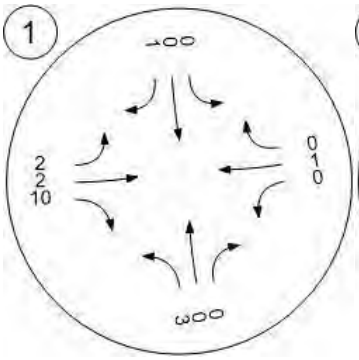


Waverly Ct / Site Access Nort

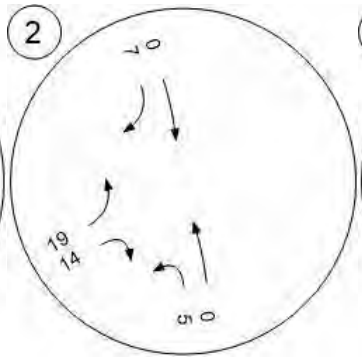


Traffic Volume - Net New Site Trips

OR 99W / Harrison St / 17th



Lava Dr / 17th Ave



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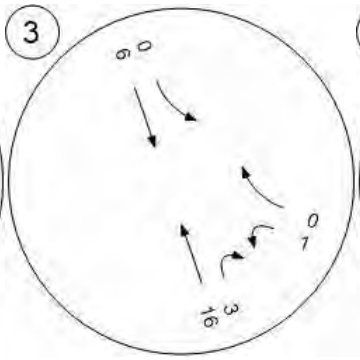
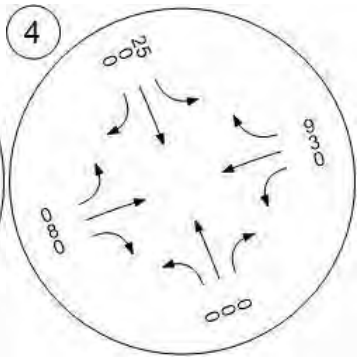
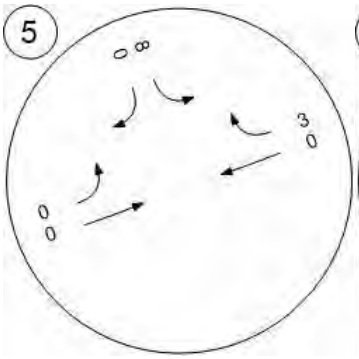


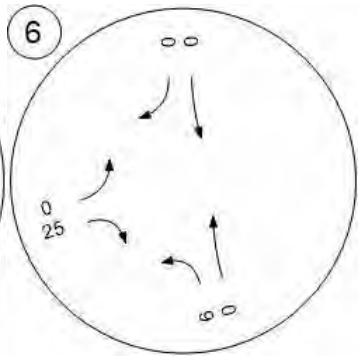
Waverly Ct / Lava Dr



Waverly Ct / SIte Access Sou

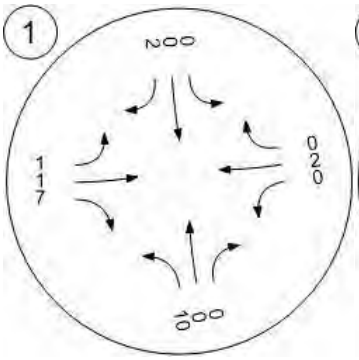


Waverly Ct / Site Access Nort

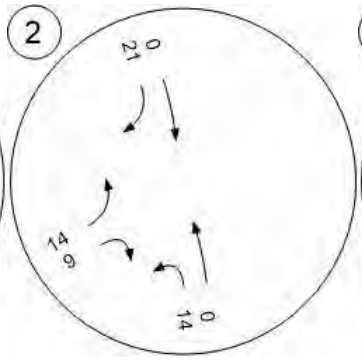


Traffic Volume - Net New Site Trips

OR 99W / Harrison St / 17th



Lava Dr / 17th Ave



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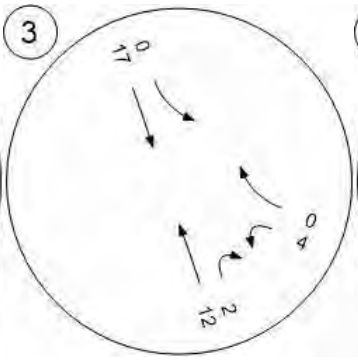
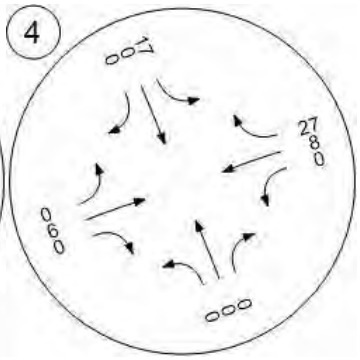


Waverly Ct / Lava Dr



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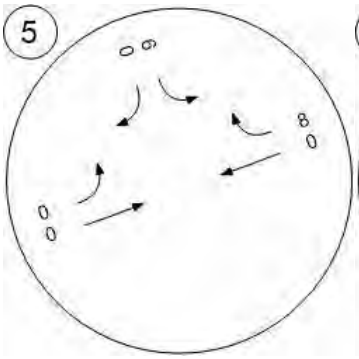

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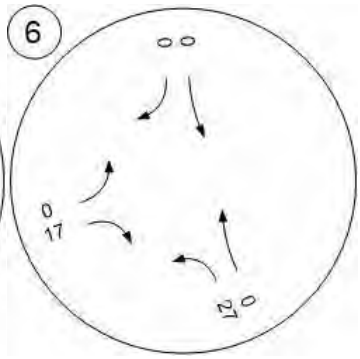


Intersection Level Of Service Report
Intersection 1: OR 99W / Harrison St / 17th St

Control Type:	Signalized	Delay (sec / veh):	37.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.723

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	370.00	100.00	100.00	375.00	100.00	100.00	100.00	100.00	150.00	135.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	408	1448	94	84	590	20	19	49	164	69	51	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	5.00	11.00	7.00	2.00	6.00	10.00	4.00	7.00	11.00	5.00
Growth Factor	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	0	0	1	2	2	10	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	89	0	0	0
Total Hourly Volume [veh/h]	422	1487	97	86	606	22	22	52	89	71	53	25
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	111	391	26	23	159	6	6	14	23	19	14	7
Total Analysis Volume [veh/h]	444	1565	102	91	638	22	23	55	94	75	56	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	15			0			15			0		
v_di, Inbound Pedestrian Volume crossing m	15			0			15			0		
v_co, Outbound Pedestrian Volume crossing	1			0			0			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			0			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	10			0			13			8		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	93.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	8	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lag	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	10	0	6	10	0	0	6	6	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	3.5	3.5	0.0	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.5	0.0
Split [s]	34	56	0	20	42	0	0	26	26	0	18	0
Vehicle Extension [s]	2.3	6.1	0.0	2.3	6.1	0.0	0.0	2.3	2.3	0.0	2.3	0.0
Walk [s]	0	7	0	0	11	0	0	8	8	0	5	0
Pedestrian Clearance [s]	0	17	0	0	18	0	0	21	21	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.50	2.50
g_i, Effective Green Time [s]	30	70	70	8	48	48	16	64	9	9
g / C, Green / Cycle	0.25	0.58	0.58	0.07	0.40	0.40	0.13	0.53	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.25	0.45	0.46	0.06	0.18	0.18	0.05	0.06	0.04	0.06
s, saturation flow rate [veh/h]	1752	1840	1794	1652	1795	1774	1724	1549	1360	1575
c, Capacity [veh/h]	438	1075	1048	113	723	715	228	823	151	157
d1, Uniform Delay [s]	45.03	18.99	19.40	55.11	26.27	26.27	47.32	14.07	54.70	54.38
k, delay calibration	0.46	0.50	0.50	0.07	0.50	0.50	0.07	0.07	0.07	0.07
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	44.70	5.49	6.26	7.83	2.09	2.12	0.54	0.04	1.05	2.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	0.78	0.80	0.80	0.46	0.46	0.34	0.11	0.40	0.62
d, Delay for Lane Group [s/veh]	89.73	24.48	25.67	62.94	28.36	28.39	47.86	14.11	55.74	56.79
Lane Group LOS	F	C	C	E	C	C	D	B	E	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	18.35	18.35	18.90	2.96	7.35	7.27	2.16	1.29	1.83	2.97
50th-Percentile Queue Length [ft/ln]	458.76	458.71	472.38	74.01	183.75	181.87	54.05	32.15	45.76	74.29
95th-Percentile Queue Length [veh/ln]	25.59	25.37	26.02	5.33	11.80	11.70	3.89	2.31	3.29	5.35
95th-Percentile Queue Length [ft/ln]	639.82	634.33	650.60	133.22	294.91	292.45	97.28	57.87	82.37	133.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	89.73	25.04	25.67	62.94	28.38	28.39	47.86	47.86	14.11	55.74	56.79	56.79
Movement LOS	F	C	C	E	C	C	D	D	B	E	E	E
d_A, Approach Delay [s/veh]	38.67			32.57			29.42			56.39		
Approach LOS	D			C			C			E		
d_I, Intersection Delay [s/veh]	37.61											
Intersection LOS	D											
Intersection V/C	0.723											

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	9.0	15.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	185.80	0.00	0.00	2312.16
d_p, Pedestrian Delay [s]	48.60	51.34	45.94	49.50
l_p,int, Pedestrian LOS Score for Intersection	3.027	2.776	2.332	2.086
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	867	633	367	225
d_b, Bicycle Delay [s]	19.36	28.02	40.28	47.45
l_b,int, Bicycle LOS Score for Intersection	3.301	2.179	1.990	1.819
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Lava Dr / 17th Ave

Control Type:	Two-way stop	Delay (sec / veh):	24.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.308

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	50.00	100.00	100.00	100.00	100.00	65.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	63	416	205	113	55	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	5.00	3.00	6.00	4.00
Growth Factor	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	0	7	19	14
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	427	211	123	75	42
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	119	59	34	21	12
Total Analysis Volume [veh/h]	78	474	234	137	83	47
Pedestrian Volume [ped/h]	0		1		2	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.00	0.00	0.31	0.06
d_M, Delay for Movement [s/veh]	8.22	0.00	0.00	0.00	24.16	10.28
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.21	0.00	0.00	0.00	1.26	0.21
95th-Percentile Queue Length [ft/ln]	5.23	0.00	0.00	0.00	31.61	5.15
d_A, Approach Delay [s/veh]	1.16		0.00		19.14	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.97					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: OR 224 / 17th Ave

Control Type:	Signalized	Delay (sec / veh):	27.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.778

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	100.00	160.00	100.00	130.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name						
Base Volume Input [veh/h]	433	53	336	232	93	514
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	11.00	1.00	6.00	5.00	5.00
Growth Factor	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	3	0	6	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	461	57	345	244	97	528
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	127	16	95	67	27	145
Total Analysis Volume [veh/h]	507	63	379	268	107	580
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	22		18		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Overlap
Signal Group	6	0	5	2	4	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	40	0	50	40	20	20
Amber [s]	4.0	0.0	3.5	4.0	4.0	4.0
All red [s]	0.5	0.0	0.5	0.5	0.5	0.5
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk						
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.5	0.0	2.0	2.5	2.5	2.5
Minimum Recall	Yes		No	Yes	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	3
Pedestrian Walk [s]	7
Pedestrian Clearance [s]	17

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	113	113	113	113	113	113
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	0.00	2.50	2.50	0.00
g_i, Effective Green Time [s]	33	33	67	67	20	71
g / C, Green / Cycle	0.30	0.30	0.59	0.59	0.18	0.63
(v / s)_i Volume / Saturation Flow Rate	0.28	0.04	0.29	0.15	0.06	0.37
s, saturation flow rate [veh/h]	1840	1404	1305	1810	1738	1551
c, Capacity [veh/h]	543	415	640	1077	306	977
d1, Uniform Delay [s]	38.94	29.47	11.81	10.94	41.07	12.41
k, delay calibration	0.29	0.11	0.32	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.31	0.17	2.61	0.12	0.68	2.65
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.15	0.59	0.25	0.35	0.59
d, Delay for Lane Group [s/veh]	56.25	29.64	14.42	11.06	41.75	15.07
Lane Group LOS	E	C	B	B	D	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	16.14	1.29	5.22	3.15	2.69	8.85
50th-Percentile Queue Length [ft/ln]	403.57	32.30	130.44	78.70	67.23	221.23
95th-Percentile Queue Length [veh/ln]	22.73	2.33	8.96	5.67	4.84	13.73
95th-Percentile Queue Length [ft/ln]	568.29	58.13	224.09	141.67	121.02	343.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.25	29.64	14.42	11.06	41.75	15.07
Movement LOS	E	C	B	B	D	B
d_A, Approach Delay [s/veh]	53.31		13.03		19.22	
Approach LOS	D		B		B	
d_I, Intersection Delay [s/veh]	27.32					
Intersection LOS	C					
Intersection V/C	0.778					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.247	2.503	0.000
Crosswalk LOS	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	889	444
d_b, Bicycle Delay [s]	14.04	14.02	27.22
l_b,int, Bicycle LOS Score for Intersection	2.500	2.627	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	2	-	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Waverly Ct / Lava Dr

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	2	32	0	0	0	0	0	2	7	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270	1.0270
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	25	0	0	0	8	0	0	3	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	2	58	0	0	0	8	0	2	10	32
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	16	0	0	0	2	0	1	3	9
Total Analysis Volume [veh/h]	0	0	2	64	0	0	0	9	0	2	11	36
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Stop	Stop	Free
Flared Lane		No	No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance		No	No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.26	7.29	0.00	8.99	9.47	8.69	8.81	9.18	8.45	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.21	0.21	0.21	0.03	0.03	0.03	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	5.31	5.31	5.31	0.78	0.78	0.78	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			8.99			9.18			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	5.31											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 36: Waverly Ct / Site Access North

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	0	0	0	0	25
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	0	0	0	0	25
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	0	0	0	6
Total Analysis Volume [veh/h]	9	0	0	0	0	25
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	7.23	0.00	0.00	0.00	8.70	8.40
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.42	0.42	0.00	0.00	1.77	1.77
d_A, Approach Delay [s/veh]	7.23		0.00		8.40	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.09					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 37: Waverly Ct / SIte Access South

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	0	0	0	0	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	0	0	0	1
Total Analysis Volume [veh/h]	8	0	0	0	0	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.55	8.35	7.22	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.59	0.59	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.55		3.61		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	6.22					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 1: OR 99W / Harrison St / 17th St

Control Type:	Signalized	Delay (sec / veh):	42.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.945

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	370.00	100.00	100.00	375.00	100.00	100.00	100.00	100.00	150.00	135.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	257	819	165	103	1674	13	28	79	475	212	48	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	4.00	4.00	1.00	2.00	2.00	0.00	6.00	1.00	2.00	9.00	6.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	0	0	0	0	2	1	1	7	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	9	0	0	1	0	0	241	0	0	21
Total Hourly Volume [veh/h]	267	819	156	103	1674	14	29	80	241	212	50	13
Peak Hour Factor	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	207	39	26	423	4	7	20	61	54	13	3
Total Analysis Volume [veh/h]	270	827	158	104	1691	14	29	81	243	214	51	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			0			12			0		
v_di, Inbound Pedestrian Volume crossing m	12			0			12			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			0			13			6		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	60.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	8	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	10	0	6	10	0	0	6	6	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	3.5	3.5	0.0	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.5	0.0
Split [s]	23	60	0	19	56	0	0	26	26	0	15	0
Vehicle Extension [s]	2.3	6.1	0.0	2.3	6.1	0.0	0.0	2.3	2.3	0.0	2.3	0.0
Walk [s]	0	7	0	0	11	0	0	8	8	0	5	0
Pedestrian Clearance [s]	0	17	0	0	18	0	0	21	21	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.50	2.50
g_i, Effective Green Time [s]	19	68	68	9	58	58	16	39	11	11
g / C, Green / Cycle	0.16	0.57	0.57	0.07	0.48	0.48	0.13	0.32	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.15	0.27	0.28	0.06	0.46	0.46	0.06	0.15	0.08	0.08
s, saturation flow rate [veh/h]	1781	1840	1725	1795	1870	1865	1786	1571	1781	1692
c, Capacity [veh/h]	283	1046	980	131	902	900	237	509	158	150
d1, Uniform Delay [s]	50.09	15.43	15.50	54.78	29.56	29.62	48.17	32.29	54.23	54.22
k, delay calibration	0.13	0.50	0.50	0.07	0.50	0.50	0.07	0.14	0.07	0.07
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.88	1.60	1.75	6.46	19.27	19.62	0.87	0.88	11.18	11.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.48	0.49	0.79	0.95	0.95	0.46	0.48	0.90	0.90
d, Delay for Lane Group [s/veh]	67.97	17.03	17.25	61.23	48.84	49.24	49.03	33.16	65.41	65.80
Lane Group LOS	E	B	B	E	D	D	D	C	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	9.42	8.46	8.10	3.33	27.33	27.43	3.11	5.75	4.76	4.53
50th-Percentile Queue Length [ft/ln]	235.46	211.46	202.56	83.30	683.23	685.64	77.75	143.76	118.99	113.31
95th-Percentile Queue Length [veh/ln]	14.45	13.23	12.77	6.00	35.90	36.01	5.60	9.68	8.34	8.02
95th-Percentile Queue Length [ft/ln]	361.29	330.71	319.27	149.94	897.57	900.36	139.95	242.08	208.43	200.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	67.97	17.11	17.25	61.23	49.04	49.24	49.03	49.03	33.16	65.54	65.80	65.80
Movement LOS	E	B	B	E	D	D	D	D	C	E	E	E
d_A, Approach Delay [s/veh]	28.07			49.74			38.11			65.60		
Approach LOS	C			D			D			E		
d_I, Intersection Delay [s/veh]	42.46											
Intersection LOS	D											
Intersection V/C	0.945											

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	9.0	15.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	193.74	0.00	0.00	3296.31
d_p, Pedestrian Delay [s]	48.60	51.34	45.94	49.50
l_p,int, Pedestrian LOS Score for Intersection	3.038	2.843	2.596	2.195
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	867	367	175
d_b, Bicycle Delay [s]	17.08	19.27	40.28	50.11
l_b,int, Bicycle LOS Score for Intersection	2.602	3.053	2.540	2.053
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Lava Dr / 17th Ave

Control Type:	Two-way stop	Delay (sec / veh):	28.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.396

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	50.00	100.00	100.00	100.00	100.00	65.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	38	280	514	61	79	68
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	2.00	2.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	0	0	21	14	9
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	280	514	82	93	77
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	74	137	22	25	20
Total Analysis Volume [veh/h]	55	298	547	87	99	82
Pedestrian Volume [ped/h]	1		1		8	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.01	0.00	0.40	0.16
d_M, Delay for Movement [s/veh]	9.04	0.00	0.00	0.00	28.51	13.59
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.19	0.00	0.00	0.00	1.79	0.58
95th-Percentile Queue Length [ft/ln]	4.63	0.00	0.00	0.00	44.87	14.53
d_A, Approach Delay [s/veh]	1.41		0.00		21.75	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.80					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 3: OR 224 / 17th Ave

Control Type:	Signalized	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.669

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	100.00	160.00	100.00	130.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name						
Base Volume Input [veh/h]	290	85	515	524	89	331
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	1.00	2.00	2.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	2	0	17	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	302	87	515	541	93	331
Peak Hour Factor	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	76	22	130	137	23	84
Total Analysis Volume [veh/h]	305	88	520	546	94	334
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	6		31		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Overlap
Signal Group	6	0	5	2	4	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	40	0	50	40	20	20
Amber [s]	4.0	0.0	3.5	4.0	4.0	4.0
All red [s]	0.5	0.0	0.5	0.5	0.5	0.5
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk						
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.5	0.0	2.0	2.5	2.5	2.5
Minimum Recall	Yes		No	Yes	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	3
Pedestrian Walk [s]	7
Pedestrian Clearance [s]	17

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	72	72	72	72	72	72
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.50	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	0.00	2.50	2.50	0.00
g_i, Effective Green Time [s]	14	14	37	37	9	49
g / C, Green / Cycle	0.20	0.20	0.51	0.51	0.13	0.68
(v / s)_i Volume / Saturation Flow Rate	0.16	0.06	0.35	0.29	0.05	0.21
s, saturation flow rate [veh/h]	1855	1503	1465	1870	1781	1602
c, Capacity [veh/h]	370	300	739	963	223	1094
d1, Uniform Delay [s]	27.72	24.56	11.98	12.02	29.17	4.58
k, delay calibration	0.11	0.11	0.19	0.11	0.11	0.24
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.68	0.54	2.15	0.53	1.26	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.29	0.70	0.57	0.42	0.31
d, Delay for Lane Group [s/veh]	32.40	25.10	14.13	12.55	30.43	4.93
Lane Group LOS	C	C	B	B	C	A
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.29	1.27	5.45	5.42	1.53	1.57
50th-Percentile Queue Length [ft/ln]	132.15	31.82	136.32	135.51	38.28	39.18
95th-Percentile Queue Length [veh/ln]	9.06	2.29	9.28	9.24	2.76	2.82
95th-Percentile Queue Length [ft/ln]	226.41	57.28	232.05	230.97	68.90	70.52

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.40	25.10	14.13	12.55	30.43	4.93
Movement LOS	C	C	B	B	C	A
d_A, Approach Delay [s/veh]	30.77		13.32		10.53	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	16.32					
Intersection LOS	B					
Intersection V/C	0.669					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswa k Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.275	2.494	0.000
Crosswalk LOS	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	889	444
d_b, Bicycle Delay [s]	13.93	14.11	27.22
I_b,int, Bicycle LOS Score for Intersection	2.208	3.319	1.560
Bicycle LOS	B	C	A

Sequence

Ring 1	2	-	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Waverly Ct / Lava Dr

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.018

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	2	24	0	0	0	8	0	2	11	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	17	0	0	0	6	0	0	8	27
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	2	41	0	0	0	14	0	2	19	60
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	11	0	0	0	4	0	1	5	16
Total Analysis Volume [veh/h]	0	0	2	44	0	0	0	15	0	2	20	64
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Stop	Stop	Free
Flared Lane		No	No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance		No	No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.30	7.36	0.00	9.08	9.56	8.72	9.06	9.31	8.57	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.15	0.15	0.15	0.05	0.05	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.74	3.74	3.74	1.35	1.35	1.35	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			9.08			9.31			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	3.67											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 34: Waverly Ct / Site Access North

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	27	0	0	0	0	17
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	0	0	0	0	17
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	0	0	0	0	4
Total Analysis Volume [veh/h]	27	0	0	0	0	17
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	7.26	0.00	0.00	0.00	8.89	8.37
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	1.27	1.27	0.00	0.00	1.19	1.19
d_A, Approach Delay [s/veh]	7.26		0.00		8.37	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	7.69					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 35: Waverly Ct / Site Access South

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	0	0	0	0	8
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	0	0	0	2
Total Analysis Volume [veh/h]	6	0	0	0	0	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.56	8.36	7.23	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.44	0.44	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.56		3.62		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.67					
Intersection LOS	A					

Attachment G – Sight Distance Observations

Figure 3: Photo from Waverly Drive Site Access (facing north)

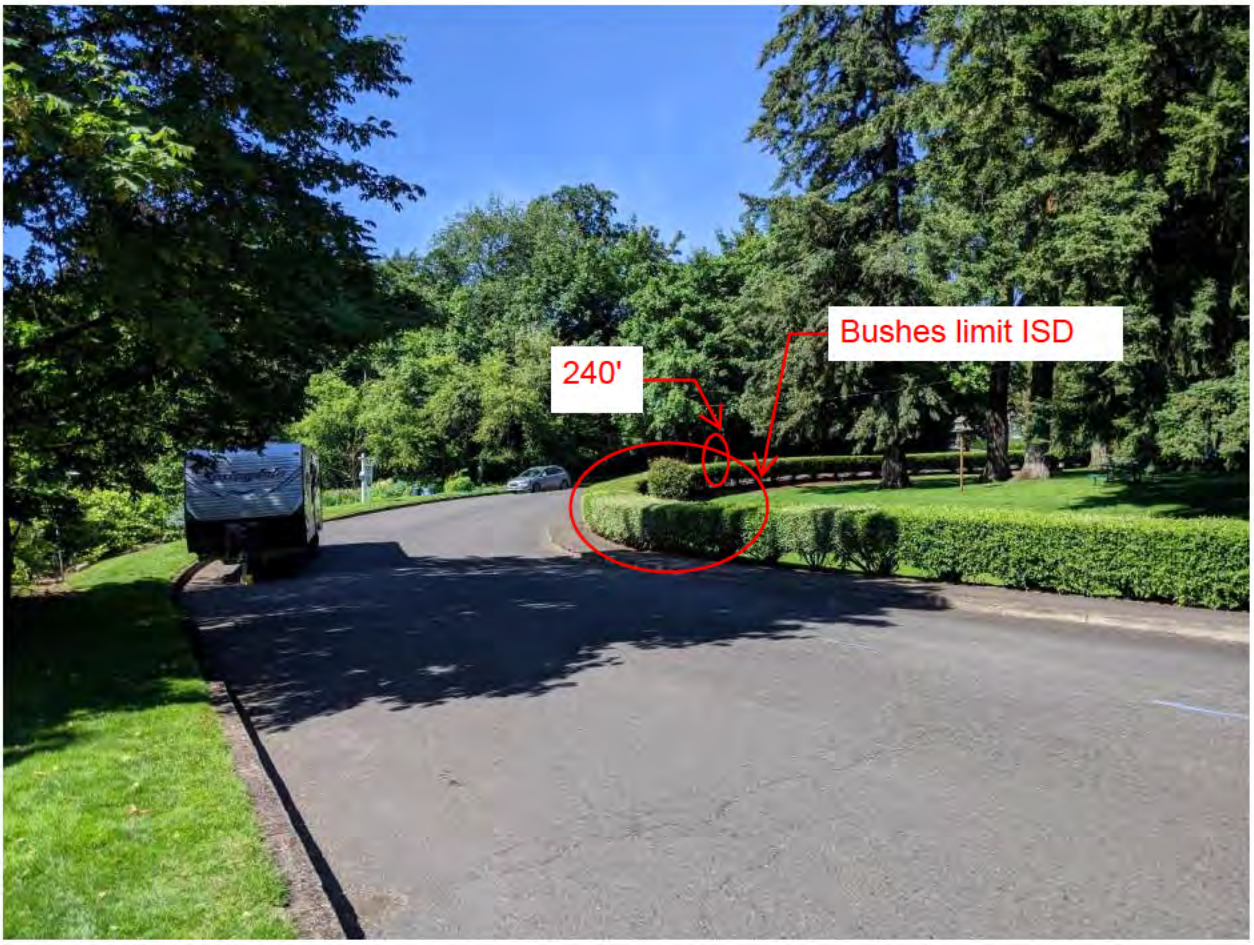


Figure 3: Photo from Waverly Drive Site Access (facing north)

Figure 3: Photo from Waverly Drive Site Access (facing north) - Zoomed

Figure 3: Photo from Waverly Drive Site Access (facing south)

Figure 1: Photo from Lava Drive Site Access (facing east)

Figure 2: Photo from Lava Drive Site Access Pulled Forward (facing east)

Figure 2: Photo from Lava Drive Site Access (facing west)

Figure 4: Photo from Lava Drive Site Access Pulled Forward (facing west)

Figure 3: Photo from Waverly Court from stop bar (facing east)

Figure 3: Photo from Waverly Court Pulled Forward (facing east)

Figure 3: Photo from Waverly Court from stop bar (facing west)

Figure 3: Photo from Waverly Court Pulled Forward (facing west)

Appendix B

TERAGAN & ASSOCIATES, INC.
ARBORICULTURAL CONSULTANTS

MEMORANDUM

DATE: July 18, 2020

TO: Phil Krueger (Yost Grube Hall Architecture)

FROM: Todd Prager, RCA #597, ISA Board Certified Master Arborist

RE: Tree Removal and Protection Recommendations for Waverly Woods

Summary

This memorandum provides updated tree removal and protection recommendations for the Waverly Woods multifamily development.

Background

Yost Grube Hall Architecture is designing the Waverly Woods multifamily development near SE Waverly Court and SE Lava Drive in Milwaukie, Oregon. A map of the existing trees is provided in Attachment 1. The updated site and grading plan with the existing trees to be removed and retained is provided in Attachment 2. The updated utility plan with existing trees to be removed and retained is provided in Attachment 3.

The assignment requested of our firm for this project was as follows:

1. Provide an assessment of the existing trees;
2. Provide updated recommendations for tree removal and retention based on the updated plans for site improvements; and
3. Provide updated protection recommendations for the trees to be retained.

This memorandum has been updated from my April 20, 2020 report based on the update site and construction plans.

Tree Assessment

In April of 2020, I completed my assessment of the existing trees. The complete inventory data is provided in the tree inventory spreadsheet in Attachment 4. The data collected for each tree includes the tree number, species (common and scientific names), trunk diameter (DBH), crown radius, tree health condition, tree structural condition, pertinent comments, and treatment (remove or retain). The tree numbers

in the tree inventory in Attachment 4 correspond to the tree numbers on the existing conditions map in Attachment 1 and updated site/grading plan in Attachment 2.

Proposed Tree Removal

A typical minimum root protection zone allows encroachments no closer than a radius from a tree of .5 feet per inch of DBH as long as no more than 25 percent of the root protection zone area (estimated at one foot radius per inch of DBH) is impacted. Figure 1 illustrates this concept. This standard may need to be adjusted on a case by case basis due to tree health, species, root distribution, whether the tree will be impacted on multiple sides, the specific construction impacts, and other factors.

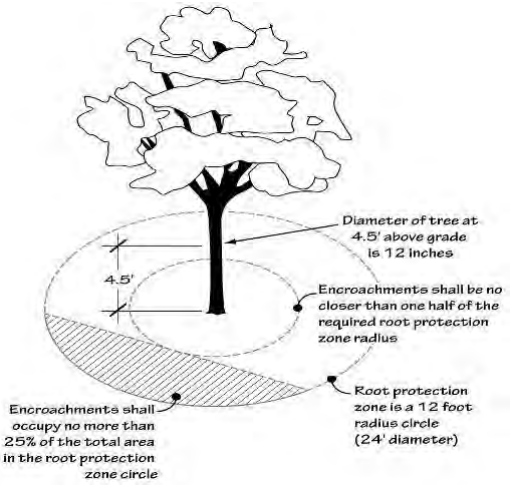


Figure 1: Typical minimum protection zone

The project requires the removal of trees for construction of the new buildings, parking, accessways, and associated grading. Trees outside of the construction footprint that are dead, dying, or in poor to very poor health and/or structural condition are also proposed for removal. In addition, trees generally considered invasive including English hawthorn (*Crataegus monogyna*) and sweet cherry (*Prunus avium*) are proposed for removal. Four trees are proposed for removal to create view corridors.

Based on the updated site/grading plan in Attachment 2, 79 non-nuisance trees in good to fair health and/or structural condition are proposed for removal due to construction impacts. An additional 37 trees that are considered invasive species (English hawthorn and sweet cherry) are proposed for removal. One hundred thirty-six (136) trees that are dead, dying, or in poor to very poor health and/or structural condition are also proposed removal. Four trees (trees 84, 103, 311, and 397) are proposed for removal to open up views to the west of the site. The remaining 135 trees at the site will be retained, with priority given to larger diameter Douglas-firs (*Pseudotsuga menziesii*) and Oregon white oaks (*Quercus garryana*). Note that tree 121, a 32-inch DBH Oregon white oak, will attempt to be retained to the east of building A.1, but may need to be removed if the project arborist determines preservation is not feasible during construction.

Protection recommendations for the 135 trees to be retained are provided in the next section of this report.

Tree Protection Recommendations

The following recommendations apply to the trees to be retained:

- **Protection Fencing**: Establish tree protection fencing in the locations shown in Attachment 2. The intent of the tree protection fencing is to protect the minimum root protection zones detailed in Figure 1 where possible. In some cases the tree protection fencing will need to be modified for the construction of improvements under the onsite supervision of the project arborist. Fencing

may need to be temporarily opened or installed after the trees within the fenced protection zones are removed.

- **Tree Removal**: The selected tree service should coordinate with the project arborist to determine the methods that will be used to protect the trees to be retained during tree removal. The following options will be considered:
    - Directional Felling: If there is a clear path to fell the trees away from the trees to be retained without contacting theirs crowns, the trees may be free-felled away from the retained trees.
    - Piece Removal: If the trees cannot be directionally felled, they will need to be climbed, with branches and trunk sections cut off individually in pieces from the top down. If necessary, the pieces will be secured with ropes so they do not contact the crowns of the retained trees.
    - Crane Removal: The use of a crane may be needed in some cases to remove certain trees where access is limited.

  No heavy equipment is permitted within the fenced tree protection zones during tree removal operations.
- **Stump Removal**: The stumps of the trees to be removed from within the fenced tree protection zones shall be retained or carefully surface ground.
- **Utility Construction**: The proposed sanitary and storm lines at the west and south ends of the site are outside the minimum root protection zones detailed in Figure 1. However, since they are within the fenced tree protection zones, they shall be excavated under project arborist supervision.
- **Tree 121**: The project team will attempt to retain tree 121 as follows:
    - Building Foundation: The project arborist shall be onsite to oversee the excavation for the foundation of building A.1 to ensure the proper preservation and/or pruning of woody structural roots.
    - Prevention of Soil Compaction: Place a layer of geotextile fabric on the ground overlaid with 6-inches of wood chips with steel plates on top in the approximate location shown in Attachment 2 to prevent soil compaction during work on the side of building A.1.
    - Paving: The proposed sidewalk and parking lot paving within the fenced tree protection zone needs to be constructed using a modified pavement profile under arborist supervision as shown in Figure 2.

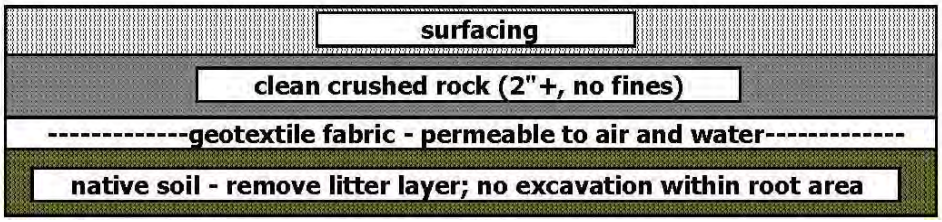


Figure 2. Sample profile for area within fenced tree protection zone. Depth of rock is dependent on grading.

Methods to minimize the depth of the modified pavement profile such as the use of concrete, reinforced pavement should be implemented. Also, methods to improve air and water exchange through the pavement such as the use of permeable paving materials or 4-inch diameter aeration holes at 10 feet on center should be used. Curbs

constructed adjacent to the tree may need to be roll curbs or extruded curbs to minimize excavation where there are structural roots. Sidewalks should be meandered away from tree trunk as needed to avoid root impacts.

  - Utility Construction: The proposed electrical, storm, and gas lines shown within the fenced tree protection zone shall be bored at a depth of five feet or greater underneath the tree protection zone, or rerouted in coordination with the project arborist to avoid the tree.

- **Protect Crowns of Trees**: The crowns of the trees may extend beyond the tree protection fencing. Care will need to be taken to not contact or otherwise damage the crowns of the trees during construction activities.
- **Pruning**: Some of the trees may need to be clearance and/or reduction pruning to allow for construction. Any pruning shall be completed by a qualified, certified arborist in a manner that is consistent with ANSI A300 pruning standards. The pruning shall be the minimum necessary to achieve the required clearance.
- **Sediment Fencing**: Sediment fencing shall be installed outside the fenced protection zones of the trees to be retained to minimize root disturbances. If erosion control is required inside the fenced protection zones, straw wattles shall be used on the soil surface.

Attachment 5 includes additional recommendations to adequately protect the trees during construction.

Conclusion

Seventy-nine (79) non-nuisance trees in good to fair health and/or structural condition are proposed for removal due to construction impacts. An additional 37 trees that are nuisance species (English hawthorn or sweet cherry) are proposed for removal. One hundred thirty-six (136) trees that are dead, dying, or in poor or very poor health and/or structural condition are also proposed removal. Four trees (trees 84, 103, 311, and 397) are proposed for removal to open up views to the west. The remaining 135 trees at the site will be retained, with priority given to larger diameter Douglas-firs and Oregon white oaks. Tree 121, a 32-inch DBH Oregon white oak, will attempt to be retained to the east of building A.1, but may need to be removed if the project arborist determines preservation is not feasible during construction. The trees to be retained will be adequately protected by adhering to the recommendations in this report.

Please contact me if you have questions, concerns, or need any additional information.

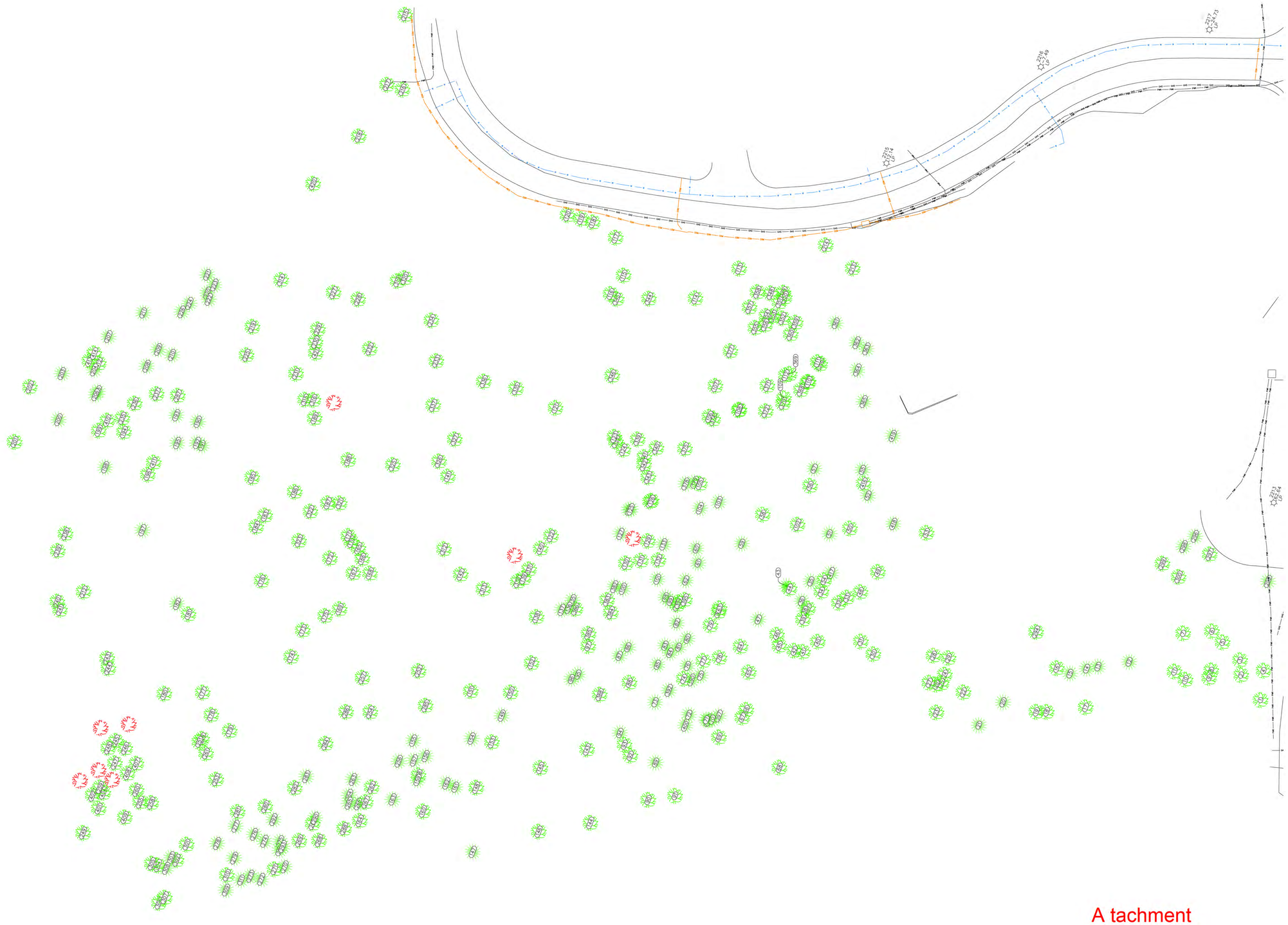
Sincerely,

Todd Prager

Todd Prager
ASCA Registered Consulting Arborist #597
ISA Board Certified Master Arborist, WE-6723B
ISA Qualified Tree Risk Assessor
AICP, American Planning Association

Attachment 1:	Existing Conditions Survey with Tree Locations
Attachment 2:	Updated Site/Grading Plan with Trees and Tree Protection
Attachment 3:	Updated Utility Plan with Trees and Tree Protection
Attachment 4:	Tree Inventory
Attachment 5:	Additional Tree Protection Recommendations
Attachment 6:	Assumptions and Limiting Conditions

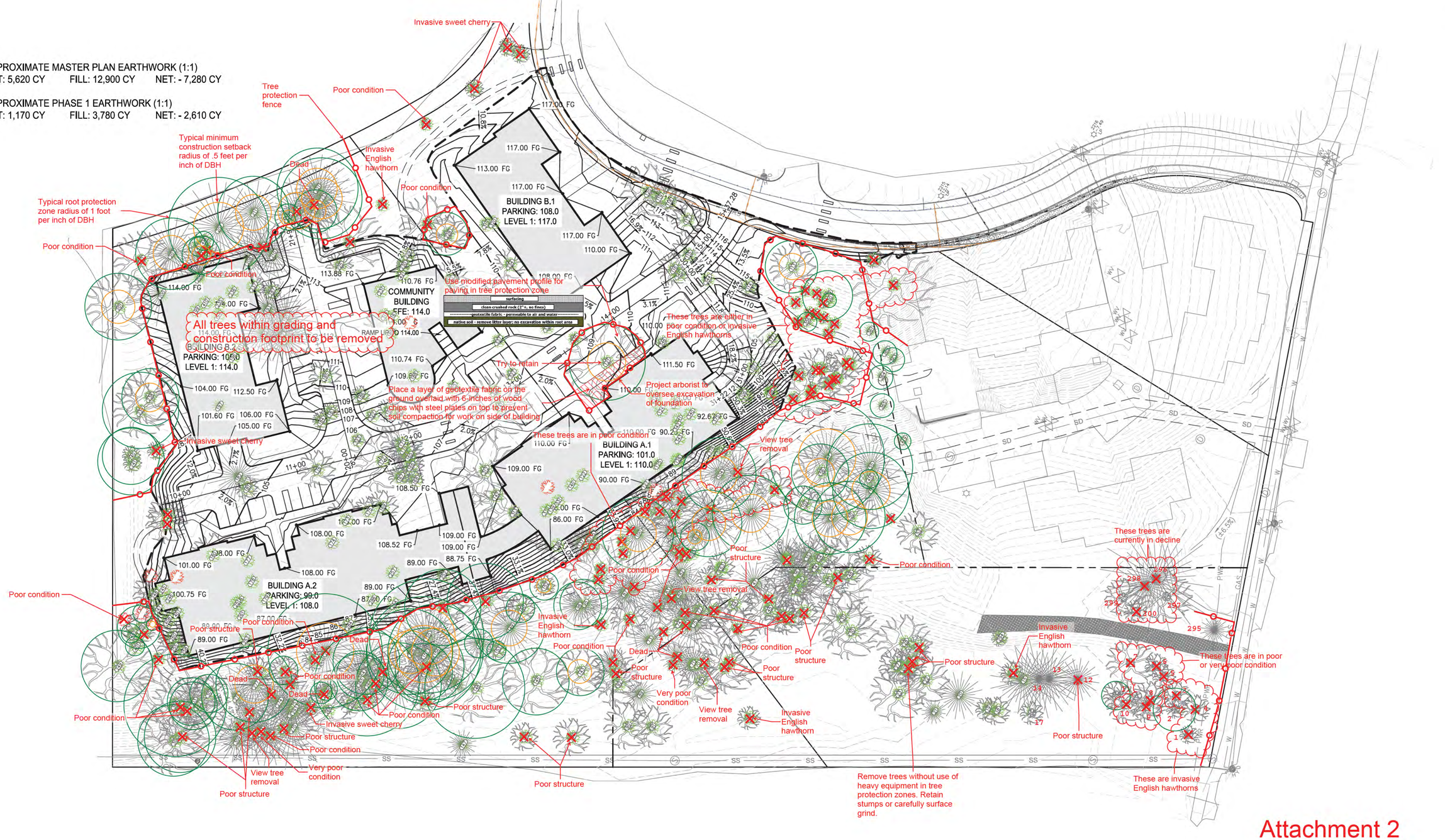
V Y = 0
0 0 0



A tachment

APPROXIMATE MASTER PLAN EARTHWORK (1:1)
CUT: 5,620 CY FILL: 12,900 CY NET: - 7,280 CY

APPROXIMATE PHASE 1 EARTHWORK (1:1)
CUT: 1,170 CY FILL: 3,780 CY NET: - 2,610 CY



Attachment 2

GRADING

DATE: 7/16/2020

SCALE 1 INCH = 40 FEET
40 0 40 80

kpff
111 SW Fifth Ave., Suite 2500
Portland, OR 97204
O: 503.542.3860
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LEGEND

- STORM DRAIN
- SANITARY SEWER
- W — DOMESTIC WATER
- FP — FIRE PROTECTION
- G — NATURAL GAS
- E — ELECTRIC

Tree protection fence

Typical minimum construction setback radius of .5 feet per inch of DBH

Typical root protection zone radius of 1 foot per inch of DBH

Poor condition

Invasive sweet cherry

All trees within grading and construction footprint to be removed

BUILDING B.2
PARKING: 105.0
LEVEL 1: 114.0

BUILDING B.1
PARKING: 108.0
LEVEL 1: 117.0

COMMUNITY BUILDING
FFE: 114.0

BUILDING A.1
PARKING: 101.0
LEVEL 1: 110.0

BUILDING A.2
PARKING: 99.0
LEVEL 1: 108.0

PROPOSED FIRE HYDRANT 100' RADIUS

EXISTING FIRE HYDRANT 100' RADIUS

CONNECT TO EXISTING PUBLIC STREET CATCHBASIN

CONNECT TO EXISTING WATER MAIN FOR DOMESTIC WATER

CONNECT TO EXISTING WATER MAIN FOR FIRE PROTECTION

CONNECT TO EXISTING GAS LINE

CONNECT TO EXISTING ELECTRIC SYSTEM

SD PUB WQ FILTER CARTRIDGE MH

W METER

W BACKFLOW

FP BACKFLOW

15' PUBLIC STORM DRAIN EASEMENT

SD AD-1

SD AD-2

SD 45° HB

ELEC STUB-1
FP STUB-1
W STUB-1
NGAS STUB-1
S STUB-1

FP FH-1

TRENCH DRAIN

SD GSI utilities under tree protection zone if tree 121 is retained

SD MH-1

SD STUB-1

SD WYE-1

SD DI-1

SD WYE-8

TRENCH DRAIN

SD WYE-2

SD WYE-3

SD FLOW CONTROL MH

APPROXIMATE LOCATION OF EXISTING 15" STORM DRAIN

PROPOSED 15' PUBLIC STORM DRAIN EASEMENT OVER EXISTING STORM DRAIN SYSTEM

SD PUB-MH-2

Project arborist to oversee excavation for storm in tree protection zone

SD PUB-MH-1

15' PUBLIC STORM DRAIN EASEMENT

SD PUB-MH-3

CONNECT TO EXISTING 15" STORM DRAIN STUB

PROPOSED 15' PUBLIC STORM DRAIN EASEMENT OVER EXISTING STORM DRAIN SYSTEM

NGAS STUB-2
FP STUB-2
W STUB-2
ELEC STUB-2

S STUB-2

SD CB-2

SD WYE-4

SD STUB-2

SD CB-3

SD WYE-7

S STUB-5
NGAS STUB-5
SD STUB-5
ELEC STUB-5
W STUB-5
FP STUB-5

SD MH-2

SD STUB-3
FP STUB-3
W STUB-3
NGAS STUB-3
ELEC STUB-3

FP FH-2

TRENCH DRAIN

SD CB-4

SD WYE-5

SD WYE-6

S MH-4

SD MH-3

SD DETENTION VAULT

ELEC STUB-4
FP STUB-4
W STUB-4
NGAS STUB-4

SD STUB-4

S STUB-4

S STUB-3

SD WQ FILTER CARTRIDGE MH

S MH-3

S MH-2

S MH-1

Project arborist to oversee excavation for sewer in tree protection zone

CONNECT TO EXISTING 8" SANITARY SEWER

Poor condition

EXISTING FIRE HYDRANT 100' RADIUS

Attachment 3

UTILITIES

DATE: 7/16/2020

SCALE 1 INCH = 40 FEET
40 0 40 80

kpff
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Portland, OR 97204
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Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
1	English hawthorn	*Crataegus monogyna*	18	15	fair	fair	multiple leaders, previous stem failures	remove
2	bigleaf maple	*Acer macrophyllum*	18	20	good	fair	codominant at 3' with included bark	retain
3	English hawthorn	*Crataegus monogyna*	12	15	good	fair	multiple leaders with included bark	remove
4	English hawthorn	*Crataegus monogyna*	14	12	good	fair	multiple leaders	remove
5	Scouler's willow	*Salix scouleriana*	10,8	15	poor	poor	codominant at ground level, significant dieback	remove
6	Scouler's willow	*Salix scouleriana*	10	5	very poor	very poor	extensive dieback	remove
7	bigleaf maple	*Acer macrophyllum*	22	20	poor	poor	significant top dieback and decay	remove
8	bigleaf maple	*Acer macrophyllum*	18	18	poor	poor	extensive ivy, codominant at 1'	remove
9	crabapple	*Malus sp.*	10	15	poor	poor	codominant at 1', smothered by ivy	remove
10	bigleaf maple	*Acer macrophyllum*	16,6	15	poor	poor	multiple leaders at ground level, significant ivy, branch dieback	remove
11	bigleaf maple	*Acer macrophyllum*	12	15	good	fair	one sided	retain
12	Douglas-fir	*Pseudotsuga menziesii*	18	15	fair	poor	extensive ivy, 33% live crown ratio	remove
13	Douglas-fir	*Pseudotsuga menziesii*	27	15	fair	fair	thin crown, small branch dieback	retain
14	Douglas-fir	*Pseudotsuga menziesii*	34	20	good	fair	moderately one sided	retain
15	Douglas-fir	*Pseudotsuga menziesii*	34	25	fair	fair	one sided, minor branch dieback	retain
16	English hawthorn	*Crataegus monogyna*	10	15	fair	fair	extensive ivy	remove
17	bigleaf maple	*Acer macrophyllum*	6	15	good	fair	extensive ivy on trunk	retain
18	bigleaf maple	*Acer macrophyllum*	12	12	good	fair	extensive ivy on trunk	retain
19	bigleaf maple	*Acer macrophyllum*	10	10	good	fair	extensive ivy on trunk	retain
20	Douglas-fir	*Pseudotsuga menziesii*	36	20	good	good	extensive ivy on trunk	retain
21	red oak	*Quercus rubra*	12	12	good	fair	extensive ivy on trunk	retain
22	elm	*Ulmus sp.*	26	15	good	fair	codominant at 3' with included bark	retain
23	Oregon white oak	*Quercus garryana*	24	25	good	fair	one sided, extensive ivy on trunk	retain

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
24	elm	*Ulmus sp.*	15,13	10	fair	poor	25% live crown ratio, extensive ivy on trunk	remove
25	elm	*Ulmus sp.*	13	10	fair	poor	one sided, extensive ivy on trunk, suppressed	remove
26	elm	*Ulmus sp.*	15	20	good	fair	one sided, extensive ivy on trunk	retain
27	elm	*Ulmus sp.*	18	20	good	fair	one sided, extensive ivy on trunk	retain
28	Oregon white oak	*Quercus garryana*	23	17	fair	fair	moderately suppressed, significant branch dieback	retain
29	elm	*Ulmus sp.*	12	15	fair	poor	overtopped by adjacent trees, one sided, suppressed	remove
30	Oregon white oak	*Quercus garryana*	24	32	good	fair	one sided, extensive ivy along trunk	retain
31	Oregon white oak	*Quercus garryana*	32	35	good	fair	extensive ivy along trunk	retain
32	bigleaf maple	*Acer macrophyllum*	18	20	good	fair	one sided	retain
33	bigleaf maple	*Acer macrophyllum*	32	20	fair	poor	codominant at 1', smothered by ivy, one sided	remove
34	bigleaf maple	*Acer macrophyllum*	30	30	good	fair	one sided	retain
35	Douglas-fir	*Pseudotsuga menziesii*	20	20	good	fair	one sided, overtopped by adjacent trees	retain
36	Douglas-fir	*Pseudotsuga menziesii*	30	25	good	fair	one sided, significant ivy along trunk	retain
37	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
38	Douglas-fir	*Pseudotsuga menziesii*	30	25	good	fair	one sided, extensive ivy along trunk	retain
39	bigleaf maple	*Acer macrophyllum*	14	15	fair	fair	one sided, overtopped by adjacent trees, extensive ivy	retain
40	bigleaf maple	*Acer macrophyllum*	12	15	fair	poor	one sided, significant decay seam at lower trunk	remove
41	bigleaf maple	*Acer macrophyllum*	14	14	poor	poor	lost top at 20' with significant decay	remove
42	bigleaf maple	*Acer macrophyllum*	14	15	poor	poor	lost top at 25'	remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
43	Douglas-fir	*Pseudotsuga menziesii*	28	25	good	fair	moderately one sided	retain
44	bigleaf maple	*Acer macrophyllum*	14	15	poor	poor	smothered by ivy	remove
45	bigleaf maple	*Acer macrophyllum*	28	20	fair	fair	one sided, significant decay pocket in upper codominant stem, significant ivy along trunk	retain
46	bigleaf maple	*Acer macrophyllum*	18	18	fair	poor	suppressed, lost top, smothered by ivy	remove
47	Douglas-fir	*Pseudotsuga menziesii*	28	30	good	fair	multiple leaders in upper crown	retain
48	bigleaf maple	*Acer macrophyllum*	12	10	fair	fair	one sided, lost top, extensive ivy in crown	retain
49	bigleaf maple	*Acer macrophyllum*	12	10	poor	poor	dead top, significant ivy	remove
50	Oregon white oak	*Quercus garryana*	30	30	good	fair	one sided	retain
51	Douglas-fir	*Pseudotsuga menziesii*	30	20	good	fair	35% live crown ratio	retain
52	Douglas-fir	*Pseudotsuga menziesii*	32	25	good	fair	moderately one sided	retain
53	bigleaf maple	*Acer macrophyllum*	20	25	fair	fair	dead leader, extensive ivy	retain
54	bigleaf maple	*Acer macrophyllum*	18	20	good	fair	one sided	retain
55	Douglas-fir	*Pseudotsuga menziesii*	36	25	good	good		retain
56	bigleaf maple	*Acer macrophyllum*	24	20	good	fair	one sided, extensive ivy along trunk	retain
57	Douglas-fir	*Pseudotsuga menziesii*	48	30	good	good		retain
58	bigleaf maple	*Acer macrophyllum*	14	15	poor	poor	significant dieback	remove
59	Douglas-fir	*Pseudotsuga menziesii*	32	20	good	good		retain
60	grand fir	*Abies grandis*	36	0	very poor	very poor	dead	remove
61	Douglas-fir	*Pseudotsuga menziesii*	28	20	good	fair	one sided, extensive ivy along trunk	retain
62	Douglas-fir	*Pseudotsuga menziesii*	12	10	good	fair	one sided	retain
63	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 396	n/a
64	bigleaf maple	*Acer macrophyllum*	20	20	fair	fair	extensive ivy along trunk, moderately one sided	retain
65	bigleaf maple	*Acer macrophyllum*	18	18	poor	poor	extensive sloughing bark at lower trunk	remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
66	bigleaf maple	*Acer macrophyllum*	30	30	fair	poor	codominant at 4' with included bark and *Ganoderma sp.* conk, one sided, leans west	remove
67	Oregon white oak	*Quercus garryana*	26	30	fair	poor	codominant at 1', 8" stem dead, 20" stem with significant decay and extreme lean west	remove
68	English hawthorn	*Crataegus monogyna*	10	10	good	fair	multiple leaders	remove
69	Oregon white oak	*Quercus garryana*	26	35	good	fair	one sided, extensive ivy	retain
70	Douglas-fir	*Pseudotsuga menziesii*	18	20	good	fair	one sided	retain
71	Douglas-fir	*Pseudotsuga menziesii*	23	25	good	fair	one sided	retain
72	Douglas-fir	*Pseudotsuga menziesii*	12	0	very poor	very poor	dead	remove
73	grand fir	*Abies grandis*	22	13	good	good		retain
74	bigleaf maple	*Acer macrophyllum*	18,13	22	fair	fair	one sided, previous stem failure at 3', codominant at 3'	retain
75	Douglas-fir	*Pseudotsuga menziesii*	29	22	good	fair	moderately one sided	retain
76	bigleaf maple	*Acer macrophyllum*	18	20	poor	poor	suppressed, extensive epicormic growth at lower trunk	remove
77	bigleaf maple	*Acer macrophyllum*	17	15	good	fair	one sided, marginal trunk taper, 35% live crown ratio, extensive ivy along trunk	retain
78	bigleaf maple	*Acer macrophyllum*	18	20	poor	poor	one sided, extensive decay at lower trunk	remove
79	bigleaf maple	*Acer macrophyllum*	12	20	fair	poor	one sided, moderately suppressed, poor trunk taper	remove
80	Douglas-fir	*Pseudotsuga menziesii*	24	15	good	fair	one sided, extensive ivy along trunk	retain
81	Douglas-fir	*Pseudotsuga menziesii*	18	16	fair	fair	moderately suppressed, marginal trunk taper	retain
82	grand fir	*Abies grandis*	18	10	good	fair	moderately one sided	retain
83	Douglas-fir	*Pseudotsuga menziesii*	28	25	good	fair	25% live crown ratio, extensive ivy on trunk	retain

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
84	Douglas-fir	*Pseudotsuga menziesii*	12	15	fair	fair	one sided, significant lean, marginal trunk taper	remove
85	bigleaf maple	*Acer macrophyllum*	16	15	poor	poor	smothered by ivy	remove
86	bigleaf maple	*Acer macrophyllum*	20	20	poor	poor	moderately suppressed, dead codominant stem and epicormic growth at lower trunk	remove
87	Douglas-fir	*Pseudotsuga menziesii*	48	25	good	fair	multiple leaders at top of crown	retain
88	bigleaf maple	*Acer macrophyllum*	16	16	poor	poor	multiple leaders at ground level, two dead leaders, decay seam at remaining leader at lower trunk	remove
89	Douglas-fir	*Pseudotsuga menziesii*	16	18	good	fair	moderately one sided, extensive ivy along trunk	retain
90	bigleaf maple	*Acer macrophyllum*	20	25	good	fair	moderately one sided, extensive ivy along trunk and in crown	retain
91	bigleaf maple	*Acer macrophyllum*	20	25	good	fair	multiple upright leaders	retain
92	Oregon white oak	*Quercus garryana*	24	15	fair	fair	one sided, extensive ivy in crown	retain
93	Oregon white oak	*Quercus garryana*	28	20	fair	poor	moderately suppressed	remove
94	Douglas-fir	*Pseudotsuga menziesii*	14	15	poor	poor	suppressed, overtopped by adjacent trees, lost top at 20'	remove
95	Douglas-fir	*Pseudotsuga menziesii*	20	15	good	fair	one sided	retain
96	Douglas-fir	*Pseudotsuga menziesii*	20	20	good	fair	one sided	retain
97	bigleaf maple	*Acer macrophyllum*	18	18	poor	poor	codominant at ground level, large codominant stem failure	remove
98	Douglas-fir	*Pseudotsuga menziesii*	14	15	good	fair	marginal trunk taper	retain
99	Douglas-fir	*Pseudotsuga menziesii*	9	3	poor	poor	suppressed	remove
100	Douglas-fir	*Pseudotsuga menziesii*	30	25	good	fair	moderately one sided	retain
101	Douglas-fir	*Pseudotsuga menziesii*	14	8	poor	poor	suppressed, 15% live crown ratio	remove
102	bigleaf maple	*Acer macrophyllum*	16	20	fair	fair	codominant at 2', extensive ivy	retain
103	Douglas-fir	*Pseudotsuga menziesii*	22	22	good	fair	one sided, overtopped by adjacent trees	remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
104	Douglas-fir	*Pseudotsuga menziesii*	31	27	good	good		retain
105	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 379	n/a
106	bigleaf maple	*Acer macrophyllum*	12	12	poor	poor	smothered by ivy	remove
107	bigleaf maple	*Acer macrophyllum*	20,18, 18	25	poor	poor	smothered by ivy	remove
108	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 373	n/a
109	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 370	n/a
110	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 367	n/a
111	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 366	n/a
112	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 369	n/a
113	black cottonwood	*Populus trichocarpa*	22	27	good	fair	upright competing leaders	retain
114	bigleaf maple	*Acer macrophyllum*	10	8	good	fair	multiple leaders	remove
115	bigleaf maple	*Acer macrophyllum*	26	17	poor	poor	multiple leaders at lower trunk, smothered by ivy	remove
116	deciduous	deciduous	15	0	very poor	very poor	dead, smothered by ivy	remove
117	deciduous	deciduous	15	0	very poor	very poor	dead, smothered by ivy	remove
118	bigleaf maple	*Acer macrophyllum*	15,13	20	good	fair	codominant at 2' with included bark, significant ivy growth in crown	remove
119	bigleaf maple	*Acer macrophyllum*	15	20	good	fair	moderately one sided	remove
120	bigleaf maple	*Acer macrophyllum*	17	15	fair	fair	dead, failed codominant stem at lower trunk	remove
121	Oregon white oak	*Quercus garryana*	32	34	good	good		try to retain
122	Oregon white oak	*Quercus garryana*	36	20	good	fair	codominant at 5' with upright stems, extensive ivy along trunk	remove
123	bigleaf maple	*Acer macrophyllum*	8	0	very poor	very poor	dead	remove
124	bigleaf maple	*Acer macrophyllum*	7	15	very poor	very poor	smothered by ivy	remove
125	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 381	n/a
126	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 380	n/a

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
127	Douglas-fir	*Pseudotsuga menziesii*	29	23	good	fair	moderately one sided, significant ivy growth	remove
128	Douglas-fir	*Pseudotsuga menziesii*	19	17	fair	poor	25% live crown ratio	remove
129	bigleaf maple	*Acer macrophyllum*	22,18, 18,13	15	fair	fair	multiple leaders at ground level, epicormic growth at lower trunk	remove
130	bigleaf maple	*Acer macrophyllum*	20	10	poor	poor	suppressed, smothered by ivy	remove
131	bigleaf maple	*Acer macrophyllum*	14,11	10	very poor	very poor	suppressed, extensive dieback	remove
132	bigleaf maple	*Acer macrophyllum*	15,11	25	poor	poor	codominant at ground level, 50% dead	remove
133	Douglas-fir	*Pseudotsuga menziesii*	7	8	poor	poor	overtopped by adjacent trees, suppressed	remove
134	bigleaf maple	*Acer macrophyllum*	10	20	fair	fair	overtopped by adjacent trees, epicormic growth at lower trunk, top failed previously, added to site map in approximate location by arborist	remove
135	Douglas-fir	*Pseudotsuga menziesii*	10	10	good	fair	one sided, extensive ivy along trunk	remove
136	Douglas-fir	*Pseudotsuga menziesii*	13	8	fair	poor	extensive ivy, 25% live crown ratio	remove
137	Douglas-fir	*Pseudotsuga menziesii*	18	20	good	fair	extensive ivy along trunk	remove
138	Oregon white oak	*Quercus garryana*	16	20	fair	fair	one sided, extensive ivy along trunk	remove
139	Oregon white oak	*Quercus garryana*	20,20, 18	25	fair	fair	multiple leaders at 2' with included bark, decay pocket at point of stem divergence	remove
140	Oregon white oak	*Quercus garryana*	22	20	fair	fair	extensive ivy along trunk, 40% live crown ratio	remove
141	Oregon white oak	*Quercus garryana*	28	32	good	good		remove
142	n/a	n/a	n/a	n/a	n/a	n/a	not located, same tree as 313?	n/a

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
143	Oregon white oak	*Quercus garryana*	20	20	good	fair	extensive ivy in crown	retain
144	bigleaf maple	*Acer macrophyllum*	16,10	25	fair	poor	codominant at ground level, smothered by ivy	remove
145	Oregon white oak	*Quercus garryana*	28	30	good	fair	extensive ivy in crown	retain
146	bigleaf maple	*Acer macrophyllum*	16	15	fair	poor	smothered by ivy	remove
147	Douglas-fir	*Pseudotsuga menziesii*	12	10	good	good		retain
148	bigleaf maple	*Acer macrophyllum*	30,30	40	fair	fair	codominant at ground level, extensive ivy in crown	retain
149	Douglas-fir	*Pseudotsuga menziesii*	30	30	good	good		retain
150	bigleaf maple	*Acer macrophyllum*	12	10	fair	fair	multiple leaders, one sided, extensive ivy in crown	retain
151	Oregon white oak	*Quercus garryana*	24	30	good	fair	extensive ivy in crown	remove
152	Oregon white oak	*Quercus garryana*	12	15	good	fair	extensive ivy along trunk	retain
153	bigleaf maple	*Acer macrophyllum*	8	8	good	fair	33% live crown ratio, one sided	retain
154	Douglas-fir	*Pseudotsuga menziesii*	12	15	good	fair	moderately one sided, extensive ivy along trunk	retain
155	Douglas-fir	*Pseudotsuga menziesii*	48	30	good	fair	one sided	retain
156	Douglas-fir	*Pseudotsuga menziesii*	40	25	good	fair	one sided	retain
157	Douglas-fir	*Pseudotsuga menziesii*	48	20	good	fair	one sided	retain
158	bigleaf maple	*Acer macrophyllum*	20,18, 18	30	poor	poor	overtopped by adjacent trees, overextended leaders, branch dieback	remove
159	Douglas-fir	*Pseudotsuga menziesii*	24	15	good	fair	one sided, 40% live crown ratio	retain
160	bigleaf maple	*Acer macrophyllum*	10	10	fair	poor	33% live crown ratio, extensive ivy in crown	remove
161	Douglas-fir	*Pseudotsuga menziesii*	8	10	good	fair	overtopped by adjacent trees, extensive ivy on trunk	retain

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
162	Douglas-fir	*Pseudotsuga menziesii*	8	10	good	fair	overtopped by adjacent trees, extensive ivy on trunk	retain
163	Douglas-fir	*Pseudotsuga menziesii*	36	20	good	fair	one sided, extensive ivy along trunk	retain
164	Oregon white oak	*Quercus garryana*	10	15	poor	poor	overtopped by adjacent trees, one sided, suppressed	remove
165	Oregon white oak	*Quercus garryana*	16	16	good	fair	one sided	remove
166	Oregon white oak	*Quercus garryana*	12	17	fair	fair	one sided, moderately suppressed	remove
167	Oregon white oak	*Quercus garryana*	10	12	poor	poor	extensive dieback	remove
168	Oregon white oak	*Quercus garryana*	9	11	fair	poor	one sided, significant decay at root crown	remove
169	Oregon white oak	*Quercus garryana*	12	12	fair	fair	one sided, extensive ivy at lower crown	remove
170	Oregon white oak	*Quercus garryana*	12	0	very poor	very poor	dead, fallen over	remove
171	Oregon white oak	*Quercus garryana*	20	20	good	fair	moderately one sided	remove
172	Oregon white oak	*Quercus garryana*	28	30	fair	fair	multiple leaders at 6' with included bark, extensive ivy	remove
173	Oregon white oak	*Quercus garryana*	18	25	fair	fair	extensive ivy at lower crown, branches with high aspect ratios	remove
174	Oregon white oak	*Quercus garryana*	24	20	fair	fair	codominant at 2', one sided, extensive ivy at lower crown	remove
175	Oregon white oak	*Quercus garryana*	12	8	fair	fair	one sided, extensive ivy at lower crown	remove
176	Oregon white oak	*Quercus garryana*	14,12, 10,8	35	good	fair	previously fallen over, multiple upright leaders along trunk, extensive ivy along lower trunk and crown	remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
177	Oregon white oak	*Quercus garryana*	12	10	fair	fair	one sided, stunted growth, extensive ivy in crown	remove
178	Oregon white oak	*Quercus garryana*	20	18	good	fair	extensive ivy at lower crown	remove
179	Oregon white oak	*Quercus garryana*	12	15	good	fair	one sided, extensive ivy at lower crown	remove
180	Oregon white oak	*Quercus garryana*	18,18, 12	20	fair	fair	multiple leaders at ground level with included bark	remove
181	bigleaf maple	*Acer macrophyllum*	10	10	very poor	very poor	smothered by ivy, extensive dieback	remove
182	Douglas-fir	*Pseudotsuga menziesii*	26	20	fair	fair	thinning crown	remove
183	Oregon white oak	*Quercus garryana*	8	10	fair	poor	smothered by ivy	remove
184	English hawthorn	*Crataegus monogyna*	7	6	fair	poor	smothered by ivy	remove
185	Oregon white oak	*Quercus garryana*	14	15	good	fair	significant ivy at lower crown	remove
186	bigleaf maple	*Acer macrophyllum*	10	8	poor	poor	codominant stem dead, smothered by ivy	remove
187	bigleaf maple	*Acer macrophyllum*	12	12	fair	poor	extensive ivy, 33% live crown ratio	remove
188	English hawthorn	*Crataegus monogyna*	10	5	poor	poor	extensive ivy	remove
189	Oregon white oak	*Quercus garryana*	25	25	good	fair	codominant at 7' with included bark	remove
190	Douglas-fir	*Pseudotsuga menziesii*	30	30	good	fair	one sided, significant ivy growth	remove
191	Douglas-fir	*Pseudotsuga menziesii*	22	22	good	fair	one sided, overtopped by adjacent trees	remove
192	Douglas-fir	*Pseudotsuga menziesii*	34	34	good	fair	moderately one sided	remove
193	Douglas-fir	*Pseudotsuga menziesii*	28	25	good	good		remove
194	Scouler's willow	*Salix scouleriana*	10	13	fair	fair	large scar at lower trunk, one sided	remove
195	Douglas-fir	*Pseudotsuga menziesii*	26	26	good	fair	one sided	remove
196	bigleaf maple	*Acer macrophyllum*	8	15	good	fair	marginal trunk taper	remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
197	Douglas-fir	*Pseudotsuga menziesii*	32	20	good	fair	codominant at top of crown, significant ivy growth at lower crown	remove
198	Douglas-fir	*Pseudotsuga menziesii*	40	30	good	good		remove
199	bigleaf maple	*Acer macrophyllum*	11	16	good	fair	overtopped by adjacent trees	remove
200	Douglas-fir	*Pseudotsuga menziesii*	33	26	good	fair	moderately one sided, extensive ivy	remove
201	Oregon white oak	*Quercus garryana*	28	20	good	fair	one sided, extensive ivy, codominant at 2'	retain
202	bigleaf maple	*Acer macrophyllum*	20	15	poor	poor	overtopped by adjacent trees, smothered by ivy	remove
203	Douglas-fir	*Pseudotsuga menziesii*	30	20	good	good		retain
204	Douglas-fir	*Pseudotsuga menziesii*	16	14	fair	fair	one sided, extensive ivy	remove
205	Douglas-fir	*Pseudotsuga menziesii*	31	27	good	fair	one sided	remove
206	Douglas-fir	*Pseudotsuga menziesii*	34	27	good	fair	one sided	remove
207	Douglas-fir	*Pseudotsuga menziesii*	42	23	good	good	50% live crown ratio	retain
208	Douglas-fir	*Pseudotsuga menziesii*	32	20	good	fair	moderately one sided, extensive ivy	remove
209	Douglas-fir	*Pseudotsuga menziesii*	24	15	poor	poor	smothered by ivy	remove
210	Douglas-fir	*Pseudotsuga menziesii*	28	20	fair	fair	one sided, extensive ivy	remove
211	Douglas-fir	*Pseudotsuga menziesii*	30	20	good	good	50% live crown ratio	retain
212	sweet cherry	*Prunus avium*	8,7	20	fair	poor	overtopped by adjacent trees, 7" stem is dead	remove
213	bigleaf maple	*Acer macrophyllum*	45	34	very poor	very poor	extensive decay behind lean into street	remove
214	bigleaf maple	*Acer macrophyllum*	11	24	good	good		remove
215	English hawthorn	*Crataegus monogyna*	5,5,3	10	poor	poor	smothered by ivy, multiple leaders at ground level	remove
216	sweet cherry	*Prunus avium*	12	14	good	fair	one sided, codominant at 3'	remove
217	sweet cherry	*Prunus avium*	5,5	14	fair	fair	one sided, dead stem at base of trunk	remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
218	sweet cherry	*Prunus avium*	7	9	fair	fair	one sided, moderately suppressed	remove
219	Oregon white oak	*Quercus garryana*	40	30	good	fair	codominant at 4'	remove
220	Douglas-fir	*Pseudotsuga menziesii*	16	0	very poor	very poor	dead, 20' snag	remove
221	Douglas-fir	*Pseudotsuga menziesii*	34	25	good	fair	one sided	retain
222	Douglas-fir	*Pseudotsuga menziesii*	18	16	good	fair	one sided	retain
223	Douglas-fir	*Pseudotsuga menziesii*	34	25	good	fair	one sided	retain
224	Douglas-fir	*Pseudotsuga menziesii*	31	20	good	fair	crown extensive suppressed by adjacent trees	remove
225	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
226	Douglas-fir	*Pseudotsuga menziesii*	11	11	fair	fair	moderately suppressed, overtopped by adjacent trees	retain
227	bigleaf maple	*Acer macrophyllum*	18	15	poor	very poor	one sided, partially uprooted, significant lean, decay at root crown	remove
228	bigleaf maple	*Acer macrophyllum*	18	20	good	fair	moderately one sided	retain
229	Oregon ash	*Fraxinus latifolia*	10	15	good	good		remove
230	Oregon ash	*Fraxinus latifolia*	8,6	12	good	fair	codominant at 2' with included bark	remove
231	Oregon ash	*Fraxinus latifolia*	9	9	good	good		remove
232	Oregon ash	*Fraxinus latifolia*	18	25	good	fair	extensive ivy	remove
233	Oregon ash	*Fraxinus latifolia*	10	10	fair	fair	extensive ivy	remove
234	bigleaf maple	*Acer macrophyllum*	16	16	poor	poor	top dieback and decay, poor trunk taper	remove
235	bigleaf maple	*Acer macrophyllum*	9	11	fair	fair	overtopped by adjacent trees, significant ivy growth	remove
236	bigleaf maple	*Acer macrophyllum*	9	11	fair	poor	moderately suppressed, poor trunk taper	remove
237	bigleaf maple	*Acer macrophyllum*	10	10	poor	poor	smothered by ivy	remove
238	Oregon white oak	*Quercus garryana*	24	20	good	fair	one sided, extensive ivy at lower trunk	retain

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
239	Oregon white oak	*Quercus garryana*	32	25	fair	fair	one sided, codominant at 3', 12" codominant stem smothered by ivy with significant decay	retain
240	Oregon white oak	*Quercus garryana*	24	20	fair	fair	codominant at 6', upright crown with overextended leaders	retain
241	Oregon white oak	*Quercus garryana*	28	25	good	fair	one sided	retain
243	Oregon white oak	*Quercus garryana*	16	20	good	fair	one sided, extensive ivy in crown	remove
244	Oregon white oak	*Quercus garryana*	18	20	good	fair	extensive ivy at lower trunk	remove
245	Oregon white oak	*Quercus garryana*	20	25	good	fair	moderately one sided, extensive ivy at lower crown	remove
246	Oregon white oak	*Quercus garryana*	24	25	fair	fair	overtopped by adjacent trees, one sided, codominant at 1', 10" codominant stem failed at 10'	remove
247	Oregon white oak	*Quercus garryana*	14	10	fair	fair	one sided, leans west	remove
248	Oregon white oak	*Quercus garryana*	18	20	good	fair	one sided	remove
249	Oregon white oak	*Quercus garryana*	30	30	good	fair	moderately one sided	retain
251	Oregon white oak	*Quercus garryana*	10	10	fair	poor	extensive ivy at lower crown, 25% live crown ratio	remove
252	Oregon white oak	*Quercus garryana*	18	15	fair	poor	smothered by ivy	remove
253	Oregon white oak	*Quercus garryana*	12,12, 12,12, 10	20	fair	fair	multiple leaders at ground level, extensive ivy in lower crown	remove
254	Oregon white oak	*Quercus garryana*	20	20	good	fair	multiple upright leaders, extensive ivy along trunk	remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
255	Oregon white oak	*Quercus garryana*	14	20	fair	poor	bent upper trunk with multiple upright leaders along stem	remove
256	Douglas-fir	*Pseudotsuga menziesii*	36	25	fair	fair	codominant at 4' with included bark, one sided, extensive ivy, branch dieback	retain
257	Oregon white oak	*Quercus garryana*	18	15	fair	poor	33% live crown ratio, extensive ivy at lower trunk	remove
258	Oregon white oak	*Quercus garryana*	12	10	poor	poor	suppressed	remove
259	Oregon white oak	*Quercus garryana*	18	18	fair	fair	35% live crown ratio, decay pocket at 15'	retain
260	Oregon white oak	*Quercus garryana*	12	15	fair	fair	moderately one sided, 35% live crown ratio	remove
261	Oregon white oak	*Quercus garryana*	16,14, 10,10, 10	30	good	fair	multiple leaders at ground level, extensive ivy in crown	remove
262	bigleaf maple	*Acer macrophyllum*	16	0	very poor	very poor	dead, smothered by ivy	remove
263	Douglas-fir	*Pseudotsuga menziesii*	28	18	good	fair	40% live crown ratio, extensive ivy at lower trunk	retain
264	Douglas-fir	*Pseudotsuga menziesii*	20	10	good	fair	one sided, extensive ivy along trunk	retain
265	Douglas-fir	*Pseudotsuga menziesii*	24	20	good	fair	one sided, extensive ivy along trunk	retain
266	Douglas-fir	*Pseudotsuga menziesii*	44	25	good	fair	one sided	retain
267	Oregon white oak	*Quercus garryana*	12	10	poor	poor	suppressed, extreme lean, extensive ivy	remove
268	bigleaf maple	*Acer macrophyllum*	24	20	fair	fair	one sided	retain
269	sweet cherry	*Prunus avium*	8	10	good	fair	one sided, extensive ivy	remove
270	Douglas-fir	*Pseudotsuga menziesii*	36	25	good	fair	one sided, extensive ivy at lower trunk	retain

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
271	bigleaf maple	*Acer macrophyllum*	30,24	20	fair	poor	one sided, 24" stem topped for overhead high voltage, crown smothered by ivy	remove
272	Douglas-fir	*Pseudotsuga menziesii*	26	20	poor	poor	clusters of *Porodaedalea pini* at lower trunk, one sided, extensive ivy along trunk	remove
273	Douglas-fir	*Pseudotsuga menziesii*	20	15	very poor	very poor	*Phaeolus schweinitzii* conk adjacent to trunk, lower trunk smothered by ivy, 25% live crown ratio	remove
274	Douglas-fir	*Pseudotsuga menziesii*	16	15	good	fair	extensive ivy along trunk	retain
275	Douglas-fir	*Pseudotsuga menziesii*	20	20	good	fair	one sided, extensive ivy along trunk	retain
276	Douglas-fir	*Pseudotsuga menziesii*	10	0	very poor	very poor	dead, smothered by ivy	remove
277	Douglas-fir	*Pseudotsuga menziesii*	32	30	good	fair	lower trunk smothered by ivy, 40% live crown ratio	retain
278	Douglas-fir	*Pseudotsuga menziesii*	28	25	good	fair	lower trunk smothered by ivy, 40% live crown ratio	retain
279	Douglas-fir	*Pseudotsuga menziesii*	20	15	fair	poor	lower trunk smothered by ivy, 33% live crown ratio	remove
280	bigleaf maple	*Acer macrophyllum*	12	5	poor	poor	smothered by ivy	remove
281	bigleaf maple	*Acer macrophyllum*	12	20	fair	poor	smothered by ivy	remove
282	Oregon white oak	*Quercus garryana*	10	10	poor	poor	suppressed, smothered by ivy	remove
283	Douglas-fir	*Pseudotsuga menziesii*	48	25	good	fair	extensive ivy along trunk	remove
284	bigleaf maple	*Acer macrophyllum*	18,16, 16,10	25	fair	fair	multiple leaders at ground level, extensive ivy along trunk	remove
285	bigleaf maple	*Acer macrophyllum*	24	20	good	fair	35% live crown ratio, extensive ivy in crown	remove
286	bigleaf maple	*Acer macrophyllum*	12	12	fair	poor	crown smothered by ivy	remove
287	bigleaf maple	*Acer macrophyllum*	12	20	poor	poor	smothered by ivy	remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
288	Oregon white oak	*Quercus garryana*	12	12	good	fair	one sided, extensive ivy in crown	retain
289	Oregon white oak	*Quercus garryana*	9	0	very poor	very poor	dead	remove
290	grand fir	*Abies grandis*	8	10	good	fair	one sided, overtopped by adjacent trees	retain
291	Douglas-fir	*Pseudotsuga menziesii*	10	10	fair	fair	suppressed	remove
292	Douglas-fir	*Pseudotsuga menziesii*	12	5	poor	poor	smothered by ivy	remove
293	Douglas-fir	*Pseudotsuga menziesii*	24	15	good	fair	one sided, extensive ivy at lower trunk	retain
294	bigleaf maple	*Acer macrophyllum*	7	10	fair	fair	extensive ivy	retain
295	Austrian pine	*Pinus nigra*	13	10	good	good		retain
296	Douglas-fir	*Pseudotsuga menziesii*	41	14	poor	poor	dead top	remove
297	n/a	n/a	n/a	n/a	n/a	n/a	not present	n/a
298	Douglas-fir	*Pseudotsuga menziesii*	30	17	fair	fair	moderately thin crown	remove
299	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
300	bigleaf maple	*Acer macrophyllum*	9	12	poor	very poor	one sided, significant decay at lower trunk	remove
301	bigleaf maple	*Acer macrophyllum*	16	15	fair	fair	one sided, extensive ivy in crown	retain
302	bigleaf maple	*Acer macrophyllum*	20	25	fair	fair	one sided, extensive ivy in crown	retain
303	Douglas-fir	*Pseudotsuga menziesii*	20	20	fair	fair	extensive ivy in crown	retain
304	bigleaf maple	*Acer macrophyllum*	36,24	40	poor	poor	extensive heartrot, codominant at ground level, 24" stem smothered by ivy	remove
305	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 304	n/a
306	bigleaf maple	*Acer macrophyllum*	30	25	fair	fair	one sided, extensive ivy in lower crown	retain
307	bigleaf maple	*Acer macrophyllum*	30	25	fair	poor	multiple leaders at 5', 18" leader topped at 8' for overhead high voltage line	remove
308	Douglas-fir	*Pseudotsuga menziesii*	10	10	poor	poor	suppressed	remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
309	Douglas-fir	*Pseudotsuga menziesii*	26	15	good	fair	one sided, previously failed at 10' with new leader	retain
310	bigleaf maple	*Acer macrophyllum*	20	15	fair	poor	one sided, extensive ivy, lower trunk smothered by ivy	remove
311	Douglas-fir	*Pseudotsuga menziesii*	28	15	fair	fair		remove
312	n/a	n/a	n/a	n/a	n/a	n/a	not located, same tree as 313?	n/a
313	Oregon white oak	*Quercus garryana*	30	25	good	fair	codominant at 5' with upright stems	remove
314	English hawthorn	*Crataegus monogyna*	6	6	poor	poor	smothered by ivy	remove
315	Oregon ash	*Fraxinus latifolia*	8	9	good	fair	marginal trunk taper	remove
316	Oregon ash	*Fraxinus latifolia*	11	8	good	fair	extensive ivy at lower trunk	remove
318	English hawthorn	*Crataegus monogyna*	10	10	poor	poor	overtopped by adjacent trees, smothered by ivy, not tagged	remove
319	English hawthorn	*Crataegus monogyna*	9	12	good	fair	moderately one sided	remove
320	crabapple	*Malus sp.*	10	13	poor	poor	lost top, large canker along lower trunk	remove
321	bigleaf maple	*Acer macrophyllum*	6	4	fair	poor	smothered by ivy	remove
322	bigleaf maple	*Acer macrophyllum*	6	5	fair	poor	smothered by ivy	remove
323	bigleaf maple	*Acer macrophyllum*	8	5	fair	poor	smothered by ivy	remove
325	Oregon ash	*Fraxinus latifolia*	6	6	good	good		remove
326	English hawthorn	*Crataegus monogyna*	6	9	poor	poor	smothered by ivy	remove
327	English hawthorn	*Crataegus monogyna*	6	7	fair	fair	extensive ivy	remove
328	English hawthorn	*Crataegus monogyna*	8	3	poor	poor	smothered by ivy	remove
329	English hawthorn	*Crataegus monogyna*	6	5	fair	fair	extensive ivy, added to site map in approximate location by arborist	remove
330	English hawthorn	*Crataegus monogyna*	6	7	fair	fair	extensive ivy	remove
331	English hawthorn	*Crataegus monogyna*	6	8	fair	fair	extensive ivy	remove
335	bigleaf maple	*Acer macrophyllum*	7	11	fair	fair	significant bark damage at lower trunk	remove
336	English hawthorn	*Crataegus monogyna*	14	14	fair	fair	multiple leaders	remove
337	Oregon ash	*Fraxinus latifolia*	8	9	good	good		remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
338	bigleaf maple	*Acer macrophyllum*	6	0	very poor	very poor	dead	remove
339	bigleaf maple	*Acer macrophyllum*	8	10	poor	poor	smothered by ivy	remove
340	bigleaf maple	*Acer macrophyllum*	8	5	poor	poor	smothered by ivy	remove
341	English hawthorn	*Crataegus monogyna*	8	8	poor	poor	smothered by ivy	remove
342	bigleaf maple	*Acer macrophyllum*	8	3	poor	poor	smothered by ivy	remove
343	bigleaf maple	*Acer macrophyllum*	8	10	poor	poor	smothered by ivy	remove
344	bigleaf maple	*Acer macrophyllum*	11	15	fair	fair	significant kink and decay at lower trunk	remove
345	bigleaf maple	*Acer macrophyllum*	11	15	fair	poor	severe lean, decay scar in lower trunk	remove
346	bigleaf maple	*Acer macrophyllum*	6,6	13	poor	poor	extensive dieback and decay	remove
348	Pacific dogwood	*Cornus nuttallii*	6	10	very poor	very poor	extensive dieback, smothered by ivy	remove
349	bigleaf maple	*Acer macrophyllum*	11,11, 15	16	fair	fair	multiple leaders at ground level with included bark	retain
350	bigleaf maple	*Acer macrophyllum*	6	11	fair	fair	one sided, overtopped by adjacent trees	retain
351	bigleaf maple	*Acer macrophyllum*	6,4	10	poor	poor	overtopped by adjacent trees, smothered by ivy	remove
352	bigleaf maple	*Acer macrophyllum*	7	7	fair	poor	significant ivy, poor trunk taper	remove
353	bigleaf maple	*Acer macrophyllum*	10	10	poor	poor	smothered by ivy	remove
354	bigleaf maple	*Acer macrophyllum*	6	11	poor	poor	smothered by ivy	remove
355	English hawthorn	*Crataegus monogyna*	12	8	poor	poor	smothered by ivy	remove
356	bigleaf maple	*Acer macrophyllum*	8	16	good	fair	multiple leaders	retain
357	Oregon ash	*Fraxinus latifolia*	8,5	6	poor	poor	smothered by ivy	remove
358	bigleaf maple	*Acer macrophyllum*	7,5	7	poor	poor	smothered by ivy	remove
359	bigleaf maple	*Acer macrophyllum*	10	16	poor	poor	overtopped by adjacent trees, smothered by ivy	remove
360	bigleaf maple	*Acer macrophyllum*	9,4	11	poor	poor	codominant at ground level, extensive ivy	remove
361	Douglas-fir	*Pseudotsuga menziesii*	8	7	good	good		retain

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
362	shore pine	*Pinus contorta* subsp. *contorta*	10	10	fair	fair	significant lean, sequoia pitch moth	retain
363	shore pine	*Pinus contorta subsp. contorta*	10	14	fair	fair	one sided, large pruning cuts at lower trunk, sequoia pitch moth	retain
364	shore pine	*Pinus contorta subsp. contorta*	10	10	fair	fair	one sided, codominant with included bark	retain
365	shore pine	*Pinus contorta subsp. contorta*	10	18	good	fair	codominant at 1', significant crown growth over parking lot	retain
366	bigleaf maple	*Acer macrophyllum*	12,12, 10	20	poor	poor	multiple leaders at ground level, smothered by ivy	remove
367	bigleaf maple	*Acer macrophyllum*	18,12, 10,8,8, 8,6	20	poor	poor	stump sprout, smothered by ivy	remove
368	English hawthorn	*Crataegus monogyna*	8	3	poor	poor	suppressed, smothered by ivy	remove
369	bigleaf maple	*Acer macrophyllum*	20,2	25	poor	poor	codominant at ground level, smothered by ivy	remove
370	bigleaf maple	*Acer macrophyllum*	10	10	poor	poor	smothered by ivy	remove
371	English hawthorn	*Crataegus monogyna*	10	8	fair	fair	extensive ivy	remove
372	English hawthorn	*Crataegus monogyna*	8,8	15	poor	poor	smothered by ivy	remove
373	English hawthorn	*Crataegus monogyna*	10	10	fair	fair	extensive ivy	remove
374	bigleaf maple	*Acer macrophyllum*	8	8	poor	poor	smothered by ivy	remove
375	English hawthorn	*Crataegus monogyna*	8,6	10	poor	poor	tagged 376 in field, smothered by ivy	remove
377	English hawthorn	*Crataegus monogyna*	8	10	fair	fair	extensive ivy	remove
378	Douglas-fir	*Pseudotsuga menziesii*	7	10	fair	poor	overtopped by adjacent trees, suppressed	remove
379	bigleaf maple	*Acer macrophyllum*	32,22, 10	40	very poor	very poor	extensive decay at lower trunk behind lean	remove
380	bigleaf maple	*Acer macrophyllum*	20	21	poor	poor	smothered by ivy	remove
381	Douglas-fir	*Pseudotsuga menziesii*	13	13	fair	fair	extensive ivy has deformed crown	remove
382	Douglas-fir	*Pseudotsuga menziesii*	5	0	very poor	very poor	dead	remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
383	Douglas-fir	*Pseudotsuga menziesii*	6	0	very poor	very poor	dead	remove
384	Douglas-fir	*Pseudotsuga menziesii*	6	8	poor	poor	suppressed	remove
385	Douglas-fir	*Pseudotsuga menziesii*	6	0	very poor	very poor	dead	remove
386	Douglas-fir	*Pseudotsuga menziesii*	6	4	poor	poor	smothered by ivy	remove
388	English hawthorn	*Crataegus monogyna*	10	5	fair	fair	extensive ivy	remove
390	Douglas-fir	*Pseudotsuga menziesii*	8	0	very poor	very poor	dead	remove
392	Douglas-fir	*Pseudotsuga menziesii*	8	0	very poor	very poor	dead	remove
393	elm	*Ulmus sp.*	6	10	good	fair	one sided	retain
394	Douglas-fir	*Pseudotsuga menziesii*	5	4	poor	poor	suppressed	remove
395	elm	*Ulmus sp.*	6	6	fair	fair	bent trunk, overtopped by adjacent trees	retain
396	bigleaf maple	*Acer macrophyllum*	12,8,8, 7	20	fair	fair	multiple leaders at ground level, extensive ivy	retain
397	Douglas-fir	*Pseudotsuga menziesii*	9	8	fair	fair	one sided, overtopped by adjacent trees	remove
398	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 71	n/a
399	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 70	n/a
400	bigleaf maple	*Acer macrophyllum*	14	0	very poor	very poor	15' tall snag	remove
401	elm	*Ulmus sp.*	8	10	fair	fair	overtopped by adjacent trees	retain
402	elm	*Ulmus sp.*	8	10	fair	fair	overtopped by adjacent trees	retain
403	elm	*Ulmus sp.*	5	8	good	fair	overtopped by adjacent trees, added to site map in approximate location by arborist	retain
404	Oregon white oak	*Quercus garryana*	5	0	very poor	very poor	dead	remove
405	Oregon white oak	*Quercus garryana*	6	6	poor	poor	suppressed, added to site map in approximate location by arborist	remove
406	Oregon white oak	*Quercus garryana*	8	10	fair	fair	one sided, moderately suppressed, added to site map in approximate location by arborist	retain
407	English hawthorn	*Crataegus monogyna*	4,2,2	6	fair	fair	overtopped by adjacent trees, multiple leaders at ground level	remove

Attachment 4

Tree No.	Common Name	Scientific Name	DBH[1]	C-Rad[2]	Condition[3]	Structure	Comments	Treatment
407.1	sweet cherry	*Prunus avium*	6	15	fair	poor	overtopped by adjacent trees, moderately suppressed, tagged 407, added to site map in approximate location by arborist	remove
408	English hawthorn	*Crataegus monogyna*	8	10	fair	fair	overtopped by adjacent trees, significant ivy growth	remove
408.1	sweet cherry	*Prunus avium*	12,5	25	good	fair	codominant at ground level, 5" stem failed at 8', tagged 408, added to site map in approximate location by arborist	remove
409	Oregon white oak	*Quercus garryana*	14	5	poor	poor	suppressed	remove
410	bigleaf maple	*Acer macrophyllum*	6	0	very poor	very poor	dead	remove
411	English hawthorn	*Crataegus monogyna*	6	8	good	fair	overtopped by adjacent trees	remove
412	bigleaf maple	*Acer macrophyllum*	7,6	10	poor	poor	codominant at ground level, suppressed	remove
413	bigleaf maple	*Acer macrophyllum*	8	10	good	fair	one sided, overtopped by adjacent trees	retain
414	bigleaf maple	*Acer macrophyllum*	8	15	good	fair	one sided, overtopped by adjacent trees	retain
416	Pacific dogwood	*Cornus nuttallii*	8	8	fair	fair	extensive ivy	retain
417	elm	*Ulmus sp.*	8	15	good	fair	one sided	retain
418	elm	*Ulmus sp.*	8	0	very poor	very poor	dead	remove
419	bigleaf maple	*Acer macrophyllum*	7	9	good	fair	one sided, overtopped by adjacent trees	retain
420	purpleleaf plum	*Prunus cerasifera*	6	15	poor	poor	extreme lean, fallen over, labeled tree 312 in field	remove
421	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 314	n/a

[1]**DBH** is the trunk diameter in inches measured per International Society of Arboriculture (ISA) standards.

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

[3]**Condition and Structure** ratings range from very poor, poor, fair, to good.

Attachment 5
Tree Protection Recommendations

Before Construction Begins

1. Notify all contractors of tree protection procedures. For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection.
    a. Hold a tree protection meeting with all contractors to explain the goals of tree protection.
    c. Have all contractors sign memoranda of understanding regarding the goals of tree protection. The memoranda should include a penalty for violating the tree protection plan. The penalty should equal the resulting fines issued by the local jurisdiction plus the appraised value of the tree(s) within the violated tree protection zone per the current Trunk Formula Method as outlined in the current edition of the ***Guide for Plant Appraisal*** by the Council of Tree & Landscape Appraisers. The penalty should be paid to the owner of the property.
2. Fencing
    a. Tree protection fencing may be set as shown in Attachment 2.
    b. The fencing should be put in place before the ground is cleared in order to protect the trees and the soil around the trees from disturbances.
    c. Fencing should be established by the project arborist based on the needs of the trees to be protected and to facilitate construction.
    d. Fencing should consist of 4-foot high steel fencing on concrete blocks or 4-foot metal fencing secured to the ground with 6-foot metal posts to prevent it from being moved by contractors, sagging, or falling down.
    e. Fencing should remain in the position that is established by the project arborist and not be moved without approval from the project arborist until final project approval.
3. Signage
    a. All tree protection fencing should have signage as follows so that all contractors understand the purpose of the fencing:

> **TREE PROTECTION ZONE**
>
> **DO NOT REMOVE OR ADJUST THE LOCATION OF THIS TREE PROTECTION FENCING**
> **UNAUTHORIZED ENCROACHMENT MAY RESULT IN FINES**
>
> Please contact the project arborist if alterations to the location of the tree protection fencing are necessary.
>
> Todd Prager, Project Arborist, Teragan & Associates, 971-295-4835

    b. Signage should be placed every 75-feet or less.

During Construction

1. Protection Guidelines Within the Tree Protection Zones:
    a. No new buildings; grade change or cut and fill, during or after construction; new impervious surfaces; or utility or drainage field placement should be allowed within the tree protection zones.
    b. No traffic should be allowed within the tree protection zones. This includes but is not limited to vehicle, heavy equipment, or even repeated foot traffic.
    c. No storage of materials including but not limiting to soil, construction material, or waste from the site should be permitted within the tree protection zones. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.
    d. Construction trailers should not to be parked/placed within the tree protection zones.
    e. No vehicles should be allowed to park within the tree protection zones.
    f. No other activities should be allowed that will cause soil compaction within the tree protection zones.
2. The trees should be protected from any cutting, skinning or breaking of branches, trunks or woody roots.
3. The project arborist should be notified prior to the cutting of woody roots from trees that are to be retained to evaluate and oversee the proper cutting of roots with sharp cutting tools. Cut roots should be immediately covered with soil or mulch to prevent them from drying out.
4. Trees that have woody roots cut should be provided supplemental water during the summer months.
5. Any necessary passage of utilities through the tree protection zones should be by means of tunneling under woody roots by hand digging or boring with oversight by the project arborist.
6. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

After Construction

1. Carefully landscape the areas within the tree protection zones. Do not allow trenching for irrigation or other utilities within the tree protection zones.
2. Carefully plant new plants within the tree protection zones. Avoid cutting the woody roots of trees that are retained.
3. Do not install permanent irrigation within the tree protection zones unless it is drip irrigation to support a specific planting or the irrigation is approved by the project arborist.
4. Provide adequate drainage within the tree protection zones and do not alter soil hydrology significantly from existing conditions for the trees to be retained.
5. Provide for the ongoing inspection and treatment of insect and disease populations that are capable of damaging the retained trees and plants.
6. The retained trees may need to be fertilized if recommended by the project arborist.
7. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

Attachment 6
Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. The information provided by Yost Grube Hall Architecture and other members of the project team was the basis of the information provided in this report.
2. It is assumed that this property is not in violation of any codes, statutes, ordinances, or other governmental regulations.
3. The consultant is not responsible for information gathered from others involved in various activities pertaining to this project. Care has been taken to obtain information from reliable sources.
4. Loss or alteration of any part of this delivered report invalidates the entire report.
5. Drawings and information contained in this report may not be to scale and are intended to be used as display points of reference only.
6. The consultant's role is only to make recommendations. Inaction on the part of those receiving the report is not the responsibility of the consultant.
7. The purpose of this report is to:
    - Provide an assessment of the existing trees;
    - Provide updated recommendations for tree removal and retention based on the updated site improvements; and
    - Provide updated protection recommendations for the trees to be retained.

CITY OF MILWAUKIE
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building@milwaukieoregon.gov
engineering@milwaukieoregon.gov

Preapplication Conference Report

Project ID: 20-003PA

This report is provided as a follow-up to the meeting that was held on 5/14/2020 at 10:00 AM

The Milwaukie Municipal Code is available here: www.qcode.us/codes/milwaukie/

APPLICANT AND PROJECT INFORMATION

Applicant:	Phil Krueger	**Applicant Role:** Representative
Applicant Address:	707 SW Washington St, Ste 1200, Portland, OR 97205	
Company:	Yost Grube Hall Architecture	
Project Name:	Waverly Woods	
Project Address:	10415 SE Waverly Ct and Adjacent Lot	**Zone:** R2
Project Description:	Phased construction of 6 multi-family buildings with a total of 130 units	
Current Use:	Vacant/multi-family residential	
Applicants Present:	Wendy Wyse- Owner Walker Ventures LLC; Scott Wyse- Owner Walker Ventures LLC; Diedre Colantino- Waverley Greens Property Manager; Mike Telling – Precision Construction; Daan Dommels - KPFF Civil; Matt Manzer- KPFF Civil; Kristine Connolly- Kittelson traffic engineer; Nels Hall- YGH; Phil Krueger- YGH; Yukari Kubo- YGH; Franklin Potts- YGH	
Staff Present:	Vera Kolias, Associate Planner; Dalton Vodden, Associate Engineer; Steve Adams, City Engineer; Peter Passarelli, Public Works Director; Julian Lawrence, Urban Forester; Stephanie Marcinkiewicz, Plans Examiner; Matt Amos, Fire Inspector, NCFD1	

PLANNING COMMENTS

Zoning Compliance (MMC Title 19)

☒	**Use Standards (e.g., residential, commercial, accessory)**	The application will include a request for a Planned Development and Willamette Greenway Review.
☒	**Dimensional Standards**	Per Table 19.302.4, the minimum setbacks for primary structures in the R-2 zone are: 15 ft for front, rear and street side yard and 5 ft for side yards. However, as part of a Planned Development (PD), those yards may be altered as part of the PD review process.

		The application should specify all setback and dimensional standards that will vary from the required base zone standards. A table or diagram would be appropriate to convey this information. Please note the method of calculating minimum and maximum density in MMC 19.202.4 given the areas of steep slopes on the site. The PD provides for an increase in density if necessary, but detailed calculations will be required to confirm compliance.
	Land Use Review Process	
☒	Applications Needed	Step 1: Transportation Facilities Review (TFR) – to begin the TIS process Step 2: Combined Preliminary & Final Planned Development; Willamette Greenway Review; Lot Consolidation; Transportation Facilities Review (TIS) – merged from Step 1 Step 3: Development Review during permitting for each phase/building
☒	Fees	TFR = $1,000 Willamette Greenway Review = $2,000 Preliminary PD = $2,000 Final PD = $5,000 Final Plat = $200 (for each phase) Development Review = $200 (for each phase) LLA/LC = $200 (For concurrent applications, the most expensive application is charged full price and the fees for all other applications are discounted 25%.)
☒	Review Type: Type II Type IV Type III Type V	TFR = Type II Preliminary PD = Type III Final PD = Type IV Willamette Greenway = Type III Development Review = Type I LLC/LC = Type I
	Overlay Zones (MMC 19.400)	
☒	Willamette Greenway	MMC 19.401: Please note the approval criteria for the approval of Willamette Greenway (WG) review. This is reviewed concurrently with the PD and requires a narrative for each criterion. The PD provides for buildings in excess of 3 stories within the WG overlay, but also notes that views both to and from the river are important, as well as tree removal.
☐	Natural Resources	
☐	Historic Preservation	
☐	Flex Space Overlay	
	Site Improvements/Site Context	
☒	Landscaping Requirements	All planned unit developments will have at least one-third of the gross area devoted to open space and/or outdoor recreational areas. At least half of the required open space

		and/or recreational areas will be of the same general character as the area containing dwelling units. Open space and/or recreational areas do not include public or private streets.
☒	Onsite Pedestrian/Bike Improvements (MMC 19.504, 19.606, and 19.609)	Please note the standards for pedestrian paths and location, including paving materials as well as the bicycle parking requirements. Please note that bike parking cannot be accommodated solely inside the dwelling units to be considered compliant with the standards.
☐	Connectivity to surrounding properties	
☐	Circulation	
☒	Building Design Standards (MMC 19.505)	MMC 19.505.3 would apply to the proposed development. The PD process allows for a new set of development standards; the submitted application must identify where the PD would modify these standards.
☐	Downtown Design Standards (MMC 19.508)	
Parking Standards (MMC 19.600)		
☐	Residential Off-Street Parking Requirements	
☒	Multi-Family/Commercial Parking Requirements	Off-street parking requirements would be evaluated site-wide. Any modifications to the required parking standards would be addressed via a parking modification per 19.605.2 that would be incorporated into the final PD.
Approval Criteria (MMC 19.900)		
☒	Planned Developments (MMC 19.311)	Please review the Development Standards (19.311.3) and the Approval Criteria identified in 19.311.9, which details all of the applicable approval criteria.
☐	Amendments to Maps and Ordinances (MMC 19.902)	
☒	Development Review (MMC 19.906)	Development review will accompany the building permit process for each phase or building to confirm compliance with the code and the PD approval.
☐	Variance (MMC 19.911)	
Land Division (MMC Title 17)		
☒	Design Standards	http://www.qcode.us/codes/milwaukie/view.php?topic=17-17_28&frames=off
☐	Preliminary Plat Requirements	
☐	Final Plat Requirements (See Engineering Section of this Report)	

Sign Code Compliance (MMC Title 14)		
☒	**Sign Requirements**	Sign Districts Residential Zones: http://www.qcode.us/codes/milwaukie/view.php?topic=14-14_16-14_16_010&frames=off
Noise (MMC Title 16)		
☐	**Noise Mitigation (MMC 16.24)**	
Neighborhood District Associations		
☒	**Historic Milwaukie**	https://www.milwaukieoregon.gov/citymanager/historic-milwaukie-nda
Other Permits/Registration		
☐	**Business Registration**	
☐	**Home Occupation Compliance (MMC 19.507)**	
Additional Planning Notes		
The applicant included the following Planning-related questions: • What is the process for a lot line adjustment and can this occur concurrent with Planned Development Review? **Yes. See information above.**		
ENGINEERING & PUBLIC WORKS COMMENTS		
Public Facility Improvements (MMC 19.700)		
☒	**Applicability (MMC 19.702)**	Chapter 19.700 of the Milwaukie Municipal Code (MMC) applies to partitions, subdivisions, new construction and modification and or expansions of existing structures or uses that produce a projected increase in vehicle trips.
☒	**Transportation Facilities Review (MMC 19.703)**	The City Engineer has determined that a Traffic Impact Study (TIS) will be required for this development. The review for the TIS will be completed under a Transportation Facility Review (TFR) land use application. This is a Type II application.
☒	**Transportation Impact Study (MMC 19.704)**	A transportation impact study is to be prepared by the applicant and reviewed by the city to determine steps necessary to mitigate transportation impacts at time of development.
☒	**Agency Notification (MMC 19.707)**	City of Milwaukie will coordinate TIS Agency notification.

☒	Transportation Requirements (MMC 19.708)	All developments subject to 19.700 shall comply with city access management standards contained in MMC 12.16, clear vision standards MMC 12.24, and improve adjacent rights-of-way to street design standards MMC 19.708.2.
☒	Utility Requirements (MMC 19.709)	Existing public utilities appear to be adequate to serve the proposed development.
	Flood Hazard Area (MMC 18)	
☐	Development Permit (MMC 18.04.100)	No special management flood hazard area mapped on site.
☐	General Standards (MMC 18.04.150)	
☐	Specific Standards (MMC 18.04.160)	
☐	Floodways (MMC 18.04.170)	
	Environmental Protection (MMC 16)	
☐	Weak Foundation Soils (MMC 16.16)	
☒	Erosion Control (MMC 16.28)	Development of the site will require an erosion control permit. Direct erosion control questions to Jeremiah Sonne – sonnej@milwaukieoregon.gov
☐	Tree Cutting (MMC 16.32)	Urban forester's review of the tree removal report notes that: 5 trees listed to remain are non-native, and 18 are in poor overall condition: Tree protection plan, including Appendix 4, is very good. A landscaping plan, showing trees and shrubs to be planted, has not been submitted. Milwaukie's Suggested Canopy Trees for the Yard document attached.
	Public Services (MMC 13)	
☒	Water System (MMC 13.04)	A Field Utility Connection Form must be completed to file for service connection. The system development charges, meter equipment fee, and the connect service fee must be paid prior to connection. The applicant is responsible for exposing and burying the service. City crews shall make the connection and extend service to property.
☒	Sewer System (MMC 13.12)	All structures containing sanitary facilities shall be connected to the sewer system. Currently, there are no credits or waiver of fees for onsite treatment or pretreatment. The sewer system user at all times shall at their expense, operate, and maintain the service lateral and building sewer in a sanitary manner to the collection trunk or interceptor sewer at no expense to the City.
☒	Stormwater Management (MMC 13.14)	Compliance with the city's NPDES permit requires development to mitigate impacts through facility design consistent with the City of Portland Stormwater Management Manual. Proprietary treatment devices are allowed under the performance-based design approach.
☒	System Development Charge (MMC 13.28.040)	System development charges (SDCs) will be applied and collected at the time of building permits. Fees include water SDC, wastewater SDC, stormwater SDC, transportation SDC, parks and recreation SDC. Additional fees exist for water service connection and sewer connection.

☐	**Fee in Lieu of Construction (MMC 13.32)**	A fee in lieu of construction is not expected for this development. The applicant is expected to construct any necessary improvements at the time of development.
	Public Places (MMC 12)	
☒	**Right of Way Permit (MMC 12.08.020)**	Each phase of public improvement and accessway construction will be completed under a right-of-way permit which will a public improvement project. Cost of permit is 5.5% of the cost of the improvements, performance bond prior to construction, and 12-month maintenance bond.
☒	**Access Requirements (MMC 12.16.040)**	Minimum distance from the nearest dege of driveway to the nearest intersecting face of curb of Lava and Waverly is 100ft. The accessway size for the development is to be between 24ft and 30ft.
☒	**Clear Vision (MMC 12.24)**	Intersections and driveways must comply with clear vision requirements, including removing all plantings, fences, walls, structures, temporary or permanent obstructions, excluding the occasional utility pole or tree, exceeding 3ft in height within 20ft radius of where the lot line intersects the accessway. Open wire fencing up to 6ft tall obscuring sight not more than 10% and trees with all branches and foliage removed to the height of 8ft are allowed.
	Additional Engineering & Public Works Notes	
	The applicant included the following questions in the application materials:	

BUILDING COMMENTS

All drawings must be submitted electronically through www.buildingpermits.oregon.gov

New buildings or remodels shall meet all the provisions of the current applicable Oregon Building Codes. All State adopted building codes can be found online at: https://www.oregon.gov/bcd/codes-stand/Pages/adopted-codes.aspx.

All building permit applications are electronic and can be applied for online with a valid CCB license number or engineer/architect license at www.buildingpermits.oregon.gov . Each permit type and subpermit type are separate permits and will need to be applied for individually. Plans need to be uploaded to their specific permits in PDF format as a total plan set (not individual pages) if size allows.

Note: Plumbing and electrical plan reviews (when required) are done off site so two (2) paper copies will be required for those reviews only. Paper copies should be delivered to our office for processing.

Site utilities require a separate plumbing permit. This permit will require plumbing plan review so two (2) paper copies will be required for this review. Paper copies should be delivered to the Building Division office for processing. The grading plan submitted to the Engineering Department does not cover this review.

If you have any building related questions, please email us at building@milwaukieoregon.gov.

Additional Building Notes

Fire sprinklers and alarms as required by OSSC shall be provided throughout.

OTHER FEES

☐	**Construction Excise Tax** Affordable Housing CET – Applies to any project with a construction value of over 100,000.	**Calculation:** Valuation *12% (.12)
☐	**Metro Excise Tax** Metro – Applies to any project with a construction value of over $100,000.	**Calculation:** Valuation *.12% (.0012)
☐	**School Excise Tax** School CET – Applies to any new square footage.	**Calculation:** Commercial = $0.67 a square foot, Residential = $1.35 a square foot (not including garages)

FIRE DISTRICT COMMENTS

Please see the attached memorandum for fire district comments.

COORDINATION WITH OTHER AGENCIES

Applicant must communicate directly with outside agencies. These may include the following:

- Metro
- Trimet
- North Clackamas School District
- North Clackamas Parks and Recreation District (NCPRD)
- Oregon Parks and Recreation
- ODOT/ODOT Rail
- Department of State Lands
- Oregon Marine Board
- Oregon Department of Fish and Wildlife (ODOT)
- State Historic Preservation Office
- Clackamas County Transportation and Development

MISCELLANEOUS

	State or County Approvals Needed	
☐	**Boiler Approval (State)**	
☐	**Elevator Approval (State)**	
☐	**Health Department Approval (County)**	
	Arts Tax	
☐	**Neighborhood Office Permit**	

Other Right-of-Way Permits		
☒	Major: Construction	All accessway and frontage improvements must be completed under a right-of-way permit.
☐	Minor:	
☐	Painted Intersection Program Permits:	
	☐ artMOB Application	
	☐ Traffic Control Plan (Engineering)	
☐	Parklet:	
	☐ Parklet Application/ Planning Approval	
	☐ Engineering Approval	
	☐ Building Approval	
☐	Sidewalk Café:	
☐	Tree Removal Permit:	A tree removal permit is required for any tree being removed in the right-of-way. No tree may be removed until the completion of a two-week posting period.

Infrastructure/Utilities

Applicant must communicate directly with utility providers. These may include the following:

- PGE
- NW Natural
- Clackamas River Water (CRW)
- Telecomm (Comcast, Century Link)
- Water Environmental Services (WES)
- Garbage Collection (Waste Management, Hoodview Disposal and Recycling)

Economic Development/Incentives

☐	Enterprise Zone:	
☐	Vertical Housing Tax Credit:	
☐	New Market Tax Credits:	
☐	Housing Resources:	

PLEASE SEE NOTE AND CONTACT INFORMATION ON THE FOLLOWING PAGE

This is only preliminary preapplication conference information based on the applicant's proposal, and does not cover all possible development scenarios. Other requirements may be added after an applicant submits land use applications or building permits. City policies and code requirements are subject to change. If a note in this report contradicts the Milwaukie Municipal Code, the MMC supersedes the note. If you have any questions, please contact the City staff that attended the conference (listed on Page 1). Contact numbers for these staff are City staff listed at the end of the report.

Sincerely,

City of Milwaukie Development Review Team

BUILDING DEPARTMENT		
Samantha Vandagriff	Building Official	503-786-7611
Harmony Drake	Permit Specialist	503-786-7623
Stephanie Marcinkiewicz	Inspector/Plans Examiner	503-786-7636
ENGINEERING DEPARTMENT		
Steve Adams	City Engineer	503-786-7605
Dalton Vodden	Associate Engineer	503-786-7617
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PLANNING DEPARTMENT		
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Brett Kelver	Associate Planner	503-786-7657
Vera Kolias	Associate Planner	503-786-7653
Mary Heberling	Assistant Planner	503-786-7658
COMMUNITY DEVELOPMENT DEPARTMENT		
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Alison Wicks	Development Programs Manager	503-786-7661
Alicia Martin	Administrative Specialist II	503-786-7600
Tempest Blanchard	Administrative Specialist II	503-786-7600
Dan Harris	Administrative Specialist II	503-786-7600
CLACKAMAS FIRE DISTRICT		
Mike Boumann	Lieutenant Deputy Fire Marshal	503-742-2673
Matt Amos	Fire Inspector	503-742-2660

Clackamas County Fire District #1
Fire Prevention Office

E-mail Memorandum

To: City of Milwaukie Planning Department

From: Matt Amos, Fire Inspector, Clackamas Fire District #1

Date: 12/05/2020

Re: Waverley Woods 10415 SE Waverley Ct. 20-003PA

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. When buildings are completely protected with an approved automatic fire sprinkler system, the requirements for fire apparatus access and water supply may be modified as approved by the fire code official. The following items should be addressed by the applicant:

COMMENTS:

A Fire Access and Water Supply plan is required for subdivisions and commercial buildings over 1000 square feet in size or when required by Clackamas Fire District #1. The plan shall show fire apparatus access, fire lanes, fire hydrants, fire lines, available fire flow, FDC location (if applicable), building square footage, and type of construction. The applicant shall provide fire flow tests per NFPA 291, and shall be no older than 12 months. Work to be completed by experienced and responsible persons and coordinated with the local water authority.

Prior to the start of the project, a pre-construction meeting shall be held with Clackamas Fire District #1. The project manager/contractor is responsible for developing a written fire safety program. This program shall be made available for review by Clackamas Fire District #1. The plan should address the following:

- **a. Good Housekeeping**
- **b. On-site security**
- **c. Fire protection systems**
  - **i. For construction operations, installation of new fire protection systems as construction progress**
  - **ii. For demolition operations, preservation of existing fire protection systems during demolition**
- **d. Development of a pre-fire plan with the local fire department**

e. Consideration of special hazards resulting from previous occupancies
f. Protection of existing structures and equipment from exposure fires resulting from construction, alteration and demolition operations.

For additional information please refer to the Oregon Fire Code Chapter 33, and NFPA 241.

Emergency responder radio coverage must be tested or provided due to the following

1. **Any building with one or more basement or below-grade building levels.**
2. **Any underground building.**
3. **Any building more than five stories in height.**
4. **Any building 50,000 square feet in size or larger.**
5. **Any building that, through performance testing, does not meet the requirement of section 510.**

Access:

1) Provide address numbering that is clearly visible from the street.
2) No part of a building may be more than 150 feet from an approved fire department access road.
3) Provide an approved turnaround for dead end access roads exceeding 150 feet in length.
4) Fire Department turnarounds shall meet the dimensions found in the fire code applications guide.
5) Fire apparatus access roads must support a 75,000 lb. fire apparatus. If a gravel turnaround is proposed it shall meet this requirement.
6) Buildings exceeding 30 feet in height shall require extra width and proximity provisions for aerial apparatus.
7) Access streets between 26 feet and less than 32 feet in width must have parking restricted to one side of the street. Access streets less than 26 feet in width must have parking restricted on both sides of the street. No parking restrictions for access roads 32 feet wide or more.

Water Supply

1) Fire Hydrants, Commercial Buildings: Where a portion of the building is more than 400 feet from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the building, on-site fire hydrants and mains shall be provided.

Note: This distance may be increased to 600 feet for buildings equipped throughout with an approved automatic sprinkler system.

2) All new buildings shall have a firefighting water supply that meets the fire flow requirements of the Fire Code. Maximum spacing between hydrants on street frontage shall not exceed 500 feet. Additional private on-site fire hydrants may be required for larger buildings.
3) Prior to the start of combustible construction required fire hydrants shall be operational and accessible.
4) The fire department connection (FDC) for any fire sprinkler system shall be placed as near as possible to the street, and within 100 feet of a fire hydrant.

Fire Safety During Construction

The purpose of this document is to outline the minimum requirements in Clackamas Fire District #1 for subdivisions and commercial buildings during construction, alteration, and demolition. The following items, along with the requirements on OFC Chapter 33, and NFPA 241 will be inspected and enforced by the fire district during activities regulated by the referenced standards.

Fire Safety Program: In accordance with NFPA 241 Chapter 7 a fire safety program shall include provisions for: Housekeeping, on-site security, fire protection systems, pre fire coordination with the fire district, fire district notification, protection of existing structures and equipment from exposure fires.

Temporary Offices and Sheds: Separation of the structures shall be in accordance with table 4.2.1 in NFPA 241.

Table 4.2.1 Separation Distances

Temporary Structure Exposing Wall Length		Minimum Separation Distance	
m	ft	m	ft
6	20	9	30
9	30	11	35
12	40	12	40
15	50	14	45
18	60	15	50
>18	>60	18	60

Hot Work: Shall be conducted in accordance with OFC Chapter 35. Permits are not required, but records of the operations should be maintained on site for 48 hours after the hot work has been completed. The fire district shall be notified prior to any hot work operation that will required fire protection or detection systems to be taken out of service. A fire watch is required in areas with combustible materials, and shall continue for no less than 30 minutes after operations are completed, or two hours after roofing operations. The fire watch

shall have a fire extinguisher with a rating of not less than 2-A:20-B:C within 30 feet of the operation. A pre hot work check shall be completed prior to work.

Access: Approved access for fire fighting shall be provided within 100 feet of all fire fighting equipment. (Stand Pipes, FDC's, Hydrants)

Water Supply: Hydrants shall be in service, and available for use prior to the arrival of combustible material on site.

Standpipes: In buildings required to have stand pipes, not less than one shall be provided for use during construction. Hose connections shall be in place adjacent to stairs, and be extended to within one floor of the highest point of construction.

Means of Egress: In buildings greater than 50 feet, or 4 stories in height, shall have at least one temporary **Lighted** stairway. This stairway shall remain clear of obstructions and be readily available for use.

Portable Fire Extinguishers: Structures under construction, alteration, and demolition shall be provided with not less than one 2-A:10-B:C portable fire extinguisher within 75 feet of all portions of the building. Additional fire extinguishers shall be placed at each stairway where combustible materials are present, in every storage shed. Additional fire extinguishers shall be available for other hazardous operations.

Waste Disposal: Accumulations of combustible waste shall be removed for the structure at the end of every work shift.

Storage of Flammable and Combustible Liquids and Gasses: No more than 60 gallons of Class I and II liquids shall be stored in or within 50 feet of the structure. Storage areas shall be marked with "No Smoking" signs. Appropriate NFPA 704 placards shall be in place.

For Additional Information Please Refer to the Following:

Temp Heating equipment OFC Section 3303, NFPA 241 Section 5.2

Smoking Restrictions OFC 3304, NFPA 241 Section 5.3

Explosive Materials OFC 3307, NFPA 241 Section 5.6

Roofing Operations OFC 3317, NFPA 241 Chapter 9

Suggested Canopy Trees for the Yard

Categories	Botanic name	Common name
Western US - Evergreen	*Abies bracteata*	Bristlecone fir
	Abies concolor	White fir
	Abies grandis	Grand fir
	Arbutus arizonica	Arizona madrone
	Arbutus menziesii	Madrone
	Calocedrus decurrens	Incense cedar
	Chamaecyparis lawsoniana	Port Orford cedar
	Hesperocyparis abrahmsiana	Santa Cruz Cypress
	Hesperocyparis arizonica	Arizona cypress
	Hesperocyparis bakeri	Baker cypress
	Hesperocyparis forbesii	Tecate cypress
	Hesperocyparis sargentii	Sargent's cypress
	Juniperus californica	California juniper
	Juniperus occidentalis	Western juniper
	Notholithocarpus densiflorus	Tanoak
	Prunus ilicifolia	Hollly-leaf cherry
	Pseudotsuga menziesii	Douglas-fir
	Sequoia sempervirens	Coast redwood
	Sequoiadendron giganteum	Giant sequoia
	Taxus baccata	Pacific yew
	Torreya californica	California nutmeg
	Umbellularia californica	Oregon myrtle

Western US - Deciduous	*Acer macrophyllum*	Big-leaf maple
	Aesculus californica	California buckeye
	Alnus rhombifolia	White alder
	Celtis reticulata	Net-leaf hackberry
	Juglans californica	Southern California walnut
	Juglans hindsii	Northern California walnut
	Platanus racemosa	California sycamore
Western US - Oaks	*Quercus arizonica*	Arizona white oak
	Quercus chrysolepsis	Canyon live oak
	Quercus douglasii	Blue oak
	Quercus engelmannii	Engelmann oak
	Quercus garryana	Oregon white oak
	Quercus kelloggii	Black oak
	Quercus lobata	Valley oak
	Quercus oblongifolia	Arizona blue oak
	Quercus tomentella	Island oak
	Quercus wislizeni	Interior live oak

Western US - Pines	*Pinus contorta*	Shore or Lodgepole pine
	Pinus coulteri	Coulter pine
	Pinus jeffreyi	Jeffrey pine
	Pinus lambertiana	Sugar pine
	Pinus ponderosa Willamette Valley variety	Ponderosa pine
	Pinus sabiniana	Ghost pine
	Pinus torreyana	Torrey pine
Mediterranean Basin	*Abies pinsapo*	Spanish fir
	Alnus cordata	Italian alder
	Arbutus unedo	Strawberry tree
	Carpinus betulus	European hornbeam
	Castanea sativa	Spanish chestnut
	Cedrus libani	Mediterranean cedar
	Cupressus sempervirens	Italian cypress
	Fagus sylvatica	European beech
	Laurus nobilis	Bay laurel
	Olea europaea	Olive tree
	Pinus halapensis	Allepo pine
	Pinus nigra	Black pine
	Pinus pinaster	Maritime pine
	Pinus pinea	Italian stone pine
	Quercus ilex	Holly oak
	Quercus pubescens	Downy oak
	Quercus suber	Cork oak

Others	*Cedrus deodara*	Deodar cedar
	Chamaerops humilis	Mediterranean fan palm
	Ginkgo biloba	Ginkgo
	Metasequoia glyptostroboides	Dawn redwood
	Taxodium distichum	Bald cypress
	Trachycarpus fortunei	Windmill palm

720 SW Washington St.
Suite 500
Portland, OR 97205
503.243.3500
www.dksassociates.com

Date: September 25, 2020

Request: Milwaukie Waverly Woods Apartments Transportation Impact Study Review

Reviewer: Reah Flisakowski and Amanda Deering, DKS Associates P14167-024

DKS Associates has reviewed the updated transportation impact analysis (TIA) for the Milwaukie Waverly Woods Apartments[1]. The proposed development is located at 10415 SE Waverly Court, northeast of the large Waverly Greens Apartment complex in Milwaukie, Oregon. The project would construct several multi-story buildings to include 100 multi-family apartments in the initial development and an additional 32 apartment units under future phases of development. The study area is currently undeveloped. The general comments and recommendations are based on review of the transportation impact analysis (TIA) materials.

TRANSPORTATION IMPACT ANALYSIS SUMMARY

Key findings from the transportation impact analysis include:

- The proposed project would result in the following estimated net increase in motor vehicle trip generation: 45 (12 in/33 out) weekday AM peak hour vehicle trips, 58 (35 in/23 out) weekday PM peak hour trips. Added daily trips are estimated at 359 trips. The estimates are based on applying ITE trips rate (Land Use Code 221) for Multifamily Housing (mid-rise).
- Traffic operations were analyzed for existing conditions (year 2020) and forecasted conditions (year 2021), when construction of the proposed development is anticipated to be complete. Operations analysis was performed for the AM and PM peak hours at six study intersections, including two new accesses off Lava Drive and Waverly Court.
- Since current traffic counts could not be collected, historic 2014 counts were used to estimate 2020 existing counts. A 2.7% annual growth rate was applied over six years (2014 to 2020) for

[1] Milwaukie Waverly Woods Apartments Transportation Impact Analysis, Kittelson & Associates, September 11, 2020.

the AM peak hour. A 2.7% annual growth rate was applied over four years (2014 to 2018) for the PM peak hour. No growth was assumed from 2018 to 2020 based on PM peak hour signal detector data at two study intersections along 17th Avenue.

- An annual growth rate of 2.7% for AM peak period and 0% for the PM peak period was applied to 2020 existing volumes to estimate 2021 background volumes. No additional trips from in-process developments were included in background volume.
- Trip distribution figures with percentages of distribution and assigned new site trips were provided. Trip distributions were developed based on existing traffic count patterns.
- All study intersections were found to operate at an acceptable level of service through the 2021 AM and PM peak hours with full buildout of the proposed development.
- The proposed site driveway would meet the City's spacing standard of 100 feet for local streets due to the property location on a corner. However, the driveway on Waverly Court was shown to be offset from the existing Waverly Greens driveway on the opposite side of the street. The two driveways were not aligned due to safety concerns with the significant upward grade at this location.
- Both proposed new driveway at Lara Drive and Waverly Court were found to meet stopping sight distances but intersection sight distance for turning vehicles was not met for the Waverly Court driveway.
- A total of 193 on-site parking spaces were provided, as a combination of first floor building parking and surface level parking. The parking supply analysis was found to be adequate. No street parking was assumed in the analysis.
- The study identified pedestrian connections and facilities that would be made on site and provided descriptions of nearby schools.
- Transit service in the area is provided by TriMet bus route 70 with two bus stops located on 17th Avenue, near Lava Drive. Multiple transit connections are available in the Milwaukie downtown core, located about half a mile from the site.
- No significant safety issues were found from the review of the last five years of available collision data at study intersections.

RECOMMENDATIONS

The following recommendations should be considered in developing conditions of approval for the proposed development:

- Minimum AASHTO sight distance requirements should be met at the proposed driveways. These should be approved by the City Engineer prior to final site plan approval.
- The final site plan should be approved by the City Engineer prior to construction.

Oregon
Kate Brown, Governor

Department of Transportation
Region 1 Headquarters
123 NW Flanders Street
Portland, Oregon 97209
(503) 731.8200
FAX (503) 731.8259

October 1, 2020 ODOT #11827

ODOT Response

Project Name: Waverly Woods Apartments	**Applicant:** Philip Krueger, YGH Architecture
Jurisdiction: City of Milwaukie	**Jurisdiction Case #:** PD-2020-001
Site Address: 10415 SE Waverly Ct Milwaukie, OR	**Legal Description:** 11E26DC **Tax Lot(s):** 02100, 02200, 02400
State Highway: OR 99E, OR 224	**Mileposts:** 5.72, -0.02

The site of this proposed land use action is in the vicinity of OR 99E and OR 224. ODOT has permitting authority for these facilities and an interest in ensuring that this proposed land use is compatible with their safe and efficient operation.

COMMENTS/FINDINGS

ODOT has reviewed the submitted land use application materials for the proposed 100-unit, multi-family apartment development. The proposal includes four residential buildings, a community center with swimming pool, and a community room built over three phases. ODOT reviewed the submitted Traffic Impact Analysis (TIA) prepared by Kittelson & Associates and has the following comments:

Crash History Analysis – According to the TIA (Table 3), the intersection of SE 17th Avenue – SE Harrison Street/OR-99E experienced a high number of total crashes where the majority were turning and/or angle crashes with high injury severity. The intersection is reported to be within the top ten percent of ODOT Safety Priority Index System (SPIS) sites. The SPIS score is based on crash rate, frequency, and severity over the prior three calendar years. Higher SPIS scores indicate higher potential safety needs for the identified roadway segment. As such, ODOT recommends that the applicant be required to evaluate the contributing factors to the high number of crashes in more detail and potentially identify improvements to reduce the likelihood of crashes.

Year 2021 Queuing Analysis – According to the TIA (Table 9), the northbound left movement (NBL) at the intersection of SE 17th Avenue – SE Harrison Street/OR-99E is experiencing inadequate queue storage during the weekday AM peak hour. The inadequacy of queue storage may be a contributing factor to the high number of crashes at this intersection. ODOT recommends that the applicant be required to evaluate the queueing demands at this intersection and identify potential improvements to address the queueing demand.

Please send a copy of the Staff Report and/or Notice of Decision including conditions of approval to:

ODOT Region 1 Planning
Development Review
123 NW Flanders St
Portland, OR 97209

ODOT_R1_DevRev@odot.state.or.us

Development Review Planner: Kate Hawkins	503.731.3049 kate.w.hawkins@odot.state.or.us
Traffic Contact: Avi Tayar, P.E.	503.731.8221 abraham.tayar@odot.state.or.us
District Contact: District 2B	d2bup@odot.state.or.us

KITTELSON & ASSOCIATES
851 SW 6th AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

MEMORANDUM

Date:	October 9, 2020	Project #: 24832
To:	Vera Kolias, AICP, and Steve Adams, PE – City of Milwaukie Kate Hawkins and Avi Tayar, PE – ODOT Region 1	
Cc:	Phil Krueger, AIA, LEED AP BD+C – YGH Architecture Scott Wyse – Walker Ventures LLC	
From:	Kristine Connolly, PE – Kittelson & Associates, Inc.	
Project:	Waverley Woods Apartments	
Subject:	Response to October 1, 2020 Review Comments from ODOT	

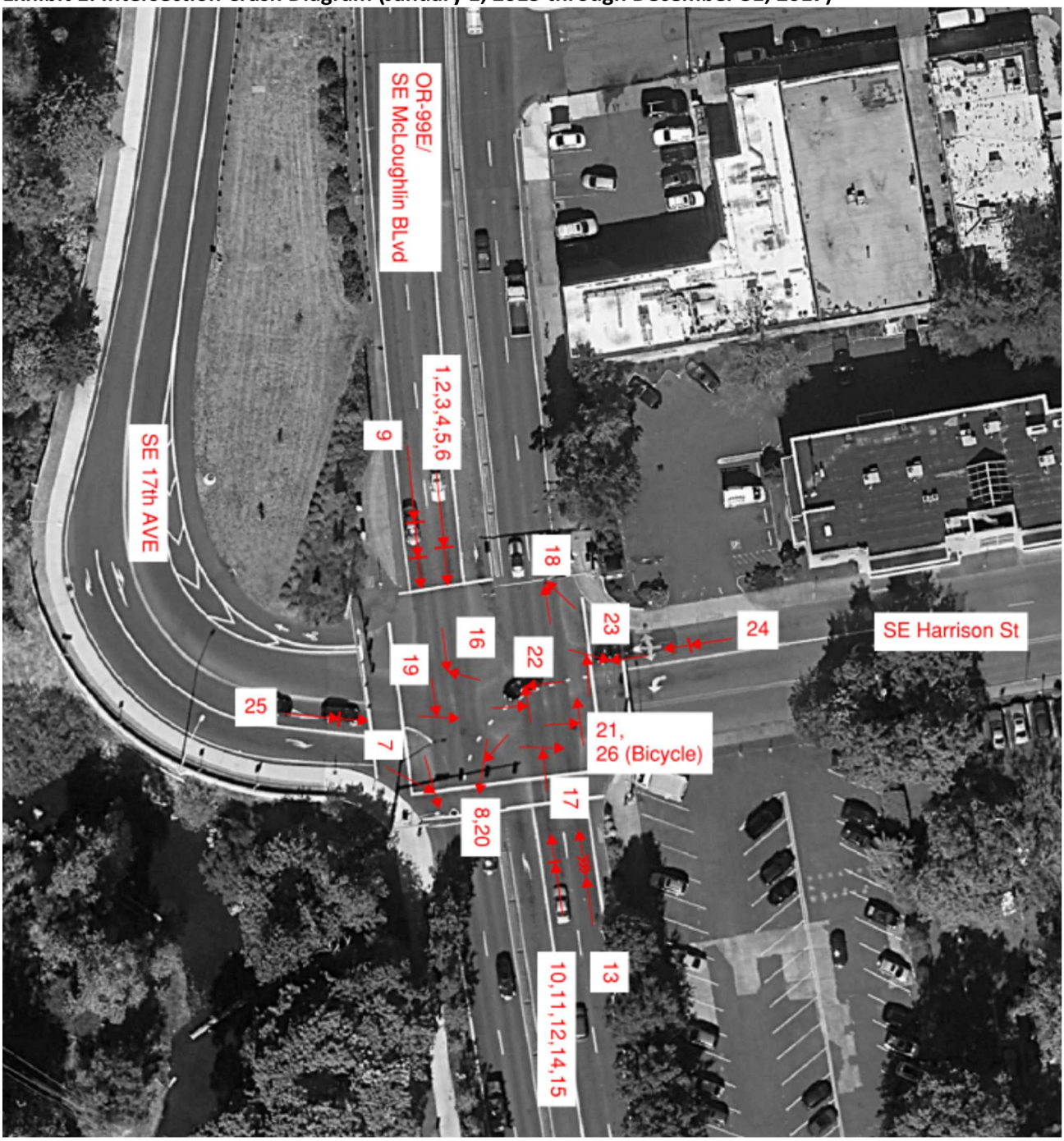
Kittelson & Associates, Inc. (KAI) received comments from ODOT on the Transportation Impact Analysis (TIA) for the Waverley Woods Apartments on October 1, 2020. The comments surrounded the crash history at the SE 17th Avenue/SE Harrison Street/OR-99E intersection and potential need for safety and/or queue storage mitigation. This memorandum summarizes the analysis presented in the TIA, and provides a supplemental analysis with more detail on crash type and direction.

The TIA noted that the SE 17th Avenue/SE Harrison Street/OR-99E intersection is listed within the top ten percent of ODOT Safety Priority Index System (SPIS) sites. However, the observed crash rate at the intersection (based on the most recent five years of reported crash data) is lower than the critical (or "expected") crash rate for the intersection configuration, control type, and total entering volume. Therefore, no safety-based mitigations were identified in the TIA.

ODOT recommended further evaluation of the intersection due to the high proportion of turning and/or angle crashes (38.5%) and injuries (61.5%).

- KAI reviewed the crash data in more detail and prepared the crash diagram in Exhibit 1 to illustrate the crash type and direction of each of the 26 crashes observed at the intersection between January 1, 2013 and December 31, 2017. Further details, including contributing factors, are included in Attachment A.
- Upon review of the crash type and direction shown in Exhibit 1, no clear trends were identified. There does not appear to be a significant proportion of crashes associated with the northbound left-turn movement and/or queue storage.

Exhibit 1. Intersection Crash Diagram (January 1, 2013 through December 31, 2017)



The TIA also identified that the AM peak hour queue for the northbound left-turn movement at the SE 17th Avenue/SE Harrison Street/OR-99E intersection exceeds available storage under 2021 Build Conditions. ODOT recommended further evaluation of the northbound left-turn queue storage.

- As noted in the TIA, queues under 2021 total traffic conditions for the northbound left-turn movement are within 10 feet of anticipated queues under 2021 background conditions. The proposed apartments add only 3 vehicles to the movement.

Based on this supplemental analysis, no additional mitigation is recommended at the SE 17th Avenue/SE Harrison Street/OR-99E intersection. Queuing conditions for the northbound left-turn movement are not significantly impacted by the proposed apartments, and do not appear to be a contributing factor to the crash history observed at the intersection. Therefore, mitigation of AM peak hour queues would be disproportionate to the site impact at the SE 17th Avenue/SE Harrison Street/OR-99E intersection.

Attachment A – Crash Details

Crash Num	Date	Time	Vehicle	Direction	Veh Movement	Crash Type	Weather	Time of Day	Action	Cause
1	11/14/2013	4:00 PM	1	N-S	Straight	Rear-End	Clear - Dry	Day	None	7 - Followed Too Close
			2	N-S	Stop					
2	2/4/2015	3:00 PM	1	N-S	Straight	Rear-End	Clear - Dry	Day	None	13 - Improper Lane Change
			2	N-S	Straight					35 - Road Rage
3	12/10/2015	2:00 AM	1	N-S	Straight	Rear-End	Rain - Wet	D Lit	None	7 - Followed Too Close
			2	N-S	Stop					29 - Failure to Avoid Vehicle Ahead
4	6/25/2016	9:00 AM	1	N-S	Straight	Rear-End	Clear - Dry	Day	None	29 - Failure to Avoid Vehicle Ahead
			2	N-S	Stop					
5	1/30/2017	1:00 PM	1	N-S	Straight	Rear-End	Cloudy - Dry	Day	None	29 - Failure to Avoid Vehicle Ahead
			2	N-S	Stop					
6	7/24/2017	5:00 PM	1	N-S	Straight	Rear-End	Clear - Dry	Day	None	29 - Failure to Avoid Vehicle Ahead
			2	N-S	Stop					
7	11/6/2016	9:00 PM	1	W-S	Right Turn	Turn	Cloudy -Wet	D Lit	None	8 - Improper Turn
			2	W-S	Right Turn					27 - Inattent Driver
8	7/26/2017	3:00 PM	1	E-S	Left Turn	Turn	Clear - Dry	Day	None	8 - Improper Turn
			2	E-S	Left Turn					14 - Disregarded Traffic Control Devices
9	12/21/2017	6:00 PM	1	N-S	Straight	Rear-End	Clear - Dry	Dark	None	29 - Failure to Avoid Vehicle Ahead
			2	N-S	Straight					
			3	N-S	Straight					
10	3/10/2013	9:00 AM	1	S-N	Straight	Rear-End	-	Day	None	7 - Followed Too Close
			2	S-N	Stop					
11	5/6/2013	3:00 PM	1	S-N	Straight	Rear-End	Clear - Dry	Day	None	7 - Followed Too Close
			2	S-N	Stop					
12	4/13/2016	10:00 AM	1	S-N	Straight	Rear-End	Cloudy - Dry	Day	None	29 - Failure to Avoid Vehicle Ahead
			2	S-N	Stop					
13	11/29/2016	1:00 PM	1	N-S	Back	Back	Clear - Dry	Day	None	10 - Improper Driving
			2	S-N	Stop					
14	12/28/2016	10:00 AM	1	S-N	Straight	Rear-End	Clear - Dry	Day	None	29 - Failure to Avoid Vehicle Ahead
			2	S-N	Stop					
15	1/19/2017	9:00 AM	1	S-N	Straight	Rear-End	Wet	Day	None	29 - Failure to Avoid Vehicle Ahead
			2	S-N	Stop					
16	9/15/2015	7:00 PM	1	N-S	Straight	Turn	Cloudy - Dry	Dusk	None	4 - Disregarded Traffic Signal
			2	S-W	Left Turn					
17	6/15/2013	3:00 PM	1	S-N	Straight	Angle	Clear - Dry	Day	None	4 - Disregarded Traffic Signal
			2	W-E	Straight					
18	1/13/2017	6:00 PM	1	S-N	Straight	Turn	Clear - Ice	D Lit	None	1 - Driving Fast for Conditions
			2	E-N	Right Turn					4 - Disregarded Traffic Signal
19	7/18/2014	7:00 PM	1	N-S	Straight	Angle	Clear - Dry	Day	None	4 - Disregarded Traffic Signal
			2	W-E	Straight					
20	5/24/2016	2:00 PM	1	E-S	Left Turn	Turn	Clear - Dry	Day	None	8 - Improper Turn
			2	E-S	Left Turn					
21	6/28/2013	11:00 AM	1	W-E	Straight	Angle	Clear - Dry	Day	Fatigued Driver	4 - Disregarded Traffic Signal
			2	S-N	Straight					16 - Fatigued Driver
22	5/27/2014	6:00 PM	1	W-E	Straight	Angle	Clear - Dry	Day	None	4 - Disregarded Traffic Signal
			2	S-N	Straight					
			3	E-W	Stop					
23	2/6/2017	1:00 PM	1	S-N	Straight	Turn	Cloudy - Wet	Day	None	2 - Parked Vehicle
			2	N-E	Left Turn					4 - Disregarded Traffic Signal
			3	E-W	Stop					8 - Improper Turn
24	5/10/2016	1:00 PM	1	E-W	Straight	Rear-End	Clear - Dry	Day	None	29 - Failure to Avoid Vehicle Ahead
			2	E-W	Stop					
25	6/9/2013	1:00 PM	1	W-E	Straight	Rear-End	Clear - Dry	Day	None	7 - Followed Too Close
			2	W-E	Stop					
26	4/20/2016	6:00 PM	1	W-E	Straight	Angle	Rain - Wet	Day	Distracted	27 - Inattent Driver
			2 (Bicycle)	S-N	Straight					

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October 15, 2020 ODOT #11827

ODOT Response

Project Name: Waverly Woods Apartments	**Applicant:** Philip Krueger, YGH Architecture
Jurisdiction: City of Milwaukie	**Jurisdiction Case #:** PD-2020-001
Site Address: 10415 SE Waverly Ct Milwaukie, OR	**Legal Description:** 11E26DC **Tax Lot(s):** 02100, 02200, 02400
State Highway: OR 99E, OR 224	**Mileposts:** 5.72, -0.02

The site of this proposed land use action is in the vicinity of OR 99E and OR 224. ODOT has permitting authority for these facilities and an interest in ensuring that this proposed land use is compatible with their safe and efficient operation.

COMMENTS/FINDINGS

ODOT has reviewed the submitted land use application materials for the proposed 100-unit, multi-family apartment development. The proposal includes four residential buildings, a community center with swimming pool, and a community room built over three phases. ODOT reviewed the submitted Traffic Impact Analysis (TIA) prepared by Kittelson & Associates, Inc. (KAI) and the supplemental response dated October 1, 2020.

We agree with KAI's findings in their supplemental analysis. While there may be concerns with queues and crashes at the intersection of SE 17th Avenue/ SE Harrison Street/OR-99E, the proposed development does not appear to have a significant impact on these conditions and no additional mitigation is necessary. Thank you for the opportunity to review.

Please send a copy of the Staff Report and/or Notice of Decision including conditions of approval to:

ODOT Region 1 Planning
Development Review
123 NW Flanders St
Portland, OR 97209

ODOT_R1_DevRev@odot.state.or.us

Development Review Planner: Kate Hawkins	503.731.3049 kate.w.hawkins@odot.state.or.us
Traffic Contact: Avi Tayar, P.E.	503.731.8221 abraham.tayar@odot.state.or.us
District Contact: District 2B	d2bup@odot.state.or.us

From:	Richard Recker
To:	Vera Kolias
Cc:	Milwaukie Planning; philk@ygh.com
Subject:	Public Comment: PD-2020-001
Date:	Monday, October 12, 2020 12:42:11

This Message originated outside your organization.

Ms. Kolias:

I am in receipt of a notice of public hearing regarding proposed development at 10415 SE Waverley Ct. in Milwaukie. I am a neighbor of the site proposed for development and a long-time Milwaukie resident - and supporter.

There is no doubt that the property owner [Wyse family] and proposed project designers [YGH Architecture] have gone to all measures to make sure their proposal meets all MINIMUM requirements for approval. I have not the means, time or emotional energy to explore whether there are any grounds to encourage Milwaukie to go/pause/stop this development.

That said, against the backdrop that is Milwaukie - your steadily emerging commitment to being a 'Sustainable City', and the year 2020 - a season in which environmental and social justice have been at the forefront of our minds, I pose a couple topics for reflection and policy consideration:

1. Economics - How does Milwaukie evaluate a development proposal relative to the economic impacts to the citizens - current and future? What metrics are used? What characteristics are weighted to make sure the inherent wealth and assets of this community remain steady or are enriched by any new development proposal?

For example, Does the Wyse family live in Milwaukie? So, their financial gains in a housing development and another half-century of rent - in which no local resident builds equity and financial momentum of their own - can 'trickle-down' to others in the community with their own spending, contracting, etc. Will they buy a cup of coffee at Starbucks or Wind Horse?

2. Equity - How does Milwaukie measure the relative merits of this proposal toward our current and rhetorical pledges toward equity in the immediate and long-term future?

The current apartments are occupied almost exclusively by people of privilege - white, middle class or higher, etc. in a development that has been here for decades. Change tends to happen at transactional times, like NOW. It seems far more difficult to apply new standards to an existing development that helps us embrace our City's interest in being a place of inclusion and equal opportunity, than in screening NEW projects that still have time to integrate these important principles into the 'architecture' of construction and operations.

3. Natural Environment - How does Milwaukie gauge new development proposals for their potential in restoring and enhancing our local natural environment - as well as our proportional responsibility to the global community facing life-altering climate change?

I received a personal note from the Wyse family, encouraging me to consider - and I suspect SUPPORT - their proposal for expansion here. It included highlighting a few perks that would benefit ALL residents in the larger Waverley complex. I, for one, would rather their proposal helped make the Willamette swimmable than be able to find a new curly slide at one of our campus chlorinated pools. And happily share it with other users in and visiting Milwaukie, rather than greedily holding our assets behind locked fences.

In summary, please DO NOT respond to these questions directly. Share them amongst yourselves and the Wyse family. Stare at yourselves in a mirror, long and hard while you ponder the question, "Am I personally doing all that I can do to make sure Milwaukie - my known neighbors and residents generations from now" will be grateful for those of us who made the choice to approve, refine or reject a proposal for new 'development'.

In the end, we cannot legislate, litigate, or buy our way to a sustainable city or planet. It has to be an ethic that guides our everyday personal choices - in profession, in community with others, and in reconciling our character.

I am hopeful for a Milwaukie in the future that will make decisions based on transformation to benefit all - not simply marginal gains or minimal erosion. Join me there someday.

Rich

Rich Recker
503.807.1653 Cell/Text
"Oh, the places you will go!" - Seuss, Ph.D

From: Milwaukie Planning
To: Vera Kolias
Subject: FW: PD-2020-001 - 10415 SE Waverly Ct. - Questions for Oct. 27, 2020 video meeting
Date: Tuesday, October 13, 2020 16:49:26

Hello Vera,

I wanted to send this as FYI. Also, I forwarded Rosie's email to Tempest for the Planning Commissioners.

J

From: Rosie M. <snowlion00@hotmail.com>
Sent: Tuesday, October 13, 2020 4:04 PM
To: Milwaukie Planning <Planning@milwaukieoregon.gov>
Subject: PD-2020-001 - 10415 SE Waverly Ct. - Questions for Oct. 27, 2020 video meeting

This Message originated outside your organization.

As a resident of Building A of Shoreside East Condominiums, with the southern border of the above development directly in front of my (second floor) front door and probably only 50 feet away across Lava Drive, I have some concerns that I'd like to see the Planning Commission address as they consider this project.

Here are the questions I'd ask of the project managers:

1. Do they plan to use Lava Drive as the ingress/egress road during any of the stages of the development? (Considering the brush/trees that would have to be cleared; the preparation of the site for utilities and foundations; the need to haul away and bring in dirt, rocks, etc.; that's no doubt a need for heavy machinery, and lots of vehicles.)
2. If they are not going to use Lava Drive as the primary road, what's the plan, and will they use Lava Drive at all?

I do have other concerns, but I'll watch the meeting and see how it goes before I ask any other questions. But I thought the main question of how they plan to access the property during the project might be important.

Thank you.

Rosie McGee
Resident
Shoreline East Condominiums
1400 SE Lava Drive, Building A

From: Merrie Loboy
To: Vera Kolias
Subject: Waverly Woods proposed multi-unit development
Date: Tuesday, October 13, 2020 11:56:19

This Message originated outside your organization.

I live at Shoreside East Condominiums across Lava Drive from the proposed development.
I hope that if approved, the developer would be required to improve the condition of the Lava Drive road west of Waverly Court. The current road bed has degraded over the years and has no curbing, drainage or sidewalks. Increased traffic on this road would add to its disintegration.
Thank you for taking feedback on this proposal.

Merrie Loboy
1400 SE Lava DR #18
Milwaukie, Oregon 97222
503-654-2368

From: Steve Reaume
To: Vera Kolias
Subject: Re: Waverly Woods development
Date: Wednesday, October 14, 2020 14:05:51

This Message originated outside your organization.

Vera, I am a homeowner immediately adjacent to the Waverley Woods development. I am concerned about the density, Height and set backs to the development. If something of this nature is going to be approved, it needs to have as little impact to the neighbors as possible. Not exactly sure why the development is pushed so close to Cambridge Lane. This very huge development will have a viable impact on the value of my property. This is a single family home neighborhood. We need privacy from the project. No access to our part is acceptable. The developers need to reduce density on our side of the property. Increase the setbacks to Cambridge and our driveway that is adjacent to the property and plant a number of large trees to block out the development.
I would like to know when and where we can comment on this.

Steve Reaume
10240 SE Cambridge Lane

Steve Reaume Principal Broker
Cambridge Realty Advisors LLC
503 703 3907 cell
steve@cra-pdx.com
Licensed in Oregon, Washington & California

From: Gloria Stone <gstoneconsult@comcast.net>
Sent: Wednesday, October 14, 2020 10:38 AM
To: Justice <justiceplj@gmail.com>; Steve Reaume <steve@cra-pdx.com>; Megan <mey6661@yahoo.com>
Subject: Fwd: Waverly Woods development

More info to bring u up to date

Sent from my iPhone

Begin forwarded message:

From: Gloria Stone <gstoneconsult@comcast.net>

October 13, 2020

City Of Milwaukie

Planning Commission

To Whom it may concern:

Reference: PD-2020-001; TFR-2020-002; WG-2020-001; PLA-2020-001; ZC-2020-001

My husband and I are nearly 50 year owners of the home we built on Tax Lot 2000 in the Waverley Heights neighborhood. We are immediately adjacent on the entire northern perimeter to the proposed development designated as Waverly Woods. As a result, our lives and our property are significantly impacted by the extent of the proposed apartment complex. Additionally, the Waverley Heights neighborhood has intentionally maintained a forested, natural setting with lot sizes generally from an acre to five acres. We ask that the Milwaukie Planning Commission and the City Council give serious consideration to our concerns and the impact this development will exert on our property and, further, to possible mitigation that can be applied to reduce that impact.

A broader comment regarding zoning is also appropriate. We believe that a basic tenant of legitimate land use planning requires appropriate transition and 'buffer' when R10 and R2 adjoins. This is a very basic concept held by the planning community. The ridge development is only 39 feet from our property line and 45 feet from our actual home. This is hardly an appropriate set-back in view of the difference in zoning and density. We ask the developer to review the following concerns and requests and work with our community to come to reasonable solutions for our mutual benefit.

1 - Barrier between zones: As a result of a 1969-1970 lawsuit, access to and from the project property into and out of the Waverley Heights neighborhood and across Cambridge Lane is prohibited and is restricted by a continuous chainlink fence to be maintained by the owner of the project. There must be no access under, over or around this barrier. In fact, the fence has not been properly maintained and is deteriorating. We urge that the property owner install and maintain a higher fence or impenetrable wall and/or dense, fast growing vegetation. Screening between the two zones is imperative.

2 - Greenspace and the Willamette Greenway: The applicant is asking for a Greenway variance from 3 story requirement inside the Greenway to requested 4 story. This variance should not be granted. Visual and environmental impact of a 4th story is significant as Milwaukie has discussed in past planning requests. Note further comments below.

3 - The property in question is a significant greenspace within Milwaukie both currently and historically. I am enclosing a copy of a bird and vegetation inventory. This inventory performed there and on adjacent Waverley Heights property is a significant natural resource for our city and is of importance in maintaining

the Urban Forest planning. We have worked continuously to maintain habitat and ask that the City and developer be specific about how they will work to maintain this resource. The existing tree canopy on this property includes older growth fir, maple, etc. Those trees take tens of years to reach maturity.

4 - Light and noise pollution: Pollution from this development will be significant given the size proposed. Our property is downhill (below grade) of this project and we will be greatly impacted. Current urban planning generally addresses these issues and the impact on communities and our general environment. Specifically, “dark sky standards and photometries” are elements of good planning. What steps is the developer taking to specifically address these issues?

5 - Solar access and views: For at least 6 months of the year the sun is low enough in the southern sky that a 4 story building will nearly totally obstruct our solar access. Again, we urge the city to maintain the 3 level building requirement. In addition, views from the river are significantly impaired and importantly, views from adjacent properties to the north will have views to the river blocked looking south.

6 - Water Drainage: Our property is downhill of the proposed project and of the topographical ridge and canyon existing on that property. Drainage from the site of Building B and downhill off the solid columbia river basalt (corriba) that constitutes the geology of the site is significant. This drainage has required that we install a catch basin and 6 inch drain pipe. Indeed, in winter months there is a constant stream of water from springs and/or storm water draining onto our property. With enhanced building, parking, etc on this property, there will be significant additional runoff. The current plans for drainage seem inadequate for the East and North sides of the property. There needs to be specific methodology developed as to how runoff water will be contained within the development.

We recognize the right of the owner to develop this property in accordance with local zoning laws and regulations. However, we expect the impact on neighboring properties by the large development as outlined above be mitigated. We would welcome the opportunity to meet with the owner or his representative and the City to discuss possible remedies to issues noted.

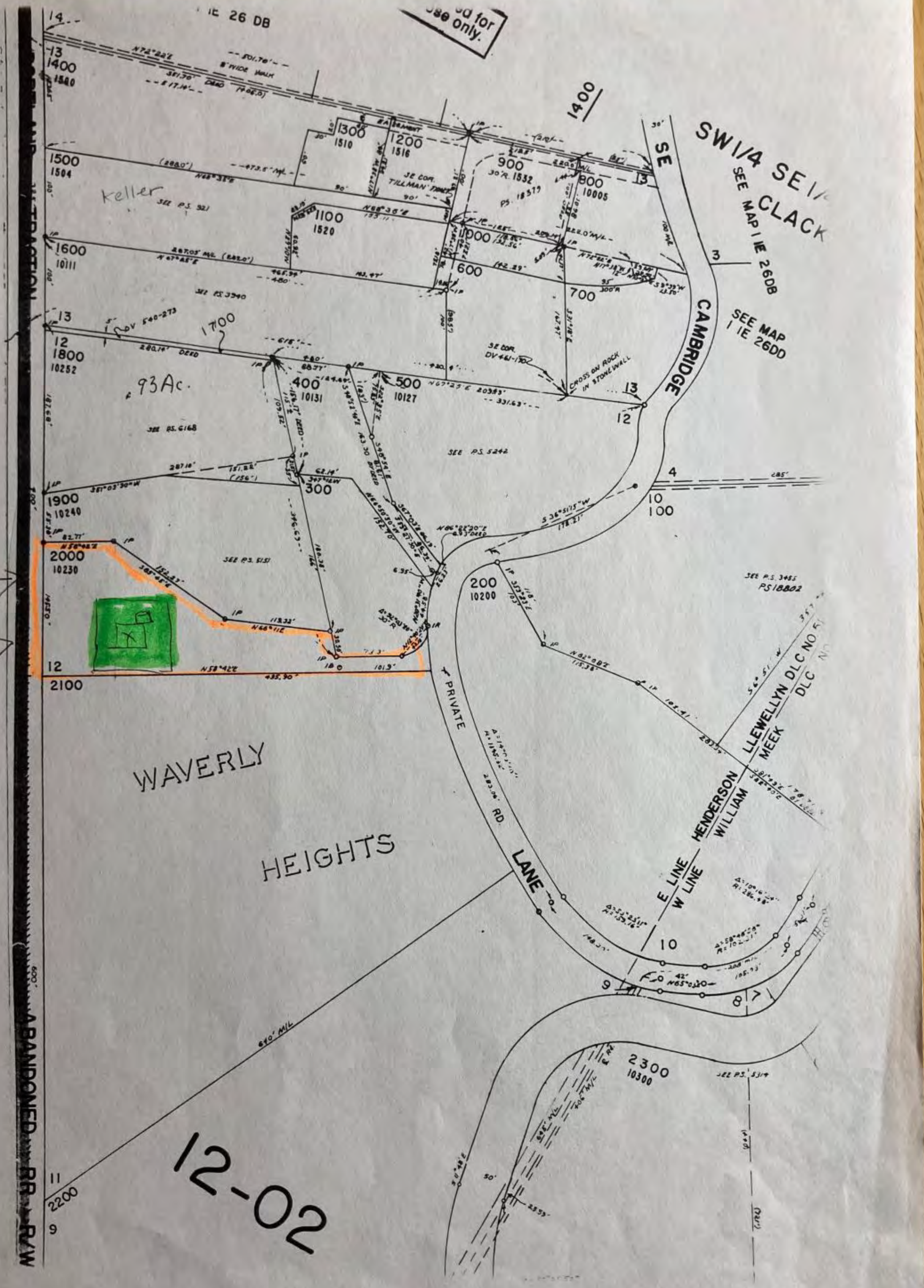
Sincerely,

Steve and Gloria Stone

503-654-7409 home

503-730-8471 cell

Attachments: natural resource inventories, Lot maps, storm runoff photos


14
13
1400
1580
N72°22'E
501.70'
8' WIDE WALK
561.30'
DEED (498.0)
S 17.14'
1300
1510
1200
1516
1500
1504
(288.0')
N68°38'E
473.5' M/L
90'
SE COR. TILLMAN
Keller
SEE P.S. 321
1100
1520
N68°38'E
133.11'
1600
10111
287.05' M/L (282.0')
N 67°45'E
465.99'
480'
463.47'
SEE P.S. 3340
1700
5' DV 540-273
280.14' DEED
618'
12
1800
10252
93Ac.
400
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10127
N67°23'E 203.83'
331.63'
SEE P.S. 6168
SEE P.S. 5242
287.10'
151.82'
(156')
S61°03'30"W
1900
10240
300
62.14'
S43°18'W
N58°48'E
82.77'
2000
10230
SEE P.S. 6151
152.33'
S65°45'E
118.33'
N66°11'E
753'
1013'
N58°42'E
435.90'
2100
1000
32.56'
N72°22'E
142.29'
600
700
95'
300'R
S 9°39'W
43.70'
900
30'R. 1532
PS 18579
800
10005
SE
SW1/4 SE1/4
SEE MAP 1 IE 2608
CAMBRIDGE
SEE MAP 1 IE 2600
3
4
285'
10
100
CROSS ON ROCK IN STONEWALL
SE COR. DV 461-150
S 36°51'15"W
178.21'
N86°22'30"E
3.93' DEED
200
10200
SEE P.S. 3485
PS18802
N 82°08'E
115.38'
S 6°51'
LLEWELLYN DLC NO 51
MEEK
WILLIAM HENDERSON
E LINE
W LINE
PRIVATE
283.08' RD.
LANE
10
9
8
7
2300
10300
SEE P.S. 5314
50'
2553'
WAVERLY
HEIGHTS
640' M/L
11
2200
9
ABANDONED RR R/W
12-02
stone lot orange
stone home green

Sheet1 | Sheet2 | Sheet3

Bird Inventory

Turkey Vulture
Cooper's Hawk
Red-Tailed Hawk

Mourning Dove

Great Horned Owl
Screech Owl
Barred Owl

Anna's Hummingbird
Rufous Hummingbird

Hairy Woodpecker
Downy Woodpecker
Flicker
Red-Breasted Sapsucker
Piliated Woodpecker

Western Wood Peewee

Stellar Jay
Scrub Jay
American Crow

Black-capped Chickadee
Chestnut-sided Chickadee

Bushtit

Brown Creeper
Red-Breasted Nuthatch
White-Breasted Nuthatch

Bewick's Wren

Ruby-Crowned Kinglet
Golden-Crowned Kinglet
Swainson's Thrush
Robin
Varied Thrush

Cedar Waxwing

Wilson's Warbler
Townsend's Warbler
Yellow-Rumped Warbler
Western Tanager

Spotted Towhee
Song Sparrow
Golden-Crowned Sparrow
White-Throated Sparrow

Dark-eyed Junco

Black-Headed Grosbeak

Red-Winged Blackbird
Brown-Headed Cowbird

House Finch
Pine Siskin
American Goldfinch
Lesser Goldfinch
Evening Grosbeak

wildlife inventory

TOWNSEND'S CHIPMUNK
DOUGLAS SQUIRREL
FOX SQUIRREL - EUROPEAN
COYOTE
RACOON
OPOSSUM
miscellaneous woodland reptiles and mammals

uplands

Wildlife Habitat Assessment

18	Waverly Forest		65 . ..
UNIT NO.	LOCATION	SQ. FT.	SCORE

COMMENTS

COMPONENT		DEGREE	SCORE •	SCORE ••	COMMENTS
FOOD	Variety	LOW 0 ... MEDIUM 5 (5) ... HIGH 11	8		
	Quantity & Seasonality	NONE 0 ... LIMITED 5 ... YEAR AROUND 11	7		
	Proximity to Cover	NONE 0 ... NEARBY 5 ... IMMEDIATELY ADJACENT 11	11		
COVER	Structural Diversity	LOW 0 ... MEDIUM 5 ... HIGH 11	8		
	Variety	LOW 0 ... MEDIUM 5 ... HIGH 11	7		
	Nesting	LOW 0 ... MEDIUM 4 ... HIGH 8	6		
	Escape	LOW 0 ... MEDIUM 4 ... HIGH 8	7		
	Seasonality	NONE 0 ... LIMITED 4 ... YEAR AROUND 8	6		

• Existing •• Enhancement Potential

ADDITIONAL VALUE					
DISTURBANCE	PHYSICAL	PERMANENT 0 ... TEMPORARY 7 ... UNDISTURBED 4	1		
	HUMAN	HIGH 0 ... MEDIUM 7 ... LOW 4	2		
INTERSPERSION		LOW 0 ... MEDIUM 4 ... HIGH 9	2		
UNIQUE FEATURES 0 - 4		WILDLIFE FLORA SCENIC RARITY OF HABITAT TYPE EDUCATIONAL POTENTIAL			

CITY OF MILWAUKIE
• 10722 S.E. MAIN STREET •
MILWAUKIE, OREGON 97222

Developed With the Assistance of

Mike Houck-Audubon Society
Ralph Rogers-U.S. Army Corps of Engineers
Dennis Peters-U.S. Fish & Wildlife Service
Diana Hwang-U.S. Fish & Wildlife Service
Gene Herb-Oregon Dept of Fish & Game
Jack Hammer-Wetlands Conservancy

5.1 Page 329

5.1 Page 330

5.1 Page 331

October 20, 2020

To: Milwaukie Planning Commission
From: Patricia Justice
Re: Waverley Greens Apartments
File Numbers PD-2020-001; TFR-2020-002; WG-2020-001; PLA-2020-001; ZC-2020-001

I have lived in Waverly Heights at 10252 SE Cambridge Lane for 41 years. I have received and read a copy of Gloria and Steve Stone's letter with attachments, and I wish to add my support to each of their concerns.

What follows are my comments:

1. Historic Milwaukie NDA Meeting

From the Application for Land Use Action:
"Neighborhood District Associations (NDAs) and their associated Land Use Committees (LUCs) are important parts of Milwaukie's land use process."

From the Land Use Application
"The project did present the development plan to the Historic Milwaukie Neighborhood District Association and received a positive response. No additional advice or recommendations were made on the behalf of the Historic Milwaukie NDA for the project." (page 7)

Comment: The meeting of the Historic Milwaukie NDA took place July 13, 2020, three months prior to the Notice of Public Hearing, mailed October 7, 2020, which was when I first became aware of it. According to the Chair, Ray Bryan, there were no residents of Waverly Heights present, and it is our understanding that the few neighbors in attendance were residents of Waverley Greens. The visual impact of proposed 4-story apartment buildings adjacent to our neighborhood of single family homes cannot be overstated. As such, we should have a voice in this process in all available forums, and that voice was not heard at the NDA meeting.

I ask that the owners and/or the owner's rep meet with the residents of Waverly Heights to hear our concerns and recommendations and to work toward mutually beneficial solutions.

2. Willamette Greenway Zone

"Milwaukie Municipal Code 19.401.3 Limitations on Use
Prohibited Uses:
A. Commercial, industrial and residential structures and residential accessory structures exceeding 35 ft in height west of McLoughlin Blvd."

Comment: The project is within the Willamette Greenway Zone with a 35 foot height limit. This proposal requests an eye-popping 85% increase in height, from 35 to 65 feet in order to allow a fourth story on buildings A.1 and A.2 According to the proposal, "These two buildings are the farthest away and downhill from the public street, so the height and length increases will not have a significant visual impact to the surrounding community." (page 1) In addition the application states that "The proposed development

is consistent with the predominant land use pattern and density of the area as it is surrounded by existing multifamily apartment complexes." (page 5)

Waverly Heights is ignored when discussing visual impacts and land use patterns. This is puzzling. The property line for one residence is a mere 39 feet from building A.2. The visual impact of a 4-story building to our community will be significant and is not consistent with the density and land use pattern of Waverly Heights.

Please reject the request for a variance in height restriction in the Willamette Greenway, lowering buildings A1 and A2 from four stories to three stories.

3. Landscaping

"19.505.3.D Multifamily Design Guidelines and Standards

Landscaping of multifamily developments should be used to...buffer the development from adjacent properties.

c. On sites with a side or rear lot line that abuts an R-10, R-7, or R-5 Zone, landscaping, or a combination of fencing and landscaping, shall be used to provide a sight-obscuring screen 6 ft high along the abutting property line. Landscaping used for screening must attain the 6 ft height within 24 months of planting."

Comment: The proposal states that landscaping and screening will be provided per development standards. (page 8) There is no additional narrative addressing this critical topic. Reducing the height of specifically building A.2 will help. Another remedy to the transition of the area with apartments to the area of single family homes is through screening by planting mature trees and shrubs, in a height and density that will eliminate the visual impact of the apartments to the residents of Waverly Heights. This should be required.

I will not review the history of the chain link fence, since the Stones addressed it in their letter, other than to say that I agree with their statements.

The owners should be directed to work with the home owners to develop mutually agreeable screening, investigating all possible remedies, which may include a new fence.

4. Privacy Considerations

"19.505.3.D Multifamily Design Guidelines and Standards

Privacy Considerations: Multifamily development should consider the privacy of, and sight lines to, adjacent residential properties, and be oriented and/or screened to maximize the privacy of surrounding residences.

a. The placement of balconies above the first story shall not create a direct line of sight into the living spaces or backyards of adjacent residential properties."

I would like to see the residences in Waverly Heights closest to buildings B.2 and A.2 platted out on the same map as the platting of the apartment buildings. We need more visibility and proof that this will not happen.

5. Containment of Storm Water

I reviewed Page 45 (pdf) of applicant's proposal and traced the green storm drain lines. I am no expert, but they do not appear adequate to support the large volume of water running off that property and flowing onto land in Waverly Heights and ultimately down to the Club's property. With a warming planet, extreme precipitation events are possible, resulting in an even larger volume of water that will need to be contained.

This needs to be addressed to the level of satisfying the affected homeowners in Waverly Heights.

6. Barrier to Waverley Country Club Property

I am addressing this issue on my behalf only. At present it is difficult if not impossible to move on foot around the subject property. The proposal refers to this area as "unpassable." (page 6) Development of the property including walkable paths has the potential to increase the possibility of trespassing either by accident or deliberately onto the private property of the club. Since my property borders the club's property, I am always concerned about persons unknown to me gaining access to my property from the driving range.

One solution of course is to build a fence. But years ago the owners of Waverley Greens sent a letter dated September 19, 1988 to the Milwaukie Planning Commission addressing this very issue. From the letter:

"A living fence of some prickly shrub such as pyracantha will be planted along the entire boundary between Block 11 and the Waverley Country Club driving range. This fence will be both impenetrable and, with its orange berries, white blossoms in the spring and evergreen foliage, will be visually attractive from the driving range tees. The fence will keep anyone from wandering from the apartment property onto the driving range."

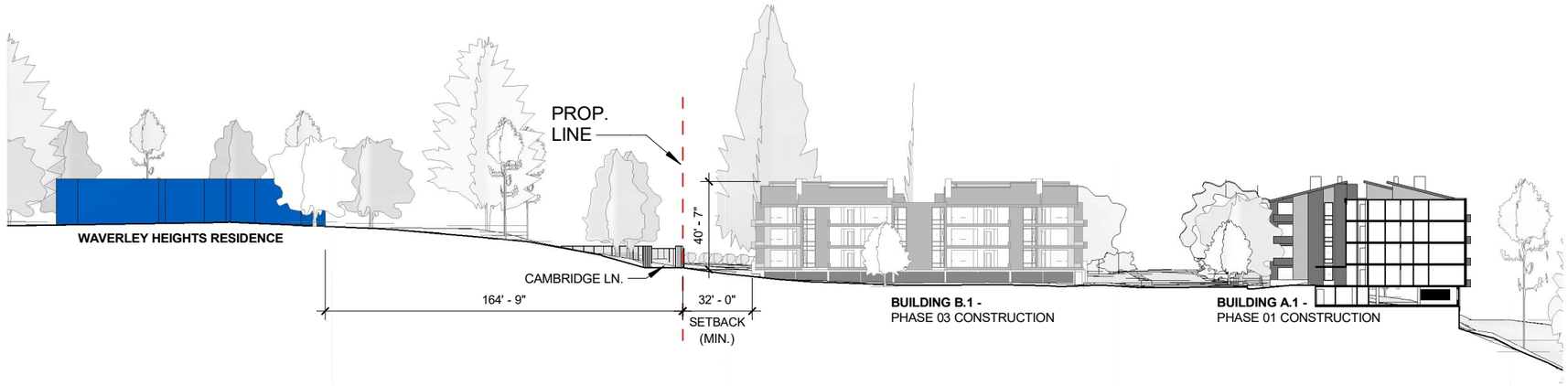
I agree and recommend a living fence of a prickly shrub, preferable a native one, to run along the boundary of the subject property and the Waverley Country Club. This will have the added benefit of providing cover for small birds in keeping with the goal of maintaining the property as a significant natural resource.

7. Tree Canopy and Views

I note in Phil Krueger's memo to Vera Kolias, Associate Planner, dated April 23, 2020 that the project was on track to save 200 trees. In the current proposal the number of trees on track to be saved has decreased to 135. As more and more trees are removed from the list of saved trees, a dense tree canopy as promised in the proposal becomes less certain. How will this impact the views to and from the river with the proposed buidlings?

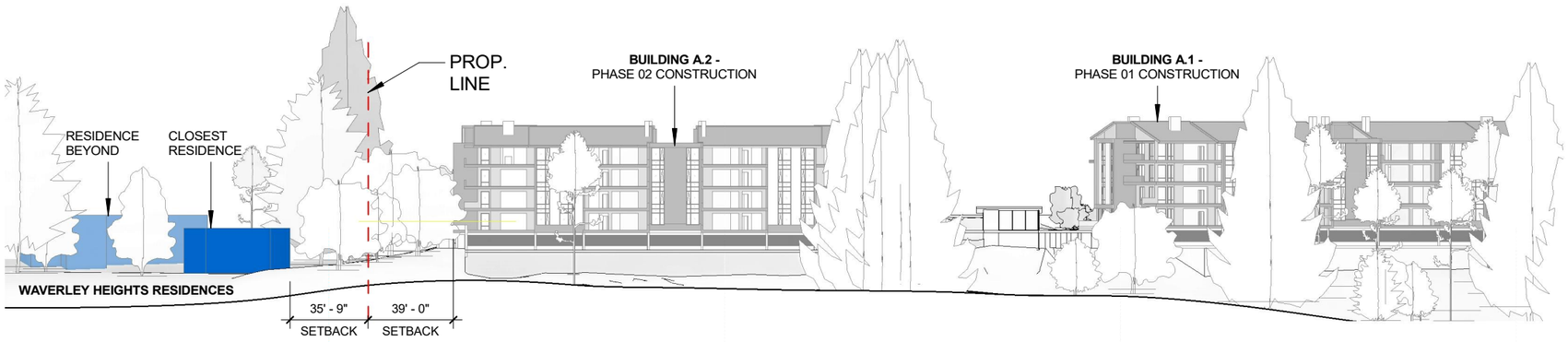
In summary, I am puzzled and disappointed that the proposal did not acknowledge any visual impact of the apartments on our community of single family homes. It is my hope that my comments will be given serious consideration and that solutions can be reached that are agreeable to all parties and will result in harmonious living between the two properties.

Thank you.



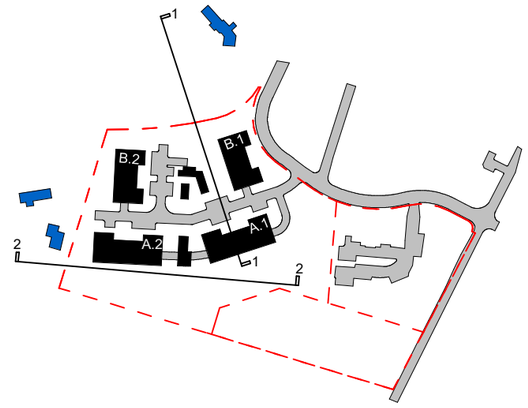
1 SITE SECTION - LOOKING SOUTHEAST

1/64" = 1'-0"



2 SITE SECTION - LOOKING NORTHEAST

1/64" = 1'-0"



3 SITE SECTION KEY

1" = 400'-0"

CITY OF MILWAUKIE

OCR USE ONLY

COUNCIL STAFF REPORT

To: Mayor and City Council
Ann Ober, City Manager

Date Written: Oct. 14, 2020

Reviewed: Ann Ober, City Manager, and
Leila Aman, Community Development Director

From: Laura Weigel, Planning Manager

Subject: **Joint Meeting — Planning Commission Work Program/Bylaws Review**

ACTION REQUESTED

Council is asked to review and discuss the draft Planning Commission work program and bylaw recommendations for 2021.

HISTORY OF PRIOR ACTIONS AND DISCUSSIONS

The Planning Commission holds a yearly, joint meeting with the Council to discuss the Commission's work program and bylaws.

The Planning Commission bylaws were established in 2010 and were revised in 2017.

On October 8, 2019, the Planning Commission discussed its draft work program for 2020.

DISCUSSION

The Planning Commission serves the City by reviewing and advising on matters related to planning and zoning, as set forth in the Comprehensive Plan and Zoning, Sign, and Land Division ordinances. It does this by deciding land use and development applications, developing long-range plans, and proposing updates and amendments to the Milwaukie Municipal Code and Comprehensive Plan. Planning staff works closely with the Commission to make progress in all of these areas. Below, staff outline the major accomplishments of the last year, and the workplan for the coming year.

A. Major Accomplishments in 2019/2020

The Planning Commission has worked on a number of significant projects since the last discussion of the Commission's work program. Projects included:

- Comprehensive Plan Update – The Comprehensive Plan Update policy document was adopted by City Council on August 18, 2020. This was a 2.5-year long process that received input from at least 500 community members. Listed below are all of the outreach efforts conducted during this process:
    - 24 meetings of the 15-member Comprehensive Plan Advisory Committee at which committee members offered guidance for policy development
    - In-person outreach at Neighborhood District Associations (NDAs), canvassing at concerts in the park events and the Milwaukie Farmers Market

- Three town halls with 100+ participants each, two open houses with 60+ participants each, all included simultaneous Spanish translation
- Four online open houses/surveys that corresponded with the in-person town halls/open houses (all were in English and Spanish)
- Three Spanish-language focus groups with 50+ participants total
- A wide variety of outreach methods including city-wide notice through the Milwaukie Pilot, website/social media, and a 500+ person email list of interested community members
- Robust and engaging public hearings at both the Planning Commission and City Council

- Central Milwaukie Information: In response to concerns from community members about wanting to be informed about development proposals within the Central Milwaukie area of the city; Planning, Community Development, and Admin staff made a Central Milwaukie webpage where community members can find out more of what is happening in that area: www.milwaukieoregon.gov/centralmilwaukie. An email subscription was also created for people to sign-up and receive notices/development information on any projects within the Central Milwaukie area.

- Preapplication Conference Report Information: During a Planning Commission meeting with Neighborhood District Association (NDA) leaders, it was brought up that preapplication conference reports should be more readily available to the public. Planning and Admin staff created a webpage where it now houses those pre-application conference reports for anyone to view: www.milwaukieoregon.gov/preapplication-conference-reports. It also is on the homepage of the Planning Department webpage.

- Development Review: The development review counter at the JCB office has been closed since March 2020 due to public health concerns related to COVID-19. Staff adjusted immediately to this closure and have been providing development review services over the phone and through email and web-based meetings and preapplication conferences. Staff have been able to maintain the same high level of customer service even during the COVID 19 office closures.
    - Planning Commission development review has required a large component of the Commission's time over the past year. The Commission held 12 public hearings on seven different land use applications including:
        - 1 Comprehensive Plan Update (6 hearings)
        - 1 Subdivision (4 hearings)
        - 2 Community Service Uses
        - 1 Conditional Use
        - 1 Variance Request
        - 1 Planned Development (hearings still underway)

B. 2020-2021 Work Program

The purpose of the joint meeting on November 17 between the Planning Commission and Council is to provide an opportunity for discussion and to build a mutual understanding of goals and priorities moving forward. Suggested topics for discussion include:

- Project List – Is the project list complete?
- Priorities – Do the Council and the Planning Commission have the same priorities for 2020?

Comprehensive Plan Implementation Project, Phase 1

Creating and supporting housing opportunities, primarily middle housing options in all neighborhoods, has been a key goal for Council and the community. The adopted Comprehensive Plan (Plan) policies call for expanded housing opportunities throughout the city and House Bill 2001 (HB 2001), passed by the state legislature in July 2019, requires the expansion of middle housing options. In November 2019, Council discussed how to proceed with code amendments after the updated Plan was adopted, setting the stage for this Phase 1 implementation project.

The focus of this phase of plan implementation is housing, but it also includes related changes to parking requirements in residential areas and tree protection and preservation on residential land. The outcome will be code amendments that balance the city's goal for a 40% tree canopy and implementation of the housing policies outlined in the Plan that are also in compliance with HB 2001.

- Work currently underway:
    - Code Audit
    - Regular Comprehensive Plan Implementation Committee (CPIC) meetings
    - Final draft of the Public Engagement Plan
    - Comprehensive Plan Implementation interim webpage
    - Planning for Public Event #1
    - Initial stakeholder interviews

Final adoption ready code language and proposed Comprehensive Map changes are anticipated to be before Planning Commission by June 2021. Key deliverables as part of this project include a code audit report, detailed code and map concepts with alternatives, a synthesis report of public input, a stakeholder database, and the code language and map amendments.

Comprehensive Plan Implementation Project, Phase 2

After the completion of phase 1, staff will begin working on phase 2 projects. It is anticipated that phase 2 will start mid-2021. Staff will share an updated workplan with the Planning Commission and City Council in early 2021.

- Potentially create a new neighborhood hub zone or overlay – zone all hub sites.
- Prepare a new Transportation Systems Plan (TSP).
- Eliminate or consolidate outdated commercial designations – Community Shopping (C-CS), General Commercial (C-G), Limited Commercial (C-L), and Neighborhood Commercial (C-N) and rezone the sites with Neighborhood Mixed Use (NMU) and General Mixed Use (GMU) zones and a potential new neighborhood hub zone.

- Eliminate the current outdated Town Center Plan and replace it with the downtown and central Milwaukie plans.

Comprehensive Plan Implementation Project, Phase 3

The update to the Transportation System Plan will likely continue after the other phase 2 projects, but phase 3 projects should begin in the third or fourth quarter of 2022.

- Update key elements of the Public Facilities Plan – water and wastewater components.
- Update the Natural Resources Inventory.
- Expand the Historic Resources Inventory.
- Designate park and school sites with a new parks/institutions zone.
- Revise the Willamette Greenway zone to establish two tiers of review and create a clear and objective path for housing.
- Update the Urban Growth Management Agreement (UGMA) and develop an annexation program.

Other Planning-Related Code Amendments and Projects

- Develop a Central Milwaukie Bikeways Concept Plan.
  Overview: Staff is using a Quick Response grant from the Oregon Department of Land Conservation and Development (DLCD) to work with a consultant team from Alta Planning + Design to identify a safe bicycle connection through Central Milwaukie. The project involves analysis of existing conditions, conversations with property-owner stakeholders, and consideration of the imminent redevelopment of the Hillside Manor and Murphy sites in order to identify alternative route options that will link the 29th Avenue and Monroe Street Neighborhood Greenways. The proposed concept plan will be vetted in community meetings and by the Planning Commission en route to a recommendation for adoption by City Council.
- Revise the downtown design review standards and process.
  Overview: For the past two years, the Design and Landmarks Committee (DLC) has been working to update the downtown design guidelines and better integrate them with the design standards in the code. The effort will eliminate existing gaps between the current design standards and design guidelines and should reduce ambiguity in the discretionary review process. The DLC will discuss the proposed amendments with the Planning Commission and City Council in upcoming worksessions.
- Amend the floodplain code section in two parts 1. to comply more fully with Federal Emergency Management Administration (FEMA) requirements and 2. to meet new Comprehensive Plan policy direction.
- Revise the sign code to better regulate and eliminate large illuminated billboards.
- Amend the natural resources code to ensure we have a clear and objective path for housing (if required).
- Conduct regular code housekeeping.

Other Non-Planning Code Amendments

The work program includes five code-related projects that are led by other city departments and have limited planning involvement. These include updates to code sections addressing boards and committees, business registration, dangerous buildings, building codes, and

transitional housing. There may be a role for the Planning Commission and the planning staff in the update to requirements for boards and committees and in review of transitional housing requirements.

In addition to the tasks identified above, the Planning Commission and planning staff are responsible for current planning review. Projects that are expected to be reviewed in 2020 include the Hillside Master Plan and related Comprehensive Plan designation and zone change and the Coho Point at Kellogg Creek project.

C. Planning Commission Bylaws

On October 8, 2019 the Commission discussed outreach and coordination with the city's neighborhood district association (NDA) leaders. Commission members recommended an adjustment to the bylaws to include an annual joint meeting between the Commission and the chairs and land use committees of the NDAs. On December 10, 2019, NDA leaders attended the Planning Commission meeting to discuss increased outreach and communication between the Planning Commission and NDAs. At that meeting, both the Planning Commission and NDA leaders agreed that a yearly joint meeting would be very beneficial and should be included in the Planning Commission Bylaws.

Additionally, a new comprehensive plan policy was in adopted in 2020 that impacts the bylaws. The new plan policy states that the Council will appoint a Community Involvement Advisory Committee (CIAC). The policy was left open to give the Council freedom to appoint the Planning Commission or to create a new independent committee when funding was available. Until a larger discussion is had regarding the creation of a new committee the draft update to the bylaws states that the City Council will appoint the Planning Commission as the CIAC.

The joint meetings with City Council provide an opportunity to review bylaws and suggest any changes that are needed. A copy of the bylaws is attached.

BUDGET IMPACT

The Planning Department has enough funding to carry out the objectives for the current biennium.

WORKLOAD IMPACT

The work for the current biennium has been assigned to specific staff and workloads are being adjusted to accommodate projects in addition to providing a high level of customer service at the development review counter.

CLIMATE IMPACT

The Planning Commission will be working on a variety of projects that may impact the climate goals for the community. The Comprehensive Plan Implementation Project (CPIC) focuses on code amendments that will support a variety of housing opportunities throughout the city, as well as a conversation about appropriate parking requirements. In addition, the CPIC will include an update to the city tree code, offering more protections to the urban forest and helping the city achieve the stated goal of 40% canopy cover by 2040.

Alternative transportation projects addressed by Planning Commission, such as the Central Milwaukie Bikeways Project and the Transportation System update, will assist the city in lowering transportation sector emissions by increasing the availability and accessibility of safe bike and pedestrian infrastructure.

COORDINATION, CONCURRENCE, OR DISSENT
The Planning Commission concurrences with the workplan moving forward.

STAFF RECOMMENDATION
Discussion

ALTERNATIVES
None

ATTACHMENTS
1. Revised Bylaws

MILWAUKIE PLANNING COMMISSION BYLAWS

ARTICLE I NAME

The name of this commission is the Planning Commission (Commission).

ARTICLE II PURPOSE, AUTHORITY, AND OBJECTIVE

A. **Purpose.** The purpose of the Commission is to serve as an advisory body to, and a resource for, the City Council in land use matters. In addition, the Commission shall carry out the roles and responsibilities as assigned under Milwaukie Municipal Code (MMC) Section 2.16.010.

B. **Authority.** The Commission is authorized by ORS 227 and MMC Chapter 2.16.

C. **Objective.** The Commission's objectives include articulating the community's values and commitment to socially and environmentally responsible uses of its resources as reflected in the Comprehensive Plan.

D. **Open Meetings.** All meetings of the Commission are open to the public. The Commission has the authority to conduct an executive session under ORS 192.660.

ARTICLE III MEMBERSHIP

A. **Appointment.** Each Commission member shall be appointed by the Mayor with the consent of Council, consistent with MMC 2.10.030 G. Members shall serve at the pleasure of the Council.

B. **Term of Office.** Terms are for a period of four years. Commission members may serve no more than two consecutive full terms, unless there is an interval of at least one term prior to reappointment. The Council may waive this limitation if it is in the public interest to do so.

C. **Membership.** The Commission consists of seven members. No more than two members may be non-residents**,** and no more than two members shall be engaged in the same kind of occupation, business, trade, or profession. No member may be a City of Milwaukie officer, agent, or employee; and no more than two voting members of the Commission may engage principally in the buying, selling, or developing of real estate for profit as individuals; or members of any partnership, or officers or employees of any corporation that engages principally in the buying, selling, or developing of real estate for profit.

D. **Vacancies and Removal.** Vacancies are filled in the same manner as the original appointments. A member of the Commission may be removed by the appointing authority, after hearing, for misconduct or nonperformance of duty.

E. **Attendance.** Upon failure of any member to attend three consecutive meetings, the Commission may recommend termination of that appointment to the Council, and the Council may remove the incumbent from the Commission and declare the position vacant to be filled in the manner of a regular appointment.

F. **Compensation.** Commission members shall receive no compensation for their service, but shall be fully reimbursed for all duly authorized expenses.

ARTICLE IV OFFICERS AND STAFFING

A. **Officers.** The officers consist of a Chair and a Vice Chair who shall be selected by the membership and who shall serve at the pleasure of the membership for one year. Nominations and election of new officers shall be taken from the floor at the Commission's first meeting of the calendar year. Officers may be re-elected. In the event that an officer is unable to complete the specified term, a special election shall be held for the completion of the term.

B. **Chair.** The Chair shall preside at all deliberations and meetings of the Commission and call special meetings in accordance with these Bylaws and review Commission agendas with the staff liaison. The Chair shall sign all documents memorializing Commission actions in a timely manner after action by the Commission.

C. **Vice Chair.** During the absence, disability, or disqualification of the Chair, the Vice Chair shall exercise or perform all duties and be subject to all the responsibilities of the Chair. In the absence of the Chair and Vice Chair, the remaining members present shall elect an acting Chair.

D. **Staff.** The City of Milwaukie Planning Department will provide staff support to the Commission for: land use issues, meeting notifications, postponements, final disposition of matters, and other steps taken or acts performed by the Commission, which include administrative housekeeping functions such as word processing, minutes preparation, copying, and information gathering to the extent the budget permits.

ARTICLE V ORGANIZATIONAL PROCEDURES

A. **Meetings.** The Commission shall hold meetings as necessary at a time and place designated by staff consistent with Oregon Public Meetings Law. Typically, the Commission meets at least once a month on the second and/or fourth Tuesday at 6:30 p.m. at City Hall. Commission meetings shall end no later than 10:00 p.m., unless extended by majority vote of the Commissioners present and participating in the Agenda item that is under consideration at that time. An extension to 10:30 p.m. is allowed by Commission action. If a meeting has not concluded at 10:30 p.m., the Commission may vote on the Agenda item, consider another extension of up to 30 minutes, or vote to continue the item to the next available meeting.

B. **Quorum.** A quorum is four of the voting membership of the Commission. The concurrence of a majority of the Commission members present shall be required to decide any matter. In the case of a tie vote, the matter is not complete. One new motion may be made. If a majority vote is not obtained on that motion the agenda item fails. If a quorum is not attained fifteen minutes following the scheduled time of call to order, the meeting shall be cancelled. In the event it is known by the Director prior to a meeting that a quorum will not be present at any meeting, the Director shall notify the Commission members. All items scheduled for the meeting shall be automatically continued to a regularly scheduled meeting unless the Director determines that a special meeting is needed. The Director shall post notice of the continuance on the exterior

doors of City Hall notifying the public of the continuance and specifying the date and time when the continued items will be before the Commission. The Notice shall remain through the evening on which the meeting is originally scheduled.

C. **Order of Business.** The Chair shall have the authority to arrange the order of business as is deemed necessary to achieve an orderly and efficient meeting. In general, the order of business will be as follows:

1. Call to order – Procedural Matters
2. Minutes
3. Information Items
4. Audience Participation
5. Public Hearings
6. Worksession Items
7. Planning Department Other Business/Updates
8. Planning Commission Discussion Items
9. Forecast for Future Meetings.

D. **Voting.** All members who are present at a Commission Meeting, including the Chair and Vice Chair, are allotted one vote each on all motions. A motion may be made by any Commissioner with the exception of the presiding officer. All Commissioners, when a vote is taken, shall vote unless he or she abstains from voting and cites the reason for the record. Staff shall call the roll, altering the order of members called. The Chair shall vote last.

E. **Reconsideration of Actions Taken.** A member who voted with the majority may move for a reconsideration of an action at the same meeting only. The second of a motion may be a member of the minority. Once a matter has been reconsidered, no motion for further reconsideration shall be made without unanimous consent of the Commission.

F. **Minutes.** A staff representative or designee shall be present at each meeting and shall provide for a sound, video, or digital recording, or written minutes of each meeting. The record of the meeting, whether preserved in written minutes or sound, video, or digital recording, shall include at least the following information:

- Names of the Commission members present;
- All motions and proposals, and their disposition;
- The results of all votes and the vote of each Commission member by name;
- The substance of any discussion on any matters; and,
- A reference to any document discussed at the meeting;

Written minutes need not be a verbatim transcript, but give a true reflection of the matters discussed at the meeting and the views of the participants.

Written minutes of a meeting will be made available to the public within a reasonable time after the meeting.

Minutes shall be reviewed and voted upon by the Commission at a regular meeting.

G. **Repeal or Amendments.** The Commission may review these bylaws periodically and forward suggested revisions to the Council for approval. These bylaws may be repealed or amended, or new bylaws may be adopted by a majority vote of the Council on its own initiative, or upon a recommendation from the Commission.

H. **Meeting Conduct.** The meeting conduct for this Commission is these bylaws except where superseded by or local, state, or federal law.

I. **Statement of Economic Interest.** Commissioners are required to file annual statements of economic interest as required by ORS 244.050 with the Oregon Government Standards and Practices Commission.

ARTICLE VI DUTIES OF OFFICERS

A. **Duties of the Chair.** The Chair or Vice Chair, in addition to the duties in Article IV, shall preserve the order and decorum of the meeting.

1. The Chair may assess the audience at the beginning of the meeting, and, with the consent of the Commission, announce reasonable time limits.

2. The Chair will direct the planning staff to summarize the issues to be addressed and the criteria to be applied by the Commission during its deliberations, following the conclusion of public hearing testimony.

3. The Chair will summarize the hearing results and state the appeal process at the conclusion of the public hearing.

B. **Requesting Response and Opinion.** The Chair will ask for response and opinion from the members of the Commission.

C. **Appointments to Specific Projects on Committees.** The Chair may appoint Commissioners to specific projects or committees, and may select a Commissioner to be spokesperson for the Commission when the Chair or Vice Chair is unavailable.

D. **Confer with Director.** The Chair or Vice Chair shall confer with the Planning Director (Director) on a regular basis outside scheduled meetings concerning the direction each expects of the Commission.

E. **Orientation of New Members**. The Chair, in conjunction with the Director, shall orient new members.

ARTICLE VII DUTIES OF THE COMMISSION

A. **Duty of Commissioner.** Commissioners shall address all those who come before the Commission in a formal and courteous manner.

B. **Absence From a Meeting.** If a Commissioner is unable to attend a meeting, it is that Commissioner's responsibility to inform the Community Development staff and/or the Commission Chair of that fact prior to the meeting to be missed.

C. **Site Visits.** Prior to Commission meetings, Commissioners are encouraged to visit sites that are subjects for land use actions. If a Commissioner visits a site, he or she shall report on the record any information gained from the site visit that is not consistent with the information included in the application or staff report.

D. **Method of Handling Conflicts by Members.** In accordance with ORS 244.135: (1) A member of the Commission shall not participate in any Commission proceeding or action in which any of the following has a direct or substantial financial interest:

1. The Commission or the spouse, brother, sister, child, parent, father-in-law, mother-in-law of the Commissioner;

2. Any business in which the Commissioner is then serving or has served within the previous two years; or

3. Any business with which the Commissioner is negotiating for or has an arrangement or understanding concerning prospective partnership or employment.

4. Any actual or potential interest shall be disclosed at the meeting of the Commission where the action is being taken.

E. **Meeting Preparation.** Commissioners shall prepare for participation at a meeting by fully reviewing the staff report and materials provided by the Director. If a Commissioner is unable to attend a hearing on a quasi-judicial application that is continued to another hearing, the Commissioner shall not take part in the continuance hearing unless the Commissioner:

1. Reviews the staff report and materials provided by the Director as well as:

   a. all materials submitted at the hearing, and
   b. any additional materials prepared by the planning staff applicable to the application, and
   c. either the audio recording of the hearing or the draft minutes of the hearing.

2. Declares that they are prepared to participate.

F. **Duties Assigned by Council.** The Commission shall carry out the duties assigned to it by Council relating to development, updating, and general maintenance of the Milwaukie Zoning Ordinance and the Milwaukie Comprehensive Plan.

1. The Commission shall serve as the Community Involvement Advisory Committee (CIAC) for the City until a separate CIAC is formed by the City Council. Each Commissioner shall be considered appointed to the CIAC at the same time as he or she is appointed to the Commission and shall serve on the CIAC for the duration of their term or until a separate CIAC is

formed. Upon the formation of a separate CIAC, the Commission shall no longer serve as the CIAC.

a. The CIAC shall implement the City's Citizen Involvement Program pursuant to the requirements and relevant guidelines set forth in Statewide Planning Goal 1 and the Comprehensive Plan.

2. **Other Duties.** At least once per year, the Commission shall hold a meeting at which Neighborhood District Association (NDA) leaders (e.g., the NDA chair and the chair of the land use committee) have been invited to discuss land use issues and community outreach with the Commission.

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ARTICLE VIII GOALS AND OBJECTIVES

A. **Annual Goal Review.** The Commission shall review the Council goals annually for establishment of Commission goals which enhance and augment those of the Council.

B. **Establishment of Commission Goals**. The Commission shall establish goals, at a minimum, annually.

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CITY OF MILWAUKIE

To: Planning Commission

Through: Laura Weigel, Planning Manager

From: Vera Kolias, Senior Planner

Date: October 20, 2020, for October 27, 2020, Worksession

Subject: Comp Plan Implementation Project Update

ACTION REQUESTED

None. This is a briefing for discussion only.

BACKGROUND INFORMATION

A. History of Prior Actions and Discussions

Creating and supporting housing opportunities, primarily middle housing options in all neighborhoods, has been a key goal for Council and the community. The adopted Comprehensive Plan (Plan) policies call for expanded housing opportunities throughout the city and House Bill 2001 (HB 2001), passed by the state legislature in July 2019, requires the expansion of middle housing options. In November 2019, Council discussed how to proceed with code amendments after the updated plan was adopted, setting the stage for the recently initiated plan implementation project.

August 4, 2020: Council adopted Resolution 56-2020 authorizing a contract with Urbsworks to provide professional planning services for Phase 1 of comprehensive plan implementation project.

B. Analysis

The focus of this phase of plan implementation is housing, but it also includes related changes to parking requirements in residential areas and tree protection and preservation related to residential land. The outcome will be code amendments that balance the city's goal for a 40% tree canopy and implementation of the housing policies outlined in the plan and in compliance with HB 2001.

In August, Council approved a contract with Urbsworks to begin work on the first phase of plan implementation project. In addition to extensive community engagement throughout the project, Urbsworks will be assisting staff in updating the residential designations on the plan map, making corresponding changes to the zoning map, and making changes to the zoning and

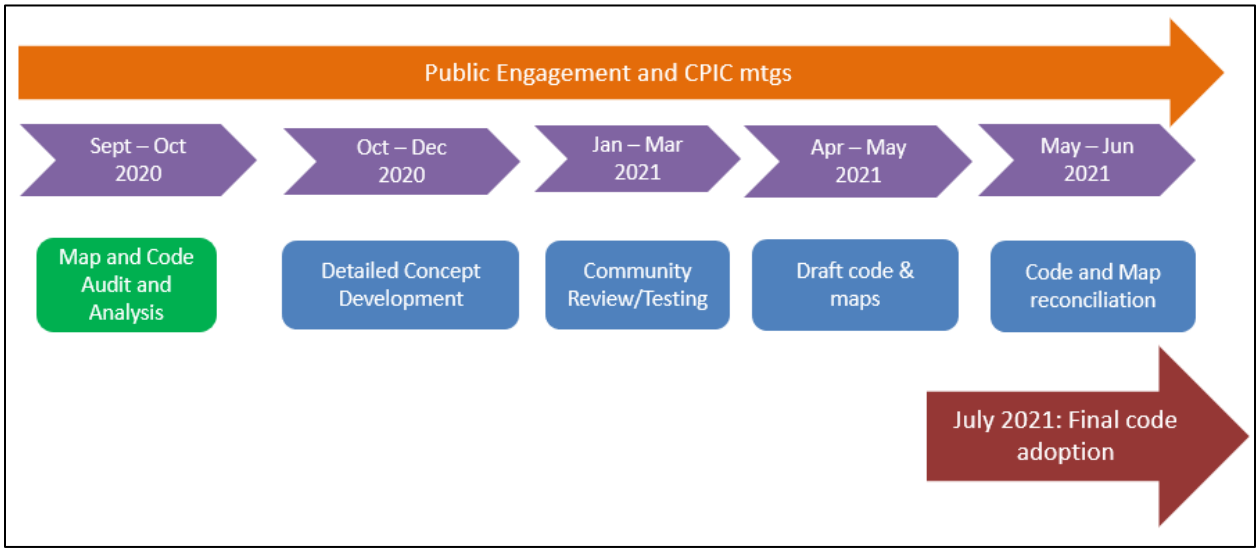
land division ordinances related to housing, parking, and the protection and preservation of trees on private property and in the public right-of-way.

The city received a $92,500 grant from the Oregon Department of Land Conservation and Development (DLCD) through the 2019-2021 HB 2001 Planning Assistance Grant program. The DLCD deadline for having adoption-ready code language is June 2021, which means that both a thoughtful and efficient process are required to comply with the grant requirements.

The scope of work for this project includes the following tasks:

1. Public Engagement Strategy
2. Map and Code Audit and Analysis
3. Detailed Concept Development
4. Community Review and Testing
5. Draft Code Changes and Map Amendments
6. Code and Map Review and Reconciliation
7. Final Code and Map Changes and Adoption

General Project Timeline



Current Work Underway

Currently staff has been working with Urbsworks on the first two tasks outlined in the scope.

Public Engagement Strategy. Community involvement and engagement is an essential element of this project. Work sessions and public hearings with the Planning Commission and Council will be a critical component of this process. Public outreach in the form of town halls, focus groups, stakeholder interviews, tabling, online surveys, and other forms of outreach to educate, inform, and receive feedback from the public on code concepts and plan and zoning map changes will be another key aspect of this process. New strategies for engaging the community during the pandemic will also be utilized as appropriate during the outreach, including an emphasis on outreach to under-represented communities.

Staff have been working with Urbsworks to develop a final draft public engagement plan which was discussed with the Comprehensive Plan Implementation Committee (CPIC see information below) in September. Extensive community engagement is planned, and more than one-third of the project budget will be devoted to this effort. Kimi Sloop from the strategic planning and communication firm Barney & Worth will be leading this effort for the consultant team.

As part of the effort to make sure that Milwaukie residents are informed about the project, an article was written for the September issue of the Pilot newsletter and an opt-in email subscription for project updates is available on the city's email subscription page at www.milwaukieoregon.gov/subscribe. An email to the Comprehensive Plan Advisory Committee (CPAC) sent on September 1 also included information about the implementation project, a link to the subscription page, and an invitation to continue to participate in the process.

In advance of a more robust project website that will be using a multi-functional civic platform, staff has created an interim webpage to provide basic project and contact information: https://www.milwaukieoregon.gov/planning/comprehensive-plan-implementation.

- Public Event #1 - Planning has begun on the first public event (virtual), which will include an introduction to the project, an overview of the code audit, and a self-guided "tour" of middle housing and housing choice, including a survey and other engagement tools. The event is expected to be held the first week of November.

In addition to the general public engagement strategy it was determined that a **Comprehensive Plan Implementation Committee (CPIC**) should be formed to assist with the analysis of the project**.** On March 3, 2020, Council approved the formation of the CPIC who will be responsible for reviewing code concepts with staff and providing input on proposed amendments to the Milwaukie Municipal Code (MMC). So far, the CPIC has met twice:

- June 4: staff provided an update on the plan adoption process and the consultant selection process, as well as a project overview and schedule.
- September 17: staff provided a 30-minute overview of the plan and code relationship to the project, as well as a review of the development review and permitting process. The consulting team presented an overview of the public engagement plan.

Since the first meeting in June, and during the comprehensive plan adoption process, staff remained in contact with CPIC members and provided additional reading material and information about free webinars on missing middle housing and off-street parking, and updates and information on HB 2001.

The CPIC meeting schedule has been set and the next meeting is on November 19 (see Attachment 1 for the agenda). There will be six committee meetings over the next 10 months (see Attachment 2 for the schedule). Staff will be providing materials at least two weeks in

advance of the meetings in order to provide CPIC members enough time to review materials prior to the meetings. The CPIC webpage is here: https://www.milwaukieoregon.gov/planning/comprehensive-plan-advisory-committee-cpic.

Code Audit. Prior to consultant selection and receipt of the grant award, community development, public works, and planning staff conducted a preliminary code audit that identified existing code conflicts with both plan policies and HB 2001 requirements. The preliminary code audit has been shared with Urbsworks, who will be conducting a detailed code analysis and will produce a final map and code audit report. This report will set the stage for the detailed code concept development.

Next Steps

- Initial stakeholder interviews to understand the key livability issues in Milwaukie that relate to housing, including parking and tree preservation (to be completed by the end of October)
- Review of the completed code audit report and matrix – late October
- Public event – tentatively scheduled for November 12 and will run for 2 weeks
- CPIC meeting #3 on November 19

ATTACHMENTS

Attachments are provided as indicated by the checked boxes. All material is available for viewing upon request.

	PC Packet	Public Copies	Packet
1. CPIC meeting schedule	☒	☒	☒

Key:
PC Packet = paper materials provided to Planning Commission 7 days prior to the meeting.
Public Copies = paper copies of the packet available for review at City facilities and at the Planning Commission meeting.
E-Packet = packet materials available online at https://www.milwaukieoregon.gov/bc-pc/planning-commission-61.

CPIC and Public Meetings (Proposed)

Meeting	General	Proposed dates | Meeting topic
CPICs	· There will be 7 CPIC meetings. 2 of these 7 meetings will be joint work sessions with the Tree Board, Design and Landmarks Commission, and Planning Commission. · The CPIC will meet monthly from September, 2020 through April 2021. · Meetings will take place on third Thursdays of each month, in the evening, from 6:00 to 8:00PM. · When the agenda allows, meetings will be from 6:00 to 7:30PM. · CPIC members will receive meeting materials 2 weeks prior. · Scheduling is approximate and takes into account school schedules, major holidays, and the City of Milwaukie public calendar.	CPIC 1 – 09/17/20 | Public Engagement Plan and Planning 101 *CPIC 1 materials out – 09/03* CPIC 2 – 11/19/20 | Map and Code Audit *CPIC 2 materials out – 11/05* CPIC 3 – 12/17/20 | CPIC Special Joint Session– Code Concepts *CPIC 3 materials out – 12/03* CPIC 4 – 02/18/21 | Community Review and Testing (initiation) *CPIC 4 materials out – tbd (this date is tentative until final coordination with PIP and public meetings plan)* CPIC 5 – 03/18/21 | Community Review and Testing (outcomes) *CPIC 5 materials out – 03/04* CPIC 6 – 04/15/21 | Draft Code Changes and Map Amendments *CPIC 6 materials out – 04/01* CPIC 7 – 06/17/21 | CPIC Special Joint Session– Reconciliation *CPIC 7 materials out – 06/03*
Public Meetings	· Three total	Public Meeting #1: Mid-Nov | Open house, code audit, and survey about housing choices Public Meeting #2: Late January or early February | Community review and testing of Code Concepts Public Meeting #3: Mid-June | Proposed Code Amendments