MINUTES

MILWAUKIE CITY COUNCIL WORK SESSION

June 17, 2008

Mayor Bernard called the work session to order at 5:32 p.m. in the City Hall Conference Room.

Council Present: Mayor Jim Bernard and Councilors Deborah Barnes, Greg Chaimov, Joe Loomis, and Susan Stone.

Staff Present: City Manager Mike Swanson, Community Development and Public Works Director Kenny Asher, Police Chief Larry Kanzler, Planning Director Katie Mangle, City Attorney Bill Monahan

Briefing on the Portland-Milwaukie Light Rail Locally Preferred Alternative (LPA) Process

Mr. Asher discussed the remaining timelines, what was learned, how the LPA was shaping up, the process going forward, and recommendations being formulated.

Ms. Wieghart talked about the project and alternatives focusing on the LPA decision points, project finance, and the next steps. The purpose was fundament growth in the region. The 2040 Plan developed in the 1990's determined how the growth should go and the focus was in rather than going out. Centers were a key part of the 2040 Plan. They were more efficient with fewer costs and impacts. The Plan called for connecting centers with high quality transit. Shared values were developed through extensive outreach. The 2040 Growth Concept Plan expanded housing choices, enhanced the quality of life and increased resiliency making the region a better place to live. Within .5-mile households grew 57% from 1,268 in 2005 to 1,987 in 2030. In order to serve the transit demand in 2030 during peak hours downtown Milwaukie would require either 33 to 34 buses per hour or 7 to 8 light rail trains per hour. The project purpose and need was written out for a variety of reasons. A lot of people in this community continued to reflect back on it and ask them about options and whether they met the purpose and need because that was the first question. The purpose and need was to implement a major transit program in the south corridor that maintained livability in the metropolitan region, supported land use goals, optimized the transportation system, was environmentally sensitive, reflected community values, and was fiscally responsible. The need essentially was projected based on population, growth, traffic congestion, and high quality transit needs.

Ms. Wieghart reviewed the project history. It started out as South–North Corridor and then was split. In 2003 the LPA identified Phase 1 as I-205 and Portland-Milwaukie alignment as Phase 2. People had asked them what modes had been studied specifically commuter rail and bus options. Part of environmental process was to narrow as time went by. The South-North alternatives analyses in 1993 and 1995 led to the Draft Environmental Impact Statement (DEIS). Once it was established as the South Corridor another alternatives analysis and study done. She showed on a table the different modes that were studied at different times and they included river transit, commuter rail, busway, bus rapid transit,

high occupancy vehicle (HOV) lanes, light rail, and no-build. She showed a slide that explained in a different way how through the different environmental review processes various modes were eliminated as part of the narrowing decisions and then smaller groups of the options were looked at in the next phase. That was how the environmental review processes were supposed to go.

She reviewed the modes including commuter rail, which did not move forward because it attracted only 5% of the ridership of light rail, it would not serve many key destinations directly including downtown Portland, and it could not be integrated into local community plans. Commuter rail was usually on existing tracks so it was not flexible in supporting actual local community needs.

Mr. Asher asked why only 5% ridership.

Mr. Unsworth said part of it was that they ran on the freight rail tracks, and it was hard to get into the cities. Walking distances were restricted, and people would not be able to get where they wanted to go. It was an alignment that looked at going all the way to Clackamas and down to Oregon City. In circumferential they looked at using the Forgotten Bridge over to Lake Oswego and further out to Tualatin. They looked at river transit and when they looked at river transit from Oregon City to Lake Oswego they looked at a parking structure and transit center on Riverfront Park, which did not make a lot of sense. People had to get there, and they needed to protect the river.

Ms. Wieghart added commuter rail was less flexible than light rail in terms of where it could be placed.

Councilor Stone asked where did it not meet the purpose and the need?

Ms. Wieghart replied in terms of supporting the land use needs. There were various communities that were not served directly and were essentially not optimizing the transportation system achieving such low ridership compared to other options.

Mr. Unsworth said there were some other technical issues with it from the standpoint of getting windows of operations out of the railroad and finding spots on their tracks where there it could slide in. It was getting much more difficult as the freight industry had increased and that was one of the concerns. They were not sure it could be done on the main line. They were able to do commuter rail and that was one of the trains they were building from Wilsonville to Beaverton Town Center, but that was on a rail line that had very infrequent service. On the main line or being parallel to the main line was almost impossible to get the windows of opportunity to run commuter trains. Additionally, it was more attractive for the commuter operation. You would only get the windows of opportunity in the morning and evening. They were not able to successfully secure all day service.

Councilor Stone asked if light rail ridership crowded during the peak hours?

Mr. Unsworth said they were, but there were a couple of different peaks. They had a morning/evening and afternoon peak. They had to run it all day long for it to be reliable. People want to know if they came in on a train that they would be able to get back on a train. That was something that commuter rail did not do well, and buses and light rail did.

Ms. Wieghart said that bus rapid transit and busway were not studied further because they had the fewest corridor transit trips, the worst reliability, and least travel time savings as it was essentially caught in traffic. The busway that had its own right-of-way had better travel time, but it had the most environmental and

community impacts of any option with acquisitions, noise, and traffic. There was a lot of community opposition to it in Milwaukie and Clackamas County so it was not selected in the LPA. Streetcar did not meet the purpose and need. It had come up though at various points both in this process and previously as a question from the community, so they wanted to answer why it did not meet the purpose and need. It was because streetcar could not meet corridor demand efficiently. In this high traffic, high transit corridor it would require 22 street cars at peak times compared to 8 trains in the year 2030. It was more suitable for lower volume transit corridors. It could run in mixed traffic and that was an advantage in terms of not needing a separate right-of-way. It had slower speeds and created congestion so it was more suitable for trips that were not as long and not as congested.

Mr. Unsworth said there were a couple of things about this that were probably worth looking at. They were looking at streetcar from downtown Portland to Lake Oswego. The transit demand from the Lake Oswego corridor, Hwy 43, was much less than on this alignment so the peak load points were significantly higher. They would end up having to run a lot more streetcar service as a result. That did a couple of things. 80% of the cost of operating a bus was in the driver. Where they had a street crossing there were that many more trains going across that on a separate right-of-way, which meant gates were coming down more often. In other locations because they would not be able to put it on McLoughlin Boulevard and on separate right-of-way those would require gated crossings. That equated to 44 gated crossing and gates coming down. There were other things that one did necessarily think of. They were looking at Lake Oswego, but it was a very different corridor. It was narrower and a different animal. This was a trunk service moving a lot of people through.

Ms. Wieghart said her observation on the Lake Oswego project was that the corridor demand was much lower and the fact they had an existing right-of-way, which was too narrow for light rail. That it did not have to run in mixed traffic for the most part was a rather unique situation. Normally, streetcars would be used more for urban shorter trips.

Mr. Unsworth said specifically in downtown Portland they tried to use streetcar as a circulator. Streetcar had been very successful, and it had been for people that wanted to get through downtown. Their trips may be longer than walking, but they needed to get somewhere and were not sure how. Light rail was the trunk service bringing all of the people in and the streetcar was the circulator. It was not used as a trunk service. That was what this alignment was, and the function that they were trying to do for downtown Milwaukie to downtown Portland.

Councilor Chaimov said one of the alignments they had heard from a number of citizens about would be bringing light rail to Southgate and then having streetcars as the feeders, whether it was to Park Avenue or Hwy 224. He assumed it was streetcar versus light rail rather than a blend.

Ms. Wieghart said they had heard the question about a terminus north of downtown and that would address that as well. A terminus north of the Milwaukie town center would not meet the purpose and need for the project because it would require a transfer to the key destination. Centers were the reason they were looking at high capacity transit. Stopping just short of a center and forcing those passengers off to transfer did not optimize the transportation system and did not support the land use goals of the 2040 Plan. A transfer whether it was to a bus or a streetcar was a similar concept.

Mr. Unsworth said it worked in downtown Portland because of the many trips going in. This was at the end of a line and it forced fewer people to transfer to the streetcar. That would hurt ridership and would not meet the federal partners threshold for funding. There were multiple destinations in downtown Portland with the streetcar as the circulator. It was different when you are bringing light rail in and wanted to provide both park and ride and bus transfer opportunities. A circulator on the far end would probably not pencil from their federal partners standpoint.

Councilor Stone asked if it would pencil better if the circulator on the south end was a streetcar in Milwaukie that connected business centers to Sellwood and potentially over to Lake Oswego if we spent some money to build a bridge. She did not look at light rail or any type of system as going to just one place. We needed to connect other districts and neighborhoods, and she thought a streetcar needed to be revived.

Mr. Unsworth replied that fundamentally they were trying to build the trunk system and get the most people through. Then their system fills it out through bus routes. The City of Portland was looking at filling it out with more streetcar routes and had a lot of routes into Sellwood that were potentially on the table. He was in Washington, D.C. last week talking about this project and the Portland Streetcar project, which were very different conversations. They were the only applicant for federal funds for streetcar under the Small Starts Project in the country. They spent the last year and half talking about getting through cost effectiveness calculations and varied details for that. It would be difficult for Milwaukie to have federal partners fund a streetcar in Milwaukie. They would find out through the City of Portland through their streetcar planning and if they had the ability to fund that all locally. He felt they would have a difficult time with the current administration funding streetcar expansion with federal funds, which they were looking for 50% federal funding. Fundamentally they were looking at the first leg, which was doing the trunk service. They had the bus service that fed into that and they were trying to make sure the park-and-ride places could get there and where streetcar can add on to that and build that fuller network the better off we were. He did not disagree on the streetcar notion. They had spent a lot of time on looking at the Forgotten Bridge to Lake Oswego and what it would take to construct across that bridge. One question was why build Lake Oswego and just build Milwaukie light rail and continue across the Forgotten Bridge into Lake Oswego with light rail. The early dollar cost was about $200 million to go across the bridge into downtown Lake Oswego from Milwaukie. The cost of the streetcar on the Willamette Shoreline may not approach $200 million. There was a lot more work to do on that project. They were looking at opportunities to expand and use federal and local funds as smartly as possible.

Ms. Wieghart said streetcar could be a nice supplement to a high capacity transit system but it was not the same thing. Gresham was also looking in the long-term at streetcar as a circulator in addition to light rail.

Mr. Unsworth said there had been about 50 different cities come to Portland and look at the streetcar. It was not that it did not work. It worked in certain places very well, but they were in dense downtowns right now and the federal partners had not embraced that today.

Ms. Wieghart said light rail was selected as the preferred alternative in 2003. It was chosen because it had the greatest increase in corridor and transit use, the greatest reduction in vehicle miles of travel, the greatest reduction in vehicle hours of delay, and the best support of the activity centers. Other alignments that

were looked at were a terminus north of the Milwaukie town center. McLoughlin Boulevard options were considered last summer and through City Planning and City Council input it was determined not to meet the purpose and need. To support land use goals and reflect community values was the vision of connecting with the waterfront and optimizing the transportation system and the environmental impact on the parks, particularly the Milwaukie Riverfront Park. The cost was more expensive than the other options that were studied.

Mayor Bernard added that the Johnson Creek Watershed also testified in opposition.

Councilor Chaimov asked why not Hwy 224 when the major population growth was to the east and not the south?

Mr. Unsworth said they went through an EIS in 2002 that had both Milwaukie light rail and I-205. The LPA at that point was to build I-205 first with adequate park-and-ride capacity and then come back and do Milwaukie. I-205 light rail would open in 2009 with bus routes providing transportation to Damascus and Boring and would have an ample park-and-ride that tried to collect those trips. In 1998 when they looked at an alignment that went from downtown Portland to the old Safeway site to Hwy 224 and Railroad Avenue to serve the Clackamas Town Center it was clear after they went through that process that there was significant rejection and concerns about that alignment. As they came back through and looked at both alignments and what they were seeing in the survey data was there were a number of people that wanted to go into downtown Portland. There were also a lot of people that wanted to come from Milwaukie to Clackamas Town Center and back and also down to Oregon City. They were taking some of that service and making sure that they continued to serve that growing market from downtown Oregon City to Clackamas Town Center. He thought they were trying to address that through the added service and the park-and-rides planned at the Milwaukie alignment and I-205 alignment.

Ms. Wieghart outlined areas under study for new options. The SDEIS published on May 9, 2008 looked at all the impacts and benefits including no-build. Transit ridership was 22,000 to 26,000 more than no-build. The no-build was the current bus system on McLoughlin Boulevard.

Mr. Unsworth said during the peak hours there was a bus about every 3 minutes from downtown Milwaukie. In 2030 there would be more buses than we had today.

Ms. Wieghart added there would be 22,000 households and 89,000 jobs within .5 mile of the light rail stations under the light rail alternative compared to the no-build. That was significant because these were jobs throughout the region in various centers that people from Milwaukie and North Clackamas County would be able to access. There would be congestion reduction in the light rail alternative compared to the 2030 no-build. The transit mode share would increase per trips from Milwaukie to Portland. All trips would increase 9%-17% and for work trips, which tended to be higher transit, the increase would be 13%-24% depending on the alignment option. The vehicle miles of travel would be reduced all day. The vehicle hours of delay would be reduced by 300 – 460 during peak periods and more throughout the day.

Councilor Stone said she thought she heard Ms. Wieghart say that this alignment would not have any major impact on relieving congestion.

Ms. Wieghart explained they tried not to tout the relief of light rail because it led to confusion. She was trying to be specific and maybe was more technical in

detail than she needed to be. The congestion was going to increase over time and any time there was a transportation improvement the congestion would seem about the same. People then ask, What did it do for congestion? They do not like to sell light rail as a congestion reliever. Congestion would grow with population over time anyway, but when you are specifically comparing it in 2030, as they were required to do in the EIS, the no-build alternative had more traffic, vehicle miles traveled, congestion, and delay than the light rail alternative in that particular year. They wouldn't put out a brochure that said light rail would eliminate congestion or provide congestion relief because people would say it was just as bad 3 or 5 years from now.

Councilor Stone said that she had always heard that when light rail was first on the table. So there would be reduced congestion?

Ms. Wieghart said that in 2030 compared to the no-build there would be a reduction in congestion. A mode share would increase, and the increase would be significant compared to the no-build. Another way to look at it was how much traffic would be removed from the road. About 3%-6% of traffic would be reduced depending on which point in the corridor was studied. That equated to a daily reduction in miles of 46,400 to 69,200.

Councilor Stone asked if that was in the year 2030? What would it be between 2015 and 2020?

Mr. Unsworth said that would have to be analyzed. It depended on if the park-and-ride was filled. They knew that the first year it opened the ridership would not be as great as the year 2030. The vehicle hours of delay had to do with time spent in the car. Cumulatively all of the people in the corridor would experience 300-400 hours less congestion in the year 2030. It was hard to get to the number. Light rail was trying to make sure there was mobility and that people could get to the 80,000 jobs and not rely on a car. All of the forecasting assumed gas prices were the same as they were today. They were not allowed to change those inputs. There were things that could be wildly overestimated as well as underestimated.

Ms. Wieghart added there would be improved connections to key destinations: Pioneer Square 1-4 minutes, PSU 15-18 minutes, and South waterfront 28-33 minutes. There were benefits to the different population points by connecting them with high capacity transit. There were environmental impacts greater compared to the 2030 no-build. When building the light rail line they were looking at up to 2 existing and 2 planned parks with direct impacts, 62 potential full acquisitions, it would cross 3 or 5 rivers with threatened or endangered fish, 3 or 4 historic resources, and up to 25 – 38 vibration impacts. There would be mitigation factors for those impacts.

Councilor Stone asked what the historic resources were?

Ms. Wieghart replied the Durway House, ODOT grounds, one building that would be demolished in industrial area, and a trestle would have a visual impact. There were some environmental benefits; reduced total energy consumption, improved air quality, reduced surface water runoff, reduced existing hazmat sites, and it supported economic development. The benefits to Milwaukie would be the ability to expand choices for citizens; Milwaukie residents would have greater access to jobs, and economic business opportunities by accessing population centers. Over time that would increase the tax base. She went through the LPA decision points beginning with the Willamette River Crossing. The main differences were between the 2003 LPA in that the southerly option served more

residents and more jobs and had lighter rail trips. As a result of that the Willamette River Partnership Committee identified a refined river crossing alignment which was not studied but it was in the same area of impact. It went along Sherman on the eastside which compared to Caruthers had fewer business displacements and was closer to OMSI. On the west side it went along the proposed property line between OHSU and the property owner to the south. It would preserve OHSU's ability to develop its 19-acre campus and went far enough south so there was a short walking trip to the tram just below the Ross Island Bridge with access to the Marquam Hill area. It provided good access on the west side to the key employment areas with fewer impacts on the east side and avoided some critical future habitat area planned to the north. That refined river crossing area alignment was supported by the CAC and PMG. The 2003 LPA on McLoughlin Boulevard had more property and parking impacts, but it did have a park-and-ride opportunity at Southgate. The Tillamook did not have the park-and-ride opportunity, but it had fewer acquisitions and business impacts. It also avoided impacting the historic ODOT property, had shorter travel time, and cost less. For those reasons the CAC and PMG, as well as the City staff, had endorsed the Tillamook alignment. The Lake Road terminus was shorter, had fewer acquisitions, impacted fewer parks, cost less and had fewer noise and vibration impacts, but it had impacts to the downtown and had lower ridership. Park Avenue had increased ridership and captured commuters further south, which avoided impacts to downtown Milwaukie. Clackamas County staff also supported that. There were challenges with any mitigation needed with Kronberg Park, the Trolley Trail, crossing McLoughlin Boulevard, and a higher cost. The LPA recommendation from the CAC and the PMG was the refined part of Sherman to the north and the Tillamook alignment south of Tacoma with a single station at Lake Road following the City Council recommendation going down to Park Avenue. That would go to the Steering Committee next week.

Mr. Unsworth said there had been strong support at PMG and the Steering Committee, and Portland, TriMet, Metro, and Clackamas County heard Mayor Bernard's strong support in going south to Park Avenue and on to Oregon City. It would be expensive to get further south. Portland was making some scope reductions to get further south. There was no Bluebird station and only one station in downtown Milwaukie, which were cost reductions to help them consider the ability to get further south.

Ms. Wieghart discussed funding for the $1.25 to $1.4 billion. Hopefully, $750 million would come from the FTA and $250 million from state lottery bonds, which left a balance of $250 - $400 million local match. They had looked at cost reductions to get to Park and had developed a range depending on what kind of contingencies and other requirements the FTA put on them. They had used the $750 million as a soft cap. In the past they had said they did not want to go above that but because project costs around the country were rising they had broken that cap a few times so there was a chance they could go above that. There were $72 million in MTIP funds, which had been tentatively dedicated to the project. That Left $100 - $130 million in potential in-kind and interest which contributed to the match, which would be property contributions they were hoping to get along the alignment. Interest on state and local bonds counted in the project cost but as local match. That left $81 - $231 million that would need to be obtained from the local governments including TriMet, Portland, Milwaukie, and Clackamas County as well as property owners. They believed that the low-end range was achievable from the contributions they had talked about. The higher end appeared be less likely. There had been a lot of conversation around could they afford to get to Park. There was a lot of support for Park Avenue because it

was seen as a much better transit project. It had a greater benefit and better served the North Clackamas County. The PMG recommended a terminus at Park with a minimal operating segment that terminated at Lake Road in the event the FTA required $100 million contingency. They still want to get as far as they could. The CAC recommended a terminus at Park, but in any event go as far south as possible.

Mr. Unsworth said they thought the project cost to Park would be $1.3 billion. They thought there was a way to afford that with a $750 million or a little more. They believed there was a path to funding Park Avenue. There was one new wrinkle - the federal partners have seen projects around the country not meet their expectations. Portland had been extremely good at making sure the dollars allotted did not go up. They would have to go through a risk assessment this fall, and there was some uncertainty about what would come out of that. They had watched one other transit agency do this and they had to add more contingency to the project. There were 2 ways to add more contingency to the project. They could put more money in the project or they could develop a capital reserve account to offset any increased costs. They were looking at both of those options. There were still many things they did not know that would play out over the fall. They were hopeful and everyone was moving towards the Park Avenue terminus, but there were some things out of their hands. The risk assessment would determine whether the project was $1.3 billion or if they needed to put more money into the project. They felt they were in good shape and given how they build the project they were in fine shape. The risk assessment looked at how other agencies around the country had done. They did not know the outcome of the risk assessment and that made it difficult to see if they could get to Park Avenue. Their intent was to get to Park Avenue. The PMG and CAC said it might be wise to have a fall back position.

Mayor Bernard said he had a couple of concerns. If they adopted the Tillamook Branch it would reduce the cost by $25 million. Who would make the decision on the minimum operating segment (MOS).

Mr. Unsworth replied the steering committee would make that decision.

Mayor Bernard said if we get stuck with MOS at Lake Road at what point would we look at moving from Lake Road to Park Avenue?

Ms. Wieghart said the permanent terminus would still be Park Avenue, which would still be the goal. There would be a continued plan to put together the funding to make that additional piece.

Mayor Bernard asked if that would be ahead of every other project like Vancouver. The next segment would be the minimum to Park.

Ms. Wieghart did not know. They would have to talk about how it ranked against other initiatives, but in terms of this project the goal would be to fund the next piece. It would be a short-term goal.

Mayor Bernard was concerned when looking at the Willamette River crossing slide. There was a significant price difference from the LPA of $30 million so he wanted to make it clear if we accepted their decision they need to accept ours. It was a little more expensive to get to there, but we were willing to accept their decision to spend more money for the bridge. At the same time there was a concern about the bridge type because it would have a significant impact on the project. He wanted to make sure that it was understood they were taking on higher cost that could be reduced and that could be put to Park Avenue. TriMet had heard from Council that they want to see Park Avenue. They were

concerned about the impacts of a 1200-space parking spot at Tacoma and how that would be mitigated. He had a big concern about making sure we were collecting the fares from those riding light rail, and he would like to know how many fare inspectors there were on the system.

Mr. Unsworth said Tacoma was a little nuanced. Under the proposed LPA down to Park Avenue they envisioned Tacoma being at about 1,000 spaces. If they brought the line to Lake Road they would look at and consider increasing the size of the Tacoma park-and-ride. Under that scenario it was important to understand one nuance. Lake Road was selected by Council 2 weeks ago. There was a park- and-ride that was proposed at the corner of Main and Washington. They would forego that park-and-ride, and reduce the cost to go further south. Part of trying to get further south was cutting scope and saying maybe that was not the best place for the park-and-ride. If they cut it then the was park-and-ride would not be at Main and Washington. In the FEIS they would probably have 2 alignments with the Park Avenue extension and a MOS here that would disclose the impacts.

Mayor Bernard said if the MOS were Lake Road they would prefer a layover train be somewhere else.

Mr. Unsworth said it was important to know now that when they picked the LPA for the River crossing initially they did not have buses across that bridge. They were now looking at buses on Willamette Crossing, and with that they extended the benefits of the new bridge. When they looked at putting buses on the bridge at the LPA site it was difficult to do that. The dollar cost between what was selected in 2000 and 1998 and where we select it now was less a savings because you could not do everything you wanted to do with the alignment further north. If they got the permission and move forward with the project they would go into a bridge type study.

Councilor Stone went over some old reports from the adoption of the 2003 LPA. There was a former chair of an NDA that commented on the alignment and said when the original plan came out, the proposed Tacoma Street station had 1,000 space parking garage. The neighborhood was concerned about the number of vehicles and additional traffic on the JCB corridor. In response to that concern the garage was changed to 600 spaces.

Mr. Unsworth said that he was present when that happened. They did look at the Ardenwald neighborhood and said they would reduce it. It was important to know when they did the EIS it was in the year 2020. Now we are looking to 2030. We had other opportunities for park-and-rides further south. They looked at Kellogg Lake to get rid of some of that capacity. It was not an apple to apples comparison. When they looked at demand in 2030 there was a lot of people that wanted a park-and-ride so they were trying to more closely match the demand with the supply.

Ms. Wieghart pointed out that they did have an option that was exactly the LPA from 2003 that had 600 spaces and 1,000 in that option.

Councilor Stone said not to mention that sensitivity of the concern of the neighborhood. That was a big concern. When Brian Newman testified at that same meeting he talked about the 14-Points and that light rail should stay out of residential neighborhoods she cannot justify that. It was too big. We cannot compare ourselves to Portland. That train is disproportionate to the size of our little town and it should stop at Southgate. She felt this was an atrocity that we were trying to do this to this little town and neighborhood.

Councilor Loomis asked if the funding was not available to go to Park Avenue were there any other options?

Mr. Unsworth said they looked at what they would have called the Sparrow park-and-ride, which was on 26th off of McLoughlin Boulevard as a potential park-and-ride.

Ms. Wieghart said it did not meet the purpose and need to serve centers and that was why they were looking at high capacity transit.

Councilor Stone asked will the funding go to a vote of the people? She was told in 2003 that the second phase would.

Mr. Unsworth said in went to a vote in 1998 and failed in some locations. It was also an election then with six regional measures 4 of those failed in the same election. When they went back out and did a listening post they heard the problem was still. They heard reduce costs and figure out a way to do this without having to use general obligation bond measures. They went and built Interstate Avenue and got 72% federal funding, so it worked very well. They came back here and said that the problem still existed in the south; what should we do? They looked at river transit, commuter rail, and all of the things they went through earlier and came back in the end with the decision on light rail. They believed they would be able to pull a finance plan together that did not include general obligation bonds. They did not believe there would have to be a vote on the funding plan. Similarly every time you built a highway there was not a vote on that project.

Ms. Wieghart said it depended on the funding source. This was a different financing plan and depended on the local jurisdictions. The funding sources would trigger the vote.

Councilor Stone asked even though there was so much contention about light rail.

Mayor Bernard asked who would make the decision on the bridge type.

Mr. Unsworth said it was a once in a lifetime opportunity to build this type of bridge. He expected there would be a group that advised Mr. Hansen and Mr. Adams and any recommendation would come through the Steering Committee following public input. The question was how do we do that in a way that was cost responsive, aesthetically responsive, and addressed environmental issues. They had hired an engineering and architectural firm to help advise the Steering Committee and others on what was the right family of bridge types that should be considered for this bridge location. Part of the recommendation could be to talk about fiscal responsibility.

Ms. Wieghart said the CAC made its recommendations and the Steering Committee's recommendation was due June 26. It would go immediately out to the jurisdictions to review and to make their recommendations. She wanted to hear from Council if there were major concerns before that. They would like the process to go smoothly and make sure they hear from your Steering Committee member on June 26 about any issues or concerns with the recommendations. It would be very helpful to have that input by June 26.

Mr. Asher said he knew in the 2003 LPA action there was an attachment that had conditions in a sense. It was an opportunity to express needs and desires.

Harmony Road Transportation Improvement Project

Continued due to time constraints.

Mayor Bernard adjourned the work session at 6:50 p.m.

Pat DuVal

Pat DuVal, City Recorder

WORK SESSION

AGENDA

WORK SESSION
MILWAUKIE CITY COUNCIL

JUNE 17, 2008

MILWAUKIE CITY HALL
Second Floor Conference Room
10722 SE Main Street

A light dinner will be served.

WORK SESSION – 5:30 p.m.

Discussion Items:

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3.	6:45 p.m.	Adjourn		

EXECUTIVE SESSION

Executive Session: The Milwaukie City Council may go into Executive Session pursuant to ORS 192.660(2). All discussions are confidential and those present may disclose nothing from the Session. Representatives of the news media are allowed to attend Executive Sessions as provided by ORS 192.660(3) but must not disclose any information discussed. No Executive Session may be held for the purpose of taking any final action or making any final decision. Executive Sessions are closed to the public.

Public Notice

- The Council may vote in work session on non-legislative issues.
- The time listed for each discussion item is approximate. The actual time at which each item is considered may change due to the length of time devoted to the one previous to it.
- For assistance/service per the Americans with Disabilities Act (ADA) please dial TDD (503) 786-7555.
- The Council requests that all pagers and cell phones be either set on silent mode or turned off during the meeting.

CITY OF MILWAUKIE

To: **Mayor and City Council**

Through: **Mike Swanson, City Manager**
Kenneth Asher, Community Development and Public Works Director

From: **Gary Parkin, Director of Engineering**

Subject: **Harmony Road Transportation Improvement Project Update**

Date: **May 27, 2008 for the June 17, 2008 Regular Session**

Action Requested

None. This is an update on the status of the Harmony Road project and is for Information only.

History of Prior Actions and Discussions

January 2, 2008: City Council update, reviewed the Policy Review Committee (PRC) recommendations to not take action on any of the alternatives, instead directing the project team to gather data to allow the PRC to better evaluate new alternatives proposed by the Project Advisory Committee (PAC). Specifically, the team was asked to look at traffic and environmental impacts, business displacements, and whether the new alternatives met the project's purpose and need.

July 17, 2007: City Council updated on the Harmony Road Improvement project status. The project was progressing through its Environmental Impact Study (EIS). The first major step in the EIS was the scoping process. It involved public outreach and agency coordination to provide input on project purpose and need, and determine alternative alignments. The scoping process was completed, and alternatives were presented to the City Council.

Background

Since last meeting to update the City Council on this project, the County's project design team has evaluated the ten alternatives (including no-build) that came out of the

scoping phase and the PAC recommendations from their December 2007 meeting. The ten alternatives are:

#1 No build (it includes the other projects that are anticipated in the region)

#2 Widen 82nd to 7 lanes

#3 Widen 82nd to 7 lanes, omit Sunrise Corridor project, improve the Hwy 224 connection

#4 Widen 82nd to 7 lanes, extend 84th Ave (parallel route to 82nd)

#5 Widen 82nd to 7 lanes, build Harmony road as 3 lane with RR bridge

#6 Build Harmony road with 3 lanes with RR bridge

#7 Build Harmony road with 5 lanes with RR bridge

#8 Build Harmony road with 5 lanes with RR bridge, and Sunnybrook extension from 82nd to Harmony Rd

#9 Build Harmony road with 3 and 5 lanes with RR bridge, and Sunnybrook extension from 82nd to Harmony Rd

#10 Build Harmony road with 3 lanes with RR bridge, and Sunnybrook extension from 82nd to Harmony Rd

The alternatives are described more fully in Attachment 1.

The PRC at their May 14, 2008 meeting gave direction for the project team to continue with six alternatives in the EIS evaluation, alternatives #1,3,4,5,9,and 10. They also directed that the PAC be reconvened to clarify that group's position on the alternatives. That meeting was held June 4, 2008.

Based on input received from the neighborhood, the City's representative on the PRC stated support only for alternatives that did not widen Harmony or add a railroad bridge.

The representative from ODOT stated opposition to any alternative that did not provide non-grade crossing of the rail tracks.

The project is scheduled to complete its EIS by this winter when a locally preferred alternative is identified. Prior to that, the City Council will be asked for concurrence of alternatives to be studied and a draft EIS will be distributed for public and agency stakeholder comment.

Concurrence

This project is incorporated in the Clackamas County Comprehensive Plan. The project is listed as a low priority in the City's recently adopted Transportation System Plan (TSP).

The Linwood NDA supports only looking at options that do not include Harmony Road.

City staff continues to support moving forward with the EIS, looking at the alternatives forwarded from the PAC. There is a traffic problem at the Harmony Road/Linwood intersection (poor level of service, documented in the TSP), which is exacerbated by the proximity of the railroad crossing. The problem is likely to worsen in the future. Further study of possible solutions to the traffic and/or at-grade railroad crossing issues will provide an assessment of the problem and the magnitude of the impacts to solve it.

In addition, the Harmony Road portion of the project would provide for the completion of a Railroad Quiet Zone through the City of Milwaukie, a widely supported community endeavor.

Fiscal Impact

No direct fiscal impacts for City of Milwaukie.

Work Load Impacts

None (no action requested), although the Engineering Director attends regular project management team meetings. The meetings, preparation and miscellaneous project support amount to 15-20 hours per month.

Alternatives

Not applicable at this time as no direction is being sought.

Attachments

1. Material from the PRC meeting- Alternatives Analysis
2. Powerpoint presentation

HARMONY ROAD ALTERNATIVES ANALYSIS

GLOSSARY

LOS

The concept of level-of-service (LOS) has been developed to correlate traffic volume data to subjective descriptions of traffic performance at intersections. Intersections are the controlling bottlenecks of traffic flow, and the ability of a roadway system to carry traffic efficiently is nearly always diminished in their vicinity.

An intersection's LOS is similar to a "report card" rating, based on average vehicle delay. LOS A, B and C indicate conditions where vehicles can move freely. LOS D and E are progressively worse. For signalized intersections, LOS F represents conditions where the average delay for all vehicles through the intersection exceeds 80 seconds per vehicle, generally indicated by long queues and delays. Under this operating condition, delay is highly variable, and it is difficult to estimate average stopped vehicle delay accurately because congestion often extends into adjacent intersection affecting operation.

V/C

The volume to capacity ratio (V/C) is used as a measure of effectiveness for signalized and unsignalized intersection operation. The V/C is calculated by dividing the volume entering the intersection by the total capacity (maximum volume the intersection could serve). The V/C describes the amount of intersection capacity that is utilized by the volume. For example, a 0.85 V/C represents intersection volumes consuming 85% of the available capacity at that intersection. A V/C of 1.0 suggests there is no available capacity at that intersection and not one more vehicle could be accommodated.

Daily Traffic Volumes

The forecasted 2030 daily traffic volumes for the selected roadway sections are based on forecasted 2030 PM peak hour volumes from the Metro travel demand model. Existing PM peak hour traffic volumes were compared to existing daily traffic volumes to estimate the appropriate volume relationship in the study area. Existing traffic count data found the daily traffic volumes were approximately 11 times higher than the PM peak hour. This relationship was assumed to continue in the 2030 forecast year. Therefore, forecasted 2030 PM peak hour volumes were factored by 11 to represent 2030 daily traffic volumes.

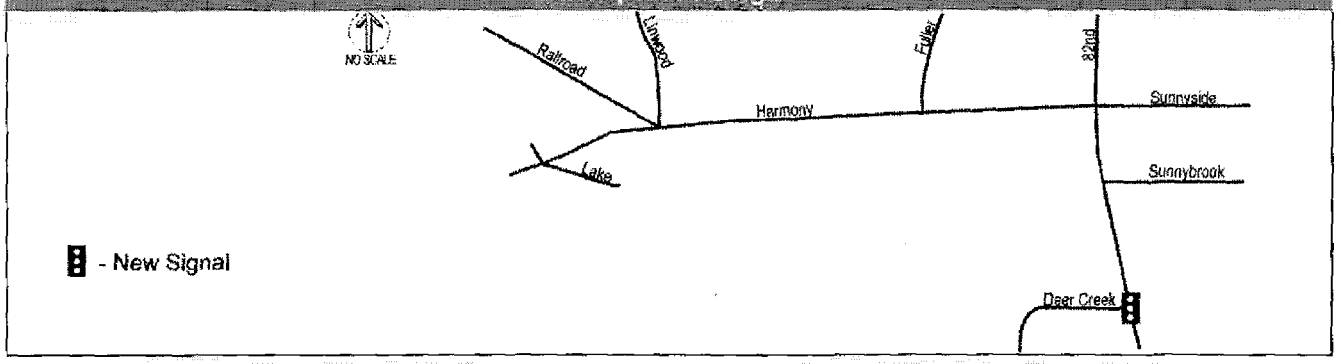
HARMONY ROAD ALTERNATIVES ANALYSIS

ALTERNATIVE 1
2030 No Build

Key Findings

- **The Harmony Road/Linwood Avenue/Railroad Avenue intersection would operate with significant vehicle delay and queues.**
- **The Harmony Road corridor would experience vehicle congestion due to numerous access points and future traffic demands.**
- Mitigation would be required at the Sunnyside Road/82nd Avenue intersection.
- A second northbound left turn lane would be required at the Deer Creek Lane/82nd Avenue intersection.
- Capacity improvements would be needed to accommodate future traffic demands on Highway 224 at Johnson Road.

Conceptual Design



2030 Daily Traffic Volumes (vehicles/day)

Harmony Road west of 82nd Avenue	20,000
Harmony Road west of Fuller Road	23,000
Harmony Road west of Linwood Avenue	18,000
Sunnybrook Blvd west of 82nd Avenue	-
82nd Avenue south of Sunnyside Road	45,000
82nd Avenue south of Sunnybrook Blvd	57,000
Highway 224 west of Johnson Road	44,000

2030 PM Peak Hour Traffic Operations

Intersection	LOS	V/C
Sunnyside Road/82nd Avenue	F E*	1.34 1.00*
Harmony Road/Fuller Road	C	0.90
Sunnybrook Blvd/82nd Avenue	D	1.00
Harmony Road/Linwood Ave	F	1.19
Hwy 224/Johnson Road	F	1.22
Deer Creek Lane/82nd Avenue	E C**	1.20 0.93**

* Add 2nd left turn lane to each approach
** Add 2nd northbound left turn lane

Assumptions

- Assumes all improvement projects identified for the no build scenario.
- The no build scenario includes a seven lane boulevard cross-section on SE 82nd Avenue from Sunnyside to Sunnybrook.
- The no build scenario includes the Sunrise Corridor from I-205 to SE 122nd Avenue. The Sunrise Corridor project includes the Deer Creek Lane extension as a five lane roadway between Hwy 224 and SE 82nd Avenue and a new traffic signal at the Deer Creek Lane/SE 82nd Avenue intersection.

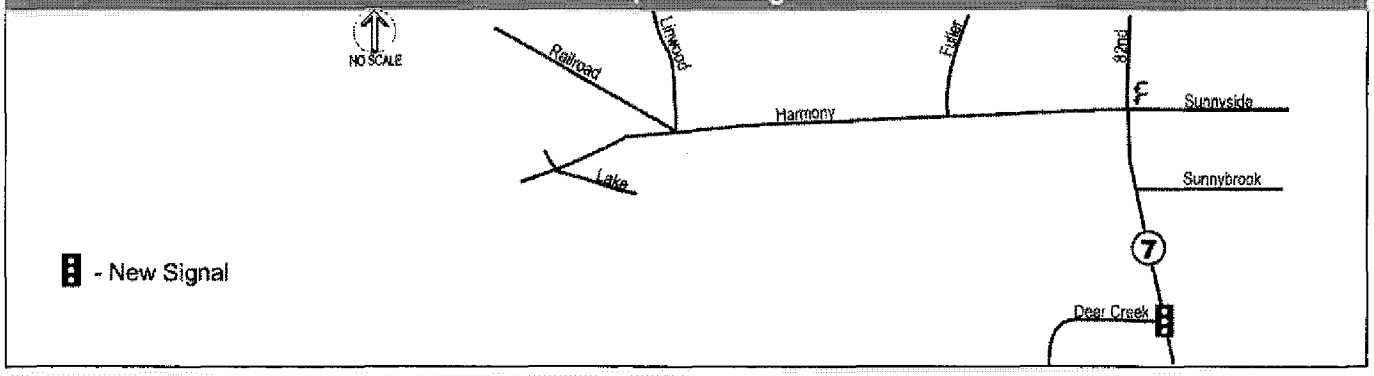
HARMONY ROAD ALTERNATIVES ANALYSIS

ALTERNATIVE 2
2030 No Build + SE 82nd Avenue With 7 Lanes

Key Findings

- **The 7 lane section on 82nd Avenue between Sunnybrook Blvd and Highway 224 and the double westbound left turn lanes at Sunnyside Road/82nd Avenue would not significantly change the travel demand on Harmony Road.**
- The Harmony Road/Linwood Avenue/Railroad Avenue intersection would operate with significant vehicle delay and queues.
- The Harmony Road corridor would experience vehicle congestion due to numerous access points and future traffic demands.
- Additional mitigation would be required at the Sunnyside Road/82nd Avenue intersection.
- Capacity improvements would be needed to accommodate future traffic demands on Highway 224 at Johnson Road.

Conceptual Design



2030 Daily Traffic Volumes (vehicles/day)

Harmony Road west of 82nd Avenue	20,000
Harmony Road west of Fuller Road	23,000
Harmony Road west of Linwood Avenue	18,000
Sunnybrook Blvd west of 82nd Avenue	-
82nd Avenue south of Sunnyside Road	46,000
82nd Avenue south of Sunnybrook Blvd	60,000
Highway 224 west of Johnson Road	44,500

2030 PM Peak Hour Traffic Operations

Intersection	LOS	V/C
Sunnyside Road/82nd Avenue	F E*	1.15 1.04*
Harmony Road/Fuller Road	C	0.88
Sunnybrook Blvd/82nd Avenue	C	0.88
Harmony Road/Linwood Ave	F	1.20
Hwy 224/Johnson Road	E	1.11
Deer Creek Lane/82nd Avenue	D	1.01

* Add 2nd northbound, southbound and eastbound left turn lanes

Assumptions

- Assumes all improvement projects identified for the no build scenario.
- SE 82nd Avenue would be widened to a seven lane cross-section from Sunnybrook to the Highway 224 interchange.
- At the Sunnyside Road/SE 82nd Avenue intersection, the second westbound thru lane would convert to a second westbound left turn lane.

HARMONY ROAD ALTERNATIVES ANALYSIS

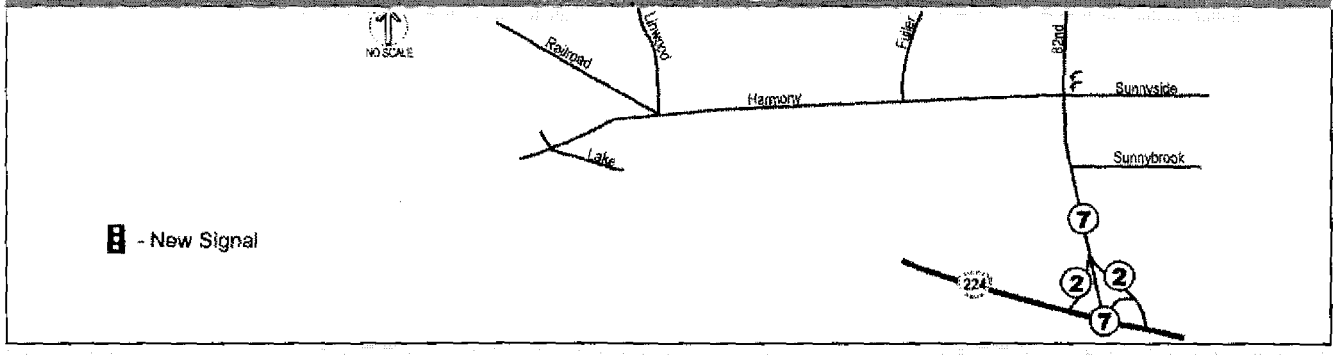
ALTERNATIVE 3

2030 No Build + SE 82nd Avenue With 7 Lanes + Removal of the Sunrise Corridor project+ Improved Connections to Hwy 224

Key Findings

- **The removal of the Sunrise Corridor project would have limited impact on the travel patterns in the study area.**
- **Highway 224 would require a 7 lane section between the between the SE 82nd Avenue ramps.**
- The 7 lane section on 82nd Avenue between Sunnybrook Blvd and Highway 224 and the double westbound left turn lanes at Sunnyside Road/82nd Avenue would not significantly change the travel demand on Harmony Road.
- The Harmony Road/Linwood Avenue/Railroad Avenue intersection would operate with significant vehicle delay and queues.
- The Harmony Road corridor would experience vehicle congestion due to numerous access points and future traffic demands.
- Additional mitigation would be required at the Sunnyside Road/82nd Avenue intersection.
- Capacity improvements would be needed to accommodate future traffic demands on Highway 224 at Johnson Road.

Conceptual Design



2030 Daily Traffic Volumes (vehicles/day)

Harmony Road west of 82nd Avenue	20,000
Harmony Road west of Fuller Road	23,500
Harmony Road west of Linwood Avenue	19,500
Sunnybrook Blvd west of 82nd Avenue	-
82nd Avenue south of Sunnyside Road	43,500
82nd Avenue south of Sunnybrook Blvd	50,000
Highway 224 west of Johnson Road	42,000

2030 PM Peak Hour Traffic Operations

Intersection	LOS	V/C
Sunnyside Road/82nd Avenue	E D*	1.05 0.95*
Harmony Road/Fuller Road	D	0.92
Sunnybrook Blvd/82nd Avenue	C	0.77
Harmony Road/Linwood Ave	F	1.20
Hwy 224/Johnson Road	F	1.27
Hwy 224/82nd Avenue NB Ramp	D	1.02
Hwy 224/82nd Avenue SB Ramp	C	0.98

* Add 2nd northbound, southbound and eastbound left turn lanes.

Assumptions

- Assumes all improvement projects identified for the no build scenario except the Sunrise Corridor project. The Deer Creek Lane extension and the Deer Creek Lane/SE 82nd Avenue traffic signal are not assumed.
- SE 82nd Avenue would be widened to a seven lane cross-section from Sunnybrook to the southbound off-ramp and northbound on-ramp to Highway 224.
- The improved connections to Hwy 224 would widen the SE 82nd Avenue on-ramp and off-ramp to two lanes. SE 82nd Avenue would transition from seven lane north of the ramps to five lanes south of the ramps by dropping the outside southbound lane at the off-ramp and adding the outside northbound lane at the on-ramp.
- At the Sunnyside /SE 82nd intersection, the second westbound thru lane would convert to a second westbound left turn lane.
- Hwy 224 would widen to a seven lane cross-section between the SE 82nd Avenue ramps. The cross-section would include:
  - two left turn lanes and two through lanes in the eastbound direction
  - one left turn lane and two through lanes in the westbound direction
- No sidewalks would be provided on SE 82nd Avenue south of Sunnybrook Boulevard.

HARMONY ROAD ALTERNATIVES ANALYSIS

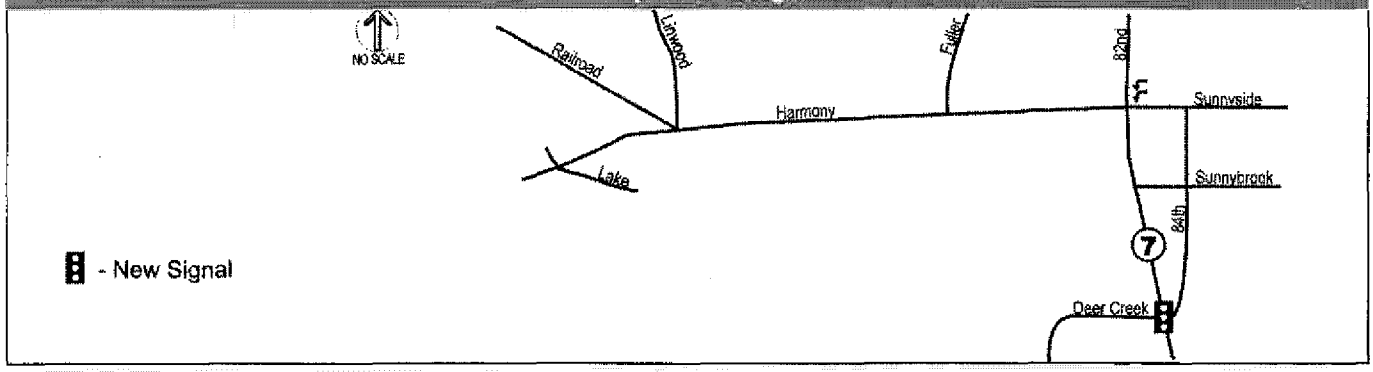
ALTERNATIVE 4

2030 No Build+ SE 82nd Avenue With 7 Lanes + SE 84th Avenue Extension

Key Findings

- **The 84th Avenue extension would not significantly change the travel demand on Harmony Road.**
- **The 84th Avenue extension would have a marginal benefit to traffic operations on 82nd Avenue.**
- The 7 lane section on 82nd Avenue between Sunnybrook Blvd and Highway 224 and the double westbound left turn lanes at Sunnyside Road/82nd Avenue would not significantly change the travel demand on Harmony Road.
- The Harmony Road/Linwood Avenue/Railroad Avenue intersection would operate with significant vehicle delay and queues.
- The Harmony Road corridor would experience vehicle congestion due to numerous access points and future traffic demands.
- Additional mitigation would be required at the Sunnyside Road/82nd Avenue intersection.
- Capacity improvements would be needed to accommodate future traffic demands on Highway 224 at Johnson Road.

Conceptual Design



2030 Daily Traffic Volumes (vehicles/day)

Harmony Road west of 82nd Avenue	20,000
Harmony Road west of Fuller Road	23,000
Harmony Road west of Linwood Avenue	17,500
Sunnybrook Blvd west of 82nd Avenue	-
82nd Avenue south of Sunnyside Road	46,000
82nd Avenue south of Sunnybrook Blvd	52,000
Highway 224 west of Johnson Road	43,000

2030 PM Peak Hour Traffic Operations

Intersection	LOS	V/C
Sunnyside Road/82nd Avenue	F E*	1.17 1.06*
Harmony Road/Fuller Road	C	0.86
Sunnybrook Blvd/82nd Avenue	B	0.72
Harmony Road/Linwood Ave	F	1.19
Hwy 224/Johnson Road	F	1.22
Deer Creek Lane/82nd Avenue	C	0.90

* Add 2nd northbound, southbound and eastbound left turn lanes.

Assumptions

- Assumes all improvement projects identified for the no build scenario.
- SE 82nd Avenue would be widened to a seven lane cross-section from Sunnybrook to the Highway 224 interchange.
- SE 84th Avenue extension would be added. This new roadway would extend from Sunnyside Road to the Deer Creek Lane/SE 82nd Avenue intersection. The SE 84th Avenue extension would be assumed as a three lane collector with a 30 mph speed limit. The alignment of SE 84th Avenue is to be determined.
- Deer Creek Lane would provide a four lane cross-section between SE 82nd Avenue and SE 84th Avenue.
- At the Sunnyside Road/SE 82nd Avenue intersection, the second westbound thru lane would convert to a second westbound left turn lane.

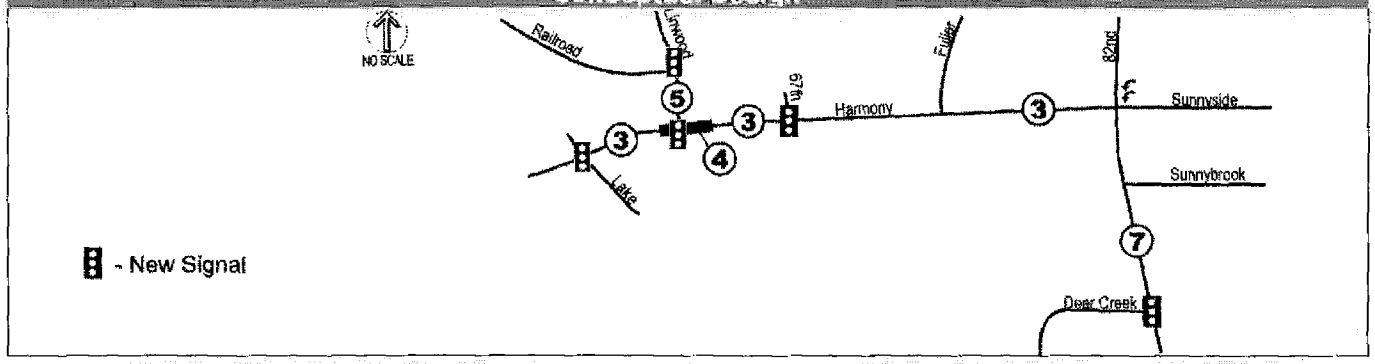
HARMONY ROAD ALTERNATIVES ANALYSIS

ALTERNATIVE 5
2030 No Build + SE 82nd Avenue With 7 Lanes + Harmony Road With 3 Lanes and Grade-Separated Railroad Crossing

Key Findings

- **Access management measures (such as driveway closure and consolidation) would be necessary on Harmony Road to maintain acceptable traffic flow. Unsignalized access points would experience difficulties due to limited gaps in the traffic stream.**
- The 7 lane section on 82nd Avenue between Sunnybrook Blvd and Highway 224 and the double westbound left turn lanes at Sunnyside Road/82nd Avenue would not significantly change the travel demand on Harmony Road.
- Linwood Avenue would require a 5 lane section between Harmony Road and Railroad Avenue. Harmony Road would require a 4 lane section east of Linwood Avenue.
- Additional mitigation would be required at the Sunnyside Road/82nd Avenue intersection.
- A second northbound left turn lane would be required at the Deer Creek Lane/82nd Avenue intersection.
- Capacity improvements would be needed to accommodate future traffic demands on Highway 224 at Johnson Road.

Conceptual Design



2030 Daily Traffic Volumes (vehicles/day)

Harmony Road west of 82nd Avenue	20,000
Harmony Road west of Fuller Road	23,000
Harmony Road west of Linwood Avenue	20,000
Sunnybrook Blvd west of 82nd Avenue	-
82nd Avenue south of Sunnyside Road	46,000
82nd Avenue south of Sunnybrook Blvd	59,500
Highway 224 west of Johnson Road	43,000

2030 PM Peak Hour Traffic Operations

Intersection	LOS	V/C
Sunnyside Road/82nd Avenue	F E*	1.16 1.05*
Harmony Road/Fuller Road	C	0.89
Sunnybrook Blvd/82nd Avenue	C	0.88
Harmony Road/Linwood Ave	E C**	1.04 0.73**
Hwy 224/SE Johnson Road	F	1.22
Deer Creek Lane/82nd Avenue	C	0.86

* Add 2nd northbound, southbound and eastbound left turn lanes.
** Linwood with five lane section from Harmony to Railroad. Harmony with 4 lane section east of Linwood.

Assumptions

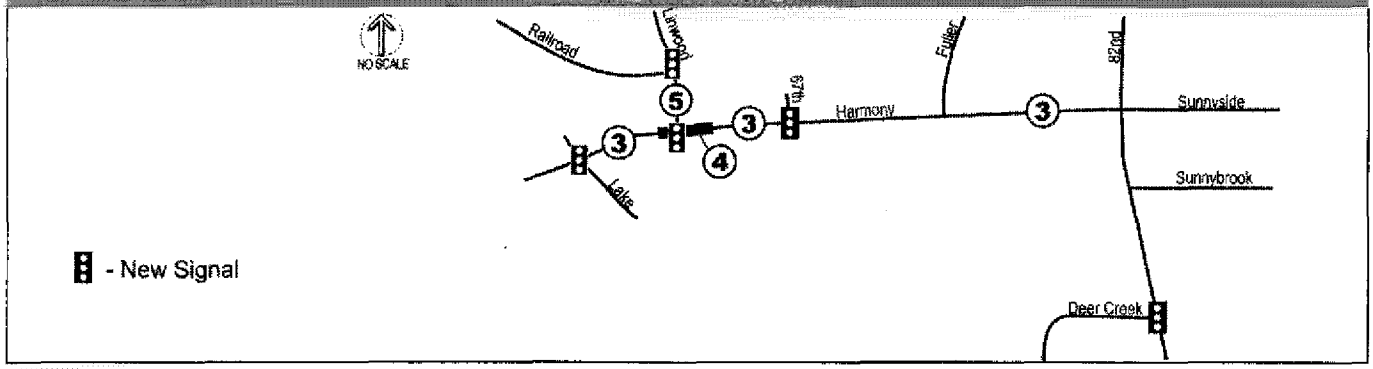
- Assumes all improvement projects identified for the no build scenario.
- SE 82nd Avenue would be widened to a seven lane cross-section from Sunnybrook to the Highway 224 interchange.
- Harmony Road would be widened to a three lane cross-section from Fuller Road to Lake Road/International Way. East of Linwood Avenue, Harmony Road would be four lanes wide to accommodate two southbound left turn lanes from Linwood Avenue.
- At the Sunnyside Road/SE 82nd Avenue intersection, the second westbound thru lane would convert to a second westbound left turn lane.
- A grade-separated railroad crossing would be assumed on Harmony Road at the Linwood Avenue/Railroad Road intersection.
- Linwood Avenue would provide a five lane cross-section between Harmony Road and the realigned Railroad Avenue.
- The Lake Road/International Way/Harmony Road intersection would be relocated to the east to improve access spacing.
- Access to Cedar Crest Drive from Harmony Road would be closed.
- A traffic signal would be provided at the SE 67th Avenue/Harmony Road intersection.

HARMONY ROAD ALTERNATIVES ANALYSIS
ALTERNATIVE 6
2030 No Build + Harmony Road With 3 Lanes and Grade-Separated Railroad Crossing

Key Findings

- **Access management measures (such as driveway closure and consolidation) would be necessary on Harmony Road to maintain acceptable traffic flow. Unsignalized access points would experience difficulties due to limited gaps in the traffic stream.**
- Linwood Avenue would require a 5 lane section between Harmony Road and Railroad Avenue. Harmony Road would require a 4 lane section east of Linwood Avenue.
- Additional mitigation would be required at the Sunnyside Road/82nd Avenue intersection.
- A second northbound left turn lane would be required at the Deer Creek Lane/82nd Avenue intersection.
- Capacity improvements would be needed to accommodate future traffic demands on Highway 224 at Johnson Road.

Conceptual Design



2030 Daily Traffic Volumes (vehicles/day)

Harmony Road west of 82nd Avenue	20,000
Harmony Road west of Fuller Road	24,000
Harmony Road west of Linwood Avenue	20,000
Sunnybrook Blvd west of 82nd Avenue	-
82nd Avenue south of Sunnyside Road	45,000
82nd Avenue south of Sunnybrook Blvd	57,000
Highway 224 west of Johnson Road	43,000

2030 PM Peak Hour Traffic Operations

Intersection	LOS	V/C
Sunnyside Road/82nd Avenue	F D*	1.33 0.95*
Harmony Road/Fuller Road	D	0.93
Sunnybrook Blvd/82nd Avenue	D	0.99
Harmony Road/Linwood Ave	E C***	1.04 0.74***
Hwy 224/SE Johnson Road	F	1.21
Deer Creek Lane/82nd Avenue	D C**	1.05 0.94**

* Add 2nd left turn lane to all approaches.
** Add 2nd northbound left turn lane.
*** Linwood with five lane section from Harmony to Railroad. Harmony with 4 lane section east of Linwood.

Assumptions

- Assumes all improvement projects identified for the no build scenario.
- Harmony Road would be widened to a three lane cross-section from Fuller Road to Lake Road/International Way. East of Linwood Avenue, Harmony Road would be four lanes wide to accommodate two southbound left turn lanes from Linwood Avenue.
- A grade-separated railroad crossing would be assumed on Harmony Road at the Linwood Avenue/Railroad Road intersection.
- Linwood Avenue would provide a five lane cross-section between Harmony Road and the realigned Railroad Avenue.
- The Lake Road/International Way/Harmony Road intersection would be relocated to the east to improve access spacing.
- Access to Cedar Crest Drive from Harmony Road would be closed.
- A traffic signal would be provided at the SE 67th Avenue/Harmony Road intersection.

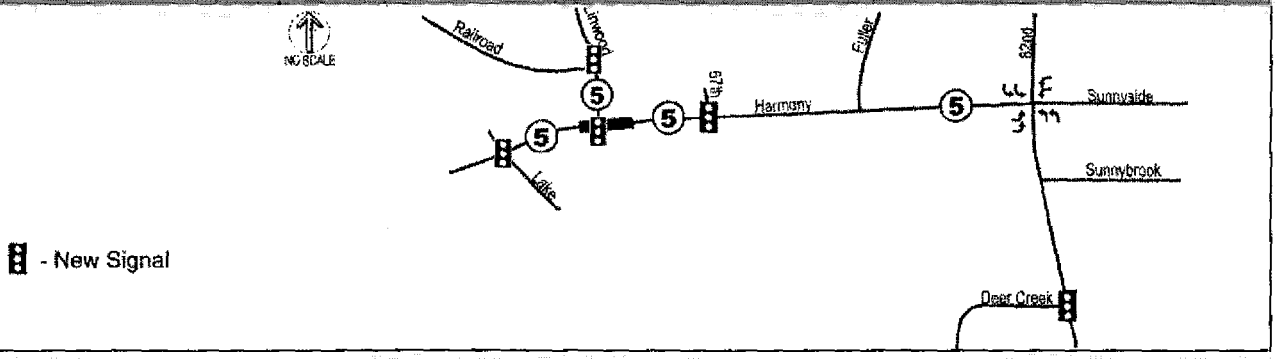
HARMONY ROAD ALTERNATIVES ANALYSIS

ALTERNATIVE 7
2030 No Build + Harmony Road With 5 Lanes and Grade-Separated Railroad Crossing

Key Findings

- **The additional capacity on Harmony Road would increase traffic volumes 2,000 to 3,000 vehicles per day in the year 2030.**
- Linwood Avenue would require a 5 lane section between Harmony Road and Railroad Avenue.
- A second northbound left turn lane would be required at the Deer Creek Lane/82nd Avenue intersection.
- Capacity improvements would be needed to accommodate future traffic demands on Highway 224 at Johnson Road.

Conceptual Design



2030 Daily Traffic Volumes (vehicles/day)

Harmony Road west of 82nd Avenue	22,000
Harmony Road west of Fuller Road	26,000
Harmony Road west of Linwood Avenue	22,500
Sunnybrook Blvd west of 82nd Avenue	-
82nd Avenue south of Sunnyside Road	45,500
82nd Avenue south of Sunnybrook Blvd	56,000
Highway 224 west of Johnson Road	42,000

2030 PM Peak Hour Traffic Operations

Intersection	LOS	V/C
Sunnyside Road/82nd Avenue	E	1.02
Harmony Road/Fuller Road	C	0.71
Sunnybrook Blvd/82nd Avenue	D	0.98
Harmony Road/Linwood Ave	C**	0.67**
Hwy 224/SE Johnson Road	F	1.21
Deer Creek Lane/82nd Avenue	D C*	1.05 0.93*

* Add 2nd northbound left turn lane
** Linwood with five lane section from Harmony to Railroad

Assumptions

- Assumes all improvement projects identified for the no build scenario.
- Harmony Road would be widened to a five lane cross-section with access management measures from SE 82nd Avenue to Lake Road/International Way.
- A grade-separated railroad crossing would be assumed on Harmony Road at the Linwood Avenue/Railroad Road intersection.
- Linwood Avenue would provide a five lane cross-section between Harmony Road and the realigned Railroad Avenue.
- The Lake Road/International Way/Harmony Road intersection would be relocated to the east to improve access spacing.
- Access to Cedar Crest Drive from Harmony Road would be closed.
- At the Sunnyside Road/SE 82nd Avenue intersection, all approaches would have double left turn lanes.
- A traffic signal would be provided at the SE 67th Avenue/Harmony Road intersection.

HARMONY ROAD ALTERNATIVES ANALYSIS

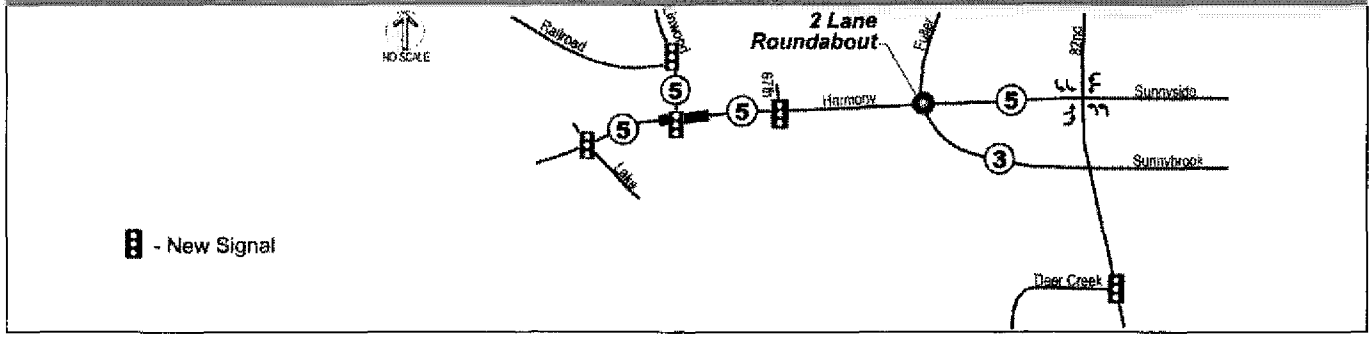
ALTERNATIVE 8

2030 No Build + Harmony Road With 5 Lanes + Sunnybrook Extension With 3 Lanes and Grade-Separated Railroad Crossing

Key Findings

- **Five lane Harmony Road between 82nd Ave and Fuller Rd would not be required with the Sunnybrook extension.**
- The additional capacity on Harmony Road would increase traffic volumes 2,000 to 3,000 vehicles per day in the year 2030.
- Linwood Avenue would require a 5 lane section between Harmony Road and Railroad Avenue.
- Additional analysis or mitigation would be needed at the Sunnybrook Boulevard/82nd Avenue intersection.
- A second northbound left turn lane would be required at the Deer Creek Lane/82nd Avenue intersection.
- Capacity improvements would be needed to accommodate future traffic demands on Highway 224 at Johnson Road.

Conceptual Design



2030 Daily Traffic Volumes (vehicles/day)

Harmony Road west of 82nd Avenue	15,000
Harmony Road west of Fuller Road	29,500
Harmony Road west of Linwood Avenue	24,500
Sunnybrook Blvd west of 82nd Avenue	15,000
82nd Avenue south of Sunnyside Road	41,000
82nd Avenue south of Sunnybrook Blvd	56,500
Highway 224 west of Johnson Road	42,000

2030 PM Peak Hour Traffic Operations

Intersection	LOS	V/C
Sunnyside Road/82nd Avenue	D	0.94
Harmony Road/Fuller Road	C	-
Sunnybrook Blvd/82nd Avenue	F E*	1.55 1.10*
Harmony Road/Linwood Ave	C***	0.74***
Hwy 224/SE Johnson Road	F	1.22
Deer Creek Lane/82nd Avenue	D C**	1.07 0.94**

* Add 2nd eastbound through lane and 2nd westbound left turn lane
** Add 2nd northbound left turn lane
*** Linwood with five lane section from Harmony to Railroad

Assumptions

- Assumes all improvement projects identified for the no build scenario.
- Harmony Road would be widened to a five lane cross-section with access management measures from SE 82nd Avenue to Fuller Road.
- Harmony Road would be widened to a five lane cross-section with access management measures from Fuller Road to Lake Road/International Way.
- A grade-separated railroad crossing would be assumed on Harmony Road at the Linwood Avenue/Railroad Road intersection.
- Linwood Avenue would provide a five lane cross-section between Harmony Road and the realigned Railroad Avenue.
- The Sunnybrook extension would be added from Fuller Road/Harmony Road to Sunnybrook Blvd/SE 82nd Avenue. The Sunnybrook extension would be assumed as a three lane collector with a 35 mph speed limit.
- The Sunnybrook Boulevard/Fuller Road/Harmony Road intersection would be controlled by a two-lane roundabout.
- The Lake Road/International Way/Harmony Road intersection would be relocated to the east to improve access spacing.
- Access to Cedar Crest Drive from Harmony Road would be closed.
- At the Sunnyside Road/SE 82nd Avenue intersection, all approaches would have double left turn lanes.
- A traffic signal would be provided at the SE 67th Avenue/Harmony Road intersection.

HARMONY ROAD ALTERNATIVES ANALYSIS

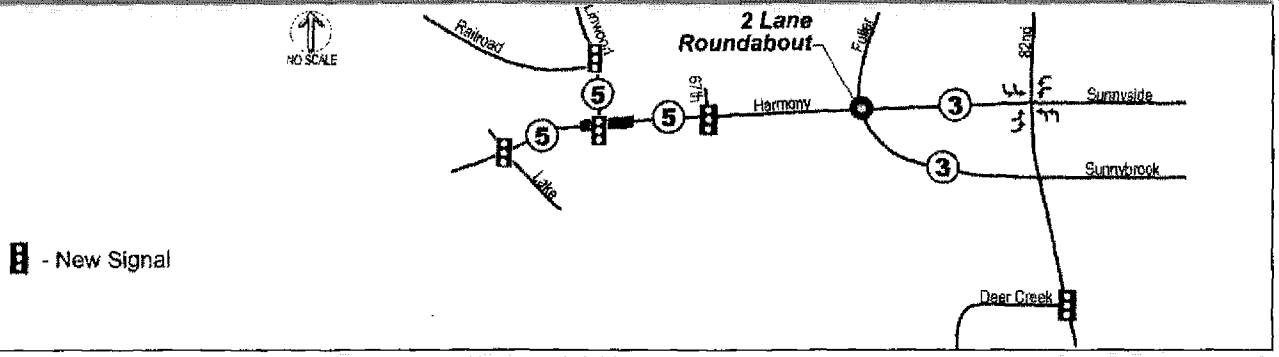
ALTERNATIVE 9

2030 No Build + Harmony Road With 3/5 Lanes + Sunnybrook Extension With 3 Lanes and Grade-Separated Railroad Crossing

Key Findings

- Access management measures (driveway closure/consolidation) would be needed on the Harmony Road 3 lane section to maintain acceptable traffic flow. Unsignalized access points would experience difficulties due to limited gaps in the traffic stream.
- Linwood Avenue would require a 5 lane section between Harmony Road and Railroad Avenue.
- Additional analysis or mitigation would be needed at the Sunnybrook Boulevard/82nd Avenue intersection.
- A second northbound left turn lane would be required at the Deer Creek Lane/82nd Avenue intersection.
- Capacity improvements would be needed to accommodate future traffic demands on Highway 224 at Johnson Road.

Conceptual Design



2030 Daily Traffic Volumes (vehicles/day)

Harmony Road west of 82nd Avenue	13,000
Harmony Road west of Fuller Road	29,000
Harmony Road west of Linwood Avenue	24,000
Sunnybrook Blvd west of 82nd Avenue	16,000
82nd Avenue south of Sunnyside Road	40,000
82nd Avenue south of Sunnybrook Blvd	56,000
Highway 224 west of Johnson Road	42,000

2030 PM Peak Hour Traffic Operations

Intersection	LOS	V/C
Sunnyside Road/82nd Avenue	D	0.94
Harmony Road/Fuller Road	C	-
Sunnybrook Blvd/82nd Avenue	F E*	1.55 1.10*
Harmony Road/Linwood Ave	C***	0.74***
Hwy 224/SE Johnson Road	F	1.22
Deer Creek Lane/82nd Avenue	D C**	1.07 0.94**

* Add 2nd eastbound through lane and second westbound left turn lane
** Add 2nd northbound left turn lane
*** Linwood with five lane section from Harmony to Railroad

Assumptions

- Assumes all improvement projects identified for the no build scenario.
- Harmony Road would be widened to a three lane cross-section from SE 82nd Avenue to Fuller Road.
- Harmony Road would be widened to a five lane cross-section with access management measures from Fuller Road to Lake Road/International Way.
- A grade-separated railroad crossing would be assumed on Harmony Road at the Linwood Avenue/Railroad Road intersection.
- Linwood Avenue would provide a five lane cross-section between Harmony Road and the realigned Railroad Avenue.
- The Sunnybrook extension would be added from Fuller Road/Harmony Road to Sunnybrook Blvd/SE 82nd Avenue. The Sunnybrook extension would be assumed as a three lane collector with a 35 mph speed limit.
- The Sunnybrook Boulevard/Fuller Road/Harmony Road intersection would be controlled by a two-lane roundabout.
- The Lake Road/International Way/Harmony Road intersection would be relocated to the east to improve access spacing.
- Access to Cedar Crest Drive from Harmony Road would be closed.
- At the Sunnyside Road/SE 82nd Avenue intersection, all approaches would have double left turn lanes.
- A traffic signal would be provided at the SE 67th Avenue/Harmony Road intersection.

HARMONY ROAD ALTERNATIVES ANALYSIS

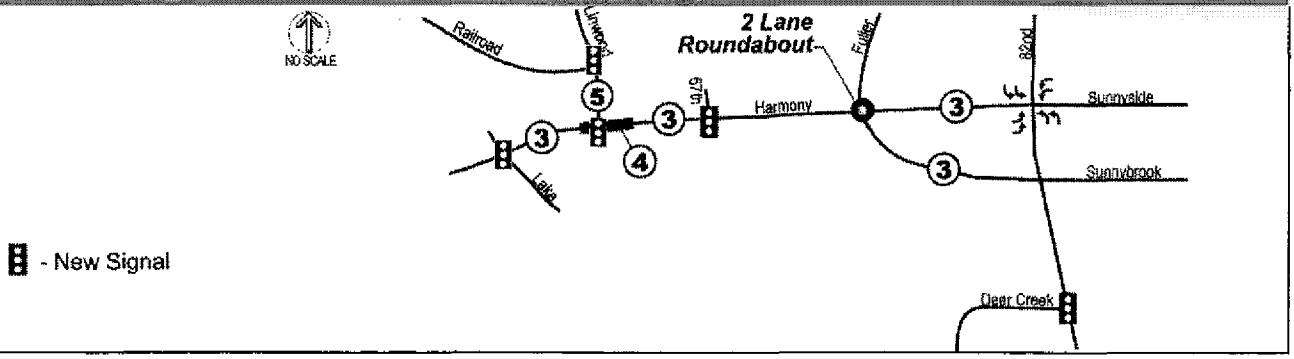
ALTERNATIVE 10

2030 No Build + Harmony Road With 3 Lanes + Sunnybrook Extension With 3 Lanes and Grade-Separated Railroad Crossing

Key Findings

- Access management measures (driveway closure/consolidation) would be necessary on Harmony Road to maintain acceptable traffic flow. Unsignalized access points would experience difficulties due to limited gaps in the traffic stream.
- Linwood Avenue would require a 5 lane section between Harmony Road and Railroad Avenue. Harmony Road would require a 4 lane section east of Linwood Avenue.
- Additional analysis or mitigation would be needed at the Sunnybrook Boulevard/82nd Avenue intersection.
- A second northbound left turn lane would be required at the Deer Creek Lane/82nd Avenue intersection.
- Capacity improvements would be needed to accommodate future traffic demands on Highway 224 at Johnson Road.

Conceptual Design



2030 Daily Traffic Volumes (vehicles/day)

Harmony Road west of 82nd Avenue	14,500
Harmony `Road west of Fuller Road	26,000
Harmony Road west of Linwood Avenue	20,000
Sunnybrook Blvd west of 82nd Avenue	12,500
82nd Avenue south of Sunnyside Road	41,000
82nd Avenue south of Sunnybrook Blvd	57,000
Highway 224 west of Johnson Road	42,000

2030 PM Peak Hour Traffic Operations

Intersection	LOS	V/C
Sunnyside Road/82nd Avenue	D	0.95
Harmony Road/Fuller Road	C	-
Sunnybrook Blvd/82nd Avenue	F E*	1.45 1.04*
Harmony Road/Linwood Ave	E C***	1.12 0.74***
Hwy 224/SE Johnson Road	F	1.21
Deer Creek Lane/82nd Avenue	D C**	1.07 0.95**

* Add 2nd eastbound through lane and second westbound left turn lane
** Add 2nd northbound left turn lane
*** Linwood with five lane section from Harmony to Railroad. Harmony with 4 lane section east of Linwood.

Assumptions

- Assumes all improvement projects identified for the no build scenario.
- Harmony Road would be widened to a three lane cross-section from SE 82nd Avenue to Fuller Road.
- Harmony Road would be widened to a three lane cross-section from Fuller Road to Lake Road/International Way. East of Linwood Avenue, Harmony Road would be four lanes wide to accommodate two southbound left turn lanes from Linwood Ave.
- A grade-separated railroad crossing would be assumed on Harmony Road at the Linwood Avenue/Railroad Road intersection.
- Linwood Avenue would provide a five lane cross-section between Harmony Road and the realigned Railroad Avenue.
- The Sunnybrook extension would be added from Fuller Road/Harmony Road to Sunnybrook Blvd/SE 82nd Avenue. The Sunnybrook extension would be assumed as a three lane collector with a 35 mph speed limit.
- The Sunnybrook Boulevard/Fuller Road/Harmony Road intersection would be controlled by a two-lane roundabout.
- The Lake Road/International Way/Harmony Road intersection would be relocated to the east to improve access spacing.
- Access to Cedar Crest Drive from Harmony Road would be closed.
- At the Sunnyside Road/SE 82nd Avenue intersection, all approaches would have double left turn lanes.
- A traffic signal would be provided at the SE 67th Avenue/Harmony Road intersection.

GLOSSARY

LOS
The concept of level-of-service (LOS) has been developed to correlate traffic volume data to subjective descriptions of traffic performance at intersections. Intersections are the controlling bottlenecks of traffic flow, and the ability of a roadway system to carry traffic efficiently is nearly always diminished in their vicinity.

An intersection's LOS is similar to a "report card" rating, based on average vehicle delay. LOS A, B and C indicate conditions where vehicles can move freely. LOS D and E are progressively worse. For signalized intersections, LOS F represents conditions where the average delay for all vehicles through the intersection exceeds 80 seconds per vehicle, generally indicated by long queues and delays. Under this operating condition, delay is highly variable, and it is difficult to estimate average stopped vehicle delay accurately because congestion often extends into adjacent intersection affecting operation.

V/C
The volume to capacity ratio (V/C) is used as a measure of effectiveness for signalized and unsignalized intersection operation. The V/C is calculated by dividing the volume entering the intersection by the total capacity (maximum volume the intersection could serve). The V/C describes the amount of intersection capacity that is utilized by the volume. For example, a 0.85 V/C represents intersection volumes consuming 85% of the available capacity at that intersection. A V/C of 1.0 suggests there is no available capacity at that intersection and not one more vehicle could be accommodated.

Daily Traffic Volumes
The forecasted 2030 daily traffic volumes for the selected roadway sections are based on forecasted 2030 PM peak hour volumes from the Metro travel demand model. Existing PM peak hour traffic volumes were compared to existing daily traffic volumes to estimate the appropriate volume relationship in the study area. Existing traffic count data found the daily traffic volumes were approximately 11 times higher than the PM peak hour. This relationship was assumed to continue in the 2030 forecast year. Therefore, forecasted 2030 PM peak hour volumes were factored by 11 to represent 2030 daily traffic volumes.

Harmony Road Area Transportation Improvements

City Of Milwaukie City Council Work Session
June 17, 2008
From material presented to the
Project Advisory Committee on
June 4, 2008

U.S. Department of Transportation
Federal Highway Administration

OREGON DEPARTMENT OF TRANSPORTATION

CLACKAMAS COUNTY

Alternative 1

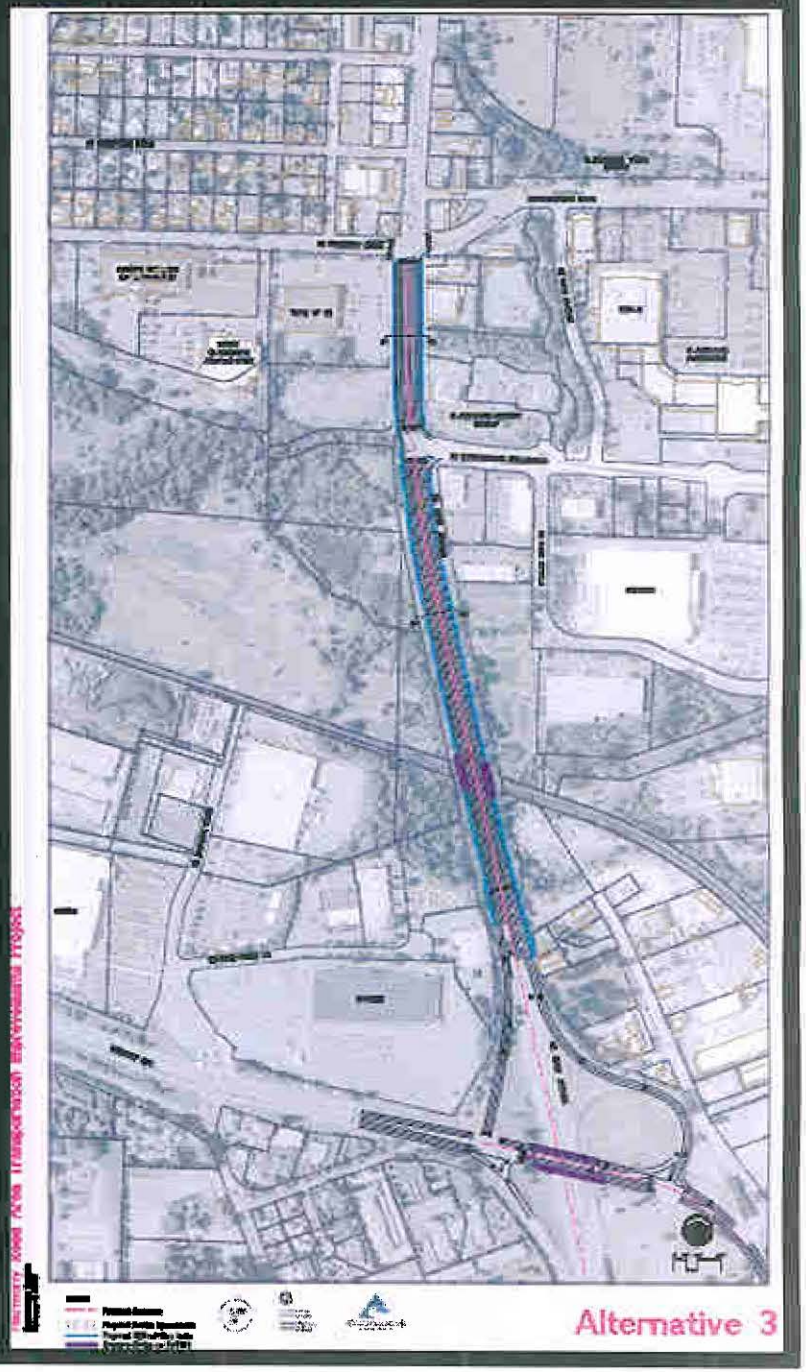
- 2030 No-Build
- Planned financially constrained projects in study area, including:
  - 82nd Ave expansion – Sunnyside to Sunnybrook
  - Sunrise Project
  - Fuller Rd reconstruction
  - Railroad Ave bike/ped improvements
  - Lake Rd improvements
  - Sunnyside Rd bike lanes
  - 82nd Ave boulevard – Causey to Sunnyside
  - 37th Ave bike/ped improvements
  - Webster Rd / Lake Rd intersection

Alternative 1 Findings

- Traffic –
  - Increased congestion (compared with today) with significant vehicle queues and delays
  - 23,000 ADT on Harmony (west of Fuller)
- Environment –
  - Lower impact potential for displacements, natural resources, & hazardous materials

Alternative 3

- Includes: 2030 No-Build + 82nd Ave 7 Lanes + Removal of Sunrise Project + Improved Connection to Hwy 224



Alternative 3 Findings

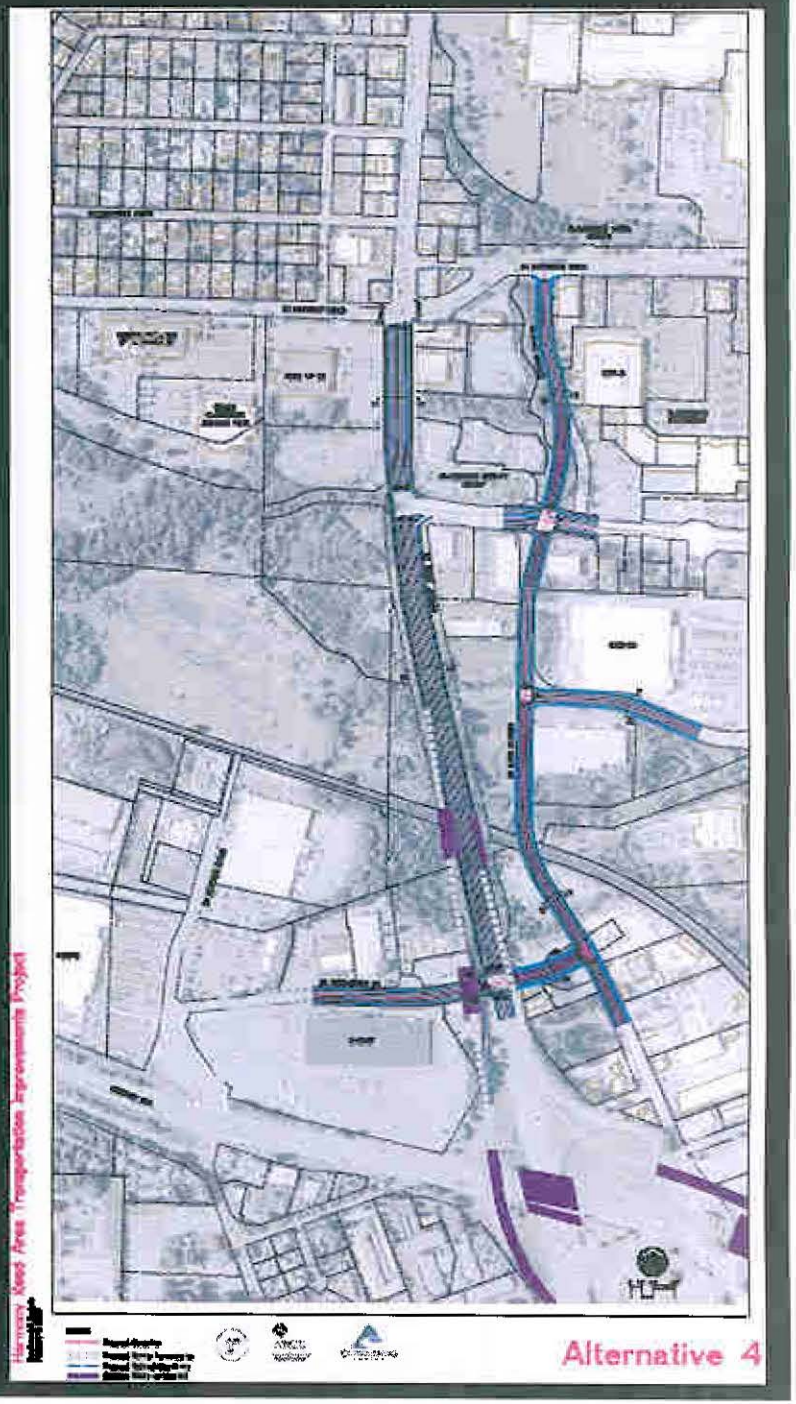
- Traffic –
  - Would not significantly change travel demand on Harmony Rd
  - Harmony Rd would remain congested
  - 23,500 ADT on Harmony (west of Fuller)

Alternative 3 Findings

- Environment –
  - Lower displacement potential
  - Potential wetland and waterway impacts are higher with 82nd Ave expansion
  - Lower impact to trees
  - Hazardous materials concerns
    - Retaining wall and bridge foundations resulting in possible disturbance of contaminated soils and groundwater adjacent to 82nd

Alternative 4

- Includes: 2030 No-Build + 82nd Ave 7 Lanes + 84th Ave Extension



Alternative 4 Findings

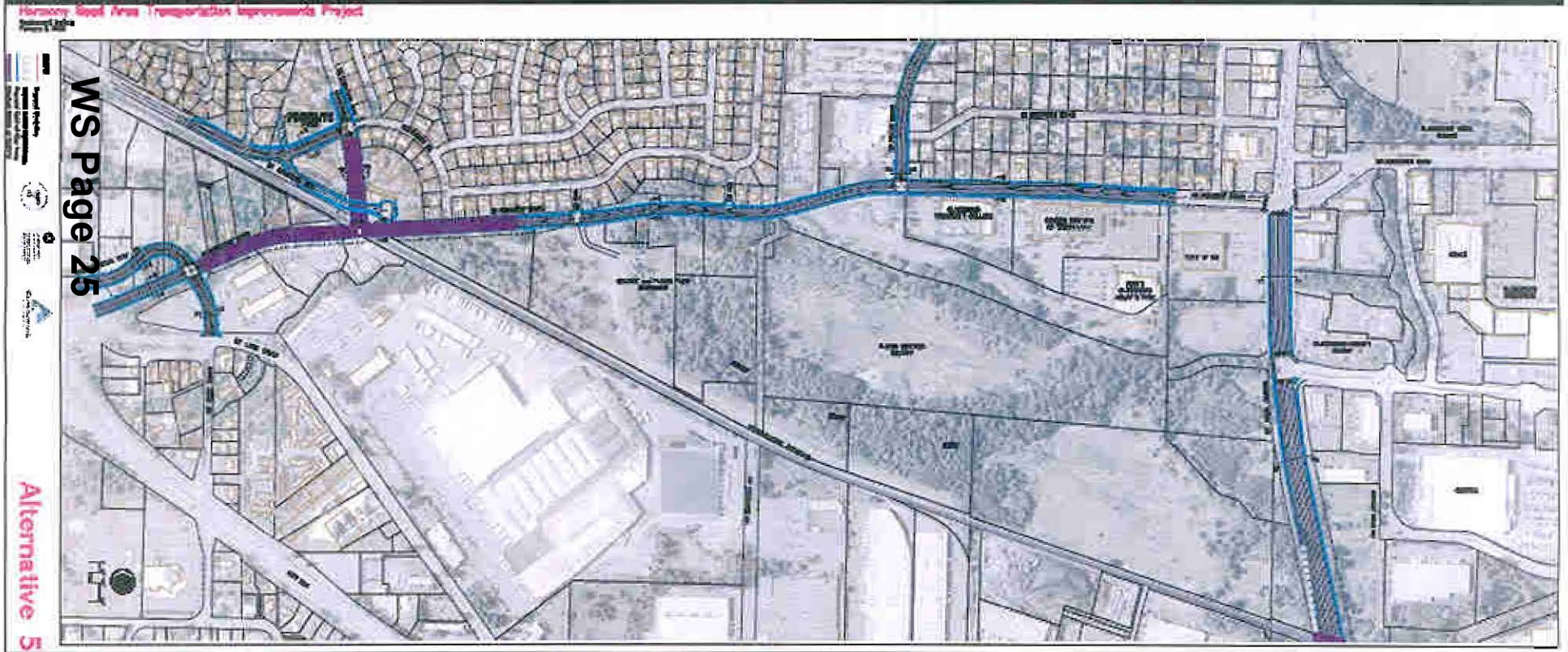
- Traffic –
  - Would not significantly change travel demand on Harmony Rd
  - Harmony Rd would remain congested
  - 84th Ave extension would have marginal benefit to 82nd Ave
  - 23,000 ADT on Harmony (west of Fuller)

Alternative 4 Findings

- Environment –
  - Additional displacement/access impacts compared to Alt 3
  - Potential wetland and waterway impacts are highest
  - Moderate tree impacts
  - Higher hazardous materials concerns
    - Retaining walls and structures with deep foundations could disturb contaminated soil near Clackamas County Sheriff's facility
    - Possible disturbance of contaminated soils and groundwater adjacent to 82nd

Alternative 5

- Includes: 2030 No-Build + 82nd Ave 7 Lanes + Harmony Rd 3 Lanes & Grade-Separated RR Crossing



Alternative 5 Findings

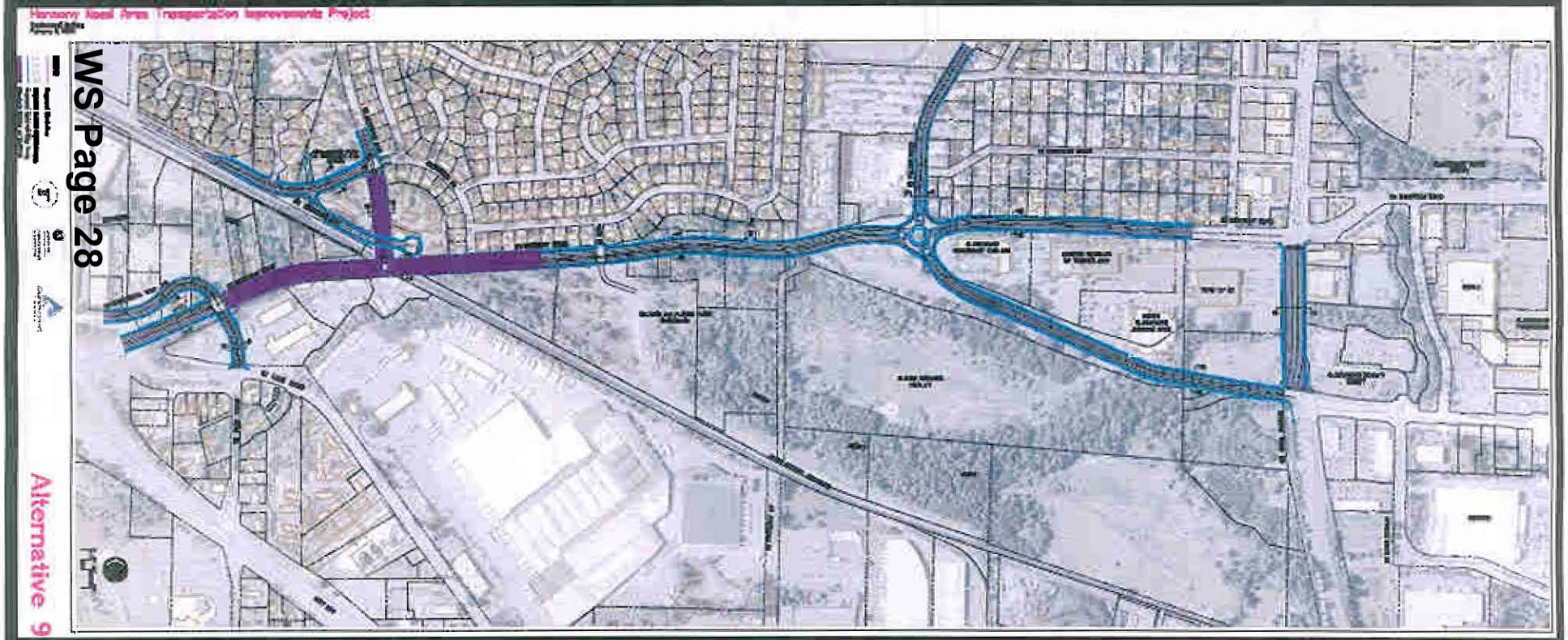
- Traffic –
  - Improved operations at Harmony/Linwood intersection
  - Travel demand on Harmony not significantly changed with 82nd Ave expansion
  - 23,000 ADT on Harmony
  - Harmony Rd east of Linwood needs to be 4 lanes
  - Access management necessary for improved safety/traffic operations

Alternative 5 Findings

- Environment –
  - Higher potential displacements with expansion of Harmony Rd
  - Higher potential wetland and waterway impacts with expansion of 82nd and Harmony Rd
  - Moderate tree impacts
  - Hazardous materials issues
    - Possible disturbance of contaminated soils and groundwater adjacent to 82nd
    - Harmony bridge/deep foundations may encounter contaminated groundwater
    - Soil and groundwater contamination suspected near PGE site adjacent to Lake Rd

Alternative 9

- Includes: 2030 No-Build + Harmony Rd 3/5 Lanes & Grade-Separated RR Crossing + Sunnybrook Extension 3 Lanes



Alternative 9 Findings

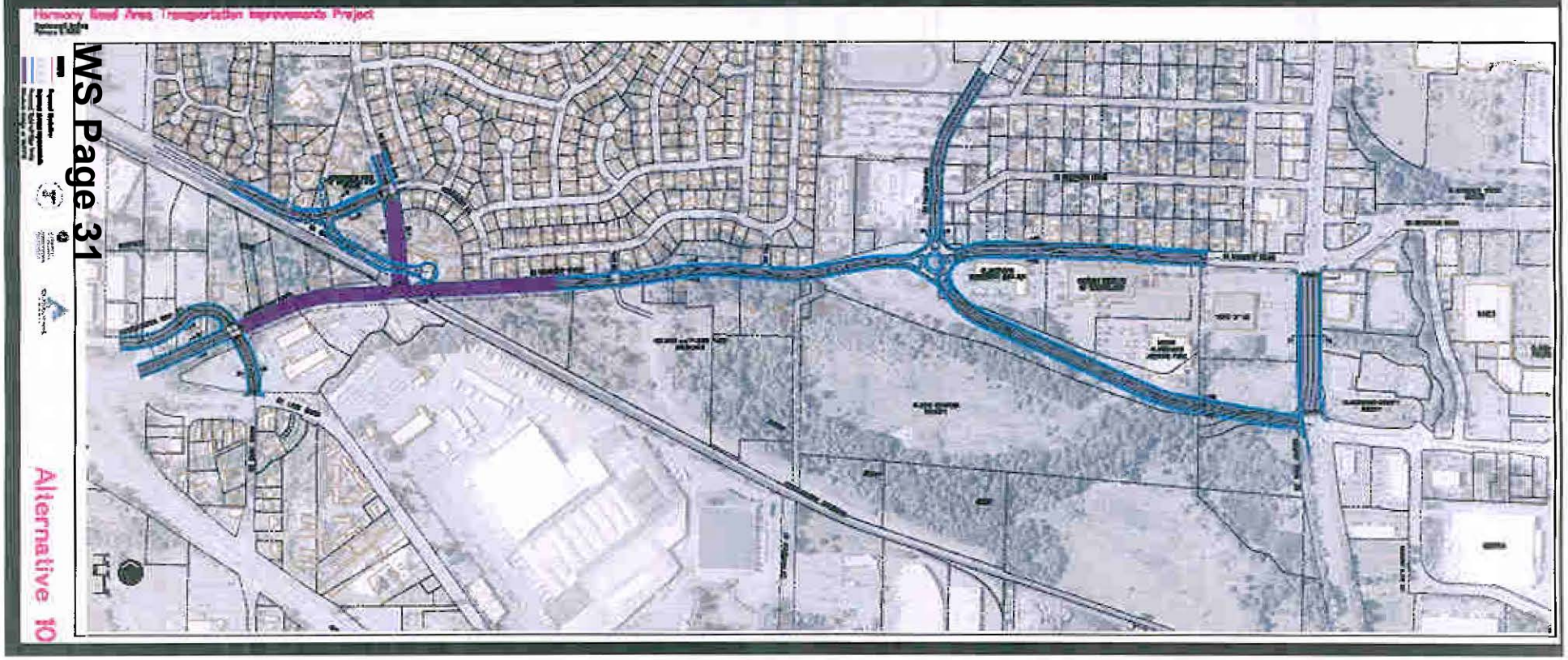
- Traffic –
  - Improved operations at Harmony/Linwood intersection
  - Significant improvement in Harmony Rd traffic operations
  - Significantly improved access to campus area
  - 29,000 ADT on Harmony
  - Access management necessary for improved safety/traffic operations

Alternative 9 Findings

- Environment –
  - Higher potential displacements with expansion of Harmony
  - Higher potential tree impacts with Sunnybrook extension
  - Moderate potential impacts to wetlands & waterways
  - Hazardous materials issues
    - Harmony bridge/deep foundations may encounter contaminated groundwater
    - Vacant land south of Toys R Us contains undocumented fills—potential of encountering contaminated soil with Sunnybrook extension
    - Soil and groundwater contamination suspected near PGE site adjacent to Lake Rd

Alternative 10

- Includes: 2030 No-Build + Harmony Rd 3 Lanes & Grade-Separated RR Crossing + Sunnybrook Extension 3 Lanes



Alternative 10 Findings

- Traffic –
  - Improved operations at Harmony/Linwood intersection
  - Significant improvement in Harmony Rd traffic operations
  - Significantly improved campus access
  - Harmony Rd east of Linwood 4 lanes
  - 26,000 ADT on Harmony
  - Access management necessary for improved safety/traffic operations

Alternative 10 Findings

- Environment –
  - Higher potential displacements with expansion of Harmony
  - Higher potential tree impacts with Sunnybrook extension
  - Moderate potential impacts to wetlands & lower potential impact to waterways
  - Hazardous materials issues
    - Harmony bridge/deep foundations may encounter contaminated groundwater
    - Vacant land south of Toys R Us contains undocumented fills—potential of encountering contaminated soil with Sunnybrook extension
    - Soil and groundwater contamination suspected near PGE site adjacent to Lake Rd

CITY OF MILWAUKIE

To: **Mayor and City Council**

Through: **Mike Swanson, City Manager**

From: **Kenneth Asher, Community Development & Public Works Director**

Subject: **Briefing on the Portland-Milwaukie Light Rail Locally Preferred Alternative Process**

Date: **June 5, 2008 for the June 17 Meeting**

Action Requested

None. This is a briefing to help prepare the Council for its Locally Preferred Alternative (LPA) adoption hearing scheduled for July 14-15, 2008. Staff will update council on the shape of LPA discussions occurring in other groups, so the Council can discuss issues and options prior to the Mayor's vote on the Steering Committee LPA recommendation on June 26.

This is the last scheduled update on the SDEIS or LPA prior to the scheduled public hearing on the LPA at City Council on July 14 and 15. The City Council is scheduled to take action on the Steering Committee LPA recommendation on July 15.

History of Prior Actions and Discussions

June 2008 – Resolution (no. 51-2008) establishing Lake Road as the preferred single light rail station in downtown Milwaukie
May 2008 – Special Report on light rail and schools; work session discussion on umbrella agreement with TriMet regarding light rail
April 2008 – Work session on understanding the SDEIS and its adoption process; work session discussion on downtown Milwaukie station locations.
March 2008 – Project staff update on the SDEIS; Light Rail web strategy
February 2008 – Project staff update on the SDEIS
December 2007 – Project staff updated on the SDEIS
October 2007 – Project staff update on the SDEIS

September 2007 – Special report on the Portland-Milwaukie Light Rail Safety and Security Task Force
April 2007 – Council resolution (no. 30-2007) to help fund the SDEIS

Various actions and discussions related to earlier versions of a South Corridor Project, including:

October 2004 – Resolution 31-2004 adopting the Tillamook Branch Design Option light rail alignment through the North Milwaukie Industrial District in place of the Main Street and crossover alignment within the South Corridor Project.
April 2003 – Resolution 12-2003 adopting the South Corridor Locally Preferred Alternative recommended by the South Corridor Policy Advisory Committee as the City's preferred alternative.

Background

Project staff from Metro and TriMet will be on hand to brief the Council on the LPA process and the LPA discussions that are occurring in the region. Although the LPA won't be formally established until the Public Comment Period ends on June 23rd and the Steering Committee makes its formal recommendation on June 26th, other groups are beginning to form opinions about LPA preferences.

By the time the Council gets this briefing, the Citizens Advisory Committee (CAC) is expected to have determined an LPA recommendation, the Project Management Group is expected to have done the same, and Oregon City will have had a chance to weigh in on the LPA discussion as well. If written recommendations are available from any of these actions, staff will attempt to provide them to Council prior to the work session.

Staff is also prepared to delve into any aspect of the SDEIS that Council would like to hear more about.

This staff report does not summarize the SDEIS, however staff has included summary tables as attachments (Attachments 1 and 2) and has asked Metro to be prepared to explain at the session, as completely as possible, the key differences between the build and no-build scenarios.

As this is the only briefing scheduled prior to the council's LPA hearing, staff would ask that the council review the SDEIS and begin thinking about alignment-related questions such that action can be taken in July. If Council has questions prior to the work session, city staff is available to track down information or provide additional clarification. To the maximum extent possible, staff will try to help Council understand where the LPA decision appears to be heading, recognizing that the public comment

period will not have ended and the Steering Committee will not yet have made a recommendation at the time of the work session.

Of special importance will be any direction that the Council wishes to provide the Mayor, who represents Milwaukie on the Steering Committee.

Concurrence

None, as no action is being requested.

Fiscal Impact

None, as no action is being requested. However a portion of this Project's financing is expected to be provided by the City of Milwaukie, which will have a fiscal impact on the City. The investment in light rail is also expected to have a long-term positive fiscal impact on the City, although no return on investment analysis has been conducted. If the Council would like to discuss fiscal impacts from the Project at this briefing, please contact the Project staff so we can be sure to have the right people and information on hand at the briefing.

Work Load Impacts

None, as no action is being requested.

Alternatives

None, as no action is being requested.

Attachments

1. SDEIS Table S-3 Summary of Environmental Impacts
2. SDEIS Tables 4.2.8 and 4.2.10 Summarizing Travel Effects in the Corridor

S.6 ENVIRONMENTAL CONSEQUENCES

Table S-3 summarizes environmental impacts that would occur with the Light Rail Alternative compared to No-Build, followed by a discussion of major differences in effects by area.

Table S-3
Summary of Environmental Impacts

Measures	No-Build	2003 LPA	2003 LPA w/Bridge Crossing Options (range)	2003 LPA Extension to Park	2003 LPA w/Tillamook Branch Alignment	Maintenance Base
Displacements and Acquisitions						
Full Acquisitions	0	55	60-60	61	62	14
Partial Acquisitions	0	67	64-65	82	77	1
Displaced Residence/Business/Other	0	2/46/15	2-2/49-50/ 15-15	4/53/13	4/55/13	7/6/2
Land Use and Economic						
Compatibility with Local Land Use Plans	Low	High	High	High	High	High
Construction Impact: Potential Temporary Increase in Personal Income (millions)	0	$390-428	$406-438	$487	$437-484	-
Estimated Jobs Displaced	0	675	744-897	699	705	60
Tax Revenue Impact due to Property Acquisition	0	$847,000	$905,000-$912,000	$868,200	$824,300	Not Estimated
Community Impact Assessment						
Neighborhood Benefits	Low	High	High	High	High	Low
Neighborhood Impacts	Low	Low	Low	Low	Low	Low-Medium
Visual Resources Impacts	Low	Medium-High	Medium-High	Medium-High	Medium-High	Low
Historic and Archaeological Resources						
Properties with Identified Historic Resources	0	15	15	17	17	0
Historic Resources with Expected Adverse Effects	0	3	3	4	3	0
(High/Moderate) Probability Areas for Archaeological Resources	0/0	5/1	5/1	8/1	8/1	0
Parks and Recreational Resources						
Number of Existing Parks Impacted	0	6	6	6	6	0
Number of Planned Parks Impacted	0	0	1	2	2	0
Geology and Soils Impacts	None	None	None	None	None	None
Ecosystems						
Wetland Filled / Spanned (acres)	0	0.57	0.57	0.57	0.57	0
Permanent Footprint of Project Area Stream Crossings (ft^2)	0	84,350	86,750-101,950	96,400	96,400	0
Impervious Surface Area (acres)	0	26.1	26.5	29.2	26.6	3.7
Vegetation Impacts Excluding Open Water (acres)	0	6.71	6.71	7.78	7.03	0
Impacts to TES Fish-Bearing Streams (lineal feet)	0	188	188	302	302	0
Water Quality/Hydrology						
Combined Acreage in Floodplain	0	1.9	1.9-2.5	2.0	2.7	1.7

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Measures	No-Build	2003 LPA	2003 LPA w/Bridge Crossing Options (range)	2003 LPA Extension to Park	2003 LPA w/Tillamook Branch Alignment	Maintenance Base
Noise and Vibration						
Noise Impacts without Mitigation	0	23	3	25	25	0
Vibration Impacts without Mitigation	0	33	13	36-38	34-36	0
Regional Air Quality (tons per day)						
Carbon Monoxide	606.3	605.8	Similar to LPA	Similar to LPA	Similar to LPA	Similar to LPA
Nitrogen Oxides	16.2	16.1	Similar to LPA	Similar to LPA	Similar to LPA	Similar to LPA
Volatile Organic Compounds	19.1	19.1	Similar to LPA	Similar to LPA	Similar to LPA	Similar to LPA
Carbon Dioxide	36,328	36,299	Similar to LPA	Similar to LPA	Similar to LPA	Similar to LPA
Energy Consumption						
Regional Daily Vehicle (10^9 BTU)	495.173	494.819	Similar to LPA	494.632	Similar to LPA	Similar to LPA
Hazardous Materials						
All Sites of Concern/Sites of Highest Concern	0	80/35	95/38	84/35	90/42	
Public Services Impacts	None	Minor	Minor	Minor	Minor	None
Utilities Impacts	None	Minor	Minor	Minor	Minor	None

S.6.1 Displacements

The Light Rail Alternative would acquire 55 to 62 full properties, including two to four residences and 46 to 55 businesses. The expansion of the Ruby Junction maintenance base would affect 14 parcels, displacing seven residences and six businesses.

S.6.2 Land Use and Economic Impacts

The Light Rail Alternative would be more supportive of statewide planning goals and regional and local plans and policies than the No-Build Alternative. The Light Rail Alternative serves major regional employment and commercial and residential areas, and it supports Statewide Planning Goals by providing a transportation service that reduces reliance on the automobile.

The Light Rail Alternative supports the regional *2040 Growth Concept,* which directs most new development to mixed-use urban centers and along major transportation corridors. The proposed project also supports local jurisdiction land use plans and policies. For instance, the Light Rail Alternative would serve the South Waterfront area, an area targeted for major development by the City of Portland, and it would support revitalization plans for downtown Milwaukie.

Forty six to 55 businesses with up to 900 jobs could be affected by property acquisition and business displacement and relocation actions. The project's mitigation measures include compensation and relocation for property owners and businesses, which would minimize the effects. If businesses are able to relocate within the area or region, job losses would be lower. Construction of light rail would also provide near term economic benefits by providing employment, with over 10,000 additional person-year jobs and approximately $425 million more in additional personal income, compared to the No-Build Alternative.

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Table 4.2-8
Average Weekday Work and Non-Work Corridor Transit Trips and Transit Mode Share to Portland CBD, Year 2030

Attribute	Existing (2005)	No-Build	2003 LPA		Willamette River Crossing Options				2003 LPA-Park	Tillamook
			No Bus	Bus	Meade-Sherman	Meade-Caruthers	Porter-Sherman	Porter-Caruthers		
Home-Based Work[1]										
Transit	4,780	11,420	12,930	12,970	12,850	12,870	12,850	12,860	14,110	13,950
Total Person	17,090	24,790	24,590	24,640	24,510	24,510	24,510	24,510	24,790	24,890
Mode Split	28%	46%	53%	53%	52%	53%	52%	52%	57%	56%
% change from NB			14%	14%	14%	14%	14%	14%	24%	22%
Non-Work[2]										
Transit	6,310	13,940	15,380	15,540	15,370	15,380	15,370	15,390	15,820	15,800
Total Person	51,940	86,720	86,370	86,830	86,270	86,270	86,270	86,270	87,000	87,050
Mode Split	12%	16%	18%	18%	18%	18%	18%	18%	18%	18%
Total										
Transit	11,100	25,360	28,320	28,510	28,220	28,250	28,220	28,250	29,930	29,750
Total Person	69,040	111,510	110,960	111,470	110,790	110,790	110,790	110,790	111,790	111,940
Mode Split	16%	23%	26%	26%	25%	25%	25%	25%	27%	27%
% change from NB			12%	12%	12%	12%	12%	12%	18%	17%

Source: Metro, 2008

[1] Home-based work trips are defined as trips taken directly between one's home and one's place of work.

[2] Non-work trips are defined as all trips that are not home-based work trips.

Table 4.2-10
Average Weekday Regional Roadway Data, Year 2030

Attribute	No-Build	2003 LPA		Willamette River Crossing Options				2003 LPA-Park	Tillamook
		No Bus	Bus	Meade-Sherman	Meade-Caruthers	Porter-Sherman	Porter-Caruthers		
Average Weekday VMT[1]	58,445,500	58,399,100	58,394,600	58,386,300	58,385,400	58,386,600	58,387,800	58,376,300	58,376,800
Change from No-Build[2]	N/A	-46,400	-50,900	-59,200	-60,100	-58,900	-57,700	-69,200	-68,700
% change from NB		-0.08%	-0.09%	-0.10%	-0.10%	-0.10%	-0.10%	-0.12%	-0.12%
Vehicle Hours of Delay[1]	40,290	39,990	39,970	39,950	39,950	39,960	39,930	39,830	39,840
Change from No-Build[2]	N/A	-300	-320	-340	-340	-330	-360	-460	-450
% change from NB		-0.74%	-0.79%	-0.84%	-0.84%	-0.82%	-0.89%	-1.14%	-1.12%

Source: Metro, 2008

[2] Based on P.M. peak-hour conditions in 2030 on freeways, major and minor arterials and collector streets.

[2] The change in all measures is from the No-Build Alternative.