

**PLANNING COMMISSION  
WEDNESDAY, APRIL 13, 2016  
6:00 PM**

**AGENDA**

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**I. 6:00 PM CALL TO ORDER - ROLL CALL**

Jerry Greenfield, Chair      Eric Postma, Vice Chair Peter Hurley  
Al Levit      Kamran Mesbah      Phyllis Millan  
Simon Springall City Council Liaison Charlotte Lehan

**II. 6:05 PM PLEDGE OF ALLEGIANCE**

**III. 6:10 PM CITIZEN'S INPUT**

This is the time that citizens have the opportunity to address the Planning Commission regarding any item that is not already scheduled for a formal Public Hearing tonight. Therefore, if any member of the audience would like to speak about any Work Session item or any other matter of concern, please raise your hand so that we may hear from you now.

**IV. 6:20 PM CITY COUNCIL LIAISON REPORT**

**V. 6:25 PM CONSIDERATION OF THE MINUTES**

A. Consideration Of March 9, 2016 PC Minutes

Documents: [V. A. Consideration Of March 9, 2016 PC Minutes.pdf](#)

**VI. 6:30 PM PUBLIC HEARING**

A. LP16-0001 -- Transportation System Plan (TSP) Amendment

Documents: [VI. A. LP16-0001 -- Transportation System Plan \(TSP\) Amendments.pdf](#)

TSP Additional Attachment "G" 4.12.2016

Documents: [TSP Additional BP Project Memo ATTACH G-4.12.2016.Pdf](#)

VI. A.2. TSP Additional Memo Attachment H

Documents: [VI. A.2. Additional Memo ATTACH H 4.13.2016.Pdf](#)

VI A.3. TSP Additional BW-15 Project Memo Attachment I

Documents: [VI. A.3. TSP Additional BW-15 Project Memo ATTACH I Final 4 13.Pdf](#)

TSP Amendment Presentation PC Hearing 4.13.16

Documents: [Wilsonville TSP Amendment Presentation\\_PC Hearing 4.13.16.Pdf](#)

## **VII. 7:45 PM WORK SESSION**

A. Transit Master Plan Update

Documents: [VII. A. Transit Master Plan Update.pdf](#)

## **VIII. 8:30 PM OTHER BUSINESS**

A. 2016 PC Work Program

Documents: [VIII. A. 2016 PC Work Program.pdf](#)

B. Annual Housing Report

Documents: [VIII. B. Annual Housing Report.pdf](#)

## **IX. 8:50 PM ADJOURNMENT**

*Time frames for agenda items are not time certain.*

### Public Testimony

*The Commission places great value on testimony from the public. People who want to testify are encouraged to:*

- *Provide written summaries of their testimony*
- *Recognize that substance, not length, determines the value of testimony*
- *Endorse rather than repeat testimony of others*

*Thank you for taking the time to present your views.*

For further information on Agenda items, call Tami Bergeron, Planning Administrative Assistant, at (503) 570-1571 or e-mail her at [bergeron@ci.wilsonville.or.us](mailto:bergeron@ci.wilsonville.or.us).

Assistive Listening Devices (ALD) are available for persons with impaired hearing and can be scheduled for this meeting.

The City will also endeavor to provide the following services, without cost, if requested at least 48 hours prior to the meeting:

- \*Qualified sign language interpreters for persons with speech or hearing impairments
- \*Qualified bilingual interpreters.

To obtain services, please call the Planning Administrative Assistant at (503) 682-4960



**PLANNING COMMISSION  
WEDNESDAY, APRIL 13, 2016**

**V. CONSIDERATION OF THE MINUTES**

A. Consideration of the March 9, 2016 Planning Commission minutes.

**PLANNING COMMISSION  
WEDNESDAY, MARCH 9, 2016  
6:00 P.M.**

DRAFT

**Wilsonville City Hall  
29799 SW Town Center Loop East  
Wilsonville, Oregon**

**Minutes**

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**I. CALL TO ORDER - ROLL CALL**

Chair Greenfield called the meeting to order at 6:07 p.m. Those present:

Planning Commission: Jerry Greenfield, Eric Postma, Al Levit, Peter Hurley, Phyllis Millan, Kamran Mesbah, and City Councilor Charlotte Lehan. Simon Springall was absent.

City Staff: Chris Neamtzu, Michael Kohlhoff, Miranda Bateschell, Eric Mende

**II. PLEDGE OF ALLEGIANCE**

The Pledge of Allegiance was recited.

**III. CITIZEN'S INPUT**

Jan Johnson, 6591 Landover Dr, Wilsonville, OR, said she had spoken before about traffic on Wilsonville Rd and it was getting much worse. Traffic had doubled since she moved in two years ago. She also noted the number heavy trucks and semi-trucks using Wilsonville Rd and expressed concern about the trucks' weight impacting the roadway, and their excessive speeds affecting their ability to stop quickly. Also, visibility is a concern. When trying to turn left onto Wilsonville Rd visibility was very limited, so seeing oncoming traffic was very difficult. It took her five minutes to turn left onto Wilsonville Rd.

- She had talked with ODOT who suggested the City having a weight limit on Wilsonville Rd to keep the big trucks off the road. Drivers, including truck drivers, use Wilsonville Rd as a short cut to Stafford Rd to avoid using the freeway. Trucks using Wilsonville Rd, which starts as early as 5 am, literally shake her house.
- She also talked to local law enforcement about the speeding on Wilsonville Rd and described an experience she had recently. She wished the police would patrol past the high school. The four-way stop is dangerous as well.
- A Councilor once told her that semi-trucks did not use Wilsonville Rd, but that was not true. With the two new schools and Frog Pond being developed, most of the neighborhood would be selling or all the homes would be rentals because this was such a scary situation. She would not allow her grandchildren to play in the front yard because the area was so unsafe. She reiterated that Wilsonville Rd was getting damaged by the heavy trucks. Not much could be done about cars using the road as a shortcut, but she suggested having a weight limit or posting signage saying "No Thru Trucks" on Wilsonville Rd. She invited the Commissioners to visit her home to see how bad the disruption was from the trucks.

**IV. CITY COUNCIL LIAISON REPORT**

Councilor Lehan reported on the following item recently addressed by City Council:

- The City was finally reaching a resolution on the Newberg-Dundee Bypass Project. The City of Wilsonville was not involved with any decision-making on the bypass, which was originally planned from Dundee to 99W. The project recently changed, so only Phase 1, which would only go to Wilsonville Rd at Hwy 219, was being completed. As a result, GPSs would direct drivers to use the shortest way to I-5, which was Wilsonville Rd. The City was working with the Ladd Hill Neighborhood Association, Clackamas County, and others who were worried about all the Newberg-Dundee Bypass traffic using Wilsonville Rd to access I-5. The City, ODOT, and the City of Newberg worked to devise a solution. They are considering how to redo

the Wilsonville Rd/Hwy 219 intersection so the bypass would extend closer to 99W, making it more difficult to use Wilsonville Rd. This solution would add time to the project, but the City had support from ODOT and possibly, the City of Newberg.

- Another recent change the City must address with ODOT was the signage that showed up on Wilsonville's north and southbound ramps at Exit 283 that read, "Newberg This Way". Nearly a decade ago, the City asked ODOT to remove the signs, but they had recently reappeared, possibly due to the increased traffic westbound and eastbound from the freeway. The signs had increased traffic on Wilsonville Rd, between Newberg and the freeway and said nothing advising that trucks should not use the route. The City was still in discussions with ODOT about removing the Newberg directional signs from the Exit 283 ramps.
- City Council reviewed the Willamette River Water Treatment agreement and the Planning Commission should be aware that land use agreements were part of the document. She was concerned that as more partners were brought in, neither the City nor its partners were providing urban services to non-urban areas around Wilsonville. One thing that has allowed the City to control its planning destiny was that urban services, such as sewer and water, had to be obtained from the City of Wilsonville, unlike Washington and Clackamas Counties where outside municipal urban services were available. Allowing other providers made it difficult to control development the way the City wanted. It was important to ensure the document's language supported the City's historical position that urban services be provided by the City of Wilsonville and not any other service providers outside of the city.
- On March 7, 2016 Mayor Knapp discussed several important points during his 2016 State of the City Address.
- Council approved the final annexation of the last parcel for Villebois and adopted the final approvals for Universal Health Services last Monday. She believed the iconic Universal Health Services project would fit well with the future development of the Day Rd area and Coffee Creek industrial area.

Chair Greenfield noted the citizen's input about traffic on Wilsonville Rd certainly had implications on the City's future development, but he asked what recourses were available to address the current issues, and what City agency would address or initiate appropriate mitigation measures.

Councilor Lehan replied that was another issue that needed to be raised with ODOT. Both the City Council and Planning Commission have worked to make the section of Wilsonville Rd from Stafford Rd to the freeway unfriendly for trucks. Wilsonville Rd had a narrow visual field, narrower lanes, and trees in the median and along the edge and had only recently become busy with semi-truck traffic. She noted the City made the west side of Wilsonville truck friendly for north and south traffic on 95<sup>th</sup> Ave, but tried to do the opposite in the neighborhoods on the east side. As some point, the City might need to put other limitations on Wilsonville Rd as mentioned because the roadway was not designed for big truck traffic like the west side. She agreed the issue needed to be addressed.

Chris Neamtzu, Planning Director, noted Ms. Johnson has had many conversations with City Engineer Nancy Kraushaar that were ongoing. He suggested that Ms. Kraushaar could draft a memo or address the Planning Commission with regard to the issue. He would do some additional research and return with an update for the Commission's consideration.

Councilor Lehan added the City had tried to make it clear to ODOT that Wilsonville could not be a cut through for traffic coming from I-205 to I-5. No amount of planning could be done to make Wilsonville Rd function with traffic from I-205, so the City needed ODOT's cooperation to ensure Wilsonville Rd was not a truck route.

## **V. INTRODUCTION OF NEW PLANNING COMMISSIONER**

### **A. Kamran Mesbah**

Chris Neamtzu, Planning Director, introduced new Planning Commissioner Kamran Mesbah, who moved to Wilsonville from Madison, Wisconsin. He noted his civil engineering and planning background, adding that Commissioner Mesbah was the deputy director of the Capital Area Regional Planning Commission, and brought

a tremendous wealth of knowledge to the Planning Commission. Although a Wilsonville resident for only a short period of time, he was already familiar with a variety of city issues and recently attended the State of the City Address.

Commissioner Mesbah stated he fell in love with the Portland area when visiting his family years ago and knew he would live in the area after he retired. After visiting local cities in the area, Wilsonville was his and his wife's favorite place and they found a home they love in Charbonneau. After his retirement started, he found a need to rechannel his interests in a way that would benefit his new community and was delighted to have been appointed to the Planning Commission.

## **VI. CONSIDERATION OF THE MINUTES**

A. Consideration of the February 10, 2016 Planning Commission minutes  
The February 10, 2016 Planning Commission minutes were accepted as presented.

## **VII. WORK SESSION**

A. TSP Amendments (Mende)

Chris Neamtzu, Planning Director, noted the Transportation Systems Plan (TSP) was adopted after a lengthy process in 2013, but rapidly changing conditions in the community had resulted in several minor TSP amendments following a number of relooks, additional analysis, and the refinement of the original concepts adopted in the 2013. The work session was being conducted in preparation for a public hearing next month on the proposed amendments. Currently, several land use applications with TSP related projects were pending because they were contingent the proposed modifications.

Eric Mende, Capital Projects Manager, stated Scott Mansur of DKS Associates would give the presentation, noting DKS had been involved in the City's transportation planning for many years and was the primary consultant when the current TSP was adopted in 2013. He explained that both the scope and timing of the proposed amendment was driven by the completion of two major planning efforts that had been ongoing since the 2013 TSP. The majority of changes addressed in the amendments were in the Coffee Creek and Frog Pond/Advanced Rd areas, as well as a couple other distinct, near-term private development plans noted by Mr. Neamtzu. The proposed amendment focused on these areas and a couple specific projects within those areas, which was why an amendment was proposed and not a full citywide update to the TSP.

- In the Coffee Creek area, the City was moving forward with the development of district boundaries and a financing plan for a future urban renewal district. Development was also pending on the Republic Services property on Ridder Rd, which would add a bio-energy facility, and that particular development plan was in direct conflict with the current TSP.
- The new middle school, which would be named Meridian Creek Middle School, was approved in the Frog Pond/Advanced Rd area and final design was underway with construction intended to begin this year.
- A financial component was also involved. In both the Coffee Creek and Frog Pond/Advanced Rd areas, the City was moving from concept or master planning to actual construction within the next year or so and currently budgeting for those improvements in the Capital Improvement budget. However, the City was generally precluded from spending capital funds on improvements not identified in master plans, such as the TSP. Once the amendment process was complete and the applicable projects were included in the TSP, the City could fund those projects.
- He concluded that the proposed TSP amendment was necessary for the City to proactively stay ahead of the rapid growth of the community.

Scott Mansur, Traffic Consultant, DKS Associates (DKS), presented the Wilsonville TSP Amendment via PowerPoint with additional comments by Mr. Mende. He noted the TSP only focused on the areas within the current City's urban growth boundary (UGB).

Discussion and feedback from the Planning Commission was as follows with responses to Commissioner questions as noted:

- The Printer Parkway project came about because the new owners of the Xerox campus were interested in a possible subdivision to create additional lots that could accommodate industrial buildings. SMART buses currently used Printer Parkway to cut through the campus and the discussion regarded making Printer Parkway a public right-of-way and the transit connection more formal by reconstructing it to public street standards, which would include pedestrian and bicycle amenities. To move the project forward, the TSP had to reflect that connection through the site. The concept had evolved relatively quickly over the last four months and Staff was working with the project team.
- In the original Coffee Creek Master Plan, the Kinsman Rd alignment seemed like the logical alignment, however, two properties off Ridder Rd, Republic Services and a substation, would be affected.
  - The Bonneville Power Administration would not provide an easement or allow the City to acquire the property needed to put in the road, which would have forced the entire road alignment onto Republic Services property. Republic Services' scales were in that proposed alignment, so they would have to move that entire operation, which would affect the traffic pattern within the entire complex.
  - Staff removed the south half of Kinsman Rd from the project and did a traffic analysis with Kinsman Rd running south from Day Rd to what would be Java Rd and over to Garden Acres. The difference in traffic between half of Kinsman Rd and no Kinsman Rd was 12 or 15 vehicles at the peak hour. It did not make sense to spend that much money to build half of a road that did not really add anything to the area. The alternative was to rebuild Garden Acres Rd, which was currently a dead end, and connect it to Day Rd, which was the current alternative that saved money and removed the restrictions on some properties.
  - The proposed Kinsman Rd alignment was a single-loaded street for future development that backed up to existing development. Only a portion of the road could be obtained through the development process and the public would have to pick up the other portion. Garden Acres was an existing rural right-of-way, so unimproved right-of-way existed along its alignment. The new recommendation was a smart financial move, especially given the difference in the traffic findings.
- Staff and DKS had discussed whether building another road would serve any value considering Wiedemann had been in the TSP for a long time. Wiedemann would provide the east-west connection for bikes, pedestrians, and motor vehicles clear to Stafford Rd. Due to where Printer Parkway would connect, it would be challenging to get that future connection over to Stafford Rd. Wiedemann remained in the TSP because Staff did not know what the development pattern would be at this point.
- The driver for Printer Parkway was prospective new construction along that route related to the subdivision of one large parcel into a couple different parcels as mentioned by Mr. Neamtzu. One City planning policy was that all individual properties be serviced by some type of public road. If the property was subdivided, there would no longer be a public road access because Printer Parkway was currently a private road. To accommodate the subdivision, part of the negotiations included making Printer Parkway a public road.
  - The TSP amendment would set the framework in motion with a recommendation to City Council for the changes in road alignments. Then, a series of subsequent development applications would be submitted from the private sector that would go to the Development Review Board where more public hearings would be held regarding the subdivision, actual building forms, and all the associated uses involved. The proposed changes to the TSP did include provisions to allow potential development on Printer Parkway and the Republic Services property, which were inconsistent with the current TSP.
  - The important part of amending the TSP was that Printer Parkway would be created as a collector roadway, and a clear set of design standards would be also created with regard to what the City wanted for the public system as redevelopment occurred.
  - Michael Kohlhoff, Special Projects City Attorney, noted that by adding the projects to the TSP, they could be considered for financing through systems development charges (SDCs), which would provide a more cooperative approach with the developer and use developer fees to construct the roadway or

provide credits against SDCs if the developer constructed the road. The amendment would give the City more financial flexibility to put in major infrastructure transportation improvements.

- Three different concepts and their cost estimates had been considered for the intersection at Grahams Ferry Rd, Day Rd, Garden Acres, and the western entrance into the prison.
  - One concept was to install a five-legged roundabout so all the current movements would be accommodated, including into the prison. The other concepts included a four-way signal or a four-way roundabout with the Coffee Creek prison entrance moved to Cahalin Rd, which the prison favored more than the a five-way roundabout. A lot of planning was still needed, so no option had been chosen yet.
- Java Rd was linked with whatever happened with Clutter St. In the short-term, Clutter St would remain open and connected directly to Ridder Rd; long-term, site distance issues could result in turning Clutter St into a cul-de-sac, so another outlet to Grahams Ferry Rd would be required, which would be the Java Rd connection.
  - The Java Rd connection would still be needed even with Garden Acres Rd being completed northbound because traffic on Ridder Rd needed to be able to go south on Grahams Ferry Rd. While traffic could go to the Day Rd/Grahams Ferry Rd intersection depending on the development patterns, the traffic model showed Java Rd was a necessary road.
- No cartographer amendments, such as updating the maps to show Canyon Creek Rd and Barber St as complete, were included in the TSP amendment since the amendment focused on a few specific areas in the city and a number of similar updates were needed on the maps citywide.
- With regard to the Boeckman Bridge, the City did an estimate about a year ago and the bridge was estimated to cost \$11 - \$12 million. From a traffic standpoint, the bridge was not needed until Frog Pond started building out, but it was an expensive project the City would need to plan for in the future.
- The low railroad overcrossing on Grahams Ferry Rd was still on the TSP project list, but the City would need assistance with it and discussion included partnering with Washington County and the railroad.
- The need for more east-west capacity was identified when the 2013 TSP was adopted. Boeckman Rd was a major arterial and the project identified as RW-01 on Figure 5-2: Higher Priority Projects involved replacing the overcrossing structure on I-5 and widening it to a five-lane cross section to match what existed today west of I-5, and then ultimately, east of I-5. With more development in the future, Boeckman Rd would provide additional east-west capacity within Wilsonville to take the pressure off Elligsen Rd, Boones Ferry Rd, and Wilsonville Rd.
  - The all-way stop signs at Boberg Rd would be removed and a traffic signal installed if needed. There was also discussion about removing the stop altogether once Kinsman Rd was constructed and only having a stop sign on the Boberg connection. Completing Kinsman Rd would take a lot of traffic off Boberg Rd.
  - Once Kinsman Rd was constructed, the City would reevaluate the intersection to see what traffic volumes remained on Boberg Rd to determine whether a signal was needed.
- The extension of Java Rd passed Green Acres Rd to the east shown on Figure 3-5: Bicycle Routes was identified as a future shared use path, not to be used by vehicles.

Mr. Neamtzu announced the TSP Amendment would return before the Planning Commission in April for a public hearing. He encouraged the Commissioners to send Staff any further questions or comments over the next couple weeks so they could be addressed in the presentation and packet materials next month.

#### B. Frog Pond Master Plan (Neamtzu)

Chris Neamtzu, Planning Director, introduced members of the project team and noted Phase 1 of the Frog Pond Area Plan, a significant undertaking and major accomplishment, was complete. The City was now embarking on Phase 2, which involved master planning the area; defining a Comprehensive Plan designation for the entire area similar to that of a residential neighborhood; and creating a zoning code. The project team sought the Planning Commission's input on some high level concepts and themes that would be presented by the consultants.



- During Phase 1, blending some of Villebois' more useful aspects with the City's existing planning development residential regulations had been discussed. The City's existing planning structures were not ideal for application in the Frog Pond Area, so a hybrid approach made sense. A cursory draft of the existing Development Code with strikethroughs and edits was provided to the Commission and included some of the concepts being considered.
- Staff also sought input on design guidelines and standards, public realm designs, such as street tree master plans, cross sections for the transportation network, etc. and refining a lot of the work done in Phase 1. The Infrastructure Funding Plan would also be updated to ensure everything was in place so when Phase 2 was done, private applications could be submitted consistent with the codes and master plan the Commission and City Council put in place for the Frog Pond Area.

Joe Dills, Angelo Planning Group, presented Phase 2 of the Frog Pond Master Plan referencing PowerPoint slides, providing an overview of the planning process and timeline, and reviewing the opportunities and constraints and recommended Comprehensive Plan and Zoning designations, all of which were included in the memorandum dated March 1, 2016 found in the meeting packet.

Discussion and feedback from the Planning Commission was as follows with responses by Staff to Commissioner questions as noted:

- On the Opportunities and Constraints Map (Exhibit 3 or 5 City Context), the drainage way in the South Neighborhood drained into Meridian Creek. The Plan discussed using some wetlands for infrastructure and public places. Although none of the wetlands in the area were protected under the City's regulations and could be mitigated, some wetlands should be distinguished with a higher resource value than others.
  - One concept shown in the street framework was a linear, open swale approach to drain public water from the streets or private water from adjacent development. Mr. Dills clarified that portion of the Meridian Creek tributary would be part of the City's Significant Natural Overlay Zone.
  - The broad pedestrian edge shown along Boeckman Rd on the Opportunities and Constraints Map, Exhibit 1: Regional Context Natural Areas, was only conceptual and intended to indicate that decisions still needed to be made about how to design the area along Boeckman Rd. Such design decisions were also needed for Stafford Rd.
- The new recommended Neighborhood Comprehensive Plan designation would address parcelization, but many individual development reviews would still be required. However, each development would be guided by Comprehensive Plan policies that would require all of the developments to come together to create one neighborhood. This principle would also apply to the public realm improvements, such as parks, trails, storm water, natural resources, etc.
- The Residential Neighborhood Zone would require a specific character, so the design standards would have to promote the character of the neighborhood without being too specific and creating cookie cutter homes.
  - Regardless of style or architectural character, certain fundamental design standards would apply that address, for example, the location of front doors, how garages and driveways address lot frontages, the character of semi-public spaces, etc. Materials need basic guidance to rule out those that were unwanted, but style should remain relatively free, especially with 20 or more different developments. The philosophy was to pick the least number of rules to get the job done.
  - Another consideration was the rules of adjacency used in Villebois to address the relationships between different building types and the way building regulations apply at corners.
  - A pattern book was not recommended for Frog Pond West because it would be too specific for many developments and would likely take years to write.
- A duplex was defined as two, primary single-family residential units on one lot that could be attached or unattached. The City's accessory dwelling unit (ADU) regulations were very specific about ADUs having size limitations, being secondary to the primary home, etc.
- The City's definition of multi-family dwellings was the same as the State's, three or more units on a single lot.
- Cohousing was innovative for Wilsonville and did not seem to fit conveniently into any of the City's existing models. How could new models be established to accommodate cohousing?

- The project team wanted to get a sense about whether to keep working on cohousing and what to bring back to the next Planning Commission meeting.
- Open Space (Subsection .(011); Page 31 of 45 of the Staff report) was another issue the project team sought feedback on. What should the open space concept be for individual developments? What were the pros/cons of the City's existing 25 percent open space requirement for each development? Two neighborhood public parks were recommended in Frog Pond-West Neighborhood. So, should a percentage of open space be required in individual developments? If so, what amount and what guidance should be provided regarding how they were configured?
  - Existing open space regulations have led to many beautiful, but rarely used dead spaces that had no facilities, but required significant irrigation costs. New regulations for Frog Pond should require that the 25 percent open space be usable and aggregated, with facilities or even open green space for kids to play, possibly as an addition to the park areas.
    - Other open space concepts in the region utilize neighborhood parks as the fundamental core of usable public open spaces. While some open space was required for individual developments, the majority of open space recommended for Frog Pond was specifically planned as opposed to requiring a percentage of open space for each individual development.
  - This process was dependent on lot consolidation, so it might be difficult to encourage certain aspects of the project, such as the park areas, without involving property owners in the process. Some skepticism was expressed about the sub-district zoning because the desired features on a map did not mesh with the plat map as four or five different lots were involved. It was a beautiful concept with planned spaces, but the City would need to designate areas for open space and figure out how to require that spaces on certain private properties be useable.
    - Even if development was incremental, some guidelines are needed to achieve the proposed concept plan included the patterns set by street alignments, the location of open spaces, and how drainage ran; all of which would affect adjacent properties. The system could be built incrementally, but it would not be simplistic like a blank slate with one owner.
      - Additionally, the Master Plan could include non-binding Demonstration Plans that guided how the City envisioned the streets connecting in the area; although the outcome might be different.
      - The City could also acquire public land for parks, and some land in the West Neighborhood owned by the school district.
    - A coherent street pattern would be the most basic guide for development. Achieving the desired result would require a combination of the plans and individual regulations.
  - Some parks in Villebois started as private parks and progressed to City parks. The main beltway of parks that were part of the Ice Age Tonquin Trail would all become City parks, ultimately. All the small pocket parks in Villebois were HOA owned and maintained.
- The transportation framework of the Concept Plan would serve as a template for the location of the roads. Additionally, the Transportation Systems Plan (TSP) included two designated collector routes that would serve Frog Pond West, which were the extension of Willow Creek Dr and Frog Pond Lane. The Willow Creek Drive extension would parallel Stafford Rd and Frog Pond Lane would eventually connect with Advance Rd.
  - Framework roads designated as local street classifications had also been identified in the Concept Plan. These roads included an east-west connection off of Frog Pond Lane to some point on the edge road, which was specifically intended to create circulation and a public edge to the Boeckman Creek area resources. The location of that public edge road relative to the property lines was yet to be determined.
  - The Demonstration Plan would connect the blocks on the transportation framework and consider options for how the local streets would connect and guide the rest of the plans for the area.
  - The streets would typically be built development by development. However, Boeckman Rd and Stafford Rd were special situations because some upgrades might be addressed publicly, which could dictate the order of development because developers would not want to build in areas without roads or infrastructure. Properties closest to water and sewer would be developed first, so the first development reviews with the first north-south and east-west paralleling Boeckman Rd would set the framework for what developed next to it.

- If major infrastructure must be installed through private property, the work must be compelled by the City if the property owner was unwilling to comply. However in today's market, housing developers would likely acquire multiple properties and the City is aware of several interested developers in the community that are financially able to do such.
  - The City could also finance some basic infrastructure through local improvement districts (LIDs), in which the City would assess everyone who would benefit from the infrastructure. A variety of assessment models could be used in such a district depending on the type of infrastructure constructed. Although the City had not done an LID for about 15 to 20 years, about 13 LIDs had been done in the past to develop major infrastructure areas. LIDs that involve residential home developments were not ideal because individual assessments could lead to foreclosures.
  - A reimbursement district would require developers to reimburse the City for improvements once their developments connected to the City's infrastructure.
  - The Villebois development only had two major developers, so the City did not have master facility plans in place, just general concept plans. Each developer wanted to develop their subdivisions differently, which led to issues like sewer laterals that did not initially line up. The City hired an engineering firm to help the major developers resolve these issues and all parties involved shared that expense. The City also remastered some of the facility plans.
  - Key facilities were needed to have Planned Unit Developments (PUDs) work. Having a major developer talk to the different property owners would be ideal. Property owner wanting to develop some of their land themselves or do a joint venture, they would incur development costs just like any other developer. Development was expensive, so once Frog Pond had a concept plan and became marketable, developers would begin talking to property owners about acquiring their land.
  - The scope of the Master Plan included an infrastructure funding component. Development would not cover the costs of infrastructure, so the City would need to consider its options and select a strategy. After developer fees and system development charges (SDCs), Staff estimated a \$10 million shortfall in funding for infrastructure. A reimbursement district would be ideal for the two parks and upgrades along Boeckman Rd and Stafford Rd, because all those improvements would benefit multiple properties.
    - The City required 24-ft long entrance and exit lanes along collector routes, but most collectors in the Frog Pond area would need longer entrance and exit lanes. Therefore, development agreements between the City and developers would be necessary for improvements along these routes so that the cost differences were divided appropriately. For example, the developer might do the exaction, but the City would credit or reimburse the difference against their SDCs.
      - In Villebois, the City also used urban renewal funds for the City's share of such projects. Other funding options used in Villebois included federal funding, State loan programs, general obligation bonds, and revenue bonds.
      - The Boeckman Bridge would be very expensive and applying that cost on the development in Frog Pond would be very difficult, but it needed to happen.
- Cohousing should be retained in the Master Plan for further consideration to accommodate modern living concepts. Many millennials do not have cars, which completely changes the way they interact with their neighborhoods. Cohousing would also be appropriate for the growing aged population.
  - Having nice parks like those in Canyon Creek Meadows and Canyon Creek Estates that function as highly valued amenities for both property owners and the neighborhood would be ideal in the Frog Pond area.

Andrew Parish, Angelo Planning Group, briefly reviewed the memorandum on cohousing (Page 30 of 45 of the packet). He noted that at least one property owner in the Frog Pond area expressed interest in using a cohousing model, adding the Commission would need to consider how cohousing should be defined and implemented through the zoning code.

Commission and Staff discussion and comments regarding cohousing development continued as follows:

- Staff would research the resale values of cohousing properties.

- Potential secondary uses, design implications, and regulations for cohousing developments needed to be considered should the community fail. If single-family homes were on separate lots, what would happen to the accessory buildings if the community failed?
- Any concept plans counter to cohousing would need to be addressed; for example, would parking be exclusive since the cohousing development would be an exclusive community within a neighborhood?
- Agricultural uses conflicted with existing regulations in many ways. Any new set of regulations created for Frog Pond would have to be applied citywide.
- Urban agriculture has become popular all over the country. The City could give urban agriculture an innocuous definition to allow the City to experiment with the upcoming trends without creating issues.

Mr. Dills explained that one reason residential design guidelines were essential was because better and more coherent designs would result in escalating property values over time. Design guidelines also impacted traffic movements and addressed community safety and livability by intentionally designing homes to face the streets, front yards, and public spaces so people could have eyes on the street. Additionally, residential design could encourage people to get involved in their community and promote active transportation methods, like walking and biking, which counter chronic health problems.

Mike Zilis, Walker Macy, presented ten recommended residential design elements believed to be essential for achieving the Frog Pond Master Plan and reviewed examples of good and bad design elements, with additional comments by Mr. Dills. The idea was to build the best possible community without a master developer determining all the specifics. The project team sought the Commission's input and recommendations about the design elements and how to potentially implement them.

After the presentation, Staff and Commissioners discussed the recommended design elements as follows:

- Concepts need to be balanced with how residents use their properties and the public spaces. In Villebois, the idea was to create a nice streetscape by providing garages and parking space in alleyways so cars would not park along the streets. But in reality, the alleyways could not always adequately accommodate residents' vehicles.
- Even though Villebois was a master planned community, it had sidewalks or pathways that crossed streets or were dissected by planting strips, or were otherwise made uninviting to cross.
- Equity and fairness were important aspects of this process because planning decisions would affect the property value of individual property owners. Currently, one proposed open space crossed the majority of two or three different parcels, while adjacent parcels had rows of potential homes. Doing this, set a value for lots with more open space and fewer homes, which was problematic. The City needed to be more considerate about where open space was located and the divisions between different types of neighborhoods.
  - One constant consideration would be how the plan would equitably divide potential property values for existing homeowners to be fair to the homeowners, but also as a way to encourage development to happen quickly. If some people were taking a higher burden with a lower property value while others got a higher property value because of how Frog Pond was planned, the City could invite disputes that would slow progress on development in Frog Pond.
    - Having public parks was a good idea, but their placement should be carefully considered. For example, one proposed park shown on the plat map could be moved across the street to more equitably burden property owners in that area.
    - The City would not be able to consolidate the lots and while the plan must be considered as a whole to create the community, the City must find a way to be fair to a number of different property owners about how to divide the pie.
  - Requiring 25 percent open space could help balance the inequity in the parks since everyone's land would have some open space, but could result in a lot of unusable space.
- Code changes might be necessary to implement fair open space requirements that would not result in dead spaces. Perhaps code changes made for Frog Pond should also be considered citywide.

- Requiring a minimum development area of five or 10 acres at a time would result in more consistency; otherwise nothing would work with such a hodgepodge of development by individual property owners.
- The smallest parcels in Frog Pond were two or three acres and the larger properties were 10 or 20 acres in size.
- The parks proposed in Frog Pond would not be public, but serve the development and be accessed by the residents and the rest of the community could be precluded. The City had a Parks SDC that went into the public parks system, so no option for payment in lieu of open space was currently available.
  - A fee in lieu of option could still be established in Frog Pond; for example, 25 percent would have to be set aside or paid into the neighborhood open space fund, so the neighborhood could design an open space with those fees, rather than having a hodgepodge development.
    - Fees in lieu of open space could lead to higher land prices, which could result in fewer acres, but those smaller spaces could end up functioning better.
    - Other credits for different types of open space could be considered through the development review process, such as those recently adopted by the City of Beaverton.
- Equity and fairness was also a concern when considering the sub-districts, but this was somewhat handled in the prior phase where the lot sizes were based to some degree on the existing property lines. There was still a danger that property values could be affected by where lines were drawn.
  - The map created during Phase 1 of the Frog Pond Area Plan which based lot sizes on existing property lines would be used as a starting point for location and numbers of units.
  - Concerns about equity and fairness were considered when Frog Pond was initially being developed to help prevent economic loss. The City allowed a 50 percent density increases to offset open space requirements and, because the City also wanted to incorporate a lot of natural areas into the open space, property owners with the natural areas could also incorporate that into the open space and get credit for it.
    - Developers would disagree that density increases completely prevent economic loss.
    - Due to the major infrastructure that was needed to develop, neighbors with smaller parcels could collectively work together to get a developer to come in.
    - Certainly there were difficulties related to developing Frog Pond, but some of it would be determined by how the market played out.

Mr. Dills concluded that the Commission wanted to revisit the existing 25 percent open space requirement so the project team would develop other options based on the principles that open space should be useable, public parks should be planned, and the protection of natural resources should be part of the open space system. Operational options might involve providing open space or pay a fee in lieu of.

Chair Greenfield called for public testimony on the Frog Pond Master Plan.

Doris Wehler, 6855 SW Boeckman Rd, Wilsonville, said she had about four acres. She liked the neighborhood concept idea, but did not like the idea of making requirements very specific. She had a list of specific requirements that she opposed, which she would submit to Staff. She believed the Commission would be successful dividing the area into sub-districts for development because developers would not want to develop five acres. She noted she had been working with three land owners adjacent to her property to develop as a group.

- Some of the things she objected to included rules of adjacency, architectural styles and colors. Many developments in Wilsonville were full of houses painted different shades of brown, and she would not like to see this in the Frog Pond area. Not everyone wanted gridded windows, especially if the house was a modern design.
- She supported encouraging passive solar orientation as long as it was not a requirement. The standards were very specific on 10-inch stoops, shutter sizes, and covering windows proportionately. She agreed there should not be any snout houses, but would also prohibit any alleys because they were not successful. She cautioned the Commission about being overly specific because designs could be really good without such specific requirements.

Dorothy Von Egger, 6567 SW Stratford Ct, Wilsonville, said she lived in the Landover development. She was concerned about Frog Pond being compared to Villebois because Villebois was on the other side of the freeway and not in the vicinity of Frog Pond. She suggested comparing Frog Pond to the homes located in the vicinity, like those in Landover Meadows or Arbor Crossing, which offered a feel of the neighborhood.

- She had heard a man speak at a City Council or Planning Commission meeting about how difficult it would be for Wilsonville to sell \$700,000 homes in the Frog Pond area because it was flat land with no lakes or hills. However, a huge new home with an outbuilding was being built on Stratford Rd, so people were spending a lot of money to live on the flat lands in the Frog Pond area.
- The smaller lots did not have adequate yards for children to play. Not everyone would play in the park and the lots did not provide a front yard. Her son, who had testified on Frog Pond in the past, lived in a 5,000 sq ft home in Clackamas that had a backyard so small that it was basically useless. He did not even have room for badminton or anything. Not everyone would fit into the cookie cutter mold of taking their children to the park to play. Large families want to get together for family gatherings and the proposed tiny houses discouraged that.

Dan Grimberg, West Hills Development, Inc., said he was excited about the Frog Pond area, noting West Hills had been an active builder and developer in Wilsonville. The company had also been involved in previous urban growth boundary (UGB) expansion areas, including North Bethany, River Terrace in Tigard, and Bonny Slope in Washington County.

- He was most encouraged by the Commission's willingness to listen to the issues that development brings and how everything should fit together. The Master Plan looked good on paper and Joe Dills did a good job, but making developments work came down the details, so everyone needed to work together and West Hills looked forward to having those conversations.
- Referencing the discussion about how to make usable park spaces work, he explained that in other UGB expansion areas, developments were planned as master communities just like Frog Pond. Other plans designated a sphere of influence to indicate where a park would be appropriate, and then the park district worked out the exact location with the developer, negotiated a purchase price, and everyone in the area paid parks fees that would pay for the park. This prevented one property owner from being burdened with a lesser value for parkland; the land was valued as development land and the owner would be paid fair market value. The fees everyone paid went toward compensating that land owner. Everyone used and would benefit from the park, so everyone should pay for it.
- He concluded that West Hills looked forward to being an active participant in the Frog Pond process.

Chair Greenfield confirmed there were no more public comments.

## **VIII. INFORMATIONAL**

### **A. Basalt Creek Concept Plan (Bateschell)**

Miranda Bateschell, Long-Range Planning Manager, said the Basalt Creek team had been moving forward with the recommendations from the December Joint Council meeting, which the Commission was informed about in January. Staff updated the Agency Review Team, which included local agency partners, in February and discussed transit service, open space, parks, and natural areas, as well as looking at connectivity from a multi-modal perspective and the transportation network in the Transportation Refinement Plan. A lot of progress was made on those parts of the Concept Plan which Staff had not previously worked on too much because they had been so focused on development scenarios and boundary options. Staff would continue to refine the information from the meeting and present it to the public to discuss how land uses intersect with transit services, potential pedestrian connections, etc.

- She encouraged the Commissioners to participate in the public open house on April 28, 2016 and engage with all property owners in the Basalt Creek planning area, including those from Tualatin. All property owners in the planning area receive monthly email updates from the project team and would be notified of the open house. Property owners have attended almost all of the joint City Council.
- Staff will seek input from the property owners about parks, open space, and trails at the open house in April. The area had some difficult connectivity issues particularly related to the Basalt Creek Canyon, which limited

the ability to provide east/west connectivity in that area and limited access to the parkway, which would have a 102-ft wide right-of-way once built out. Staff was working hard to figure out how to best provide service to the employers, employees, businesses, and to the neighborhood north of the area.

- She would provide the materials and an update on the input received from April's open house at the Commission meeting in May.

**B. 2015 Annual Housing Report (Bateschell)**

Chris Neamtzu, Planning Director, explained that the 2015 Annual Housing Report was not ready, but Staff would present the report at the next Commission meeting.

**IX. OTHER BUSINESS**

**A. 2016 Planning Commission Work Program**

Miranda Bateschell, Long-Range Planning Manager, briefly reviewed the Work Program, which included open houses scheduled for the Committee for Citizen Involvement (CCI) with these additional comments:

- She encouraged the Commissioners to take the Transit Master Plan survey and attend the workshop scheduled for March 10, 2016. The Transit Master Plan Update scheduled in April would include an update on public involvement and discussion about the larger master plan update process, the schedule, and how public input would influence route choices, service options, and related policy choices.
- The draft 2015 Annual Housing report would be added to next month's agenda.
- In May, an open house forum would be held on the Frog Pond Master Plan before the Planning Commission meeting, which would start a bit later. Another open house would be held on Frog Pond, likely in July.
- A Town Center open house would likely be scheduled once the consultants had been hired. She clarified that Staff was still drafting the Request for Proposals (RFP) for Town Center. An intergovernmental agreement (IGA) needed to be approved by City Council before the City Manager could sign it. The IGA would be presented to City Council on March 21, 2016 and once signed and executed by Metro, Staff could move forward with the RFP, which would likely be in April.
  - There had been a lot of interest in Town Center but she wanted to allow three or four weeks for prospective firms to prepare good proposals. The review, interview, and selection process would take about month. She anticipated a consultant would be hired about mid-summer, which was later than anticipated but would still work with the City's timeline. She noted public input could still be launched this summer, adding Staff did not want to have a lot of work formulated before getting public input.

**X. ADJOURNMENT**

Chair Greenfield adjourned the regular meeting of the Wilsonville Planning Commission at 9:22 p.m.

Respectfully submitted,

By Paula Pinyerd of ABC Transcription Services, Inc. for  
Tami Bergeron, Administrative Assistant - Planning



**PLANNING COMMISSION  
WEDNESDAY, APRIL 13, 2016**

**VI. PUBLIC HEARING**

A. LP16-0001 – Transportation System Plan (TSP) Amendments (Mende)





## PLANNING COMMISSION PUBLIC HEARING STAFF REPORT

<b>Meeting Date:</b> April 13, 2016		<b>Subject: Resolution LP16-001:</b> Proposed minor amendments to the 2013 Transportation System Plan (TSP).  <b>Staff Member:</b> Eric Mende, Capital Projects Manager <b>Department:</b> Community Development	
<b>Action Required</b>		<b>Advisory Board/Commission Recommendations</b>	
<input checked="" type="checkbox"/> Motion  <input checked="" type="checkbox"/> Public Hearing Date: 04.13.16  <input checked="" type="checkbox"/> Resolution <input type="checkbox"/> Information or Direction <input type="checkbox"/> Information Only <input type="checkbox"/> Council Direction <input type="checkbox"/> Consent Agenda		<b>Comments: N/A</b>	
<b>Staff Recommendation:</b> Approve Resolution LP16-001 forwarding a recommendation to City Council for adoption of the 2016 Transportation System Plan minor amendments.			
<b>Recommended Language for Motion:</b> I move to approve Resolution LP16-001 forwarding a recommendation to City Council for adoption of the 2016 Transportation System Plan minor amendments.			
<b>PROJECT / ISSUE RELATES TO:</b>			
<input checked="" type="checkbox"/> Council Goals/Priorities Ensure efficient, cost effective and sustainable development and infrastructure. Multi-modal transportation.	<input checked="" type="checkbox"/> Adopted Master Plan(s) 2013 Transportation Systems Plan,	<input type="checkbox"/> Not Applicable	

### ISSUE BEFORE THE PLANNING COMMISSION:

The issue before the Planning Commission is approval of a Planning Commission Resolution forwarding a recommendation to City Council for approval and adoption of minor amendments (2016 TSP Amendment) to the 2013 TSP, as a sub-element of the City's Comprehensive Plan. The Planning Commission may choose to forward a recommendation for approval of the

Amendment as presented, approval with changes, or may choose to forward a recommendation not to approve.

### **EXECUTIVE SUMMARY:**

The TSP is the City's long-term policy and planning document for transportation improvements (vehicular, bicycle, pedestrian, transit and freight) and includes a list (TSP Chapter 5) of higher priority projects that will be implemented over a 20-year timeframe through the City's Capital Improvement Program (CIP), development review process, and occasionally by other agencies. The TSP identifies the City's transportation system goals, objectives and projects needed to provide efficient transportation choices for all users, design standards for a system that operates reliably and safely, and is complementary to surrounding land uses.

In addition, having a TSP in place is essential for the City to compete for federal, state and regional funding for transportation projects. This TSP Amendment, once adopted, will update and replace the Executive Summary and Chapters 2, 3, and 5 of the 2013 TSP. The proposed revised Executive Summary and proposed Chapters 2, 3, and 5 are attached, as is a Summary Memorandum from DKS Associates dated 03/14/16 documenting the pertinent changes.

Wilsonville, like other cities in the region, needs to update its TSP to keep current with changes in state and regional transportation policy as well as to address rapidly changing local conditions. Major Updates to TSPs typically occur on an 8 - 10 year schedule. Minor Amendments are common, and occur as needed between major updates. The key changes driving these Amendments include completion of concept planning for the Frog Pond/Advance Road area, and development of revised planning documents for a proposed Urban Renewal District for the Coffee Creek Industrial Area.

The Amendments incorporate input received to date from City Council, Planning Commission, and the public. The information and recommendations contained in the Amendment document have been previously presented to Planning Commission and state mandated public notices have been distributed. As of the date of this staff report, approximately six requests for information have been made, and responded to, however, written comments have been received from only one party - Republic Services (in support, please refer to Attachment E).

### **EXPECTED RESULTS:**

Adoption of the Amendment will result in continued compliance with Statewide Planning Goal 12, the Transportation Planning Rule and Metro's Regional Transportation Functional Plan, providing a sound, integrated planning document that will continue to guide the next 20-years of transportation projects and policies.

### **TIMELINE:**

After this Hearing at Planning Commission, the Amendments will be heard by City Council at their May 2<sup>nd</sup> regular meeting (Public Hearing and 1<sup>st</sup> Reading). If Council approves at 1<sup>st</sup> Reading, 2<sup>nd</sup> Reading and Adoption is scheduled for May 16<sup>th</sup>. The Amendment would become effective 30 days following second reading and adoption of the Ordinance.

### **CURRENT YEAR BUDGET IMPACTS:**

Other than staff time for Community Development personnel and Consulting Services provided by DKS Associates for technical evaluation and document preparation, there are no expected implementation costs. These costs are currently budgeted (FY 15/16). The project is on schedule and within budget.

**FINANCIAL REVIEW / COMMENTS:**

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

**LEGAL REVIEW / COMMENT:**

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

**COMMUNITY INVOLVEMENT PROCESS:**

Adoption of the 2013 TSP included a substantial public engagement process over the course of two years with numerous opportunities for input and community dialog. The Planning Commission spent considerable time and energy shaping the Plan and the corresponding Comprehensive Plan text amendments.

For this minor Amendment, Staff created a broad property owner notification that targeted all owners in the general vicinity of the proposed changes reflected in the Amendment. Key target areas included the Coffee Creek area and Commerce Circle businesses, and the Canyon Creek, Meadows, and Landover residential areas. Businesses and residences outside City limits but potentially impacted by the Amendment were notified, and potentially affected governmental entities such as Metro, Washington County, and Tualatin Valley Fire and Rescue were also provided notice, as required by law. The City received very few inquiries as a result of the notification, and only one set of written comments. (Attachment E).

**POTENTIAL IMPACTS or BENEFIT TO THE COMMUNITY:**

The TSP and this proposed Amendment identify projects and policies that set the framework for the next 20 years of transportation improvements in all modes. These projects are intended to support community livability and economic development by providing a wide variety of transportation choices that connect the community both internally as well as externally.

**ALTERNATIVES:**

The Planning Commission can forward a recommendation to Council for approval of the Amendment as presented, as presented but with changes, or may choose to forward a recommendation not to approve. Planning Commission can also direct Staff to modify the policies, projects, or programs recommended in the draft Amendment, and bring it back for further hearing.

**CITY MANAGER COMMENT:**

**ATTACHMENTS:**

- A: Conclusionary findings dated March 31, 2016.
- B. Transportation System Plan (TSP) Amendment Summary Memo dated March 14, 2016.
- C: Revised TSP Chapters (Executive Summary and Chapters 2, 3, and 5)
- D: Resolution LP16-001
- E: Written Comments from Ben Altman on behalf of Republic Services in support of proposed amendments dated March 23, 2016.
- F: Draft Ordinance No 789 for CC

Any written comments received after the Planning Commission Hearing packet is distributed will be copied and provided at the April 18<sup>th</sup> meeting.

**Attachment A, Exhibit 1:**

**CONCLUSIONARY FINDINGS**

**April 13, 2016**

**In support of Approval of Application #LP16-0001  
2013 Transportation System Plan Amendments**

***Section 4.032. Authority of the Planning Commission.***

*(.01) As specified in Chapter 2 of the Wilsonville Code, the Planning Commission sits as an advisory body, making recommendations to the City Council on a variety of land use and transportation policy issues. The Commission also serves as the City's official Committee for Citizen Involvement and shall have the authority to review and make recommendations on the following types of applications or procedures:*

*B. Legislative changes to, or adoption of new elements or sub-elements of, the Comprehensive Plan;*

**Response:** The TSP is a sub-element of the Comprehensive Plan. The Planning Commission conducted a worksession on the proposed amendments on March 9<sup>th</sup>, and then conducted a public hearing on April 13<sup>th</sup>, after which will provide the City Council with a recommendation.. The City Council will conduct additional public hearings following the conclusion of the Commission portion of the process. The City Council is the final local authority on this Master Plan. **These criteria are satisfied.**

***Section 4.033. Authority of City Council.***

*(.01) Upon appeal, the City Council shall have final authority to act on all applications filed pursuant to Chapter 4 of the Wilsonville Code, with the exception of applications for expedited land divisions, as specified in Section 4.232. Additionally, the Council shall have final authority to interpret and enforce the procedures and standards set forth in this Chapter and shall have final decision-making authority on the following:*

*B. Applications for amendments to, or adoption of new elements or sub-elements to, the maps or text of the Comprehensive Plan, as authorized in Section 4.198.*

*E. Consideration of the recommendations of the Planning Commission.*

**Response:** Following the public hearing before the Planning Commission, the City Council will receive a recommendation from the Planning Commission on the proposed TSP amendments. The City Council is the final local authority regarding adoption of the TSP, which will be adopted via Ordinance as a sub-element of the City's Comprehensive Plan. **These criteria are satisfied.**

*(.02) When a decision or approval of the Council is required, the Planning Director shall schedule a public hearing pursuant to Section 4.013. At the public hearing the*

*staff shall review the report of the Planning Commission or Development Review Board and provide other pertinent information, and interested persons shall be given the opportunity to present testimony and information relevant to the proposal and make final arguments why the matter shall not be approved and, if approved, the nature of the provisions to be contained in approving action.*

*(.03) To the extent that a finding of fact is required, the Council shall make a finding for each of the criteria applicable and in doing so may sustain or reverse a finding of the Planning Commission or Development Review Board. The Council may delete, add or modify any of the provisions pertaining to the proposal or attach certain development or use conditions beyond those warranted for compliance with standards in granting an approval if the Council determines the conditions are appropriate to fulfill the criteria for approval.*

**Response:** Following the public hearing before the Planning Commission, the Planning Director scheduled additional public hearings before the City Council at which time the Council will review the findings and recommendations provided by the Planning Commission. **At conclusion of the public hearing process, these criteria will be satisfied.**

## STATEWIDE PLANNING GOALS

**Statewide Planning Goal #1 - Citizen Involvement (OAR 660-015-0000(1)):** *To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.*

**Response:** A work session was held on March 13<sup>th</sup>, 2016 with the Planning Commission. The City of Wilsonville has provided notice of public hearings before the Planning Commission consistent with the Planning and Land Development Ordinance requirements. Such notices were posted in the newspaper, and were provided to property owners in each area of the community where a project was being modified, a list of interested agencies, and were posted in three locations throughout the City and on the City's website. At the upcoming public hearing, the public will be afforded an opportunity to provide public testimony to the Planning Commission, and then following the recommendation, the City Council.

Significant public outreach was also conducted by the City of Wilsonville as part of the Frog Pond Area plan. This outreach helped form the recommended TSP project amendments in the Frog Pond west neighborhood that are currently proposed for inclusion in the TSP. **This goal is met.**

**Statewide Planning Goal #2 - Land Use Planning (OAR 660-015-0000(2)):** *To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and actions.*

**Response:** This goal is implemented through the applicable Goals and Policies in the Land Use and Development section of the Wilsonville Comprehensive Plan. Because the TSP is a sub-element of the City’s Comprehensive Plan, the application to adopt the TSP was processed pursuant to the legislative decision process outlined in Section 4.032 and Section 4.033 of the Development Code. The TSP amendment document and its recommended improvements, project modifications and proposed funding sources are based on a series of analyses and evaluations that were prepared as part of developing the original TSP update, including the existing conditions report, future conditions report, and solutions analysis and funding package.

The proposed TSP update and associated amendments are consistent with Statewide Planning Goal 2. **This goal is met.**

**Statewide Planning Goal #5 – Natural Resources, Scenic and Historic Areas, and Open Spaces (OAR 660-015-0000(5)):** *To protect natural resources and conserve scenic and historic areas and open spaces.*

**Response:** This goal is implemented through the applicable Park/Recreation/Open Space Goals and Policies in the Public Facilities and Services section of the Comprehensive Plan. The City code contains specific review criteria for uses within a Significant Resource Overlay Zone (Development Code Section 4.139.00, SROZ Ordinance) to ensure that designated Goal 5 resources are appropriately considered when development is proposed.

The TSP amendment document details the stages of the Capital Project Process (Figure 6-1), which includes an environmental assessment. An environmental assessment may be required at the time of project development pursuant to applicable federal, regional, and/or local regulations. **This goal is met.**

**Statewide Planning Goal # 6 – Air, Water and Land Resource Quality (OAR 660-015-0000(6)):** *To maintain and improve the quality of the air, water and land resources of the state.*

**Response:** Air, water and land resources have been considered in the development of the planned transportation system to ensure that impacts on these resources are minimized. Appropriate measures will be taken at the time of project development on a site-specific basis to ensure that applicable state and federal regulations are met. **This goal is met.**

**Statewide Planning Goal # 7 – Areas Subject to Natural Disasters and Hazards:** *To protect people and property from natural hazards.*

**Response:** Areas subject to natural disasters and hazards, such as floodplains, have been considered in the development of the planned transportation system to ensure that impacts on these areas are minimized. Improvements related to implementation of the system will need to conform to environmental regulations. **This goal is met.**

**Statewide Planning Goal # 8 – Recreation Needs (OAR 660-015-0000(8)):** *To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.*

**Response:** While Goal 8 is not directly applicable to this action, safe and convenient access to parks and other areas planned for recreational needs was considered in the development of the TSP. The amended TSP was informed by the 2007 Parks and Recreation Master Plan, a plan for achieving a comprehensive and interrelated system of parks, recreation, and natural areas that in turn promote connectivity throughout the City and support the 2006 Bicycle and Pedestrian Master Plan. Numerous proposed projects contained in the TSP amendment will implement the City’s planned trail system and will enhance access to the City’s parks and open spaces (TSP Chapter 5). **This goal is met.**

**Statewide Planning Goal #9 – Public Facilities and Services (OAR 660-015-0000(9)):** *To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.*

**Response:** Adopting the updated TSP will ensure that transportation improvements will be available to support the planned uses in the City’s employment and residential areas, consistent with other local economic development goals.

The amended recommended list of transportation projects that will improve or complete the transportation system through 2035 is based largely on past plans, but includes updated solutions. The amendments in the proposed TSP provide projects that support economic development in the City and include employers and future development areas such as Republic Services, Xerox, Frog Pond residential, future West Linn/Wilsonville schools, and Coffee Creek industrial areas that rely on that roadway by improving mobility and removing conflicts between freight movement and pedestrians and cyclists. **This goal is met.**

**Statewide Planning Goal #10 – Housing (OAR 660-015-0000(10)):** *To provide for the housing needs of citizens of the state.*

**Response:** The needs and improvements identified in the original 2013 TSP were developed in part by forecasting growth in residential development and the trips expected to be generated by growth over the next 20 years. Adoption of the TSP update will ensure the orderly extension and improvement of transportation facilities to accommodate the projected growth envisioned in the City’s Comprehensive Plan, which includes a variety of housing types. **This goal is met.**

**Statewide Planning Goal #11 – Public Facilities and Services (OAR 660-015-0000(11)):** *It is the purpose of Goal 11 to plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development. Cities are required to develop public facilities plans for their UGBs.*



**Response:** Transportation facilities are considered a primary public facility in the City. The amended TSP documents existing conditions and future needs for the transportation system in Wilsonville and recommended improvements and implementation strategies have been developed to address those needs.

In particular, proposed transit improvements, filling sidewalk gaps, and improving crosswalks and bicycle facilities and Safe Routes to School planning will result in increased safety and access within residential areas of the City, as well as improve connections to other uses and services in the City. **This goal is met.**

**Statewide Planning Goal #12 – Transportation (OAR 660-015-0000(12)):** *To provide and encourage a safe, convenient and economic transportation system.*

**Response:** The original TSP established City transportation policy related to multimodal transportation, access and mobility, safety, equity, economy, health and the environment, and goods movement. These policies and associated implementation measures guided the development of the TSP, the development of standards, and the selection of the amended recommended improvements. **This goal is met.**

**Statewide Planning Goal #13 Energy Conservation (OAR 660-015-0000(13)):** *To conserve energy.*

**Response:** The multimodal transportation system and improvements proposed in the TSP amendment will support efficient use of land within the City limits and UGB based on existing adopted Comprehensive Plan and zoning designations. The TSP will ensure that the City can provide timely, orderly and efficient transportation improvements where it is efficient to promote higher intensity land uses and avoid leap-frog development. **This goal is met.**

## STATE AND REGIONAL PLANS

The current TSP amendment meets the findings of the original adopted 2013 TSP that the proposed TSP and recommended projects are consistent with goals and policies of the Oregon Transportation Plan, Regional Transportation Plan, Oregon Highway Plan and Transportation Planning Rule.

## GENERAL CONCLUSIONARY SUMMARY OF FINDINGS

- The TSP amendment is consistent with applicable Statewide Planning Goals. .
- The TSP amendment is consistent with the Oregon Transportation Plan, Regional Transportation Functional Plan, Comprehensive Plan goals and policies, and Oregon Highway Plan.
- The list of amended transportation projects is based largely on the 2013 adopted plan but includes modifications to support land use planning and development.

- The draft TSP amendments include revised transportation improvement projects (Chapter 5) to address the City's transportation needs and accommodate growth through the 2035 planning horizon.

As is evidenced by the staff report and findings contained herein, the proposal to amend the City's TSP is consistent with the applicable statewide planning goals, other applicable state and regional standards and the criteria contained in the Comprehensive Plan.



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## DRAFT MEMORANDUM

**DATE:** March 14, 2016

**TO:** Project Management Team

**FROM:** Scott Mansur, P.E., PTOE  
Jordin Ketelsen, EIT

**SUBJECT:** **Wilsonville Transportation System Plan (TSP) Amendment Summary**

P15125-003

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This memorandum discusses necessary amendments to the City of Wilsonville's Transportation System Plan (TSP) since the prior TSP was adopted in 2013. These changes include the following project modifications:

- Delete the minor arterial segment for Kinsman Road between Ridder Road and Day Road, including associated truck route and bicycle route designations and delete associated Capital Improvement Project RE-07.
- Add the proposed east to west Java Road collector, including bicycle route designations and update Capital Improvements Project SI-01 accordingly.
- Add Garden Acres Road as a three-lane collector designation, including truck route and bicycle route designations. Prepare a cost estimate and project description for inclusion as a Higher Priority Project.
- Add the designated collector roadways and update the proposed trail locations from the recently adopted Frog Pond Area Plan.<sup>1</sup>
- Provide updated information for project UU-01 (Boeckman Road Dip Improvements) based on the recent OBEC bridge study.<sup>2</sup>
- Add the Printer Parkway collector, including the proposed bicycle facilities. Prepare cost estimate and project description for inclusion as a Higher Priority Project.
- Add the collector roadways and site improvements associated with the proposed Advance Middle School site.
- Update the City's urban growth boundary (UGB) to include the area surrounding the proposed Advance Road Middle School and City Park site.

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<sup>1</sup> *Frog Pond Area Plan*, Angelo Planning Group, DKS Associates, November 2015.

<sup>2</sup> Boeckman Dip Reconstruction Option A Preliminary Cost Estimate, OBEC.



- Extend Capital Improvement Project BW-P2 to include sidewalk infill on Boones Ferry Road from Commerce Circle Loop to Day Road.

The following sections provide more detail for the specific proposed modifications to the TSP.

## PROPOSED AMENDMENTS FOR TSP COMPLIANCE

The discussion of recommended revisions is generally organized by reference to the applicable chapter(s) of the TSP. In all chapters, revisions to existing TSP language are presented with deletions shown in ~~striketrough~~ and additions or new code shown as underlined. The revised TSP figures, referenced in the sections below, are attached at the end of this memorandum. The revisions identified in this memorandum will also be addressed in a final amended TSP document once the revisions are approved by the Planning Commission and City Council.

### Executive Summary

The following changes are recommended to the Executive Summary of the City of Wilsonville's TSP.

#### ***Higher Priority Projects Figure*** (Page iv)

See the recommended changes to this figure in Chapter 5 (page 4 of this memorandum).

#### ***Higher Priority Projects Table*** (Page v)

Remove the following projects from this table:

- ~~Project RE-07 Kinsman Road Extension (North)~~
- ~~Project BW-11 Frog Pond Trails~~
- ~~Project RT-02 Frog Pond Trail~~
- ~~SI-01 Clutter Road Intersection Improvements with Realignment or Grade Lowering~~

Add or update the following projects to this table:

- UU-08 Garden Acres Road Urban Upgrade
- UU-09 Printer Parkway Urban Upgrade
- UU-10 Advance Road Urban Upgrade
- RE-11 Advance Road Middle School Collector Roadways
- RE-12A Frog Pond West Neighborhood Collector Roads
- RE-12B Frog Pond South Neighborhood Collector Road
- RE-13 Java Road Connection and Signal
- RT-07 Revised Frog Pond Regional Trail



## Chapter 3: The Standards

The following changes are recommended to Chapter 3 of the City of Wilsonville's TSP.

### **Figure 3-2: Functional Class Designations** (Page 3-5)

Summary of changes:

- Update the UGB to include the area surrounding the proposed Advance Road Middle School and include 63<sup>rd</sup> Avenue and Hazel Street as collector roadways.
- Show Advance Road as a collector road to 60<sup>th</sup> Avenue.
- Remove the Kinsman Road extension between Day Road and Ridder Road.
- Modify the functional classification of Garden Acres Road from a local street to a collector.
- Add the future collector roadways proposed in the adopted Frog Pond Area Plan.
- Modify the functional classification of Printer Parkway from a private local street to a collector.
- Modify the functional classification of 60<sup>th</sup> Avenue adjacent to the proposed Advance Middle School site to a collector.
- Add the future Java Road collector.

### **Figure 3-4: Freight Routes** (Page 3-9)

Summary of changes:

- Update the UGB to include the area surrounding the proposed Advance Road Middle School.
- Remove the Kinsman Road extension.
- Classify Garden Acres Road as a truck route.

### **Figure 3-5: Bicycle Routes** (Page 3-11)

Summary of changes:

- Update the UGB to include the area surrounding the proposed Advance Road Middle School and show bike lanes on 63<sup>rd</sup> Avenue and Hazel Street.
- Update to show bike lanes on Advance Road to 60<sup>th</sup> Avenue.
- Remove the Kinsman Road extension and update the alignment of the proposed future shared use paths in the area.
- Add the planned bike lanes on the future Java Road collector.
- Show the planned future bike lanes on Garden Acres Road.
- Show the planned future bike facilities on Printer Parkway.
- Update the bicycle facilities and shared used paths in the Frog Pond area as designated in the Frog Pond Area Plan.



## Chapter 4: The Needs

The following changes are recommended to Chapter 4 of the City of Wilsonville's TSP.

### **Figure 4-1: Roadway Cross-Section Deficiencies** (Page 4-5)

Summary of changes:

- Update the UGB to include the area surrounding the proposed Advance Road Middle School.
- Highlight Garden Acres Road as experiencing existing collector cross-section deficiencies.
- Highlight Printer Parkway as experiencing existing collector cross-section deficiencies.
- Highlight Advance Road between Stafford Road and 60<sup>th</sup> Avenue as experiencing collector cross-section deficiencies.
- Highlight 60<sup>th</sup> Avenue adjacent to the proposed Advance Road Middle School site as experiencing collector cross-section deficiencies.

### **Figure 4-2: Future 2035 Capacity Deficiencies** (Page 4-7)

Summary of changes:

- Update the UGB to include the area surrounding the proposed Advance Road Middle School.
- Remove the Kinsman Road extension.

## Chapter 5: The Projects

The following changes are recommended to Chapter 5 of the City of Wilsonville's TSP.

### **Figure 5-2: Higher Priority Projects** (Page 5-5)

Remove the following projects:

- ~~RE-07 Kinsman Road Extension~~
- ~~BW-11 Frog Pond Trails~~
- ~~RT-02 Frog Pond Trail~~

Add the following projects:

- UU-08 Garden Acres Road Urban Upgrade
- UU-09 Printer Parkway Urban Upgrade
- RE-11 Advance Road Middle School Collector Roads
- UU-10 Advance Road Urban Upgrade
- RE-12A Frog Pond West Neighborhood Collector Roads
- RE-12B Frog Pond South Neighborhood Collector Road
- RE-13 Java Road Connection and Signal
- RT-07 Revised Frog Pond Regional Trail



**Table 5-2: Higher Priority Projects (Northwest Quadrant) (Page 5-6)**

Remove the following projects:

- ~~RE-07 Kinsman Road Extension~~
- ~~SI-01 Clutter Road Intersection Improvements with Realignment or Grade Lowering~~

Add the following projects and their associated costs and descriptions:

- UU-08 Garden Acres Road Urban Upgrade (\$14,260,000)

*Upgrade Garden Acres Road to a three-lane collector with bicycle lanes and upgrade the Garden Acres Road/Day Road intersection to either a signal or a roundabout. Realign Ridder Road to Garden Acres Road. Close the existing Clutter Road connection to Grahams Ferry Road after completion of Project RE-13. Close the existing Coffee Creek Correctional Facility driveway to Grahams Ferry Road and relocate the driveway to Cahalin Road.*

- RE-13 Java Road Connection and Signal (\$1,500,000)

*Construct Java Road with collector designation between Grahams Ferry Road and Garden Acres Road with a signal at the Java Road/Grahams Ferry Road intersection*

Update the description and cost of the following project:

- RW-02 Day Road Widening (~~\$6,600,000~~ \$5,900,000)

*Widen Day Road from Boones Ferry Road to Grahams Ferry Road to include additional travel lanes in both directions along with bike lanes and sidewalks; project includes improvements at the Day Road/Boones Ferry Road and Day Road/Grahams Ferry Road intersections*

**Figure 5-3: Higher Priority Projects (Northwest Quadrant) (Page 5-7)**

Update this figure based on the changes made in the northwest quadrant of Figure 5-2 outlined above.

**Table 5-3: Higher Priority Projects (Northeast Quadrant) (Page 5-8)**

Update the costs of the following projects:

- UU-01 Boeckman Road Dip Improvements (~~-\$5,850,000~~ \$12,220,000)
- UU-06 Stafford Road Urban Upgrade (~~\$3,900,000~~ \$4,200,000)
- RT-01A Boeckman Creek Trail (North) (~~\$800,000~~ \$850,000)

Remove the following projects:

- ~~BW-11 Frog Pond Trails~~
- ~~RT-02 Frog Pond Trail~~



Add the following projects and their associated costs and descriptions:

- UU-09 Printer Parkway Urban Upgrade (\$3,600,000)  
*Upgrade Printer Parkway to a three-lane collector with bicycle lanes and multiuse path*
- UU-10 Advance Road Urban Upgrade (\$3,175,000)  
*Upgrade Advance Road to collector standards starting at Stafford Road to the proposed 63<sup>rd</sup> Avenue (entrance to proposed Advance Road Middle School)*
- RE-11 Advance Road Middle School Site Improvements (\$1,600,000)  
*Construct the collector roadways and site improvements associated with the proposed Advance Road Middle School site*
- RE-12A Frog Pond West Neighborhood Collector Roads (\$9,510,000)  
*Construct the collector roadways within the west neighborhood as identified in the Frog Pond Area Plan*
- RE-12B Frog Pond South Neighborhood Collector Roads (\$2,650,000)  
*Construct the collector roadways within the south neighborhood as identified in the Frog Pond Area Plan*
- RT-07 Revised Frog Pond Regional Trail (\$700,000)  
*Construct the regional trail identified in the Frog Pond Area Plan*

**Figure 5-4: Higher Priority Projects (Northeast Quadrant)** (Page 5-9)

Update this figure based on the changes made in the northeast quadrant of Figure 5-2 outlined above.

**Figure 5-7: Additional Planned Projects** (Page 5-17)

Summary of changes:

- Update project BW-P2 Commerce Circle Loop Sidewalk Infill to include sidewalk infill on Boones Ferry Road from Commerce Circle to Day Road.
- Delete project UU-P1 Advance Road Urban Upgrade.

**Table 5-9: Additional Planned Projects (Northwest Quadrant)** (Page 5-18)

Update the following project and the associated cost and description:

- BW-P2 Commerce Circle Loop and Boones Ferry Road Sidewalk Infill (\$100,000-\$150,000)  
*Fill in gaps in the sidewalks network on Commerce Circle Loop and Boones Ferry Road*





**Figure 5-8: Additional Planned Projects (Northwest Quadrant)** (Page 5-19)

Update this figure based on the changes made in the northwest quadrant of Figure 5-7 outlined above.

**Table 5-10: Additional Planned Projects (Northeast Quadrant)** (Page 5-20)

Remove Project UU-P1 Advance Road Urban Upgrade.

**Figure 5-9: Additional Planned Projects (Northeast Quadrant)** (Page 5-25)

Update this figure based on the changes made in the northeast quadrant of Figure 5-7 outlined above.

**Table 5-12: Additional Planned Projects (Southeast Quadrant)** (Page 5-24)

Add the following projects and their associated costs and descriptions:

- LT-P7 School Connection Trail (\$460,000)

Construct the School Connection Trail identified in the Frog Pond Area Plan.

Medium priority due to existing connections; will become important when school and park are constructed.

- LT-P8 60<sup>th</sup> Avenue Trail (\$240,000)

Construct the 60<sup>th</sup> Avenue Trail identified in the Frog Pond Area Plan.

Medium priority due to existing connections; will become important when school and park are constructed.

**Figure 5-11: Additional Planned Projects (Southeast Quadrant)** (Page 5-25)

Update this figure based on the changes made in the southeast quadrant of Figure 5-2 outlined above.

TSP Amendment Attachment B

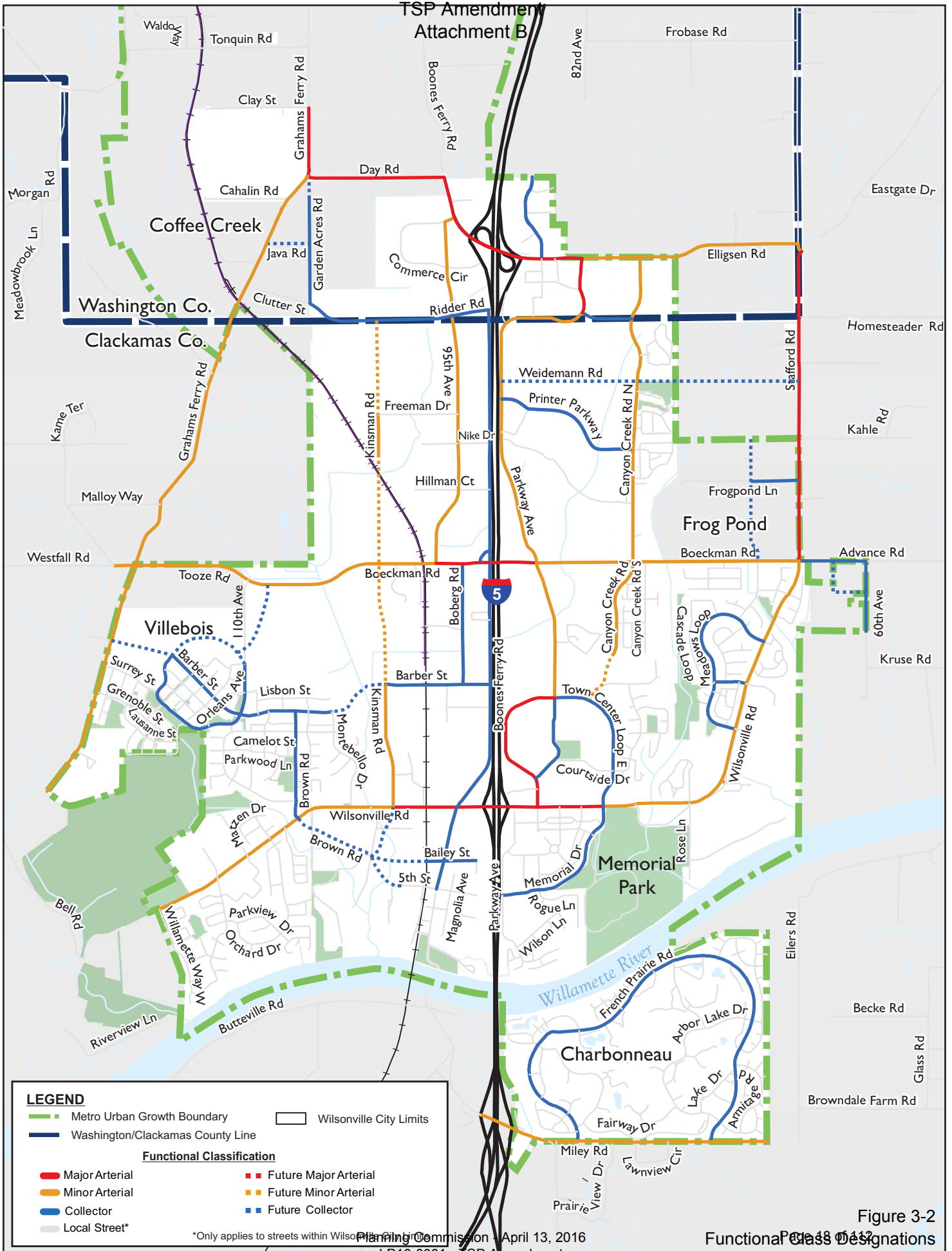


Figure 3-2  
Functional Class Designations

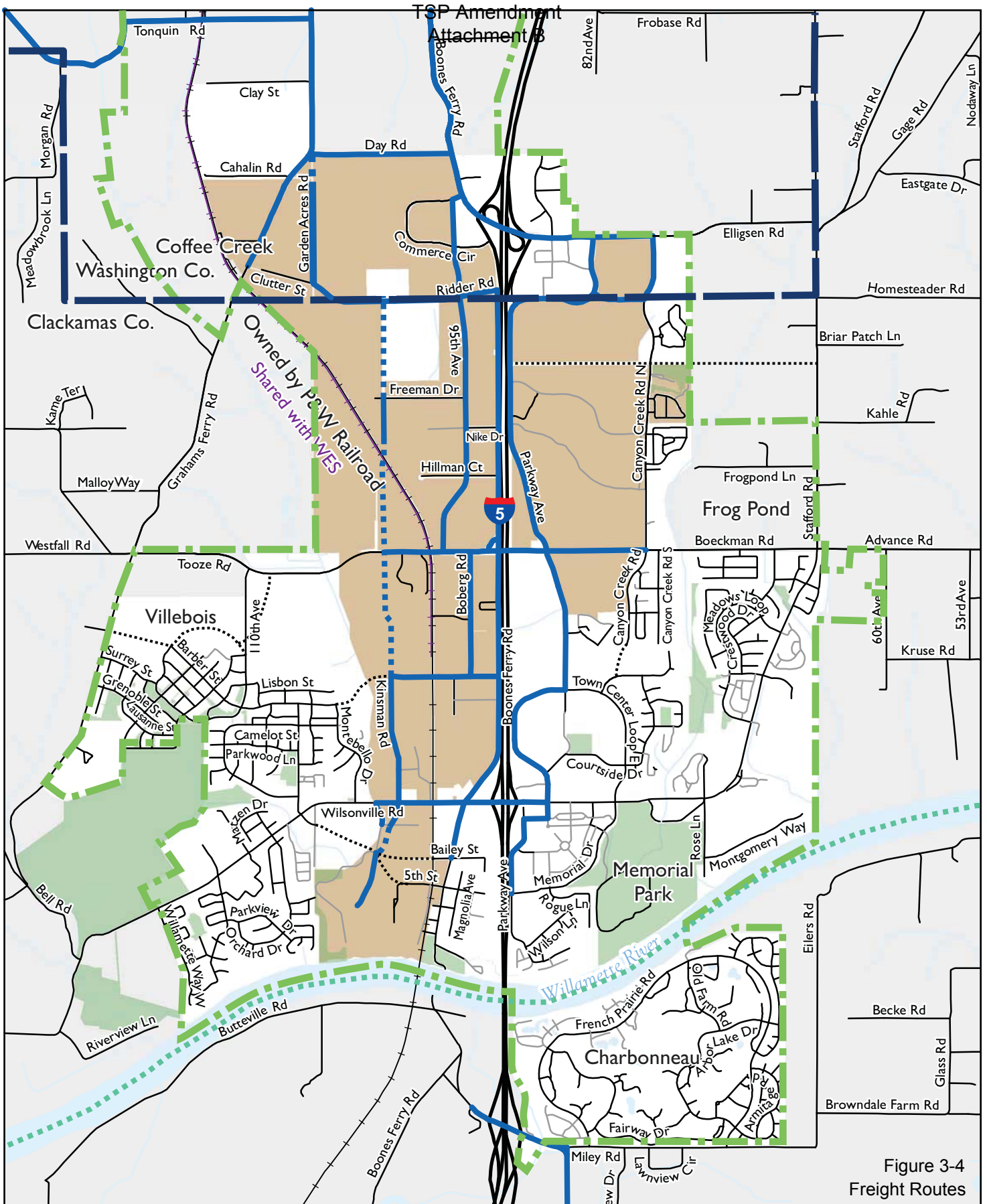


Figure 3-4  
Freight Routes

LEGEND		Freight Route	
Wilsonville City Limits	WES Commuter Rail	Truck Route (Existing Road)	Water Route
Industrial-Zoned Land	Metro Urban Growth Boundary	Truck Route (Future Road)	P&W Railroad
	Washington/Clackamas County Line		

TSP Amendment  
Attachment B

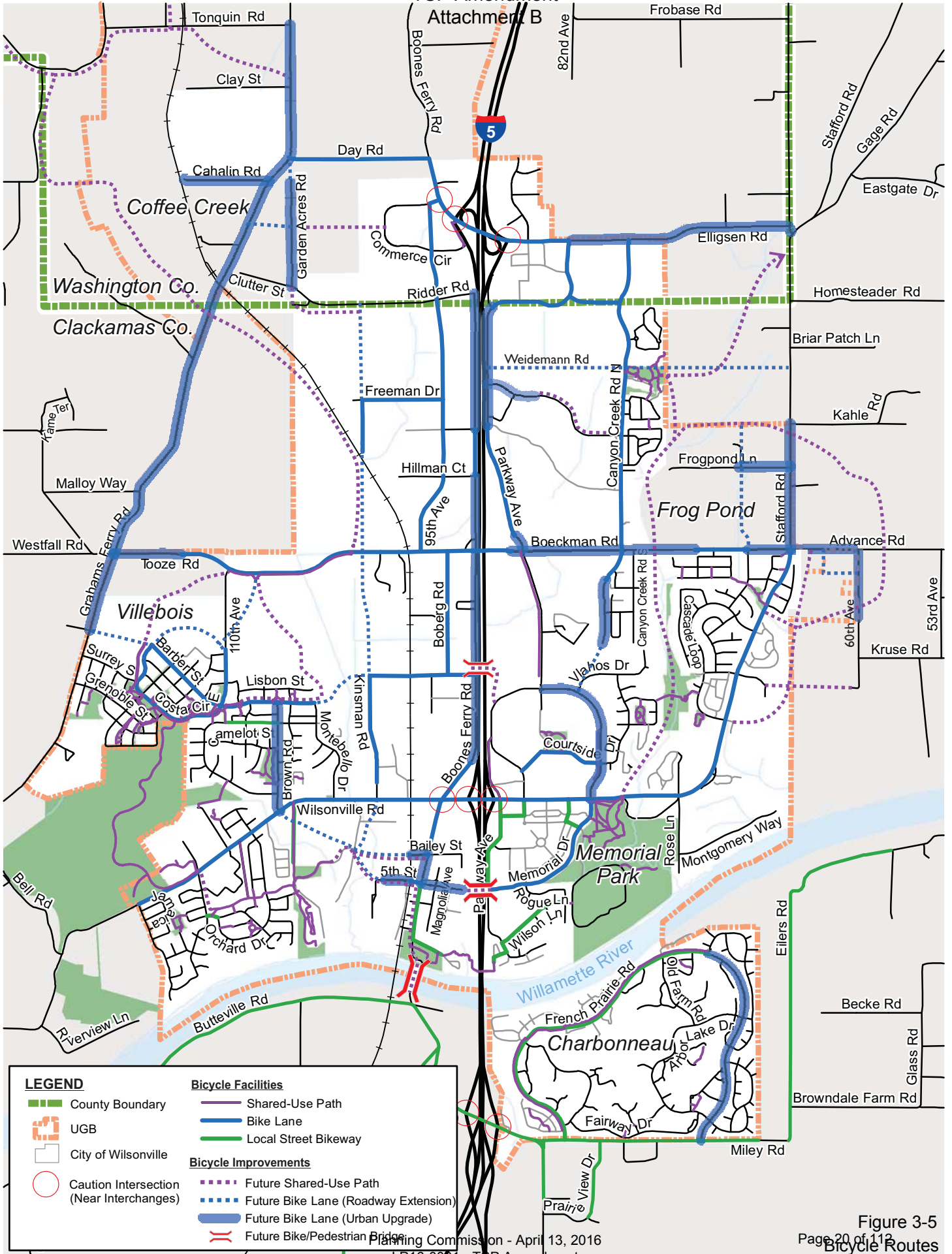
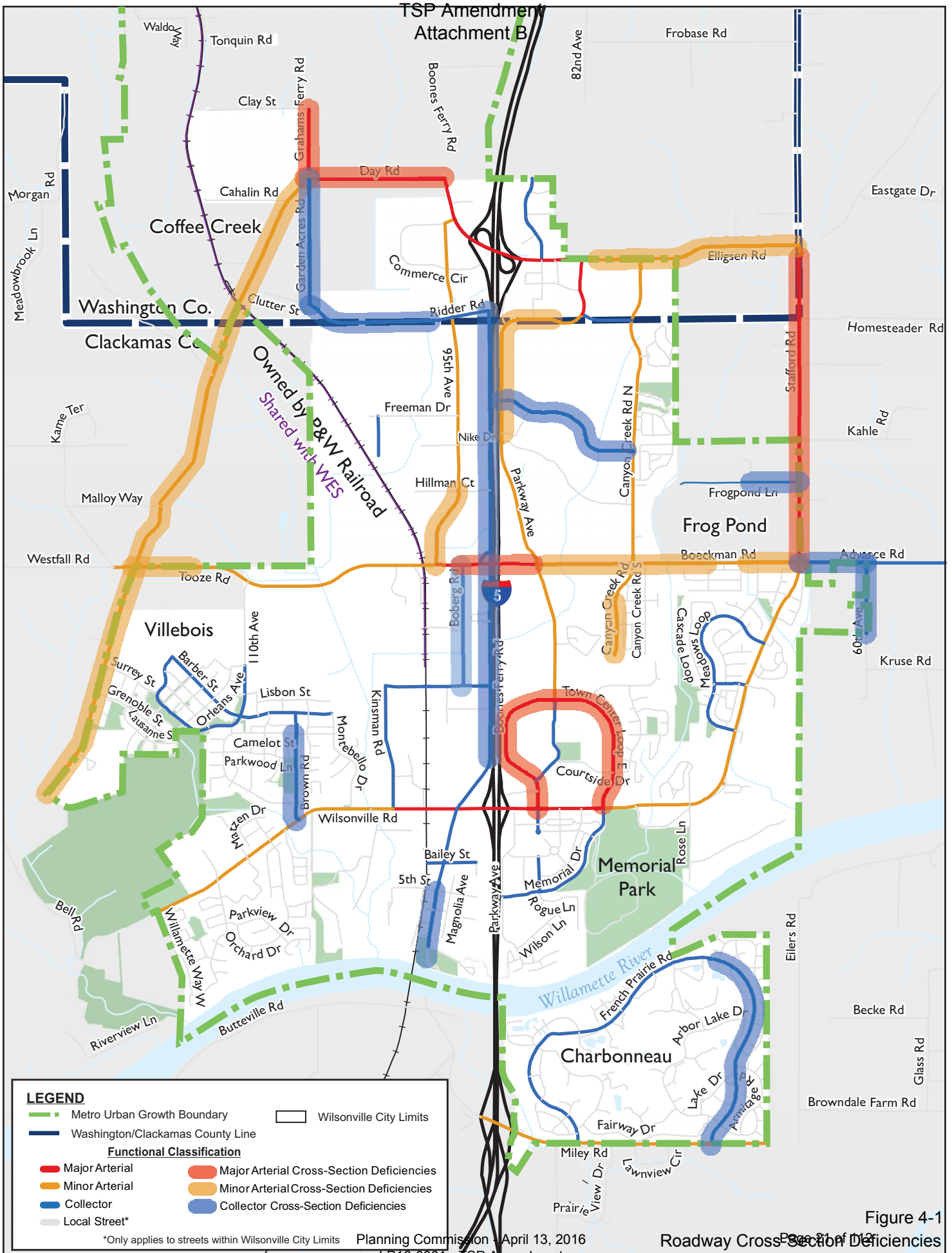


Figure 3-5  
Page 20 of 112  
Bicycle Routes



**Figure 4-1**  
Roadway Cross-Section Deficiencies

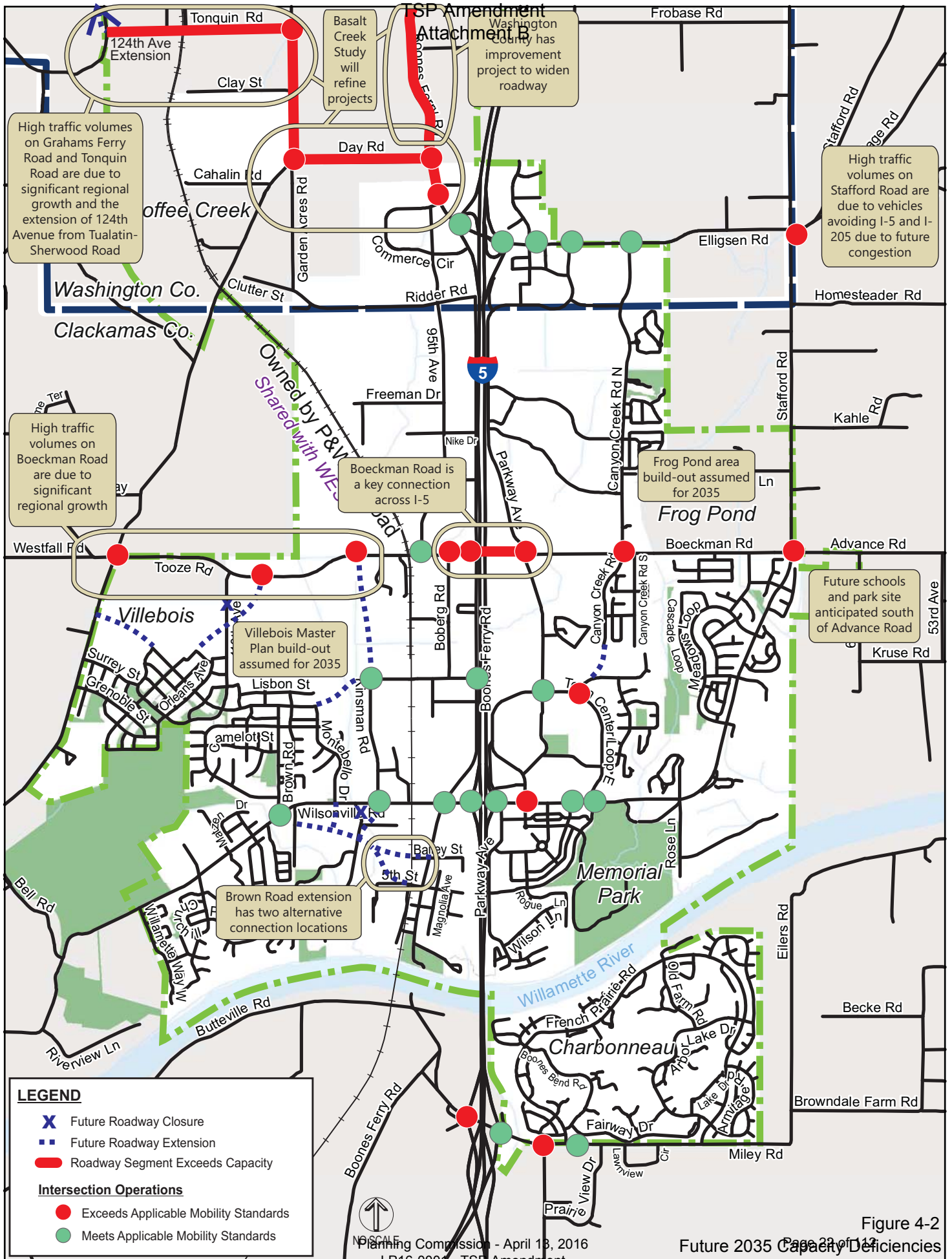


Figure 4-2  
 Future 2035 Capacity Deficiencies

# TSP Amendment Attachment B

124th Ave Extension from Tualatin-Sherwood Rd (Washington County Project)

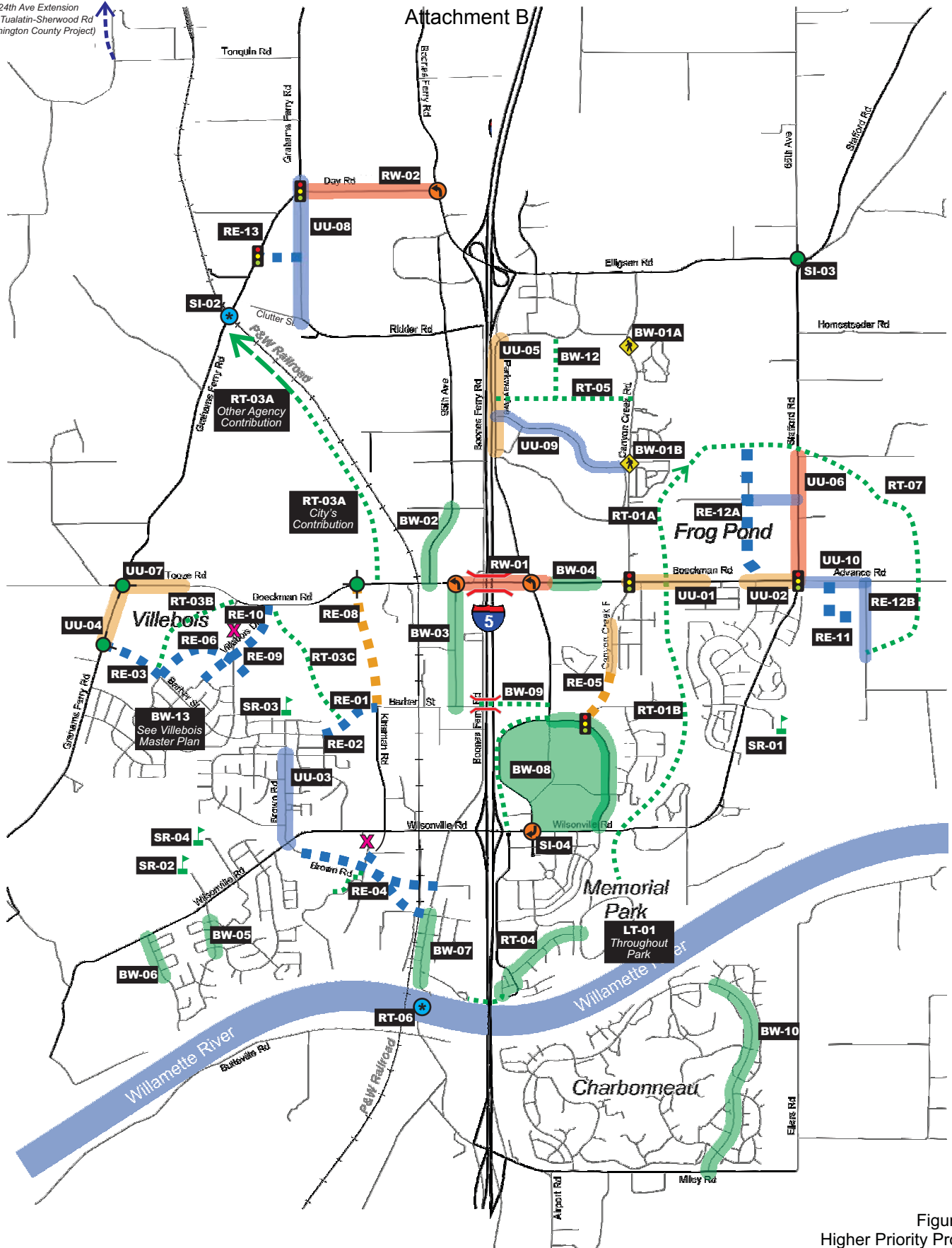


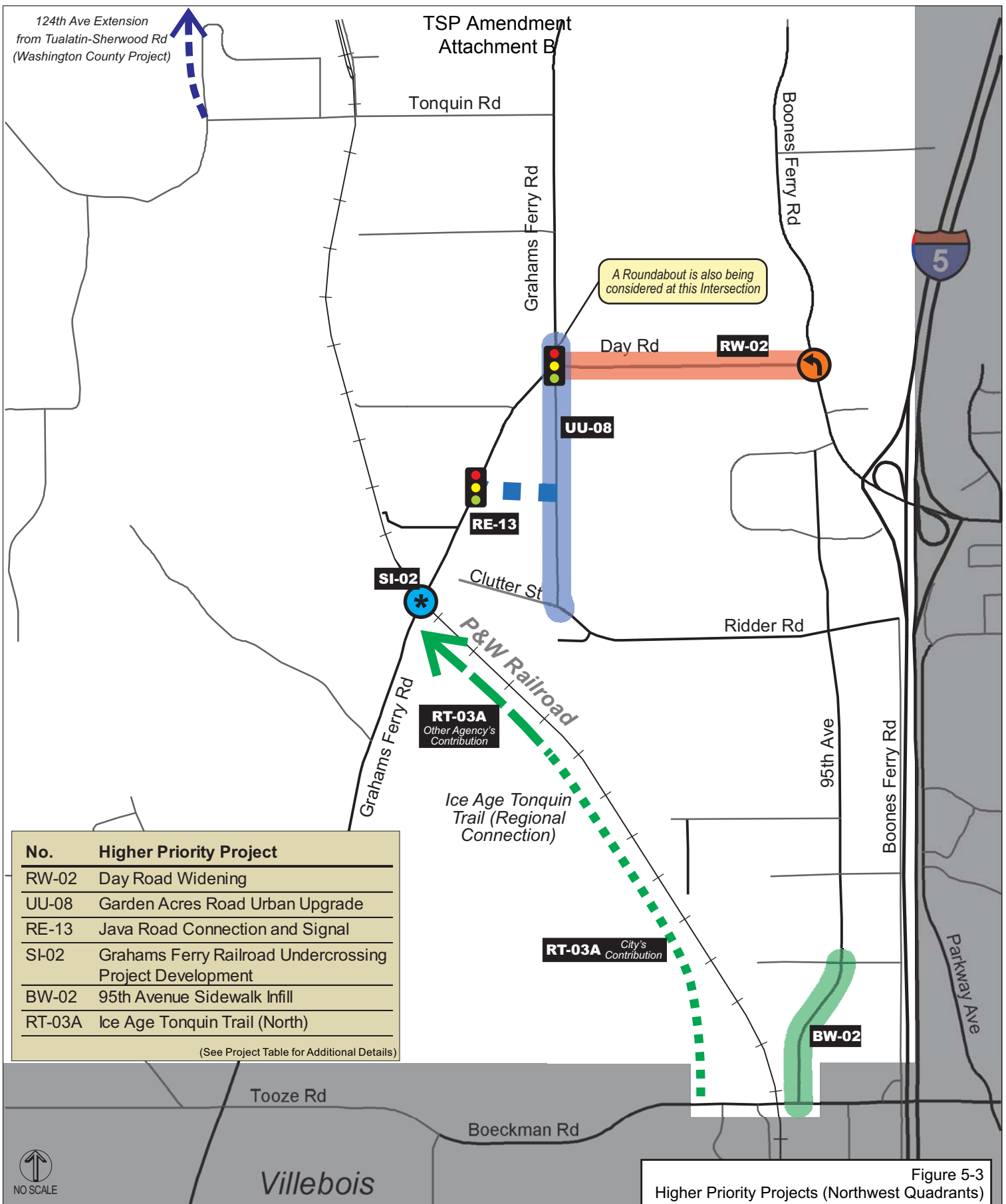
Figure 5-2 Higher Priority Projects

LEGEND		Standalone Bike/Pedestrian Improvement	
<b>Roadway Widening/Upgrade</b>	<b>Roadway Extensions</b>	<b>Spot Improvements</b>	<b>Standalone Bike/Pedestrian Improvement</b>
Major Arterial	Major Arterial	New Traffic Signal	Enhanced Pedestrian Crossing
Minor Arterial	Minor Arterial	New Roundabout	Shared-Use Trail (City)
Collector	Collector	Additional Turn Lanes	Shared-Use Trail (County)
		Project Development	Bikeway/Walkway
			Safe Routes to School
			Road Closure
			Bridge Work
			AA-# - Project Name and Number

NO SCALE

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No.	Higher Priority Project
RW-02	Day Road Widening
UU-08	Garden Acres Road Urban Upgrade
RE-13	Java Road Connection and Signal
SI-02	Grahams Ferry Railroad Undercrossing Project Development
BW-02	95th Avenue Sidewalk Infill
RT-03A	Ice Age Tonquin Trail (North)

(See Project Table for Additional Details)

Figure 5-3  
Higher Priority Projects (Northwest Quadrants)

**LEGEND**

<b>Roadway Widening/Upgrade</b>	<b>Roadway Extensions</b>	<b>Spot Improvements</b>	<b>Standalone Bike/Pedestrian Improvement</b>	<b>Other</b>
Major Arterial	Major Arterial	New Traffic Signal	Enhanced Pedestrian Crossing	Road Closure
Minor Arterial	Minor Arterial	New Roundabout	Shared-Use Trail (City)	Bridge Work
Collector	Collector	Additional Turn Lanes	Shared-Use Trail (County)	AA-#-#-# Project Type and Number
		LP16-0001 - TSP Amendment Project Development	Bikeway/Walkway	
			Safe Routes to School	



Villebois



No.	Higher Priority Project
RW-01	Boeckman Road Arterial Corridor Improvements
RE-11	Advance Road Middle School Site Improvements
RE-12A	Frog Pond West Neighborhood Collector Roads
RE-12B	Frog Pond South Neighborhood Collector Roads
UU-01	Boeckman Road Dip Improvements
UU-02	Boeckman Road Urban Upgrade
UU-05	Parkway Avenue Urban Upgrade
UU-06	Stafford Road Urban Upgrade
UU-09	Printer Parkway Urban Upgrade
UU-10	Advance Road Urban Upgrade
SI-03	Stafford Road/65th Avenue Intersection Improvements
BW-01	Canyon Creek Road Enhanced Pedestrian Crossing
BW-04	Boeckman Road Bike Lanes and Sidewalk Infill
BW-12	Parkway Center Trail Connector
RT-01A	Boeckman Creek Trail (North)
RT-07	Revised Frog Pond Regional Trail
RT-05	Wiedeman Road Trail

(See Project Table for Additional Details)

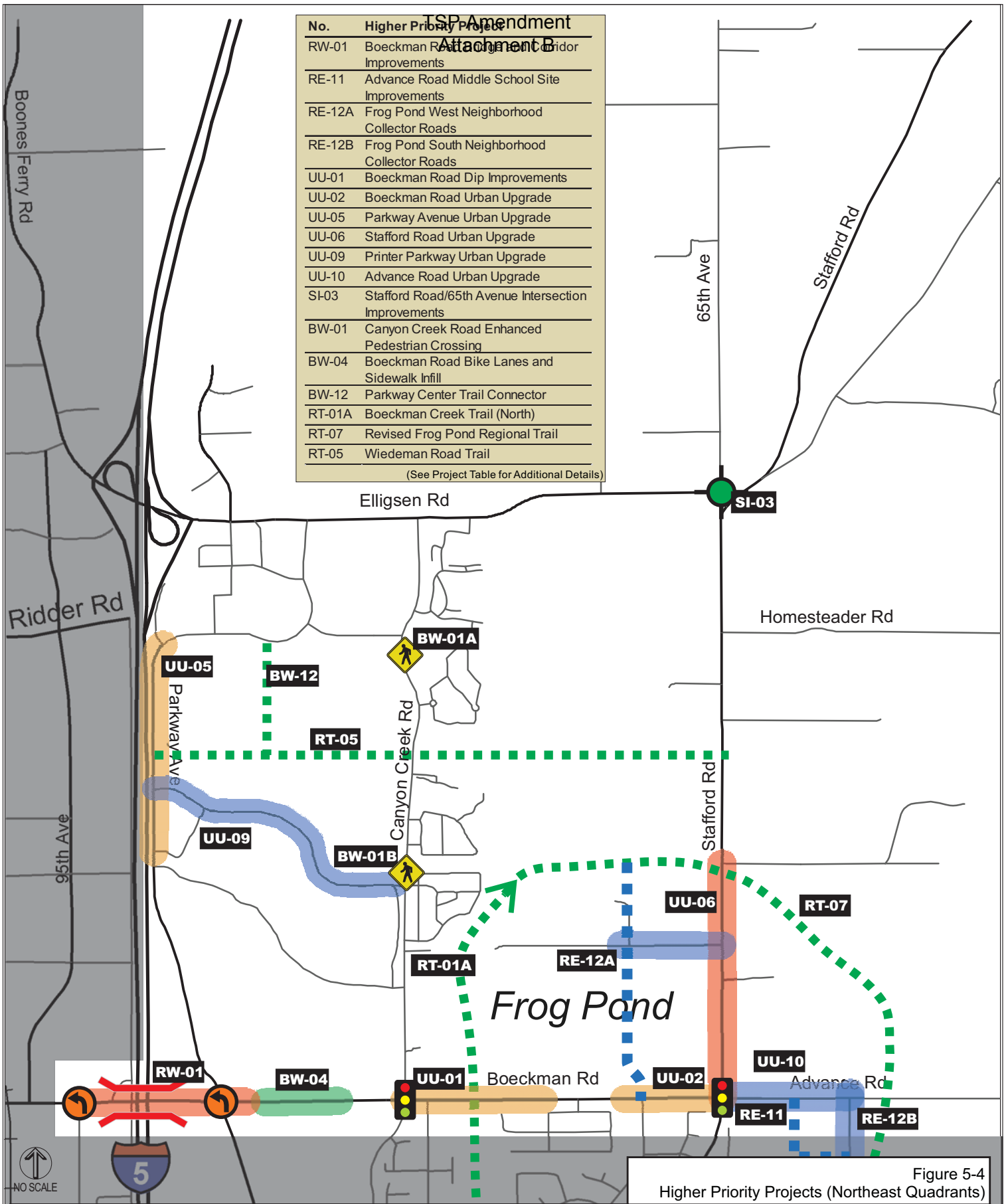


Figure 5-4  
Higher Priority Projects (Northeast Quadrants)

**LEGEND**

- |  |  |  |   |   |
|--|--|--|---|---|
| <p><b>Roadway Widening/Upgrade</b></p> <ul style="list-style-type: none"> <li>Major Arterial</li> <li>Minor Arterial</li> <li>Collector</li> </ul> | <p><b>Roadway Extensions</b></p> <ul style="list-style-type: none"> <li>Major Arterial</li> <li>Minor Arterial</li> <li>Collector</li> </ul> | <p><b>Spot Improvements</b></p> <ul style="list-style-type: none"> <li>New Traffic Signal</li> <li>New Roundabout</li> <li>Additional Turn Lanes</li> <li>Project Development</li> </ul> | <p><b>Standalone Bike/Pedestrian Improvement</b></p> <ul style="list-style-type: none"> <li>Enhanced Pedestrian Crossing</li> <li>Shared-Use Trail (City)</li> <li>Shared-Use Trail (County)</li> <li>Bikeway/Walkway</li> <li>Safe Routes to School</li> </ul> | <ul style="list-style-type: none"> <li>Road Closure</li> <li>Bridge Work</li> </ul> |
|--|--|--|---|---|

AA-# - Project Type and Number

# TSP Amendment Attachment B

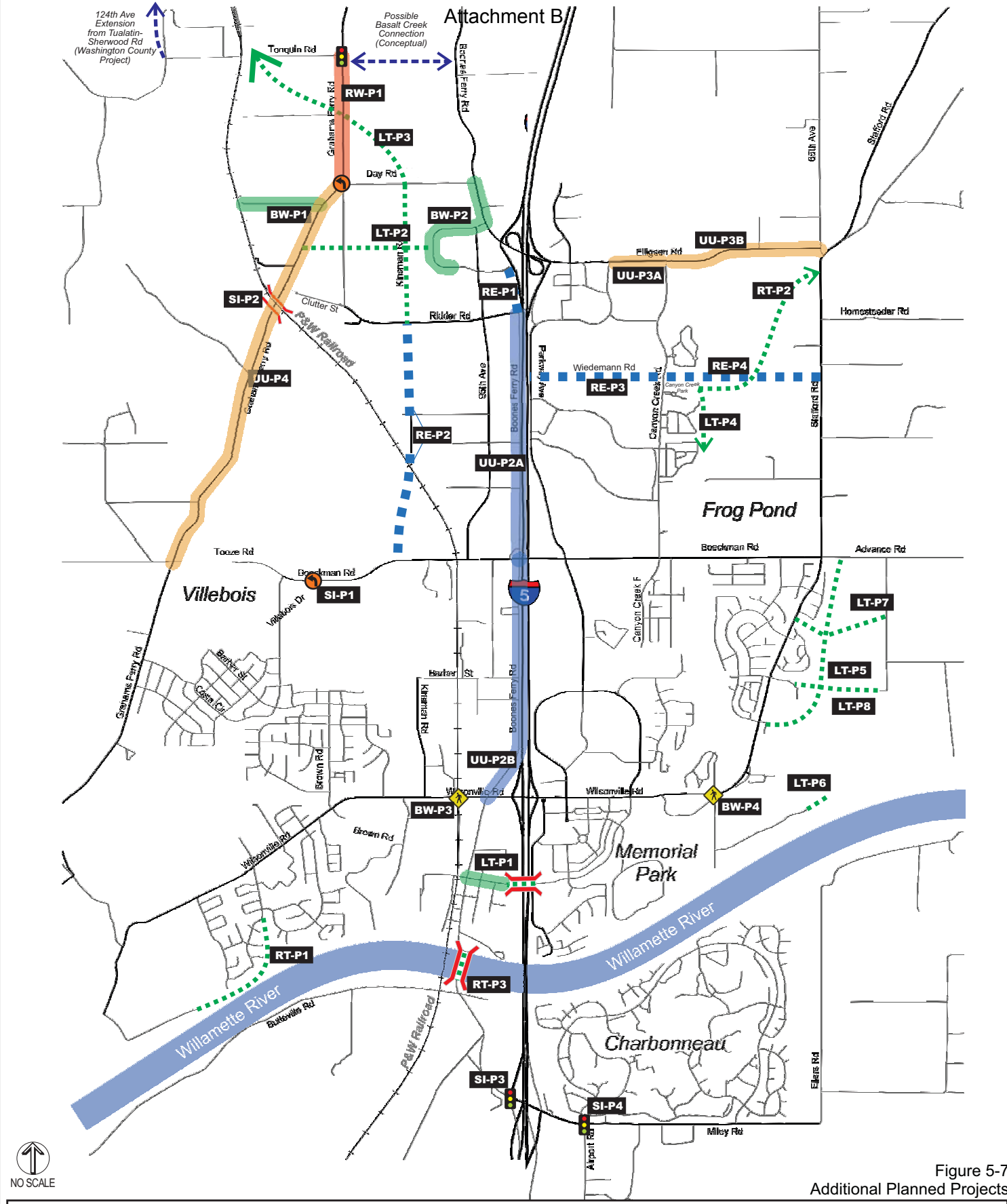


Figure 5-7  
Additional Planned Projects

LEGEND		Standalone Bike/Pedestrian Improvement	
<b>Roadway Widening/Upgrade</b>	<b>Roadway Extensions</b>	<b>Spot Improvements</b>	<b>Standalone Bike/Pedestrian Improvement</b>
Major Arterial	Major Arterial	New Traffic Signal	Enhanced Pedestrian Crossing
Minor Arterial	Minor Arterial	New Roundabout	Shared-Use Trail (City)
Collector	Collector	Additional Turn Lanes	Shared-Use Trail (County)
		LP 16-0001 - TSP Amendment Project Development	Bikeway/Walkway
			Safe Routes to School
			Road Closure
			Bridge Work
			<b>AA-#</b> Project Name and Number

NO SCALE

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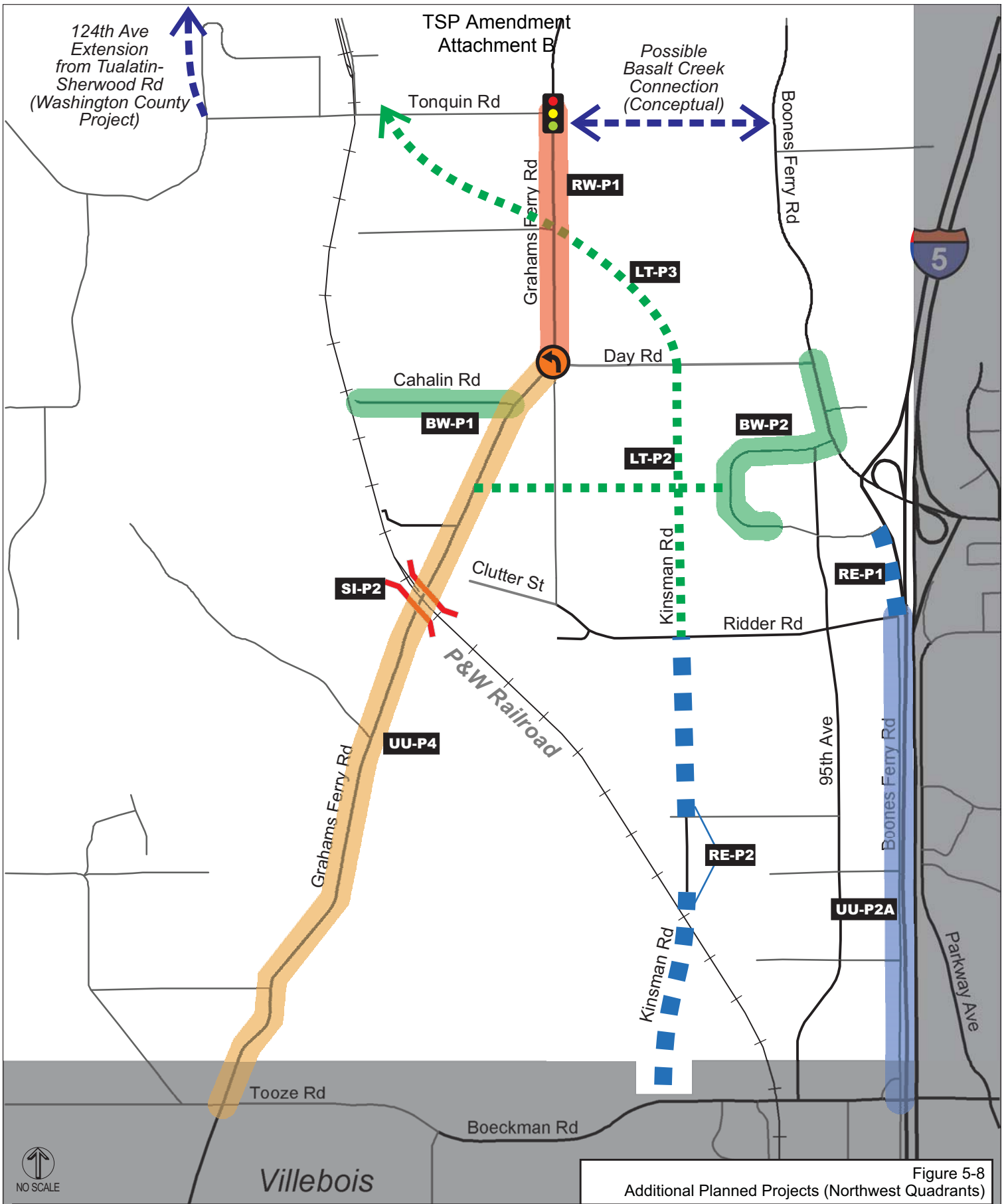


Figure 5-8  
Additional Planned Projects (Northwest Quadrants)

**LEGEND**

Roadway Widening/Upgrade		Roadway Extensions		Spot Improvements		Standalone Bike/Pedestrian Improvement		Other	
	Major Arterial		Major Arterial		New Traffic Signal		Enhanced Pedestrian Crossing		Road Closure
	Minor Arterial		Minor Arterial		New Roundabout		Shared-Use Trail (City)		Bridge Work
	Collector		Collector		Additional Turn Lanes		Shared-Use Trail (County)		Bridge and Number
					Project Development		Bikeway/Walkway		
							Safe Routes to School		



Villebois

April 2016

Page 12

TSP Amendment  
Attachment B

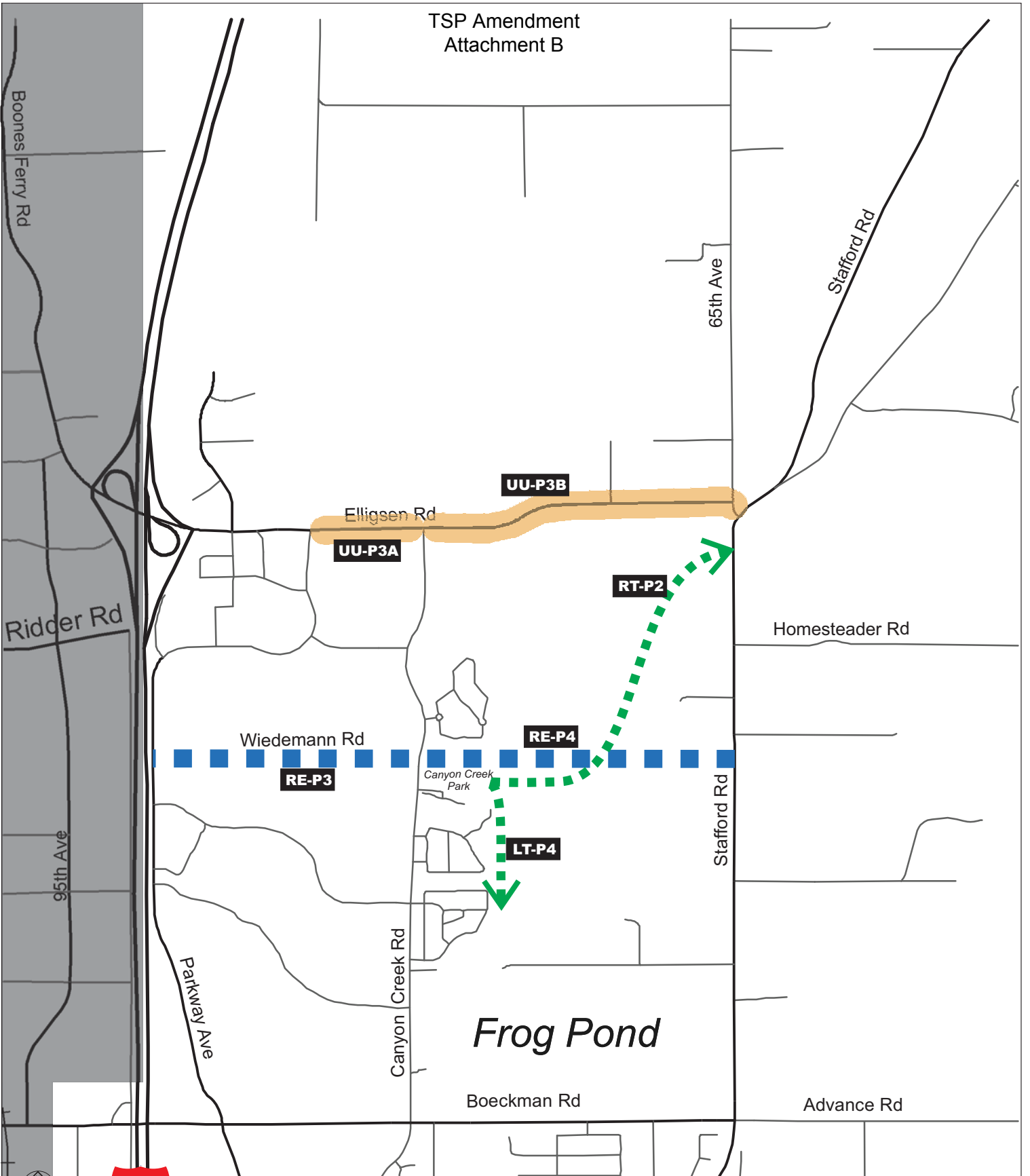


Figure 5-9  
Additional Planned Projects (Northeast Quadrants)

LEGEND		Standalone Bike/Pedestrian Improvement	
<b>Roadway Widening/Upgrade</b>	<b>Roadway Extensions</b>	<b>Spot Improvements</b>	<b>Standalone Bike/Pedestrian Improvement</b>
Major Arterial	Major Arterial	New Traffic Signal	Enhanced Pedestrian Crossing
Minor Arterial	Minor Arterial	New Roundabout	Shared-Use Trail (City)
Collector	Collector	Additional Turn Lanes	Shared-Use Trail (County)
		Project Development	Bikeway/Walkway
			Safe Routes to School
			Road Closure
			Bridge Work

AP-16-0001 - TSP Amendment  
Project 12

Planning Commission - April 13, 2016



NO SCALE



Canyon Creek Rd

LT-P7

LT-P5

LT-P8

Boeckman Creek  
Primary School

Wilsonville Rd

BW-P4

LT-P6

Memorial  
Park

Willamette River

Charbonneau

Eilers Rd

SI-P3

SI-P4

Miley Rd



Figure 5-11

Additional Planned Projects (Southeast Quadrants)

**LEGEND**

- Roadway Widening/Upgrade**
- Major Arterial
  - Minor Arterial
  - Collector

- Roadway Extensions**
- - - Major Arterial
  - - - Minor Arterial
  - - - Collector

**Spot Improvements**

- New Traffic Signal
- New Roundabout
- Additional Turn Lanes
- Project Development

**Standalone Bike/Pedestrian Improvement**

- Enhanced Pedestrian Crossing
- Shared-Use Trail (City)
- Shared-Use Trail (County)
- Bikeway/Walkway
- Safe Routes to School

- Road Closure
- Bridge Work

AP-16-0001 - TSP Amendment  
Project Type and Number



## A TRANSPORTATION PLANNING STORY

The TSP chapters tell a story of how the City's planning efforts are helping the community achieve its desired transportation system:

- **Chapter 1: The Context** provides the background of the City's transportation planning efforts.
- **Chapter 2: The Vision** shares the City's visions of its desired transportation system.
- **Chapter 3: The Standards** outlines the standards the City is implementing to ensure ongoing progress towards its vision.
- **Chapter 4: The Needs** identifies the existing and anticipated needs of the transportation system through the 2035 planning horizon.
- **Chapter 5: The Projects** explains the transportation improvement projects that will allow the City to meet its infrastructure needs.
- **Chapter 6: The Programs** describes the ongoing transportation programs that help the City manage its transportation system.
- **Chapter 7: The Performance** lists the performance measures to be considered in subsequent TSP updates to determine if its planning efforts are leading to the desired outcomes.

## INTRODUCTION

The Wilsonville Transportation System Plan (TSP) is the City's long-term transportation plan and is an element of its Comprehensive Plan. It includes policies, projects, and programs that could be implemented through the City's Capital Improvement Plan, development requirements, or grant funding. The TSP's transportation planning story is outlined in the box at right, and the key findings of each TSP chapter are highlighted below.

## THE CONTEXT (SEE CHAPTER 1)

The 2013 TSP process built upon two decades of community planning to create a complete community transportation plan that integrates all travel modes. This update is needed to account for changing economic and social circumstances and to ensure consistency with state and regional planning policies. It also ensures the City will be prepared to support land use growth within the urban growth boundary through the 2035 planning horizon.

Most of the policies and projects come from prior adopted plans, including the Comprehensive Plan, 2003 TSP, 2006 Bicycle and Pedestrian Master Plan, and 2008 Transit Master Plan. While the TSP replaces the 2003 TSP in its entirety, it updates and builds upon the 2006 Bicycle and Pedestrian Master Plan and 2008 Transit Master Plan. Where these documents may be in conflict, the new TSP takes precedence.

The City's future financial outlook was also evaluated to identify the City's forecasted resources and financial limitations. The City draws upon multiple funding sources to manage, operate, and improve its transportation system. For capital improvement projects, the City relies heavily on developer contributions and fees (including system development charges) and urban

renewal funds, which are primarily associated with new growth areas. With ongoing planning and investment in its transportation system, the City can continue to serve its residents, businesses, and the region.

### THE VISION (SEE CHAPTER 2)

As Wilsonville grows, it is essential for the community to work collaboratively toward its shared vision, which is summarized in the call-out box at right.

Transportation goals and policies form the bases for how the local transportation system will be developed and maintained through the TSP’s 2035 horizon year. Wilsonville’s seven transportation goals are identified in the table below. The City’s vision and goals support a multimodal approach to transportation, which means that the system accommodates users of all travel modes.

### **WILSONVILLE’S TRANSPORTATION VISION**

*Wilsonville’s coordinated multimodal transportation system is strategically designed and collaboratively built. Our system provides mode and route choices, delivering safe and convenient local accessibility to assure that Wilsonville retains its high levels of quality of life and economic health. Neighborhoods, employment centers, schools, shopping, and parks are connected by a network of streets and pathways that give residents options to easily get around town.*

*Our local accessibility is further enhanced through arterial connectivity with our neighboring communities, thereby providing excellent intercity and interstate mobility serving our residential and business needs. The system is designed, built and maintained to be cost effective and to maximize the*

## Wilsonville’s Transportation Goals

Goals	Description
1 <b>Safe</b>	Follow current safety practices for design, operations, and maintenance of transportation facilities.
2 <b>Connected and Accessible</b>	Provide all users with access to integrated facilities and services that connect Wilsonville’s neighborhoods, parks, schools, employment centers, and retail areas to each other and to the surrounding region.
3 <b>Functional and Reliable</b>	Provide, manage, and maintain sufficient transportation infrastructure and services throughout Wilsonville to ensure functional and reliable multimodal and freight operations as development occurs.
4 <b>Cost Effective</b>	Utilize diverse and stable funding sources to implement transportation solutions that provide the greatest benefit to Wilsonville residents and businesses, while mitigating impacts to the city’s social, economic, and environmental resources.
5 <b>Compatible</b>	Develop and manage a transportation system that is consistent with the City’s Comprehensive Plan and coordinates with other local, regional, and state jurisdictions.
6 <b>Robust</b>	Encourage and support the availability of a variety of transportation choices for moving people and goods.
7 <b>Promotes Livability</b>	Design and construct transportation facilities in a manner that enhances the livability of Wilsonville and health of its residents.

## THE STANDARDS (SEE CHAPTER 3)

Wilsonville's transportation standards ensure the City develops and operates consistent with its goals and vision. Wilsonville's six types of transportation standards are listed in the call-out box at right.

How well a street serves its users ultimately depends upon which elements are included, their dimensions, and how they relate to each other (all of which are informed by the City's standards). For example, streets designed consistent with adjacent land uses can contribute to the identity and character of a neighborhood and increase property values. They can also affect traffic speeds, reduce environmental impacts, and allow for safe multimodal use.

## THE NEEDS (SEE CHAPTER 4)

Wilsonville's transportation standards and policies serve as a benchmark for determining what needs exist throughout the city. The city's needs are categorized as gaps (missing connections or barriers in the transportation network) or deficiencies (shortcomings of the existing system). The TSP identifies the gaps and deficiencies that currently exist or are anticipated to arise through the 2035 horizon year as additional local and regional development occurs.

## THE PROJECTS (SEE CHAPTER 5)

Many of the city's existing and future transportation needs can be addressed through capital improvement projects. The projects needed through 2035 were principally based on prior City plans.

Constructing all identified transportation projects would cost approximately \$218.2 million, which exceeds the \$123.4 million forecasted to be available through 2035. Therefore, the transportation projects were separated into two lists:

- The "Higher Priority" project list includes the recommended projects reasonably expected to be funded through 2035. These are the highest priority projects and will inform the City's yearly

## WILSONVILLE'S TRANSPORTATION STANDARDS

Wilsonville's six types of transportation standards support its management of an effective multimodal transportation system:

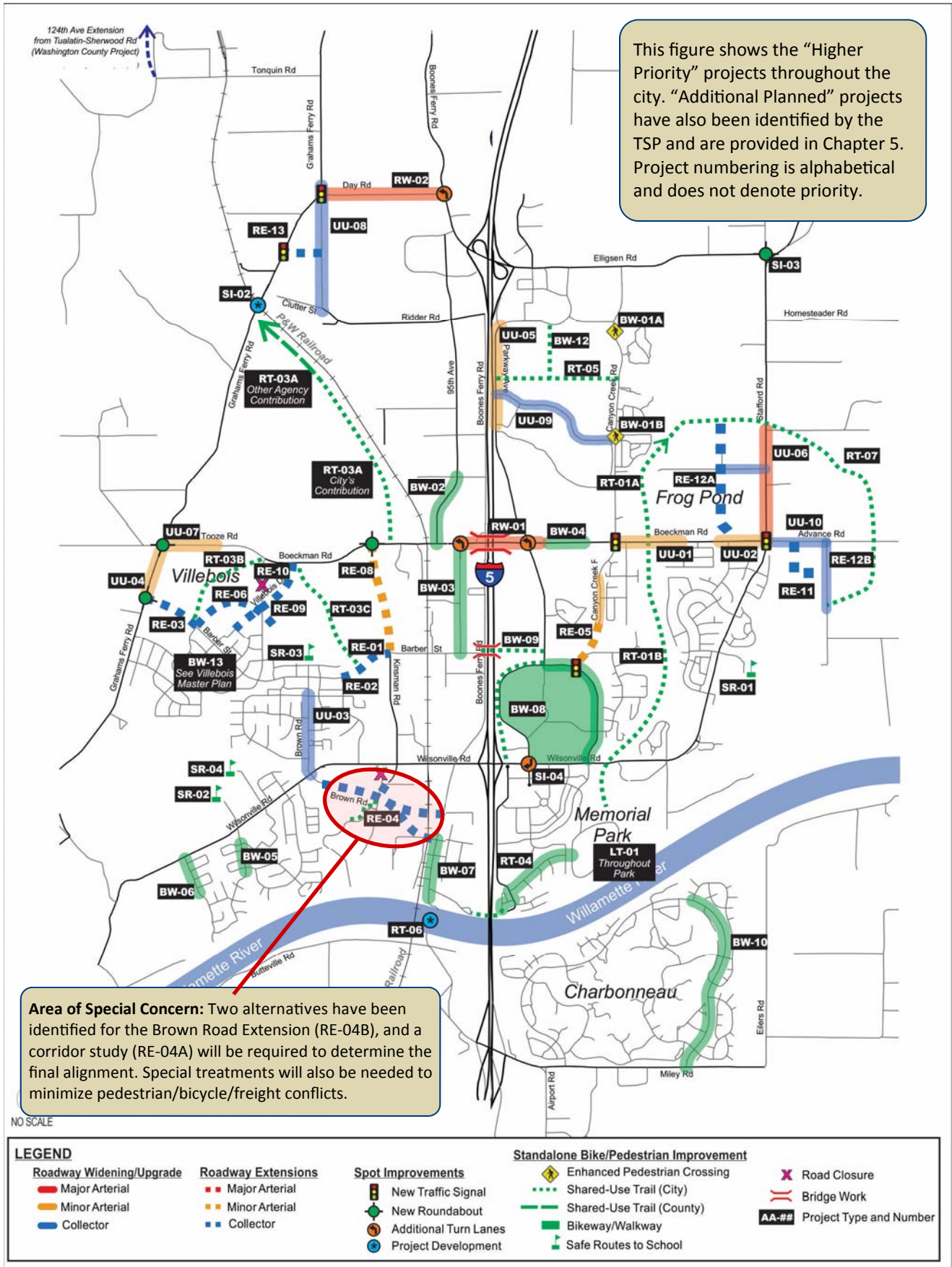
- **Functional Classifications** provide a hierarchy for determining how streets should function and which street design elements to include.
- **Connectivity and Facility Spacing Standards** ensure that direct routes and travel options are available for all transportation users.
- **Freight Routes** connect the city's industrial and commercial sites with I-5 and other regional facilities and improve coordination between freight and other travel modes.
- **Bicycle Routes** connect neighborhoods, schools, parks, community centers, business districts, and natural resource areas to support bicycle travel by residents of varying physical capabilities, ages, and skill levels.
- **Cross-Section Standards** provide guidance for selecting and sizing various design elements to serve intended users' needs.
- **Access Management** balances the transportation system's need to provide safe, efficient, and timely travel with the need to allow access to individual properties.

budget and 5-year Capital Improvement Plan (CIP). These projects are identified in the following figure (page v) and table (page vi).

- The "Additional Planned" project list includes those projects that would contribute to the City's desired transportation system through 2035 but that are not considered "Higher Priority" projects due to estimated funding limitations. These projects are identified in Chapter 5 and should be pursued as funding opportunities are available.



**TSP AMENDMENT  
ATTACHMENT C  
HIGHER PRIORITY PROJECTS**

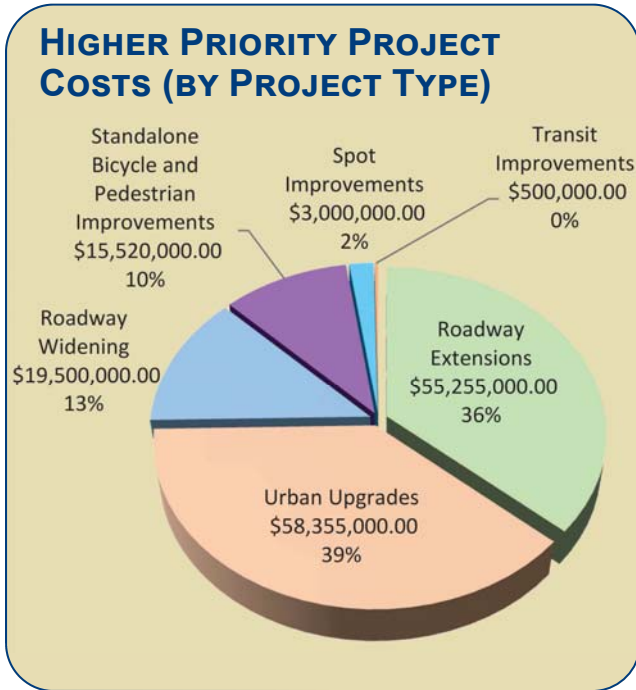


**HIGHER PRIORITY PROJECTS (LISTED ALPHABETICALLY BY IMPROVEMENT**

No.	Higher Priority Project
<b>Roadway Extensions (Multimodal Connectivity)</b>	
RE-01	Barber Street Extension
RE-02	Barber Street Extension (Part 2)
RE-03	Barber Street through Villebois
RE-04A	Corridor Study for Brown Road Extension
RE-04B	Brown Road Extension (with Bailey Street or 5th Street Connection)
RE-05	Canyon Creek Road Extension
RE-06	Costa Circle Loop Extension
RE-08	Kinsman Road Extension (South)
RE-09	Villebois Drive Extension
RE-10	Villebois Drive Extension (Part 2)
RE-11	Advance Road Middle School Improvements
RE-12A	Frog Pond West Neighborhood Collector Roads
RE-12B	Frog Pond South Neighborhood Collector Road
RE-13	Java Road Connection and Signal
<b>Roadway Widening (Capacity)</b>	
RW-01	Boeckman Road Bridge and Corridor Improvements
RW-02	Day Road Widening
<b>Urban Upgrades (Multimodal Connectivity and Safety)</b>	
UU-01	Boeckman Road Dip Improvements
UU-02	Boeckman Road Urban Upgrade
UU-03	Brown Road Upgrades
UU-04	Grahams Ferry Urban Upgrade
UU-05	Parkway Avenue Urban Upgrade
UU-06	Stafford Road Urban Upgrade
UU-07	Tooze Road Urban Upgrade
UU-08	Garden Acres Road Urban Upgrade
UU-09	Printer Parkway Urban Upgrade
UU-10	Advance Road Urban Upgrade
<b>Spot Improvements (Transportation System Management/Operations)</b>	
SI-02	Grahams Ferry Railroad Undercrossing Project Development
SI-03	Stafford Road/65th Avenue Intersection Improvements
SI-04	Wilsonville Rd/Town Center Loop West Intersection Improvements
<b>Bikeways and Walkways (Standalone Pedestrian and Bicycle Improvements)</b>	
BW-01 A/B	Canyon Creek Road Enhanced Pedestrian Crossings

No.	Higher Priority Project
<b>Bikeways and Walkways (Standalone Pedestrian and Bicycle Improvements) . . . Continued</b>	
BW-02	95th Avenue Sidewalk Infill
BW-03	Boberg Road Sidewalk Infill
BW-04	Boeckman Road Bike Lanes and Sidewalk Infill
BW-05	Willamette Way East Sidewalk Infill
BW-06	Willamette Way West Sidewalk Infill
BW-07	Boones Ferry Road Sharrows
BW-08	Town Center Loop Pedestrian, Bicycle, and Transit Improvements
BW-09	Town Center Loop Bike/Pedestrian Bridge
BW-10	French Prairie Drive Pathway
BW-12	Parkway Center Trail Connector
BW-13	Villebois Loop Trail
BW-14	Wayfinding Signage
<b>Safe Routes to School (Standalone Pedestrian and Bicycle Improvements)</b>	
SR-01	Boeckman Creek Primary Safe Routes to School Improvements
SR-02	Boones Ferry Primary Safe Routes to School Improvements
SR-03	Lowrie Primary Safe Routes to School Improvements
SR-04	Wood Middle School Safe Routes to School Improvements
<b>Local Trails (Standalone Pedestrian and Bicycle Improvements)</b>	
LT-01	Memorial Park Trail Improvements
<b>Regional Trails (Standalone Pedestrian and Bicycle Improvements/Safety)</b>	
RT-01A	Boeckman Creek Trail (North)
RT-01B	Boeckman Creek Trail (South)
RT-03A	Tonquin Trail (North)
RT-03B/C	Tonquin Trail (Villebois)
RT-04	Waterfront Trail Improvements
RT-05	Wiedeman Road Trail
RT-06	Willamette River Bike/Pedestrian/Emergency Bridge Project Dev.
RT-07	Revised Frog Pond Trail
<b>Transit Improvements</b>	
TI-01	Pedestrian Access to Transit
TI-02	Transit Street Improvements

Wilsonville’s “Higher Priority” project list includes several project types. The pie chart below provides the cost breakdown by project type. The highest costs would be incurred for the three roadway improvement types, which include facility improvements for all travel modes.



**Estimated Funding Available through 2035 for Capital Improvements**

Funding Source	Estimated Capital Funding through 2035
Street System Development Charges (SDCs)	\$42 million
Developer Contributions	\$30 million
West Side Plan – Urban Renewal District (URD)	\$27 million
Year 2000 Plan – Urban Renewal District (URD)	\$5 million
Park System Development Charges (SDCs)	\$0.7 million
Local/Regional Partnerships	\$2.9 million
Grants	\$3.2 million
State and Federal Funding	\$12.6 million
<b>Total Funds</b>	<b>\$123.4 million</b>

To fund its capital improvements projects, the City relies heavily on developer contributions and fees (including system development charges) and urban renewal funds, which are primarily associated with new growth areas. The table to the lower left lists the estimated funding available for capital improvements through the 2035 planning horizon year.

**THE PROGRAMS (SEE CHAPTER 6)**

Wilsonville’s transportation programs (listed below) also play an important role in the City’s ongoing efforts to provide a coordinated, cost-effective, multimodal transportation system. Well-run programs help extend the service life of the City’s infrastructure improvements and increase the value of transportation investments. The City’s Community Development and SMART Transit departments are responsible for managing the majority of its transportation programs.

**TRANSPORTATION PROGRAMS**

Wilsonville has various transportation programs that support ongoing operations and services:

- Capital Improvement Program (CIP)
- Safety (Proposed)
- Safe Routes to School
- ADA Comprehensive Access (Proposed)
- SMART Transit
- SMART Options and Transportation Demand Management (TDM)
- Intelligent Transportation System (ITS)
- Bike Smart and Walk Smart

**THE PERFORMANCE (SEE CHAPTER 7)**

Wilsonville’s Transportation System Plan (TSP) provides policies, standards, projects, and programs that, when put into action, will improve the city’s transportation system. By tracking appropriate performance measures in future TSP updates, the City can evaluate their progress.



Wilsonville's transportation standards ensure the city develops consistent with its vision of supporting a multimodal transportation system that is strategically designed for optimum community function and benefit. A street's design determines how it will look and function. How a street looks and functions is ultimately dependent upon which street elements are included, their dimensions, and how they relate to each other.

The standards are intended to ensure appropriate design and create a consistent approach throughout the city as development and redevelopment occurs. Since the design of a street is so closely tied to how it performs and how people experience the city, it is important for Wilsonville to carefully consider how it wants its streets to look and function and then to design them accordingly.

### OTHER CITY DOCUMENTS WITH TRANSPORTATION STANDARDS

The transportation standards in this chapter cover a variety of areas that help inform other City documents:

- Standard Detail Drawings
- Public Works Standards
- Planning and Land Development Ordinance

*Standards support the vision of a multimodal transportation system that is . . .*

- *Strategically designed and*
- *Collaboratively built,*

*Resulting in . . .*

- *Mode and route choices,*
- *Safe and convenient local accessibility, and*
- *Quality of life and economic health.*



## HOW STANDARDS BENEFIT THE TRANSPORTATION SYSTEM

The transportation standards included in this chapter support the City's management of an effective multimodal transportation system:

- **Functional Classifications** provide a hierarchy for managing public roadways practically and cost effectively. They provide a framework for identifying which street elements to include in a street's design.
- **Connectivity and Facility Spacing Standards** ensure that direct routes and travel options are available for all transportation users.
- **Freight Routes** connect the city's industrial and commercial sites with I-5 and other regional facilities and improve the coordination between freight and other travel modes.
- **Bicycle Routes** connect neighborhoods, schools, parks, community centers, business districts, and natural resource areas to support bicycle travel by residents of varying physical capabilities, ages, and skill levels.
- **Cross-Section Standards** provide guidance for selecting and sizing various design elements to serve intended users' needs.
- **Access Management** balances the transportation system's need to provide safe, efficient, and timely travel with the need to allow access to individual properties.

*Looking north at Boones Ferry Road north of Day Road. Washington County recently received jurisdiction of this roadway from ODOT and will be constructing improvements that include roadway widening, bike lanes, and sidewalks.*

## ROADWAY JURISDICTION

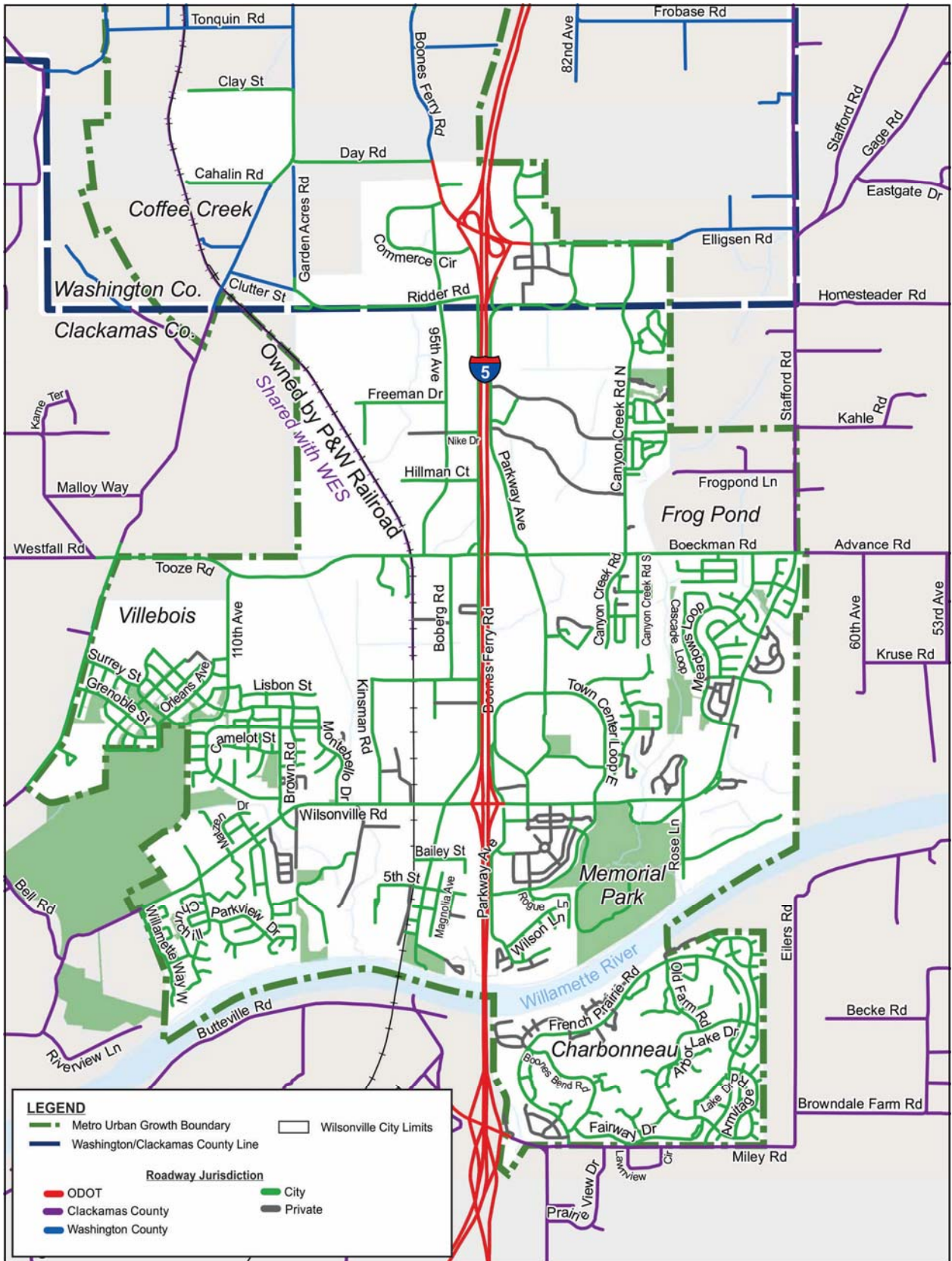
A roadway's jurisdiction affects who will have the ultimate authority over improvements and what standards apply. In the Wilsonville vicinity, there are four agencies with jurisdiction:

- **City of Wilsonville** has the majority of roadways within City limits.
- **Washington County** roadways are on the outskirts to the north of the city.
- **Clackamas County** roadways are on the outskirts to the east, west, and south of the city.
- **ODOT** has jurisdiction of Interstate-5, the corresponding interchange ramps, the portions of Elligsen Road and Boones Ferry Road between the Parkway Avenue and Day Road, and Wilsonville Road between Town Center Loop West and Boones Ferry Road.

As the City expands, it is expected that the county roadways in the immediate vicinity of the city will transfer jurisdictions to the City of Wilsonville. These roadways include Stafford Road, Advance Road, Elligsen Road, Frog Pond Lane, Clutter Street, and Grahams Ferry Road.



**FIGURE 3-1. ROADWAY JURISDICTION**



## FUNCTIONAL CLASSIFICATION

The City’s street functional classification system is an important tool for managing public roadways. It is based on a hierarchical system of roads (see diagram at right) where streets with a higher classification, such as arterial streets, emphasize a higher level of mobility for through-movement. They look and function very differently than a street with a lower classification, such as local streets, which emphasize the land access function.

Wilsonville has four functional classes:

- **Major Arterials** primarily connect the I-5 interchanges with major activity centers (i.e., Town Center and Argyle Square) but also include the key connections requiring additional travel lanes (i.e., Boeckman Road bridge over I-5 and Stafford Road). They generally have four or more travel lanes, bicycle lanes, and limited access (preferably connecting with minor arterials).
- **Minor Arterials** serve as the direct connections through town and usually do not penetrate identifiable neighborhoods. They generally have two or three travel lanes, bicycle lanes, and consolidated access to larger developed areas and neighborhoods.
- **Collectors** provide traffic circulation within residential, commercial, and industrial areas and serve to funnel traffic from neighborhoods to the arterial street network. They have two or three travel lanes, bicycle lanes, optional on-street parking, and minor access restrictions.
- **Local Streets** are located within residential, commercial, and industrial areas and discourage through movement. They allow on-street parking and ensure that every parcel is accessible for all modes.

The roadway classifications throughout the city are shown in Figure 3-2. These classifications provide a vision of how these roadways should be designed and constructed as improvements are made.

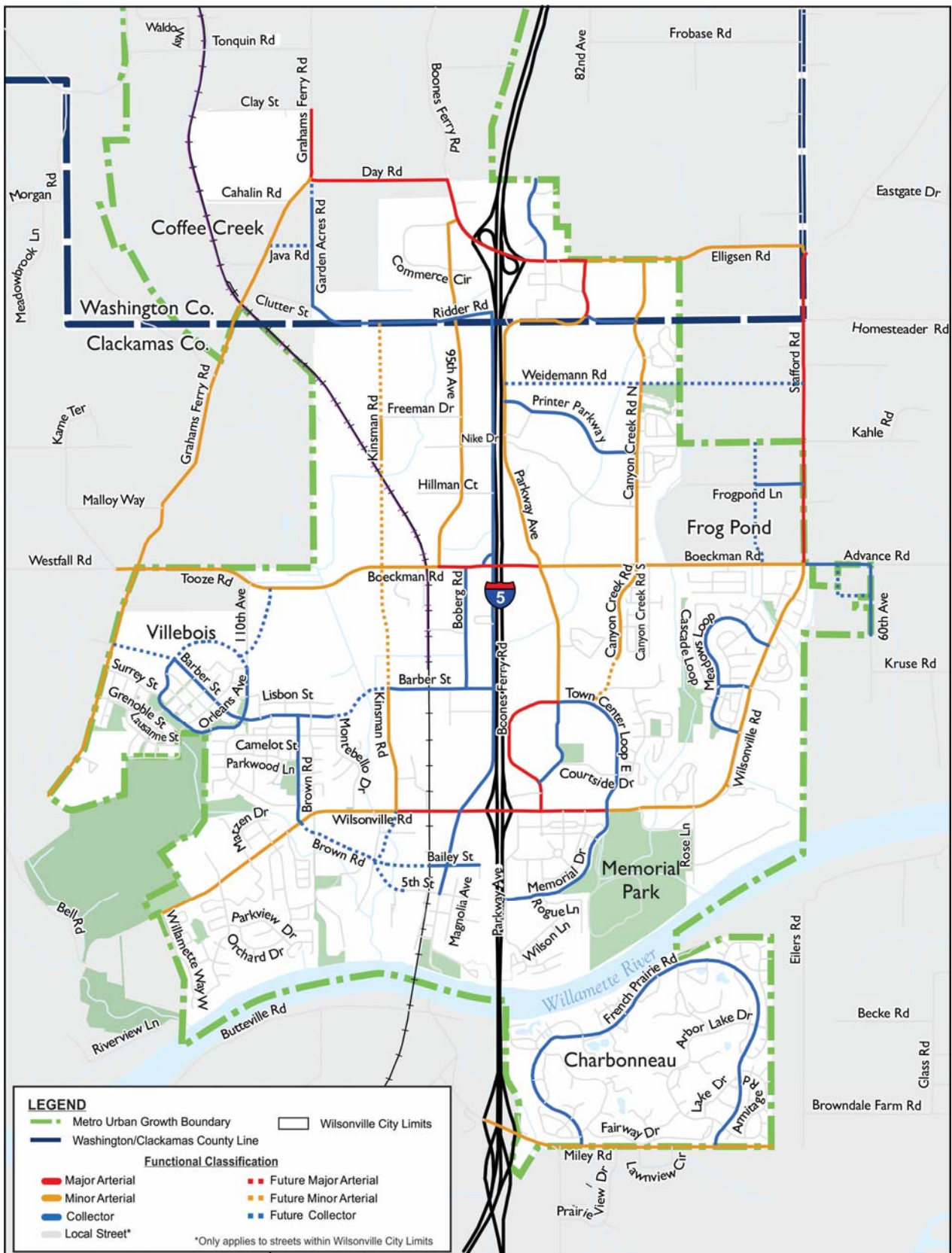


### FUNCTIONAL CLASSIFICATION AS A FRAMEWORK FOR STANDARDS

Functional classification provides a helpful framework for managing the City’s transportation system and supporting the following standards:

- **Connectivity and Spacing Standards** indicate how far apart roadways of different functional classifications should be spaced to ensure a balanced approach to mobility and land access throughout the city.
- **Freight Routes and Transit Streets** primarily use higher classification roads to serve freight and/or transit vehicles due to the wider cross-sections and greater focus on mobility.
- **Cross-Section Standards** vary by functional classification to meet user needs. However, functional class is not the only factor in determining street design.
- **Access Management Standards** are more stringent for higher class roadways, which are intended to emphasize mobility.

**FIGURE 3-2. FUNCTIONAL CLASS DESIGNATIONS**





### CONNECTIVITY AND SPACING

One of Wilsonville’s goals is to improve connectivity by constructing parallel facilities spaced at regular intervals throughout the city. These facilities provide multiple alternatives and more direct routes between both local and regional destinations, including neighborhoods, parks, schools, employment centers, and retail areas.

Table 3-1 lists the desired spacing of each facility type throughout Wilsonville to ensure a high level of connectivity. Figure 3-3 illustrates the desired spacing for the arterial and collector street network. Deviations to these guidelines may be needed in locations where there are significant barriers, such as topography, rail lines, freeways, existing development, and the presence of natural areas.

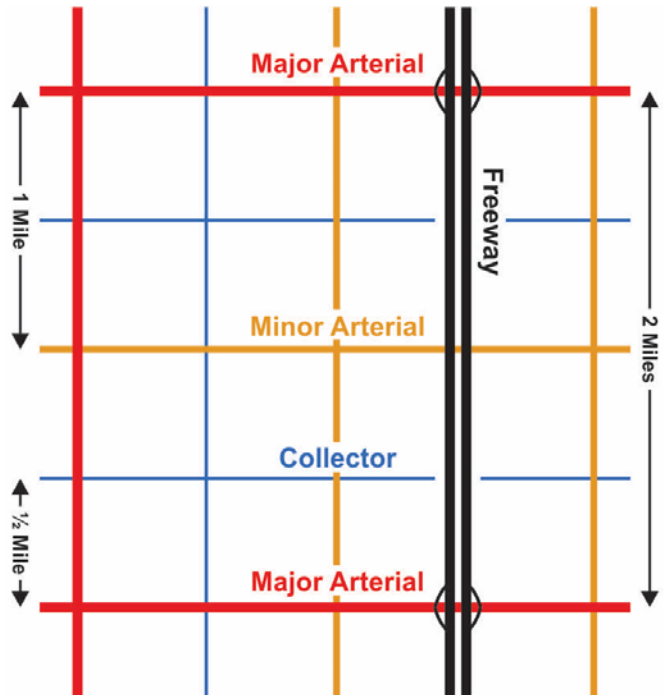
Bicyclists and pedestrians benefit the most from closely spaced facilities because they are the most affected by distance. By providing walking and biking facilities spaced less than 300 feet apart, Wilsonville will support walking and biking use within and between its neighborhoods. In addition, these connections can improve access to transit.

**Table 3-1. Facility Spacing Guidelines**

Facility Type	Desired Spacing <sup>a</sup>
Major Arterial	1 - 2 mi
Minor Arterial	1 mi
Collector	1/4 - 1/2 mi
Local Street	300 - 500 ft
Bicycle and Pedestrian Facilities	300 ft

<sup>a</sup> Desired Spacing refers to distance between facilities with same or higher functional classification.

**FIGURE 3-3. DESIRED FACILITY**



### BENEFITS OF CONNECTIVITY

Connectivity provides all transportation system users with multiple benefits:

- Increased mobility by distributing traffic over multiple connected streets rather than forcing all traffic onto the City’s arterial street system
- More equitable access for all businesses and neighborhoods throughout the city

- Improved walking, biking, and transit use due to more direct connections and less out of direction travel between neighborhoods, schools, transit stops, retail centers, employment centers, and recreational areas
- Reduction in short auto trips between adjacent neighborhoods and land uses



*Villebois Village Master Plan was designed to provide a high level of connectivity for all travel modes using short blocks arranged in a grid pattern, numerous pathways, and a diversity of land use.*

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*“Connectivity is important because you want to be able to have options for how you move through your community. I don’t personally always want to drive my car places, especially when I have my children with me. I want us to get out and be active and to be able to bike to the store. We have stores that are really close to us, but it’s not always safe and convenient for us to ride our bike there. Which is why having bike lanes and sidewalks that are designed to accommodate these other options are critical to enhance our livability.”*

*Marta McGuire  
Planning Commission*

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## FREIGHT ROUTES

Wilsonville’s freight routes connect the city’s industrial and commercial sites with I-5 and other regional facilities. Figure 3-4 identifies the City’s freight routes, which include truck routes, railroads, and waterways. Improvement projects should be coordinated to facilitate freight needs while balancing the needs of other users.

Some of the key truck routes that provide important truck connections to Washington County include Boones Ferry Road, Kinsman Road, and Tonquin Road. In addition, the Portland and Western Railroad runs through Wilsonville and serves freight traffic, and the Willamette River has the potential for handling barge traffic. These routes are identified in Metro’s *Regional Freight Plan* (June 2010).

As a major employment center and industry hub along I-5, Wilsonville will benefit from ensuring that its freight routes are designed to accommodate the needs of its industrial and commercial sites. At the same time, Wilsonville’s residential neighborhoods should be protected from freight traffic. The call-out box at right lists multiple freight coordination improvements resulting from having freight routes.

## IMPROVED FREIGHT COORDINATION

By having designated freight routes, various City efforts regarding freight and non-freight users will be improved:

- **Roadway and Intersection Improvements** can be designed for freight vehicles with adjustments for turn radii, sight distance, lane widths, turn pocket lengths, and pavement design.
- **Bicycle and Pedestrian Improvements**—such as buffered bike lanes, enhanced pedestrian crossings, and other safety improvements—can be identified to reduce freight impacts to other users (particularly along bikeways and walkways).
- **Roadway Durability** can be increased by using concrete instead of asphalt.
- **Railroad Connections** can be coordinated to support businesses that ship goods by rail, particularly in areas where railroad sidings can be provided along the Portland and Western Railroad track.
- **Willamette River Port** can be considered to support businesses that ship goods using barges on the Willamette River.
- **Coordination with Businesses and Adjacent Jurisdictions** can ensure that local and regional freight traffic uses the City’s freight routes to travel

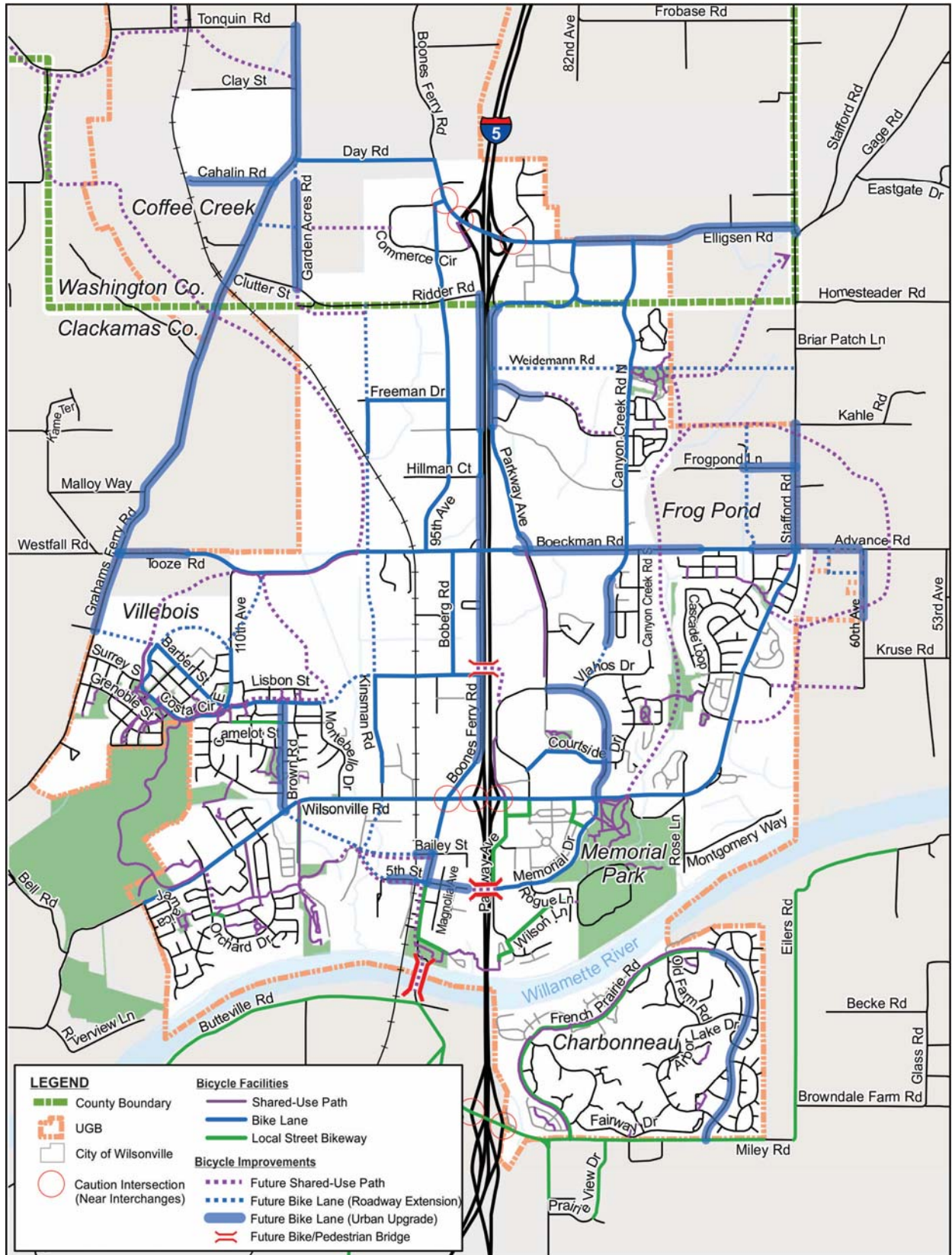
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*“We have a significant number of large manufacturing companies because we have an efficient freight mobility process where our trucks can get in and out of town with the least amount of interference from local traffic. For the part of the transporter, that’s very important in as much as it costs money for these trucks, even when they are not moving. Secondly, the local resident doesn’t want to have to be disrupted by freight transportation.”*

*Ray Phelps  
Planning Commission*

---

**FIGURE 3-4. FREIGHT ROUTES**



## BICYCLE ROUTES

Bicycle routes are provided throughout Wilsonville and connect to neighborhoods, schools, parks, community centers, business districts, and natural resource areas. The City’s bicycle network serves multiple users of varying physical capabilities, ages, and skill levels.

Figure 3-5 identifies the City’s bicycle routes, which include three facility types:

- **Shared-Use Paths** are 10-foot to 12-foot wide pathways that have minimal conflicts with automobile traffic and may have their own right-of-way (cross-section standards shown in Figure 3-11). Shared-use paths serve multiple non-motorized users: bicyclists, pedestrians, wheelchair users, skaters, and others. Many of the shared-use paths throughout Wilsonville are part of the regional trail network, which traverses large sections of the city and connects to neighboring jurisdictions and regionally significant destinations. These regional trails are designed to meet state and federal guidelines, which make them eligible for state and federal transportation funding.
- **Bike Lanes** are provided on Arterial and Collector streets throughout Wilsonville. They are usually 6-feet wide and adjacent to motor vehicle travel lanes (cross-section standards shown in Figures 3-6, 3-7, and 3-8). Buffered bike lanes and one-way or two-way cycle tracks may be used instead of bike lanes and include buffers between the bike and motor vehicle travel lanes (cross-section standards shown in Figure 3-12).
- **Local Street Bikeways** are streets designated as important bicycle connections where bicyclists share the travel lane with motor vehicle traffic. Even though all Local Streets allow bicyclists to share the travel lane (cross-section standards shown in Figures 3-9 and 3-10), Local Street Bikeways are intended to serve a greater number

of bicyclists. They typically are provided on low-volume, low-speed residential streets that serve as important connections to nearby bike lanes, shared-use paths, and key destinations.

Modifications—such as sharrows, traffic calming devices, or wayfinding signage—may be made to these streets to emphasize their use as bicycling facilities and increase the comfort and confidence of bicyclists.

### KEY BICYCLE FACILITIES

The following existing and future bicycle facilities (which are included in Figure 3-5) provide important connections throughout the city:

#### Regional Trails

- Ice Age Tonquin Trail (through West Wilsonville with connections to Tualatin and Sherwood)
- Waterfront Trail (along the Willamette River)
- Boeckman Creek Trail (along Boeckman Creek in East Wilsonville)
- Stafford Spur Trail (connecting to regional destinations in Northeast Wilsonville)

#### Shared-Use Paths

- Primarily near schools, parks, transit hubs, retail centers, and other pedestrian areas

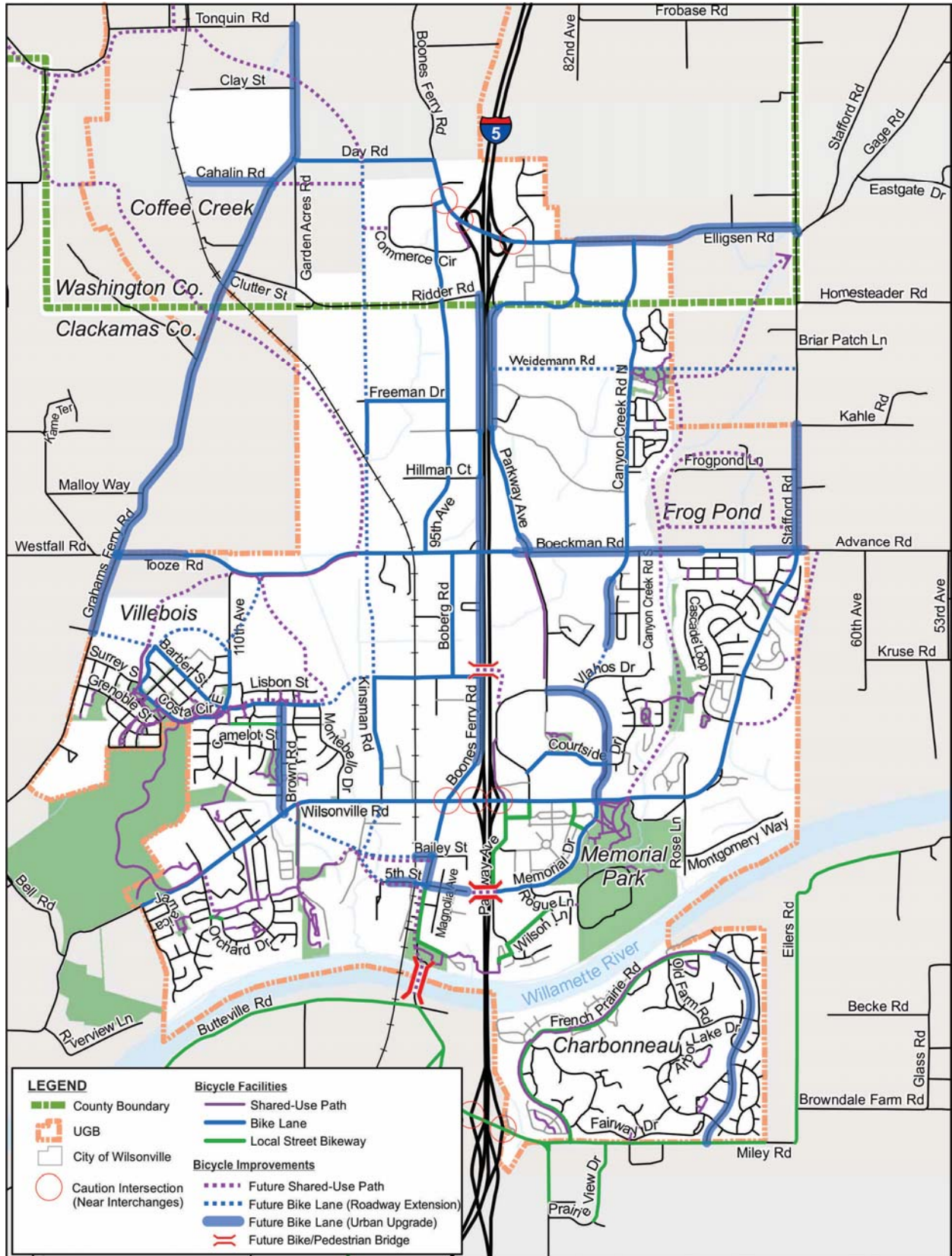
#### Bike Lanes

- On Arterial and Collector streets

#### Local Street Bikeways

- Boones Ferry Road south of 5th Street to connect to future Willamette River bridge
- Parkway Avenue connecting to Wilsonville Road to the nearby neighborhood
- Wilson Lane, Metolius Lane, and Kalyca Drive connecting Memorial Park to the Waterfront Trail near where it passes underneath the I-5 Boone Bridge

**FIGURE 3-5. BICYCLE ROUTES**



## STREET CROSS-SECTION DESIGN

Since different streets serve different purposes, a functional classification system—which is a hierarchy of street designations—provides a framework for identifying the size and type of various street elements to consider including in a street's design. Not all elements are included on all streets and so they must be carefully selected based on multimodal needs.

While a street's functional classification does not dictate which street elements to include, it does facilitate the selection of multimodal facilities and widths that will help ensure the roadway can meet its intended multimodal function. Adjacent land uses and available right-of-way width also influence which elements are included in a specific segment.

Roadway cross-section design elements include travel lanes, curbs, planter strips, sidewalks on both sides of the road, and bicycle facilities consistent with designated bikeways, walkways, and shared-use trails. Low impact development (LID) standards may also be used throughout the City at the City's discretion.

### FACILITY TYPES

Cross-section standards are provided for the following facilities:

- Major Arterials
- Minor Arterials
- Collectors
- Local Streets
- Low Impact Development (LID) Local Streets (similar modifications may be made to other streets regardless of classification)
- Shared-Use Paths and Trails
- Bicycle Facility Design Options



*Example of a Major Arterial - Boeckman Road looking west towards Boberg Road and 95th Avenue*

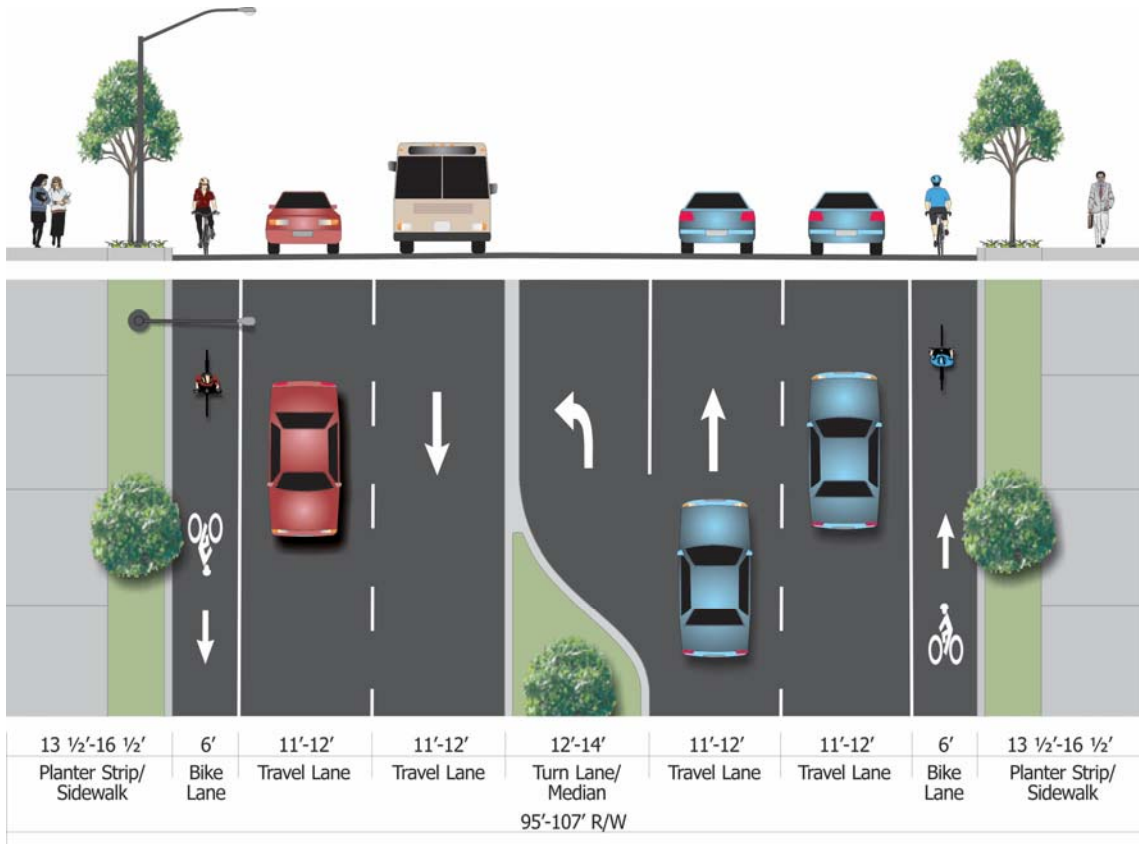


*Example of a Collector - Barber Street looking east near SMART Central at Wilsonville Station transit center*



*Example of a Local Street - Rogue Lane looking east near Memorial Park*

**FIGURE 3-6. MAJOR ARTERIAL CROSS-SECTION**

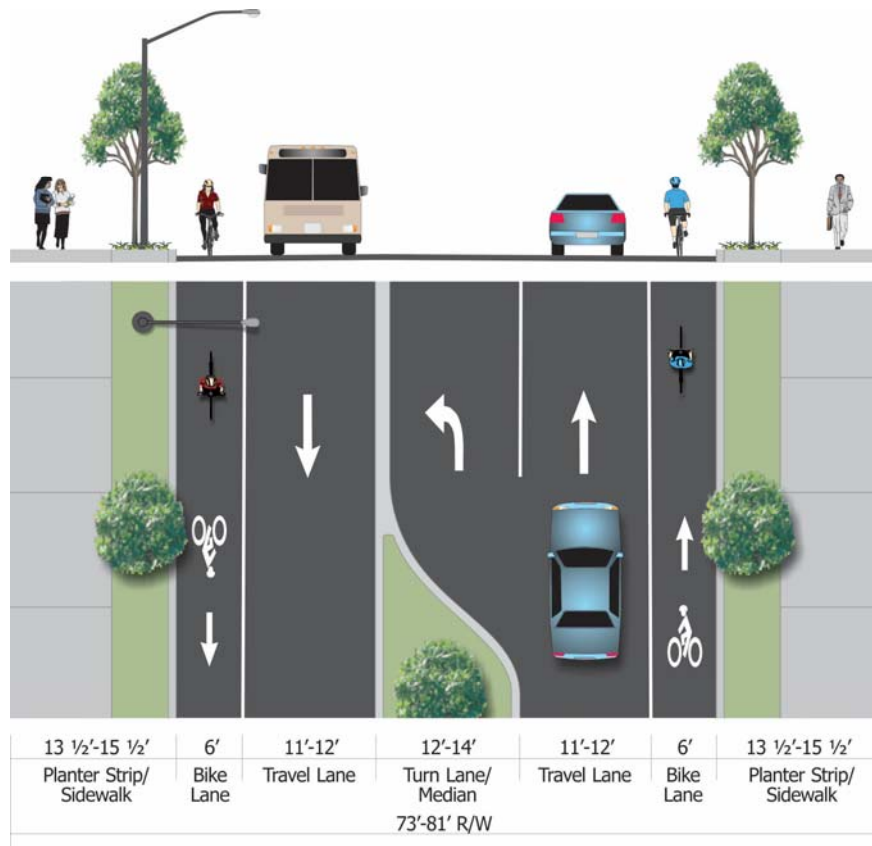


**Notes:**

1. Travel lane and turn lane/median widths as determined by Community Development Director.
2. Minimum sidewalk width is 5 feet; actual sidewalk width as determined by Community Development Director. Width of sidewalk/planting strip may be combined in commercial/retail areas for a total width of 13½ to 16½ feet; street trees shall be located in minimum 4-foot tree wells.
3. Curb width of ½-foot is included in the sidewalk/planter strip width.
4. Street lights shall be located within the planter strip, center landscape median, or sidewalk as determined by Community Development Director.
5. Striping and signage as required in the PW Standards.
6. On-street parking is not allowed.
7. Transit stop locations to be determined by Transit Director.
8. When not needed as a left-turn lane, median may be provided to serve safety, stormwater, or aesthetic objectives.
9. New streets shall incorporate low impact development design as practicable.
10. Allow for separation for bikes on major arterials (especially freight routes).



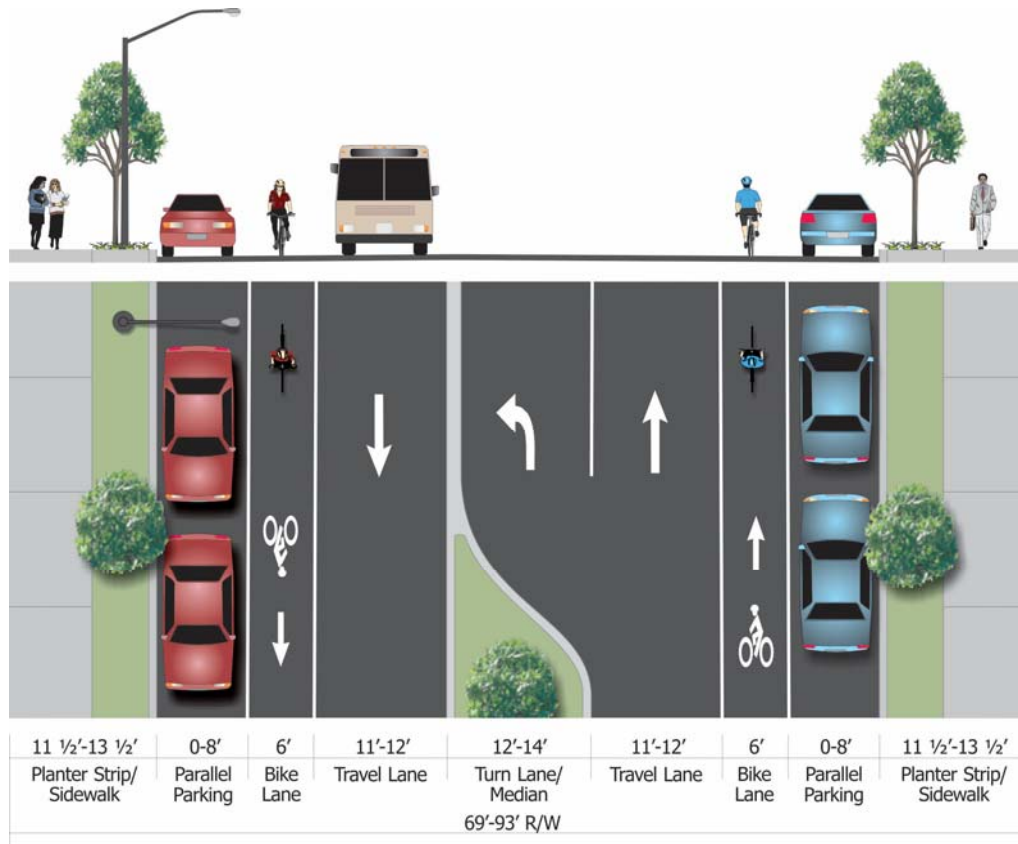
**FIGURE 3-7. MINOR ARTERIAL CROSS-SECTION**



Notes:

1. Travel lane and turn lane/median widths as determined by Community Development Director.
2. Minimum sidewalk width is 5 feet; actual sidewalk width as determined by Community Development Director. Width of sidewalk/planting strip may be combined in commercial/retail areas for a total width of 13½ to 15½ feet; street trees shall be located in minimum 4-foot tree wells.
3. Curb width of ½ foot is included in the sidewalk/planter strip width.
4. Street lights shall be located within the planter strip, center landscape median, or sidewalk as determined by Community Development Director.
5. Striping and signage as required in the PW Standards.
6. On-street parking is not allowed.
7. Transit stop locations to be determined by Transit Director.
8. When not needed as a left-turn lane, median may be provided to serve safety, stormwater, or aesthetic objectives.
9. New streets shall incorporate low impact development design as practicable.
10. Allow for separation for bikes on minor arterials (especially freight routes).

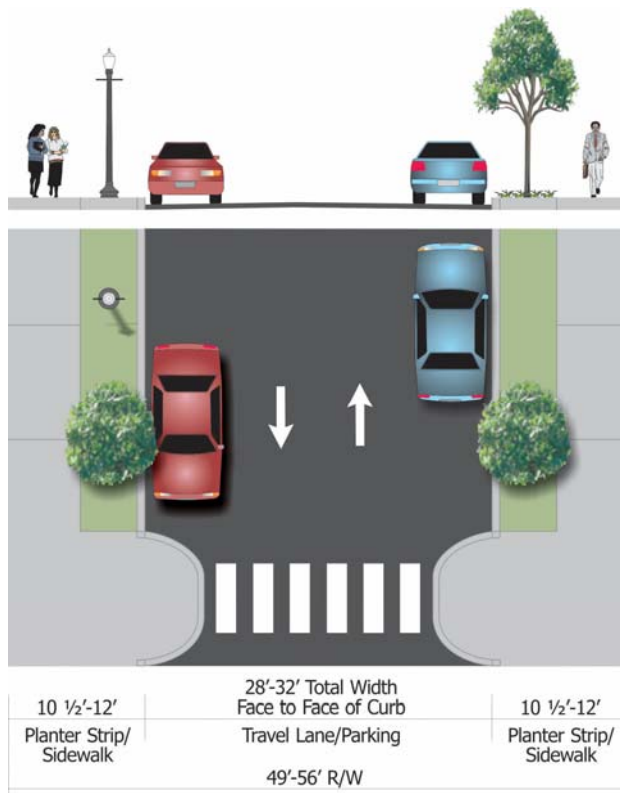
**FIGURE 3-8. COLLECTOR CROSS-SECTION**



Notes:

1. Collector right-of-way varies between 59 to 89 feet as determined by Community Development Director based on surrounding planned development of residential, commercial or industrial and need for on-street parking and/or turn lane/median.
2. Minimum sidewalk width is 5 feet; actual sidewalk width as determined by Community Development Director. Width of sidewalk/planting strip may be combined in commercial/retail areas for a total width of 11½ to 13½ feet; street trees shall be located in minimum 4-foot tree wells.
3. Curb and sidewalk bulb-outs at crosswalks or street intersections as determined by Community Development Director.
4. Curb width of ½ foot is included in the sidewalk/planter strip width.
5. Street lights shall be located within the planter strip, center landscape median, or sidewalk as determined by Community Development Director.
6. Travel lane and turn lane/median widths as determined by Community Development Director. Turn lane/median may be eliminated.
7. Striping and signage as required in the PW Standards.
8. On-street parking on one or both sides is allowed.
9. Transit stop locations to be determined by Transit Director.
10. When not needed as a left-turn lane, median may be provided to serve safety, stormwater, or aesthetic objectives.
11. New streets shall incorporate low impact development design as practicable.

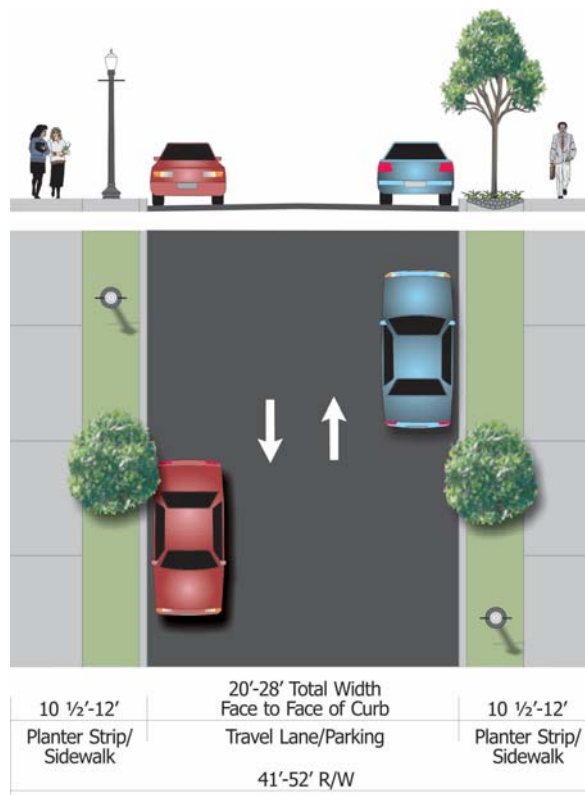
**FIGURE 3-9. LOCAL STREET CROSS-SECTION**



Notes:

1. Minimum right-of-way width of 47 feet (parking on one side) and 51 feet (parking on both sides). Providing parking on both sides is preferred unless constraints exist.
2. Minimum sidewalk width is 5 feet; minimum planter strip width is 5 feet.
3. Curb width of ½ foot is included in the planter strip width.
4. Curb and sidewalk bulb-outs at crosswalks or street intersections as determined by Community Development Director.
5. Street lights shall be located within the planter strip as required in the PW Standards.
6. No lane striping on street. Signage as required.
7. New streets shall incorporate low impact development design as practicable.

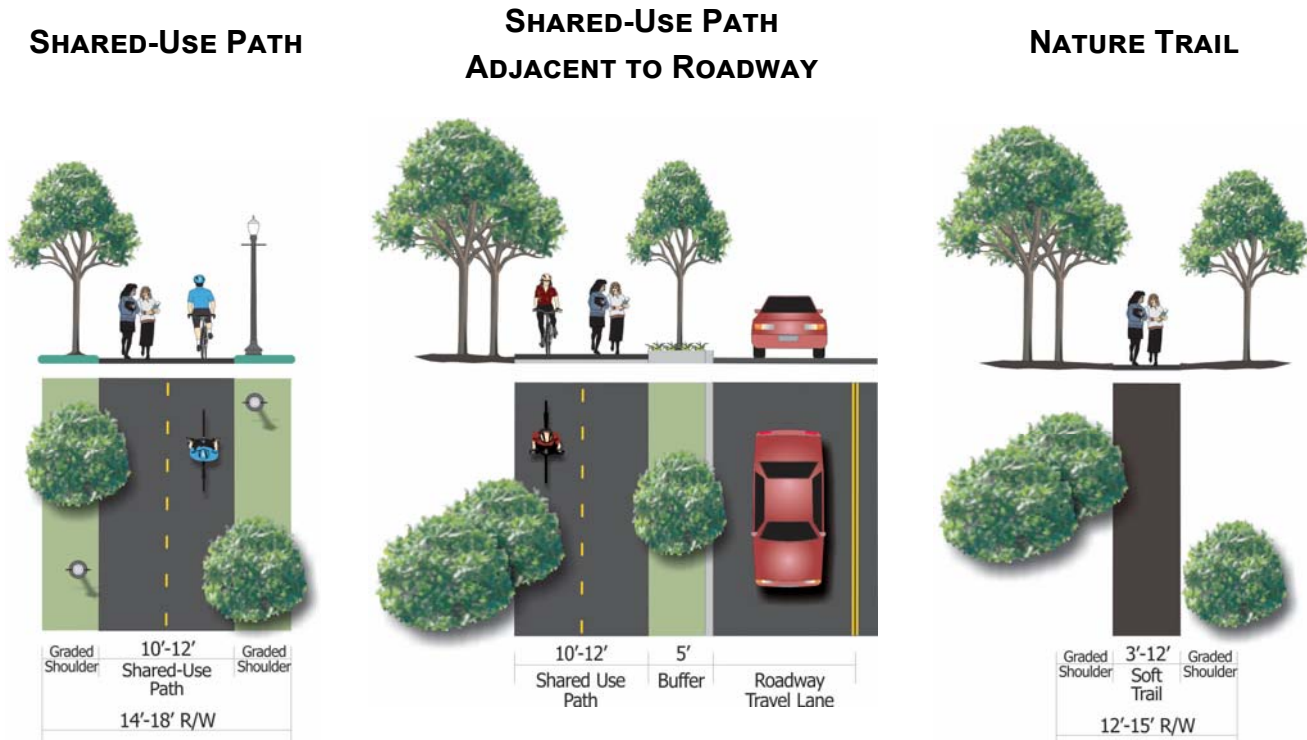
**FIGURE 3-10. LOW IMPACT DEVELOPMENT (LID) LOCAL STREET CROSS-**



Notes:

1. LID streets located as approved by Community Development Director.
2. Minimum sidewalk width is 5 feet; actual sidewalk width as determined by Community Development Director.
3. Minimum landscape width of 6½ feet where a water quality swale is proposed.
4. Curb width of ½ foot is included in the planter strip width.
5. Stormwater control as required in the PW Standards.
6. Use of pervious surfaces as determined by Community Development Director.
7. Narrower streets as approved by Community Development Director and as permitted in the PW Standards.
8. 28-foot curb-to-curb street is intended to allow on-street parking on both sides.
9. 24-foot curb-to-curb street is intended to allow on-street parking on one side.
10. 20-foot curb-to-curb street would not allow on-street parking on either side.

**FIGURE 3-11. SHARED-USE PATH AND TRAIL CROSS-SECTIONS**



**Notes:**

1. Trail types and widths as approved by Community Development Director.
2. Typical cross section of shared-use path is 12 feet wide with 2-foot-wide compacted crushed stone shoulders.
3. Vertical separation between shared-use path and roadway may be used instead of 5' buffer as approved by Community Development Director.
4. Cross-section standards identified in the Ice Age Tonquin Trail Master Plan are required along the Ice Age Tonquin Trail.
5. Additional design standards are available in the Bicycle and Pedestrian Master Plan.

**FIGURE 3-12. BICYCLE FACILITY DESIGN OPTIONS**

**BUFFERED BIKE LANES AND CYCLE TRACKS**

Buffered bike lanes (buffer between travel lane and bike lane) and cycle tracks (parking and/or other buffer between travel lane and one- or two-way bike facility) are two alternate bicycle facility options that are gaining popularity throughout the United States and have been implemented in other parts of the Portland Metro area. Therefore, the design options shown below have been provided to allow the City flexibility to consider these bicycle treatments on their Arterial and Collector streets in place of typical bike lanes.

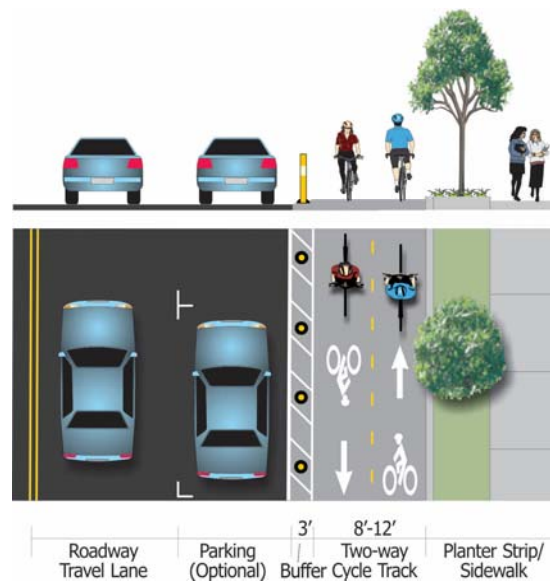


*One-Way Cycle Track on Cully Boulevard in Northeast Portland. Cycle tracks are typically protected from motor vehicle traffic by parked cars, raised curbs, or other physical buffers.*

**BUFFERED BIKE LANE OR ONE-WAY CYCLE TRACK**



**TWO-WAY CYCLE TRACK**



Notes:

1. Design option locations, widths, separation buffer features, and adjacent parking as approved by Community Development Director.
2. Additional design guidance can be obtained from the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide

## ACCESS MANAGEMENT

Access management refers to the broad set of techniques that are used to balance safe, efficient, and timely travel with the ability to allow access to individual properties. Access is an important component of the city’s transportation infrastructure and significantly affects system operations and safety.

Wilsonville should continue to manage roadway access to improve traffic flow and safety. By limiting access to higher classification roadways (especially Major and Minor Arterials), conflicts between vehicles entering and exiting driveways and vehicles on the roadway are reduced. Pedestrians and bicyclists also benefit from reduced conflicts with vehicles entering and exiting the roadway.

Table 3-2 lists the City’s access spacing standards. Because there are existing non-conforming accesses, these standards will primarily guide access layout of future development consistent with the strategies listed in the call-out box at right. ODOT also has access spacing standards that apply to the I-5 interchange areas and to the section of Boones Ferry Road that is under ODOT jurisdiction (i.e., between Parkway Avenue and Day Road). The I-5/Wilsonville Road Interchange Area Management Plan (IAMP) should also be consulted when considering access needs near the Wilsonville Road interchange.



Looking east to the I-5/Wilsonville Road interchange. Interchange areas have the most restrictive access spacing standards to ensure safety and mobility.

## ACCESS MANAGEMENT STRATEGIES

The City can use various access management strategies to help improve mobility and safety:

- **Interchange Areas:** Eliminate or consolidate accesses within one-quarter mile of the I-5 interchanges as opportunities arise.
- **Adjacent to High Volume Intersections:** Pursue appropriate treatments at accesses adjacent to high volume intersections, particularly when queues block access.
- **Existing Driveways:** Evaluate accesses that do not conform to the City’s access spacing standard and consider modifications as practicable, while maintaining reasonable access to each property.
- **Ongoing Development Review:** Manage new driveway locations and spacing on a case-by-case basis. Where driveways do not meet spacing standards, consider mitigation treatments, such as consolidating accesses or restricting turn movements to right-in/right-out.

Table 3-2. Access Spacing Standards

Functional Classification	Access Spacing Standards <sup>a</sup>	
	Desired <sup>b</sup>	Minimum
Near Interchanges	ODOT Requires 1,320 ft	
Major Arterial	1,320 ft	1,000 ft
Minor Arterial	1,000 ft	600 ft
Collector	300 ft	100 ft
Local Street	Access Permitted to Each Lot	

<sup>a</sup> Spacing is measured from centerline to centerline on Major Arterials and Minor Arterials and between adjacent curb returns on Collectors and Local Streets

<sup>b</sup> Desired Access Spacing shall be adhered to unless otherwise approved by the City Engineer. Reasons for deviating from Desired Access Spacing include aligning with existing driveways, topography, property limitations, and other safety related issues as identified in a transportation study.

**FIGURE 3-13. ACCESS MANAGEMENT INTEREST AREAS**







*A colorful row of street trees along Wilsonville Road near Boones Ferry Primary School during a fall day. Street trees can provide both aesthetic and safety benefits. They improve the walking environment by creating a pleasing buffer between the motor vehicle and pedestrian facilities. They also provide visual cues to drivers that can result in reduced traffic speeds.*

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*“The City needs to have a Transportation System Plan to make sure we are prepared for how we get around the city in the future. This includes automobiles, freight, bikes, and pedestrians.”*

*Nancy Kraushaar  
Community Development Director*

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As a growing community, Wilsonville faces the challenge of addressing new and ongoing transportation system needs. These needs are categorized as either gaps (missing connections or barriers in the transportation network) or deficiencies (shortcomings of the existing system). The City's transportation policies (see Chapter 2) and standards (see Chapter 3) serve as a framework for determining what gaps and deficiencies currently exist or are anticipated to arise through the 2035 horizon year as additional development occurs throughout the city and the region. The City's transportation improvement projects (see Chapter 5) and programs (see Chapter 6) address these needs and ensure Wilsonville's continued growth and prosperity.

### GAPS AND DEFICIENCIES

- **System Gaps** are missing connections or barriers in the urban transportation system that functionally prohibit travel for a given mode. While a gap generally means a connection does not exist, it could also be the result of a physical barrier (such as I-5, the Willamette River, other natural feature, or existing development) or a social barrier (including lack of information, language, education, and/or limited resources).
- **System Deficiencies** are performance, design, or operational constraints that limit travel by a given mode. Examples may include unsafe designs, bicycle and pedestrian connections that contain obstacles, inadequate intersection or roadway capacity, insufficient bus frequency, and congestion.

*Wilsonville's transportation needs include . . .*

- *Gaps (missing connections or barriers)*
- *Deficiencies (shortcomings)*

*These needs will be addressed by . . .*

- *Improvement projects (Chapter 5)*
- *Programs (Chapter 6)*



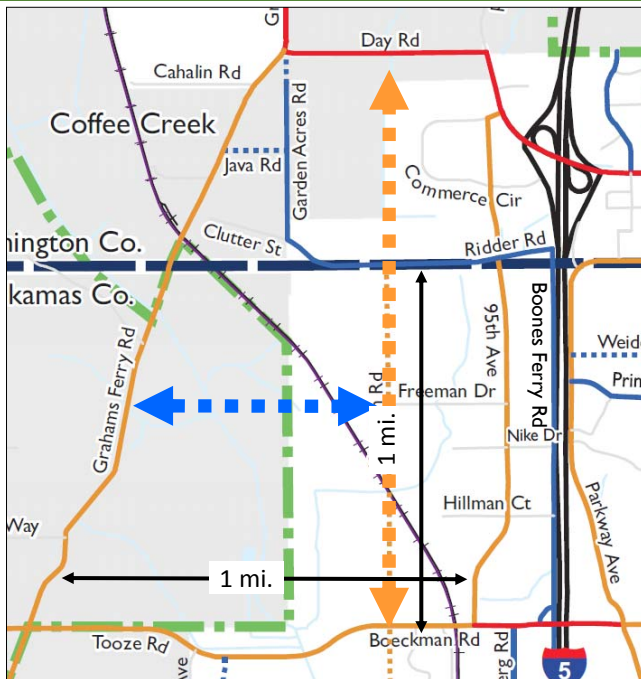
Header Photo Source: OBEC

## MULTIMODAL CONNECTIVITY GAPS

Providing a well connected transportation system is one of the City’s goals. In order to ensure this goal is achieved, the City has developed facility spacing standards to provide direct routes and travel options

for system users. Based on the street connectivity guidelines set forth in Chapter 3, there are system gaps in each of the city’s four quadrants. However, there are also constraints and barriers that may make some connections infeasible.

### Northwest Quadrant Connectivity

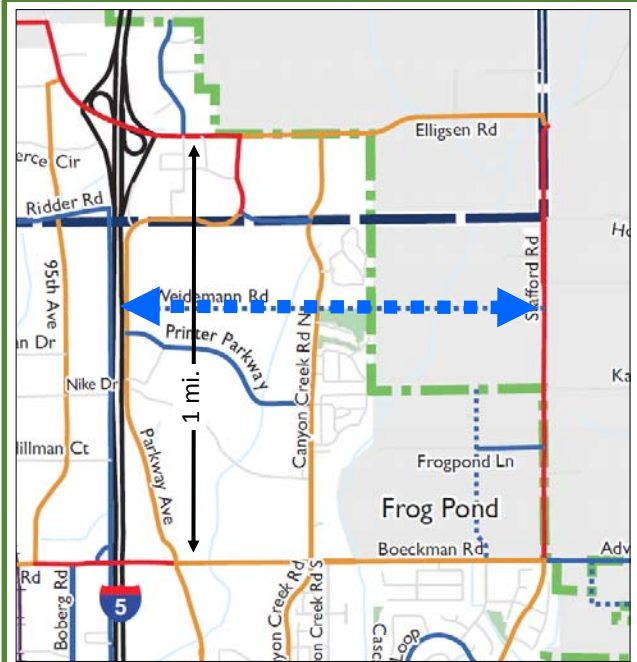


Two connectivity gaps exist in this quadrant:

- A north-south gap exists between Day Road and Boeckman Road that increases congestion at the 95th Avenue/Elligsen Road intersection and the nearby I-5 interchange.
- An east-west gap exists between 95th Avenue and Grahams Ferry Road.

**North/south Minor Arterial and east/west Collector** would be needed as future development occurs to fill these gaps, provide additional travel options, and allow access to future development. However, these roads will be difficult to construct due to the P&W railroad track and Metro green space in this quadrant that are barriers. The new north/south roadway should be considered after 95th Avenue between Boeckman Road and Ridder Road no longer sufficiently serves this function.

### Northeast Quadrant Connectivity



There is a gap in the east west connectivity between Elligsen Road and Boeckman Road.

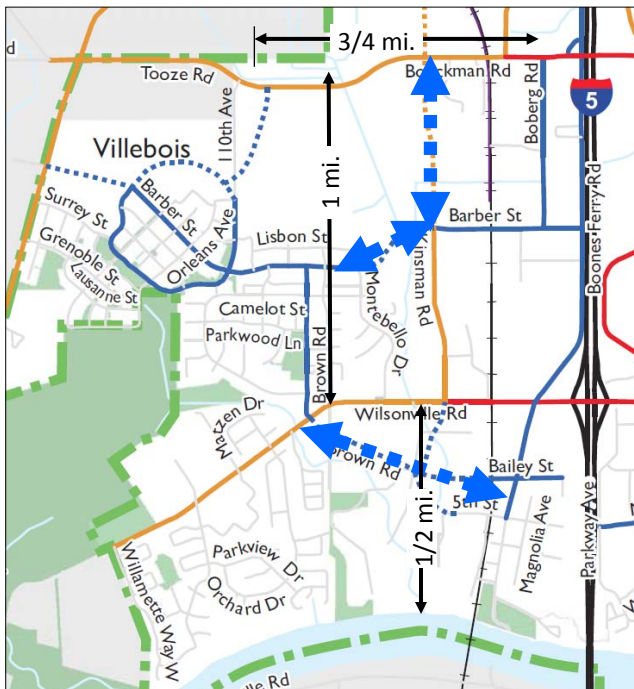
**An east/west Collector** from Parkway Avenue to Stafford Road would be needed to fill this gap. The City currently owns partial right-of-way along the west end of Wiedemann Road, which is a single-lane gravel road that runs east/west for a short distance east of Parkway Avenue.

The following legend applies to each of the four quadrant images.

#### LEGEND

Functional Classification	New Connection Needed
Major Arterial	Minor Arterial
Minor Arterial	Collector
Collector	
Local Street*	

### Southwest Quadrant Connectivity



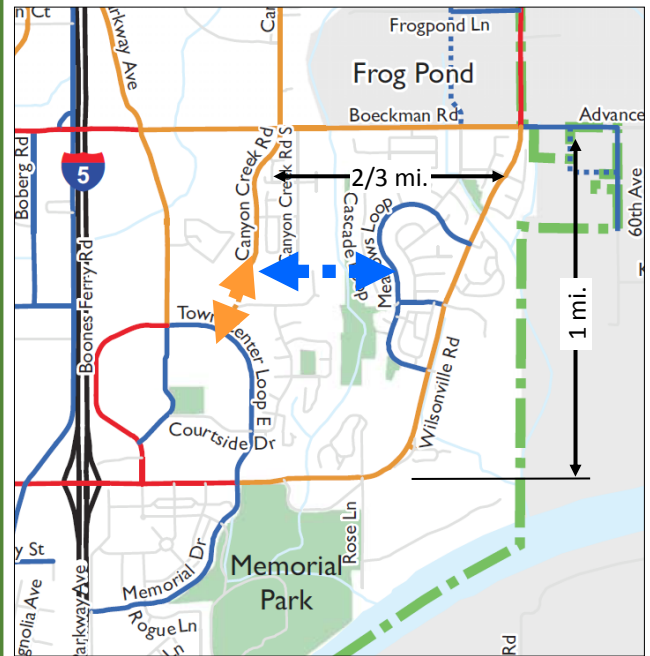
There are several gaps in east-west and north-south connectivity as follows:

- North/south and east-west gap exists between Wilsonville Road and Boeckman Road and between the Villebois development and the WES station.
- An east-west gap exists between the Willamette River and Wilsonville Road.

**North/south Minor Arterial and east/west Collector (north of Wilsonville Road)** streets are needed to fill these gaps. The Barber Street and Kinsman Road extensions are currently in the design phase that would satisfy these needs.

**An east/west Collector (south of Wilsonville Road)** would be needed as development occurs to provide the necessary connectivity. This roadway would also provide a secondary access option to and from Old Town (that is needed today), and the likely connection options are either 5th Street or Bailey Street.

### Southeast Quadrant Connectivity



There are two existing gaps in this quadrant as follows:

- A north-south gap exists between Boeckman Road and Town Center Loop that leads to additional traffic on Parkway Avenue and Wilsonville Road.
- An east-west gap exists between Canyon Creek Road and Meadows Loop.

**North/south Minor Arterial** extension of Canyon Creek Road is needed as soon as funding is available and would provide the connection to Town Center Loop. A major portion of this connection has already been constructed by adjacent development.

**An east/west Collector** from Canyon Creek Road to Meadows Loop would provide the connectivity needed. However, there are topographical, environmental, and development constraints that make this connection difficult. An existing trail and bridge provide pedestrian and bicycle connectivity.

## CROSS-SECTION DEFICIENCIES

To ensure Wilsonville’s roadways adequately serve all modes, the City has cross-section standards that guide roadway design based on the street’s functional classification with the acknowledgement that design elements shall be matched with the adjacent land use to provide safe transportation choices for users. The functional classifications and cross-section standards include number of motor vehicle travel lanes, sidewalks on both sides of the street, planter strips, and curbs (see Chapter 3: The Standards). In addition, the higher classification roadways also include bicycle facilities.

Building roads that provide facilities for all travel modes and meet applicable cross-section standards is critical to assure a safe and well connected transportation system. If bike lanes and sidewalks are

missing, the users of these facilities are likely using other portions of the roadway (motor vehicle travel lanes or shoulders) that may be unsafe.

Figure 4-1 shows which City roadways do not meet their applicable cross-section standards. In some instances, all that is needed are sidewalks for improved pedestrian connectivity. In other instances, roadways may need to be widened to include center turn lanes or bike lanes. Many of these roads are adjacent to rural areas and will be brought up to meet standards as adjacent parcels develop. Others will require standalone improvement projects. Depending on the situation, these roadway sections will require urban upgrades, sidewalk infill, or bike lane infill improvements.



*Parkway Avenue near the Xerox campus is a Minor Arterial but does not include bike lanes. There is a sidewalk on the east side, but it ends at the boundary with the vacant parcel to the north.*



*Freeman Drive between 95th Avenue and businesses lacks sidewalks on the south side.*

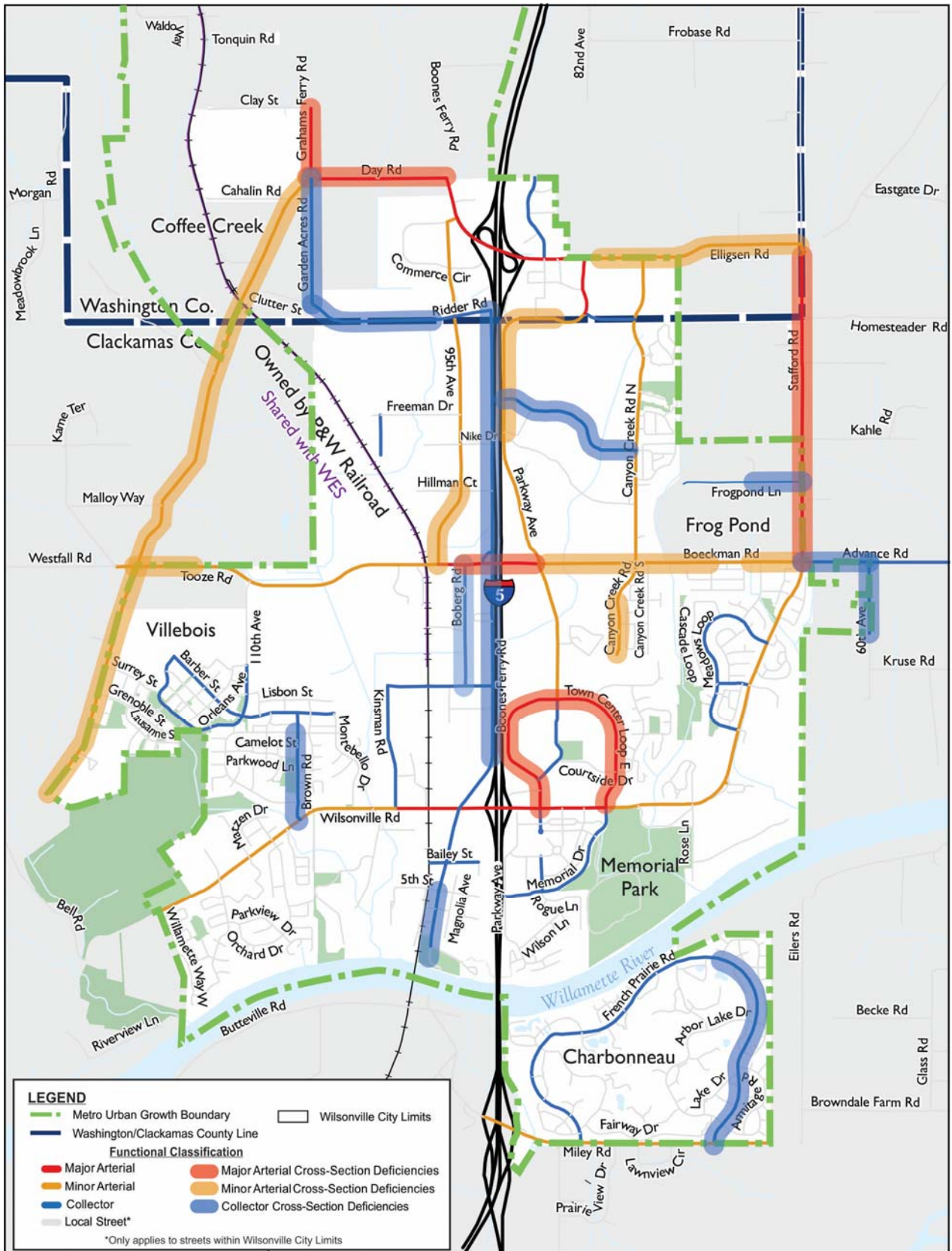
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*“I-5 poses some challenges because it serves as a barrier in between the east and west sides of town. This puts a lot of pressure on the few existing connections that make it harder for people to walk between one place and another.”*

*Katie Mangle  
Long Range Planning Manager*

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**FIGURE 4-1. ROADWAY CROSS-SECTION DEFICIENCIES**



## CAPACITY DEFICIENCIES

Capacity deficiencies for motor vehicles were identified throughout Wilsonville by evaluating traffic operations for a 2035 future scenario. The traffic forecasts were performed using a travel demand model based on Metro regional land use with the transportation network refined specifically for Wilsonville.

Due to the high level of detail, the Wilsonville travel demand model was able to more accurately represent local routing choices while also forecasting traffic pattern changes resulting from varying levels of congestion and delay expected for 2035. The model also assumed the completion of seven key roadway extensions (listed in the call-out box at right), as well as land use growth based on regional population and employment forecasts for the 2035 horizon year.

Figure 4-2 shows the 20 study intersections and five roadway segments that would not meet adopted mobility standards under the 2035 baseline scenario. These roadway capacity improvements would primarily be needed when the vacant land in their vicinity is developed.

The majority of the intersection and roadway deficiencies were identified in prior planning efforts and already included associated improvement projects. Therefore, many of the City's planned projects only required minor revisions, refinements, and prioritization adjustments. Along with minor changes to existing projects, a few new projects are also needed to meet the city's long term capacity needs.

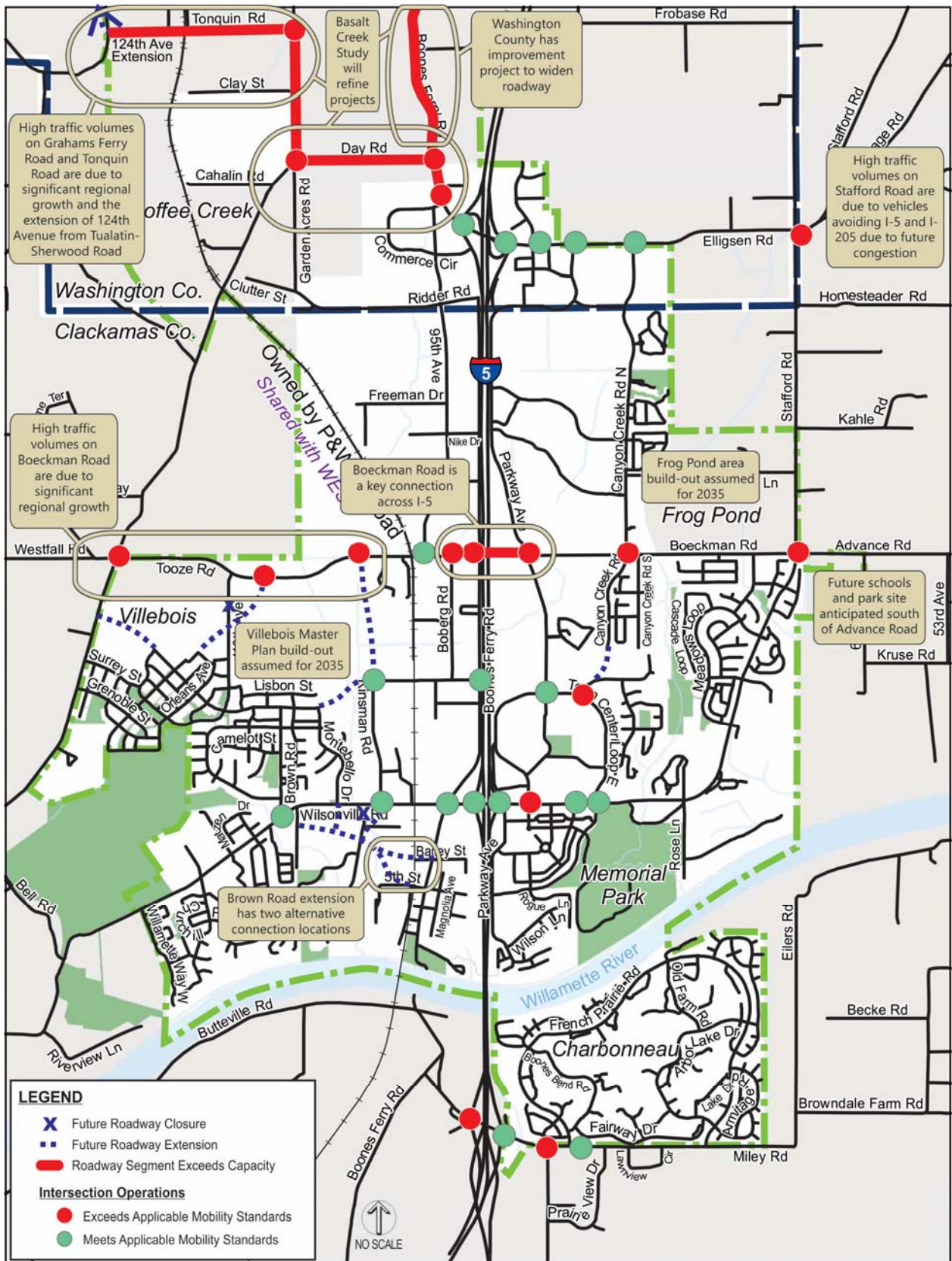
## 2035 BASELINE ROADWAY EXTENSION ASSUMPTIONS

Various roadway extensions throughout the city satisfy critical connectivity needs and would be constructed as development occurs. To account for the resulting traffic patterns, the 2035 baseline capacity analysis assumed the completion of these projects:

- **Barber Street Extension** from Kinsman Road to Montebello Drive, connecting the WES Station to Villebois (Regional Transportation Plan Project 10153, design plans are currently in process)
- **Barber Street Extension** to Grahams Ferry Road (Key roadway in Villebois Master Plan Area)
- **Villebois Drive Extension** to Boeckman Road (Key roadway in Villebois Master Plan Area to replace existing 110th connection)
- **Kinsman Road Extension** from Barber Street to Boeckman Road (Regional Transportation Plan Project 10130; design plans are currently in process)
- **Kinsman Road Extension** from Ridder Road to Day Road (Regional Transportation Plan Project 10853; key roadway in Coffee Creek Master Plan Area)
- **Brown Road Extension** (Currently has partial preliminary design plans for two alternatives)
- **Canyon Creek Road Extension** to Town Center Loop East (Small segment remains to finish connection; eligible as one of final projects using East Side Urban Renewal funding)

These roadway improvements are included in Figure 4-2, which also shows with the 2035 capacity

FIGURE 4-2. FUTURE 2035 CAPACITY DEFICIENCIES





## FREIGHT-RELATED DEFICIENCIES

In the past, Wilsonville relied on county and Metro designated freight routes. As a major employment center and industry hub along Interstate-5 (I-5), the city and its freight community will benefit from adopting a local freight plan and freight routes. Wilsonville’s residential areas will also benefit from designating freight routes that avoid neighborhoods. The community would also benefit from increased marine freight traffic on the Willamette River.

The plan is a result of outreach to identify the city roadways used by freight carriers, as well as the freight-related deficiencies and problem locations on these roadways. This outreach included distribution of surveys to the city’s major freight carriers, and a meeting with the Allied Waste commercial and

### FREIGHT CARRIER OUTREACH

Multiple freight carriers provided feedback on freight routes and deficiencies:

- Allied Waste Services of Wilsonville
- Coca-Cola Bottling of Oregon
- Eaton Corporation
- FLIR Systems, Inc.
- Mentor Graphics Corp
- OrePac Building Products
- Owens & Minor Distribution Inc
- Parker Johnstone's Wilsonville Honda
- Rite Aid Distribution Center
- Rockwell Collins Head-Up Guidance Systems
- SYSCO Food Services of Portland
- Tyco Electronics Medical Products/Precision Interconnect Corp.
- US Crane & Hoist, Inc.
- Vision Plastics, Inc.
- Wilsonville Concrete
- Wilsonville Toyota
- Xerox Corporation

residential drivers, who service the entire city and have a particularly extensive understanding of the city’s freight needs.

Figure 4-3 identifies the key gaps and deficiencies that were identified based on the feedback received. It also identifies the streets where freight vehicles are present, though not all of these should become designated freight routes.

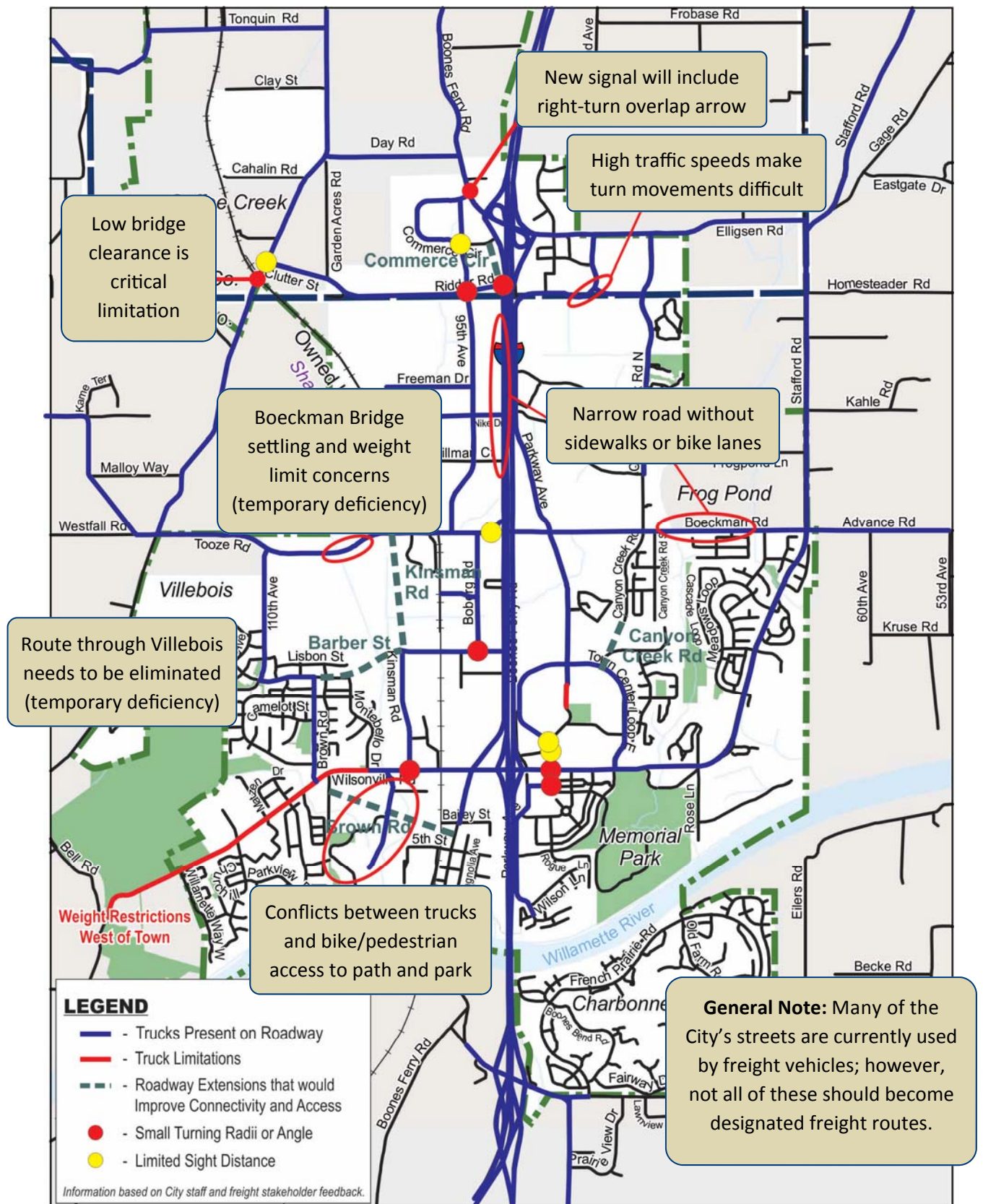
The following feedback, which is more general in nature, was also provided by the freight carriers:

- Flashing yellow left-turn arrows at traffic signals are the preferable design treatment for protective/permissive phasing.
- Where possible, it is important to separate trucks from pedestrians and bicycles (especially on roadways and at tight intersection corners).
- There are inconsistent speeds on similar functioning roadways (for example, Boones Ferry Road versus Parkway Avenue).
- Trucks block traffic when they must wait off-site to access busy on-site loading docks.
- Improved loading areas and site access at retail establishments would aid delivery.
- There are limited direct routes for freight that exist between north and south Wilsonville.



*Roadway congestion and queuing on Elligsen Road leads to increased delay to freight movement.*

**FIGURE 4-3. FREIGHT-RELATED DEFICIENCIES**



## BICYCLE AND PEDESTRIAN NEEDS

Bicycle and pedestrian facilities support complete community connectivity and opportunities for work, play, shopping, and exercise. They also help reduce traffic congestion, vehicle-miles traveled, and greenhouse gas emissions, while increasing the vibrancy and connectedness of communities and improving the health of city residents.

Figure 4-4 shows the major bicycle and pedestrian gaps and deficiencies in Wilsonville. These needs are due to the various barriers in the system relating to natural areas, topography, and existing development.

There is also a need for improved street cleaning and related maintenance to remove debris from the I-5 interchange areas on Wilsonville Road and Elligsen Road, which are under ODOT jurisdiction. These facilities serve as primary connections over the city's



The lack of continuous bike lanes on Brown Road north of Wilsonville Road requires cyclists to use the travel lane.

## SAFE ROUTES TO SCHOOL

Additional bicycle and pedestrian gaps and deficiencies were identified as part of the Safe Routes to School assessment that the City performed in collaboration with the West Linn-Wilsonville School District and each of the city's primary and middle school. These needs are identified in Chapter 6: The Programs.

two most significant barriers (i.e., Interstate-5 and the Willamette River).

Another pedestrian and bicycle need that affects Wilsonville is regional access to the nearby communities. The Ice Age Tonquin Trail and Boones Ferry Road improvements north of Day Road are two examples of facilities that will provide regional connectivity. In addition, Clackamas County has identified the need to provide bicycle facilities on Stafford Road and 65th Avenue to the north and east of Wilsonville. A connection to the south over the Willamette River is also a critical need to link to Charbonneau and the Willamette River Heritage Area (including Champoeg State Park and the Willamette Valley Scenic Bikeway).

To further enhance regional connectivity, the City should continue to coordinate with Clackamas County and Washington County to ensure that bicycle and pedestrian improvements on county roadways are identified in their county TSP updates and that these facilities connect to the city's bicycle and pedestrian systems.

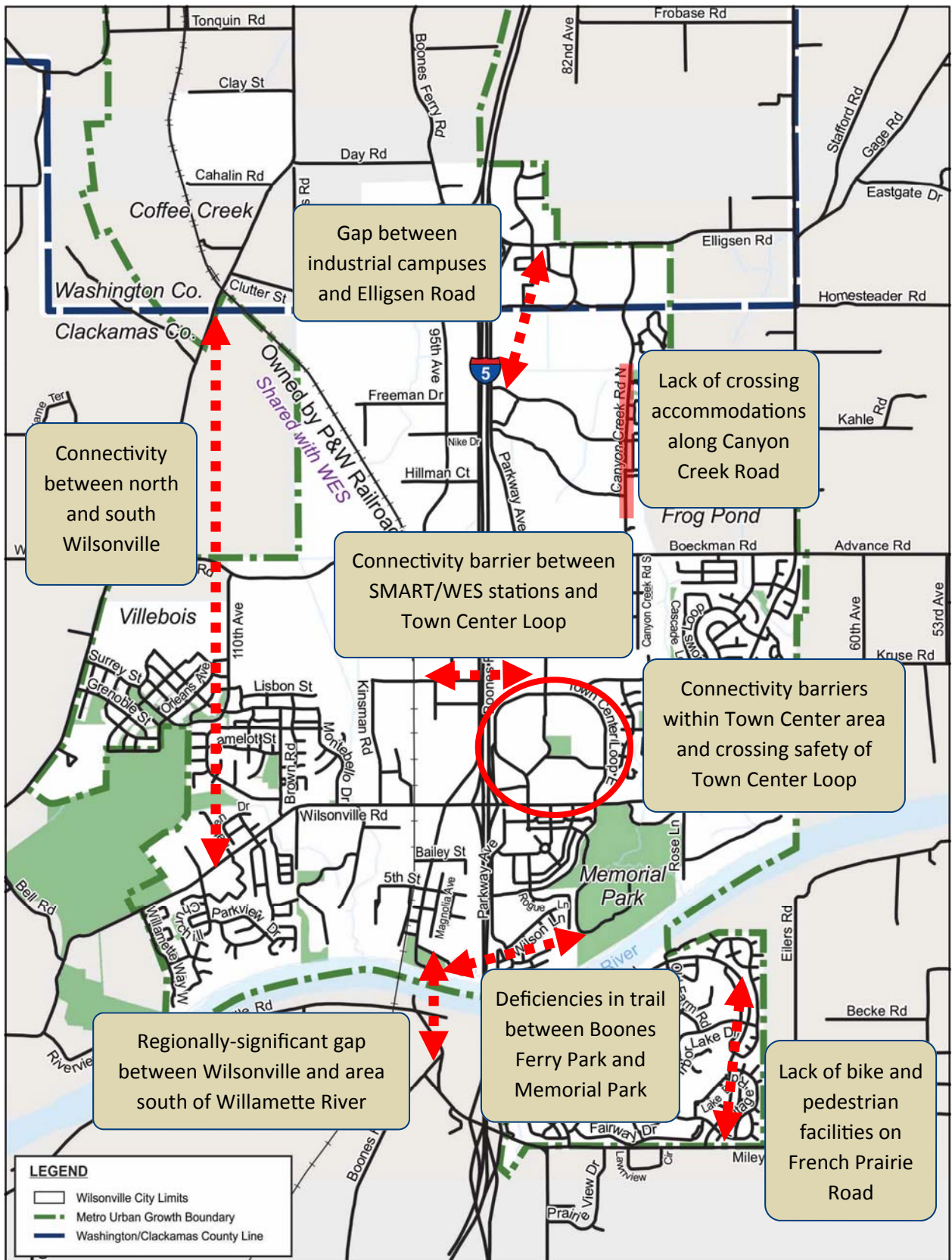
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*“Right now there are many gaps where sidewalks end or cross into areas where there are no receiving facilities for them. So, the transportation system plan is looking at those gaps and will be trying to fill them.”*

*Al Levit  
Planning Commission*

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**FIGURE 4-4. MAJOR BICYCLE AND PEDESTRIAN NEEDS**



## TRANSIT NEEDS

Wilsonville is unique among the cities within the Portland Metro area because it has its own transit system. While the rest of Metro is served by TriMet, Wilsonville has been operating South Metro Area Regional Transit (SMART) since it withdrew from TriMet's service district in 1988.

A locally run transit system provides many benefits for Wilsonville's residents and employees. Because it is not dependent upon another agency, SMART is able to determine its own bus routes, frequencies, and fares. It currently provides fare-free service within Wilsonville and supports other programs unique to Wilsonville, such as the SMART Options program. SMART is financially supported by payroll taxes from its strong employment base.

SMART also experiences various challenges, including six key transit needs:

- **Regional Transit Connections** are important for SMART due to Wilsonville's central location between two metropolitan areas (Portland Metro and Salem-Keizer) and its large employment base. While it has existing connections to TriMet (Portland Metro) and Cherriots (Salem-Keizer), these connections should be improved as opportunities arise. For example, expanded service hours and express service to downtown Portland would benefit a larger population of employees and residents of Wilsonville.
- **Service Coverage and Bus Frequency** require ongoing adjustments as demand and resources change. SMART should provide transit service within 1/4-mile of land uses throughout the city. Currently, there are only a few areas that do not fall within the 1/4-mile coverage radius, including Wilson Lane on the east, Willamette Way and Orchard Drive on the west, and the majority of Charbonneau. SMART will need to be responsive

to the desires of the public and all affected neighbors before providing or removing service from a given neighborhood. SMART will also need to expand its service as new development occurs in the areas of Coffee Creek, Villebois, and Frog Pond. To expand coverage and service, SMART may require additional buses.

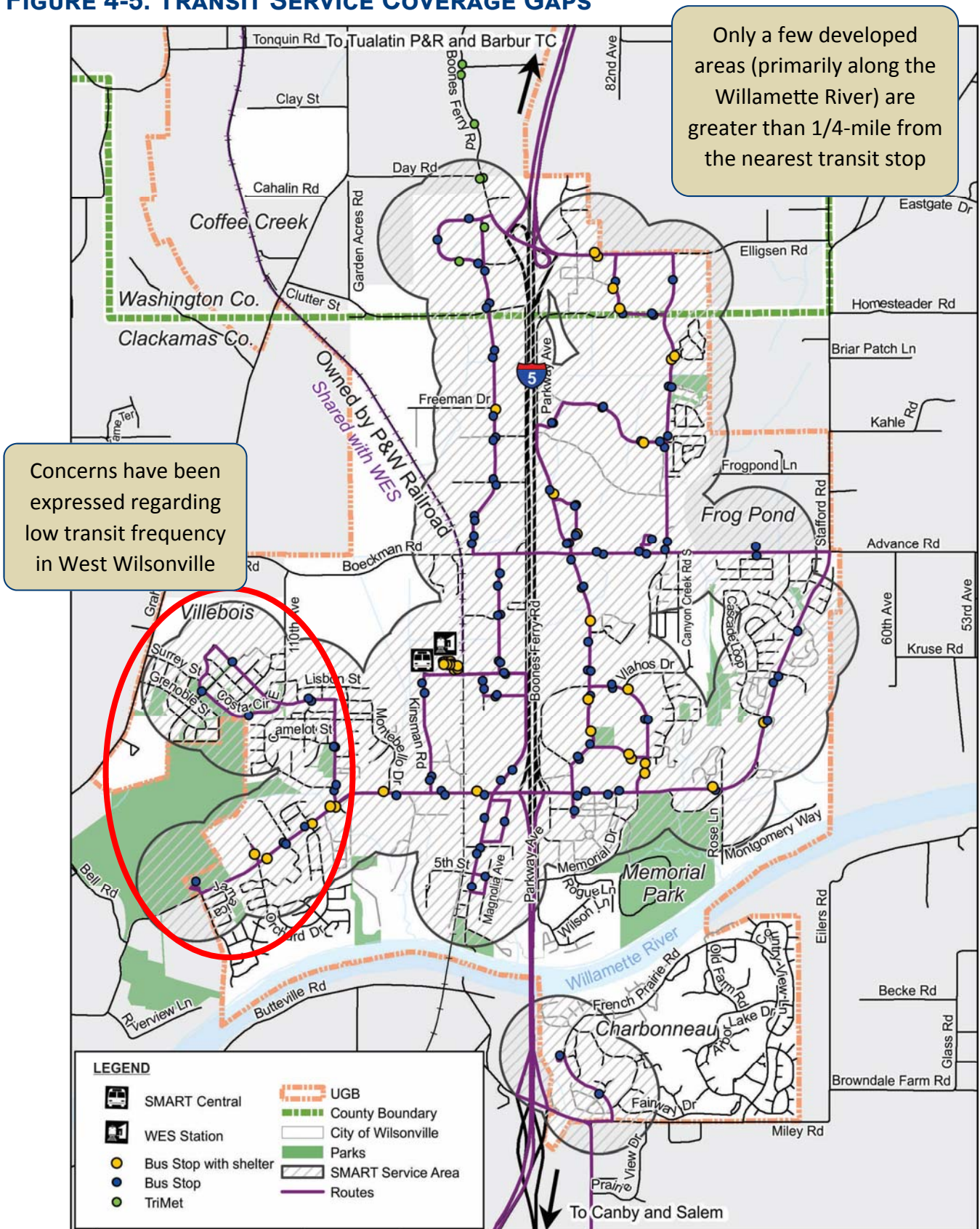
- **Pedestrian and Bicycle Access to Transit** can help improve transit service by providing safe and convenient connections at either end of transit trips. Pedestrian and bicycle networks that provide access to transit stops and good connectivity to all destinations throughout the city are important. They encourage increased use of transit, walking, and bicycling, which are

## RECENT TRANSIT IMPROVEMENTS

Since the prior 2008 Transit Master Plan was adopted, three major transit system improvements have been implemented that provide a backbone to the city's transit service:

- **SMART Central at Wilsonville Station** was constructed to act as SMART's main transportation hub and includes a 400 space park and ride lot, twelve bus bays, a new facility with an operator break room and public restrooms, shelters, and a clock tower with security cameras.
- **TriMet's Westside Express Service (WES) Commuter Rail** service began operating out of its new station located adjacent to the SMART Central at Wilsonville Station transit center.
- **SMART Bus Routes** changed to coordinate with WES train departures and arrivals.
- **SMART Operations Center** was built to house fleet and operations facilities, including administration offices, maintenance bays, and a bus parking area.

**FIGURE 4-5. TRANSIT SERVICE COVERAGE GAPS**



complementary travel modes and often used as part of the same trip. Some of the most important locations for access improvements include the Town Center Loop area and the Barber Street connection between Villebois Village and the SMART Central transit center. Other needs throughout the city should be addressed on an ongoing basis.

- **New Buses** are needed for SMART to maintain a quality transit fleet. Many of its buses are aging and require a greater amount of maintenance to keep them in operation. SMART can lower the amount of its budget that it spends on maintenance costs by replacing these buses. Additional buses will also be needed as growth occurs throughout the city. When possible, new buses should use alternative fuels, such as compressed natural gas. This will help SMART to reduce fuel costs and help meet regional and statewide goals for reducing greenhouse gas emissions.
- **Development Review** should address transit needs to ensure that transit users are accommodated as new development occurs in the city. SMART should be involved in the development review process to ensure that existing transit stops are improved and new stops, amenities or routes are provided as needed. In addition, when a new employment or commercial development occurs near a major transit stop, it should locate its building close to the transit stop.
- **Rider Education and Outreach** are ongoing needs that support and encourage transit ridership. One particular area where improvement is needed is adapting to new technology. This includes passenger access to ‘real time’ transit data and improved on-board amenities. Rider safety education is also an ongoing need.

## ENVIRONMENTAL JUSTICE

As stated by the Environmental Protection Agency, “Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (U.S. EPA, Environmental Justice, Compliance and Enforcement, Website, 2007).

Within the context of the TSP, Environmental Justice is an effort to identify underserved and vulnerable populations so the City can improve transportation services while reduce future inequalities. Two areas of particular need are Charbonneau (due to the higher proportion of elderly residents) and a small area on the southern edge of Villebois (due to lower income housing).

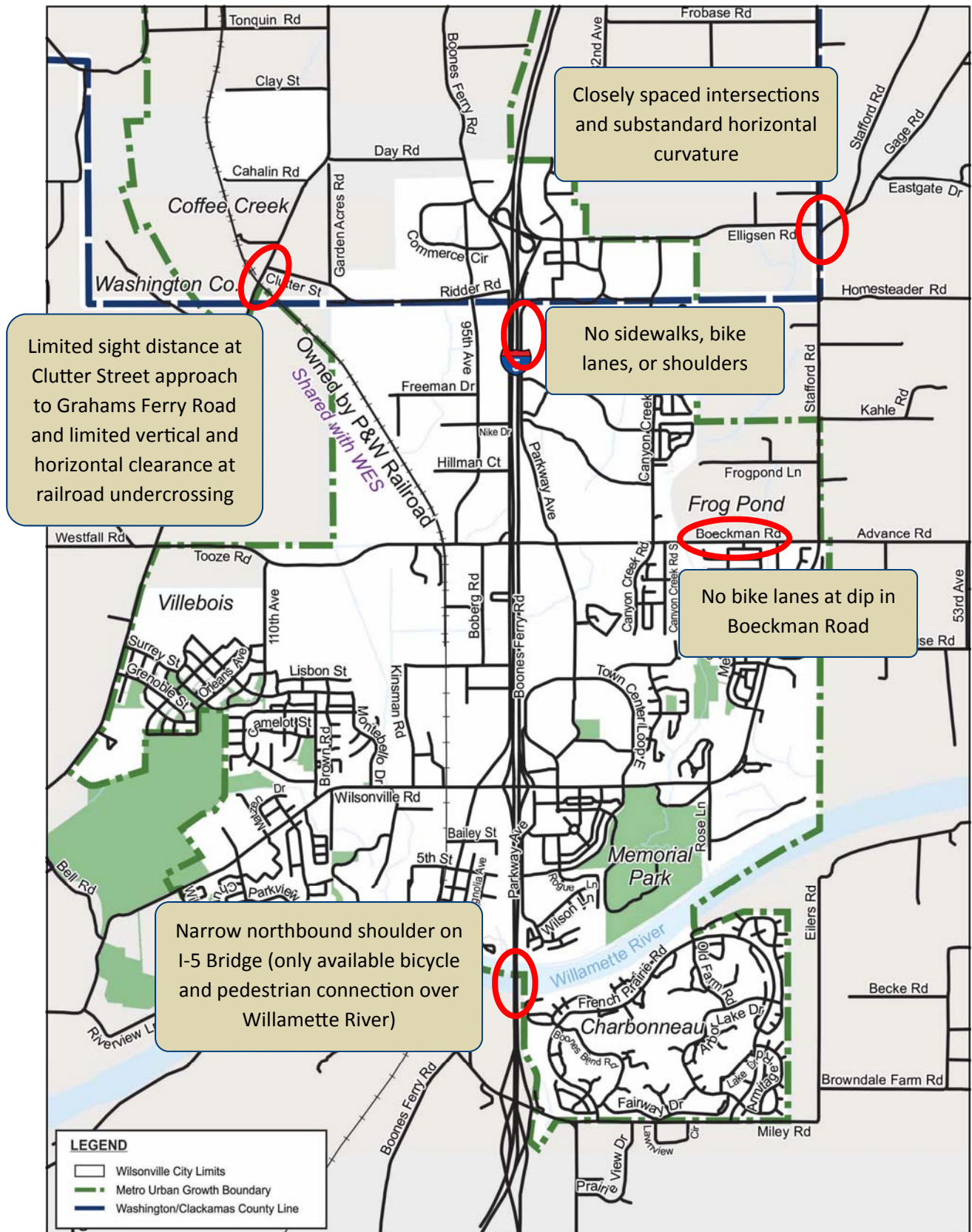
## SAFETY NEEDS

While there are no high-collision locations within Wilsonville, various safety-related deficiencies exist. Figure 4-6 shows five primary locations where there are existing safety concerns. Topography, roadway curvature, and nearby barriers (including I-5 and the railroad track) are key contributors.



*The railroad bridge over Grahams Ferry Road has limited horizontal and vertical clearance. This creates a safety hazard, particularly for bicyclists, pedestrians, and freight traffic.*

**FIGURE 4-6. SAFETY DEFICIENCIES**





## RAIL NEEDS

The primary rail-related deficiency in Wilsonville is the limited vertical and horizontal clearance that the railroad bridge over Grahams Ferry Road causes for trucks. This is also a safety deficiency.

ODOT Rail has a policy of not granting new at-grade crossings. Crossings may be relocated (i.e., a new one is provided but only if an old one is removed). Therefore, railroad tracks can pose a significant barrier to the transportation system due to the high cost of grade separated crossings. The primary location in Wilsonville where the railroad contributes to a roadway system gap is the potential Kinsman Road extension in the northwest quadrant (see the prior Multimodal Connectivity Gaps discussion in this chapter).

Another future item that may affect Wilsonville is that ODOT Rail is studying the feasibility of improving intercity rail service between Eugene and Portland (with the potential for developing a high-speed rail line). Portland and Western's Oregon Electric rail



*Portland and Western's Oregon Electric rail line runs north/south through Wilsonville and serves as an important freight and commuter rail corridor. However, it also creates a barrier to travel for other modes due to limited crossing locations.*

line, which runs through Wilsonville, is one of the existing rail alignments being studied. Depending on the outcome of this study, there may be additional passenger rail trains traveling through Wilsonville that would increase gate down time and rail related congestion for all modes of travel.

## AIR NEEDS

The City of Wilsonville has no direct jurisdictional control or responsibility for managing the Aurora Airport. However, the City, concerned citizens, and local businesses have participated in the Oregon Department of Aviation's (ODA) development of an updated Master Plan for the airport. The City acknowledges the adoption of the Master Plan by ODA and will continue to monitor planned improvements at the airport and coordinate with ODA and Marion County, who have jurisdictional responsibilities.

The City also has two, potentially conflicting interests that must be balanced related to the airport. These include noise sensitivity for city residents and the reliance local businesses have on the airport for corporate travel.

## WATER NEEDS

The City of Wilsonville has no direct jurisdictional control or responsibility for managing activities on the Willamette River. However, it supports efforts by Corps of Engineers to maintain the following two activities, which are essential for the river to function over time as a viable transportation facility:

- Periodic dredging to maintain channel depth to support applicable river traffic
- Maintenance of the Locks at Oregon City

## PIPELINE SYSTEM

A high-pressure natural gas mainline pipe exists in the vicinity of the Interstate-5 corridor. The location of this pipeline may impact a project's feasibility or limit available improvement options in its vicinity.

## TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS NEEDS

Transportation System Management and Operations (TSMO) improvements include integrated operations solutions that incorporate advanced technologies. Due to the regional significance of TSMO improvements, Clackamas County and Metro have prepared their own plans. Some key needs include:

- **Arterial Corridor Management** for Boones Ferry Road, Elligsen Road, 65<sup>th</sup> Avenue, Wilsonville Road, and Stafford Road to improve reliability and traveler information along the corridors. Arterial Corridor Management includes installing fiber optic cable to allow communication with the ODOT/County Transportation Management and Operations Center as well as other intelligent transportation devices such as variable message signs, CCTV cameras, traveler information and adaptive traffic signal systems.
- **Transportation Demand Management (TDM)** by supporting the SMART Options Program, which works with Wilsonville area employers and residents to promote transit and other transportation options that reduce traffic congestion, such as carpool, vanpool, bike, walk, and telecommute.
- **Regional Fiber Network Connections** between Wilsonville's traffic signals and Clackamas County's fiber network (Clackamas County currently maintains and operates the City's traffic signals on its behalf).

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*"We have a new beautiful interchange with much more capacity, but we don't want to use up the capacity just to get from one side of town to the other."*

*Ben Altman, Chair  
Planning Commission*

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- **Adaptive Signal Timing** and associated video monitoring cameras and vehicle detection equipment (to collect traffic counts and speeds) on Wilsonville Road from Brown Road to Town Center Loop East.
- **Closed Circuit Television Cameras** at the key locations along Wilsonville Road and I-5.
- **Video Monitoring Cameras and Vehicle Detection Equipment** (to collect traffic counts and speeds) on Elligsen Road from Day Road to Canyon Creek Road.
- **Railroad Crossing Alert System** at Portland and Western at-grade railroad crossings.

### RECENT TSMO PROJECTS

Through a collaborative effort by Wilsonville, Clackamas County, and ODOT, the following TSMO projects have already been implemented:

- **Wilsonville Road Traffic Signal Communications** were improved as part of the Wilsonville Road Interchange Improvements to help manage traffic operations.
- **I-5 Interchange Area CCTV Cameras** were installed by ODOT and linked to the ODOT Trip Check website to provide real time information to drivers traveling within and through Wilsonville.
- **Discover Wilsonville** was a one-year program to make sure every Wilsonville resident has all the information they need to use whatever travel options interest them.
- **Sunday Streets** was a special event focusing on connecting neighborhoods, parks, and people. Bicyclists, walkers, runners, seniors, adults, and children enjoyed traffic-free streets filled with physical activities, fun and

## ALTERNATIVE FUEL NEEDS

Within Wilsonville and throughout the Portland Metro area, there is an increasing need to provide infrastructure to support vehicles that use alternative fuels (i.e., electrical and compressed natural gas vehicles). These vehicles help to reduce greenhouse gas emissions and are becoming more popular and affordable. SMART already has a compressed natural gas fueling station that it will use for its bus fleet.

The City could consider identifying various electrical vehicle stations at strategic locations that serve both residential and business users. Level II charging stations (input voltage of 240 volts, which requires two to four hours for charging) already exist at City Hall (2 stations) and the Fred Meyer parking lot (2 stations). Additional locations that may be considered for Level II charging stations are the SMART Central transit center and Town Center Loop.

The City of Wilsonville could also take advantage of its location at the southern tip of the Portland Metropolitan area to install (or coordinate with a willing business to install) a Level III (480 volt) fast charging station, which require only 20 to 40 minutes to complete the charge. An ideal location would be near one of the I-5 interchanges.

Another option to be ready for the transition to electric transportation would be to include provisions in residential, commercial, and industrial building codes for supporting the required infrastructure. It would be less expensive to require new buildings and parking lots to have the required electrical wiring and outlets to support future electric vehicle charging stations than it would be to retrofit older buildings and parking lots. By taking this preliminary step in preparing its infrastructure, a smoother transition could be made to alternative fuels for vehicles.



*Electric vehicle charging stations, such as those located at Fred Meyer (shown above) and Wilsonville City Hall (shown below), allow patrons, employees, and visitors to charge their vehicles while working, shopping, and visiting Wilsonville.*





Wilsonville is responsible for managing an efficient and effective transportation system that supports the quality of life of its residents and the economic vitality of its businesses. This is no easy task, but the City can succeed by implementing programs and projects that provide three primary benefits:

- Reduce rush hour traffic
- Improve operations and safety
- Make strategic investments in new and expanded facilities to serve all modes.

Wilsonville should be engaged in these three activities simultaneously through a balanced effort of programs and projects to receive the greatest value from its infrastructure expenditures. This balanced approach can also guard against over-building roadway capacity.

The list of transportation projects that will repair or complete the transportation system through 2035 is based largely on past plans, but includes updated solutions. Constructing all of the identified transportation solutions would cost approximately \$218.2 million, which exceeds \$123.4 million, which is forecasted to be available through 2035 from both City and other funding sources. Therefore, Wilsonville must choose how to invest its limited resources to provide the greatest benefit to Wilsonville residents and businesses. The highest priority solutions to meet the most important transportation system needs are included in the “Higher Priority” project list, while all other projects are included in the “Planned” project list.

### *Wilsonville will . . .*

- *Improve system efficiency,*
- *Reduce congestion, and*
- *Save money*

### *By implementing programs and projects that . . .*

1. *Reduce rush hour traffic,*
2. *Improve operations and safety, and*
3. *Make strategic investments in new and expanded facilities to serve all modes*



## SYSTEM IMPROVEMENT PRIORITIES

Most of the transportation system improvement projects needed to address gaps and deficiencies in the system were identified in prior City plans, including its 2003 Transportation Systems Plan, 2006 Bicycle and Pedestrian Master Plan, 2008 Transit Master Plan, and multiple development master plans (see Chapter 1: The Context). The City’s prior transportation projects were reconsidered, integrated, and revised to address updated information and prepare for the 2035 planning horizon.

Because transportation funding is limited, Wilsonville recognizes the importance of being fiscally responsible in managing and improving its transportation system. The diagram at right illustrates cost-effective steps and associated solution areas to resolving transportation needs by following a multimodal, network-wide approach. These five steps were considered from top to bottom when evaluating Wilsonville’s transportation projects:

- **Manage** the performance of congested locations with strategies that reduce traffic conflicts, increase safety, and encourage more efficient usage of the transportation system. Intersection operational improvements are considered to fall under this category.
- **Reduce** the driving demand at congested locations by ensuring safe and available walking, biking, and transit options.
- **Revisit** land use decisions and congestion thresholds to support shorter driving trips or modified travel decisions.
- **Extend** streets to increase connectivity and create parallel routes that reduce the driving demand on congested facilities.
- **Expand** existing streets or intersections to increase the driving capacity of congested facilities.

## COST-EFFECTIVE STEPS TO RESOLVING TRANSPORTATION NEEDS

FIGURE 5-1. IMPROVEMENT PRIORI-



*“We want to create a transportation system that has multiple choices . . . That way we are not heavily reliant on the car, which will still stay a key element to the system. But we want to make sure we are providing options for bicycles, pedestrians, and transit.”*

*Ben Altman, Chair  
 Planning Commission*

## PRIORITIZED SOLUTION AREAS

As illustrated in Figure 5-1, the City can best manage its transportation system by having plans, programs, and/or projects that address each of the following solution areas:

1. **Transportation System Management and Operations (TSMO)** strategies that improve the safety and efficiency of the current system, including Transportation Demand Management (TDM)
2. **Bicycle, Pedestrian, and Transit** system improvements that target key system gaps and safely accommodate all transportation users
3. **Land Use and Development Strategies** that (1) provide equal accessibility and connectivity to those users who choose to travel by transit, bicycle, and pedestrian modes and (2) utilize the City's functional classification hierarchy to reduce out-of-direction travel and manage congestion on arterials
4. **Connectivity** improvements that include motor vehicle, pedestrian, bicycle, and transit facilities to provide more direct routes for all transportation users between neighborhoods, schools, parks, and retail/industrial areas
5. **Motor Vehicle Capacity** improvements upon a demonstration that the other strategies are not appropriate or cannot adequately address identified transportation needs

General preference should be given to those listed first, but only to the degree to which they are more cost-effective at supporting the City's vision and goals (i.e., a transportation system that is safe, connected and accessible, functional and reliable, cost effective, compatible, robust, and promotes livability). Many of the City's projects include elements that address multiple solutions.

## PROJECT EVALUATION PROCESS

Wilsonville's transportation improvement projects were also evaluated and prioritized to help select which projects to include in the Higher Priority project list. Many projects had been evaluated and prioritized in recently adopted mode-specific transportation plans. As a result, the TSP evaluation process varied for the different modes:

- **Motor Vehicle Projects:** The projects were ranked according to a point-based technical scoring methodology using evaluation criteria consistent with the City's transportation goals. This allowed for a consistent method to understand how well the projects would meet the City's transportation goals and policies. In addition, community input was considered when prioritizing the projects.
- **Bicycle, Pedestrian, and Transit Projects:** The project priorities in the 2006 Bicycle and Pedestrian Master Plan and 2008 Transit Master Plan were reviewed, and a few changes were made based on City staff and public input. The majority of the higher priority bicycle and pedestrian projects were included in the Higher Priority project list, even if it would require them to be constructed separately from associated motor vehicle projects.

Prioritizing the projects in this way allowed for them to be separated into two lists: the "Higher Priority" project list includes the highest priority solutions to meet the City's most important transportation system needs, while the "Additional Planned" project list includes all of the other projects.

## HIGHER PRIORITY PROJECTS

The “Higher Priority” project list includes the recommended projects reasonably expected to be funded through 2035. These are the highest priority solutions to meet the City’s most important needs. These projects will inform the City’s yearly budget and 5-year Capital Improvement Plan (CIP). As shown in Table 5-1, the Higher Priority projects would cost a total of \$118.0 million, which is consistent with forecast available funding through 2035.

Figures 5-2 through 5-6 show locations of the projects, and corresponding project details are included in Tables 5-1 through 5-5 (project numbering is alphabetical). Some of the City’s Higher Priority projects are not associated with a specific location but instead will be applied citywide as needed. These projects are listed in Table 5-6. Additional project details are included in the appendix (where they are sorted by project type).

**Table 5-1. Higher Priority Project Costs<sup>a</sup>**

Project Type	2011 Cost Estimate
Roadway Extensions	\$55,255,000
Roadway Widening	\$19,500,000
Urban Upgrades	\$58,355,000
Spot Improvements	\$3,000,000
Standalone Bicycle and Pedestrian Improvements	\$15,520,000
Transit Improvements	\$500,000
<b>Total Higher Priority Project Costs</b>	<b>\$152,130,000</b>

<sup>a</sup> See Tables 5-2, 5-3, 5-4, 5-5, and 5-6 for individual

### PROJECT TYPES

**RE – Roadway Extensions (Multimodal Connectivity):**

New transportation facilities in Wilsonville will connect neighborhoods to one another and to other important destinations. Many of the bicycle and pedestrian improvements related to roadway extensions will fill important system gaps so that neighborhoods have improved non-motorized connectivity, while roadway extension projects are the key motor vehicle improvements that provide increased connectivity in Wilsonville. The roadway extensions help the City to meet the one-mile arterial and half-mile collector spacing standards, consistent with City and regional policy.

**RW – Roadway Widening (Capacity):** The roadway widening projects increase roadway capacity.

**UU – Urban Upgrades (Multimodal Connectivity and Safety):** The urban upgrade projects complete existing roadways, and often improve connectivity by adding bike lanes, sidewalks, and turn lanes that accommodate access to adjacent neighborhoods.

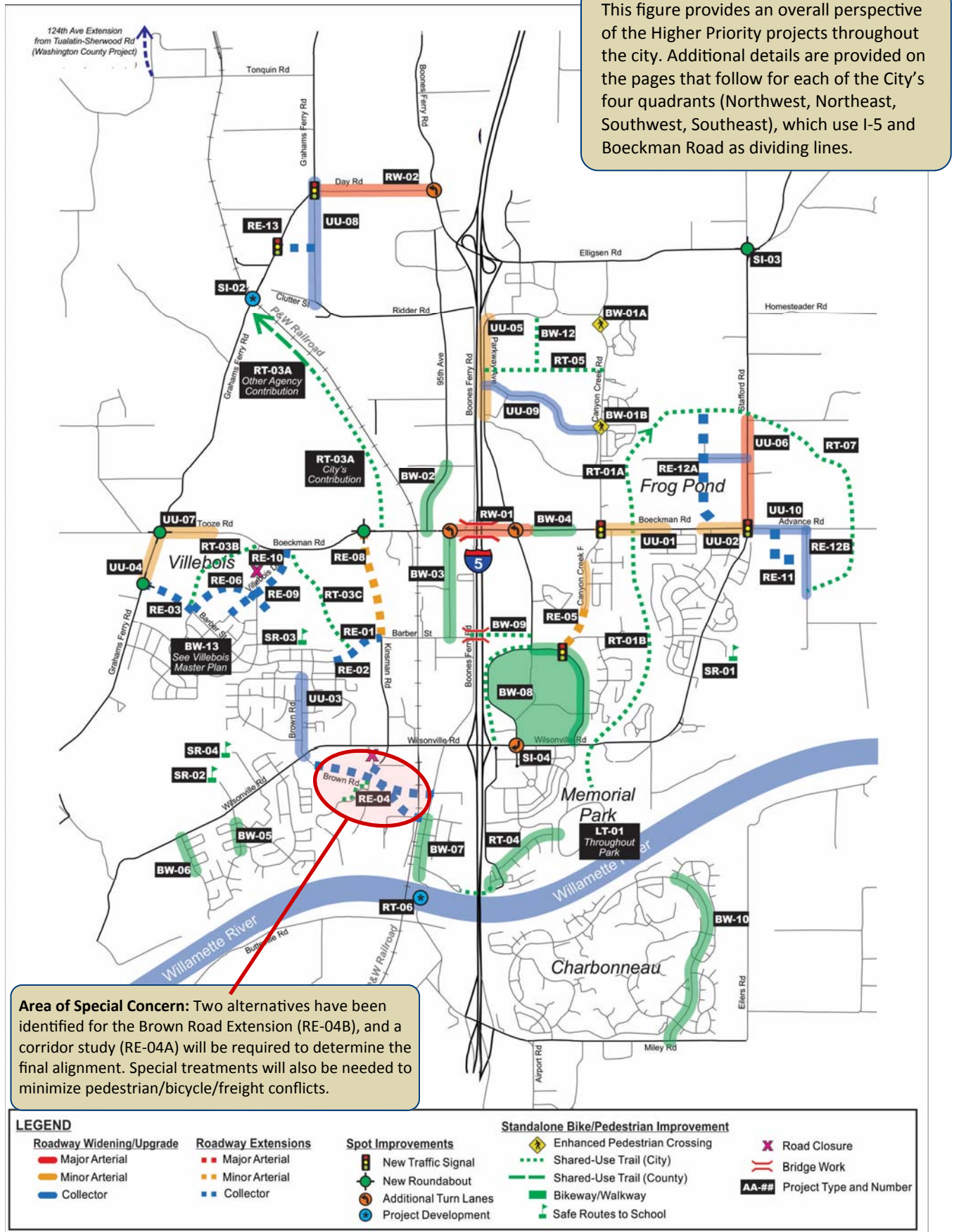
These projects improve the roadways to meet the City’s cross-section standards.

**SI – Spot Improvements (Transportation System Management and Operations):** Spot improvements consist of isolated intersection improvements and safety improvements throughout the city.

**BW, SR, LT, and RT – Standalone Bicycle and Pedestrian Improvements (Multimodal Connectivity and Safety):** While many bicycle and pedestrian facilities will be constructed as elements of roadway extension and widening projects, there are a number of projects that the City should construct separately or as part of future development. These include the highest priority bikeways/walkways (**BW**), Safe Routes to School projects (**SR**), local trails (**LT**), and regional trails (**RT**).

**TI – Transit Improvements:** Transit projects are needed throughout the city to provide bus stop amenities and improve bicycle and pedestrian access to

FIGURE 5-2. HIGHER PRIORITY PROJECTS

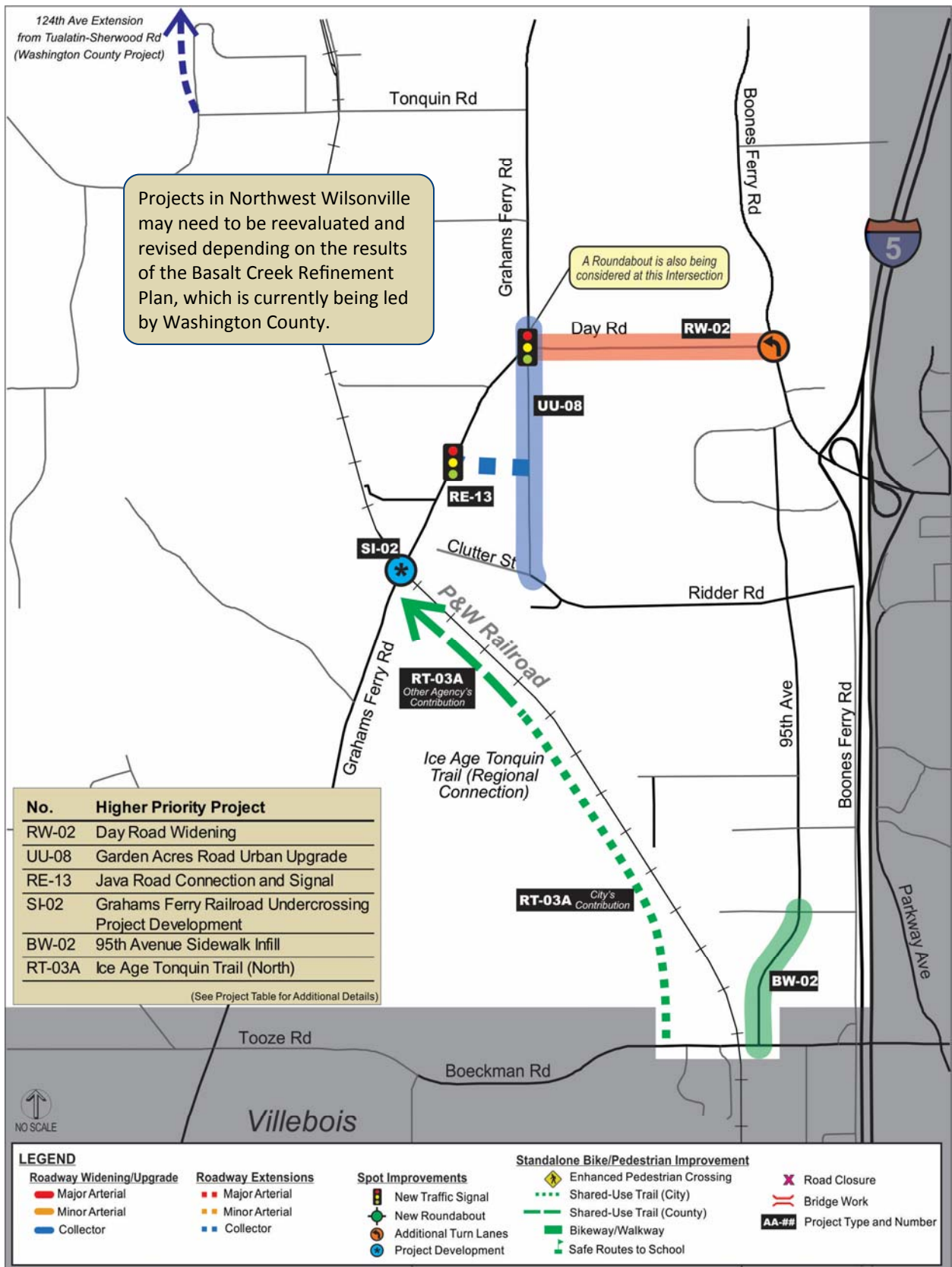




**Table 5-2. Higher Priority Projects (Northwest Quadrant)**

Project		Description	Cost
<b>Roadway Extensions</b>			
RE-13	Java Road Connection and Signal	Construct Java Road from Boones Ferry Road to Grahams Ferry Road and Garden Acres Road with a signal at the Java Road/Grahams Ferry Road intersection.	\$1,500,000
<b>Urban Upgrades</b>			
UU-08	Garden Acres Road Urban Upgrade	Upgrade Garden Acres Road to a three-lane collector with bicycle lanes and upgrade the Garden Acres Road/Day Road intersection to either a signal or a roundabout. Realign Ridder Road to Garden Acres Road. Close the existing Clutter Road connection to Grahams Ferry Road after completion of Project RE-13. Close the existing Coffee Creek Correctional Facility driveway to Grahams Ferry Road and relocate the driveway to Cahalin Road.	\$14,260,000
<b>Roadway Widening</b>			
RW-02	Day Road Widening	Widen Day Road from Boones Ferry Road to Grahams Ferry Road to include additional travel lanes in both directions along with bike lanes and sidewalks; project includes improvements at the Day Road/Boones Ferry Road intersection.	\$5,900,000
<b>Spot Improvements</b>			
SI-02	Grahams Ferry Railroad Undercrossing Project Development	Perform preliminary analysis to determine needs, feasibility, etc.	\$500,000
<b>Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)</b>			
BW-02	95th Avenue Sidewalk Infill	Fill in gaps in the sidewalk network on the east side of 95th Avenue from Boeckman Road to Hillman Court, and construct transit stop improvements.	\$85,000
<b>Standalone Pedestrian and Bicycle Improvements (Regional Trails)</b>			
RT-03A	Ice Age Tonquin Trail (North)	Construct sections of the Ice Age Tonquin Trail north of Boeckman Road; City to construct portion within City limits (approximately \$750,000) and coordinate portion farther north with Washington County and neighboring cities.	\$2,040,000 (Partial Regional funding)

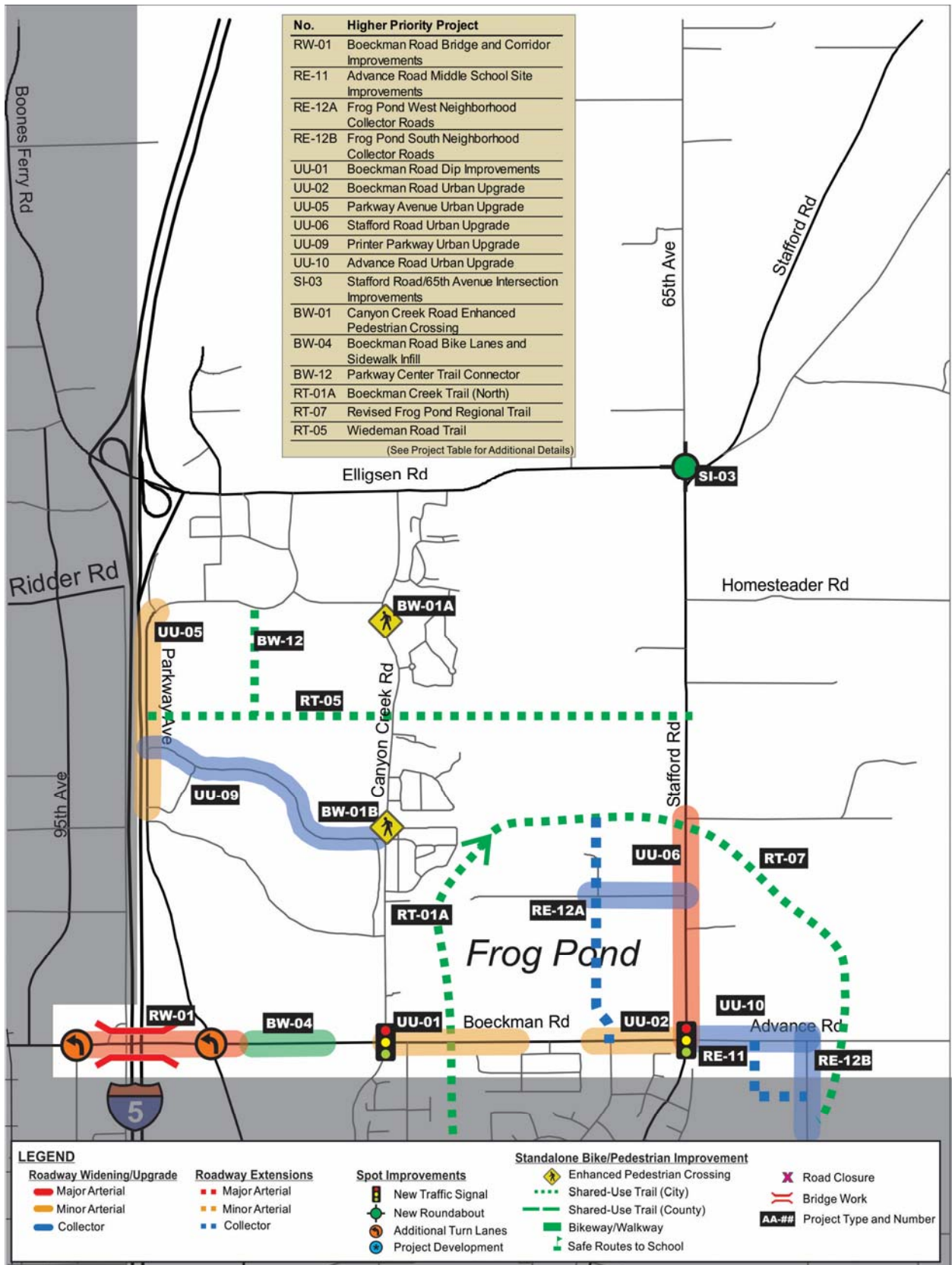
**FIGURE 5-3. HIGHER PRIORITY PROJECTS (NORTHWEST QUADRANT)**



**Table 5-3. Higher Priority Projects (Northeast Quadrant)**

Project	Description	Cost
<b>Roadway Extensions</b>		
RE-11 Advance Road Middle School Site Improvements	Construct the collector roadways and site improvements associated with the proposed Advance Road Middle School site	\$1,600,000
RE-12A Frog Pond West Neighborhood Collector Roads	Construct the collector roadways within the west neighborhood as identified in the Frog Pond Area Plan	\$9,510,000
RE-12B Frog Pond South Neighborhood Collector Roads	Construct the collector roadways within the south neighborhood as identified in the Frog Pond Area Plan	\$2,650,000
<b>Roadway Widening</b>		
RW-01 Boeckman Road Bridge and Corridor Improvements	Widen Boeckman Road from Boberg Road to 500 feet east of Parkway Avenue to include additional travel lanes in both directions along with bike lanes and sidewalks; project includes reconstruction of the bridge over I-5 and improvements at Boeckman Road/Boberg Road and Boeckman Road/Parkway Avenue intersections and adjacent transit stops	\$13,600,000
<b>Urban Upgrades</b>		
UU-01 Boeckman Road Dip Improvements	Upgrade at vertical curve east of Canyon Creek Road to meet applicable cross-section standards (i.e., 3 lanes with bike lanes, sidewalks, and transit stop improvements); options should also be considered to make connections to the regional trail system and to remove the culvert and install a bridge	\$12,220,000
UU-02 Boeckman Road Urban Upgrade	Upgrade to meet applicable cross-section standards (i.e., 3 lanes with bike lanes, sidewalks, and transit stop improvements); project includes a traffic signal or roundabout at the Boeckman Road-Advance Road/Stafford Road-Wilsonville Road Intersection	\$2,100,000
UU-05 Parkway Avenue Urban Upgrade	Upgrade to meet applicable cross-section standards (i.e., 3 lanes with bike lanes, sidewalks, and transit stop improvements)	\$5,000,000
UU-06 Stafford Road Urban Upgrade	Upgrade to meet applicable cross-section standards (i.e., 3 lanes with bike lanes, sidewalks, and transit stop improvements)	\$4,200,000
UU-09 Printer Parkway Urban Upgrade	Upgrade Printer Parkway to a three-lane collector with bicycle lanes and multiuse path	\$3,600,000
UU-10 Advance Road Urban Upgrade	Upgrade Advance Road to collector standards starting at Stafford Road to the proposed 63 <sup>rd</sup> Avenue (entrance to proposed Advance Road Middle School)	\$3,175,000
<b>Spot Improvements</b>		
SI-03 Stafford Road/65th Avenue Intersection Improvements	Improve turn radii, sight distance and grade differential by combining intersections as either a roundabout or traffic signal	\$2,000,000 (Partial County funding)
<b>Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)</b>		
BW-01 Canyon Creek Road Enhanced A/B Pedestrian Crossings	Install two new pedestrian crossings of Canyon Creek Road that include rectangular rapid flashing beacons (RRFBs), center pedestrian median island, signage, etc. (final locations to be determined)	\$130,000
BW-04 Boeckman Road Bike Lanes and Sidewalk Infill	Construct bike lanes (both sides of street) and sidewalks (south side of street) from Parkway Avenue to Canyon Creek Road	\$515,000
BW-12 Parkway Center Trail Connector	Construct shared-use path as development occurs; with connection to proposed regional trail (Wiedeman Road Trail) on the south	\$120,000
<b>Standalone Pedestrian and Bicycle Improvements (Regional Trails)</b>		
RT-01A Boeckman Creek Trail (North)	Construct north-south trail through east Wilsonville following Boeckman Creek, with connections to neighborhoods, parks, and intersecting roads (may need a boardwalk for various sections and would require a comprehensive public process)	\$850,000
RT-05 Wiedeman Road Trail	Construct east-west trail in north Wilsonville near the Xerox campus with City responsible for portion through developed land and future developer responsible for portion on future development site	\$340,000
RT-07 Revised Frog Pond Regional Trail	Construct the regional trail identified in the Frog Pond Area Plan	\$700,000

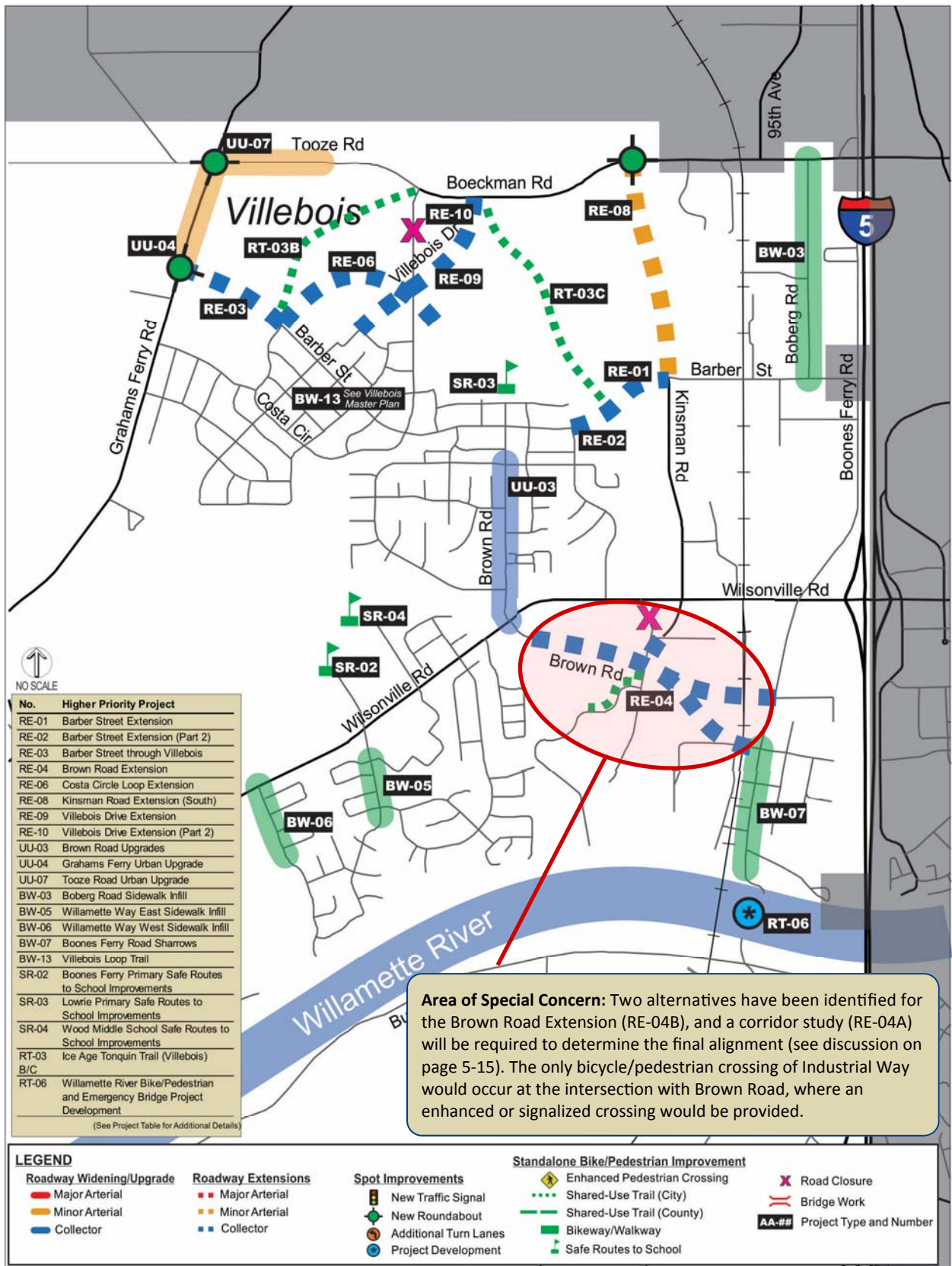
**FIGURE 5-4. HIGHER PRIORITY PROJECTS (NORTHEAST QUADRANT)**



**Table 5-4. Higher Priority Projects (Southwest Quadrant)**

Project		Description	Cost
<b>Roadway Extensions</b>			
RE-01	Barber Street Extension	Construct 2-lane roadway with bridge, bike lanes, sidewalks, and transit stop improvements from Kinsman Road to Coffee Lake Drive to facilitate access and circulation to WES Station and Villebois	\$8,315,000
RE-02	Barber Street Extension (Part 2)	Construct remaining 2-lane roadway with bike lanes, sidewalks, and transit stop improvements from Coffee Lake Drive to Montebello Drive to facilitate access and circulation to WES Station and Villebois	\$400,000
RE-03	Barber Street through Villebois	Construct remaining 2-lane roadway with bike lanes, sidewalks, and transit stop improvements from Monte Carlo Avenue to Grahams Ferry Road	\$520,000
RE-04A	Corridor Study for Brown Road Extension	Perform a corridor study to determine the recommended Brown Road extension alignment (i.e., connection at either Bailey Street or 5th Street)	\$20,000
RE-04B	Brown Road Extension	Construct remaining 2-lane roadway with bike lanes, sidewalks, and transit stop improvements from Wilsonville Road to Boones Ferry Road (connect at either Bailey Street or 5th Street); includes roadway connection to Kinsman Road (with bike lanes and sidewalks), portion of Ice Age Tonquin Trail connecting to trial terminus on Arrowhead Creek Lane, and Brown Road/Kinsman Road intersection	\$15,200,000
RE-06	Costa Circle Loop Extension	Construct remaining 2-lane roadway with bike lanes, sidewalks, and transit stop improvements from Barber Street to Villebois Drive to Mont Blanc Street	\$3,000,000
RE-08	Kinsman Road Extension (South)	Construct 2-lane roadway with bike lanes, sidewalks, and transit stop improvements from Barber Street to Boeckman Road; project also includes a roundabout at Kinsman Road/Boeckman Road intersection	\$8,400,000
RE-09	Villebois Drive Extension	Construct 2-lane roadway with bike lanes, sidewalks, and transit stop improvements from Costa Circle to Coffee Lake Drive	\$390,000
RE-10	Villebois Drive Extension (Part 2)	Construct 2-lane roadway with bike lanes, sidewalks, and transit stop improvements from Coffee Lake Drive to Boeckman Road	\$250,000
<b>Urban Upgrades</b>			
UU-03	Brown Road Upgrades	Upgrade to meet cross-section standards (i.e., 3 lanes with bike lanes, sidewalks, and transit stops)	\$3,500,000
UU-04	Grahams Ferry Urban Upgrade	Upgrade to meet cross-section standards (i.e., 3 lanes with bike lanes, sidewalks, and transit stop improvements); includes roundabout at Grahams Ferry Road/Barber Street intersection	\$2,400,000
UU-07	Tooze Road Urban Upgrade	Upgrade to meet cross-section standards (i.e., 3 lanes with bike lanes, sidewalks, and transit stop improvements); includes roundabout at Grahams Ferry Road/Tooze Road intersection	\$7,900,000
<b>Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)</b>			
BW-03	Boberg Road Sidewalk Infill	Fill in gaps in the sidewalk network on the east side of the roadway from Boeckman Road to Barber Street, and construct transit stop improvements	\$375,000
BW-05	Willamette Way East Sidewalk Infill	Fill in gaps in the sidewalk network on the west side of the roadway from Chantilly to south of Churchill (part of Ice Age Tonquin Trail)	\$50,000
BW-06	Willamette Way West Sidewalk Infill	Construct a new sidewalk on west side of the roadway from Wilsonville Road to Paulina Drive	\$50,000
BW-07	Boones Ferry Road Sharrows	Stripe sharrows (shared travel lanes) from 5th Street to Boones Ferry Park; this will connect Ice Age Tonquin Trail (once the portion along the Brown Road Extension is completed) to Waterfront Trail	\$5,000
BW-13	Villebois Loop Trail	Construct shared-use path as part of Villebois development; include connections to Villebois Greenway, the Ice Age Tonquin Trail, and the Village Center	\$180,000
<b>Standalone Pedestrian and Bicycle Improvements (Safe Routes to School)</b>			
SR-02	Boones Ferry Primary Safe Routes to School Improvements	Construct shared-use path between Boones Ferry Primary and Wood Middle School, a bicycle parking shelter near the school, and a shared-use path connecting the bicycle shelter to the sidewalks along Wilsonville Road	\$200,000
SR-03	Lowrie Primary Safe Routes to School Improvements	Construct shared-use path from existing connection of Lowrie Primary School to Barber Street as part of Villebois development; include connections to new school, Ice Age Tonquin Trail, and Barber Street To future connections	\$150,000
SR-04	Wood Middle School Safe Routes to School Improvements	Construct a bicycle parking shelter near the school and a shared-use path connecting the bicycle shelter to the sidewalks along Wilsonville Road; also widen and stripe the Park at Merryfield Trail, which connects Wood Middle School to Camelot Street to the north	\$150,000
<b>Standalone Pedestrian and Bicycle Improvements (Regional Trails)</b>			
RT-03	Ice Age Tonquin Trail B/C (Villebois)	Construct the remaining sections of the Ice Age Tonquin Trail within Villebois Village in conjunction with development and adjacent roadway improvements	\$560,000
RT-06	Willamette River Bike/Pedestrian and Emergency Bridge Project Development	Perform feasibility study and project development for bike/pedestrian/emergency bridge over the Willamette River to provide a non-motorized alternative to the I-5 freeway deck	\$1,380,000 (Partial Regional funding)

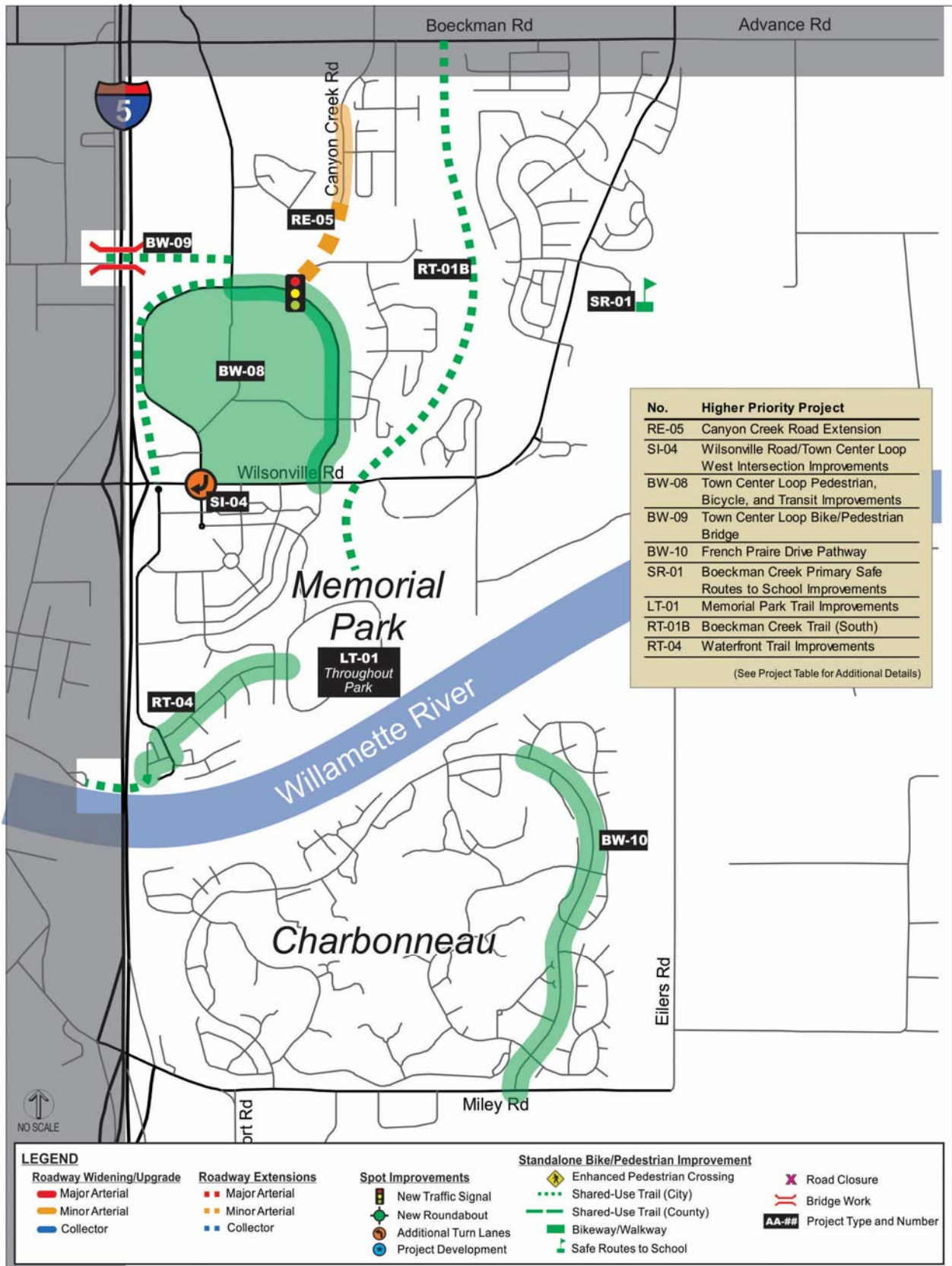
**FIGURE 5-5. HIGHER PRIORITY PROJECTS (SOUTHWEST QUADRANT)**



**Table 5-5. Higher Priority Projects (Southeast Quadrant)**

Project	Description	Cost
<b>Roadway Extensions</b>		
RE-05 Canyon Creek Road Extension	Construct remaining 3-lane roadway with bike lanes, sidewalks, and transit stop improvements from existing terminus to Town Center Loop East; project also includes realigning a portion of Vlahos Drive (so it intersects Canyon Creek Road) and installing a traffic signal at the Town Center Loop East/Canyon Creek Road intersection	\$3,500,000
<b>Spot Improvements</b>		
SI-04 Wilsonville Road/Town Center Loop West Intersection Improvements	Widen the north leg of the intersection and install a second southbound right-turn lane (dual lanes)	\$500,000
<b>Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)</b>		
BW-08 Town Center Loop Pedestrian, Bicycle, and Transit Improvements	Create more direct connections between destinations within Town Center area, improve accessibility to civic uses and transit stops, retrofit sidewalks with curb ramps, highlight crosswalks with colored pavement, and construct other similar treatments that support pedestrian, bicycle, and transit access and circulation; also construct shared-use path along Town Center Loop West from Wilsonville Road to Parkway Avenue and restripe Town Center Loop East from Wilsonville Road to Parkway Avenue to a three-lane cross-section with bike facilities	\$500,000
BW-09 Town Center Loop Bike/Pedestrian Bridge	Construct bike/pedestrian bridge over I-5 approximately aligned with Barber Street to improve connectivity of Town Center area with businesses and neighborhoods on west side of I-5; include aesthetic design treatments	\$4,000,000
BW-10 French Prairie Drive Pathway	Construct 10-foot wide shared-use path along French Prairie Drive from Country View Lane to Miley Road or reconfigure existing roadway to remove a travel lane in each direction and add bicycle and pedestrian facilities	\$1,140,000
<b>Standalone Pedestrian and Bicycle Improvements (Safe Routes to School)</b>		
SR-01 Boeckman Creek Primary Safe Routes to School Improvements	Construct a bicycle parking shelter near the school and a new 10 to 12-foot bike path on the south side of the existing sidewalk that meanders south of the tree line and connects to the existing marked crosswalk near the school parking lot	\$65,000
<b>Standalone Pedestrian and Bicycle Improvements (Local Trails)</b>		
LT-01 Memorial Park Trail Improvements	Construct trails throughout Memorial Park, including the Memorial Park Center Loop Trail, the River Trail, Kolbe Homestead Trail, and Klein Homestead Trail	\$595,000
<b>Standalone Pedestrian and Bicycle Improvements (Regional Trails)</b>		
RT-01B Boeckman Creek Trail (South)	Construct north-south trail through east Wilsonville following Boeckman Creek, with connections to neighborhoods, parks, and intersecting roads (may need a boardwalk for various sections and would require a comprehensive public process)	\$1,150,000 (Partial Regional funding)
RT-04 Waterfront Trail Improvements	Improve the condition of the shared-use path as it passes underneath the I-5 Boone Bridge by removing the Jersey barriers, installing bollards, widening the trail, adding appropriate pedestrian features such as benches and lighting, and altering the grade of the path underneath the underpass to make it more easily accessible	\$125,000

**FIGURE 5-6. HIGHER PRIORITY PROJECTS (SOUTHEAST QUADRANT)**





**Table 5-6. Higher Priority Projects (Citywide)**

Project	Description	Cost
<b>Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)</b>		
BW-14 Wayfinding Signage	Provide bicycle, pedestrian, and transit wayfinding signage directing users to/from the Ice Age Tonquin Trail, the SMART and WES transit center, and other points of interest throughout the city	\$65,000
<b>Transit Improvements</b>		
TI-01 Pedestrian Access to Transit	Construct sidewalk and curb ramp improvements at SMART stops throughout the city to meet ADA requirements, create safe street crossings, and connect new development with transit (includes retrofits at substandard stops)	\$200,000
TI-02 Transit Street Improvements	Widen roadways or construct sidewalk extensions on a case-by-case basis to improve transit on-time performance and passenger/pedestrian safety; may involve on-site bus turnarounds with property owner approval	\$300,000

Table 5-7 provides a side-by-side comparison of the estimated funding sources available and how much they would contribute to the Higher Priority projects. Additional cost information is provided in the

appendix. The planning level project costs are intended to cover a moderate level of unanticipated costs that may arise at the time the projects are constructed.

**Table 5-7. Higher Priority Project Funding Sources and Contributions**

Project Type	Capital Improvement Funding Estimates through 2035	
	Approximate Funding Available	Contributions to Higher Priority Projects
Street System Development Charges (SDCs)	\$72 million	\$68.6 million
West Side Plan – Urban Renewal District	\$27 million	\$26.6 million
Year 2000 Plan – Urban Renewal District	\$5 million	\$3.5 million
Park System Development Charges (SDCs)	\$0.7 million <sup>a</sup>	\$0.7 million
Local/Regional Partnerships	\$2.9 million <sup>a</sup>	\$2.9 million
Grants	\$3.2 million <sup>a</sup>	\$3.2 million
State and Federal Funding	\$12.6 million <sup>a</sup>	\$12.6 million
<b>Total</b>	<b>\$123.4 million<sup>a</sup></b>	<b>\$118.1 million</b>

<sup>a</sup> The approximate funding levels estimated for various sources were considered to be equal to the contributions due to the prior experience of how the City has been able to fund transportation projects. If the City is unable to obtain local/regional partnerships, grants, and/or state and federal funding, then the associated projects that assume these funding sources may have to be put on hold until other funding becomes available.

## BROWN ROAD EXTENSION ALTERNATIVES

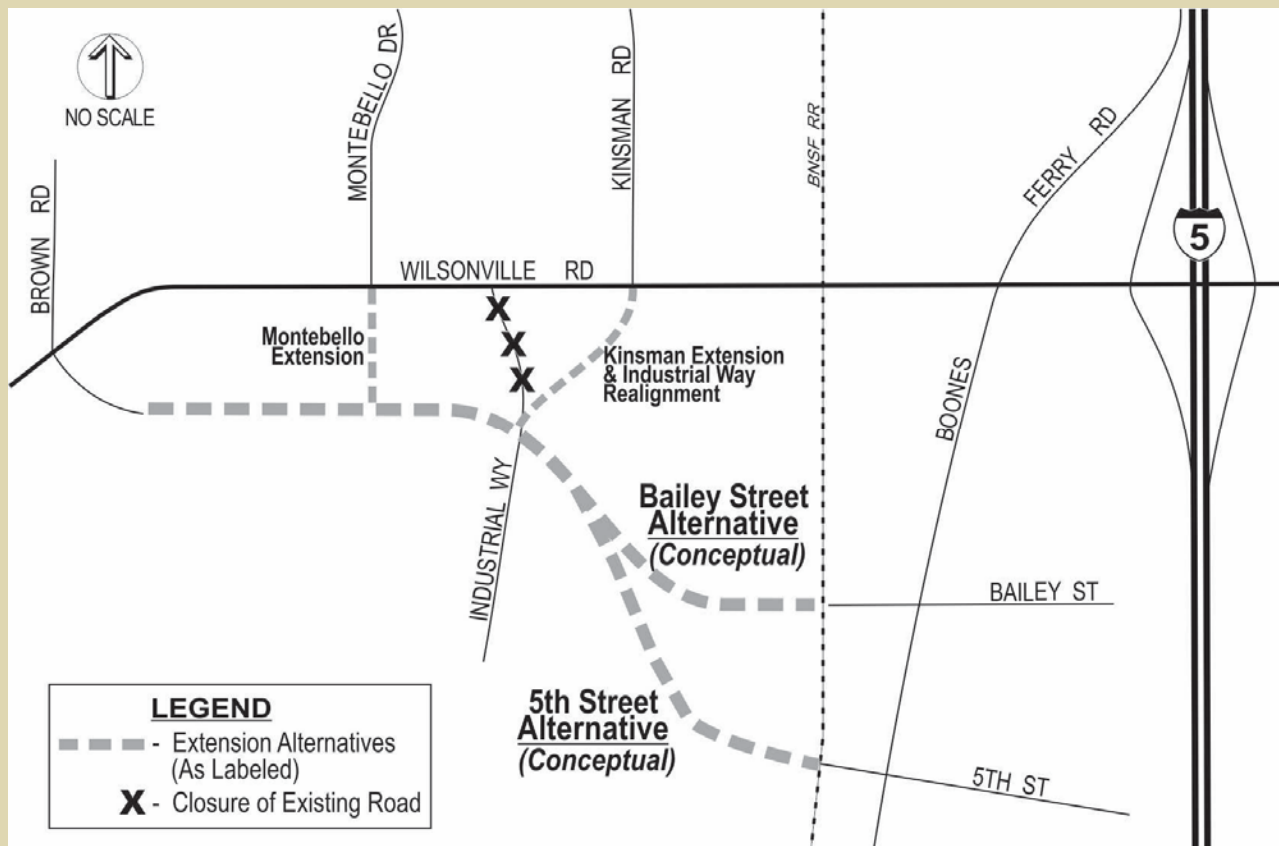
From a transportation planning standpoint, both Brown Road extension alternatives would provide comparable benefits to the transportation network. Selection of an alignment should be made during or prior to the master planning process for the large area south of Wilsonville Road and west of the railroad tracks.

The following factors should be considered as part of selecting a future alignment:

- Access
- Bicycle and pedestrian network connections
- Environmental impacts
- Freight benefits/impacts
- Future development plans and land use changes in the two areas most impacted by

the roadway extension: (1) west of the railroad tracks south of Wilsonville Road and (2) in Old Town, specifically along Boones Ferry Road

- Motor vehicle capacity
- Neighborhood/commercial connectivity
- Private property impacts
- Project costs
- Public input
- Railroad crossings
- Small business impacts
- Timing
- Traffic diversion
- Water and sewer utility issues



## ADDITIONAL PLANNED PROJECTS

The “Additional Planned” project list includes those projects that would contribute to the City’s desired transportation system through 2035 but that were not included as “Higher Priority” projects due to estimated funding limitations. This list represents a coordinated transportation network and adequate facilities to serve the community through 2035.

The State stipulates that projects listed in the TSP form the legal basis for exacting developer-provided improvements. Together, the “Higher Priority” and “Additional Planned” project lists document all the City’s desired projects so that it is clear what improvements are needed to ensure that the City’s transportation network fully supports its continued growth.

Even though the City should primarily focus on the projects included in the Higher Priority Solutions Package, it should look for opportunities to pursue these remaining projects as funding opportunities become available, including grant funding.

As shown in Table 5-8, the “Additional Planned” projects would cost a total of \$100.1 million. Figures 5-7 through 5-11 show locations of the projects, and corresponding project details are included in Tables 5-8 through 5-12. Some of the City’s Additional Planned projects are not associated with a specific location but instead will be applied citywide as needed. These projects are listed in Table 5-13.

**Table 5-8. Additional Planned Project Costs<sup>a</sup>**

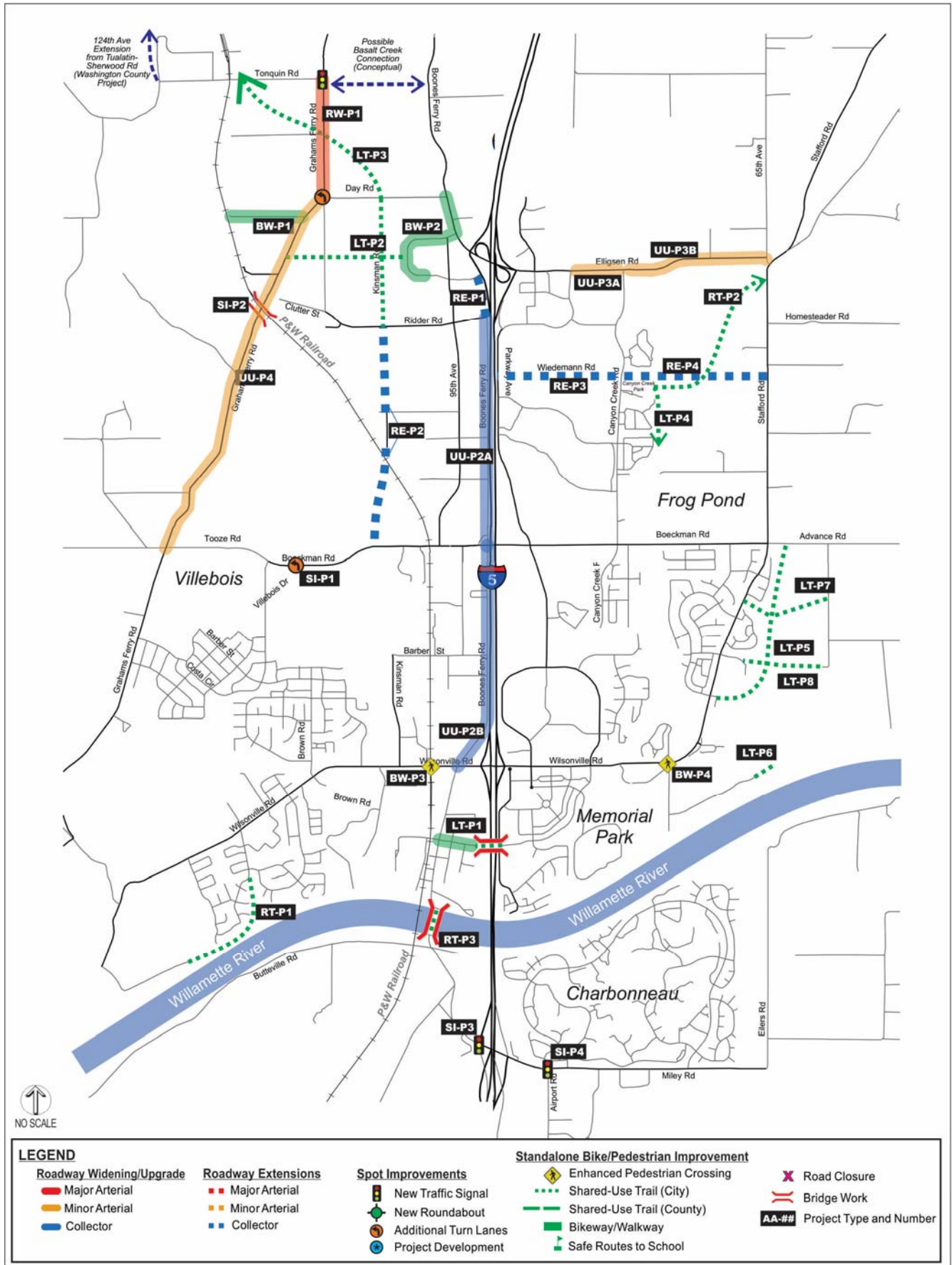
Project Type	2011 Cost Estimate
Roadway Extensions	\$27,200,00
Roadway Widening	\$7,000,000
Urban Upgrades	\$19,800,000
Spot Improvements	\$6,500,000
Standalone Bicycle and Pedestrian Improvements	\$25,610,000
Transit Improvements	\$14,450,000
<b>Total Additional Planned Project Costs</b>	<b>\$100,560,000</b>

<sup>a</sup> See Tables 5-9, 5-10, 5-11, 5-12, and 5-13 for individual project costs.



*Trees provide an aesthetically pleasing environment and shade along a street in Charbonneau, a private planned community in Wilsonville surrounding a 27-hole golf course. Because Charbonneau is on the southern bank of the Willamette River, it is separated from the remainder of the city and would benefit from a dedicated bicycle and pedestrian bridge.*

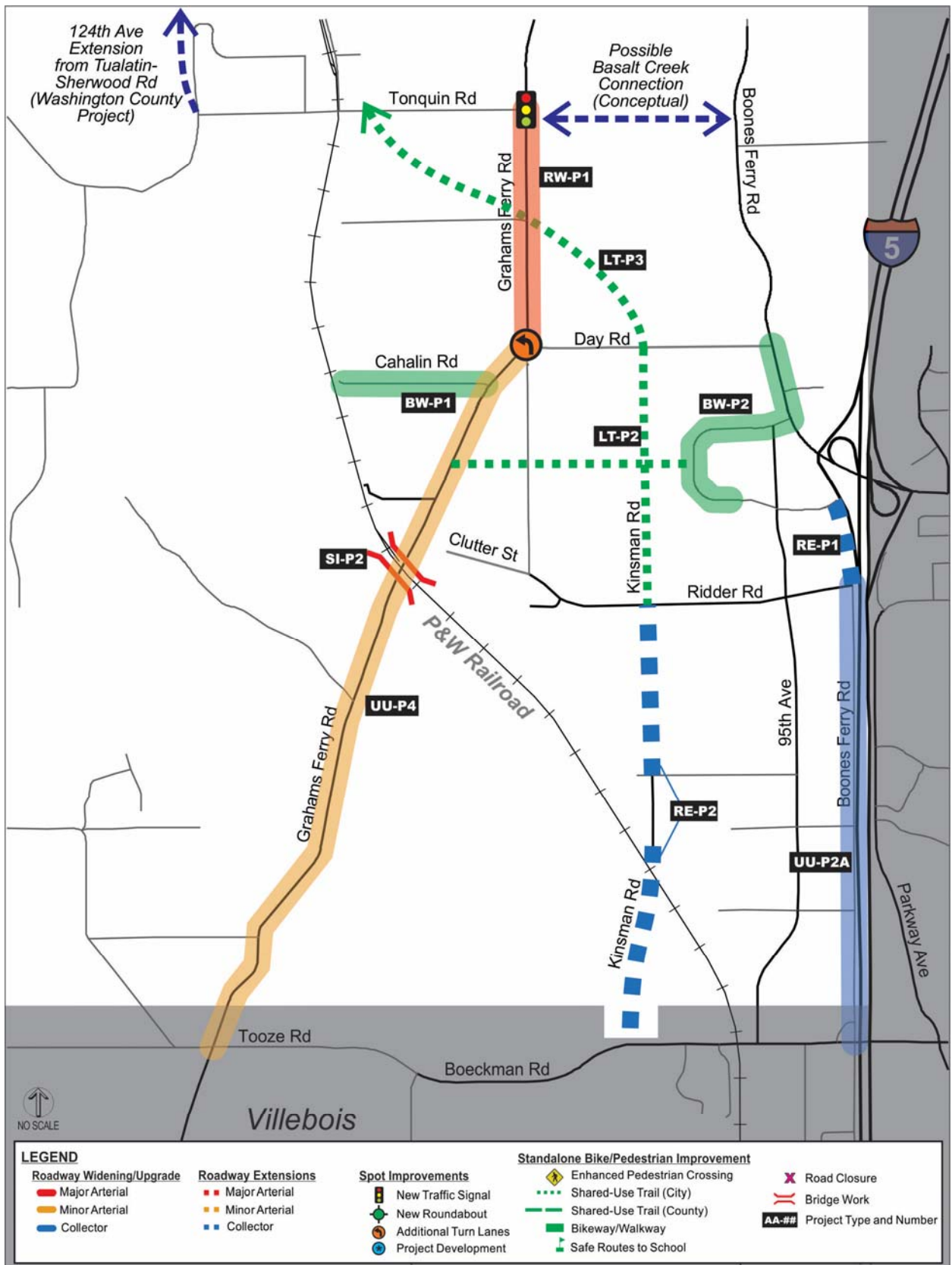
FIGURE 5-7. ADDITIONAL PLANNED PROJECTS



**Table 5-9. Additional Planned Projects (Northwest Quadrant)**

Project	Description	Why Not Higher Priority?	Cost
<b>Roadway Extensions</b>			
RE-P1 Boones Ferry Road Extension	Construct 2-lane roadway from Ridder Road to Commerce Circle with bike lanes, sidewalks, and transit improvements to facilitate access and circulation in the area surrounding Ridder Road and 95th Avenue	Identified as potentially helpful freight connection, but not a critical need at this time	\$2,100,000
RE-P2 Kinsman Road Extension (Central)	Construct 2/3-lane roadway from Boeckman Road to Ridder Road with bike lanes and sidewalks	High cost due to grade-separated RR crossing and construction across Metro lands; alternative route (95th Avenue) is available	\$12,000,000
<b>Roadway Widening</b>			
RW-P1 Grahams Ferry Road Widening	Widen Grahams Ferry Road from Tonquin Road to Day Road to four lanes with bike lanes, sidewalks, and transit improvements; acquire the full five-lane right-of-way width to accommodate future left-turn lanes; also provide additional left-turn lanes at Tonquin Road and Day Road intersections	Located within Washington County and is only needed under certain scenarios of the pending Basalt Creek Refinement Plan	\$7,000,000
<b>Urban Upgrades</b>			
UU-P2A Boones Ferry Road Urban Upgrade	Upgrade Boones Ferry Road from Wilsonville Road to Ridder Road with bike lanes on both sides and sidewalks on west side only	High cost with limited connectivity benefit alternative parallel routes exist	\$5,900,000
UU-P4 Grahams Ferry Road Urban Upgrade	Upgrade Grahams Ferry Road from Day Road to Tooze Road to meet applicable cross-section standards (i.e., 3 lanes with bike lanes, sidewalks, and transit improvements)	Grahams Ferry Road is primarily a rural road and Ice Age Tonquin Trail is a preferred option for providing north-south connection through this part of Wilsonville	\$2,000,000
<b>Spot Improvements</b>			
SI-P2 Grahams Ferry Road Undercrossing Improvements at Railroad Bridge	Reconstruct existing railroad under-crossing to City of Wilsonville Minor Arterial standards; Higher Priority project list includes project development portion of this project (costs are separate)	Located within Washington County jurisdiction, and it is an important safety-related project with particular benefits for freight travel; however, it comes with high cost and freight traffic has alternate travel routes	\$4,500,000
<b>Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)</b>			
BW-P1 Cahalin Road Bike Lanes and Sidewalks	Construct bike lanes and sidewalks from Kinsman Road extension to Ice Age Tonquin Trail	High cost due to railroad crossing barrier	\$700,000
BW-P2 Commerce Circle Loop and Boones Ferry Road Sidewalk Infill	Fill in gaps in the sidewalk network on Commerce Circle Loop and Boones Ferry Road	Industrial area with no connectivity to other facilities	\$150,000
<b>Standalone Pedestrian and Bicycle Improvements (Local Trails)</b>			
LT-P2 Area 42 Trail	Shared Use Path from Kinsman Road to Day Road	To be constructed as Coffee Lake Creek Master Plan Area Redevelops	\$220,000
LT-P3 BPA Power Line Trail	Shared Use Path from Day Road to Ice Age Tonquin Trail providing trail users to City's northern industrial area	Ice Age Tonquin Trail provides key connection to north (more critical when Coffee Lake Creek develops)	\$500,000

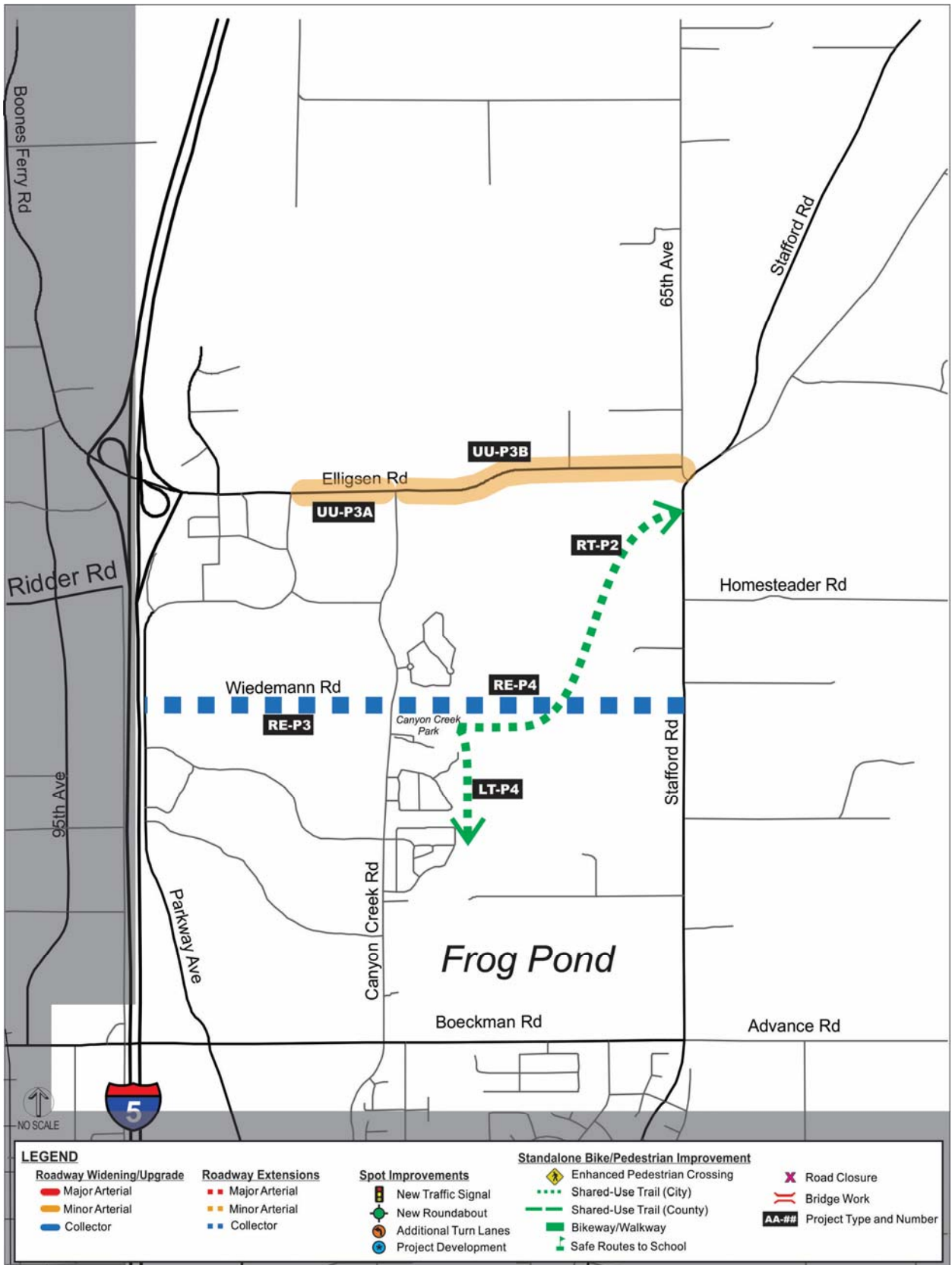
**FIGURE 5-8. ADDITIONAL PLANNED PROJECTS (NORTHWEST QUADRANT)**



**Table 5-10. Additional Planned Projects (Northeast Quadrant)**

Project		Description	Why Not Higher Priority?	Cost
<b>Roadway Extensions</b>				
RE-P3	Wiedeman Road Extension (West)	Construct 2/3-lane roadway from Parkway Avenue to Canyon Creek Road with bike lanes and sidewalks	Limited impact on system capacity; money better spent upgrading Boeckman Road and Elligsen Road	\$4,300,000
RE-P4	Wiedeman Road Extension (East)	Construct 2/3-lane roadway from Canyon Creek Road to Stafford Road with bike lanes and sidewalks; would require construction over Boeckman Creek	Only needed with future development on land east of Canyon Creek Road; costly (especially over wetlands) and has limited impact on system capacity; and money better spent upgrading Boeckman Road and Elligsen Road	\$8,800,000
<b>Urban Upgrades</b>				
UU-P3 A/B	Elligsen Road Urban Upgrade	Upgrade Elligsen Road from Parkway Center to Stafford Road to meet applicable cross-section standards including bike lanes, sidewalks, and transit improvements	Much of the land is in Clackamas County; significant slopes from Parkway Center Drive to Canyon Creek Road would likely require retaining walls (higher costs) and large oak trees would be impacted	\$6,000,000 (Partial Federal funding)
<b>Standalone Pedestrian and Bicycle Improvements (Local Trails)</b>				
LT-P4	Canyon Creek Trail	Shared Use Path from Canyon Creek Park to Boeckman Creek Trail providing connectivity to neighborhoods to the south	Low priority as it needed after the Boeckman Creek Trail is constructed	\$200,000
<b>Standalone Pedestrian and Bicycle Improvements (Regional Trails)</b>				
RT-P2	Stafford Spur Trail	Shared-Use Path from Canyon Creek Park to Stafford Road	High cost project that provides limited connectivity to land uses in Clackamas County	\$1,640,000

**FIGURE 5-9. ADDITIONAL PLANNED PROJECTS (NORTHEAST QUADRANT)**

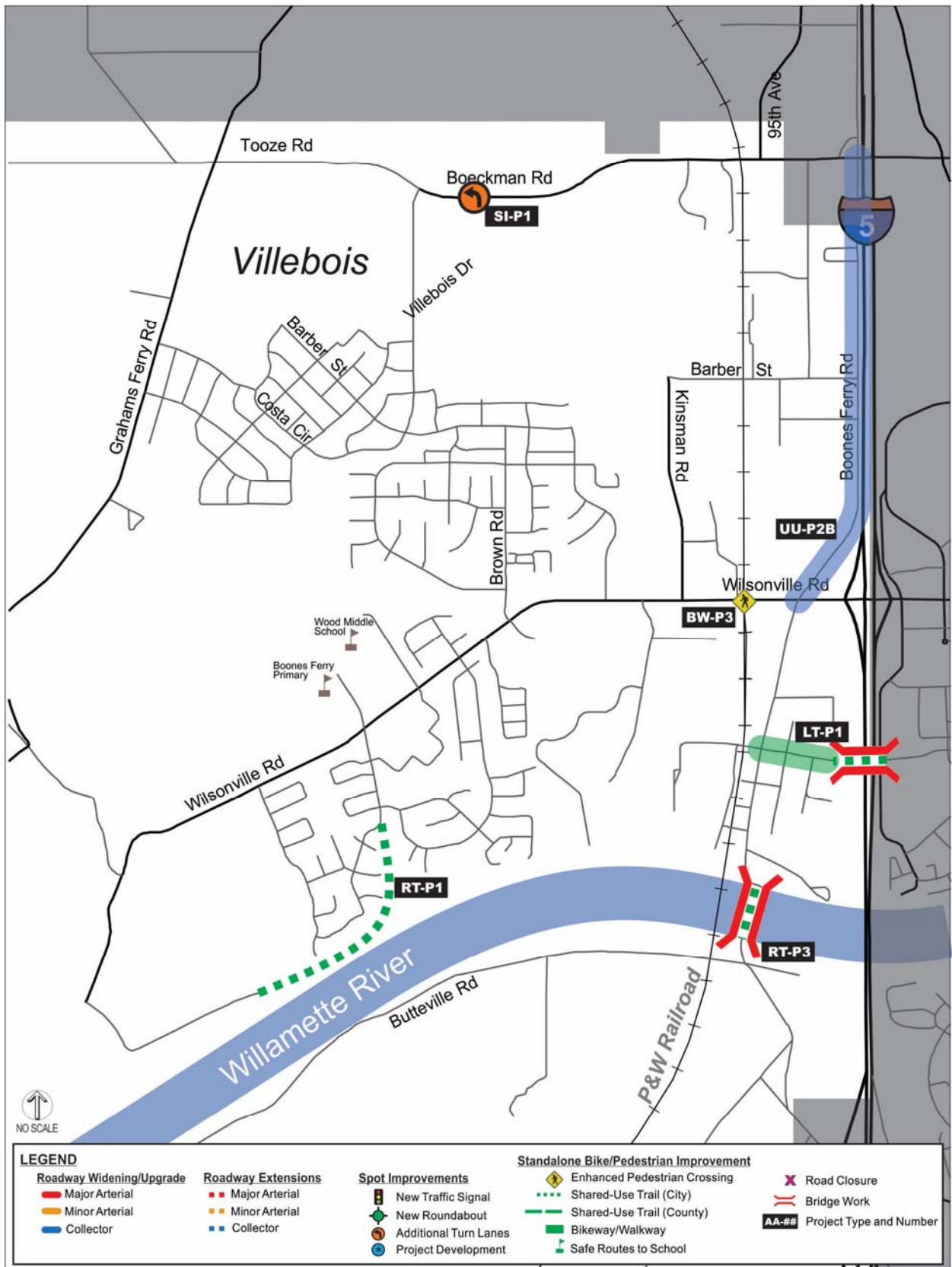




**Table 5-11. Additional Planned Projects (Southwest Quadrant)**

Project	Description	Why Not Higher Priority?	Cost
<b>Urban Upgrades</b>			
UU-P2B Boones Ferry Road Urban Upgrade	Upgrade Boones Ferry Road from Wilsonville Road to Ridder Road with bike lanes on both sides and sidewalks on west side only	High cost with limited additional connectivity benefits due to alternative parallel routes (i.e., Kinsman Road extension); project would become more beneficial once bike and pedestrian bridge is built over I-5 connecting Barber Street to Town Center Loop West	\$5,900,000
<b>Spot Improvements</b>			
SI-P1 Boeckman Road/Villebois Drive Roundabout Widening	Expand roundabout by adding a westbound slip lane to accommodate two westbound travel lanes on Boeckman Road	Potential improvement need expected to be triggered by future regional traffic traveling east-west through Wilsonville	\$500,000
<b>Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)</b>			
BW-P3 Wilsonville Road Enhanced Pedestrian Crossing at Railroad Track	Install new pedestrian crossing adjacent to the railroad tracks that includes rectangular rapid flashing beacons (RRFBs), center pedestrian median island, signage, etc.	Not critical until land south of Wilsonville Road Develops	\$70,000
<b>Standalone Pedestrian and Bicycle Improvements (Local Trails)</b>			
LT-P1 5th Street Bike/Pedestrian Bridge and Connections	Construct bike/pedestrian bridge over I-5 approximately aligned with 5 <sup>th</sup> Street; also construct bike lanes and sidewalks on 5 <sup>th</sup> Street connecting the new bridge to Boones Ferry Road	High cost and recent improvements to Wilsonville Road Interchange have improved East/West pedestrian connectivity	\$6,400,000
<b>Standalone Pedestrian and Bicycle Improvements (Regional Trails)</b>			
RT-P1 Rivergreen Trail	Natural Trail from Ice Age Tonquin Trail/SW Willamette Way to Waterfront Trail	Low priority as it is needed after other critical trail and pathway connections are completed (i.e. Ice Age Tonquin Trail)	\$260,000
RT-P3 Willamette River Bike/Pedestrian and Emergency Bridge	Construct bridge over Willamette River for bike, pedestrian, and emergency access to provide an alternative to the I-5 freeway deck; Higher Priority project list includes project development portion of this project (costs are separate)	High cost; next step is to determine feasibility within planning horizon	\$14,000,000

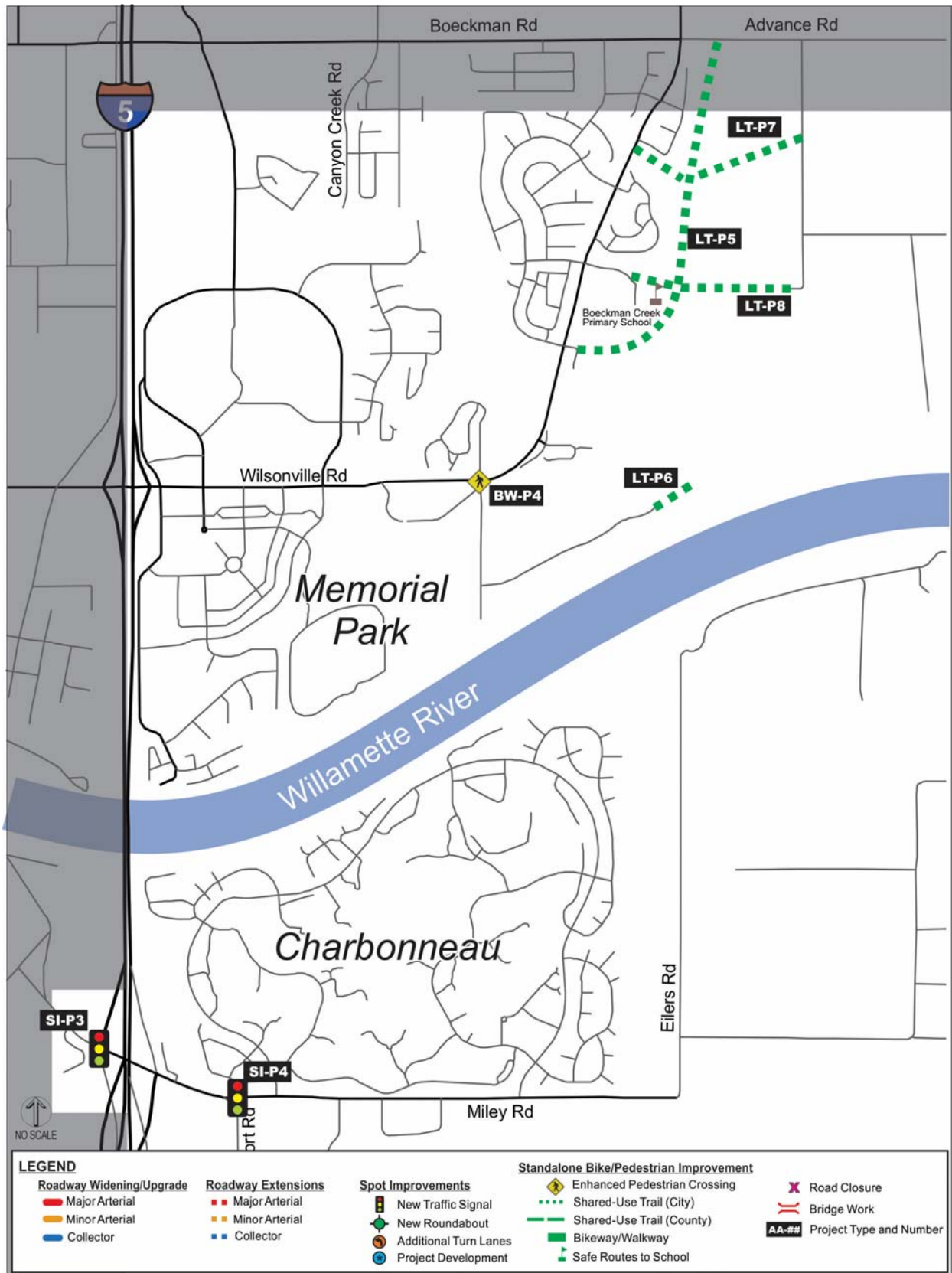
**FIGURE 5-10. ADDITIONAL PLANNED PROJECTS (SOUTHWEST QUADRANT)**



**Table 5-12. Additional Planned Projects (Southeast Quadrant)**

Project	Description	Why Not Higher Priority?	Cost	
<b>Spot Improvements</b>				
SI-P3	Miley Road/I-5 Southbound Ramp Improvements	Install traffic signal and southbound left-turn lane	Outside City's jurisdiction (ODOT facility) and no future Wilsonville growth expected; improvement needs would be triggered primarily by regional traffic	\$750,000
SI-P4	Miley Road/Airport Road Intersection Improvements	Install traffic signal and northbound left-turn lane	Outside City's jurisdiction (Clackamas County facility) and no future Wilsonville growth expected; improvement needs would be triggered primarily by regional traffic	\$750,000
<b>Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)</b>				
BW-P4	Wilsonville Road Enhanced Pedestrian Crossing at Rose Lane	Install new pedestrian crossing adjacent to Rose Lane and nearby transit stops; potential crossing treatments include, but are not limited to, rectangular rapid flashing beacons (RRFBs), signage, etc.	Crossing need at this location is considered low at this time, and there is an existing pedestrian crossing and flasher to the west at Kolbe Lane that provides more direct access to Memorial Park and the Boeckman Creek Trail	\$50,000
<b>Standalone Pedestrian and Bicycle Improvements (Local Trails)</b>				
LT-P5	New School Site Trail	Shared Use Path from Boeckman Creek Elementary School to planned school and park site, with possible connections to adjacent neighborhoods	Medium priority due to existing connections; will become important when school and park are constructed	\$700,000
LT-P6	Park Access Trail	Low Volume Roadway accessed from Montgomery Way; would require extensive public process	Lower priority until after other critical trail and pathway connections are completed	\$20,000
LT-P7	School Connection Trail	Construct the School Connection Trail identified in the Frog Pond Area Plan	Medium priority due to existing connections; will become important when school and park are constructed	\$460,000
LT-P8	60 <sup>th</sup> Avenue Trail	Construct the 60 <sup>th</sup> Avenue Trail identified in the Frog Pond Area Plan	Medium priority due to existing connections; will become important when school and park are constructed	\$240,000

**FIGURE 5-11. ADDITIONAL PLANNED PROJECTS (SOUTHEAST QUADRANT)**



**Table 5-13. Additional Planned Projects (Citywide)**

Project		Description	Why Not Higher Priority?	Cost
<b>Spot Improvements</b>				
TI-P1	Bus Stop Amenities	Install bus shelters, benches, and bus seat poles on a case-by-case basis as needs are identified and funds are available	Funding has not been identified	\$450,000
TI-P2	SMART Buses	Replace old buses; also outfit each bus with a tracking system and provide real-time display boards at the SMART Central station and other key routes	Funding has not been identified	\$14,000,000

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*“It is very important we prepare now so that we don’t have congestion in the future—or can at least manage the congestion. We can also prepare for connectivity so we can get places conveniently.”*

*Nancy Kraushaar  
 Community Development Director*

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TSP Amendment  
Attachment D

**PLANNING COMMISSION  
RESOLUTION NO. LP16-0001**

**A WILSONVILLE PLANNING COMMISSION RESOLUTION RECOMMENDING THAT THE WILSONVILLE CITY COUNCIL ADOPT AN ORDINANCE APPROVING MINOR AMENDMENTS TO WILSONVILLE'S 2013 TRANSPORTATION SYSTEM PLAN (TSP).**

WHEREAS, the City of Wilsonville desires to use best professional practices to ensure land development contributes to creating a safe and attractive transportation network that supports Wilsonville's economy and quality of life; and

WHEREAS, the City of Wilsonville adopted the 2013 Transportation System Plan on June 17, 2013; and

WHEREAS, the Wilsonville Planning Commission held a work session on March 9, 2016 to discuss and take public testimony concerning proposed revisions to Wilsonville's 2013 Transportation System Plan (TSP); and

WHEREAS, the Wilsonville Planning Director, taking into consideration input and suggested revisions provided by the Planning Commission members and the public, submitted proposed minor amendments to Wilsonville's 2013 Transportation System Plan (TSP) to the Planning Commission, along with a Staff Report, in accordance with the public hearing and notice procedures that are set forth in Sections 4.008, 4.010, 4.011 and 4.012 of the Wilsonville Code (WC); and

WHEREAS, the Planning Commission, after Public Hearing Notices were provided to property owners, a list of affected agencies, interested parties, and were posted at three City owned properties, in the local newspaper, and on the City website, held a Public Hearing on April 13, 2016 to review proposed minor amendments to Wilsonville's 2013 Transportation System Plan (TSP) and to gather additional testimony and evidence regarding the proposal; and

WHEREAS, the Planning Commission has afforded all interested parties an opportunity to be heard on this subject and has entered all available evidence and testimony into the public record of their proceeding; and

WHEREAS, the Planning Commission has duly considered the subject, including the staff recommendations and all the exhibits and testimony introduced and offered by all interested parties.

NOW, THEREFORE, BE IT RESOLVED that the Wilsonville Planning Commission does hereby adopt the Staff Report, as presented at the April 13, 2016 public hearing, including the findings and recommendations contained therein and does hereby recommend to the Wilsonville City Council approval of the proposed minor amendments; and

BE IT RESOLVED that this Resolution shall be effective upon adoption.

TSP Amendment  
Attachment D

ADOPTED by the Planning Commission of the City of Wilsonville at a regular meeting thereof this 13th day of April, 2016 and filed with the Planning Administrative Assistant on April 14, 2016.

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Wilsonville Planning Commission Chair

Attest:

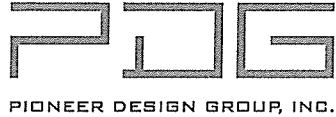
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Tami Bergeron, Administrative Assistant III

SUMMARY of Votes:

Chair Jerry Greenfield	_____
Commissioner Peter Hurley	_____
Commissioner Al Levit	_____
Commissioner Kamran Mesbah	_____
Commissioner Phyllis Millan	_____
Commissioner Eric Postma	_____
Commissioner Simon Springall	_____

TSP AMENDMENT  
ATTACHMENT E



CIVIL LAND USE PLANNING SURVEY  
P 503.643.8286 F 844.715.4743 www.pd-grp.com  
9020 SW Washington Square Rd Suite 170  
Portland, Oregon 97223

March 23, 2016

Wilsonville Planning Commission  
29799 SW Town Center Loop E.  
Wilsonville, OR 97070

**RE: Republic Services – Testimony Supporting TSP Amendment File LP16-0001 – Replacement of Collector Extension north of Ridder Road from Kinsman Road (RE-07) to Garden Acres Road (UU-08).**

On behalf of Republic Services, I, Ben Altman, Pioneer Design Group, present this testimony in support of the proposed TSP Amendment, specifically the amendments related to Kinsman and Garden Acres Roads.

Republic Services owns property at the northeast corner of Ridder Road and Garden Acres Road. The existing Republic site was initially developed in 1995 by United Disposal (then local franchised hauler) and Willamette Resources, Inc. (WRI), a subsidiary of Waste Control, the parent company out of Albany, Oregon. Subsequently United (Waste Control) was acquired by Allied Waste, who was later acquired by Republic Services.

WRI is now a wholly-owned subsidiary of Republic Services. WRI is the currently registered owner of Tax Lots 600, 601, as well as 1400, Map T3S R1W 2C. While WRI is the land owner, the following narrative generally refers to Republic Services as the applicant/petitioner.

Republic's property has frontage along Ridder and Garden Acres Roads, and has excellent collector street access. Republic's existing facilities has two access drives off of Ridder Road.

We have recently submitted a land use development application on behalf of Republic Services (property owner) and SORT Bioenergy, LLC (applicant). SORT Bioenergy is proposing to develop a commercial and industrial organic waste recovery facility (anaerobic digester) on property owned by Republic Services.

This proposed facility is a partnership between SORT Bioenergy, LLC and Republic Services, Inc. to initiate new programs with new technologies to help protect the environment through landfill diversion, energy recovery and nutrient recycling, see attached Preliminary Site Plan.

Based on the pre-application discussions regarding the proposed SORT Facility and further alternatives analysis, the City has determined this original planned Kinsman alignment is not financially or practically feasible given a series of property and topographic conflicts. As part of their annexation application, Republic's consultants provided the City with the attached drawing, which reflects the on-site impacts of the Kinsman Road extension.



## TSP AMENDMENT ATTACHMENT E

Given the conflicts, the City (Kittelson & Associates) has analyzed alternative collector alignments. The most probable alternative for Kinsman Road is Garden Acres Road. Consequently, based on their analysis, the City has agreed to process a TSP Amendment to incorporate this new road alignment, and eliminate the Kinsman alignment.

The proposed TSP amendment to classify Garden Acres Road as a Collector, replacing the Kinsman alignment will further enhance collector circulation in this area, without creating significant impacts to adjacent properties.

The following is a summary of Staff and Traffic Engineer Consultant's comments at 3-9-16 Planning Commission Work Session:

- The TSP alignment for Kinsman Road is between the BPA Substation and Republic Services properties. BPA outright rejected any road improvements within their right-of-way. Consequently this would force a shift of 100% of the right-of-way onto Republic's property.
- The shift of alignment would create substantial impacts to Republic, resulting in excessively expensive sight redevelopment.
- Because of the BPA Substation and Right-of-way, Kinsman Road would be a single-loaded street, which would add significant public costs for ½ street acquisition of right-of-way.
- The re-evaluation of alignment concluded that the Garden Acres alignment would provide reasonably comparable collector flows, at a much reduced cost (public & private) and would also minimize impacts to private properties.
- The TSP amendment will allow for improved financial options, including SDC credits, etc.

### **General Back Ground**

The following information is provided as back ground, so the Commission understands the history related to Republic's property, prior development and related road improvements. Republic has a strong history of working with the City on resolving traffic related issues while seeking to minimize on-site impacts.

#### Ridder Road

Ridder Road is designated as a Collector street (2013 TSP).

Ridder Road currently intersects with 95<sup>th</sup> Avenue, approximately one half mile to the east. 95<sup>th</sup> Avenue intersects with SW Boones Ferry Road (arterial) just under a half mile to the north, and with Boeckman Road (arterial) about one mile to the south.

Republic's current operations (tl 1400) have frontage on SW Ridder Road, with two access driveways. These two access points meet collector street standards for access separation of 100-300 feet:

## TSP AMENDMENT ATTACHMENT E

The eastern driveway is primarily for trucks entering and leaving the site, as all trucks must cross the scales (in & out). It is noted that the proposed SORT facility will also access and exit through Republic's scales, via this eastern driveway. Administrative and MRF employees and customers also use this eastern access. Customer access is very limited, but a few do come to the site to pay their bills, and also for the public recycling.

The western access is used for the long-haul compactor trucks & trailers that haul waste from the MRF to the landfill. There is a separate scale for these long-haul trucks, which are weighed before leaving the site. The maintenance employees also currently use this western entrance.

### Prior Dedications and Improvements

When the MRF and Administrative offices were originally constructed (1995) WRI dedicated right-of-way to the 60 foot standard (1990 TSP); and provided street improvements, consistent with City standards at that time. The improvements included realignment of Ridder/Clutter Roads through the site (Partition 1995-101). This realignment formed a continuous east/west street section between 95<sup>th</sup> Avenue and Grahams Ferry Road. The realignment provided urban design horizontal curve, replacing the prior double 90 degree corners. These improvements were funded, in part, by State Lottery Special Projects Funds (off-site improvements) and a local improvement district, with WRI as the major contributor.

With the 2014 maintenance shop addition, Republic dedicated 11.5 feet of additional right-of-way along Ridder Road to meet current City road standards (2013 TSP). The timing for completing required frontage improvements is being coordinated with the City, linked with the pending Coffee Creek Urban Renewal District. This coordination is being formalized in the form of a Development Agreement between Republic and the City.

Subsequently, as part of the 2014 land use approvals, Republic dedicated 11.5 feet for additional right-of-way along the site frontages on both Ridder and Garden Acres Roads, but with frontage improvements deferred to a later phase. This additional dedication was provided consistent with the update 2013 TSP, which changed the design cross-section for Collector streets.

Most recently, in preliminary discussions with the City regarding a proposed food waste processing facility (SORT), Republic was informed that the 2013 TSP required an extension of Kinsman Rod north of Ridder Road, and that the development would be required to dedicate right-of-way. The Kinsman extension is shown in the TSP as running up the eastern boundary of Republic's property.

Preliminary evaluation of this proposed alignment concluded that the close proximity of this future road to Republic's existing eastern driveway would force closure of that driveway. Closure of that driveway directly and significantly affects on-site circulation, as it would force relocation of the truck scales, which subsequently would force other major site modifications, including the truck entry into the material recovery building. And, it was emphasized that Republic does not need any access from Kinsman Road. Essentially this road extension would substantially hurt the property more than it would provide any net public benefit.

## TSP AMENDMENT ATTACHMENT E

### Garden Acres Road

Garden Acres Road is designated as a Collector street (2013 TSP).

The developed portion of the site (tl 1400) as well as the area being annexed (tl 600 consolidated), also have frontage on SW Garden Acres Road. There currently is no site access from Garden Acres. However, with the planning collector alignment of Ridder/Garden Acres Road, the Stage I Master Plan now anticipates a third access from Garden Acres, instead of the original concept from Ridder Road. With the new road alignment, the 3<sup>rd</sup> Ridder access would not meet sight distance requirements. In addition, the future access from Garden Acres will provide for better maintenance/operations employee access separation from the heavily used truck accesses.

With the 2014 maintenance shop addition, Republic (WRI) dedicated 11.5 feet of additional right-of-way along Garden Acres Road to meet current City road standards (2013 TSP). No street improvements have been made, to date. Republic currently does not have any access from this street, but likely will as the annexed property is developed, as noted.

With pending TSP revisions, Garden Acres Road is expected to become the major north/south link, replacing the Kinsman Road to Day Road alignment. This amendment will result in a re-alignment of the intersections of Ridder and Garden Acres Roads, with cul-de-sac for Clutter Road. This new alignment is anticipated to only result in minor site impacts, particularly in the southwest corner of TL 1400.

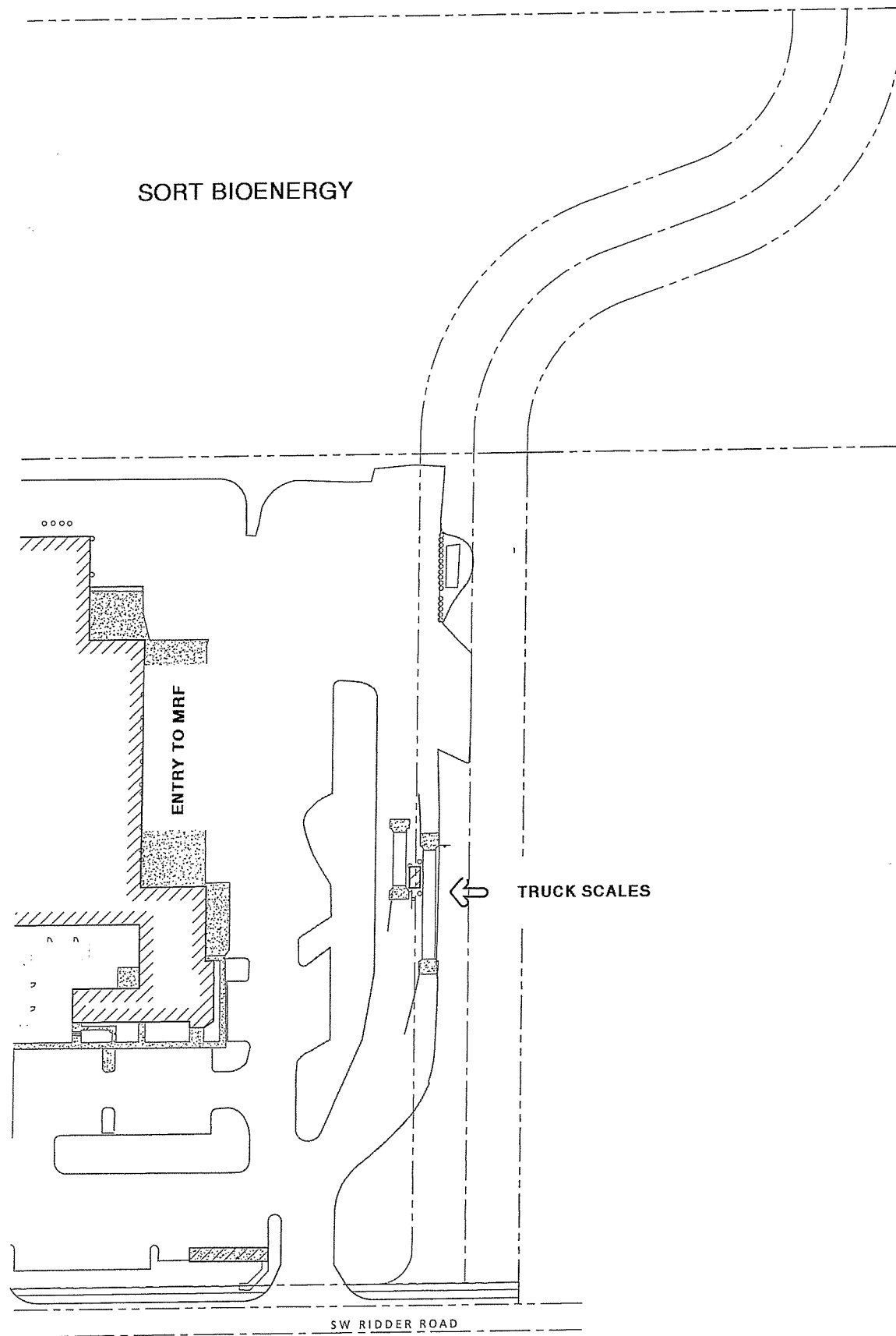
### Kinsman Road Extension – To be Eliminated

The 2013 TSP designates Kinsman Road as a Minor Arterial, and currently calls for its extension north of Boeckman Road to complete an arterial link with Day Road. The current anticipated alignment of this street extension is up the east side of Republic's properties. The applicant has initiated discussions with the City, as this alignment would result in significant site impacts, to the degree that it would force a complete reconfiguration of access and on-site circulation. There are two site impact issues associated with the Kinsman Road extension:

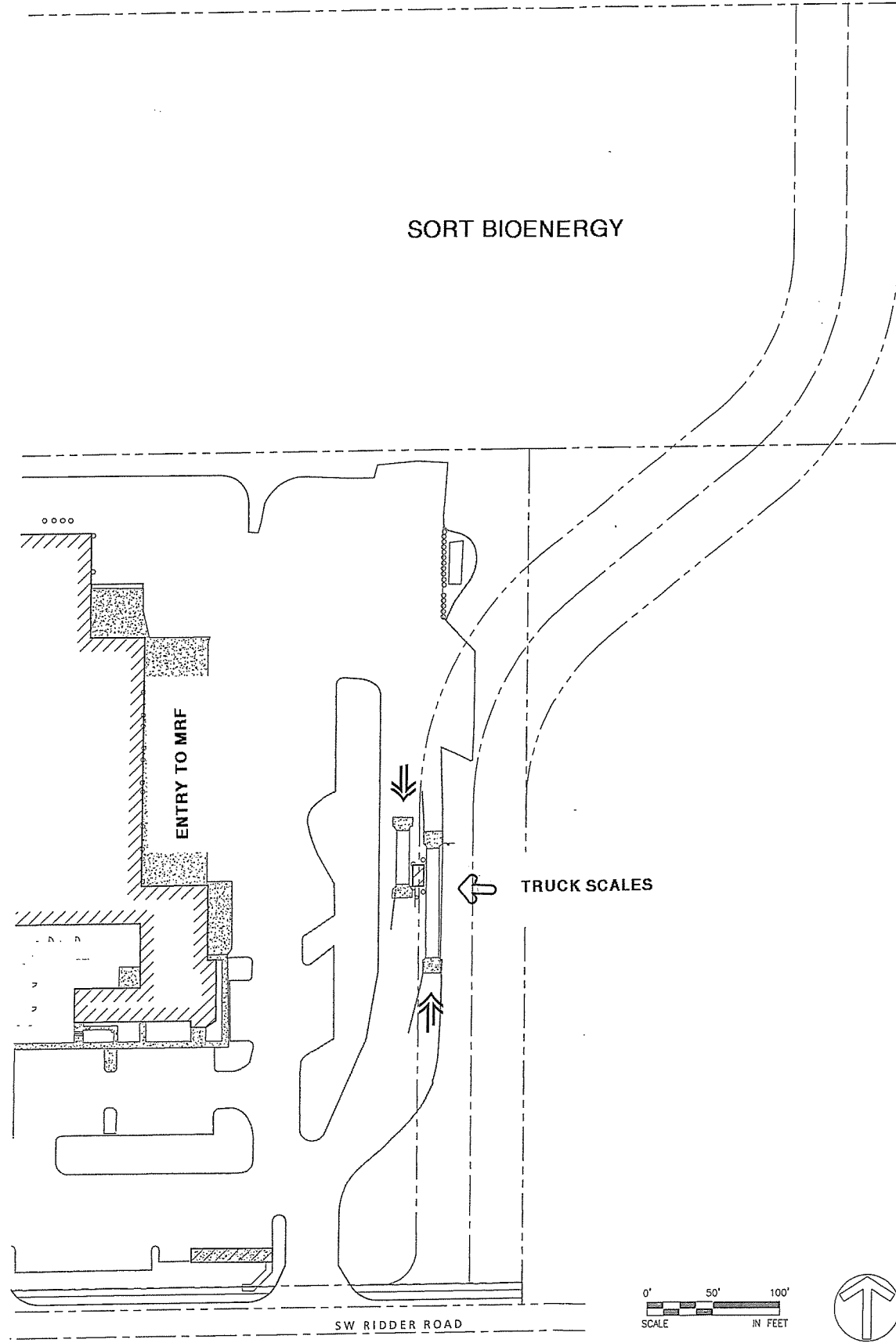
1. A significant portion of the existing operations, as well as the eastern portion of tl 600 would be lost to right-of-way. This is further compounded by the possibility that the City would shift the entire right-of-way onto Republic, in order to avoid impacts to the BPA substation.
2. The location of the Kinsman Road extension would force closure of Republic's eastern driveway. This driveway directly serves the scales, which all trucks entering and leaving the site must cross. From the scales, the trucks go directly to the MRF to off-load, and then back across the scales upon exit.

Consequently, if the eastern access were closed, the scales would have to be moved. The relocation of the scales would then force a complete reconfiguration of on-site access, as including to access in to and out of the MRF. But, such a reconfiguration would likely result in complete reconstruction of the MRF.

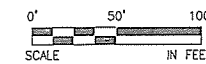
TSP AMENDMENT  
ATTACHMENT E



**KINSMAN RD EXTENSION - VERSION 2**  
HORZ 1"=50'



**KINSMAN RD EXTENSION - VERSION 1**  
HORZ 1"=50'



Planning Commission - April 13, 2016  
LP16-0001 - TSP Amendment

**ANNEXATION**

REPUBLIC SERVICES - PDI STAGE I  
WASHINGTON COUNTY, OR

Designed by	SFG	Date	06/15/15
Drawn by	SFG	Date	06/15/15
Reviewed by	BEF	Date	06/15/15
Project No.	999-158	REF.	
Horiz. Scale:	1"=50'		
Vert. Scale:	99158 DJANNK		

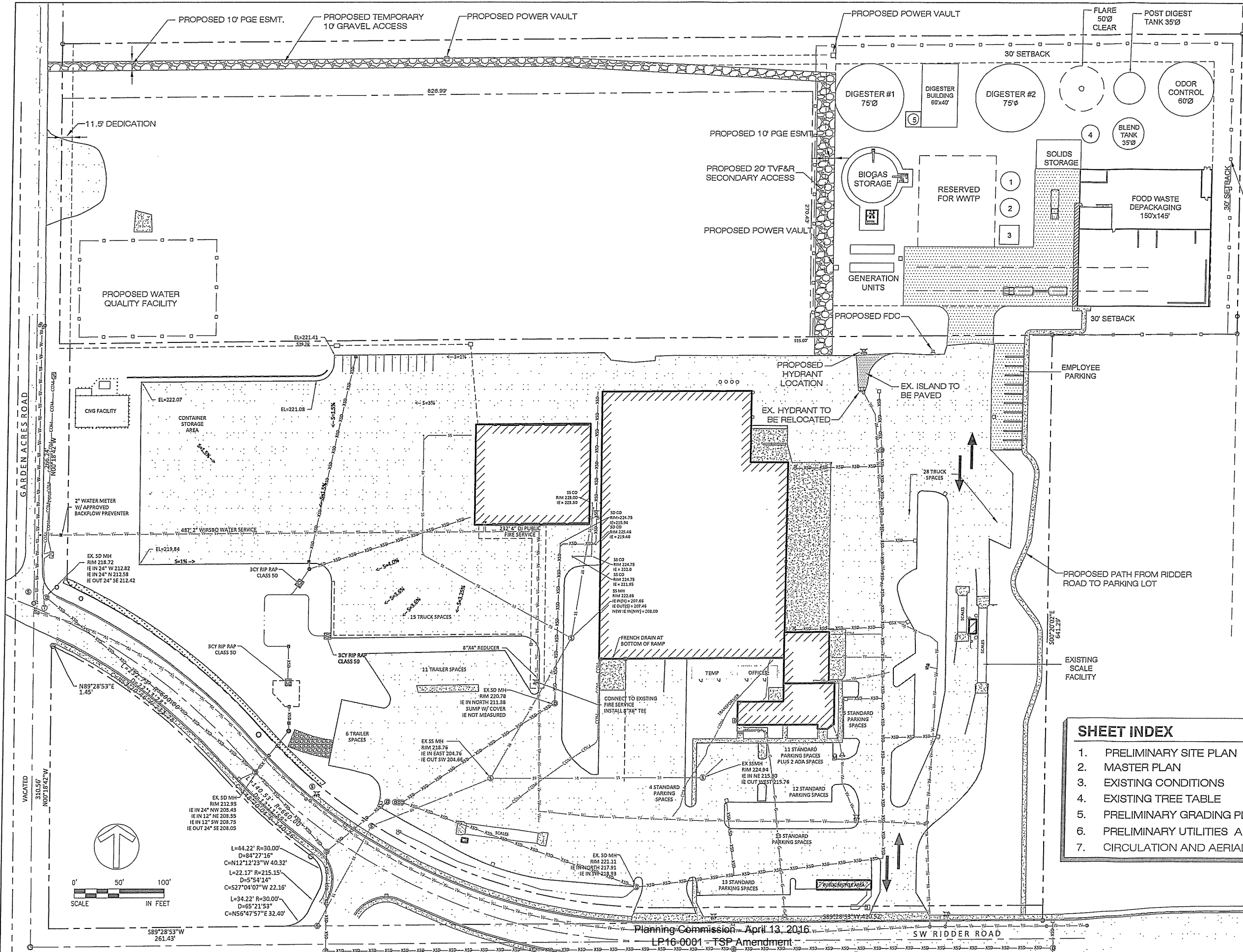
By	
Revision	
Date	
No.	

Project  
REPUBLIC SERVICES  
No.  
999-158  
Type  
Page 108 of 112  
Sheet

9000 SW WASHINGTON SQUARE RD.  
SUITE 170  
PORTLAND, OREGON 97223  
P 503.638.2888  
F 503.638.2889  
www.pdg.com

**PDG**  
PIONEER DESIGN GROUP, INC.

TSP AMENDMENT  
ATTACHMENT E



PROPOSED FENCE TO BE WITHIN 10-15 FEET OF PROPERTY LINE AND ADJUSTED IN THE FIELD TO PROTECT EXISTING TREES.

SHEET INDEX	
1.	PRELIMINARY SITE PLAN
2.	MASTER PLAN
3.	EXISTING CONDITIONS
4.	EXISTING TREE TABLE
5.	PRELIMINARY GRADING PLAN
6.	PRELIMINARY UTILITIES AND ACCESS PLAN
7.	CIRCULATION AND AERIAL PLAN

PRELIMINARY SITE PLAN

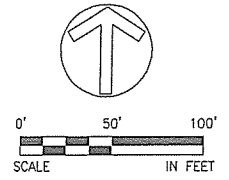
8000 SW WASHINGTON SQUARE RD.  
SUITE 170  
PORTLAND, OREGON 97223  
PIONEER DESIGN GROUP, INC.  
www.pdg.com

SORT BIOENERGY  
CITY OF WILSONVILLE, OREGON

Designed by	BA	Date	03/2016
Drawn by <td>TCC</td> <td>Date</td> <td>03/2016</td>	TCC	Date	03/2016
Reviewed by <td>BA</td> <td>Date</td> <td>03/2016</td>	BA	Date	03/2016
Project No.	999-174	REF.	
Horiz. Scale:	AS NOTED		
Vert. Scale:	999174_0101e		

Project No.	999-174
Type	Site Plan
Page No.	109 of 112
Sheet	1 of 7

Planning Commission April 13, 2016  
LP16-0001 - TSP Amendment



L=44.22' R=30.00'  
D=84°27'15"  
C=N12°12'23" W 40.32'  
L=22.17' R=215.15'  
D=5°54'14"  
C=S27°04'07" W 22.15'  
L=34.22' R=30.00'  
D=65°21'53"  
C=N56°47'57" E 32.40'

TSP AMENDMENT  
ATTACHMENT F

**ORDINANCE NO. 789**

**AN ORDINANCE OF THE CITY OF WILSONVILLE APPROVING A MINOR AMENDMENT TO WILSONVILLE'S 2013 TRANSPORTATION SYSTEM PLAN (TSP).**

WHEREAS, the City of Wilsonville desires to use best professional practices to ensure land development contributes to creating a safe and attractive transportation network that supports Wilsonville's economy and quality of life; and

WHEREAS, the City of Wilsonville adopted the 2013 Transportation System Plan on June 17, 2013; and

WHEREAS, the Wilsonville City Council held a work session on May 16, 2016 and public hearings on May 2, 2016 and May 16, 2016 to discuss and take public testimony on the proposed amendments; and

WHEREAS, the Wilsonville Planning Commission held a work session on March 9, 2016 and a public hearing on April 13, 2016 to discuss and take public testimony on the proposed amendments; and

WHEREAS, the City provided Public Hearing Notices to 1,002 property owners within the City limits, a list of interested parties and agencies, and posted the Notice in three locations throughout the City and on the City website; and

WHEREAS, the Wilsonville Planning Commission approved Resolution LP16-0001 recommending adoption of the proposed amendments at the public hearing on April 13, 2016; and

WHEREAS, the City Council having conducted public hearings on the proposed amendments on May 2, 2016 and May 16, 2016, and duly considering the entire record, herein finds that the proposed minor amendments to the TSP are in the best interest of the community by providing for development to contribute to the creation of a safe and multi-modal transportation network;

NOW, THEREFORE, BE IT RESOLVED, THE CITY OF WILSONVILLE ORDAINS AS FOLLOWS:

TSP AMENDMENT  
ATTACHMENT F

1. FINDINGS.

The above-recited findings and those findings and conclusions in the attached staff report, attached hereto as Exhibit A, are hereby adopted as findings of fact and conclusions of law.

2. DETERMINATION.

Based upon such findings, the City Council hereby adopts the amendment to Wilsonville's 2013 Transportation System Plan as shown in Exhibit B.

SUBMITTED to the Wilsonville City Council and read for the first time at a regular meeting thereof on May 2, 2016, and scheduled for a second reading at a regular meeting of the Council on May 16, 2016, commencing at the hour of 7:00 P.M. at the Wilsonville City Hall.

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Sandra C. King, MMC, City Recorder

ENACTED by the City Council on the XX day of May, 2016 by the following votes:

Yes:-X-

No: -X-

---

Sandra C. King, MMC, City Recorder

DATED and signed by the Mayor this \_\_\_\_ day of \_\_\_\_, 2016.

---

TIM KNAPP, Mayor

SUMMARY OF VOTES:

Mayor Knapp -

Council President Starr -

Councilor Goddard -

Councilor Fitzgerald -

Councilor Stevens -

TSP AMENDMENT  
ATTACHMENT F

EXHIBITS:

- A. Staff Report
- B. Proposed Amendments to the 2013 Wilsonville TSP

DRAFT





117 Commercial Street NE  
Suite 310  
Salem, OR 97301  
503.391.8773  
www.dksassociates.com

## DRAFT MEMORANDUM

**DATE:** April 12, 2016

**TO:** Eric Mende, Capital Projects Engineer  
Chris Neamtzu, Planning Director

**FROM:** Scott Mansur, P.E., PTOE  
Jordin Ketelsen, EIT

**SUBJECT:** **Wilsonville TSP Additional Bike/Ped Project Amendment**

P15125-003

This memorandum discusses an additional project to be included in the Wilsonville Transportation System Plan (TSP) Amendment. This project would be categorized as a bicycle/pedestrian project and would entail providing set-aside funds to allow the City of Wilsonville to purchase strategically located properties that can facilitate future bicycle and pedestrian connections as these properties become available. The remainder of this memorandum outlines support for the inclusion of this project in the Wilsonville TSP Amendment as well as the necessary changes to the existing TSP document if the project was incorporated.

As outlined in Chapter 2 of the existing TSP document, policy areas including system design, connectivity, and active transportation support the addition of the aforementioned project. This project would help provide a safe, well-connected, and efficient system for all travel modes by adding pedestrian and bicycle connections throughout the city's transportation system. It would also improve access between neighborhoods, serve new development, and manage system performance as well as provide facilities that allow more people to walk and bike, not only as low-impact transportation choices, but also to benefit the health and economy of the community.

If this project is approved to be included in the city's TSP amendment, the following changes would be necessary. Revisions to existing TSP language are presented with deletions shown in ~~strikethrough~~ and additions or new code shown as underlined.

### ***Higher Priority Projects Table*** (Page v)

Add the following projects to this table:

- BW-15 Property Acquisitions for Bike/Ped Connectivity

### ***Table 5-6: Higher Priority Projects (Citywide) (Page 5-14)***

Add the following project and associated costs and descriptions:

- BW-15 Property Acquisitions for Bike/Ped Connectivity (\$1,000,000)

Provide set-aside funds to allow purchase of strategically located properties that can facilitate bicycle and pedestrian connections as these properties become available.

**From:** [Neamtzu, Chris](#)  
**To:** [Peter Hurley](#)  
**Cc:** [Kraushaar, Nancy](#); [Mende, Eric](#); [Bergeron, Tami](#)  
**Subject:** RE: PC meeting info.  
**Date:** Wednesday, April 13, 2016 12:50:34 PM  
**Attachments:** [FRED MEYER TIS\\_FINAL 2008-08-19.pdf](#)  
[Adopted TRANSPORTATION Budget FY2015-16.pdf](#)

---

Hello Commissioner Hurley,

The original Master Plan from 2003 projected 2,390 units. The 2013 Villebois Village Master Plan shows 2,645 dwelling units at build-out. There have been numerous iterations of the master plan over the past decade which have affected the total master plan unit count. There were revisions related to moving the school to the north, then back to the east, there were revisions made to add the Grande Pointe/former LEC site as well. The governing legislatively adopted state statute requires not less than 2,300 dwelling units at build out. Since the project is not complete, and there are still significant parcels that have yet to obtain entitlements, a final unit count compared to the master plan is not obtainable. As of December 31, 2015 the city's records show that 1,562 units have been built.

Many of the individual phases request refinements as additional details are gathered from the SAP to the PDP. The more recent trend has been to detach units in the Village Center which has resulted in slightly fewer units when compared to the SAP. The most recent approval that changed unit numbers (PDP 4 North), which also reflected other refinements approved by DRB/Council since 2013, shows a current build-out projection of 2,593 units. The projection includes built and approved units, and density reflecting the Master Plan where land use approvals haven't been approved to establish final unit counts. Most the remaining areas awaiting final unit calculations as part of land use approvals are in the Village Center, where we anticipate some additional reduction in unit numbers.

Also attached are the FY 15-16 adopted budget pages for SMART.

Based on your follow up email, I have also attached the traffic analysis for the Fred Meyer shopping center. What that report will not show you is the ramp metering set by ODOT at 1,260 vehicles per hour. The problems all start with traffic backing up from the southbound ramp meter, or when I-5 south is stacked and vehicles cannot merge quickly enough into the stagnant flow of traffic.

Please let me know what other specific questions there may be.

Thank you,

**Chris Neamtzu, AICP**

Planning Director

City of Wilsonville | Community Development Department

503-570-1574 | [neamtzu@ci.wilsonville.or.us](mailto:neamtzu@ci.wilsonville.or.us)

DISCLOSURE NOTICE: Messages to and from this Email address may be subject to the Oregon Public Records Law.

**From:** Peter Hurley [<mailto:pkhurley1@gmail.com>]  
**Sent:** Sunday, April 10, 2016 12:54 PM  
**To:** Neamtzu, Chris  
**Subject:** PC meeting info.

Hey Chris, for the upcoming Wed. PC there are two things that I am interested in getting info. on; and I don't need it before the meeting. I want us all to be able to look at these numbers and talk about them if others are interested.

1. What are the original housing numbers proposed for Villebois when it very first passed city council? What are the current housing numbers built and under construction? What does this put the final projected number? And finally how many of the development permits were done with variances that either added or subtracted dwelling units?
2. The full current SMART budget.

Thanks.

--

Peter Hurley  
[pkhurley1@gmail.com](mailto:pkhurley1@gmail.com)  
503-349-4168



# Fred Meyer Transportation Impact Study



Prepared by

**DKS Associates**  
TRANSPORTATION SOLUTIONS

**August 2008**

August 19, 2008

Steve Adams, P.E.  
Deputy City Engineer  
City of Wilsonville  
29799 Town Center Loop East  
Wilsonville, OR 97070

**Subject: Wilsonville Fred Meyer Transportation Impact Study**

P08015-009-000

Dear Steve,

DKS Associates is pleased to submit this traffic impact study for the proposed Fred Meyer development located on the northeast corner of Boones Ferry Road and Bailey Street in the City of Wilsonville, Oregon. One reproducible copy has been included for your use. Please feel free to call if you have any questions or comments regarding this study.

Sincerely,

**DKS Associates**  
A Corporation



Scott Mansur, P.E., P.T.O.E.  
Transportation Engineer



247 Commercial Street NE, Suite 201  
Salem, OR 97301  
(503) 391-8773  
(503) 391-8701

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## CHAPTER 1: INTRODUCTION AND SUMMARY

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This study evaluates the transportation impacts for the proposed Fred Meyer development located on the northeast corner of Boones Ferry Road and Bailey Street in the City of Wilsonville, Oregon. It also recommends mitigation measures to offset the impacts.

The currently proposed development includes a 155,881 square-foot Fred Meyer building (which includes the Fred Meyer store as well as 10,100 square feet of additional tenant space<sup>1</sup>), six other buildings (which include 50,879 square feet of retail/office use and a 3,316 square-foot restaurant), and 60 residential apartment units.<sup>2</sup> The site has four access points to the public street system: two on SW Boones Ferry Road and two on SW Bailey Street.

The study area for the project is shown in Figure 1 and was determined based on discussions with City staff. Within the study area, there are seven study intersections where traffic operations are analyzed:

- Boones Ferry Road/Wilsonville Road
- I-5 Southbound Ramps/Wilsonville Road
- I-5 Northbound Ramps/Wilsonville Road
- Town Center Loop West/Wilsonville Road
- Boones Ferry Road/Fred Meyer north access
- Boones Ferry Road/Fred Meyer south access
- Boones Ferry Road/Bailey Street

Project traffic impacts were evaluated at the study intersections for the weekday PM peak hour. The impact analysis includes trip generation, trip distribution, PM peak hour project trips through the two City of Wilsonville I-5 interchange areas, and future traffic operating conditions. The analysis also accounts for developments in the area that have Stage II approval, including those under construction but not yet occupied. Recommended mitigations are then described and analyzed. Included in the mitigations section of Chapter 3 is a conceptual cross-section layout for Boones Ferry Road between Bailey Road and Wilsonville Road (see Figure 5).

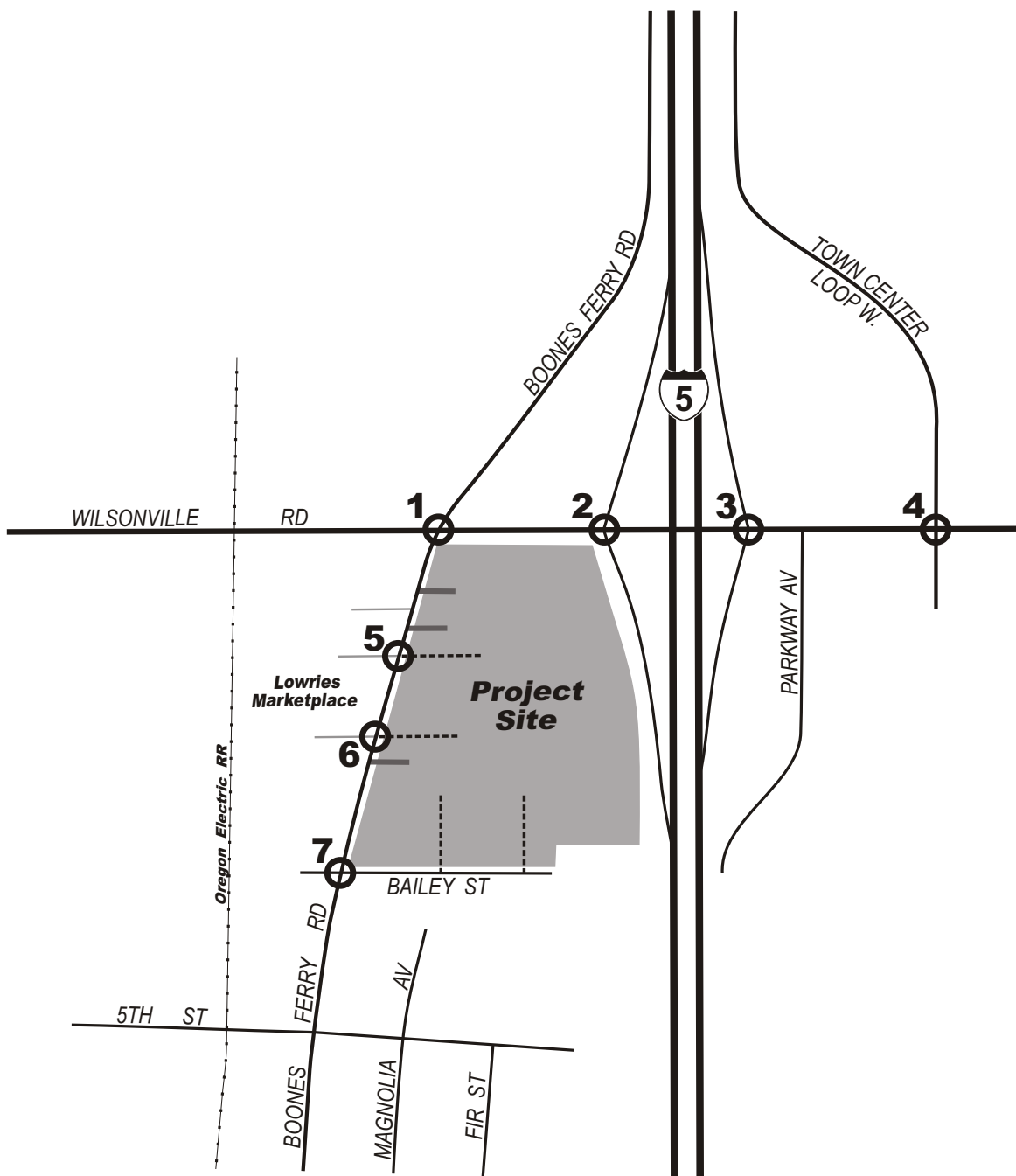
Other issues addressed in this report include Saturday peak hour safety analysis and a project site evaluation (which addresses access location and spacing), sight distance, project frontage adjustments, traffic signal warrants, internal circulation, and parking. At the end of the report, a summary is presented of the recommended transportation mitigation measures that are expected to offset the negative transportation impacts of future traffic growth.

Table 1 lists important characteristics of the study area and proposed project.

---

<sup>1</sup> Tenant space within a Fred Meyer building is typically occupied by businesses providing additional goods or services, such as coffee shops or banks.

<sup>2</sup> Email from Christine McKelvey, Group Mackenzie, July 2, 2008.



- LEGEND**
- 1** - Study Intersection & Number
  - - Proposed Fred Meyer Driveway
  - - Existing Lowries Driveway
  - - Existing Driveway to be Removed

**DKS Associates**  
 TRANSPORTATION SOLUTIONS



NO SCALE  
 Planning Commission - April 13, 2016

**Figure 1**

**STUDY AREA**

**TABLE 1: Study Area and Proposed Project Characteristics**

<b><u>Study Area</u></b>	
<b>Number of Study Intersections</b>	7
<b>Analysis Periods</b>	Weekday PM Peak (4:00 p.m. to 6:00 p.m.) Saturday Midday Peak (11:00 a.m. to 1:00 p.m.)
<b><u>Proposed Development</u></b>	
<b>Total Weekday PM Peak Hour Project Trips</b>	1,255 (627 in, 628 out)
<b>Non Pass-by<sup>a</sup> Weekday PM Peak Hour Project Trips</b>	937 (468 in, 469 out)
<b>Net New Weekday PM Peak Hour Project Trips</b>	488 (244 in, 244 out)
<b>Estimated Weekday PM Peak Hour Project Trips Through I-5/Wilsonville Road Interchange<sup>b</sup></b>	612 (768 new trips – 156 grandfathered trips)
<b>Estimated Weekday PM Peak Hour Project Trips Through I-5/Elligsen Road Interchange</b>	2
<b>Vehicle Access Points</b>	Four full access points: two on SW Boones Ferry Road and two on SW Bailey Street.
<b><u>Project Vicinity</u></b>	
<b>Pedestrian Facilities</b>	Sidewalks to be constructed along project frontage of Boones Ferry and Bailey Street with connection to Wilsonville Road.
<b>Bicycle Facilities</b>	Sidewalks and bike lanes on Boones Ferry Road and Wilsonville Road
<b>Nearest Transit Stop</b>	Boones Ferry Road (SMART Routes 1X and 203)

<sup>a</sup> Non-Pass-by project trips account for pass-by and internal trip reductions.

<sup>b</sup> The Wilsonville Road interchange area includes the Boones Ferry Road/Wilsonville Road intersection. Some of the new project trips that pass through this intersection are diverted trips.

## Project Traffic Impact

To determine project impact at the study intersections, traffic operating conditions were analyzed at the study intersections during the weekday PM peak hour for the following four scenarios:

- Existing Conditions
- Existing plus Project
- Existing plus Stage II
- Existing plus Project plus Stage II

The study intersection operating conditions (assuming the existing roadway network) for the “Existing,” “Existing plus Stage II,” and “Existing plus Project plus Stage II” scenarios are listed in Table 2. Under existing conditions, all study intersections meet the City of Wilsonville LOS “D” standard and the Oregon Department of Transportation (ODOT) 0.99 volume-to-capacity (V/C) standard during the PM peak hour. With the addition of stage II traffic, both northbound and southbound ramps exceed operating standards. When project traffic is also added, all four study intersections on Wilsonville Road exceed operating standards. In addition, the two Fred Meyer development accesses on Boones Ferry Road operate below desired levels.

**TABLE 2: Study Intersection Operating Conditions (PM Peak Hour)**

Intersection	Operating Standard	Existing Conditions			Existing + Stage II			Existing + Stage II + Project		
		Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C
<b>Signalized</b>										
Boones Ferry Rd / Wilsonville Rd	LOS D	36.0	D	0.77	44.5	D	0.89	>80	<b>F</b>	>1.0
I-5 SB Ramps / Wilsonville Rd	LOS D, 0.99 V/C	36.1	D	0.90	79.1	<b>E</b>	<b>&gt;1.0</b>	>80	<b>F</b>	<b>&gt;1.0</b>
I-5 NB Ramps / Wilsonville Rd	LOS D, 0.99 V/C	37.2	D	0.91	70.9	<b>E</b>	<b>&gt;1.0</b>	>80	<b>F</b>	<b>&gt;1.0</b>
Town Center Loop W / Wilsonville Rd	LOS D	37.7	D	0.80	51.2	D	0.94	56.2	<b>E</b>	0.97
<b>Unsignalized</b>										
Boones Ferry Rd / North Project Access	-	12.7	A/B	0.13	13.9	A/B	0.18	>50	A/F	>1.0
Boones Ferry Rd / South Project Access	-	11.9	A/B	0.14	12.4	A/B	0.15	>50	A/F	0.71
Boones Ferry Rd / Bailey St	LOS D	10.9	A/B	0.06	11.6	A/B	0.06	13.8	A/B	0.12
<b>Signalized intersections:</b> Delay = Average Stopped Delay per Vehicle (sec) for All Movements LOS = Level of Service of Intersection V/C = Volume-to-Capacity Ratio of Intersection <b><u>Bold Underlined</u></b> values do not meet standards.					<b>Unsignalized intersections:</b> Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement LOS = Level of Service of Major Street/Minor Street V/C = Volume-to-Capacity Ratio of Worst Movement <b><u>Bold Underlined</u></b> values do not meet standards.					

## Planned Wilsonville Road Improvements

Due to capacity constraints at the I-5/Wilsonville Road interchange, improvements are planned that will provide additional capacity along Wilsonville Road between Boones Ferry Road and Town Center Loop West. Recently, the City has signed an intergovernmental agreement to construct the first phase of improvements, which will consist of a Wilsonville Road 6-lane enhanced alternative that focuses on ramp improvements and on adjustments to intersection lane configurations.

For the four study intersections on the Wilsonville Road corridor, a Synchro™ model of the improved Wilsonville Road cross-section was used to analyze intersection operating conditions for each of the three

future PM peak hour traffic scenarios (i.e., “Existing plus Project”, “Existing plus Stage 2”, and “Existing plus Project plus Stage 2”). The results of the analysis are listed in Table 3. As shown in the table, all four study intersections on Wilsonville Road comply with the City of Wilsonville LOS D operating standard for each of the three scenarios. The two I-5 ramps also meet the Oregon Department of Transportation (ODOT) 0.99 volume-to-capacity (V/C) standard.

**TABLE 3: Future Operating Conditions of Wilsonville Road Intersections with Six-Lane Enhanced Alternative Improvements (PM Peak Hour)**

Intersection	Operating Standard	Existing + Project + Improvements			Existing + Stage II + Improvements			Existing + Project + Stage II + Imps.		
		Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C
<b>Signalized</b>										
Boones Ferry Rd / Wilsonville Rd	LOS D	37.7	D	0.66	31.1	C	0.67	39.3	D	0.75
I-5 SB Ramps / Wilsonville Rd	LOS D	20.6	C	0.64	22.0	C	0.72	22.7	C	0.76
I-5 NB Ramps / Wilsonville Rd	LOS D	22.9	C	0.64	23.6	C	0.74	24.7	C	0.78
Town Center Loop W / Wilsonville Rd	LOS D	35.7	D	0.66	40.3	D	0.75	43.2	D	0.78
Delay = Average Stopped Delay per Vehicle (sec) LOS = Level of Service of Intersection		V/C = Volume-to-Capacity Ratio of Intersection <b><u>Bold Underlined</u></b> values do not meet standards.								

## Project Impact Mitigations

To mitigate impacts at the north and south project accesses onto Boones Ferry Road, three Boones Ferry Road site frontage improvements are needed (these are in addition to the planned improvements to Boones Ferry Road that are shown on the Fred Meyer site plan):

- At the north Fred Meyer access, install a median along Boones Ferry Road to restrict movements to right-in/right-out for both the Lowries Marketplace and Fred Meyer developments; this will increase safety by removing turn lane needs at this access and will provide for better traffic flow (i.e. queuing spillback that impact Wilsonville Road). It will also accommodate turn lane placement and storage needs for the Boones Ferry Road/Wilsonville Road intersection’s northbound approach traffic. Also, if desired, the north Fred Meyer access may be converted to a right-out only driveway and narrowed to one lane, which would allow additional space on the project site that could be used to increase a building pad size, the number of parking stalls, etc.
- Between the north and south Fred Meyer accesses, extend the second northbound through lane (which becomes a right turn lane at the Wilsonville Road intersection) to ensure approximately 600 feet of storage is provided for the northbound right turn lane at Wilsonville Road. This distance meets the short-term Fred Meyer needs and the long-term 20-year Wilsonville Road Interchange design needs.
- At the south Fred Meyer access, install a traffic signal to facilitate egress movements from the Lowries and Fred Meyer developments. There should also be two egress lanes (i.e., a right turn lane and a through-left lane). It is expected that warrants will be met in the near future due to the

addition of nearby developments. Installing the traffic signal with the Boones Ferry Road improvements will assure continuity between the improvements and the traffic signal construction. The signal should be coordinated with the Boones Ferry Road/Wilsonville Road signal. To enable the coordination, interconnect conduit and cable will need to be installed between the signals.

A conceptual layout of Boones Ferry Road that shows all improvements and mitigations is presented in Figure 5, which can be found in Chapter 3: Impact Analysis. The mitigated analysis results are listed in Table 4 for the north Fred Meyer access and the Boones Ferry Road/Bailey Street intersection and in Table 5 for both traffic control options at the south access (i.e., a traffic signal and four-way stop control). As shown in the tables, the three intersections have good operation levels and the two traffic control options for the south access are comparable to one another. The main benefits from the installation of the traffic signal are the ability to service platoon flow from the Boones Ferry Road/Wilsonville Road intersection and increased future capacity that will be available.

**TABLE 4: Boones Ferry Road Mitigated Future Operating Conditions (PM Peak Hour)**

Intersection	Operating Standard	Existing + Project + Stage II + Mitigated		
		Delay	LOS	V/C
<b>Unsignalized – Two-way Stop Control</b>				
Boones Ferry Rd / North Project Access	-	13.8	A/B	0.41
Boones Ferry Rd / Bailey St	LOS D	17.0	A/C	0.15
Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement LOS = Level of Service of Major Street/Minor Street		V/C = Volume-to-Capacity Ratio of Worst Movement <b><u>Bold Underlined</u></b> values do not meet standards.		

**TABLE 5: South Project Access Mitigated Future Operating Conditions (PM Peak Hour)**

Traffic Control at South Project Access	Existing + Project + Mitigated			
	Delay	LOS	V/C	
Signalized (Option 1)	22.0	C	0.49	
Four-way Stop Control (Option 2)	20.1	C	0.75	
Delay = Average Stopped Delay per Vehicle (sec) for All Movements LOS = Level of Service of Intersection		V/C = Volume-to-Capacity Ratio of Intersection <b><u>Bold Underlined</u></b> values do not meet standards.		

## Additional Project Oriented Transportation Mitigations

In addition to the Boones Ferry Road mitigations, the following project related measures would typically be required as conditions of approval if the project were approved:

### Site Accesses

- The south Fred Meyer access on Boones Ferry Road should be aligned with the south Lowries Marketplace driveway (i.e., near Albertsons). In addition, regarding the Fred Meyer accesses on Bailey Street, the east access should be aligned with the driveway on the south side of the street and the west access should be located in a manner that it does not create conflicting turn movements with any nearby driveways on the south side of the street.
- The radius for the right-out movement at the north access on Boones Ferry Road should be designed to allow trucks to perform a right turn without encroaching on neighboring lanes.

### Intersection Alignment

- Improvements to the Boones Ferry Road/Bailey Street intersection should be constructed to ensure that the east and west legs of Bailey Street are properly aligned (these legs currently are offset).

### Sight Distance

- All proposed site driveways should meet American Association of State Highway and Transportation Officials (AASHTO) sight distance requirements<sup>3</sup>, and prior to occupancy, sight distance at the access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.
- The sight triangle at each driveway should be clear of objects (large signs, landscaping, parked cars, etc.) that could potentially limit vehicle sight distance.

### Boones Ferry Road Adjustments

- The Fred Meyer development site frontage will require adjustments to accommodate the increased cross-section on Boones Ferry Road (as shown in Figure 5, which is found in Chapter 3: Impact Analysis). Adjustments at the southwest corner of the site may also be needed to ensure that the east and west legs of the Boones Ferry Road/Bailey Street intersection are properly aligned (currently, these legs are offset). Because the site plan does not show the curb locations on the west side of Boones Ferry Road or south side of Bailey Street, it is not clear what exact adjustments are needed.

### Internal Circulation

- Site plan changes are recommended to convert the south access into the main access. One optional method for making the conversion is presented in Figure 8 (found in Chapter 5: Site Evaluation), which shows two conceptual changes: (1) realigning the internal roadways so that priority is given to vehicles coming and going to the south access and (2) installing four-way stop-control at the internal intersection near the south access.
- The site plan is not clear in the vicinity of the buildings, but it appears that the site would provide adequate pedestrian circulation. It should be ensured that the site indeed provides pedestrian access to the buildings and to the nearby crosswalks and paths (in particular, to the paths on the north side of the site that connect to Wilsonville Road).
- All sidewalks within the site should conform to ADA requirements.<sup>4</sup>

---

<sup>3</sup> *Geometric Design of Highways and Streets*, AASHTO, 2004; Case B1, p. 661.

<sup>4</sup> *ADA Accessibility Guidelines for Buildings and Facilities*, Department of Justice, January 1998.



### **Traffic Signal Warrants**

- Though signal warrants are not met at any unsignalized study intersection for the “Existing plus Project plus Stage II” scenario, it was determined that the peak hour warrant will be met in the near future at the south Fred Meyer access; therefore, a traffic signal should be installed in conjunction with the Fred Meyer development. This will assure continuity between the Boones Ferry Road improvements and the traffic signal construction. The signal should be coordinated with the Boones Ferry Road/Wilsonville Road signal. To enable the coordination, interconnect conduit and cable will need to be installed between the signals.

### **Parking**

- The proposed site provides only 885 parking stalls. This is not sufficient to meet City of Wilsonville code requirements, which specifies that a minimum of 962 stalls should be provided (based on the types of uses and the total building square footage of each use). During peak parking periods (such as holiday shopping periods), not meeting code requirements may cause parking demand to exceed the number of available stalls and oblige vehicles to park in adjacent commercial and/or residential areas; therefore, either 962 parking stalls should be provided to reduce potential off site parking impacts or a parking management plan should be prepared outlining how peak parking demand needs shall be met.
- The 138 bicycle parking spaces meet City code requirements and should be distributed throughout the development and should be located near building entrances in order to provide convenient access to each building.

## CHAPTER 2: EXISTING CONDITIONS

The proposed Fred Meyer development is located on the northeast corner of Boones Ferry Road and Bailey Street in the City of Wilsonville, Oregon. The majority of the site is currently vacant, except for a church and a bank on the west edge. The church currently has one access to Boones Ferry Road and the bank has two accesses to Boones Ferry Road.

In consultation with City staff, seven existing study intersections were selected for analysis.

- Boones Ferry Road/Wilsonville Road
- I-5 Southbound Ramps/Wilsonville Road
- I-5 Northbound Ramps/Wilsonville Road
- Town Center Loop West/Wilsonville Road
- Boones Ferry Road/Fred Meyer north access
- Boones Ferry Road/Fred Meyer south access
- Boones Ferry Road/Bailey Street

The following sections summarize the current roadway network, traffic volumes, traffic operating conditions, collision history, and public transit service in the study area, with supporting detail (i.e. traffic counts and level of service calculations) provided in the appendix.

### Roadway Network

Key characteristics of the study area roadways are listed in Table 6.

**TABLE 6: Study Area Roadway Network Summary**

Roadway	Wilsonville Classification <sup>5</sup>	Cross Section	Posted Speed	On-Street Parking	Sidewalks	Bike Lanes
Interstate-5 (I-5)	Freeway	6 Lanes	65 mph	No	No	No
Wilsonville Rd	Major Arterial	5 Lanes	25-35 mph	No	Yes	Yes
Boones Ferry Rd <sup>a</sup>	Major Collector	2 to 3 Lanes	35 mph	No	West Side	West side
Town Center Lp W <sup>a</sup>	Major Arterial	5 Lanes	35 mph	No	Yes	No
Bailey Street	Local Street	2 Lanes	Not Posted	No	South Side	No

<sup>a</sup> The City's *Bicycle and Pedestrian Master Plan*<sup>6</sup> designates the portions of Boones Ferry Road and Wilsonville Road adjacent to the Fred Meyer site as community walkways and bikeways.

### PLANNED IMPROVEMENTS

The City of Wilsonville Transportation System Plan (TSP) identifies potential future improvements to the I-5 Wilsonville Road Interchange, which currently has insufficient capacity to meet the demand of future

<sup>5</sup> *City of Wilsonville Transportation Systems Plan*, Figure 4.8, Adopted by City Council on June 2, 2003.

<sup>6</sup> *Bicycle and Pedestrian Master Plan*, Alta Planning and Design, Adopted December 2006; replaces Chapter 5 of City of Wilsonville Transportation System Plan.

developments.<sup>7</sup> The City has signed an intergovernmental agreement to construct the first phase of improvements, which consists of a Wilsonville Road 6-lane enhanced alternative that focuses on ramp improvements and on adjustments to intersection lane configurations.

## Existing Traffic Volumes

Traffic counts were conducted at study area intersections during the weekday PM and Saturday peak periods.<sup>8</sup> The existing PM peak hour traffic volumes are shown in Figure 2, and the Saturday peak hour traffic volumes are discussed later in Chapter 4: Weekend Safety Analysis. Detailed traffic counts are included in the appendix.

## Existing Traffic Operating Conditions

Existing traffic operating conditions were analyzed at the existing study intersections. Intersections are the focus of the traffic analysis because they are the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is nearly always diminished in their vicinity. Before the analysis results of the study intersections are presented, discussion is provided for two important analysis issues: (1) intersection performance measures (definitions of typical measures) and (2) required operating standards (per roadway, as specified by the agency with roadway jurisdiction).

### INTERSECTION PERFORMANCE MEASURES

Level of service (LOS) ratings and volume-to-capacity (V/C) ratios are two commonly used performance measures that provide a good picture of intersection operations. In addition, they are often incorporated into agency mobility standards. Descriptions are given below:

- **Level of service (LOS):** A “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection.<sup>9</sup> LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in long queues and delays.
- **Volume-to-capacity (V/C) ratio:** A decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used (i.e., the saturation) at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

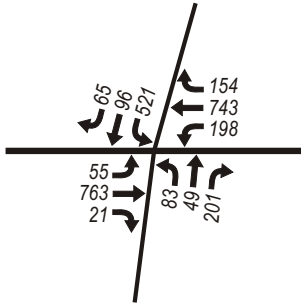
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<sup>7</sup> *City of Wilsonville Transportation Systems Plan*, Entranco, Adopted June 2, 2003; Tables 4.g and 4.k, Project C-30

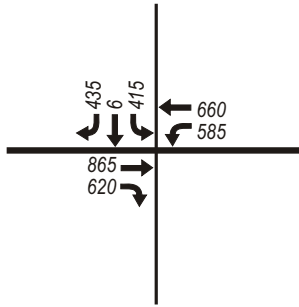
<sup>8</sup> PM peak hour turn movement counts were collected at the study intersections from 4:00 p.m. to 6:00 p.m. on January 29, 2008; June 24, 2008; or July 1, 2008. Count dates are shown in detailed turn movement count sheets in appendix. Saturday peak hour counts were collected on July 12, 2008.

<sup>9</sup> A description of Level of Service (LOS) is provided in the appendix and includes a list of the delay values (in seconds) that correspond to each LOS designation.

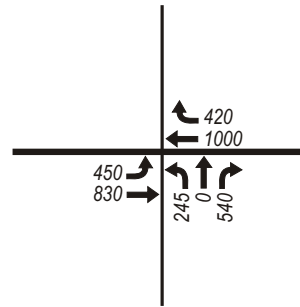
**1. WILSONVILLE RD @  
 BOONES FERRY RD**



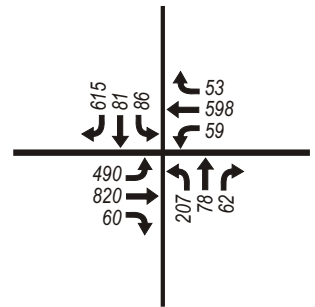
**2. WILSONVILLE RD @  
 I-5 SB ON/OFF RAMP**



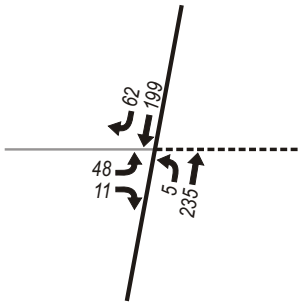
**3. WILSONVILLE RD @  
 I-5 NB ON/OFF RAMP**



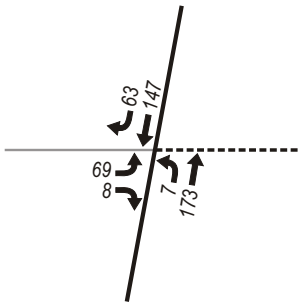
**4. WILSONVILLE RD @  
 TOWN CENTER LOOP W.**



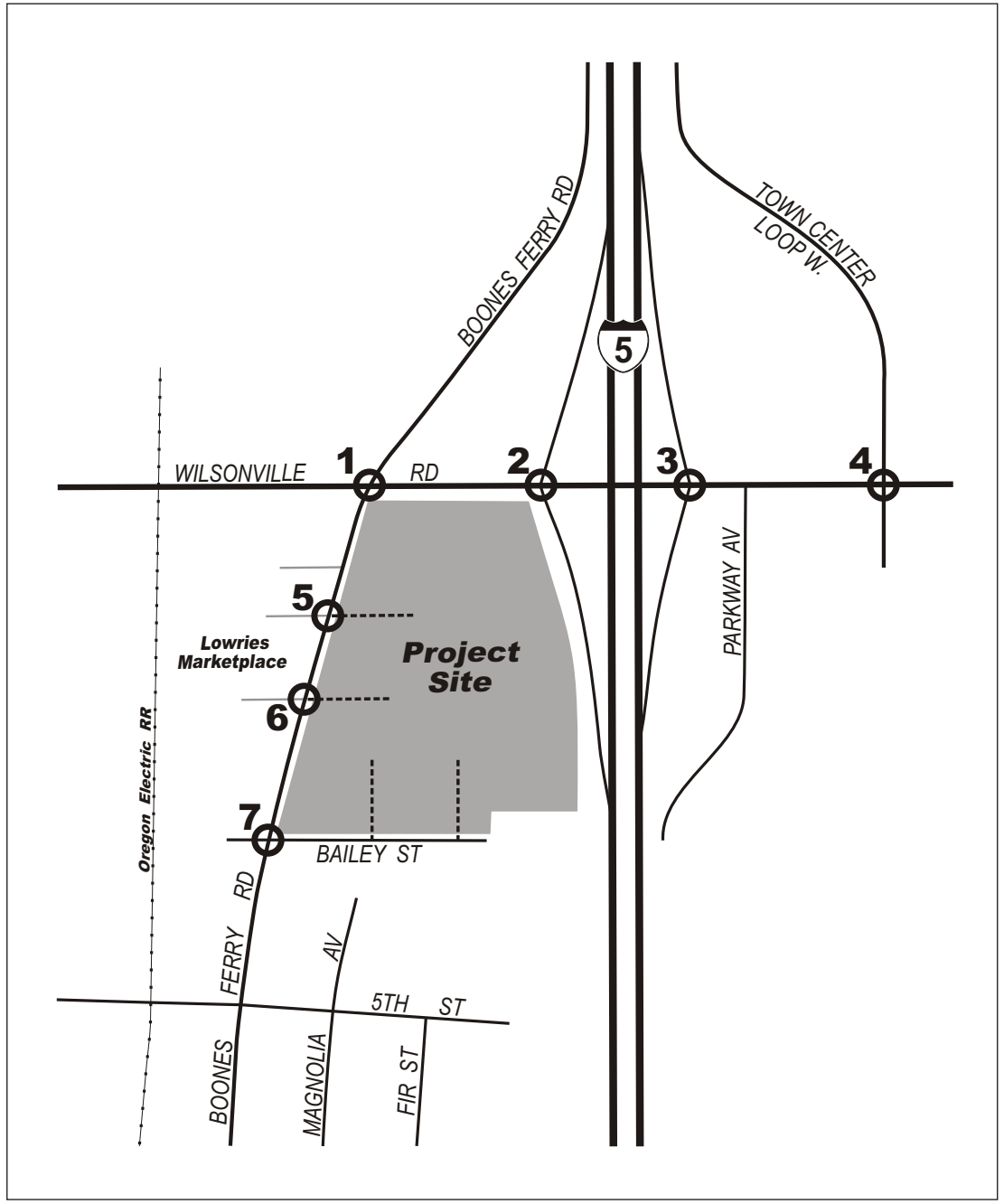
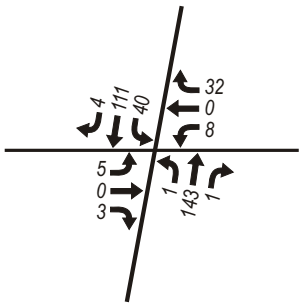
**5. BOONES FERRY RD @  
 LOWRIES/N. PROJECT DRIVEWAY**



**6. BOONES FERRY RD @  
 LOWRIES/S. PROJECT DRIVEWAY**



**7. BOONES FERRY RD @  
 BAILEY ST**



**LEGEND**

- 1** - Study Intersection & Number
- Proposed Fred Meyer Driveway
- Existing Lowries Driveway
- ← 00 - PM Peak Hour Traffic Volume

**DKS Associates**  
 TRANSPORTATION SOLUTIONS



**Figure 2**

**2008 EXISTING  
 PM PEAK HOUR  
 TRAFFIC VOLUMES**

**REQUIRED OPERATING STANDARDS**

All study intersections of public streets are required to meet the City of Wilsonville’s operating standard. For peak periods, the City’s minimum acceptable level of service (LOS) is LOS D.<sup>10</sup> It should be noted that while project driveways are not required to meet the City’s LOS standard, it is still highly encouraged.

**EXISTING OPERATING CONDITIONS**

The existing traffic operating conditions at the study intersections were determined for the PM peak hour based on the *2000 Highway Capacity Manual* methodology<sup>11</sup> for signalized and unsignalized intersections. The conditions include the estimated average delay, level of service (LOS), and volume-to-capacity (V/C) ratio of each study intersection and are listed in Table 7. As shown in the table, all study intersections currently comply with the City of Wilsonville LOS D operating standard.

**TABLE 7: Existing Operating Conditions (PM Peak Hour)**

Intersection	Operating Standard	Existing Conditions		
		Delay	LOS	V/C
<b>Signalized</b>				
Boones Ferry Rd / Wilsonville Rd	LOS D	36.0	D	0.77
I-5 SB Ramps / Wilsonville Rd	LOS D, 0.99 V/C	36.1	D	0.90
I-5 NB Ramps / Wilsonville Rd	LOS D, 0.99 V/C	37.2	D	0.91
Town Center Loop W / Wilsonville Rd	LOS D	37.7	D	0.80
<b>Unsignalized</b>				
Boones Ferry Rd / North Project Access	-	12.7	A/B	0.13
Boones Ferry Rd / South Project Access	-	11.9	A/B	0.14
Boones Ferry Rd / Bailey St	LOS D	10.9	A/B	0.06
<b>Signalized intersections:</b> Delay = Average Stopped Delay per Vehicle (sec) for All Movements LOS = Level of Service of Intersection V/C = Volume-to-Capacity Ratio of Intersection <u><b>Bold Underlined</b></u> values do not meet standards.		<b>Unsignalized intersections:</b> Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement LOS = Level of Service of Major Street/Minor Street V/C = Volume-to-Capacity Ratio of Worst Movement <u><b>Bold Underlined</b></u> values do not meet standards.		

**EXISTING QUEUING OBSERVATIONS**

Currently, the vehicle queues in the westbound through lanes on Wilsonville Road at the I-5 southbound ramp exceed the available storage.<sup>12</sup> Queues routinely spill back into the Wilsonville Road/Town Center Loop West intersection due to large demand of westbound left turning vehicles destined for I-5

<sup>10</sup> *City of Wilsonville Code*, City of Wilsonville Section 4.140, p.163.

<sup>11</sup> *Guidelines for the Preparation of Transportation Impact Analyses*, City of Salem, Effective December 28, 1994.

<sup>12</sup> Field observations by DKS Associates, May 2008.

southbound. The westbound through vehicle queues on Wilsonville Road at Town Center Loop West currently fill the existing storage to Rebekah Street.

## Collision History

The collision histories of the study intersections were obtained for 2004 through 2006 from the Oregon Department of Transportation (ODOT) Crash Analysis and Reporting Unit. Based on the collision data and peak hour traffic counts, collision rates were estimated at the study intersections. A rate greater than or equal to 1.0 collision per million entering vehicles (MEV) generally indicates a higher than average collision rate. As shown in Table 8, none of the study intersections have collision rates above 1.0. The table also lists the breakdown of collisions by severity. As shown, between 2004 and 2006, most collisions caused property damage only, and there were no fatal collisions reported.

**TABLE 8: Study Area Intersection Collisions (2005-2007)**

Intersection	Collisions (by Severity)				Collisions Per year	Collision Rate <sup>b</sup>
	Fatal	Injury	PDO <sup>a</sup>	Total		
<b>Signalized Intersections</b>						
Boones Ferry Rd / Wilsonville Rd	0	0	5	5	1.7	0.15
I-5 SB Ramps / Wilsonville Rd	0	3	8	11	3.7	0.29
I-5 NB Ramps / Wilsonville Rd	0	6	7	13	4.3	0.34
Town Center Lp W / Wilsonville Rd	0	5	5	10	3.3	0.30
<b>Unsignalized Intersections</b>						
Boones Ferry Rd / Bailey St	0	0	0	0	0.0	0.00

<sup>a</sup> PDO = Property damage only.

<sup>b</sup> Collision rate = average annual collisions per million entering vehicles (MEV); MEV estimates based on PM peak-hour traffic count.

<sup>c</sup> One collision at Bridge Street involved a bicyclist who was injured.

## Public Transit Service

South Metro Area Rapid Transit (SMART) operates several fixed routes that serve Wilsonville and the surrounding area.<sup>13</sup> The SMART bus stop closest to the project site is located on Boones Ferry Road adjacent to the Lowries Marketplace; it is between the two proposed Fred Meyer access driveways. The bus stop includes a shelter and bus pullout. This stop services Route 204, which connects the east and west City limits. There is also a bus stop to the northwest of the project site at the Wilsonville Road/Boones Ferry Road intersection; this stop services Route 203.

<sup>13</sup> SMART operates several fixed routes that serve Wilsonville and make connections to TriMet in Portland, Cherriots in Salem, and Canby Area Transit. The main transfer locations are Commerce Circle (Route 203, which provides service within Wilsonville from the City Hall Park and Ride to Commerce Circle via Boones Ferry Road and 95<sup>th</sup> Avenue), Tualatin Park and Ride (Route 201), Barbur Blvd. Transit Center (Route 201), Salem Transit Center (Route 1X, which provides service throughout Wilsonville and connects to the Salem Transit Mall), and Canby Transit Center. In addition, Route 204 provides service on Wilsonville Road and Town Center Loop connecting the east and west city limits. SMART also operates a dial-a-ride system that operates on a demand-responsive basis; SMART Web Page: <http://www.ridesmart.com>.

## CHAPTER 3: IMPACT ANALYSIS

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This chapter reviews the impact that the proposed Fred Meyer would have on the study area transportation system in the City of Wilsonville. Although the development would generate traffic throughout the week, the weekday PM peak hour was the main period analyzed since this is when the greatest impact is expected (the sum of project traffic and traffic on adjacent streets is generally greatest during this period).

The PM peak hour analysis includes PM peak hour trip generation, trip distribution, capacity analysis of study intersections, and queuing analysis. First, the proposed development is described.

### Proposed Development

The Fred Meyer development is located on the northeast corner of Boones Ferry Road and Bailey Street in the City of Wilsonville, Oregon. The project site is currently vacant except for two buildings: (1) an existing church building that will remain and may serve as a community center or retail space and (2) a U.S. Bank building that will be removed in conjunction with the development.

The proposed development includes a 155,881 square-foot Fred Meyer building (which includes the Fred Meyer store as well as 10,100 square feet of additional tenant space<sup>14</sup>), six other buildings (which include 50,879 square feet of retail/office use and a 3,316 square-foot restaurant), and 60 residential apartment units.<sup>15</sup> A site plan is included in the appendix. Compared to the proposed uses analyzed in the 2004 Fred Meyer traffic study<sup>16</sup>, the current proposal has a Fred Meyer building that is 11,206 square feet smaller, a total of 41,879 more square feet of retail space (spread among six buildings instead of the previous four buildings), 2,684 less square feet of restaurant space, and 60 residential apartment units (no residential uses were included in the previous site plan).

The currently proposed site has four access points to the public street system: two on SW Boones Ferry Road and two on SW Bailey Street. The SW Boones Ferry Road accesses are on the west side of the development and would be aligned with the existing Lowries Marketplace driveways (see Figure 1, 2, or 3). The SW Bailey Street accesses are on the south side of the development and it is uncertain whether they are aligned with the existing apartment driveways. Based on the current site plan and the site location, the north driveway on Boones Ferry Road appears to serve as the development's main entrance.

### Trip Generation

Trip generation is the method used to estimate the number of vehicles that are added to the site driveways and study intersections by the development during a specified period (i.e. such as the peak hour). The PM peak hour trip generation for the proposed retail and restaurant uses on the Fred Meyer site was performed using similar assumptions and methodology as the 2004 Fred Meyer traffic study<sup>17</sup>. Because residential units were not part of the previous study, new trip assumptions were made regarding the proposed 60 residential units.

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<sup>14</sup> Tenant space within a Fred Meyer building is typically occupied by businesses providing additional goods or services, such as coffee shops or banks.

<sup>15</sup> Email from Christine McKelvey, Group Mackenzie, July 2, 2008.

<sup>16</sup> *The Fred Meyer Development Transportation Impact Study*, DKS Associates, November 2004.

<sup>17</sup> *The Fred Meyer Development Transportation Impact Study*, DKS Associates, November 2004.

Because the Fred Meyer development includes mixed-uses, its trip generation includes the calculation of many types of trips: total, internal, pass-by, diverted, and primary trips. In addition, Fred Meyer purchased the U.S. Bank pad (currently still in operation) and gas station pad (has already been removed). Both of these pads have grandfathered trips that will be subtracted from the Fred Meyer trip generation estimates to obtain the total number of net-new trips that are being added by the development to the street network. The methodology used and resulting estimates of each of these trips are explained in the following sections.

**TOTAL TRIPS**

Total trips include all trips made to and from each proposed land use (including between land uses) within the development. The land uses include the Fred Meyer store (including the attached tenant space), retail (“shopping center”), office, restaurant (“high turnover, sit-down”), and condos/apartments. To allow for flexibility of future conversion of the office space to retail use, the office space was analyzed as retail use (this is the worst-case trip impact). In addition, the project sponsor has not yet determined the type of apartments, condos, or townhomes that will be constructed; to provide flexibility for a future decision, the highest apartment/condo/townhome trip generation rate was assumed (this is the worst-case trip impact).

As in the 2004 study, the total trips were estimated using trip rates provided in the Institute of Transportation Engineers (ITE) *Trip Generation, 7<sup>th</sup> Edition*<sup>18</sup> manual as well as a Fred Meyer trip rate that was based on historical trip surveys of existing Fred Meyer stores<sup>19</sup>. The rates assume that each land use is a free-standing site. Because multi-use developments do not have free-standing land uses, the total trip generation is only a starting point for trip generation (i.e., internal trip reductions are necessary, in addition to pass-by and diverted trip reductions). The total trips for each proposed land use are shown in Table 9. In addition, Table 9 also shows that all the proposed land uses combined would generate a total of 1,255 (627 in, 628 out) PM peak hour trips.

**TABLE 9: Total Trip Generation for the Fred Meyer Development (PM Peak Hour)**

Land Use (ITE Code)	Size	Trip Rate	PM Peak Hour Trips		
			In	Out	Total
Fred Meyer and Tenant Space	155.7 KSF	4.95 trips/KSF <sup>a</sup>	386	385	771
Shopping Center (820) <sup>b</sup>	50.9 KSF	7.88 trips/KSF	192	209	401
High-Turnover (sit-down) Restaurant (932)	3.3 KSF	10.92 trips/KSF	22	14	36
<u>Apartments/Condos/Townhouses<sup>c</sup></u>	<u>60 units</u>	<u>0.78 trips/unit</u>	<u>27</u>	<u>20</u>	<u>47</u>
<b>Total Trips</b>			<b>627</b>	<b>628</b>	<b>1,255</b>

<sup>a</sup> Fred Meyer trip rate based on surveyed Fred Meyer stores in Oregon and Washington.

<sup>b</sup> Office space analyzed as retail to allow for future conversion (retail is the higher trip rate).

<sup>c</sup> Residential apartment units analyzed using "Low-Rise Residential Condominium/Townhouse" (231) ITE trip rate, which is the highest rate for any type of apartment, townhouse, or condominium.

<sup>18</sup> *Trip Generation, 7<sup>th</sup> Edition*, Institute of Transportation Engineers, 2003.

<sup>19</sup> *Fred Meyers PM Peak Hour Trip Generation Summary*, DKS Associates, December 17, 2003.



## INTERNAL TRIPS

Internal trips occur in multi-use developments and are specified as those trips taken between the different uses of the site. These trips are made by vehicles that stop at more than one use within the development (for example, a patron enters the site to shop at Fred Meyer and then continues to shop at one of the other retail pads). Internal trips make use of the private street and/or pedestrian path network of the development; therefore, internal trips do not impact public roads, public intersections, or site driveways and can be subtracted from the total trips to determine the number of driveway trips that the site generates.

Internal trips between the retail and restaurant land uses (i.e., all land uses except residential) were estimated at 10%, which is the same percentage used in the 2004 study. In addition, internal trips to and from the residential units were estimated using the ITE methodology specified in the *ITE Trip Generation Handbook*.<sup>20</sup> With the addition of the residential land use, the total internal capture increased from 10% to 12.5%. The total internal trips are listed in Table 10, and a diagram showing the internal capture rates and trips between the residential units and the remaining land uses is provided in the appendix.

**TABLE 10: Internal Trip Generation for the Fred Meyer Development (PM Peak Hour)**

Trip Type	PM Peak Hour Trips		
	In	Out	Total
Internal Trips between all Retail/Restaurant Uses (10% of Total trips)	60	60	120
Internal Trips to and from Residential Units <sup>a</sup>			
Residential Trip Ends	8	11	19
<u>Retail/Restaurant Trip Ends</u>	<u>11</u>	<u>8</u>	<u>19</u>
<b>Total Internal Trips</b>	<b>79</b>	<b>79</b>	<b>158</b>

<sup>a</sup> Internal trips originate and terminate in the development; therefore, the 19 internal residential trips (8 in, 11 out) are accounted for as 19 additional internal retail/restaurant trips (11 out, 8 in).

## PASS-BY TRIPS

Pass-by trips are project trips made by vehicles already on the adjacent roadway (i.e., any roadway with access to the site). These vehicles do not consider the site as their primary destination; instead, they are stopping by on their way to another destination (e.g., Old Town).<sup>21</sup> Because these vehicles are already on the adjacent roadway, they are not considered new traffic to the street system; however, pass-by trips are new to the project driveways and therefore still impact those intersections used for site access due to the increased number of turn movements.

<sup>20</sup> *Trip Generation Handbook, 2<sup>nd</sup> Edition*, Institute of Transportation Engineers, June 2004; Chapter 7. This methodology consists of assuming internal capture rates, calculating unconstrained internal demand volumes, and estimating the balanced demand volumes between land use types. This methodology is based on the assumption that a land uses can only “give” a certain number of internal trips to another land use, which can in turn can only “receive” a certain number of internal trips. Balancing consists of assuming that the smaller of the “give” and “receive” amounts is the actual number of internal trips made.

<sup>21</sup> Some example land uses that typically attract high numbers of pass-by trips are fast-food restaurants and gas stations, where a significant number of vehicles stop by on their way to other destinations; in addition to these land uses, most other retail developments also attract pass-by trips.

For the proposed Fred Meyer development, 15% of the retail and restaurant driveway trips<sup>22</sup> were assumed to be pass-by trips; this is the same percentage that was used in the 2004 study. In total, there are an estimated 160 (80 in, 80 out) pass-by trips. All of these trips access the site from Boones Ferry Road. The pass-by trips are listed in Table 11, which is included after the discussions of diverted and primary trips. A figure showing the pass-by trips broken down by turn movement at the study intersections is included in the appendix.

**DIVERTED TRIPS**

Diverted trips are project trips made by vehicles already in the project study area that must change their routes to access the site. Like pass-by trips, diverted trips do not consider the site as their primary destination; however, diverted trips have a greater impact than pass-by trips because they increase traffic volumes on the adjacent roadways and at critical study intersection movements. In addition, those trips diverted from Interstate-5 now enter the City of Wilsonville street system when they otherwise would not.

For the proposed Fred Meyer development, 42% of the retail and restaurant driveway trips<sup>23</sup> were assumed to be diverted trips; this is the same percentage that was used in the 2004 study. In total, there are an estimated 449 (224 in, 225 out) diverted trips. The diverted trips are listed in Table 11, which is presented following the discussion of primary trips. The trip distribution of the diverted trips is discussed in a later section of this chapter. A figure showing the diverted trips broken down by turn movement at the study intersections is included in the appendix.

**PRIMARY TRIPS**

Primary trips are the new trips added to the study area roadways by the proposed development; these are vehicles whose primary destination is the development. The primary trips make up the remaining driveway trips (i.e., all driveway trips that are not pass-by or diverted trips).

For the proposed Fred Meyer development, there are an estimated 488 (244 in, 244 out) primary trips; these are listed in Table 11. A figure showing the primary trips broken down by turn movement at the study intersections is included in the appendix.

**TABLE 11: Driveway Trips for the Fred Meyer Development (PM Peak Hour)**

Trip Type	PM Peak Hour Trips		
	<i>In</i>	<i>Out</i>	<i>Total</i>
Pass-by Trips (15% of Retail/Restaurant)	80	80	160
Diverted Trips (42% of Retail/Restaurant)	224	225	449
<u>Primary Trips</u>	<u>244</u>	<u>244</u>	<u>488</u>
<b>Total Driveway Trips</b>	<b>548</b>	<b>549</b>	<b>1,097</b>

<sup>22</sup> No residential driveway trips were considered to be pass-by trips.

<sup>23</sup> No residential driveway trips were considered to be diverted trips.

### GRANDFATHERED TRIPS

Since the 2004 study was prepared, it is our understanding that the gas station and bank properties have been purchased by Fred Meyer. Because the uses will be removed in conjunction with site development (the U.S. Bank pad currently exists and will be removed and the gas station pad has already been removed), trips corresponding to these uses are considered “grandfathered” trips and should be subtracted from project trips when determining development impacts and fees.

The primary, pass-by, and diverted trips generated by the U.S. Bank and the gas station were documented in 2005 in a memorandum by DKS Associates<sup>24</sup> and correspond to the existing driveway volumes analyzed in the 2004 Fred Meyer Transportation Impact Study<sup>25</sup>. The grandfathered primary, pass-by, and diverted trips for the bank and gas station are shown in Table 12. It should be noted that since the U.S. Bank is still in operation, the bank trips were deducted from the added project traffic for future analysis scenarios since the existing counts included existing bank trips.

**TABLE 12: Grandfathered Trips for the Fred Meyer Development (PM Peak Hour)**

Trip Type	PM Peak Hour Trips		
	<i>In</i>	<i>Out</i>	<i>Total</i>
<b>Grandfathered U.S. Bank Trips</b>			
Pass-by Trips	8	8	16
Diverted Trips	46	52	98
<u>Primary Trips</u>	<u>18</u>	<u>20</u>	<u>38</u>
<b>Total</b>	<b>72</b>	<b>80</b>	<b>152</b>
<b>Grandfathered Gas Station Trips</b>			
Pass-by Trips	7	6	13
Diverted Trips	29	31	60
<u>Primary Trips</u>	<u>6</u>	<u>7</u>	<u>13</u>
<b>Total</b>	<b>42</b>	<b>44</b>	<b>86</b>
<b>Total Grandfathered Trips (U.S. Bank and Gas Station)</b>			
Pass-by Trips	15	14	29
Diverted Trips	75	83	158
<u>Primary Trips</u>	<u>24</u>	<u>27</u>	<u>51</u>
<b>Total</b>	<b>114</b>	<b>124</b>	<b>238</b>

### TRIP GENERATION SUMMARY

The trip generation summary for the Fred Meyer development is listed in Table 13. As shown in the table, the proposed Fred Meyer development is expected to generate 1,255 (627 in, 628 out) total PM peak hour land use trips and 1,097 (548 in, 549 out) total PM peak hour driveway trips. The grandfathered trips that

<sup>24</sup> *Fred Meyers Transportation Issues Letter Review*, DKS Associates, April 19, 2005.

<sup>25</sup> *The Fred Meyer Development Transportation Impact Study*, DKS Associates, November 2004.

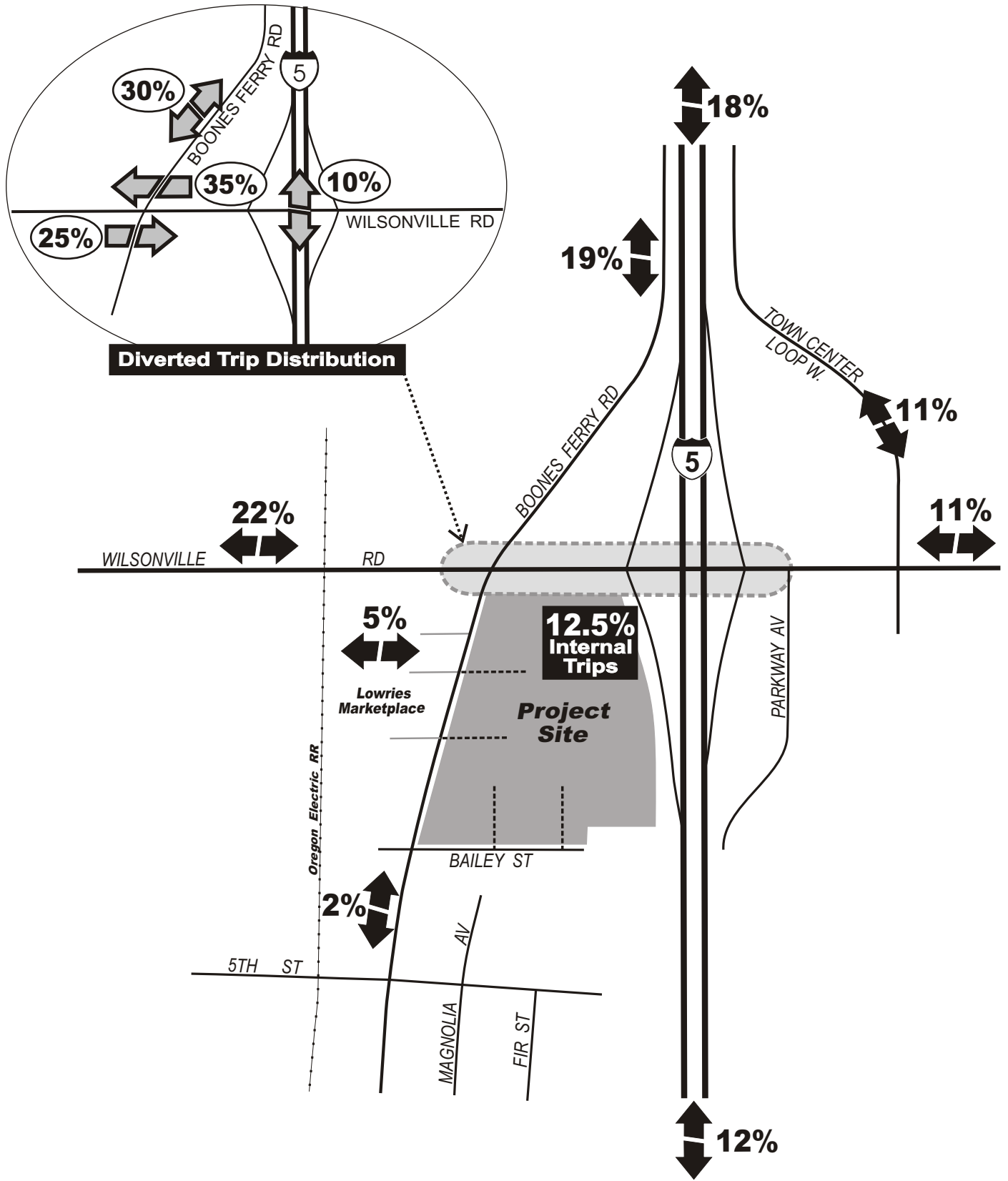
would be credited to the Fred Meyer development include 238 (114 in, 124 out) PM peak hour trips; this accounts for both the gas station and the U.S. Bank.

**TABLE 13: Trip Generation Summary for the Fred Meyer Development (PM Peak Hour)**

Trip Type	PM Peak Hour Trips		
	<i>In</i>	<i>Out</i>	<i>Total</i>
<b>Proposed Fred Meyer Development Trips</b>			
Total Internal Trips	79	79	158
<u>Total Driveway Trips</u>	<u>548</u>	<u>549</u>	<u>1,097</u>
<b>Total Proposed Trips</b>	<b>627</b>	<b>628</b>	<b>1,255</b>
<b>Grandfathered Trips</b>			
Total Grandfathered Trips	114	124	238

### Trip Distribution

Trip distribution percentages used for routing project trips through the study area were based on the trip distribution assumptions used in the 2004 study, with the exception of one adjustment. This adjustment includes a 5% distribution of traffic to the Lowries Marketplace development, which is located across the street on the west side of Boones Ferry Road. The Lowries development was not constructed at the time the 2004 Fred Meyer traffic study was prepared. Figure 3 shows the trip distribution percentages used for the primary and diverted trips.



**LEGEND**

- 00% - Trip Distribution Percentage
- ↔ - Primary Trips
- ↔ - Diverted Trips

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**Figure 3**

**TRIP DISTRIBUTION**

NO SCALE

## New Trips through City of Wilsonville Interchange Areas

The number of new PM peak hour trips that pass through the two Wilsonville I-5 interchange areas were estimated based on results from the trip generation and distribution. The two interchange areas are at Wilsonville Road (which includes the Boones Ferry Road/Wilsonville Road intersection) and at Elligsen Road. Both the primary and diverted trips that are added to the interchange areas are accounted for. As shown in Table 14, the Fred Meyer development would generate 768 total PM peak hour trips through the Wilsonville Road interchange area and 2 net new PM peak hour trips through the Elligsen Road interchange area.

Since the Fred Meyer development has purchased the gas station and bank pads, grandfathered trips through the interchange areas were estimated (in a previous memorandum<sup>26</sup>) and were deducted from the new project trips in order to determine net-new PM peak hour trips through the interchange areas. The resulting net-new PM peak hour trips through the I-5/Wilsonville Road and the I-5/Elligsen Road-Boones Ferry Road interchange areas are listed in Table 14. As shown in the table, the proposed Fred Meyer development would generate 612 net-new PM peak hour trips through the I-5/Wilsonville Road interchange area and 2 net-new PM peak hour trips through the I-5/Elligsen Road-Boones Ferry Road area.

**TABLE 14: Net-New Fred Meyer Trips through Interchange Areas (PM Peak Hour)**

Trip Type	PM Peak Trips through I-5 Interchange Areas	
	Wilsonville Road Area	Elligsen Road Area
<b>Proposed Fred Meyer Trips</b>		
Diverted Trips	314	N/A
<u>Primary Trips</u>	<u>454</u>	<u>2</u>
<b>Total Fred Meyer Trips through Interchange</b>	<b>768</b>	<b>2</b>
<b>Grandfathered Trips</b>		
Grandfathered Diverted Trips	-114	N/A
Grandfathered Primary Trips	<u>-42</u>	<u>-0</u>
<b>Total Grandfathered Trips through Interchange</b>	<b>-156</b>	<b>0</b>
<b>Net-New PM Peak Trips through Interchange Area</b>	<b>612</b>	<b>2</b>

## Future Traffic Operating Conditions

Future traffic operating conditions, consisting of intersection performance and queuing, were analyzed at the study intersections to determine if the transportation network can support the additional development traffic. Intersections are the focus of the analysis because they are the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is nearly always diminished in their vicinity. If City of Wilsonville operating standards are not met or expected queues exceed storage length at the study intersections, then mitigations are required to improve network performance.

<sup>26</sup> Fred Meyers Transportation Issues Letter Review, DKS Associates, April 19, 2005; see figures.

## **FUTURE ANALYSIS SCENARIOS**

Future PM peak hour traffic operations were analyzed at the study intersections for three operating scenarios:

- Existing plus Project (includes Fred Meyer development traffic and removes the existing U.S. Bank traffic)
- Existing plus Stage II (includes traffic from other developments in the project vicinity that have Stage II approval and assumes continued operation of the U.S. Bank)
- Existing plus Project plus Stage II (includes traffic from Fred Meyer as well as from Stage II approved developments and removes the existing U.S. Bank traffic)

These operating scenarios include various combinations of three types of traffic: existing, project, and stage II traffic. Existing and project traffic have both been explained previously. Stage II traffic levels were estimated based on the list of currently approved Stage II developments, which was provided by City staff.<sup>27</sup> This list and the corresponding PM peak hour trip generation estimates for these developments are included in the appendix. The weekday PM peak hour traffic volumes used to analyze the “Existing plus Stage II” and the “Existing plus Project plus Stage II” scenarios are shown in Figure 4.

## **FUTURE ANALYSIS WITH EXISTING WILSONVILLE ROAD CROSS-SECTION**

The first future scenario intersection analysis was performed assuming the existing cross-section on Wilsonville Road and the site frontage improvements along Boones Ferry Road (as shown on the current Fred Meyer site plan, which is included in the appendix). The analysis was performed using *2000 Highway Capacity Manual* methodology<sup>28</sup> for signalized and unsignalized intersections. For the four study intersections on the Wilsonville Road corridor, a Synchro™ model of the existing Wilsonville Road cross-section was used to analyze traffic operating conditions because it accounts for signal coordination and the resulting traffic flow patterns.

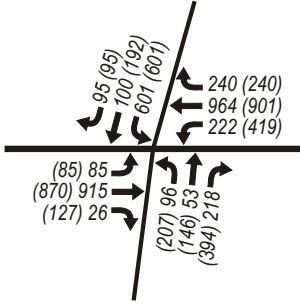
The intersection operating conditions for each of the three future PM peak hour traffic scenarios are listed in Table 15. As shown in the table, all four study intersections on Wilsonville Road exceed operating standards under the “Existing plus Project plus Stage II” scenario. Both northbound and southbound ramps also exceed operating standards under the “Existing plus Stage II” scenario. In addition, the two Fred Meyer development accesses on Boones Ferry Road operate below desired levels for the two scenarios that include project traffic (i.e., “Existing plus Project” and “Existing plus Project plus Stage II”). The detailed analysis output sheets corresponding with these results are included in the appendix.

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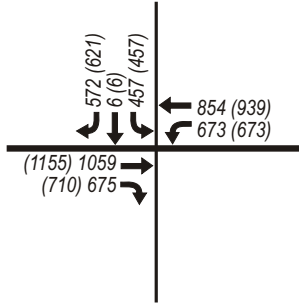
<sup>27</sup> Email from Blaise Edmonds, City of Wilsonville, July 1, 2008 (see appendix for Stage II list).

<sup>28</sup> *Guidelines for the Preparation of Transportation Impact Analyses*, City of Salem, Effective December 28, 1994.

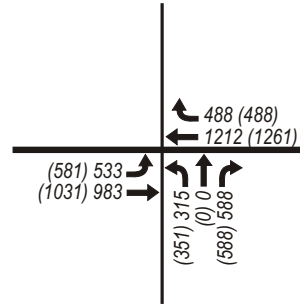
**1. WILSONVILLE RD @  
 BOONES FERRY RD**



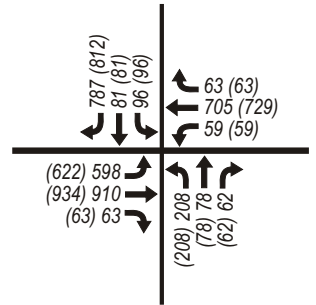
**2. WILSONVILLE RD @  
 I-5 SB ON/OFF RAMP**



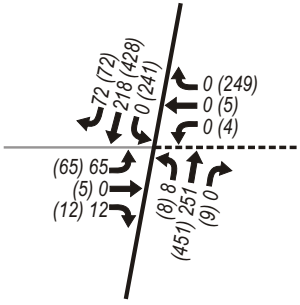
**3. WILSONVILLE RD @  
 I-5 NB ON/OFF RAMP**



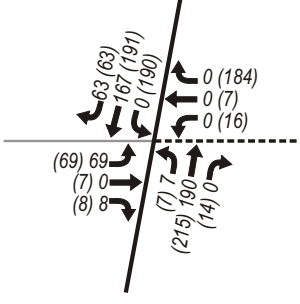
**4. WILSONVILLE RD @  
 TOWN CENTER LOOP W.**



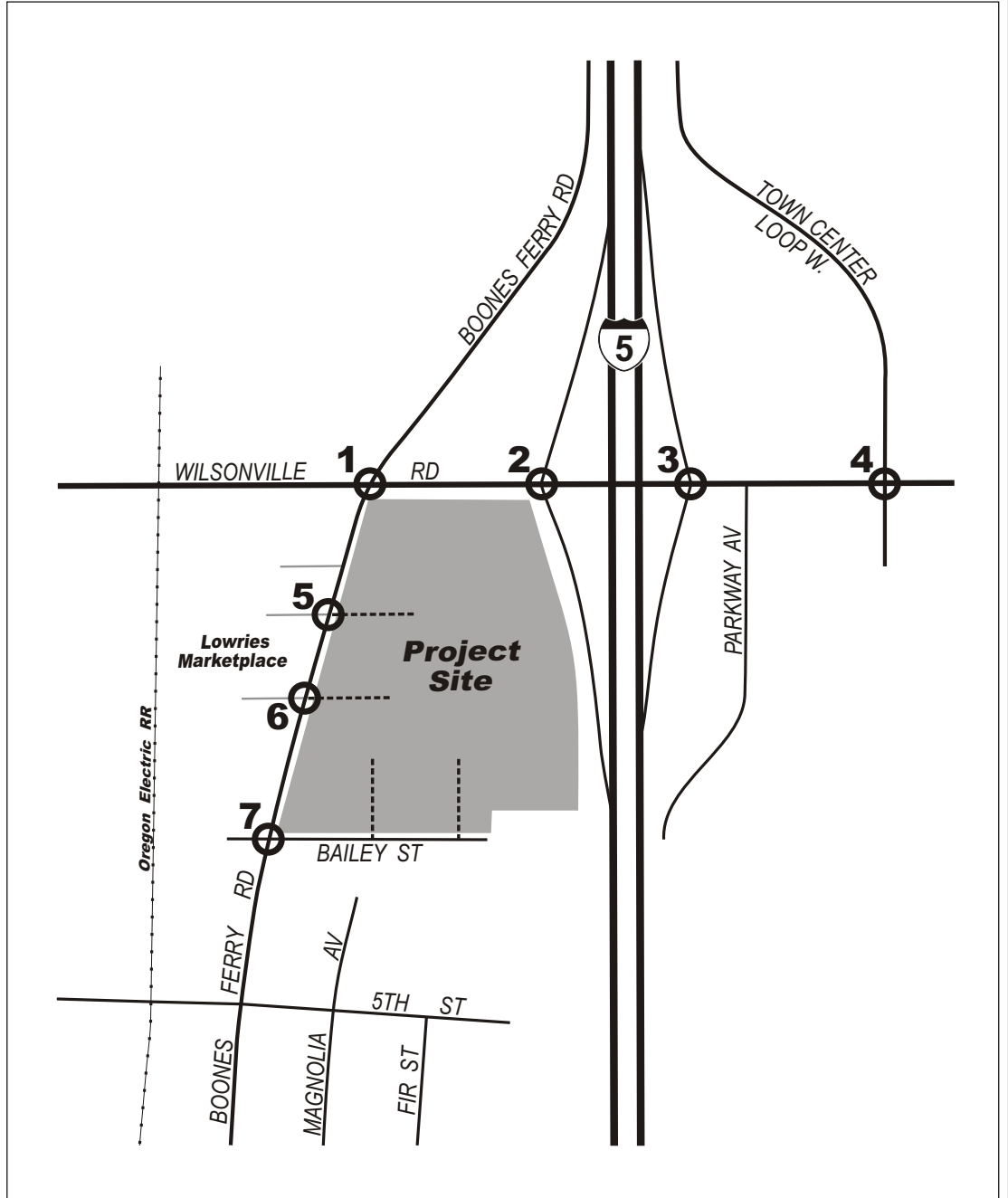
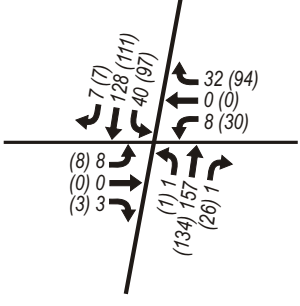
**5. BOONES FERRY RD @  
 LOWRIES/N. PROJECT DRIVEWAY**



**6. BOONES FERRY RD @  
 LOWRIES/S. PROJECT DRIVEWAY**



**7. BOONES FERRY RD @  
 BAILEY ST**



**LEGEND**

- 1** - Study Intersection & Number
- - Proposed Fred Meyer Driveway
- - Existing Lowries Driveway
- ← 00 (00) - Exist.+Stage II (Exist.+Stage II+Proj.) PM Peak Hour Traffic Volumes





**TABLE 15: Future Operating Conditions (PM Peak Hour)**

Intersection	Operating Standard	Existing + Project			Existing + Stage II			Existing + Project + Stage II		
		Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C
<b>Signalized</b>										
Boones Ferry Rd / Wilsonville Rd	LOS D	36.0	D	0.77	44.5	D	0.89	>80	<b><u>F</u></b>	>1.0
I-5 SB Ramps / Wilsonville Rd	LOS D, 0.99 V/C	36.1	D	0.90	79.1	<b><u>E</u></b>	<b><u>&gt;1.0</u></b>	>80	<b><u>F</u></b>	<b><u>&gt;1.0</u></b>
I-5 NB Ramps / Wilsonville Rd	LOS D, 0.99 V/C	37.2	D	0.91	70.9	<b><u>E</u></b>	<b><u>&gt;1.0</u></b>	>80	<b><u>F</u></b>	<b><u>&gt;1.0</u></b>
Town Center Loop W / Wilsonville Rd	LOS D	37.6	D	0.80	51.2	D	0.94	56.2	<b><u>E</u></b>	0.97
<b>Unsignalized</b>										
Boones Ferry Rd / North Project Access	-	>50	A/F	>1.0	13.9	A/B	0.18	>50	A/F	>1.0
Boones Ferry Rd / South Project Access	-	>50	A/F	0.66	12.4	A/B	0.15	>50	A/F	0.71
Boones Ferry Rd / Bailey St	LOS D	12.6	A/B	0.12	11.6	A/B	0.06	13.8	A/B	0.12
<b>Signalized intersections:</b> Delay = Average Stopped Delay per Vehicle (sec) for All Movements LOS = Level of Service of Intersection V/C = Volume-to-Capacity Ratio of Intersection <b><u>Bold Underlined</u></b> values do not meet standards.					<b>Unsignalized intersections:</b> Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement LOS = Level of Service of Major Street/Minor Street V/C = Volume-to-Capacity Ratio of Worst Movement <b><u>Bold Underlined</u></b> values do not meet standards.					

**FUTURE ANALYSIS WITH PLANNED WILSONVILLE ROAD CROSS-SECTION**

Due to capacity constraints at the I-5/Wilsonville Road interchange, improvements are planned that will provide additional capacity along Wilsonville Road between Boones Ferry Road and Town Center Loop West. Recently, the City has signed an intergovernmental agreement to construct the first phase of improvements, which will consist of a Wilsonville Road 6-lane enhanced alternative that focuses on ramp improvements and on adjustments to intersection lane configurations.

For the four study intersections on the Wilsonville Road corridor, a Synchro™ model of the improved Wilsonville Road cross-section was used to analyze intersection operating conditions for each of the three future PM peak hour traffic scenarios (i.e., “Existing plus Project”, “Existing plus Stage 2”, and “Existing plus Project plus Stage 2”). The results of the analysis are listed in Table 16. As shown in the table, all four study intersections on Wilsonville Road comply with the City of Wilsonville LOS D operating standard for each of the three scenarios. The two I-5 ramps also meet the Oregon Department of Transportation (ODOT) 0.99 volume-to-capacity (V/C) standard.

**TABLE 16: Future Operating Conditions of Wilsonville Road Intersections with Six-Lane Enhanced Alternative Improvements (PM Peak Hour)**

Intersection	Operating Standard	Existing + Project + Improvements			Existing + Stage II + Improvements			Existing + Project + Stage II + Imps.		
		Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C
<b>Signalized</b>										
Boones Ferry Rd / Wilsonville Rd	LOS D	37.7	D	0.66	31.1	C	0.67	39.3	D	0.75
I-5 SB Ramps / Wilsonville Rd	LOS D	20.6	C	0.64	22.0	C	0.72	22.7	C	0.76
I-5 NB Ramps / Wilsonville Rd	LOS D	22.9	C	0.64	23.6	C	0.74	24.7	C	0.78
Town Center Loop W / Wilsonville Rd	LOS D	35.7	D	0.66	40.3	D	0.75	43.2	D	0.78
Delay = Average Stopped Delay per Vehicle (sec) LOS = Level of Service of Intersection		V/C = Volume-to-Capacity Ratio of Intersection <b><u>Bold Underlined</u></b> values do not meet standards.								

**QUEUING ANALYSIS**

Queuing analysis was performed for the “Existing plus Project plus Stage II” scenario for both Wilsonville Road and Boones Ferry Road. These are discussed separately.

***Wilsonville Road Queuing***

The queuing analysis for Wilsonville Road was performed using SimTraffic™, which provides a system wide assessment of network performance and includes the estimation of the 95<sup>th</sup> percentile queue for each intersection approach movement. The 95<sup>th</sup> percentile queue length is the queue length at a given intersection movement that has only a 5% chance of being exceeded during the peak traffic hour. When compared with the movement’s available storage length, queue blockage issues can be determined. The queuing analysis was performed assuming the construction of the Wilsonville Road 6-lane enhanced alternative, which focuses on ramp improvements and on adjustments to intersection lane configurations.

The Oregon Department of Transportation’s access spacing criteria requires 1,320 feet between a freeway ramp and the nearest traffic signal. The City has a 1,000-foot access spacing requirement for major arterials, which applies to Wilsonville Road. The current spacing of traffic signals on Wilsonville Road adjacent to I-5 does not meet ODOT or City access spacing standards. Table 17 lists the available storage on Wilsonville Road.

Table 17 also lists the results of the vehicle queuing analysis based on the recommended improvements (see Chapter 1). At the northbound and southbound ramps, the available storage length satisfies the 95<sup>th</sup> percentile queues for each turn movement. At Boones Ferry Road, the storage lengths available for the northbound left turn and right turn movements are dependent upon Boones Ferry Road improvements as shown in Figure 5. For the northbound right turn lane, the expected queues with the addition of the Fred Meyer development show the need for a separate right turn lane with minimum queue storage of 300 feet; however, long-term needs required as part of the 20-year interchange area capacity needs will require approximately 600 feet of vehicle storage. This means that the northbound right turn lane would need to

extend past the north Fred Meyer access. For the northbound left turn lane, 300 feet of storage is needed to service expected queues (both with Fred Meyer traffic and long-term traffic needs).

**TABLE 17: Wilsonville Road Queuing (Existing + Project + Stage II + Improvements)**

Intersection on Wilsonville Road	Intersection Approach <sup>a</sup>	Available Vehicle Storage <sup>b</sup>	95 <sup>th</sup> Percentile Queue <sup>c</sup> (PM Peak Hour)
Boones Ferry Road	EB Through	1,240 ft	400 ft
	WB Left	400 ft	275 ft
	WB Through	480 ft	450 ft
	NB Left	TBD <sup>d</sup>	300 ft
	NB Right	TBD <sup>d</sup>	300 ft <sup>f</sup>
I-5 Southbound Ramp	EB Through	500 ft	300 ft
	EB Right	500 ft	300 ft
	WB Left	420 ft	350 ft
	WB Through	420 ft	350 ft
	SB Left	400/975 ft <sup>e</sup>	250 ft
	SB Right	400/975 ft <sup>e</sup>	250 ft
I-5 Northbound Ramp	EB Left	420 ft	350 ft
	EB Through	420 ft	350 ft
	WB Through	625 ft	575 ft
	NB Left	360/760 ft <sup>e</sup>	225 ft
	NB Right	360/760 ft <sup>e</sup>	250 ft

<sup>a</sup> EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound

<sup>b</sup> Available vehicle storage = distance from stop bar to upstream intersection crosswalk/stop bar

<sup>c</sup> 95<sup>th</sup> percentile queues are rounded to nearest 25 feet

<sup>d</sup> TBD = To be determined . . . the available storage lengths at these movements are dependent upon the improvements that are constructed in conjunction with the Fred Meyer site development.

<sup>e</sup> x/x = available turn lane storage/distance from stop bar to mainline freeway.

<sup>f</sup> It should be noted that the long-term right turn needs for this movement extend to 600 ft.

### **Boones Ferry Road Queuing**

Queuing analysis was also performed for the unsignalized left turn movements at the study intersections on Boones Ferry Road (i.e., at the Fred Meyer site accesses and at Bailey Street) and assumes the Boones Ferry Road cross-section shown on the site plan and full site access at both Fred Meyer driveways on Boones Ferry Road.<sup>29</sup> The results of the analysis are shown in Table 18 and indicate a potential queuing conflict for the southbound left turn at the north Fred Meyer access. Because Wilsonville Road and the north Fred Meyer access are only separated by 370 feet, there is not enough space to install both a 300-foot northbound left turn lane at Wilsonville Road and a 175-foot southbound left turn lane at the north access; therefore, additional mitigation is required, including restricting the north access to right-in/right-out movements (additional details are provided in the Boones Ferry Road Mitigation section that follows).

<sup>29</sup> Analysis was performed using the John T. Gard unsignalized queue length calculation method: "Young Consultant's Award Paper: Estimation of Maximum Queue Lengths at Unsignalized Intersection", John T. Gard, ITE Journal, November 2001.

**TABLE 18: Boones Ferry Road Existing + Project + Stage II Queuing (PM Peak Hour)**

Section of Boones Ferry Road	Intersection Movement <sup>a</sup>	95 <sup>th</sup> Percentile Queue <sup>b</sup> (PM Peak Hour)	Available Vehicle Storage
Between Wilsonville Road and North Fred Meyer Access	NB Left at Wilsonville Road	300 ft	
	SB Left at North Fred Meyer Access	175 ft	
	<b>Total</b>	<b>475 ft<sup>c</sup></b>	<b>370 ft<sup>c</sup></b>
Between North and South Fred Meyer Accesses	NB Left at North Fred Meyer Access	50 ft	
	SB Left at South Fred Meyer Access	150 ft	
	<b>Total</b>	<b>200 ft</b>	250 ft
Between South Fred Meyer Access and Bailey Street	NB Left at South Fred Meyer Access	50 ft	
	SB Left at Bailey Street	125 ft	
	<b>Total</b>	<b>175 ft</b>	400 ft

<sup>a</sup> EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound

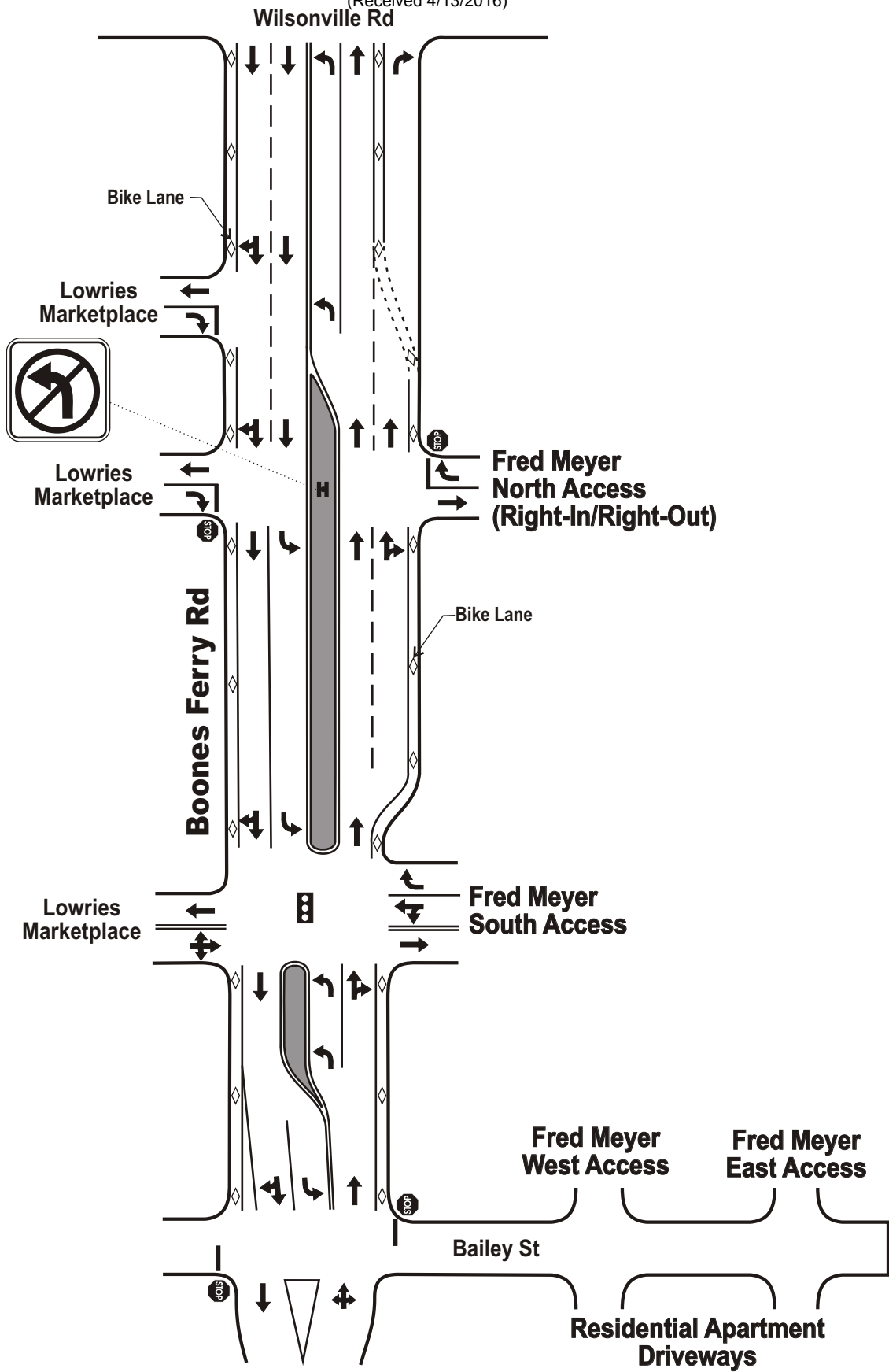
<sup>b</sup> 95<sup>th</sup> percentile queues are rounded to nearest 25 feet

<sup>c</sup> Total of left turn queues exceeds available storage.

### BOONES FERRY ROAD MITIGATIONS

Mitigations are needed on Boones Ferry Road due to intersection operation and queuing impacts from the Fred Meyer development. Both the north and south Fred Meyer accesses are higher than the City's operating standards, and insufficient storage distance is available for the southbound left turn queues at the north access; therefore, cross-section and traffic control improvements are needed on Boones Ferry Road. A conceptual layout of Boones Ferry Road is presented in Figure 5. There are three mitigations:

- At the north Fred Meyer access, install a median along Boones Ferry Road to restrict movements to right-in/right-out for both the Lowries Marketplace and Fred Meyer developments; this will increase safety by removing turn lane needs at this access and will provide for better traffic flow (i.e., queuing spillback from Wilsonville Road). It will also accommodate turn lane placement and storage needs for the Boones Ferry Road/Wilsonville Road intersection's northbound approach traffic. Also, if desired, the north Fred Meyer access may be converted to a right-out only driveway and narrowed to one lane, which would allow additional space on the project site that could be used to increase a building pad size, the number of parking stalls, etc.
- Between the north and south Fred Meyer accesses, extend the second northbound through lane (which becomes a right turn lane at the Wilsonville Road intersection) to ensure approximately 600 feet of storage is provided for the northbound right turn lane at Wilsonville Road. This distance meets the short-term Fred Meyer needs and the long-term 20-year Wilsonville Road Interchange design needs.
- At the south Fred Meyer access, install a traffic signal to facilitate egress movements from the Lowries and Fred Meyer developments. There should also be two egress lanes (i.e., a right turn lane and a through-left lane). It is expected that warrants will be met in the near future due to the addition of nearby developments. Installing the traffic signal with the Boones Ferry Road improvements will assure continuity between the improvements and the traffic signal construction. The signal should be coordinated with the Boones Ferry Road/Wilsonville Road signal. To enable the coordination, interconnect conduit and cable will need to be installed between the signals.



**LEGEND**

- ← - Lane Configuration
- STOP - Stop Sign
- ⬆️ - Traffic Signal

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**CONCEPTUAL LAYOUT FOR  
 BOONES FERRY ROAD**

**Figure 5**

These mitigations would improve the operations at the two Fred Meyer accesses (which are also Lowries Marketplace accesses) on Boones Ferry Road. Because left turns would be prohibited at the north access, all southbound Fred Meyer traffic and northbound Lowries Marketplace traffic would be required to access their respective developments from either the south access or from Bailey Street, thus increasing left turn volumes at these intersections. The adjusted traffic volumes resulting from the mitigations are shown in Figure 6. In addition, if the north access is converted to right-out only, then right turn volumes into the Fred Meyer development would also be shifted to the south access.

Intersection operations analysis was performed for the Boones Ferry Road intersections (i.e., at the two site accesses and at Bailey Street) for the mitigated conditions. Analysis results are shown in Table 19 for the north Fred Meyer access and the Boones Ferry Road/Bailey Street intersection. Table 20 lists the analysis results for both traffic control options at the south access (i.e., a traffic signal and four-way stop control). As shown in the tables, the three intersections have good operation levels and the two traffic control options for the south access are comparable to one another. The main benefits from the installation of the traffic signal are the ability to service platoon flow from the Boones Ferry Road/Wilsonville Road intersection and increase intersection capacity that would be provided.

**TABLE 19: Boones Ferry Road Mitigated Future Operating Conditions (PM Peak Hour)**

Intersection	Operating Standard	Existing + Project + Stage II + Mitigated		
		Delay	LOS	V/C
<b>Unsignalized – Two-way Stop Control</b>				
Boones Ferry Rd / North Project Access	-	13.8	A/B	0.41
Boones Ferry Rd / Bailey St	LOS D	17.0	A/C	0.15
Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement LOS = Level of Service of Major Street/Minor Street		V/C = Volume-to-Capacity Ratio of Worst Movement <b>Underlined</b> values do not meet standards.		

**TABLE 20: South Project Access Mitigated Future Operating Conditions (PM Peak Hour)**

Traffic Control at South Project Access	Existing + Project + Mitigated		
	Delay	LOS	V/C
Signalized (Option 1)	22.0	C	0.49
Four-way Stop Control (Option 2)	20.1	C	0.75
Delay = Average Stopped Delay per Vehicle (sec) for All Movements LOS = Level of Service of Intersection		V/C = Volume-to-Capacity Ratio of Intersection <b>Underlined</b> values do not meet standards.	

1. WILSONVILLE RD @  
 BOONES FERRY RD

SAME AS  
 UNMITIGATED

2. WILSONVILLE RD @  
 I-5 SB ON/OFF RAMP

SAME AS  
 UNMITIGATED

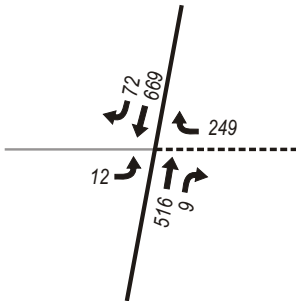
3. WILSONVILLE RD @  
 I-5 NB ON/OFF RAMP

SAME AS  
 UNMITIGATED

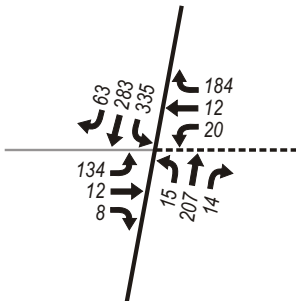
4. WILSONVILLE RD @  
 TOWN CENTER LOOP W.

SAME AS  
 UNMITIGATED

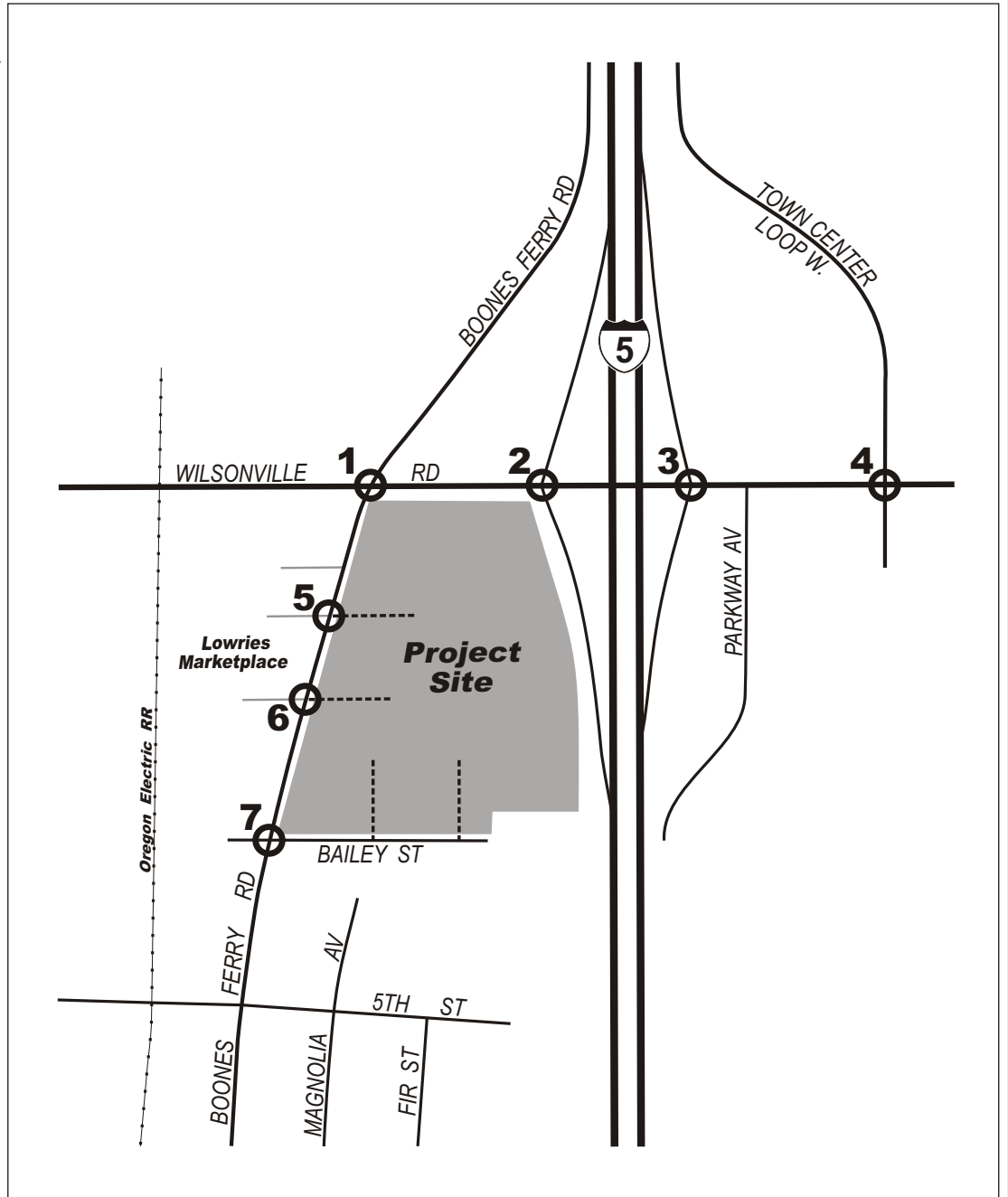
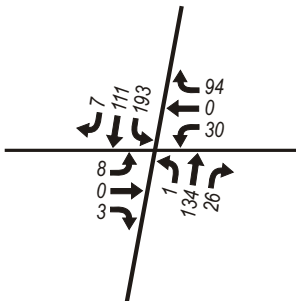
5. BOONES FERRY RD @  
 LOWRIES/N. PROJECT DRIVEWAY



6. BOONES FERRY RD @  
 LOWRIES/S. PROJECT DRIVEWAY



7. BOONES FERRY RD @  
 BAILEY ST



**LEGEND**

- 10 - Study Intersection & Number
- - Proposed Fred Meyer Driveway
- - Existing Lowries Driveway
- ← 00 - Mitigated Exist.+Stage II +Proj. PM Peak Hour Traffic Volumes

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**Figure 6**

**MITIGATED PM PEAK HOUR  
 TRAFFIC VOLUMES  
 (EXISTING+PROJ+STG 2)**



Additional queuing analysis was performed for the mitigated conditions (which include the recommended traffic signal at the south Fred Meyer access). SimTraffic™ was utilized, and the results of the analysis are given in Table 21. As shown in the table, all queues are within the available storage; in other words, there are no longer any storage lane conflicts between left turn movements (i.e., available vehicle storage is greater than the sum of competing 95<sup>th</sup> percentile queues for every section of Boones Ferry Road). The traffic signal timing can be adjusted to ensure that queuing can be reduced at key movements.

**TABLE 21: Mitigated Boones Ferry Road Ex. +Proj. + Stage II Queuing (PM Peak Hour)**

Intersection on Boones Ferry Road	Intersection Approach <sup>a</sup>	Available Vehicle Storage <sup>b</sup>	95 <sup>th</sup> Percentile Queue <sup>c</sup>
Wilsonville Road	NB Left	350 ft	300 ft
	NB Right	525 ft	600 ft <sup>d</sup>
South Fred Meyer Access	NB Left	175 ft	50 ft
	SB Left	275 ft	200 ft
Bailey Street	SB Left	150 ft	50 ft

<sup>a</sup> EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound

<sup>b</sup> Available vehicle storage = distance from stop bar to upstream intersection crosswalk/stop bar

<sup>c</sup> 95<sup>th</sup> percentile queues are rounded to nearest 25 feet

<sup>d</sup> Based on long-term needs for this movement.



## CHAPTER 4: WEEKEND SAFETY ANALYSIS

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Since the peak hour for the proposed Fred Meyer development does not occur on a weekday, but instead occurs during the Saturday midday peak hour (11:00 a.m. and 1:00 p.m.), separate trip generation and intersection safety analysis was conducted to determine if there are any weekend safety related impacts. Because Saturday peak hour conditions may also be similar to other seasonal peak hours of operation, such as holiday shopping periods, there is further reason to analyze operations during this period.

The weekend analysis focuses on traffic operations (i.e., intersection analysis and queuing analysis) at the following five<sup>30</sup> weekend scenario study intersections:

- I-5 Southbound Ramps/Wilsonville Road
- I-5 Northbound Ramps/Wilsonville Road
- Boones Ferry Road/Fred Meyer north access
- Boones Ferry Road/Fred Meyer south access
- Boones Ferry Road/Wilsonville Road

The analysis at these intersections includes a determination of Saturday peak hour project trip generation and trip distribution, exiting traffic volumes, future (existing plus project) capacity analysis of study intersections, and queuing analysis.

### Saturday Trip Generation and Trip Distribution

Saturday peak hour trip generation and trip distribution were estimated for the proposed Fred Meyer development using the same assumptions and methodology as the 2004 Fred Meyer traffic study<sup>31</sup>.

#### TRIP GENERATION

In the 2004 study, it was determined that Saturday peak hour trip generation for a free-standing discount superstore (land use code 813) and shopping center (land use code 820) is approximately 30 percent higher than the weekday PM peak hour trip generation. In addition, the 2004 study determined that the reduction percentages for pass-by and diverted trips were found to be similar during both the weekday PM and Saturday peak hours. Therefore, to estimate Saturday peak hour project trips for the currently proposed site, the weekday PM peak hour trip generation estimates for all types of project trips (as discussed in Chapter 3) were increased by 30 percent.

Because the closure of the U.S. Bank building will correlate with the proposed Fred Meyer development, Saturday peak hour trip generation estimates for the bank were subtracted from the Fred Meyer development traffic to determine the overall traffic added by the development to the street network during the Saturday peak hour. The 2004 study did not include this subtraction, so new assumptions were made following the same methodology of comparing Saturday peak hour and weekday PM peak hour trip generation rates as found in the ITE *Trip Generation, 7<sup>th</sup> Edition*<sup>32</sup> publication. Based on the published ITE rates for a drive-in bank (land use code 912), Saturday peak hour trip generation is approximately

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<sup>30</sup> Two of the PM peak hour study intersections are not included in the weekend analysis.

<sup>31</sup> *The Fred Meyer Development Transportation Impact Study*, DKS Associates, November 2004.

<sup>32</sup> *Trip Generation, 7<sup>th</sup> Edition*, Institute of Transportation Engineers, 2003.

20% less than the weekday PM peak hour trip generation; therefore, the weekday PM peak hour trips for the U.S. Bank were reduced by 20% to estimate the Saturday peak hour trips.

The estimated internal, driveway, and total trips for the proposed Fred Meyer development during the Saturday peak hour are listed in Table 22. Then in Table 23, the driveway trips are broken down by pass-by, diverted, and primary trips. In addition, Table 23 lists the U.S. Bank driveway trips and the total development trips that would be added to the street network during the Saturday peak hour.

**TABLE 22: Saturday Peak Hour Trip Generation for the Fred Meyer Development**

Trip Type	PM Peak Hour Trips		
	<i>In</i>	<i>Out</i>	<i>Total</i>
Fred Meyer Internal Trips	103	103	206
<u>Fred Meyer Driveway Trips</u>	<u>712</u>	<u>713</u>	<u>1,425</u>
<b>Total Fred Meyer Trips</b>	<b>815</b>	<b>816</b>	<b>1,631</b>

**TABLE 23: Saturday Peak Hour Trips Added to Network**

Trip Type	PM Peak Hour Trips		
	<i>In</i>	<i>Out</i>	<i>Total</i>
<b>Fred Meyer Driveway Trips</b>			
Pass-by Trips	104	104	208
Diverted Trips	291	292	583
<u>Primary Trips</u>	<u>317</u>	<u>317</u>	<u>634</u>
<b>Total Fred Meyer Driveway Trips</b>	<b>712</b>	<b>713</b>	<b>1,425</b>
<b>U.S. Bank Trips</b>			
Pass-by Trips	-6	-6	-12
Diverted Trips	-37	-42	-79
<u>Primary Trips</u>	<u>-15</u>	<u>-16</u>	<u>-31</u>
<b>Total U.S. Bank Trips</b>	<b>-58</b>	<b>-64</b>	<b>-122</b>
<b>Total Trips Added to Network<sup>a</sup></b>	<b>654</b>	<b>649</b>	<b>1,303</b>

<sup>a</sup> Total trips added to network during Saturday peak hour = Fred Meyer driveway trips – Total U.S. Bank trips; however, all Fred Meyer driveway trips are added to the project driveways.

### TRIP DISTRIBUTION

Saturday peak hour trip distribution was assumed to be the same as the weekday PM peak hour trip distribution. The weekday PM peak hour trip distribution is shown previously in Figure 3.

## Saturday Peak Hour Traffic Volumes

Intersection turn movement counts were conducted at the five weekend scenario study intersections during the Saturday mid-day peak (11:00 a.m. to 1:00 p.m.). Based on the traffic counts, the Saturday peak hour at the study intersections occurs from approximately 12:00 p.m. to 1:00 p.m. and the associated traffic volumes are approximately 30 percent lower than typical weekday PM peak hour volumes. The Saturday peak hour traffic volumes are shown in Figure 7, and detailed traffic counts are included in the appendix.

Because it is assumed that the peak hour of operation at the proposed Fred Meyer development would coincide with the Saturday traffic peak hour, the Saturday peak hour project trips were added to the existing counts. The total (i.e., existing plus project) volumes were used for the Saturday peak hour safety analysis and are shown in Figure 7.

## Saturday Traffic Operating Conditions

Saturday peak hour traffic operating conditions, consisting of intersection performance and queuing, were analyzed at the study intersections to determine if the planned transportation network (i.e., the existing network plus planned improvements at the I-5/Wilsonville Road interchange) would be able to safely accommodate the weekend peak hour development traffic. If City of Wilsonville operating standards are not met or expected queues exceed storage length at the study intersections, then mitigations are recommended to improve network safety and performance.

As in the PM peak hour future analysis, the Saturday peak hour future analysis (i.e., the “Existing plus Project” scenario) was performed assuming the site frontage improvements along Boones Ferry Road (as are shown on the site plan, which is included in the appendix) as well as the Boones Ferry Road mitigations. In addition, the analysis assumed the installation of the first phase of improvements to at the I-5/Wilsonville Road interchange (i.e., a 6-lane enhanced alternative, which focuses on ramp improvements and on adjustments to intersection lane configurations). A Synchro™ model of the Wilsonville Road improvements was used to provide a system wide assessment of traffic operating conditions for the four study intersections on the Wilsonville Road corridor. This model utilizes Highway Capacity Manual (HCM) methodologies and evaluates system level traffic operating conditions so as to account for queuing between intersections.

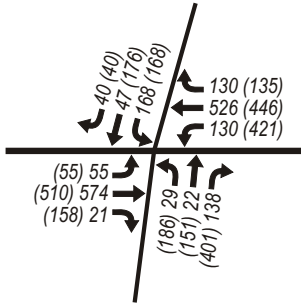
## INTERSECTION OPERATIONS

Future Saturday peak hour traffic operations were analyzed at the study intersection for two operating scenarios:

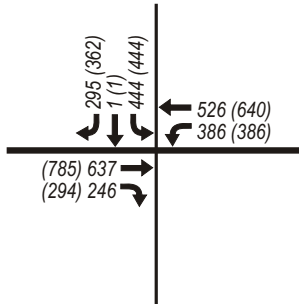
- Existing Conditions
- Existing plus Project (includes Fred Meyer traffic and removes the existing U.S. Bank traffic)

The intersection operating conditions resulting from the analysis are listed in Table 24 and Table 25, and detailed analysis output is included in the appendix. As shown in the two tables, all study intersections comply with operating standards. In addition, at the south Fred Meyer access, a traffic signal would provide better service than four-way stop control.

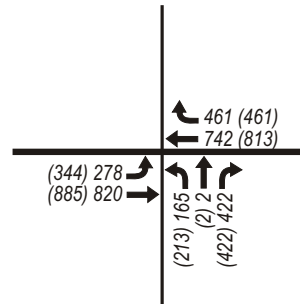
**1. WILSONVILLE RD @  
BOONES FERRY RD**



**2. WILSONVILLE RD @  
I-5 SB ON/OFF RAMP**



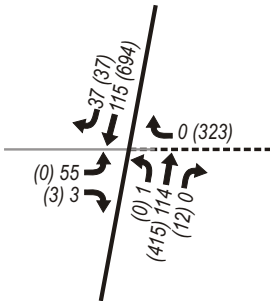
**3. WILSONVILLE RD @  
I-5 NB ON/OFF RAMP**



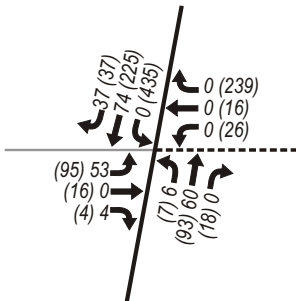
**4. WILSONVILLE RD @  
TOWN CENTER LOOP W.**



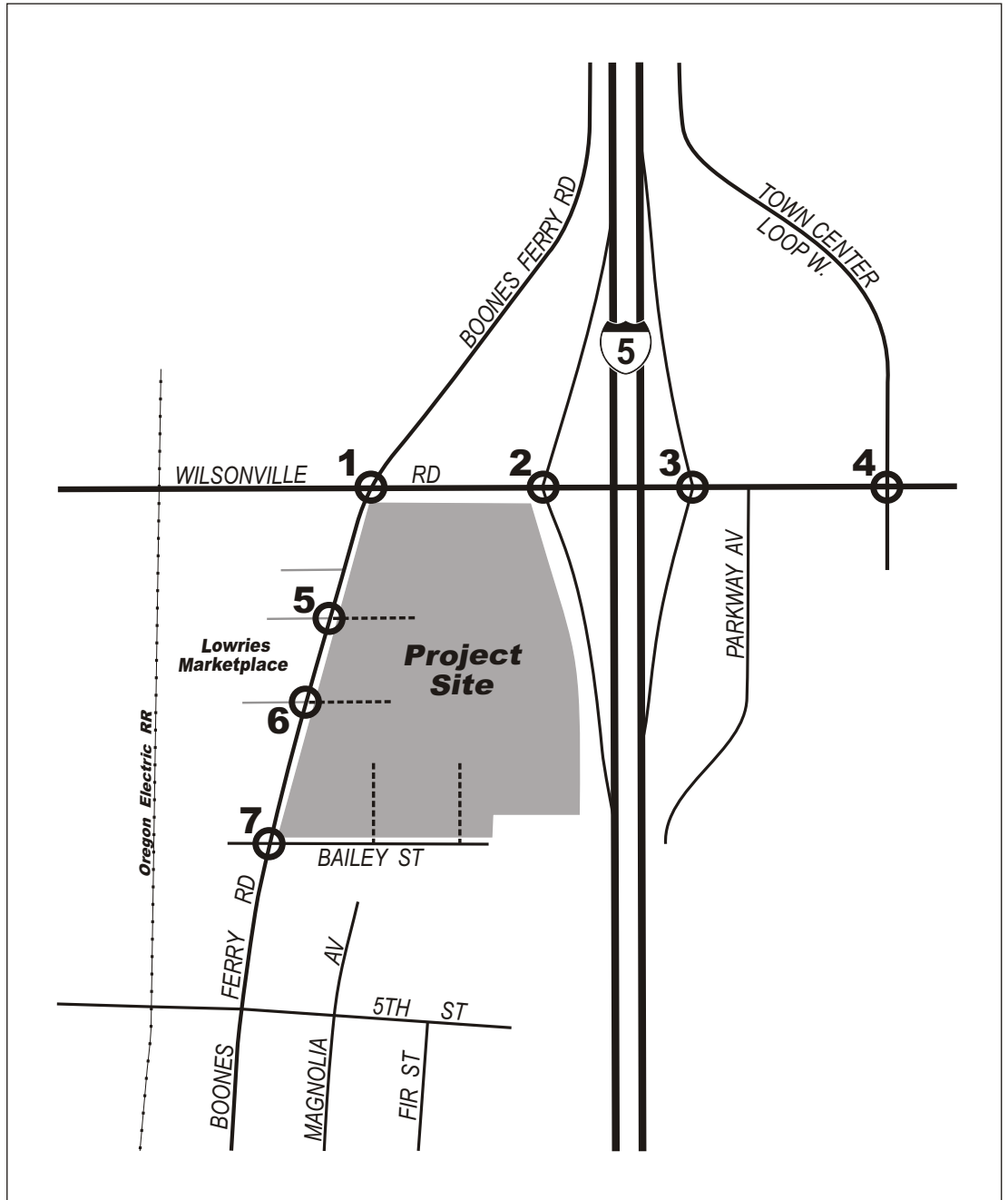
**5. BOONES FERRY RD @  
LOWRIES/N. PROJECT DRIVEWAY**



**6. BOONES FERRY RD @  
LOWRIES/S. PROJECT DRIVEWAY**



**7. BOONES FERRY RD @  
BAILEY ST**



**LEGEND**

- 1** ○ - Study Intersection & Number
- - Proposed Fred Meyer Driveway
- - Existing Lowries Driveway
- ← 00 (00) - Existing (Existing + Project) PM Peak Hour Traffic Volumes

**DKS Associates**  
TRANSPORTATION SOLUTIONS



**Figure 7**  
**SATURDAY PEAK HOUR**  
**EXISTING + PROJECT**  
**TRAFFIC VOLUMES**

**TABLE 24: Future Operating Conditions (Saturday Peak Hour)**

Intersection	Operating Standard	Existing			Existing + Project + Mitigated		
		Delay	LOS	V/C	Delay	LOS	V/C
<b>Signalized</b>							
Boones Ferry Rd / Wilsonville Rd	LOS D	23.7	C	0.49	33.3	C	0.59
I-5 SB Ramps / Wilsonville Rd	LOS D	22.9	C	0.73	19.7	B	0.54
I-5 NB Ramps / Wilsonville Rd	LOS D	14.3	B	0.63	17.7	B	0.52
<b>Unsignalized – Two-way Stop Control</b>							
Boones Ferry Rd / North Project Access	LOS D	10.2	A/B	0.06	55.8	A/F	0.50
Boones Ferry Rd / South Project Access <sup>a</sup>	LOS D	9.8	A/B	0.08	<u>a</u>	<u>a</u>	<u>a</u>
<b>Signalized and Four-way Stop Control:</b>				<b>Two-way Stop Control:</b>			
Delay = Average Stopped Delay per Vehicle (sec) for All Movements				Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement			
LOS = Level of Service of Intersection				LOS = Level of Service of Major Street/Minor Street			
V/C = Volume-to-Capacity Ratio of Intersection				V/C = Volume-to-Capacity Ratio of Worst Movement			
<b><u>Bold Underlined</u></b> values do not meet standards.				<b><u>Bold Underlined</u></b> values do not meet standards.			

<sup>a</sup> The south Fred Meyer access currently has two-way stop control and is analyzed as such for the existing conditions. Mitigations recommend the south access be converted either to four-way stop control or to a traffic signal; both of these options were analyzed and the operating conditions are listed in the following table.

**TABLE 25: South Project Access Mitigated Future Operating Conditions (Saturday Peak)**

Traffic Control at South Project Access	Existing + Project + Mitigated		
	Delay	LOS	V/C
Signalized (Option 1)	10.2	B	0.54
Four-way Stop Control (Option 2)	22.7	C	0.88
Delay = Average Stopped Delay per Vehicle (sec) for All Movements LOS = Level of Service of Intersection	V/C = Volume-to-Capacity Ratio of Intersection <b><u>Bold Underlined</u></b> values do not meet standards.		

**QUEUING**

Queuing analysis was performed for the Saturday peak hour for the “Existing plus Project” scenario using SimTraffic™, which provides a system wide assessment of network performance and includes the estimation of the 95<sup>th</sup> percentile queue for each intersection approach movement. The 95<sup>th</sup> percentile queue length is the queue length at a given intersection movement that has only a 5% chance of being exceeded during the peak traffic hour. When compared with the movement’s available storage length, queue blockage issues can be determined. The queuing analysis was performed assuming the Boones Ferry Road mitigations as well as the construction of the Wilsonville Road 6-lane enhanced alternative, which focuses on ramp improvements and on adjustments to intersection lane configurations.

The available storage on Wilsonville Road is listed in Table 26 along with the results of the Saturday peak hour vehicle queuing analysis, and the results of the queuing analysis for Boones Ferry Road are given in Table 27. As shown in the tables, the available storage is sufficient to meet the 95<sup>th</sup> percentile queues for all intersection approaches. In addition, a comparison of the Saturday and PM peak hour northbound right and left turn queues at Boones Ferry Road indicate that the PM peak hour queues are longer; therefore, no additional mitigations beyond those recommended based on the PM peak hour are needed on Boones Ferry Road.

**TABLE 26: Wilsonville Road Queuing – Ex. + Proj. + Improvements (Saturday Peak Hour)**

Intersection on Wilsonville Road	Intersection Approach <sup>a</sup>	Available Vehicle Storage <sup>b</sup>	95 <sup>th</sup> Percentile Queue <sup>c</sup> (Saturday Peak Hour)
Boones Ferry Road	EB Through	1,240 ft	200 ft
	WB Left	400 ft	250 ft
	WB Through	480 ft	150 ft
	NB Left	TBD <sup>d</sup>	250 ft
	NB Right	TBD <sup>d</sup>	125 ft
I-5 Southbound Ramp	EB Through	500 ft	225 ft
	EB Right	500 ft	100 ft
	WB Left	420 ft	100 ft
	WB Through	420 ft	175 ft
	SB Left	400/975 ft <sup>e</sup>	200 ft
	SB Right	400/975 ft <sup>e</sup>	125 ft
I-5 Northbound Ramp	EB Left	420 ft	50 ft
	EB Through	420 ft	50 ft
	WB Through	625 ft	300 ft
	NB Left	360/760 ft <sup>e</sup>	125 ft
	NB Right	360/760 ft <sup>e</sup>	125 ft

<sup>a</sup> EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound

<sup>b</sup> Available vehicle storage = distance from stop bar to upstream intersection crosswalk/stop bar

<sup>c</sup> 95<sup>th</sup> percentile queues are rounded to nearest 25 feet

<sup>d</sup> TBD = To be determined . . . the available storage lengths at these movements are dependent upon the improvements that are constructed in conjunction with the Fred Meyer site development

<sup>e</sup> x/x = available turn lane storage/distance from stop bar to mainline freeway

**TABLE 27: Boones Ferry Rd Queuing – Ex. +Proj. + Stg. II + Mitigated (Saturday Peak Hr.)**

Intersection on Boones Ferry Road	Intersection Approach <sup>a</sup>	Available Vehicle Storage <sup>b</sup>	95 <sup>th</sup> Percentile Queue <sup>c</sup>	
			Option 1 <sup>d</sup>	Option 2 <sup>e</sup>
Wilsonville Road	NB Left	350 ft	225 ft	225 ft
	NB Right	525 ft	125 ft	125 ft
South Fred Meyer Access	NB Left	175 ft	50 ft	50 ft
	SB Left	275 ft	225 ft	225 ft

<sup>a</sup> EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound

<sup>b</sup> Available vehicle storage = distance from stop bar to upstream intersection crosswalk/stop bar

<sup>c</sup> 95<sup>th</sup> percentile queues are rounded to nearest 25 feet

<sup>d</sup> Option 1 = Signal at South Fred Meyer Access

<sup>e</sup> Option 2 = Four-way Stop Control at South Fred Meyer Access

## CHAPTER 5: SITE EVALUATION

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The site plan provided for the proposed Fred Meyer development<sup>33</sup> was evaluated with consideration for site access and circulation issues, including: access, sight distance, project frontage adjustments, internal circulation, traffic signal warrants at the site access points, internal pedestrian network, and parking.

### Access

The proposed Fred Meyer site has four access points to the public street system: two on SW Boones Ferry Road and two on SW Bailey Street. The two access points on Boones Ferry Road are located approximately 370 feet (main access) and 670 feet south of Wilsonville Road. The proposed access points on Bailey Street are located approximately 300 feet and 525 feet east of Boones Ferry Road.

Because Boones Ferry Road is classified as a major collector, its accesses (including all intersections and driveways) are required to be spaced at least 100 feet apart.<sup>34</sup> Both of the proposed Fred Meyer site accesses on Boones Ferry Road meet these spacing requirements. In addition, the accesses should be aligned with the Lowries Marketplace driveways on the opposite side of the street; because the site plan does not show the curb locations on the west side of Boones Ferry Road, it is uncertain whether the accesses are aligned. In addition, the radius at the north access for the right-out movement should be designed to allow trucks to perform a right turn without encroaching on neighboring lanes.

As a local street, Bailey Street does not have access spacing requirements; instead, each lot is permitted an access. Therefore, the two Fred Meyer site accesses on Bailey Street are not limited due to spacing concerns; however, the east access should be aligned with the driveway on the south side of the street and the west access should be located in a manner that it does not create conflicting turn movements with any nearby driveways on the south side of the street.

### Sight Distance

The sight triangle at each driveway should be clear of objects (large signs, landscaping, parked cars, etc.) that could potentially limit vehicle sight distance. In addition, all proposed site driveways should meet American Association of State Highway and Transportation Officials (AASHTO) sight distance requirements<sup>35</sup> as measured from 15 feet back from the edge of pavement. The site driveways on Boones Ferry Road would require a minimum of 390 feet of sight distance based on a 35 mph posted speed. The site driveways on Bailey Street would require a minimum of 280 feet of sight distance based on a 25 mph speed limit. Prior to occupancy, sight distance at the access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

### Site Frontage Adjustments along Boones Ferry Road

The Fred Meyer development site frontage will require adjustments to accommodate the increased cross-section on Boones Ferry Road (as shown in Figure 5, which is found in Chapter 3: Impact Analysis). Adjustments at the southwest corner of the site may also be needed to ensure that the east and west legs of the Boones Ferry Road/Bailey Street intersection are properly aligned (currently, these legs are offset).

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<sup>33</sup> The site plan that was provided is included in the appendix.

<sup>34</sup> *Transportation System Plan*, City of Wilsonville, by Entranco, June 2, 2003, Page 4-69, Table 4.o.

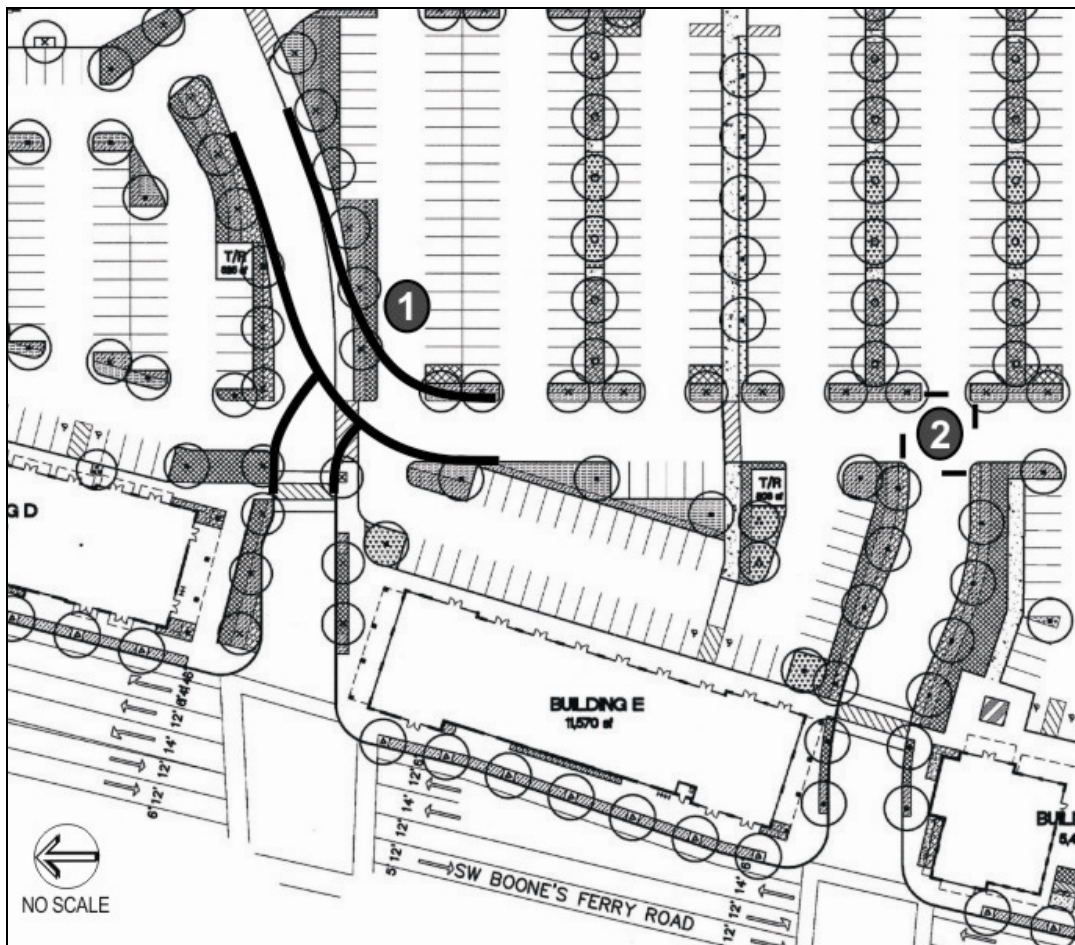
<sup>35</sup> *Geometric Design of Highways and Streets*, AASHTO, 2004; Case B1, p. 661.



Because the site plan does not show the curb locations on the west side of Boones Ferry Road or south side of Bailey Street, it is not clear what exact adjustments are needed.

### Internal Vehicular Circulation

If full access was allowed at both Fred Meyer driveways onto Boones Ferry Road, the proposed interior roadway network shown on the site plan would be expected to provide adequate vehicular and pedestrian circulation. Because queuing and operational issues require the prohibition of left-in movements at the north access, site plan changes are recommended to convert the south access into the main access. One optional method for making the conversion is presented in Figure 8, which shows two conceptual changes: (1) realigning the internal roadways so that priority is given to vehicles coming and going to the south access and (2) installing four-way stop-control at the internal intersection near the south access.



**FIGURE 8: Conceptual Internal Circulation Adjustments**

### Signal Warrants

Signal warrants were evaluated at the unsignalized study intersections on Boones Ferry Road for the PM peak hour “Existing plus Project plus Stage II” traffic scenario and for the Saturday peak hour “Existing

plus Project” traffic scenario. Based on the evaluation, no signal warrants were met for either scenario but the south Fred Meyer access is approaching warrants. Approximately 15% additional major street traffic is needed to meet peak hour warrants at the south Fred Meyer access.

Warrants were also evaluated with the expected future retail and residential developments located south of Fred Meyer’s. With the addition of the retail development, the MUTCD peak hour warrant #3 would be met for both the weekday PM peak period and the Saturday peak period. It is expected that the retail and residential developments would be reasonably expected to be approved and constructed within the next three years. Furthermore, the Brown Road extension project specified in the City of Wilsonville Transportation System Plan<sup>36</sup> would further solidify the need for the traffic signal; therefore, it is recommended that a traffic signal be installed in conjunction with the Boones Ferry Road street improvements that are identified in Figure 5. This will assure continuity between the street improvements and the traffic signal equipment. The traffic signal warrants are summarized in Table 28 and the signal warrants are attached in the appendix.

**TABLE 28: Fred Meyer South Access Traffic Signal Warrant Result Summary**

Scenario	Warrant Met?
Existing + Project + Stage II (Weekday PM Peak Hour)	No
Existing + Project + Stage II (Weekend Peak Hour)	No
Existing + Project + Stage II + Other (Weekday PM Peak Hour)	Yes
Existing + Project + Stage II + Other (Weekend Peak Hour)	Yes

With the installation of a traffic signal at the south Boones Ferry Road access, traffic signal conduit and interconnect cable will be needed between the controllers at Boones Ferry Road/Wilsonville Road and Boones Ferry Road/Fred Meyer’s south access in order to coordinate the traffic signals.

## Internal Pedestrian Network

The proposed interior pedestrian pathway network shown on the site plan should provide adequate pedestrian circulation. This conclusion assumes that the unshaded areas shown on the site plan immediately around and between the buildings are concrete slabs that accommodate pedestrian access to the buildings and to the nearby crosswalks and paths (in particular, to the paths on the north side of the site that connect to Wilsonville Road).

## Parking

The Fred Meyer development is required to comply with City of Wilsonville code for the number of vehicular parking stalls and bicycle parking spaces that are provided.<sup>37</sup> The requirements are based on the types of uses and the total building square footage of each use.

Regarding vehicular parking, the project sponsor has indicated that there are a total of 885 parking stalls planned for the site and that City of Wilsonville code requires a minimum of 962 parking stalls be

<sup>36</sup> City of Wilsonville Transportation System Plan, Entranco, Adopted June 2, 2003; Project C-17

<sup>37</sup> City of Wilsonville, Planning and Land Development Ordinance, Sections 4.154-4.198, Updated Feb. 2004.

provided on the site.<sup>38</sup> Table 29 lists the breakdown of parking stalls by land use. As shown in the table, the City code requirements are consistent with weekday peak parking demand data published by the Institute of Transportation Engineers (ITE) for shopping center, high-turnover restaurant, and apartment land uses,<sup>39</sup> which were also used in the 2004 study and which estimate that the currently proposed site will have a parking demand of approximately 983 parking stalls. During peak parking periods (such as holiday shopping periods), not meeting code requirements or expected demand may cause impacts to adjacent commercial and/or residential areas due to parking spillover; therefore, either 962 parking stalls should be provided to reduce potential off site parking impacts, the proposed land use could be reduced, or a parking management plan should be prepared outlining how peak parking demand needs will be met.

**TABLE 29: Vehicular Parking for Fred Meyer Development**

Land Use	Size	Stalls Provided	Estimated Demand	Spaces Required by City Code <sup>a</sup>	
				Minimum	Maximum
Fred Meyer <sup>b</sup>	155.7 KSF	<sup>c</sup>	654	639	966
Shopping Center	50.9 KSF	<sup>c</sup>	214	195	298
Restaurant	3.3 KSF	<sup>c</sup>	37	51	76
<u>Apartments</u>	<u>60 units</u>	<u><sup>c</sup></u>	<u>78</u>	<u>77</u>	<u>N/A</u>
<b>Total</b>		<b>885</b>	<b>983</b>	<b>962</b>	<b>N/A</b>

<sup>a</sup> City of Wilsonville, Planning and Land Development Ordinance, Sections 4.154-4.198, Updated Feb. 2004.

<sup>b</sup> Fred Meyer land use includes tenant spaces "J" and "K".

<sup>c</sup> Most parking lots are shared between buildings, with 802 dedicated retail stalls, 35 dedicated residential stalls, and 48 shared stalls.

For bicycle parking, the project sponsor has indicated that 138 parking spaces are planned for the site and that City of Wilsonville code requires a minimum of 112 total bicycle parking spaces for the proposed uses.<sup>40</sup> Table 30 lists the breakdown of bicycle parking spaces by land use. These spaces should be distributed throughout the development and located near building entrances in order to provide convenient access to each building.

**TABLE 30: Bicycle Parking for Fred Meyer Development**

Land Use	Size	Bicycle Parking Spaces Provided	Bicycle Parking Spaces Required by City Code <sup>a</sup>
Fred Meyer <sup>b</sup>	155.7 KSF	48	39
Shopping Center and Restaurant	54.2 KSF	30	17
<u>Apartments</u>	<u>60 units</u>	<u>60</u>	<u>60</u>
<b>Total</b>		<b>138</b>	<b>116</b>

<sup>a</sup> City of Wilsonville, Planning and Land Development Ordinance, Sections 4.154-4.198, Updated Feb. 2004.

<sup>b</sup> Fred Meyer land use includes tenant spaces "J" and "K".

<sup>38</sup> Letter by Lee D. Leighton, Westlake Consultants, July 2, 2008.

<sup>39</sup> *Parking Generation*, 3rd Edition, Institute of Transportation Engineers, 2003.

<sup>40</sup> Letter by Lee D. Leighton, Westlake Consultants, July 2, 2008.

## CHAPTER 6: PROJECT MITIGATIONS

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In order to preserve the performance of the study area roadways and to provide safe access to the medical office site and surrounding land uses, it is recommended that a series of transportation mitigation measures be performed.

### Project Impact Mitigations

To mitigate impacts at the north and south project accesses onto Boones Ferry Road, three Boones Ferry Road site frontage improvements are needed (these are in addition to the planned improvements to Boones Ferry Road that are shown on the Fred Meyer site plan):

- At the north Fred Meyer access, install a median along Boones Ferry Road to restrict movements to right-in/right-out for both the Lowries Marketplace and Fred Meyer developments; this will increase safety by removing turn lane needs at this access and will provide for better traffic flow (i.e. queuing spillback that impact Wilsonville Road). It will also accommodate turn lane placement and storage needs for the Boones Ferry Road/Wilsonville Road intersection's northbound approach traffic. Also, if desired, the north Fred Meyer access may be converted to a right-out only driveway and narrowed to one lane, which would allow additional space on the project site that could be used to increase a building pad size, the number of parking stalls, etc.
- Between the north and south Fred Meyer accesses, extend the second northbound through lane (which becomes a right turn lane at the Wilsonville Road intersection) to ensure approximately 600 feet of storage is provided for the northbound right turn lane at Wilsonville Road. This distance meets the short-term Fred Meyer needs and the long-term 20-year Wilsonville Road Interchange design needs.
- At the south Fred Meyer access, install a traffic signal to facilitate egress movements from the Lowries and Fred Meyer developments. There should also be two egress lanes (i.e., a right turn lane and a through-left lane). It is expected that warrants will be met in the near future due to the addition of nearby developments. Installing the traffic signal with the Boones Ferry Road improvements will assure continuity between the improvements and the traffic signal construction. The signal should be coordinated with the Boones Ferry Road/Wilsonville Road signal. To enable the coordination, interconnect conduit and cable will need to be installed between the signals.

A conceptual layout of Boones Ferry Road that shows all improvements and mitigations is presented in Figure 5, which can be found in Chapter 3: Impact Analysis.

### Additional Project Oriented Transportation Mitigations

In addition to the Boones Ferry Road mitigations, the following project related measures would typically be required as conditions of approval if the project were approved:

#### Site Accesses

- The south Fred Meyer access on Boones Ferry Road should be aligned with the south Lowries Marketplace driveway (i.e., near Albertsons). In addition, regarding the Fred Meyer accesses on Bailey Street, the east access should be aligned with the driveway on the south side of the street

and the west access should be located in a manner that it does not create conflicting turn movements with any nearby driveways on the south side of the street.

- The radius for the right-out movement at the north access on Boones Ferry Road should be designed to allow trucks to perform a right turn without encroaching on neighboring lanes.

#### **Intersection Alignment**

- Improvements to the Boones Ferry Road/Bailey Street intersection should be constructed to ensure that the east and west legs of Bailey Street are properly aligned (these legs currently are offset).

#### **Sight Distance**

- All proposed site driveways should meet American Association of State Highway and Transportation Officials (AASHTO) sight distance requirements<sup>41</sup>, and prior to occupancy, sight distance at the access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.
- The sight triangle at each driveway should be clear of objects (large signs, landscaping, parked cars, etc.) that could potentially limit vehicle sight distance.

#### **Boones Ferry Road Adjustments**

- The Fred Meyer development site frontage will require adjustments to accommodate the increased cross-section on Boones Ferry Road (as shown in Figure 5, which is found in Chapter 3: Impact Analysis). Adjustments at the southwest corner of the site may also be needed to ensure that the east and west legs of the Boones Ferry Road/Bailey Street intersection are properly aligned (currently, these legs are offset). Because the site plan does not show the curb locations on the west side of Boones Ferry Road or south side of Bailey Street, it is not clear what exact adjustments are needed.

#### **Internal Circulation**

- Site plan changes are recommended to convert the south access into the main access. One optional method for making the conversion is presented in Figure 8 (found in Chapter 5: Site Evaluation), which shows two conceptual changes: (1) realigning the internal roadways so that priority is given to vehicles coming and going to the south access and (2) installing four-way stop-control at the internal intersection near the south access.
- The site plan is not clear in the vicinity of the buildings, but it appears that the site would provide adequate pedestrian circulation. It should be ensured that the site indeed provides pedestrian access to the buildings and to the nearby crosswalks and paths (in particular, to the paths on the north side of the site that connect to Wilsonville Road).
- All sidewalks within the site should conform to ADA requirements.<sup>42</sup>

#### **Traffic Signal Warrants**

- Though signal warrants are not met at any unsignalized study intersection for the “Existing plus Project plus Stage II” scenario, it was determined that the peak hour warrant will be met in the near future at the south Fred Meyer access; therefore, a traffic signal should be installed in

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<sup>41</sup> *Geometric Design of Highways and Streets*, AASHTO, 2004; Case B1, p. 661.

<sup>42</sup> *ADA Accessibility Guidelines for Buildings and Facilities*, Department of Justice, January 1998.

conjunction with the Fred Meyer development. This will assure continuity between the Boones Ferry Road improvements and the traffic signal construction. The signal should be coordinated with the Boones Ferry Road/Wilsonville Road signal. To enable the coordination, interconnect conduit and cable will need to be installed between the signals.

**Parking**

- The proposed site provides only 885 parking stalls. This is not sufficient to meet City of Wilsonville code requirements, which specifies that a minimum of 962 stalls should be provided (based on the types of uses and the total building square footage of each use). During peak parking periods (such as holiday shopping periods), not meeting code requirements may cause parking demand to exceed the number of available stalls and oblige vehicles to park in adjacent commercial and/or residential areas; therefore, either 962 parking stalls should be provided to reduce potential off site parking impacts or a parking management plan should be prepared outlining how peak parking demand needs shall be met.
- The 138 bicycle parking spaces meet City code requirements and should be distributed throughout the development and should be located near building entrances in order to provide convenient access to each building.

# Appendix

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**Site Information**

**Wilsonville Stage II Project List**

**Weekday Traffic Counts**

**Saturday Traffic Counts**

**Level of Service Descriptions**

**HCM Intersection Analysis - Unmitigated**

**HCM Intersection Analysis - Mitigated**

**HCM Intersection Analysis - Saturday**

**Queuing Analysis**

**Warrant Analysis**

**Trip Generation and Distribution**

## Site Information

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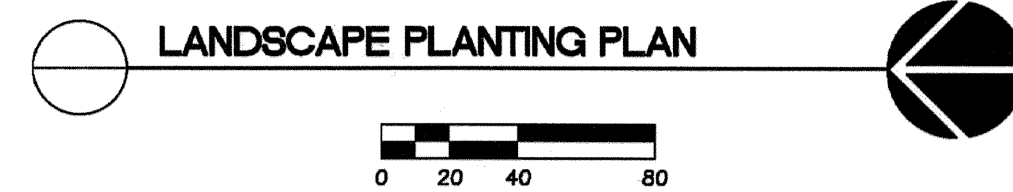
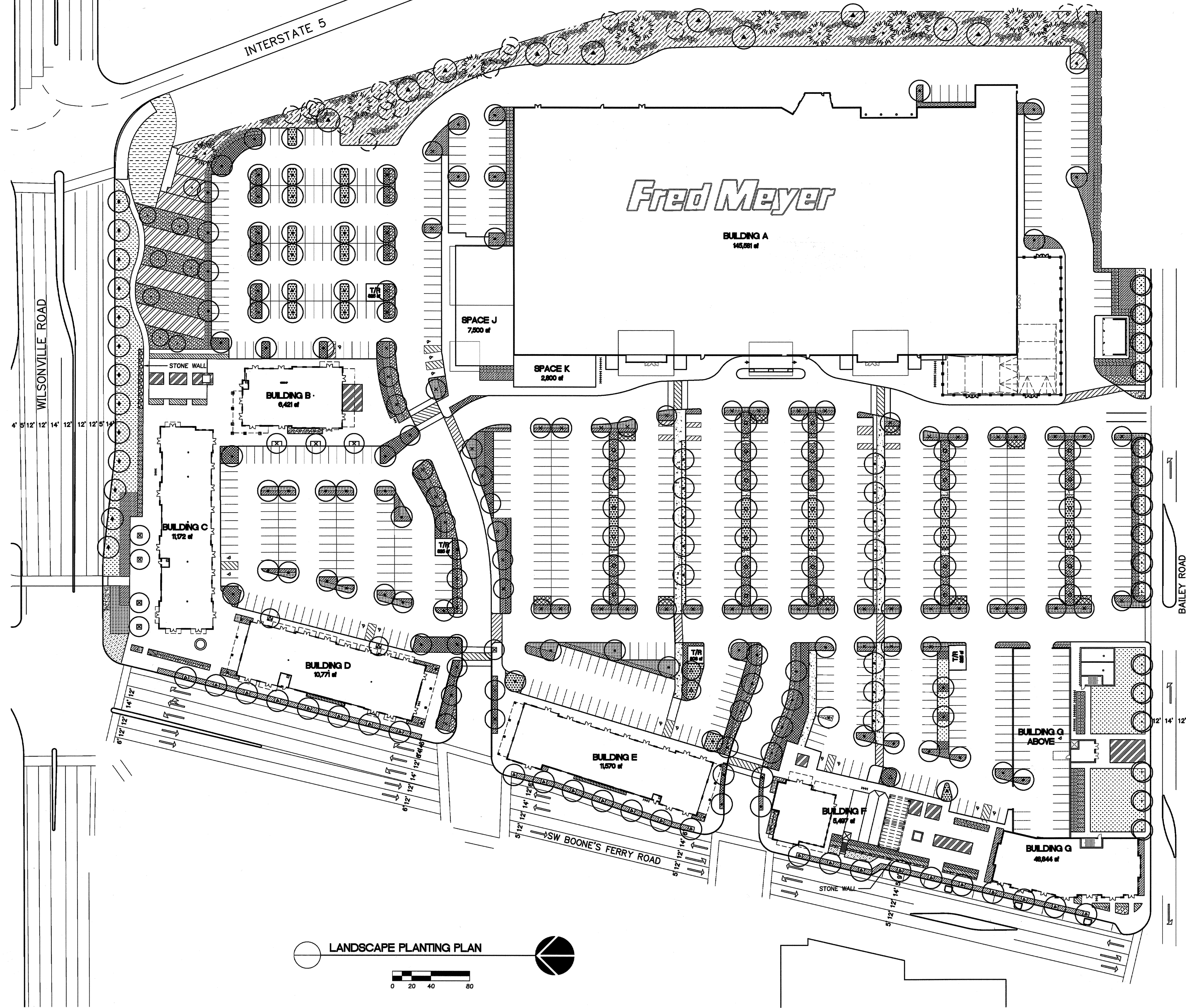


PLANT MATERIAL SCHEDULE

SYMBOL	BOTANICAL NAME - COMMON NAME	SIZE / SPACING
<b>TREES</b>		
⊙	ZELKOVA SERRATA 'GREEN VASE' 'GREEN VASE' ZELKOVA	2" CAL AS SHOWN
⊗	PYRUS CALLERYANA 'GLEN'S FORM' CHANTICLEER PEAR	2" CAL AS SHOWN
⊕	ACER RUBRUM 'BOWHALL' BOWHALL RED MAPLE	2" CAL AS SHOWN
⊙	MALUS 'PRAIRIFIRE' PRAIRIFIRE CRABAPPLE	2" CAL AS SHOWN
⊕	ACER RUBRUM 'RED SUNSET' 'RED SUNSET' RED MAPLE	2" CAL AS SHOWN
⊙	TILIA CORDATA LITTLELEAF LINDEN	2" CAL AS SHOWN
⊙	PYRUS CALLERYANA 'BRADFORD' BRADFORD PEAR	2" CAL AS SHOWN
⊕	QUERCUS GARRYANA OREGON WHITE ASH	2" CAL AS SHOWN
☼	PSEUDOTSUGA MENZIESII DOUGLAS FIR	8' HT. B&B AS SHOWN
⊙	ACER RUBRUM 'RED SUNSET' 'RED SUNSET' RED MAPLE	2" CAL AS SHOWN
⊙	EXISTING CONIFER TREE TO REMAIN	
⊙	EXISTING DECIDUOUS TREE TO REMAIN	
<b>SHRUBS</b>		
⊙	PHORMIUM TENAX 'ATROPURPUREUM' NEW ZEALAND FLAX	2 GAL. CONT. AS SHOWN
⊙	ILEX X MESERVEAE BLUE HOLLY	2 GAL. CONT. AS SHOWN
⊙	CORNUS STOLONIFERA REDTWIG DOGWOOD	2 GAL. CONT. AS SHOWN
⊙	MYRICA CALIFORNICA PACIFIC WAX MYRTLE	2 GAL. CONT. AS SHOWN
⊙	ROSA NUTKANA NOOTKA ROSE	2 GAL. CONT. AS SHOWN
⊙	MISCANTHUS SINENSIS 'YAKUSHIMA' DWARF MAIDEN GRASS	2 GAL. CONT. 36" O.C.
⊙	SPIRAEA JAPONICA 'GOLDMOUND' GOLDMOUND SPIRAEA	2 GAL. CONT. 30" O.C.
⊙	VIBURNUM DAVIDII DAVID'S VIBURNUM	2 GAL. CONT. 30" O.C.
⊙	CORNUS SERICEA 'KELSEY' DWARF REDTWIG DOGWOOD	2 GAL. CONT. 30" O.C.
⊙	BERBERIS THUNBERGII 'CRIMSON PYGMY' CRIMSON PYGMY BARBERRY	2 GAL. CONT. 30" O.C.
⊙	BUXUS MICROPHYLLA JAPONICA 'GREEN BEAUTY' GREEN BEAUTY 'JAPANESE BOXWOOD'	1 GAL. CONT. 30" O.C.
⊙	PERENNIALS (TO BE SELECTED)	1 GAL. CONT. 24" O.C.
⊙	HELICTOTRICHON SEMPERVIRENS BLUE OAT GRASS	1 GAL. CONT. 24" O.C.
⊙	FESTUCA RUBRA RUBRA RED FESCUE	SEED
⊙	PENNISETUM ALOPECUROIDES DWARF FOUNTAIN GRASS	1 GAL. CONT. 24" O.C.
⊙	CAREX ELATA 'BOWLES GOLDEN' BOWLES GOLDEN SEDGE	1 GAL. CONT. 24" O.C.
⊙	ERICA 'KRAMER'S RED' DARLEY DALE HEATH	1 GAL. CONT. 24" O.C.
⊙	LAWN SUNMARK SUN MIX	SEED
⊙	ARCTOSTAPHYLOS UVA-URSI KINKYBERRY	1 GAL. CONT. 24" O.C.
⊙	JUNCUS PATENS CALIFORNIA GRAY RUSH	1 GAL. CONT. 24" O.C.
⊙	EXISTING LANDSCAPE TO REMAIN	
<b>STORMWATER PLANTING</b>		
⊙	33% CORNUS SERICEA 'KELSEY' DWARF REDTWIG DOGWOOD	1 GAL. CONT. 30" O.C.
⊙	33% CAREX MUSKINGUMENSIS 'OEHME' VAREGATED PALM SEDGE	1 GAL. CONT. 30" O.C.
⊙	34% JUNCUS PATENS CALIFORNIA GRAY RUSH	1 GAL. CONT. 24" O.C.

GENERAL NOTES

1. INSTALLATION MUST FULLY COMPLY WITH ALL LANDSCAPE CODE REQUIREMENTS AND ANY CITY OF WILSONVILLE CONDITIONS OF APPROVAL.
2. FOR SIZES AND SPECIES OF EXISTING TREES TO REMAIN, SEE ARBORIST REPORT AND CIVIL PLANS.



WILSONVILLE TOWN CENTER DESIGN REVIEW

WILSONVILLE, OREGON



GR-L1



### III. DEVELOPMENT PLAN OVERVIEW

The proposed development includes:

- A 145,581 square foot (SF) Fred Meyer store, with two attached complementary retail spaces encompassing 10,100 square feet;
- Five smaller buildings containing approximately 56,075 SF of space for a mix of complementary commercial uses that can include retail shopping, restaurants, and offices; and
- A 40,080 SF housing component. The housing component will provide up to 60 units of housing with secure parking and an open space courtyard for residents, located adjacent to Bailey Road.
- Retention of the existing 2,150 SF wood frame church building on the site; Fred Meyer is exploring possible reuse options with the City of Wilsonville.
- (Note: throughout this document, all building square footage figures are estimates based on preliminary architectural plans and the building footprints illustrated on the site plan. For any individual building, the figures are expected to be accurate to within plus-or-minus five percent (5%) of overall floor area for the buildings in final form.)

The following provides an overview of the key elements of the project.

#### A. FRED MEYER

The main building within the project is the Fred Meyer retail store located in the eastern half of the site. This building encloses approximately 135,000 square feet; an attached Garden Center, which has a greenhouse-type roof and semi-open walls, encloses about 95,000 square feet, for a total of 145,581 square feet of retail space.

236,581  
10,100  
135,000  
FM

The location and architectural design of the Fred Meyer building, along with the pad buildings and a high degree of landscaping, is intended to mask the large size of the structure. A motorist or pedestrian will see only glimpses of the Fred Meyer building from Boones Ferry Road, between the church, retail buildings, and landscaping along the street frontage. New proposed buildings and landscaping, including retention of existing trees, will partially screen the view from Wilsonville Road. More of the building will be visible at a glance from Bailey Street and from Interstate 5. In such cases an observer will notice that all four elevations are divided by varying material, mass, color, and texture, designed to resemble a series of individual buildings with linkages, as opposed to a single large mass. The resulting experience will be in context with the historic nature of the site and its surroundings.

The buildings are designed to create an interesting and varied pedestrian experience close to the buildings. A variety of materials, including natural stone, tumbled brick, board and batten siding or lap siding are used to increase texture and giving the building a sense of authenticity and permanence.

Building lights have been chosen to complement different portions of the building, accenting the composition day or night. Old town lights on ornate brackets punctuate features of the building, which visually terminate main drive aisles and the pedestrian connection from Wilsonville Road. Elegant sconces contribute to the safe lighting of the entries.

#### B. DEVELOPMENT PADS

The proposed plan includes the Fred Meyer store with attached Garden Center and Spaces J and K, as well as development of six "pad" buildings along the northern and eastern perimeter of the site, designated on the site plan as Buildings B, C, D, E, F and G. All of these buildings are designed as a series of spaces for

multiple tenants; the multiple spaces within each building can be combined for a larger user if needed. Buildings B through F are intended for retail or small restaurant use. Building G is unique in that the ground floor, facing Boones Ferry Road, is intended for retail, with two floors of housing above. In order to achieve a satisfactory ratio of building square footage to on-site parking, Building G is the only multi-story building on the site; however, some of the buildings along the Wilsonville and Boones Ferry frontages have tall interior spaces, creating the appearance and exterior form of two-story buildings. The following is a summary of the sizes and uses of each of the pad buildings:

Building Designation	Size (square feet)	Anticipated Use	Maximum Number of Tenant Spaces
B	6,421	Retail	Up to 4 (1 likely)
C	11,172	Retail	Up to 9
D	11,035	Retail	Up to 8
E	11,584	Retail	Up to 8
F	3,488 (new)	Restaurant	1
	2,150 (existing)	Retail	1
G	8,764	Office/retail	Up to 7
	40,080	Residential	60 units
J	7,500	Retail	Up to 4
K	2,600	Retail	Up to 4

52,469

#### Scale

Taking cues from the historical buildings along Boones Ferry Road, the pad buildings will emphasize the pedestrian scale. The size of the buildings is similar to historic buildings like the existing church. Where footprints of the pads are larger than historic buildings, the facades will be visually divided to give the appearance of multiple buildings. Although the buildings will be functionally single story, parapets and roofs will project higher to resemble the proportions and fenestration of historic buildings.

#### Materials

The designs for pad buildings fronting on SW Boones Ferry Road are based on the historic roots of the surrounding neighborhood. The materials selected are combined to provide a design that is in context with its historic surroundings. Materials such as natural stone, tumbled brick, textured masonry, wood siding, and standing-seam metal roofing are combined to create interesting and rich building facades at pedestrian level, as well as from a distance. Varied wall materials, massing, texture, and color will be combined with varied roof forms, awnings, canopies, and streetscape amenities that provide a small town historic feel. The architectural design of the buildings and finishes is intended to comply with the Old Town Design Standards.

The exterior finish materials used on each of the six pad buildings and the Fred Meyer building are shown graphically and in text in the building elevation renderings contained in Exhibits 4 and 5.

#### Design Consistency

The buildings will be designed to have visual interest on all sides so that the pleasing pedestrian experience is consistent well into the site. Landscape, walks, and plazas will surround the pads. Old Town-style benches, lights, and other furniture will punctuate the plazas. Screen walls, fences, or landscaping will minimize the visibility of loading, trash, recycling, and service areas.

**Cover**

Buildings will be designed with awnings at entrances and along plazas to provide sun and rain cover for pedestrians.

**C. STREETScape**

The streetscape design along Boones Ferry Road will include parallel parking south of the southern driveway access; north of that point, parallel parking movements would conflict with adequate and safe functioning of the Boones Ferry/Wilsonville Road intersection. Sidewalks will front buildings of similar scale and material to other historic buildings in the area. Between the buildings, landscaped plazas will provide pleasant stopping areas for pedestrians.

Pedestrian connections enter the site from Boones Ferry Road at the two driveway entrances as well as at two pedestrian plazas. Within the site, a sidewalk runs alongside the primary drive aisle leading to the north end of the Fred Meyer Store building, and two pedestrian paths through the main parking area align directly with a pair of formal building entrances, characteristic of newer Fred Meyer stores throughout the region.

**D. LANDSCAPE**

The development plan is designed to protect in place the existing Douglas fir grove at the northeast corner of the site, as well as existing landscape trees on the east side of the existing church building. The submitted landscaping plan shows how several east-west rows of trees in the central parking area (west of the Fred Meyer building) will provide shade while reinforcing the direction of movement between the main building and the plazas and shops along Boones Ferry Road.

The landscape development along Boones Ferry Road proposes an enhanced pedestrian environment, with sidewalks linked to plazas and seating areas at the community building, and future retail stores and restaurants. Pedestrian connectivity into the site is provided at several points along Boones Ferry Road, and a pedestrian path into the site also is provided from Wilsonville Road.

A fully automatic underground irrigation system will be installed to establish the landscape and provide supplemental water during extended dry periods. Away from public street frontages where a "Main Street" look and feel is the goal, the plan proposes substantial perimeter screening utilizing conifer trees and large broadleaf evergreen shrubs. Extensive plantings of deciduous canopy trees provide parking lot shading.

**E. UTILITIES**

**Sanitary Sewer**

An 8" Public sewer line will be extended up Boones Ferry Road from Bailey Street. The new line will connect to the existing public sewer on the commercial development site to the west, across Boones Ferry Road, specifically in the new driveway across from Bailey Street. The pad sites will connect to the new main line in Boones Ferry with a 4" or 6" service lateral. The Fred Meyer sewer will be an 8" private line connecting the new sewer in Boones Ferry Road at the main entrance to the site. The new 8" Public line is being extended up Boones Ferry so that lateral connections will not have to cross the new development across the street.

**Storm Drainage**

The storm system on site is all privately owned and maintained by Fred Meyer. The pipes range in size from 6" to 36", draining to the southwest corner of the site and being treated before entering a piped system on SW Boones Ferry Road. A new storm drain line will be constructed from this corner to an outlet point at the Willamette River. It is estimated that a 36" diameter pipe will be required; Fred Meyer will provide a drainage report with calculations to ascertain the required pipe size, for approval by the City Engineer.

**Water**

An 8" fire line will be looped through the site, having connection points on Boones Ferry Road and Bailey Street. The Fire Department Connection is being proposed at the new driveway located on Bailey Street. There are six proposed fire hydrants on site. A 3" domestic water line will be extended from Bailey to the back side of the proposed building. The Pad sites will be served by individual water services sized to the appropriate usage.

**F. SITE ANALYSIS**

The following chart summarizes the proposed development:

	Square Feet	As %
<b>Total Site Area (Net of Right-of-Way Dedications)</b>	784,554	100.0 %
<b>Buildings</b>	251,836	32.1 %
Fred Meyer Store	145,581	18.5 %
Other Non-Residential (Pad Sites)	66,175	8.4 %
Residential (* on multiple floors)	40,080 *	5.1 % *
<b>Parking &amp; Circulation Area</b>	407,662	51.9 %
<b>Landscaping</b>	125,056	15.9 %
Parking Lot Landscaping (** % of Parking & Circulation Area)	41,874	5.3 % **
Other Landscaping	83,182	10.6 %
	<b>Total</b>	
<b>Parking Spaces</b>	<b>Regular Spaces</b>	<b>ADA Spaces</b>
Retail/Restaurant	885	21
Residential	802 dedicated, 48 shared	19 dedicated, 2 shared
	35 dedicated, 48 shared	1 dedicated, 2 shared
<b>Overall Non-Residential Parking Ratio</b>	4.01 spaces per 1000 SF	

Fred Meyer Mixed Use Development - Off-Street Parking Summary									
	Proposed use	Bldg. SF	Parking requirement per 1000 square feet		Parking required		Bicycle Parking Requirement	Bicycle Parking Required	Bicycle Parking Provided
			Min.	Max.	Min.	Max.	Minimum	Minimum	
Building A (Fred Meyer)	Retail	145,581	4.1	6.2	597	903	1 per 4000	36	40
Building B	Retail	6,421	4.1	6.2	26	40	1 per 4000	2	4
Building C	Retail	12,245	4.1	6.2	50	76	1 per 4000	3	6
Building D	Retail	10,771	4.1	6.2	44	67	1 per 4000	3	4
Building E	Retail	12,377	4.1	6.2	51	77	1 per 4000	3	6
Building F	Retail (church)	2,181	4.1	6.2	9	14	1 per 4000	1	6
	Restaurant (addition)	3,316	15.3	23	51	76	1 per 4000	1	
Building G	Office	8,764	2.7	4.1	24	36	1 per 4000	2	4
	Residential - 60 Units	40,080	See Notes Below		77		1 per D.U.	60	60
Building J	Retail	7,500	4.1	6.2	31	47	1 per 4000	2	4
Building K	Retail	2,600	4.1	6.2	11	16	1 per 4000	1	4
<b>TOTAL</b>		<b>251,836</b>			<b>970</b>	<b>1427</b>		<b>113</b>	<b>138</b>
Parking Provided:					885 (includes all residential parking plus 10 on-street spaces)				
ADA Spaces:					21				
Compact Spaces:					179				
Total Pad Space:			66,175 square feet						
Total Retail Space + Restaurant Space:			211,756 square feet						
Total Parking available for retail/restaurant:			850 (total - 35 dedicated residential spaces)						
Total Provided Parking Ratio for Retail & Restaurant:			4.01 per 1000 s.f.						
Residential Parking Ratios:			Residential Parking Provided: 35 Dedicated						
1.25 per D.U. (1 bdrm)			48						
1.5 per D.U. (2 bdrm)									
1.75 per D.U. (3 bdrm)									

All dimensional and surface standards for off-street parking are met as indicated on the site plan. Additionally, ADA parking and bicycle parking locations are designated on the site plan.

Bicycle parking is distributed throughout the site at locations convenient to each of the proposed buildings, as demonstrated on the attached site plan (see Exhibit 2, Sheet GR-S1 and Exhibit 6, Sheet CE-5). A group of bike racks is proposed near each of the main entrances into the Fred Meyer building, which will provide parking for 50 bikes. The western grouping will also serve Buildings J and K. Other smaller groups of bike racks are located in the following places: to the east of Building B in the pedestrian plaza; on the west side of Building C; at the eastern end of Building D; on the south side of Building E; and on the north side of Building F. Each group will provide parking for 4 to 6 bikes, as needed according to the size of each building. Dedicated bicycle parking for the residential component of this plan is located on the ground level of Building G, adjacent to the parking lot. All of the bicycle parking spaces are designed and located so that they are convenient to the building they will serve, are protected from vehicles, and do not conflict with other retail activities such as shopping cart storage.

Pedestrian circulation through the parking areas to all building entrances is provided. As shown on the site plan, internal sidewalks are provided to ensure that pedestrians can walk to and from all portions of the development.

The parking lot landscaping exceeds the minimum requirement (10 percent) with 10.3 percent of the parking and circulation area landscaped. Total landscaping across the entire development equates to 16% of the site.

#### Waiver

This application requests a waiver to the minimum number of required parking spaces. As shown in the above chart, the uses proposed on site require a minimum of 970 spaces. The proposed development plan proposes 885 spaces, or 91.2 percent of the required minimum spaces.

The site contains several large fir trees in the northeastern portion of the site. The site layout was configured to preserve and protect as many of these large trees as possible. The main Fred Meyer building was shifted to the west and to the south, and the garden center was redesigned to provide adequate truck maneuvering while preserving the majority of the large fir trees in this area. In addition, the streetscape along Boones Ferry Road is designed with significant public plazas and landscaping, in addition to the buildings, to emphasize the "Main Street" design. As such, areas that could have been utilized for parking remain undeveloped to protect large canopy trees, or to provide an attractive, pedestrian-oriented streetscape along Boones Ferry Road.

The Applicant has presented a Trip Generation Estimate by Brett Ahrend, P.E. of Group Mackenzie, which treats the retail and office portions of the proposed development as a shopping center, taking into account the high proportion of shared trips a mixed-use center typically achieves. Similarly, because many visitors to a mixed-use center will park once to visit a number of individual businesses with the center, a high ratio of shared parking can also be achieved, allowing the parking ratio to be reduced (as compared to adding up the required minimum parking for all uses as if they were on isolated, separate sites).

Significant effort has been made to provide pedestrian and bicycle access to and from the site, and bus service to the site is provided along Boones Ferry Road. These alternative transportation methods and the number of parking spaces provided are sufficient to serve the proposed development.

- (.04) Minimum Off-Street Loading Requirements:
  - A. Every building that is erected or structurally altered to increase the floor area, and which will require the receipt or distribution of materials or merchandise by truck or similar vehicle, shall provide off-street loading berths on the basis of minimum requirements as follows:
    - 1. Commercial, industrial, and public utility uses which have a gross floor area of 5,000 square feet or more, shall provide truck loading or unloading berths in accordance with the following tables:

# **Wilsonville Stage II Project List**

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**Wilsonville Planning Division**  
**Stage II Approved, Vested, and Other Projects**

**July 1, 2008**

Stage II Approved Project	Land Use (ITE Code)	Size	PM Peak Trips	IN/OUT	% Pass-By/Divert
Ash Meadows	MFDU	22	21	14/7	
TC Anchor	RET	31.0 KSF	136	43/43	37/28
Rivergreen (Phase 3)	SFDU	4	6	4/2	
Mercedes Benz (Phase 2)	AUTO		46	20/26	
I-5 Corporate Park (In Focus) (Under construction)	Office bldg W-1 (2 story)	70.0 KSF	97	17/80	
	Office bldg. W-2 (constructed, unoccupied)	124.5 KSF	173	144/29	
	<b>Total</b>		<b>270</b>	<b>46/224</b>	
Argyle Square	Retail – Service station	10 fueling positions	47	23/24	29/30
Town Center Ph III	Commercial	2.1 KSF	9	4/5	
	Office (under construction)	44.0 KSF	104	18/86	
	Miller Paint Store	5.0 KSF	14	7/7	
	Bank (approved)	3.63 KSF	90	45/45	
	Fast Food #1	2.5 KSF	34	18/16	
	Fast Food #2	2.5 KSF	34	18/16	
	High Turnover Restaurant	7.5 KSF	41	25/17	
	<b>Total Approved</b>			<b>326</b>	<b>134/192</b>
Shefrin Mixed-Use	Retail/Office	8,000 Mixed-Use	10	2/8	
Lowries (vested trips)	Sequoia Office Building	17.8 KSF	61	31/30	
	Sonic fast food restaurant	1,800 SF w/drive-thru			
Commuter Rail – Park & Ride, bus terminal, train shed. (95% Constructed)	Public Transit	400 Stalls	306	76/230	

**Wilsonville Planning Division**  
**Stage II Approved, Vested, and Other Projects**

**July 1, 2008**

<b>Stage II Approved Project</b>	<b>Land Use (ITE Code)</b>	<b>Size</b>	<b>PM Peak Trips</b>	<b>IN/OUT</b>	<b>% Pass-By/Divert</b>
Cross Creek Subdivision (Lots for sale)	Residential	13 lots	11	7/4	
Hydro-Temp	Office/Flex-Space/Cafe	60.8 KSF	90	44/46	
Copper Creek (Mike Madrid) (Lots for sale)	Residential	26 dwelling units	23	15/8	
Chad Ward building on Kinsman	Manufacturing, warehouse, office and 5,000 SF retail bldg.	25,360 SF Total	52	11/41	
Joe Angel's retail (Wilsonville Retail) on Boones Ferry Rd	Retail	11,166 SF North Bldg	131	66/65	26/44
	Bank	3,165 SF South Bldg.	111	53/58	26/58
	<b>Total</b>		<b>242</b>	<b>119/123</b>	
Sysco Foods warehouse expansion (Under construction)	Warehouse/Office building	71,972 SF Total (for expansion)	40	15/25	
Providence Medical Clinic	Offices	25,000 SF	93	25/68	
US Crane & Hoist (Under construction)	Industrial	1,920 SF	2		
Wilsonville Auto Body	Convert existing Diatron Building to an Auto Body facility	39,606 SF			
Wilsonvillage – Old Town	Residential – Phase 1	2 lots plus 2 accessory units			

**Wilsonville Planning Division**  
**Stage II Approved, Vested, and Other Projects**

**July 1, 2008**

<b>Vested Projects (Trips through WV IC Area)</b>					
<b>Vested Project</b>	<b>Land Use (ITE Code)</b>	<b>Size</b>	<b>PM Peak Trips</b>	<b>IN/OUT</b>	<b>% Pass-By/Divert</b>
Villebois	Mixed Use	N/A	309 WVIC	266/144	
The Villebois approved projects as shown below are part of the 410 vested trips through the WV Road Interchange Area as shown above (309 trips based on occupied units in SAP-South Phases 1,2, and 3)					
Villebois SAP-South Phases 2 and 3	Residential	121 units	115	74/41	
Villebois SAP-East Phase 1	Residential	190 units			
Villebois SAP-Central Phase 1	Residential	394 units			
Villebois SAP-Central Phase 2	Residential/5,000 sf commercial	114- 134 (mid 124)			
Villebois SAP-South Phase 5	Residential	25 units			
Villebois SAP-North	Residential				

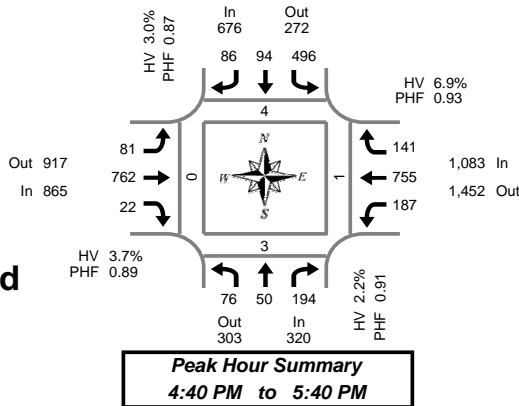
<b>Projects Without Stage II Approval (“Other” Projects)</b>					
<b>Other Project</b>	<b>Land Use (ITE Code)</b>	<b>Size</b>	<b>PM Peak Trips</b>	<b>IN/OUT</b>	<b>% Pass-By/Divert</b>
Wilsonvillage – Old Town	Residential – Phase 2	8 lots plus 8 accessory units			
Shefrin Mixed-Use (other portions of development are approved)	Residential	<del>25</del> 16 Townhomes (trip generation estimates may change)	19	13/6	
Coca-Cola Warehouse Expansion	Industrial	160,000 SF	28	6/22	
Abele-Renaissance Subdivision	Residential	33 single-family dwelling units	33	21/12	



# Weekday Traffic Counts

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Total Vehicle Summary



SW Boones Ferry Rd & SW Wilsonville Rd

Tuesday, January 29, 2008  
4:00 PM to 6:00 PM

5-Minute Interval Summary  
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	7	6	16	0	43	7	3	0	5	55	1	0	14	53	5	0	215	0	0	0	0
4:05 PM	6	4	12	0	37	8	2	0	5	58	1	0	17	64	7	0	221	0	0	0	0
4:10 PM	6	2	21	0	45	7	5	0	6	55	1	0	20	55	10	0	233	0	0	0	0
4:15 PM	7	3	20	0	38	6	8	0	3	62	2	0	17	52	10	0	228	0	0	0	0
4:20 PM	5	3	17	0	35	5	2	0	6	73	2	0	13	64	11	0	236	0	0	0	1
4:25 PM	5	4	18	0	32	7	4	0	6	72	2	0	16	62	9	0	237	0	1	0	0
4:30 PM	7	5	15	0	40	6	9	0	6	58	2	1	17	52	12	1	229	0	0	1	0
4:35 PM	8	5	17	0	44	9	4	0	7	58	1	0	11	54	14	0	232	1	0	0	0
4:40 PM	11	3	18	0	43	7	5	0	8	59	1	0	13	56	9	0	233	1	0	0	0
4:45 PM	7	7	16	0	41	6	11	0	12	57	3	0	15	59	12	0	246	0	0	0	0
4:50 PM	6	3	17	0	39	5	6	0	7	69	2	0	17	59	10	0	240	0	1	0	0
4:55 PM	6	5	15	0	37	7	6	0	4	64	1	0	20	59	12	0	236	0	1	0	0
5:00 PM	5	6	17	0	36	8	12	1	6	69	2	0	16	56	10	0	243	0	0	0	0
5:05 PM	7	5	18	0	40	9	5	0	10	67	1	0	16	60	13	0	251	0	0	0	0
5:10 PM	5	3	13	0	50	9	12	0	8	79	2	0	13	76	14	0	284	1	1	0	0
5:15 PM	7	3	16	0	46	10	7	0	5	60	1	0	14	62	10	0	241	1	0	0	0
5:20 PM	6	5	18	0	44	8	8	0	4	56	2	0	20	59	13	0	243	0	0	1	0
5:25 PM	6	4	17	0	43	12	5	0	3	60	2	0	16	62	11	0	241	0	0	0	0
5:30 PM	4	4	13	0	37	6	4	0	5	58	2	0	11	74	15	0	233	1	0	0	0
5:35 PM	6	2	16	0	40	7	5	0	9	64	3	0	16	73	12	0	253	0	0	0	0
5:40 PM	5	5	18	0	41	6	4	0	4	50	2	0	9	63	14	0	221	0	0	0	0
5:45 PM	6	3	15	0	35	4	6	0	8	49	4	0	14	70	15	0	229	1	0	0	0
5:50 PM	5	2	16	0	28	5	7	0	5	50	2	0	12	73	13	0	218	0	0	0	0
5:55 PM	6	4	16	0	31	3	4	0	3	51	3	0	9	67	13	0	210	0	0	0	0
Total Survey	149	96	395	0	945	167	144	1	145	1,453	45	1	356	1,484	274	1	5,653	6	4	2	1

15-Minute Interval Summary  
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	19	12	49	0	125	22	10	0	16	168	3	0	51	172	22	0	669	0	0	0	0
4:15 PM	17	10	55	0	105	18	14	0	15	207	6	0	46	178	30	0	701	0	1	0	1
4:30 PM	26	13	50	0	127	22	18	0	21	175	4	1	41	162	35	1	694	2	0	1	0
4:45 PM	19	15	48	0	117	18	23	0	23	190	6	0	52	177	34	0	722	0	2	0	0
5:00 PM	17	14	48	0	126	26	29	1	24	215	5	0	45	192	37	0	778	1	1	0	0
5:15 PM	19	12	51	0	133	30	20	0	12	176	5	0	50	183	34	0	725	1	0	1	0
5:30 PM	15	11	47	0	118	19	13	0	18	172	7	0	36	210	41	0	707	1	0	0	0
5:45 PM	17	9	47	0	94	12	17	0	16	150	9	0	35	210	41	0	657	1	0	0	0
Total Survey	149	96	395	0	945	167	144	1	145	1,453	45	1	356	1,484	274	1	5,653	6	4	2	1

Peak Hour Summary  
4:40 PM to 5:40 PM

By Approach	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	320	303	623	0	676	272	948	1	865	917	1,782	0	1,083	1,452	2,535	0	2,944	4	3	1	0
%HV	2.2%				3.0%				3.7%				6.9%				4.6%				
PHF	0.91				0.87				0.89				0.93				0.95				

By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total				
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total					
Volume	76	50	194	320	496	94	86	676	81	762	22	865	187	755	141	1,083	2,944				
%HV	2.6%	0.0%	2.6%	2.2%	3.2%	0.0%	4.7%	3.0%	3.7%	3.4%	13.6%	3.7%	1.1%	7.3%	12.8%	6.9%	4.6%				
PHF	0.79	0.78	0.95	0.91	0.89	0.78	0.74	0.87	0.75	0.89	0.79	0.89	0.88	0.90	0.90	0.93	0.95				

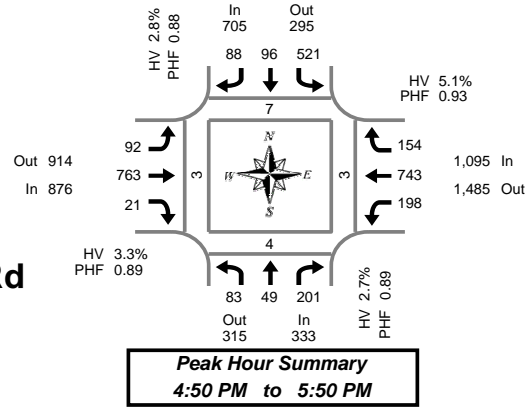
Rolling Hour Summary  
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	81	50	202	0	474	80	65	0	75	740	19	1	190	689	121	1	2,786	2	3	1	1
4:15 PM	79	52	201	0	475	84	84	1	83	787	21	1	184	709	136	1	2,895	3	4	1	1
4:30 PM	81	54	197	0	503	96	90	1	80	756	20	1	188	714	140	1	2,919	4	3	2	0
4:45 PM	70	52	194	0	494	93	85	1	77	753	23	0	183	762	146	0	2,932	3	3	1	0
5:00 PM	68	46	193	0	471	87	79	1	70	713	26	0	166	795	153	0	2,867	4	1	1	0

**Total Vehicle Summary**



Clay Carney  
(503) 833-2740



**SW Boones Ferry Rd & SW Wilsonville Rd**

Tuesday, June 24, 2008

4:00 PM to 6:00 PM

**5-Minute Interval Summary**

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	7	2	11	0	34	8	7	0	7	64	2	0	18	51	12	0	223	0	0	0	0
4:05 PM	6	3	9	0	42	6	5	0	6	49	4	0	15	54	10	0	209	1	0	0	0
4:10 PM	6	5	13	0	47	5	4	0	6	52	3	0	22	55	13	0	231	0	0	2	0
4:15 PM	5	6	20	0	33	11	5	0	5	70	2	0	17	56	15	0	245	0	0	0	0
4:20 PM	4	3	16	0	38	5	4	0	8	56	0	0	15	64	9	0	222	0	2	0	0
4:25 PM	9	2	14	0	45	2	6	2	4	62	2	0	19	66	7	0	238	0	0	0	0
4:30 PM	5	4	21	0	34	3	9	0	4	59	5	0	23	61	15	0	243	2	0	0	0
4:35 PM	10	7	17	0	42	5	6	0	7	63	0	0	16	46	11	0	230	0	0	0	0
4:40 PM	3	2	15	2	29	7	9	0	7	65	1	0	19	63	14	0	234	0	0	0	0
4:45 PM	5	3	10	0	44	6	5	0	6	73	2	0	12	65	8	1	239	0	0	0	0
4:50 PM	7	2	12	0	47	12	6	0	7	67	3	0	16	58	10	0	247	0	3	0	0
4:55 PM	8	4	20	0	38	7	6	0	5	54	1	0	17	68	12	0	240	4	0	1	0
5:00 PM	4	5	15	0	32	8	5	0	16	73	4	0	18	50	17	0	247	0	0	0	0
5:05 PM	5	7	23	0	50	8	11	0	5	70	1	0	20	61	10	0	271	0	0	0	0
5:10 PM	6	1	14	0	52	7	11	0	11	64	1	0	14	50	8	0	239	0	0	0	0
5:15 PM	10	1	13	0	48	6	7	0	3	64	1	0	15	70	18	0	256	0	0	1	3
5:20 PM	5	5	16	0	42	11	7	0	9	60	0	0	15	65	12	0	247	0	0	0	0
5:25 PM	11	7	15	0	49	5	5	1	6	51	4	0	13	71	16	0	253	0	0	0	0
5:30 PM	5	5	22	0	45	6	6	0	6	63	2	0	20	61	11	0	252	0	0	0	0
5:35 PM	4	2	19	0	43	8	9	0	8	74	1	0	19	66	15	0	268	0	0	0	0
5:40 PM	13	9	15	0	36	10	6	0	7	63	1	0	15	55	16	0	246	3	1	0	0
5:45 PM	5	1	17	0	39	8	9	0	9	60	2	0	16	68	9	0	243	0	0	1	0
5:50 PM	6	2	18	0	41	6	8	0	8	56	3	0	19	64	13	0	244	0	0	0	0
5:55 PM	5	4	12	0	31	6	7	0	6	63	1	0	13	58	10	1	216	0	0	0	0
Total Survey	154	92	377	2	981	166	163	3	166	1,495	46	0	406	1,446	291	2	5,783	10	6	5	3

**15-Minute Interval Summary**

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	19	10	33	0	123	19	16	0	19	165	9	0	55	160	35	0	663	1	0	2	0
4:15 PM	18	11	50	0	116	18	15	2	17	188	4	0	51	186	31	0	705	0	2	0	0
4:30 PM	18	13	53	2	105	15	24	0	18	187	6	0	58	170	40	0	707	2	0	0	0
4:45 PM	20	9	42	0	129	25	17	0	18	194	6	0	45	191	30	1	726	4	3	1	0
5:00 PM	15	13	52	0	134	23	27	0	32	207	6	0	52	161	35	0	757	0	0	0	0
5:15 PM	26	13	44	0	139	22	19	1	18	175	5	0	43	206	46	0	756	0	0	1	3
5:30 PM	22	16	56	0	124	24	21	0	21	200	4	0	54	182	42	0	766	3	1	0	0
5:45 PM	16	7	47	0	111	20	24	0	23	179	6	0	48	190	32	1	703	0	0	1	0
Total Survey	154	92	377	2	981	166	163	3	166	1,495	46	0	406	1,446	291	2	5,783	10	6	5	3

**Peak Hour Summary**

4:50 PM to 5:50 PM

By Approach	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	333	315	648	0	705	295	1,000	1	876	914	1,790	0	1,095	1,485	2,580	0	3,009	7	4	3	3
%HV	2.7%				2.8%				3.3%				5.1%				3.8%				
PHF	0.89				0.88				0.89				0.93				0.97				

By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total				
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total					
Volume	83	49	201	333	521	96	88	705	92	763	21	876	198	743	154	1,095	3,009				
%HV	2.4%	2.0%	3.0%	2.7%	2.7%	1.0%	5.7%	2.8%	5.4%	2.6%	19.0%	3.3%	2.0%	4.2%	13.6%	5.1%	3.8%				
PHF	0.80	0.72	0.87	0.89	0.87	0.89	0.76	0.88	0.72	0.92	0.66	0.89	0.90	0.90	0.84	0.93	0.97				

**Rolling Hour Summary**

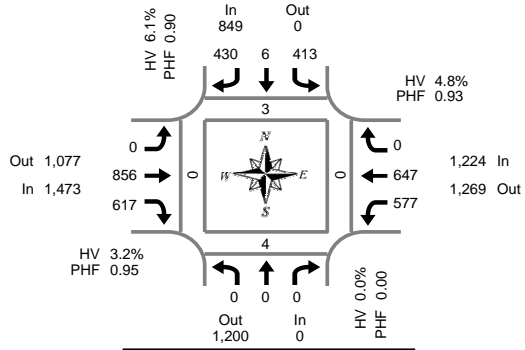
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	75	43	178	2	473	77	72	2	72	734	25	0	209	707	136	1	2,801	7	5	3	0
4:15 PM	71	46	197	2	484	81	83	2	85	776	22	0	206	708	136	1	2,895	6	5	1	0
4:30 PM	79	48	191	2	507	85	87	1	86	763	23	0	198	728	151	1	2,946	6	3	2	3
4:45 PM	83	51	194	0	526	94	84	1	89	776	21	0	194	740	153	1	3,005	7	4	2	3
5:00 PM	79	49	199	0	508	89	91	1	94	761	21	0	197	739	155	1	2,982	3	1	2	3

### Total Vehicle Summary



Clay Carney  
(503) 833-2740



**Peak Hour Summary**  
4:35 PM to 5:35 PM

### I-5 SB Ramps & SW Wilsonville Rd

Tuesday, January 29, 2008  
4:00 PM to 6:00 PM

#### 5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	34	0	39	0	0	73	51	0	43	51	0	0	291	0	0	0	0
4:05 PM	0	0	0	0	27	0	34	0	0	65	48	0	45	48	0	0	267	0	0	0	0
4:10 PM	0	0	0	0	36	1	34	0	0	69	51	0	43	63	0	0	297	0	0	0	0
4:15 PM	0	0	0	0	32	0	24	0	0	66	47	0	43	40	0	0	252	1	0	0	0
4:20 PM	0	0	0	0	28	2	32	0	0	76	49	0	36	58	0	0	281	1	0	0	0
4:25 PM	0	0	0	0	32	1	33	0	0	65	41	0	40	52	0	0	264	0	0	0	0
4:30 PM	0	0	0	0	41	0	38	0	0	64	42	0	56	49	0	0	290	0	0	0	0
4:35 PM	0	0	0	0	29	0	33	0	0	88	57	0	44	55	0	1	306	0	0	0	0
4:40 PM	0	0	0	0	35	0	23	0	0	62	63	0	42	52	0	0	277	0	0	0	0
4:45 PM	0	0	0	0	34	2	38	0	0	72	46	0	43	53	0	0	288	0	1	0	0
4:50 PM	0	0	0	0	23	0	29	0	0	63	54	0	48	46	0	0	263	0	0	0	0
4:55 PM	0	0	0	0	32	1	43	0	0	81	39	0	53	66	0	0	315	0	0	0	0
5:00 PM	0	0	0	0	38	0	28	0	0	73	51	0	56	50	0	0	296	0	0	0	0
5:05 PM	0	0	0	0	36	0	33	0	0	67	56	0	47	56	0	2	295	0	2	0	0
5:10 PM	0	0	0	0	45	0	31	0	0	71	58	0	43	59	0	0	307	0	0	0	0
5:15 PM	0	0	0	0	34	0	46	0	0	66	50	0	47	62	0	0	305	2	1	0	0
5:20 PM	0	0	0	0	33	1	37	0	0	77	49	0	48	55	0	0	300	0	0	0	0
5:25 PM	0	0	0	0	39	2	39	0	0	67	51	0	49	50	0	0	297	1	0	0	0
5:30 PM	0	0	0	0	35	0	50	0	0	69	43	1	57	43	0	0	297	0	0	0	0
5:35 PM	0	0	0	0	51	0	27	0	0	66	51	0	46	55	0	0	296	0	0	0	0
5:40 PM	0	0	0	0	45	1	32	0	0	67	36	0	45	54	0	0	280	0	0	0	0
5:45 PM	0	0	0	0	30	0	29	0	0	54	36	0	46	56	0	0	251	0	0	0	0
5:50 PM	0	0	0	0	30	2	33	0	0	62	35	0	39	50	0	0	251	0	0	0	0
5:55 PM	0	0	0	0	34	0	29	0	0	46	33	0	42	48	0	0	232	0	0	0	0
Total Survey	0	0	0	0	833	13	814	0	0	1,629	1,137	1	1,101	1,271	0	3	6,798	5	4	0	0

#### 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	97	1	107	0	0	207	150	0	131	162	0	0	855	0	0	0	0
4:15 PM	0	0	0	0	92	3	89	0	0	207	137	0	119	150	0	0	797	2	0	0	0
4:30 PM	0	0	0	0	105	0	94	0	0	214	162	0	142	156	0	1	873	0	0	0	0
4:45 PM	0	0	0	0	89	3	110	0	0	216	139	0	144	165	0	0	866	0	1	0	0
5:00 PM	0	0	0	0	119	0	92	0	0	211	165	0	146	165	0	2	898	0	2	0	0
5:15 PM	0	0	0	0	106	3	122	0	0	210	150	0	144	167	0	0	902	3	1	0	0
5:30 PM	0	0	0	0	131	1	109	0	0	202	130	1	148	152	0	0	873	0	0	0	0
5:45 PM	0	0	0	0	94	2	91	0	0	162	104	0	127	154	0	0	734	0	0	0	0
Total Survey	0	0	0	0	833	13	814	0	0	1,629	1,137	1	1,101	1,271	0	3	6,798	5	4	0	0

#### Peak Hour Summary 4:35 PM to 5:35 PM

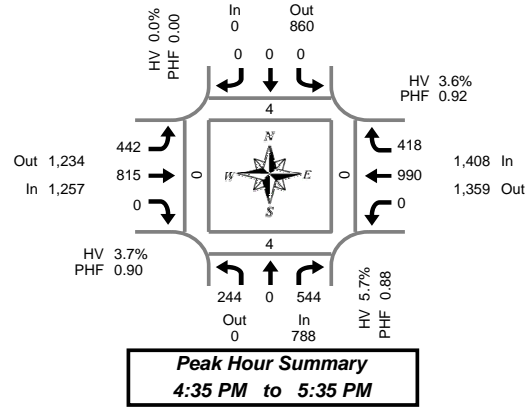
By Approach	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	1,200	1,200	0	849	0	849	0	1,473	1,077	2,550	1	1,224	1,269	2,493	3	3,546	3	4	0	0
%HV	0.0%				6.1%				3.2%				4.8%				4.5%				
PHF	0.00				0.90				0.95				0.93				0.97				

By Movement	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total				
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total					
Volume	0	0	0	0	413	6	430	849	0	856	617	1,473	577	647	0	1,224	3,546				
%HV	0.0%	0.0%	0.0%	0.0%	2.9%	0.0%	9.3%	6.1%	0.0%	3.7%	2.4%	3.2%	3.8%	5.7%	0.0%	4.8%	4.5%				
PHF	0.00	0.00	0.00	0.00	0.87	0.50	0.85	0.90	0.00	0.96	0.93	0.95	0.92	0.91	0.00	0.93	0.97				

#### Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	383	7	400	0	0	844	588	0	536	633	0	1	3,391	2	1	0	0
4:15 PM	0	0	0	0	405	6	385	0	0	848	603	0	551	636	0	3	3,434	2	3	0	0
4:30 PM	0	0	0	0	419	6	418	0	0	851	616	0	576	653	0	3	3,539	3	4	0	0
4:45 PM	0	0	0	0	445	7	433	0	0	839	584	1	582	649	0	2	3,539	3	4	0	0
5:00 PM	0	0	0	0	450	6	414	0	0	785	549	1	565	638	0	2	3,407	3	3	0	0

**Total Vehicle Summary**



**I-5 NB Ramps & SW Wilsonville Rd**

Tuesday, January 29, 2008  
4:00 PM to 6:00 PM

**5-Minute Interval Summary**  
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	12	0	27	0	0	0	0	0	34	61	0	0	0	89	39	0	262	0	0	0	0
4:05 PM	14	0	32	0	0	0	0	0	34	64	0	0	0	68	33	0	245	0	0	0	0
4:10 PM	15	0	33	0	0	0	0	0	42	63	0	0	0	79	43	0	275	1	1	0	0
4:15 PM	15	0	26	0	0	0	0	0	38	67	0	0	0	71	29	0	246	0	0	0	0
4:20 PM	26	0	27	0	0	0	0	0	32	63	0	0	0	79	32	0	259	0	0	0	0
4:25 PM	22	0	50	0	0	0	0	0	31	73	0	0	0	65	35	0	276	0	0	0	0
4:30 PM	18	0	40	0	0	0	0	0	37	65	0	0	0	72	41	0	273	0	0	0	0
4:35 PM	18	0	44	0	0	0	0	0	45	69	0	0	0	74	37	1	287	1	1	0	0
4:40 PM	19	0	48	0	0	0	0	0	35	64	0	0	0	87	29	0	282	0	0	0	0
4:45 PM	19	0	49	0	0	0	0	0	29	61	0	0	0	74	33	0	265	0	0	0	0
4:50 PM	17	0	33	0	0	0	0	0	28	83	0	0	0	78	34	0	273	0	0	0	0
4:55 PM	19	0	34	0	0	0	0	0	34	58	0	0	0	84	35	0	264	0	0	0	0
5:00 PM	17	0	37	0	0	0	0	0	35	70	0	0	0	85	41	0	285	0	0	0	0
5:05 PM	22	0	46	0	0	0	0	0	42	71	0	0	0	93	37	2	311	0	2	0	0
5:10 PM	19	0	56	0	0	0	0	0	51	82	0	0	0	94	33	0	335	2	0	0	0
5:15 PM	28	0	38	0	0	0	0	0	34	63	0	0	0	85	31	0	279	0	0	0	0
5:20 PM	23	0	53	0	0	0	0	0	47	60	0	0	0	77	46	0	306	0	1	0	0
5:25 PM	24	0	55	0	0	0	0	0	29	67	0	1	0	76	25	0	276	1	0	0	0
5:30 PM	19	0	51	0	0	0	0	0	33	67	0	0	0	83	37	0	290	0	0	0	0
5:35 PM	20	0	45	0	0	0	0	0	43	74	0	0	0	73	27	0	282	2	0	0	0
5:40 PM	18	0	39	0	0	0	0	0	27	70	0	0	0	66	46	0	266	1	0	0	0
5:45 PM	23	0	42	0	0	0	0	0	32	57	0	0	0	85	27	0	266	0	0	0	0
5:50 PM	22	0	31	0	0	0	0	0	32	56	0	0	0	72	22	0	235	0	0	0	0
5:55 PM	21	0	42	0	0	0	0	0	29	71	0	0	0	75	31	0	269	1	0	0	0
Total Survey	470	0	978	0	0	0	0	0	853	1,599	0	1	0	1,884	823	3	6,607	9	5	0	0

**15-Minute Interval Summary**  
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	41	0	92	0	0	0	0	0	110	188	0	0	0	236	115	0	782	1	1	0	0
4:15 PM	63	0	103	0	0	0	0	0	101	203	0	0	0	215	96	0	781	0	0	0	0
4:30 PM	55	0	132	0	0	0	0	0	117	198	0	0	0	233	107	1	842	1	1	0	0
4:45 PM	55	0	116	0	0	0	0	0	91	202	0	0	0	236	102	0	802	0	0	0	0
5:00 PM	58	0	139	0	0	0	0	0	128	223	0	0	0	272	111	2	931	2	2	0	0
5:15 PM	75	0	146	0	0	0	0	0	110	190	0	1	0	238	102	0	861	1	1	0	0
5:30 PM	57	0	135	0	0	0	0	0	103	211	0	0	0	222	110	0	838	3	0	0	0
5:45 PM	66	0	115	0	0	0	0	0	93	184	0	0	0	232	80	0	770	1	0	0	0
Total Survey	470	0	978	0	0	0	0	0	853	1,599	0	1	0	1,884	823	3	6,607	9	5	0	0

**Peak Hour Summary**  
4:35 PM to 5:35 PM

By Approach	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	788	0	788	0	0	860	860	0	1,257	1,234	2,491	1	1,408	1,359	2,767	3	3,453	4	4	0	0
%HV	5.7%				0.0%				3.7%				3.6%				4.1%				
PHF	0.88				0.00				0.90				0.92				0.93				

By Movement	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	244	0	544	788	0	0	0	0	442	815	0	1,257	0	990	418	1,408	3,453
%HV	9.8%	0.0%	3.9%	5.7%	0.0%	0.0%	0.0%	0.0%	5.0%	2.9%	0.0%	3.7%	0.0%	4.0%	2.6%	3.6%	4.1%
PHF	0.81	0.00	0.86	0.88	0.00	0.00	0.00	0.00	0.84	0.91	0.00	0.90	0.00	0.91	0.92	0.92	0.93

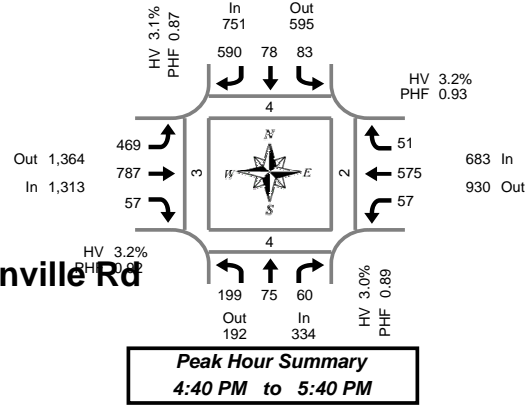
**Rolling Hour Summary**  
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	214	0	443	0	0	0	0	0	419	791	0	0	0	920	420	1	3,207	2	2	0	0
4:15 PM	231	0	490	0	0	0	0	0	437	826	0	0	0	956	416	3	3,356	3	3	0	0
4:30 PM	243	0	533	0	0	0	0	0	446	813	0	1	0	979	422	3	3,436	4	4	0	0
4:45 PM	245	0	536	0	0	0	0	0	432	826	0	1	0	968	425	2	3,432	6	3	0	0
5:00 PM	256	0	535	0	0	0	0	0	434	808	0	1	0	964	403	2	3,400	7	3	0	0

**Total Vehicle Summary**



Clay Carney  
(503) 833-2740



**SW Town Center Loop West & SW Wilsonville Rd**

Tuesday, January 29, 2008  
4:00 PM to 6:00 PM

**5-Minute Interval Summary  
4:00 PM to 6:00 PM**

Interval Start Time	Northbound SW Town Center Loop West				Southbound SW Town Center Loop West				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	14	5	2	0	4	6	44	0	38	48	2	0	2	43	2	0	210	0	0	0	1
4:05 PM	20	4	3	0	3	5	45	0	26	48	3	0	3	46	4	0	210	0	1	0	0
4:10 PM	16	5	3	0	4	6	44	0	27	62	4	0	2	59	3	0	235	1	0	1	0
4:15 PM	9	3	6	0	5	3	39	0	42	50	7	1	1	47	7	0	219	1	0	1	1
4:20 PM	18	10	3	0	5	3	44	0	29	48	4	0	3	50	4	0	221	1	0	2	0
4:25 PM	14	3	2	0	5	4	43	0	37	58	9	0	4	55	9	0	243	1	2	0	2
4:30 PM	17	6	6	0	5	6	48	0	45	48	5	0	3	43	4	0	236	1	1	1	0
4:35 PM	15	4	5	0	4	6	47	0	33	55	5	0	9	55	3	0	241	0	1	0	0
4:40 PM	15	10	4	0	10	6	46	0	40	70	5	0	3	49	8	1	266	0	0	0	0
4:45 PM	10	6	7	0	5	5	43	0	41	61	4	0	3	60	5	0	250	0	0	0	0
4:50 PM	16	5	6	0	5	4	53	0	41	55	8	0	6	35	3	0	237	0	1	0	1
4:55 PM	17	5	4	0	6	11	52	0	38	60	3	0	3	44	6	0	249	0	1	0	0
5:00 PM	19	11	9	0	8	5	59	0	34	64	9	0	4	60	4	0	286	0	0	1	0
5:05 PM	20	6	3	0	9	7	59	0	48	61	3	0	8	49	4	0	277	0	1	0	1
5:10 PM	17	7	2	0	6	5	42	0	39	70	2	0	3	47	4	0	244	1	0	0	1
5:15 PM	17	8	6	0	7	11	45	0	29	59	6	0	3	52	1	0	244	0	0	0	0
5:20 PM	16	3	5	0	8	5	44	0	50	79	4	0	6	42	4	0	266	0	0	0	0
5:25 PM	15	4	5	0	6	6	44	0	40	64	3	0	4	42	5	0	238	2	0	1	0
5:30 PM	19	6	5	0	8	6	53	0	38	73	4	0	9	45	2	0	268	0	1	0	0
5:35 PM	18	4	4	0	5	7	50	0	31	71	6	0	5	50	5	0	256	1	0	0	0
5:40 PM	20	3	2	0	5	7	48	0	35	61	4	0	4	44	5	0	238	0	1	0	1
5:45 PM	14	3	4	0	5	4	38	0	34	71	3	0	3	41	6	0	226	0	1	0	0
5:50 PM	16	4	5	0	4	8	47	0	35	64	5	0	8	55	7	0	258	0	0	0	0
5:55 PM	16	4	2	0	6	6	41	0	31	64	5	0	2	44	6	0	227	0	0	0	0
Total Survey	388	129	103	0	138	142	1,118	0	881	1,464	113	1	101	1,157	111	1	5,845	9	11	7	8

**15-Minute Interval Summary  
4:00 PM to 6:00 PM**

Interval Start Time	Northbound SW Town Center Loop West				Southbound SW Town Center Loop West				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	50	14	8	0	11	17	133	0	91	158	9	0	7	148	9	0	655	1	1	1	1
4:15 PM	41	16	11	0	15	10	126	0	108	156	20	1	8	152	20	0	683	3	2	3	3
4:30 PM	47	20	15	0	19	18	141	0	118	173	15	0	15	147	15	1	743	1	2	1	0
4:45 PM	43	16	17	0	16	20	148	0	120	176	15	0	12	139	14	0	736	0	2	0	1
5:00 PM	56	24	14	0	23	17	160	0	121	195	14	0	15	156	12	0	807	1	1	1	2
5:15 PM	48	15	16	0	21	22	133	0	119	202	13	0	13	136	10	0	748	2	0	1	0
5:30 PM	57	13	11	0	18	20	151	0	104	205	14	0	18	139	12	0	762	1	2	0	1
5:45 PM	46	11	11	0	15	18	126	0	100	199	13	0	13	140	19	0	711	0	1	0	0
Total Survey	388	129	103	0	138	142	1,118	0	881	1,464	113	1	101	1,157	111	1	5,845	9	11	7	8

**Peak Hour Summary  
4:40 PM to 5:40 PM**

By Approach	Northbound SW Town Center Loop West				Southbound SW Town Center Loop West				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	334	192	526	0	751	595	1,346	0	1,313	1,364	2,677	0	683	930	1,613	1	3,081	4	4	2	3
%HV	3.0%				3.1%				3.2%				3.2%				3.1%				
PHF	0.89				0.87				0.92				0.93				0.95				

By Movement	Northbound SW Town Center Loop West				Southbound SW Town Center Loop West				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total				
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total					
Volume	199	75	60	334	83	78	590	751	469	787	57	1,313	57	575	51	683	3,081				
%HV	3.5%	2.7%	1.7%	3.0%	3.6%	6.4%	2.5%	3.1%	2.8%	3.3%	5.3%	3.2%	0.0%	3.8%	0.0%	3.2%	3.1%				
PHF	0.89	0.78	0.79	0.89	0.90	0.85	0.87	0.87	0.92	0.91	0.71	0.92	0.75	0.92	0.80	0.93	0.95				

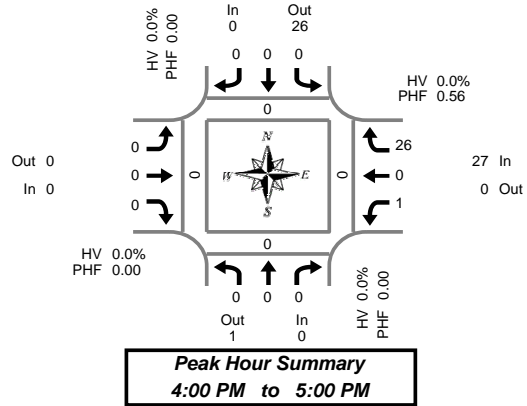
**Rolling Hour Summary  
4:00 PM to 6:00 PM**

Interval Start Time	Northbound SW Town Center Loop West				Southbound SW Town Center Loop West				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	181	66	51	0	61	65	548	0	437	663	59	1	42	586	58	1	2,817	5	7	5	5
4:15 PM	187	76	57	0	73	65	575	0	467	700	64	1	50	594	61	1	2,969	5	7	5	6
4:30 PM	194	75	62	0	79	77	582	0	478	746	57	0	55	578	51	1	3,034	4	5	3	3
4:45 PM	204	68	58	0	78	79	592	0	464	778	56	0	58	570	48	0	3,053	4	5	2	4
5:00 PM	207	63	52	0	77	77	570	0	444	801	54	0	59	571	53	0	3,028	4	4	2	3

**Total Vehicle Summary**



Clay Carney  
(503) 833-2740



**Boones Ferry & North Bank Access**

Tuesday, July 01, 2008  
4:00 PM to 6:00 PM

**5-Minute Interval Summary  
4:00 PM to 6:00 PM**

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Bank Access				Westbound North Bank Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	0	0	0	
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
Total Survey	0	0	0	0	0	0	0	0	0	0	0	0	3	0	35	0	38	0	0	0	0

**15-Minute Interval Summary  
4:00 PM to 6:00 PM**

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Bank Access				Westbound North Bank Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	0	7	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	4	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	
Total Survey	0	0	0	0	0	0	0	0	0	0	0	0	3	0	35	0	38	0	0	0	0

**Peak Hour Summary  
4:00 PM to 5:00 PM**

By Approach	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Bank Access				Westbound North Bank Access				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	1	1	0	0	26	26	0	0	0	0	0	27	0	27	0	27	0	0	0	0
%HV	0.0%				0.0%				0.0%				0.0%				0.0%				
PHF	0.00				0.00				0.00				0.56				0.56				

By Movement	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Bank Access				Westbound North Bank Access				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	26	27	27
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.59	0.56	0.56

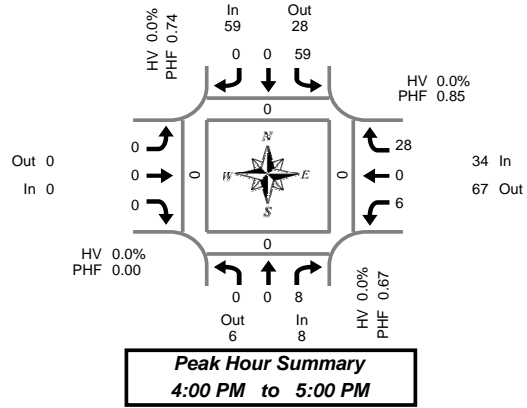
**Rolling Hour Summary  
4:00 PM to 6:00 PM**

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Bank Access				Westbound North Bank Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	26	0	27	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	23	0	24	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	18	0	20	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	14	0	16	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	9	0	11	0	0	0	

**Total Vehicle Summary**



Clay Carney  
(503) 833-2740



**Boones Ferry & South Bank Access**

Tuesday, July 01, 2008  
4:00 PM to 6:00 PM

**5-Minute Interval Summary  
4:00 PM to 6:00 PM**

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Bank Access				Westbound South Bank Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	2	0	6	0	0	0	0	0	0	0	1	0	3	0	12	0	0	0	0
4:05 PM	0	0	0	0	7	0	0	0	0	0	0	0	0	0	4	0	11	0	0	0	0
4:10 PM	0	0	1	0	5	0	0	0	0	0	0	0	0	1	0	7	0	0	0	0	
4:15 PM	0	0	0	0	7	0	0	0	0	0	0	0	1	0	1	0	9	0	0	0	0
4:20 PM	0	0	1	0	8	0	0	0	0	0	0	0	0	4	0	13	0	0	0	0	
4:25 PM	0	0	1	0	4	0	0	0	0	0	0	0	0	2	0	7	0	0	0	0	
4:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	4	0	6	0	0	0	0	
4:35 PM	0	0	0	0	6	0	0	0	0	0	0	0	1	0	1	0	8	0	0	0	0
4:40 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	2	0	6	0	0	0	0	
4:45 PM	0	0	0	0	5	0	0	0	0	0	0	0	2	0	3	0	10	0	0	0	0
4:50 PM	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	5	0	0	0	0	
4:55 PM	0	0	1	0	4	0	0	0	0	0	0	0	1	0	1	0	7	0	0	0	0
5:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	5	0	7	0	0	0	0	
5:05 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0	5	0	0	0	0	
5:10 PM	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	5	0	0	0	0	
5:15 PM	0	0	0	0	4	0	0	0	0	0	0	1	0	1	0	6	0	0	0	0	
5:20 PM	0	0	0	0	5	0	0	0	0	0	0	0	0	2	0	7	0	0	0	0	
5:25 PM	0	0	0	0	1	0	0	0	0	0	0	1	0	3	0	5	0	0	0	0	
5:30 PM	0	0	1	0	3	0	0	0	0	0	0	0	0	2	0	6	0	0	0	0	
5:35 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	
5:40 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
5:45 PM	0	0	1	0	2	0	0	0	0	0	0	0	0	1	0	4	0	0	0	0	
5:50 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	4	0	0	0	0	
5:55 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	
Total Survey	0	0	10	0	86	0	0	0	0	0	0	8	0	52	0	156	0	0	0	0	

**15-Minute Interval Summary  
4:00 PM to 6:00 PM**

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Bank Access				Westbound South Bank Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	3	0	18	0	0	0	0	0	0	1	0	8	0	30	0	0	0	0	
4:15 PM	0	0	2	0	19	0	0	0	0	0	0	1	0	7	0	29	0	0	0	0	
4:30 PM	0	0	2	0	10	0	0	0	0	0	0	1	0	7	0	20	0	0	0	0	
4:45 PM	0	0	1	0	12	0	0	0	0	0	0	3	0	6	0	22	0	0	0	0	
5:00 PM	0	0	0	0	6	0	0	0	0	0	0	0	0	11	0	17	0	0	0	0	
5:15 PM	0	0	0	0	10	0	0	0	0	0	0	2	0	6	0	18	0	0	0	0	
5:30 PM	0	0	1	0	6	0	0	0	0	0	0	0	0	3	0	10	0	0	0	0	
5:45 PM	0	0	1	0	5	0	0	0	0	0	0	0	0	4	0	10	0	0	0	0	
Total Survey	0	0	10	0	86	0	0	0	0	0	0	8	0	52	0	156	0	0	0	0	

**Peak Hour Summary  
4:00 PM to 5:00 PM**

By Approach	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Bank Access				Westbound South Bank Access				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	8	6	14	0	59	28	87	0	0	0	0	34	67	101	0	101	0	0	0	0	
%HV	0.0%				0.0%				0.0%				0.0%				0.0%				
PHF	0.67				0.74				0.00				0.85				0.84				

By Movement	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Bank Access				Westbound South Bank Access				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	8	8	59	0	0	59	0	0	0	0	6	0	28	34	101
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PHF	0.00	0.00	0.67	0.67	0.74	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.50	0.00	0.70	0.85	0.84

**Rolling Hour Summary  
4:00 PM to 6:00 PM**

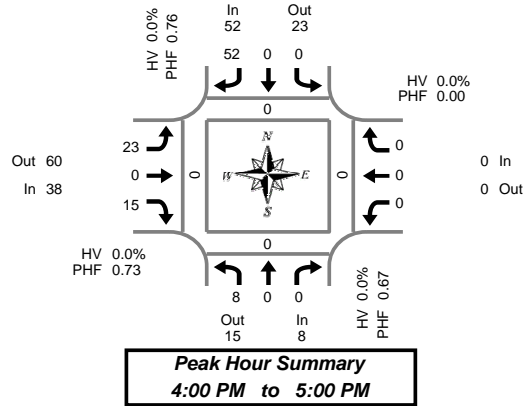
Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Bank Access				Westbound South Bank Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	8	0	59	0	0	0	0	0	0	0	6	0	28	0	101	0	0	0	0
4:15 PM	0	0	5	0	47	0	0	0	0	0	0	0	5	0	31	0	88	0	0	0	0
4:30 PM	0	0	3	0	38	0	0	0	0	0	0	0	6	0	30	0	77	0	0	0	0
4:45 PM	0	0	2	0	34	0	0	0	0	0	0	0	5	0	26	0	67	0	0	0	0
5:00 PM	0	0	2	0	27	0	0	0	0	0	0	0	2	0	24	0	55	0	0	0	0



**Total Vehicle Summary**



Clay Carney  
(503) 833-2740



**Boones Ferry & Walgreens Access**

Tuesday, July 01, 2008  
4:00 PM to 6:00 PM

**5-Minute Interval Summary  
4:00 PM to 6:00 PM**

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound Walgreens Access				Westbound Walgreens Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	1	0	0	0	0	0	4	0	1	0	3	0	0	0	0	0	0	0	0	0	
4:05 PM	0	0	0	0	0	0	6	0	2	0	3	0	0	0	0	0	0	0	0	0	
4:10 PM	0	0	0	0	0	0	5	0	3	0	1	0	0	0	0	0	0	0	0	0	
4:15 PM	1	0	0	0	0	0	1	0	3	0	1	0	0	0	0	0	0	0	0	0	
4:20 PM	0	0	0	0	0	0	4	0	3	0	0	0	0	0	0	0	0	0	0	0	
4:25 PM	2	0	0	0	0	0	7	0	1	0	1	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	6	0	1	0	0	0	0	0	0	0	0	0	0	0	
4:35 PM	1	0	0	0	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	
4:40 PM	0	0	0	0	0	0	3	0	3	0	2	0	0	0	0	0	0	0	0	0	
4:45 PM	2	0	0	0	0	0	5	0	3	0	2	0	0	0	0	0	0	0	0	0	
4:50 PM	1	0	0	0	0	0	3	0	1	0	1	0	0	0	0	0	0	0	0	0	
4:55 PM	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	
5:05 PM	0	0	0	0	0	0	3	0	3	0	3	0	0	0	0	0	0	0	0	0	
5:10 PM	1	0	0	0	0	0	6	0	2	0	2	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	
5:20 PM	2	0	0	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	
5:25 PM	0	0	0	0	0	0	2	0	4	0	1	0	0	0	0	0	0	0	0	0	
5:30 PM	1	0	0	0	0	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	
5:35 PM	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	
5:40 PM	1	0	0	0	0	0	4	0	1	0	2	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	6	0	1	0	1	0	0	0	0	0	0	0	0	0	
5:50 PM	1	0	0	0	0	0	2	0	2	0	1	0	0	0	0	0	0	0	0	0	
5:55 PM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	
Total Survey	14	0	0	0	0	0	91	0	41	0	28	0	0	0	0	0	0	0	0	0	

**15-Minute Interval Summary  
4:00 PM to 6:00 PM**

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound Walgreens Access				Westbound Walgreens Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	1	0	0	0	0	0	15	0	6	0	7	0	0	0	0	0	0	0	0	29	
4:15 PM	3	0	0	0	0	0	12	0	7	0	2	0	0	0	0	0	0	0	0	24	
4:30 PM	1	0	0	0	0	0	13	0	4	0	3	0	0	0	0	0	0	0	0	21	
4:45 PM	3	0	0	0	0	0	12	0	6	0	3	0	0	0	0	0	0	0	0	24	
5:00 PM	1	0	0	0	0	0	11	0	5	0	6	0	0	0	0	0	0	0	0	23	
5:15 PM	2	0	0	0	0	0	9	0	5	0	2	0	0	0	0	0	0	0	0	18	
5:30 PM	2	0	0	0	0	0	9	0	4	0	3	0	0	0	0	0	0	0	0	18	
5:45 PM	1	0	0	0	0	0	10	0	4	0	2	0	0	0	0	0	0	0	0	17	
Total Survey	14	0	0	0	0	0	91	0	41	0	28	0	0	0	0	0	0	0	0	174	

**Peak Hour Summary  
4:00 PM to 5:00 PM**

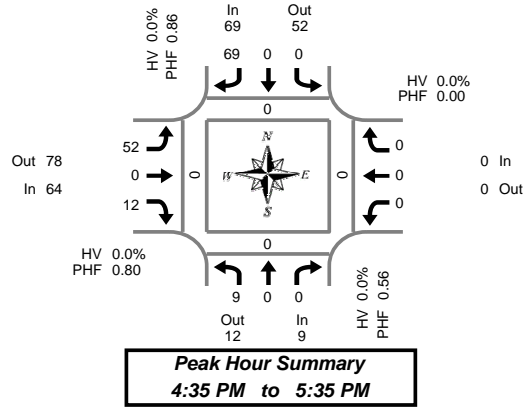
By Approach	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound Walgreens Access				Westbound Walgreens Access				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	8	15	23	0	52	23	75	0	38	60	98	0	0	0	0	0	0	0	0	98	
%HV	0.0%				0.0%				0.0%				0.0%				0.0%				
PHF	0.67				0.76				0.73				0.00				0.84				

By Movement	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound Walgreens Access				Westbound Walgreens Access				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	8	0	0	8	0	0	52	52	23	0	15	38	0	0	0	0	98
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PHF	0.67	0.00	0.00	0.67	0.00	0.00	0.76	0.76	0.64	0.00	0.54	0.73	0.00	0.00	0.00	0.00	0.84

**Rolling Hour Summary  
4:00 PM to 6:00 PM**

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound Walgreens Access				Westbound Walgreens Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	8	0	0	0	0	0	52	0	23	0	15	0	0	0	0	0	0	0	0	98	
4:15 PM	8	0	0	0	0	0	48	0	22	0	14	0	0	0	0	0	0	0	0	92	
4:30 PM	7	0	0	0	0	0	45	0	20	0	14	0	0	0	0	0	0	0	0	86	
4:45 PM	8	0	0	0	0	0	41	0	20	0	14	0	0	0	0	0	0	0	0	83	
5:00 PM	6	0	0	0	0	0	39	0	18	0	13	0	0	0	0	0	0	0	0	76	

Total Vehicle Summary



Boones Ferry & North Access

Tuesday, July 01, 2008  
4:00 PM to 6:00 PM

5-Minute Interval Summary  
4:00 PM to 6:00 PM

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Access				Westbound North Access				Interval Total	Pedestrians Crosswalk							
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West				
4:00 PM	2	0	0	0	0	0	4	0	7	0	1	0	0	0	0	0	0	0	0	0	14	0	0	0	0
4:05 PM	1	0	0	0	0	0	7	0	2	0	1	0	0	0	0	0	0	0	0	0	11	0	0	0	0
4:10 PM	0	0	0	0	0	0	8	0	6	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0
4:15 PM	0	0	0	0	0	0	3	0	5	0	1	0	0	0	0	0	0	0	0	0	9	0	0	0	0
4:20 PM	0	0	0	0	0	0	2	0	2	0	3	0	0	0	0	0	0	0	0	0	7	0	0	0	0
4:25 PM	1	0	0	0	0	0	8	0	6	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0
4:30 PM	0	0	0	0	0	0	6	0	1	0	2	0	0	0	0	0	0	0	0	0	9	0	0	0	0
4:35 PM	2	0	0	0	0	0	10	0	7	0	1	0	0	0	0	0	0	0	0	0	20	0	0	0	0
4:40 PM	0	0	0	0	0	0	5	0	2	0	2	0	0	0	0	0	0	0	0	0	9	0	0	0	0
4:45 PM	0	0	0	0	0	0	4	0	5	0	1	0	0	0	0	0	0	0	0	0	10	0	0	0	0
4:50 PM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
4:55 PM	0	0	0	0	0	0	7	0	1	0	2	0	0	0	0	0	0	0	0	0	10	0	0	0	0
5:00 PM	1	0	0	0	0	0	5	0	6	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0
5:05 PM	1	0	0	0	0	0	6	0	2	0	1	0	0	0	0	0	0	0	0	0	10	0	0	0	0
5:10 PM	1	0	0	0	0	0	8	0	8	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0
5:15 PM	0	0	0	0	0	0	2	0	7	0	2	0	0	0	0	0	0	0	0	0	11	0	0	0	0
5:20 PM	0	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
5:25 PM	3	0	0	0	0	0	9	0	5	0	1	0	0	0	0	0	0	0	0	0	18	0	0	0	0
5:30 PM	1	0	0	0	0	0	7	0	6	0	2	0	0	0	0	0	0	0	0	0	16	0	0	0	0
5:35 PM	0	0	0	0	0	0	6	0	2	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
5:40 PM	0	0	0	0	0	0	2	0	3	0	2	0	0	0	0	0	0	0	0	0	7	0	0	0	0
5:45 PM	1	0	0	0	0	0	5	0	2	0	1	0	0	0	0	0	0	0	0	0	9	0	0	0	0
5:50 PM	0	0	0	0	0	0	9	0	7	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0
5:55 PM	0	0	0	0	0	0	7	0	1	0	1	0	0	0	0	0	0	0	0	0	9	0	0	0	0
Total Survey	14	0	0	0	0	0	136	0	96	0	24	0	0	0	0	0	0	0	0	0	270	0	0	0	0

15-Minute Interval Summary  
4:00 PM to 6:00 PM

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Access				Westbound North Access				Interval Total	Pedestrians Crosswalk							
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West				
4:00 PM	3	0	0	0	0	0	19	0	15	0	2	0	0	0	0	0	0	0	0	0	39	0	0	0	0
4:15 PM	1	0	0	0	0	0	13	0	13	0	4	0	0	0	0	0	0	0	0	0	31	0	0	0	0
4:30 PM	2	0	0	0	0	0	21	0	10	0	5	0	0	0	0	0	0	0	0	0	38	0	0	0	0
4:45 PM	0	0	0	0	0	0	13	0	8	0	3	0	0	0	0	0	0	0	0	0	24	0	0	0	0
5:00 PM	3	0	0	0	0	0	19	0	16	0	1	0	0	0	0	0	0	0	0	0	39	0	0	0	0
5:15 PM	3	0	0	0	0	0	15	0	13	0	3	0	0	0	0	0	0	0	0	0	34	0	0	0	0
5:30 PM	1	0	0	0	0	0	15	0	11	0	4	0	0	0	0	0	0	0	0	0	31	0	0	0	0
5:45 PM	1	0	0	0	0	0	21	0	10	0	2	0	0	0	0	0	0	0	0	0	34	0	0	0	0
Total Survey	14	0	0	0	0	0	136	0	96	0	24	0	0	0	0	0	0	0	0	0	270	0	0	0	0

Peak Hour Summary  
4:35 PM to 5:35 PM

By Approach	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Access				Westbound North Access				Total	Pedestrians Crosswalk							
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West				
Volume	9	12	21	0	69	52	121	0	64	78	142	0	0	0	0	0	0	0	0	0	142	0	0	0	0
%HV	0.0%				0.0%				0.0%				0.0%				0.0%								
PHF	0.56				0.86				0.80				0.00				0.91								

By Movement	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Access				Westbound North Access				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	9	0	0	9	0	0	69	69	52	0	12	64	0	0	0	0	142
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PHF	0.56	0.00	0.00	0.56	0.00	0.00	0.86	0.86	0.76	0.00	0.75	0.80	0.00	0.00	0.00	0.00	0.91

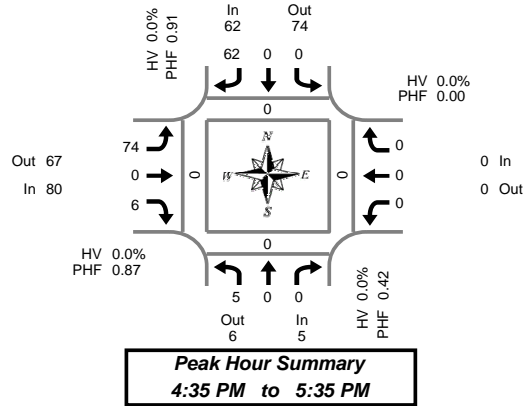
Rolling Hour Summary  
4:00 PM to 6:00 PM

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Access				Westbound North Access				Interval Total	Pedestrians Crosswalk						
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West			
4:00 PM	6	0	0	0	0	0	66	0	46	0	14	0	0	0	0	0	132	0	0	0	0	0	0	0
4:15 PM	6	0	0	0	0	0	66	0	47	0	13	0	0	0	0	0	132	0	0	0	0	0	0	0
4:30 PM	8	0	0	0	0	0	68	0	47	0	12	0	0	0	0	0	135	0	0	0	0	0	0	0
4:45 PM	7	0	0	0	0	0	62	0	48	0	11	0	0	0	0	0	128	0	0	0	0	0	0	0
5:00 PM	8	0	0	0	0	0	70	0	50	0	10	0	0	0	0	0	138	0	0	0	0	0	0	0

**Total Vehicle Summary**



Clay Carney  
(503) 833-2740



**Boones Ferry & South Access**

Tuesday, July 01, 2008  
4:00 PM to 6:00 PM

**5-Minute Interval Summary**  
4:00 PM to 6:00 PM

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Access				Westbound South Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	0	0	7	0	4	0	0	0	0	0	0	0	0	0	0	0	0
4:05 PM	1	0	0	0	0	0	4	0	2	0	1	0	0	0	0	0	0	0	0	0	0
4:10 PM	0	0	0	0	0	0	6	0	8	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	0	0	0	0	2	0	5	0	2	0	0	0	0	0	0	0	0	0	0
4:20 PM	0	0	0	0	0	0	6	0	2	0	0	0	0	0	0	0	0	0	0	0	0
4:25 PM	2	0	0	0	0	0	7	0	6	0	1	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	4	0	8	0	1	0	0	0	0	0	0	0	0	0	0
4:35 PM	0	0	0	0	0	0	6	0	4	0	0	0	0	0	0	0	0	0	0	0	0
4:40 PM	0	0	0	0	0	0	2	0	9	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	0	0	8	0	8	0	1	0	0	0	0	0	0	0	0	0	0
4:50 PM	1	0	0	0	0	0	6	0	3	0	1	0	0	0	0	0	0	0	0	0	0
4:55 PM	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	7	0	5	0	1	0	0	0	0	0	0	0	0	0	0
5:05 PM	0	0	0	0	0	0	5	0	8	0	1	0	0	0	0	0	0	0	0	0	0
5:10 PM	0	0	0	0	0	0	3	0	8	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	5	0	5	0	1	0	0	0	0	0	0	0	0	0	0
5:20 PM	2	0	0	0	0	0	4	0	7	0	0	0	0	0	0	0	0	0	0	0	0
5:25 PM	0	0	0	0	0	0	6	0	9	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	0	0	0	0	0	7	0	6	0	1	0	0	0	0	0	0	0	0	0	0
5:35 PM	1	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5:40 PM	1	0	0	0	0	0	5	0	6	0	2	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	2	0	5	0	1	0	0	0	0	0	0	0	0	0	0
5:50 PM	0	0	0	0	0	0	3	0	2	0	1	0	0	0	0	0	0	0	0	0	0
5:55 PM	0	0	0	0	0	0	2	0	6	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	11	0	0	0	0	0	114	0	130	0	15	0	0	0	0	0	0	0	0	0	0

**15-Minute Interval Summary**  
4:00 PM to 6:00 PM

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Access				Westbound South Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	1	0	0	0	0	0	17	0	14	0	1	0	0	0	0	0	0	0	0	0	33
4:15 PM	3	0	0	0	0	0	15	0	13	0	3	0	0	0	0	0	0	0	0	0	34
4:30 PM	0	0	0	0	0	0	12	0	21	0	1	0	0	0	0	0	0	0	0	0	34
4:45 PM	2	0	0	0	0	0	17	0	13	0	2	0	0	0	0	0	0	0	0	0	34
5:00 PM	0	0	0	0	0	0	15	0	21	0	2	0	0	0	0	0	0	0	0	0	38
5:15 PM	2	0	0	0	0	0	15	0	21	0	1	0	0	0	0	0	0	0	0	0	39
5:30 PM	3	0	0	0	0	0	16	0	14	0	3	0	0	0	0	0	0	0	0	0	36
5:45 PM	0	0	0	0	0	0	7	0	13	0	2	0	0	0	0	0	0	0	0	0	22
Total Survey	11	0	0	0	0	0	114	0	130	0	15	0	0	0	0	0	0	0	0	0	270

**Peak Hour Summary**  
4:35 PM to 5:35 PM

By Approach	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Access				Westbound South Access				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	5	6	11	0	62	74	136	0	80	67	147	0	0	0	0	0	0	0	0	0	147
%HV	0.0%				0.0%				0.0%				0.0%				0.0%				
PHF	0.42				0.91				0.87				0.00				0.85				

By Movement	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Access				Westbound South Access				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	5	0	0	5	0	0	62	62	74	0	6	80	0	0	0	0	147
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PHF	0.42	0.00	0.00	0.42	0.00	0.00	0.91	0.91	0.84	0.00	0.75	0.87	0.00	0.00	0.00	0.00	0.85

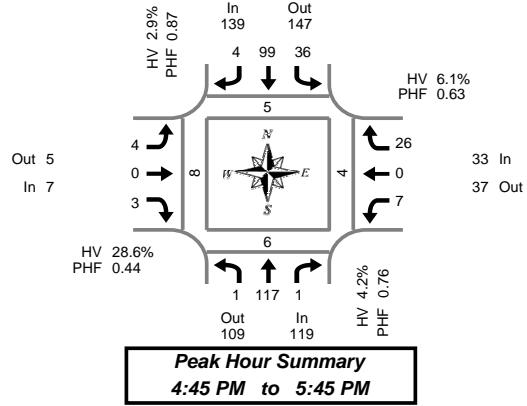
**Rolling Hour Summary**  
4:00 PM to 6:00 PM

Interval Start Time	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Access				Westbound South Access				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	6	0	0	0	0	0	61	0	61	0	7	0	0	0	0	0	0	0	0	0	135
4:15 PM	5	0	0	0	0	0	59	0	68	0	8	0	0	0	0	0	0	0	0	0	140
4:30 PM	4	0	0	0	0	0	59	0	76	0	6	0	0	0	0	0	0	0	0	0	145
4:45 PM	7	0	0	0	0	0	63	0	69	0	8	0	0	0	0	0	0	0	0	0	147
5:00 PM	5	0	0	0	0	0	53	0	69	0	8	0	0	0	0	0	0	0	0	0	135

**Total Vehicle Summary**



Clay Carney  
(503) 833-2740



**SW Boones Ferry Rd & SW Bailey St**

Tuesday, June 24, 2008  
4:00 PM to 6:00 PM

**5-Minute Interval Summary**  
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Bailey St				Westbound SW Bailey St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	12	0	0	2	8	0	0	0	0	0	0	0	2	0	0	24	3	0	0	0
4:05 PM	0	9	0	1	4	9	0	0	0	0	0	0	2	0	3	0	27	0	0	0	0
4:10 PM	0	12	0	2	1	13	1	0	2	0	0	0	1	0	1	0	31	0	3	0	0
4:15 PM	0	8	0	0	3	5	0	0	0	0	0	0	0	0	4	0	20	1	0	1	0
4:20 PM	0	7	0	0	4	13	0	1	0	0	0	0	0	0	0	0	24	0	0	0	3
4:25 PM	0	8	0	0	3	6	2	0	2	1	0	0	0	0	2	0	24	0	0	2	0
4:30 PM	0	10	0	0	1	2	1	0	0	0	1	0	0	0	2	0	17	0	0	0	0
4:35 PM	0	5	1	0	1	3	0	0	0	0	0	0	0	0	1	0	11	0	0	0	0
4:40 PM	0	5	1	0	4	5	0	0	0	0	0	0	1	0	1	0	17	1	0	0	0
4:45 PM	0	13	0	0	4	4	0	0	0	0	0	0	0	0	5	0	26	0	0	1	0
4:50 PM	0	7	0	0	1	10	0	0	0	0	1	0	0	0	0	0	19	0	0	0	2
4:55 PM	0	6	0	0	2	7	0	0	0	0	0	0	0	0	4	0	19	0	0	0	0
5:00 PM	1	12	0	0	5	6	0	0	2	0	0	0	1	0	2	0	29	1	0	0	1
5:05 PM	0	8	0	0	1	12	0	1	0	0	0	0	2	0	4	0	27	0	2	0	0
5:10 PM	0	15	0	0	2	11	0	1	0	0	0	0	0	0	1	0	29	2	0	0	4
5:15 PM	0	14	0	0	3	9	2	0	0	0	0	0	0	0	2	0	30	0	0	0	0
5:20 PM	0	9	1	0	5	6	1	0	0	0	0	0	1	0	0	0	23	0	3	3	0
5:25 PM	0	6	0	1	4	9	0	0	0	0	2	0	0	0	4	0	25	1	0	0	0
5:30 PM	0	7	0	0	1	11	0	0	1	0	0	0	2	0	2	0	24	0	0	0	0
5:35 PM	0	11	0	0	2	9	0	0	1	0	0	0	1	0	1	0	25	1	1	0	1
5:40 PM	0	9	0	0	6	5	1	0	0	0	0	0	0	0	1	0	22	0	0	0	0
5:45 PM	0	10	1	0	2	7	1	0	0	1	0	0	0	0	2	0	24	0	0	0	1
5:50 PM	1	6	0	0	1	6	0	0	0	0	0	0	1	0	0	0	15	0	0	0	0
5:55 PM	0	9	0	0	4	8	0	0	0	0	0	0	0	0	1	0	22	0	0	0	0
Total Survey	2	218	4	4	66	184	9	3	8	2	4	0	12	0	45	0	554	10	9	7	12

**15-Minute Interval Summary**  
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Bailey St				Westbound SW Bailey St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	33	0	3	7	30	1	0	2	0	0	0	3	0	6	0	82	3	3	0	0
4:15 PM	0	23	0	0	10	24	2	1	2	1	0	0	0	0	6	0	68	1	0	3	3
4:30 PM	0	20	2	0	6	10	1	0	0	0	1	0	0	4	0	45	1	0	0	0	
4:45 PM	0	26	0	0	7	21	0	0	0	0	1	0	0	9	0	64	0	0	1	2	
5:00 PM	1	35	0	0	8	29	0	2	2	0	0	0	3	0	7	0	85	3	2	0	5
5:15 PM	0	29	1	1	12	24	3	0	0	0	2	0	1	0	6	0	78	1	3	3	0
5:30 PM	0	27	0	0	9	25	1	0	2	0	0	0	3	0	4	0	71	1	1	0	1
5:45 PM	1	25	1	0	7	21	1	0	0	1	0	0	1	0	3	0	61	0	0	0	1
Total Survey	2	218	4	4	66	184	9	3	8	2	4	0	12	0	45	0	554	10	9	7	12

**Peak Hour Summary**  
4:45 PM to 5:45 PM

By Approach	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Bailey St				Westbound SW Bailey St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	119	109	228	1	139	147	286	2	7	5	12	0	33	37	70	0	298	5	6	4	8
%HV	4.2%				2.9%				28.6%				6.1%				4.4%				
PHF	0.76				0.87				0.44				0.63				0.87				

By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Bailey St				Westbound SW Bailey St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	117	1	119	36	99	4	139	4	0	3	7	7	0	26	33	298
%HV	0.0%	4.3%	0.0%	4.2%	0.0%	3.0%	25.0%	2.9%	50.0%	0.0%	0.0%	28.6%	0.0%	0.0%	7.7%	6.1%	4.4%
PHF	0.25	0.77	0.25	0.76	0.75	0.77	0.33	0.87	0.50	0.00	0.38	0.44	0.58	0.00	0.65	0.63	0.87

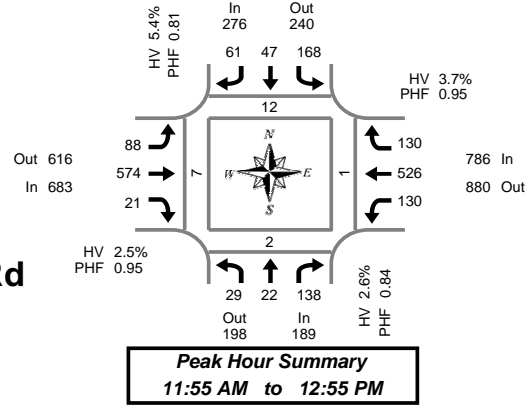
**Rolling Hour Summary**  
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Bailey St				Westbound SW Bailey St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	102	2	3	30	85	4	1	4	1	2	0	4	0	25	0	259	5	3	4	5
4:15 PM	1	104	2	0	31	84	3	3	4	1	2	0	4	0	26	0	262	5	2	4	10
4:30 PM	1	110	3	1	33	84	4	2	2	0	4	0	5	0	26	0	272	5	5	4	7
4:45 PM	1	117	1	1	36	99	4	2	4	0	3	0	7	0	26	0	298	5	6	4	8
5:00 PM	2	116	2	1	36	99	5	2	4	1	2	0	8	0	20	0	295	5	6	3	7

# Saturday Traffic Counts

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**Total Vehicle Summary**



**SW Boones Ferry Rd & SW Wilsonville Rd**

Saturday, July 12, 2008  
11:00 AM to 1:00 PM

**5-Minute Interval Summary  
11:00 AM to 1:00 PM**

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
11:00 AM	3	4	9	0	12	4	4	0	3	46	2	0	9	35	10	0	141	0	0	0	0
11:05 AM	2	1	11	0	9	2	5	0	8	51	1	0	10	38	9	0	147	1	0	0	0
11:10 AM	3	1	13	0	16	5	6	0	3	38	3	0	11	33	5	0	137	0	0	0	2
11:15 AM	1	0	10	0	11	1	1	0	3	63	1	0	10	48	6	0	155	0	0	0	0
11:20 AM	1	3	10	0	18	3	6	0	3	42	2	0	10	36	6	0	140	0	0	0	1
11:25 AM	2	6	11	0	10	3	5	0	9	42	4	0	13	51	10	0	166	1	0	0	0
11:30 AM	3	3	11	0	13	3	6	0	2	42	2	0	7	36	12	0	140	0	0	0	2
11:35 AM	0	4	9	0	15	4	7	0	7	42	1	0	12	44	8	0	153	0	0	0	0
11:40 AM	4	3	12	0	11	5	5	0	7	45	4	0	9	38	8	0	151	0	0	0	0
11:45 AM	2	0	14	0	10	2	2	0	5	52	5	0	8	35	13	0	148	0	0	0	0
11:50 AM	0	3	9	0	10	3	5	0	9	43	2	0	9	40	16	0	149	2	0	1	0
11:55 AM	2	4	12	0	15	5	2	0	11	52	1	0	14	47	8	0	173	0	0	0	1
12:00 PM	1	2	13	0	13	4	5	0	8	48	4	0	8	51	7	0	164	0	0	0	1
12:05 PM	4	1	8	0	18	8	5	0	12	41	2	0	11	46	11	0	167	1	0	0	0
12:10 PM	3	1	12	0	18	5	9	0	11	43	1	0	8	38	10	0	159	0	0	0	0
12:15 PM	1	4	9	0	10	5	6	0	8	54	2	0	3	51	14	0	167	1	0	0	0
12:20 PM	2	3	7	0	11	5	5	0	6	50	3	0	11	43	15	0	161	0	0	0	0
12:25 PM	3	1	13	0	7	1	4	0	7	41	1	0	9	37	8	0	132	2	0	0	0
12:30 PM	5	2	11	0	13	2	7	0	7	53	2	0	13	45	12	0	172	0	0	1	0
12:35 PM	2	1	6	0	15	4	5	0	2	61	1	0	11	37	11	0	156	0	0	0	2
12:40 PM	2	1	17	0	16	5	3	0	1	48	2	0	15	42	10	0	162	2	0	0	0
12:45 PM	2	1	12	0	17	2	6	0	3	41	1	0	15	44	12	0	156	5	2	0	3
12:50 PM	2	1	18	0	15	1	4	0	12	42	1	0	12	45	12	0	165	1	0	0	0
12:55 PM	1	3	12	0	14	0	6	0	9	38	2	0	16	45	9	0	155	0	1	0	0
Total Survey	51	53	269	0	317	82	119	0	156	1,118	50	0	254	1,005	242	0	3,716	16	3	2	12

**15-Minute Interval Summary  
11:00 AM to 1:00 PM**

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
11:00 AM	8	6	33	0	37	11	15	0	14	135	6	0	30	106	24	0	425	1	0	0	2
11:15 AM	4	9	31	0	39	7	12	0	15	147	7	0	33	135	22	0	461	1	0	0	1
11:30 AM	7	10	32	0	39	12	18	0	16	129	7	0	28	118	28	0	444	0	0	0	2
11:45 AM	4	7	35	0	35	10	9	0	25	147	8	0	31	122	37	0	470	2	0	1	1
12:00 PM	8	4	33	0	49	17	19	0	31	132	7	0	27	135	28	0	490	1	0	0	1
12:15 PM	6	8	29	0	28	11	15	0	21	145	6	0	23	131	37	0	460	3	0	0	0
12:30 PM	9	4	34	0	44	11	15	0	10	162	5	0	39	124	33	0	490	2	0	1	2
12:45 PM	5	5	42	0	46	3	16	0	24	121	4	0	43	134	33	0	476	6	3	0	3
Total Survey	51	53	269	0	317	82	119	0	156	1,118	50	0	254	1,005	242	0	3,716	16	3	2	12

**Peak Hour Summary  
11:55 AM to 12:55 PM**

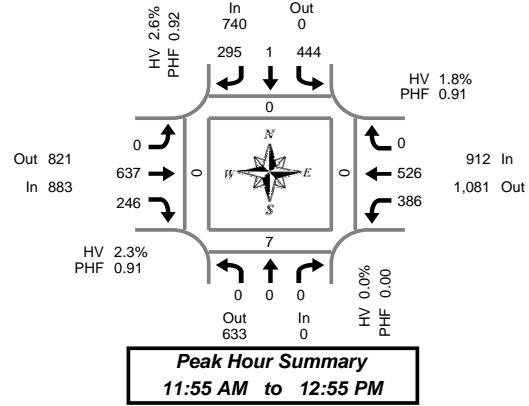
By Approach	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	189	198	387	0	276	240	516	0	683	616	1,299	0	786	880	1,666	0	1,934	12	2	1	7
%HV	2.6%				5.4%				2.5%				3.7%				3.4%				
PHF	0.84				0.81				0.95				0.95				0.96				

By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total				
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total					
Volume	29	22	138	189	168	47	61	276	88	574	21	683	130	526	130	786	1,934				
%HV	3.4%	9.1%	1.4%	2.6%	3.6%	6.4%	9.8%	5.4%	2.3%	2.6%	0.0%	2.5%	1.5%	3.6%	6.2%	3.7%	3.4%				
PHF	0.73	0.69	0.73	0.84	0.86	0.65	0.76	0.81	0.71	0.89	0.75	0.95	0.77	0.91	0.83	0.95	0.96				

**Rolling Hour Summary  
11:00 AM to 1:00 PM**

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
11:00 AM	23	32	131	0	150	40	54	0	70	558	28	0	122	481	111	0	1,800	4	0	1	6
11:15 AM	23	30	131	0	162	46	58	0	87	555	29	0	119	510	115	0	1,865	4	0	1	5
11:30 AM	25	29	129	0	151	50	61	0	93	553	28	0	109	506	130	0	1,864	6	0	1	4
11:45 AM	27	23	131	0	156	49	58	0	87	586	26	0	120	512	135	0	1,910	8	0	2	4
12:00 PM	28	21	138	0	167	42	65	0	86	560	22	0	132	524	131	0	1,916	12	3	1	6

Total Vehicle Summary



I-5 SB Ramps & SW Wilsonville Rd

Saturday, July 12, 2008  
11:00 AM to 1:00 PM

5-Minute Interval Summary  
11:00 AM to 1:00 PM

Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk				
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West	
11:00 AM	0	0	0	0	23	0	27	0	0	38	18	0	0	36	34	0	0	176	0	1	0	0
11:05 AM	0	0	0	0	45	0	19	0	0	58	24	0	0	29	32	0	0	207	0	0	0	0
11:10 AM	0	0	0	0	32	1	22	0	0	53	25	0	0	32	46	0	0	211	0	0	0	0
11:15 AM	0	0	0	0	30	0	20	0	0	69	11	2	0	25	36	0	0	191	0	0	0	0
11:20 AM	0	0	0	0	47	0	23	0	0	40	15	0	0	28	56	0	0	209	0	0	0	0
11:25 AM	0	0	0	0	37	0	21	0	0	54	21	0	0	23	42	0	0	198	0	2	0	0
11:30 AM	0	0	0	0	56	0	23	0	0	47	14	0	0	34	28	0	0	202	0	3	0	0
11:35 AM	0	0	0	0	37	0	22	0	0	50	17	0	0	41	37	0	0	204	0	0	0	0
11:40 AM	0	0	0	0	40	0	16	0	0	61	17	0	0	44	34	0	0	212	2	1	0	0
11:45 AM	0	0	0	0	54	0	21	0	0	52	21	0	0	37	48	0	0	233	0	1	0	0
11:50 AM	0	0	0	0	47	0	24	0	0	48	26	0	0	31	35	0	1	211	0	0	0	0
11:55 AM	0	0	0	0	32	0	34	0	0	44	27	0	0	42	36	0	0	215	0	0	0	0
12:00 PM	0	0	0	0	38	0	23	0	0	44	14	0	0	33	35	0	0	187	0	1	0	0
12:05 PM	0	0	0	0	32	0	28	0	0	50	10	0	0	38	42	0	0	200	0	0	0	0
12:10 PM	0	0	0	0	32	0	19	0	0	61	19	0	0	24	49	0	0	204	0	0	0	0
12:15 PM	0	0	0	0	24	0	21	0	0	49	19	0	0	24	46	0	0	183	0	0	0	0
12:20 PM	0	0	0	0	50	0	23	0	0	45	22	0	0	24	53	0	0	217	0	1	0	0
12:25 PM	0	0	0	0	44	0	26	0	0	57	29	0	0	36	32	0	0	224	0	0	0	0
12:30 PM	0	0	0	0	36	0	22	0	0	49	31	0	0	35	38	0	0	211	0	1	0	0
12:35 PM	0	0	0	0	34	0	25	0	0	57	13	0	0	27	48	0	0	204	0	0	0	0
12:40 PM	0	0	0	0	41	0	25	0	0	63	21	0	0	36	52	0	0	238	0	0	0	0
12:45 PM	0	0	0	0	39	0	19	0	0	59	22	0	0	35	49	0	0	223	0	2	0	0
12:50 PM	0	0	0	0	42	1	30	0	0	59	19	0	0	32	46	0	0	229	0	2	0	0
12:55 PM	0	0	0	0	42	0	30	0	0	33	15	0	0	45	38	0	0	203	0	0	0	0
Total Survey	0	0	0	0	934	2	563	0	0	1,240	470	2	0	791	992	0	1	4,992	2	15	0	0

15-Minute Interval Summary  
11:00 AM to 1:00 PM

Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk				
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West	
11:00 AM	0	0	0	0	100	1	68	0	0	149	67	0	0	97	112	0	0	594	0	1	0	0
11:15 AM	0	0	0	0	114	0	64	0	0	163	47	2	0	76	134	0	0	598	0	2	0	0
11:30 AM	0	0	0	0	133	0	61	0	0	158	48	0	0	119	99	0	0	618	2	4	0	0
11:45 AM	0	0	0	0	133	0	79	0	0	144	74	0	0	110	119	0	1	659	0	1	0	0
12:00 PM	0	0	0	0	102	0	70	0	0	155	43	0	0	95	126	0	0	591	0	1	0	0
12:15 PM	0	0	0	0	118	0	70	0	0	151	70	0	0	84	131	0	0	624	0	1	0	0
12:30 PM	0	0	0	0	111	0	72	0	0	169	65	0	0	98	138	0	0	653	0	1	0	0
12:45 PM	0	0	0	0	123	1	79	0	0	151	56	0	0	112	133	0	0	655	0	4	0	0
Total Survey	0	0	0	0	934	2	563	0	0	1,240	470	2	0	791	992	0	1	4,992	2	15	0	0

Peak Hour Summary  
11:55 AM to 12:55 PM

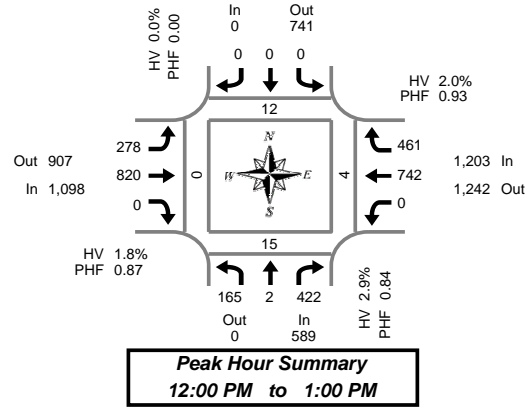
By Approach	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	633	633	0	740	0	740	0	883	821	1,704	0	912	1,081	1,993	0	2,535	0	7	0	0
%HV	0.0%				2.6%				2.3%				1.8%				2.2%				
PHF	0.00				0.92				0.91				0.91				0.92				

By Movement	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total				
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total					
Volume	0	0	0	0	444	1	295	740	0	637	246	883	386	526	0	912	2,535				
%HV	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	4.7%	2.6%	0.0%	1.6%	4.1%	2.3%	0.8%	2.5%	0.0%	1.8%	2.2%				
PHF	0.00	0.00	0.00	0.00	0.85	0.25	0.87	0.92	0.00	0.88	0.75	0.91	0.85	0.88	0.00	0.91	0.92				

Rolling Hour Summary  
11:00 AM to 1:00 PM

Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk				
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West	
11:00 AM	0	0	0	0	480	1	272	0	0	614	236	2	0	402	464	0	1	2,469	2	8	0	0
11:15 AM	0	0	0	0	482	0	274	0	0	620	212	2	0	400	478	0	1	2,466	2	8	0	0
11:30 AM	0	0	0	0	486	0	280	0	0	608	235	0	0	408	475	0	1	2,492	2	7	0	0
11:45 AM	0	0	0	0	464	0	291	0	0	619	252	0	0	387	514	0	1	2,527	0	4	0	0
12:00 PM	0	0	0	0	454	1	291	0	0	626	234	0	0	389	528	0	0	2,523	0	7	0	0

**Total Vehicle Summary**



**I-5 NB Ramps & SW Wilsonville Rd**

Saturday, July 12, 2008  
11:00 AM to 1:00 PM

**5-Minute Interval Summary  
11:00 AM to 1:00 PM**

Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
11:00 AM	12	0	30	0	0	0	0	0	20	55	0	0	0	57	37	0	211	0	0	1	0
11:05 AM	7	0	42	0	0	0	0	0	29	70	0	0	0	50	36	0	234	0	0	0	0
11:10 AM	12	0	26	0	0	0	0	0	24	68	0	0	0	64	30	0	224	1	0	0	0
11:15 AM	13	1	38	0	0	0	0	0	34	52	0	2	0	51	49	0	238	0	0	0	0
11:20 AM	10	0	34	0	0	0	0	0	32	64	0	0	0	63	49	0	252	0	0	0	0
11:25 AM	19	0	37	0	0	0	0	0	25	56	0	0	0	54	42	0	233	1	0	0	0
11:30 AM	13	0	40	0	0	0	0	0	27	72	0	0	0	52	38	0	242	0	0	0	0
11:35 AM	19	0	28	0	0	0	0	0	28	67	0	0	0	69	42	0	253	1	0	0	0
11:40 AM	9	0	27	0	0	0	0	0	27	73	0	0	0	64	33	0	233	1	0	0	0
11:45 AM	17	0	34	0	0	0	0	0	19	83	0	0	0	59	38	1	250	2	0	0	0
11:50 AM	8	0	38	0	0	0	0	0	20	77	0	0	0	59	30	0	232	2	0	0	0
11:55 AM	9	0	46	0	0	0	0	0	28	51	0	0	0	72	31	0	237	0	0	0	0
12:00 PM	9	0	40	0	0	0	0	0	13	73	0	0	0	55	40	0	230	0	2	0	0
12:05 PM	17	0	39	0	0	0	0	0	23	61	0	0	0	60	33	0	233	0	2	0	0
12:10 PM	16	0	37	0	0	0	0	0	24	71	0	0	0	56	35	0	239	1	3	0	0
12:15 PM	16	0	51	0	0	0	0	0	23	47	0	0	0	56	30	0	223	1	0	0	0
12:20 PM	18	1	36	0	0	0	0	0	26	71	0	0	0	69	32	0	253	0	2	0	0
12:25 PM	15	0	29	0	0	0	0	0	21	79	0	0	0	49	51	0	244	1	1	4	0
12:30 PM	7	0	29	0	0	0	0	0	27	70	0	0	0	63	38	0	234	1	0	0	0
12:35 PM	14	1	25	0	0	0	0	0	24	55	0	0	0	52	49	0	220	2	1	0	0
12:40 PM	16	0	36	0	0	0	0	0	29	78	0	0	0	71	40	0	270	3	0	0	0
12:45 PM	12	0	32	0	0	0	0	0	27	75	0	0	0	65	36	0	247	2	0	0	0
12:50 PM	14	0	33	0	0	0	0	0	26	79	0	0	0	69	35	0	256	0	3	0	0
12:55 PM	11	0	35	0	0	0	0	0	15	61	0	0	0	77	42	0	241	1	1	0	0
Total Survey	313	3	842	0	0	0	0	0	591	1,608	0	2	0	1,456	916	1	5,729	20	15	5	0

**15-Minute Interval Summary  
11:00 AM to 1:00 PM**

Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
11:00 AM	31	0	98	0	0	0	0	0	73	193	0	0	0	171	103	0	669	1	0	1	0
11:15 AM	42	1	109	0	0	0	0	0	91	172	0	2	0	168	140	0	723	1	0	0	0
11:30 AM	41	0	95	0	0	0	0	0	82	212	0	0	0	185	113	0	728	2	0	0	0
11:45 AM	34	0	118	0	0	0	0	0	67	211	0	0	0	190	99	1	719	4	0	0	0
12:00 PM	42	0	116	0	0	0	0	0	60	205	0	0	0	171	108	0	702	1	7	0	0
12:15 PM	49	1	116	0	0	0	0	0	70	197	0	0	0	174	113	0	720	2	3	4	0
12:30 PM	37	1	90	0	0	0	0	0	80	203	0	0	0	186	127	0	724	6	1	0	0
12:45 PM	37	0	100	0	0	0	0	0	68	215	0	0	0	211	113	0	744	3	4	0	0
Total Survey	313	3	842	0	0	0	0	0	591	1,608	0	2	0	1,456	916	1	5,729	20	15	5	0

**Peak Hour Summary  
12:00 PM to 1:00 PM**

By Approach	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	589	0	589	0	0	741	741	0	1,098	907	2,005	0	1,203	1,242	2,445	0	2,890	12	15	4	0
%HV	2.9%				0.0%				1.8%				2.0%				2.1%				
PHF	0.84				0.00				0.87				0.93				0.93				

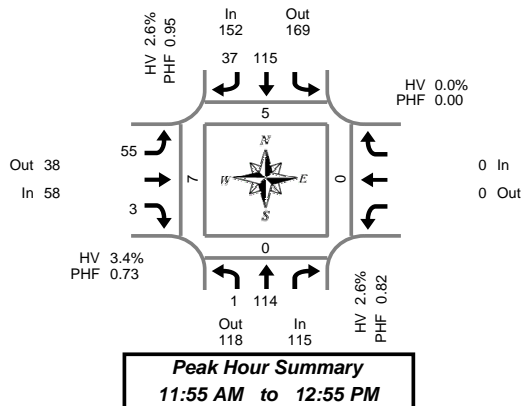
By Movement	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	165	2	422	589	0	0	0	0	278	820	0	1,098	0	742	461	1,203	2,890
%HV	3.6%	0.0%	2.6%	2.9%	0.0%	0.0%	0.0%	0.0%	3.6%	1.2%	0.0%	1.8%	0.0%	2.0%	2.0%	2.0%	2.1%
PHF	0.83	0.50	0.83	0.84	0.00	0.00	0.00	0.00	0.85	0.88	0.00	0.87	0.00	0.88	0.84	0.93	0.93

**Rolling Hour Summary  
11:00 AM to 1:00 PM**

Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
11:00 AM	148	1	420	0	0	0	0	0	313	788	0	2	0	714	455	1	2,839	8	0	1	0
11:15 AM	159	1	438	0	0	0	0	0	300	800	0	2	0	714	460	1	2,872	8	7	0	0
11:30 AM	166	1	445	0	0	0	0	0	279	825	0	0	0	720	433	1	2,869	9	10	4	0
11:45 AM	162	2	440	0	0	0	0	0	277	816	0	0	0	721	447	1	2,865	13	11	4	0
12:00 PM	165	2	422	0	0	0	0	0	278	820	0	0	0	742	461	0	2,890	12	15	4	0



**Total Vehicle Summary**



**SW Boones Ferry Rd & North Access**

Saturday, July 12, 2008  
11:00 AM to 1:00 PM

**5-Minute Interval Summary**  
11:00 AM to 1:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd				Eastbound North Access			Westbound North Access			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes	North		South	East	West	
11:00 AM	0	8	0	7	1	0	4	0	0				0	20	1	0	0	1
11:05 AM	0	4	0	5	5	0	4	0	1	0			0	19	0	0	0	0
11:10 AM	0	11	0	6	3	0	8	0	0	0			0	28	0	0	0	2
11:15 AM	0	8	0	7	2	0	2	0	0	0			0	19	0	0	0	0
11:20 AM	0	10	0	10	1	0	2	0	0	0			0	23	0	0	0	0
11:25 AM	0	11	0	11	1	0	5	0	0	0			0	28	0	0	0	0
11:30 AM	0	7	0	6	1	0	3	0	0	0			0	17	0	0	0	0
11:35 AM	0	3	0	6	7	1	3	0	0	0			0	19	0	0	0	0
11:40 AM	0	6	0	6	5	0	8	0	0	0			0	25	0	0	0	2
11:45 AM	0	11	0	7	1	0	4	0	0	0			0	23	0	0	0	0
11:50 AM	0	8	0	7	2	0	6	0	0	0			0	23	0	0	0	2
11:55 AM	0	11	0	11	5	0	3	0	0	0			0	30	0	0	0	2
12:00 PM	0	7	0	7	1	0	7	2	0	0			0	24	0	0	0	2
12:05 PM	0	3	1	13	3	0	7	0	0	0			0	26	0	0	0	0
12:10 PM	0	9	0	6	2	0	4	0	0	0			0	21	0	0	0	0
12:15 PM	0	10	0	8	3	0	5	0	0	0			0	26	0	0	0	0
12:20 PM	0	11	0	12	4	0	1	0	0	0			0	28	0	0	0	0
12:25 PM	0	14	0	10	3	0	4	0	0	0			0	31	0	0	0	0
12:30 PM	0	8	0	6	5	1	5	0	0	0			0	24	0	0	0	0
12:35 PM	0	12	0	11	2	0	2	1	0	0			0	28	0	0	0	0
12:40 PM	0	7	0	10	4	0	7	0	0	0			0	28	0	0	0	0
12:45 PM	1	9	0	8	3	0	5	0	0	0			0	26	5	0	0	3
12:50 PM	0	13	0	13	2	0	5	0	0	0			0	33	0	0	0	0
12:55 PM	0	12	0	6	2	0	4	0	0	0			0	24	0	0	0	1
Total Survey	1	213	1	199	68	2	108	4	0	0			0	593	6	0	0	15

**15-Minute Interval Summary**  
11:00 AM to 1:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd				Eastbound North Access			Westbound North Access			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes	North		South	East	West	
11:00 AM	0	23	0	18	9	0	16	1	0	0			0	67	1	0	0	3
11:15 AM	0	29	0	28	4	0	9	0	0	0			0	70	0	0	0	0
11:30 AM	0	16	0	18	13	1	14	0	0	0			0	61	0	0	0	2
11:45 AM	0	30	0	25	8	0	13	0	0	0			0	76	0	0	0	4
12:00 PM	0	19	1	26	6	0	18	2	0	0			0	71	0	0	0	2
12:15 PM	0	35	0	30	10	0	10	0	0	0			0	85	0	0	0	0
12:30 PM	0	27	0	27	11	1	14	1	0	0			0	80	0	0	0	0
12:45 PM	1	34	0	27	7	0	14	0	0	0			0	83	5	0	0	4
Total Survey	1	213	1	199	68	2	108	4	0	0			0	593	6	0	0	15

**Peak Hour Summary**  
11:55 AM to 12:55 PM

By Approach	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound North Access				Westbound North Access				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	115	118	233	1	152	169	321	1	58	38	96	0	0	0	0	0	325	5	0	0	7
%HV	2.6%				2.6%				3.4%				0.0%				2.8%				
PHF	0.82				0.95				0.73				0.00				0.93				

By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound North Access			Westbound North Access			Total		
	L	T	Total	Bikes	T	R	Total	Bikes	L	R	Total			Total			
Volume	1	114	115	1	115	37	152	1	55	3	58			0	325		
%HV	0.0%	2.6%	NA	2.6%	NA	2.6%	2.7%	2.6%	3.6%	NA	0.0%	3.4%	NA	NA	NA	0.0%	2.8%
PHF	0.25	0.81	0.82		0.93	0.77	0.95		0.76	0.38	0.73			0.00	0.93		

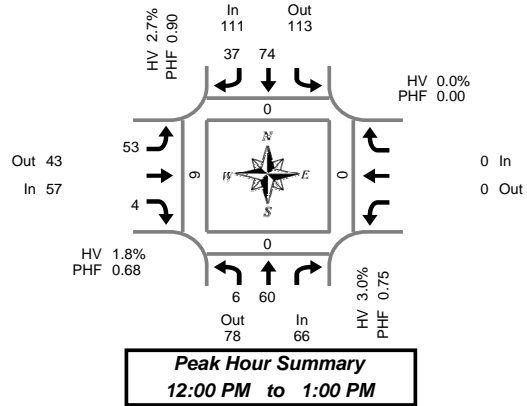
**Rolling Hour Summary**  
11:00 AM to 1:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd				Eastbound North Access			Westbound North Access			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes	North		South	East	West	
11:00 AM	0	98	0	89	34	1	52	1	0	0			0	274	1	0	0	9
11:15 AM	0	94	1	97	31	1	54	2	0	0			0	278	0	0	0	8
11:30 AM	0	100	1	99	37	1	55	2	0	0			0	293	0	0	0	8
11:45 AM	0	111	1	108	35	1	55	3	0	0			0	312	0	0	0	6
12:00 PM	1	115	1	110	34	1	56	3	0	0			0	319	5	0	0	6

**Total Vehicle Summary**



Clay Carney  
(503) 833-2740



**SW Boones Ferry Rd & South Access**

Saturday, July 12, 2008  
11:00 AM to 1:00 PM

**5-Minute Interval Summary  
11:00 AM to 1:00 PM**

Interval Start Time	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd			Eastbound South Access			Westbound South Access			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes		North	South	East	West
11:00 AM	0	12	0	4	4	0	4	0	0	0	0	0	24	0	0	0	0
11:05 AM	0	2	0	2	3	0	4	0	1	0	0	0	12	0	0	0	1
11:10 AM	1	5	0	6	1	0	5	0	0	0	0	0	18	0	0	0	0
11:15 AM	0	5	0	4	4	0	1	1	0	0	0	0	15	0	0	0	2
11:20 AM	0	3	0	8	1	0	4	0	0	0	0	0	16	0	0	0	0
11:25 AM	1	8	0	7	4	0	4	0	0	0	0	0	24	0	0	0	0
11:30 AM	2	8	0	3	4	0	2	0	0	0	0	0	19	0	0	0	0
11:35 AM	1	5	0	4	3	0	1	0	0	0	0	0	14	0	0	0	1
11:40 AM	1	4	0	7	0	0	0	2	0	0	0	0	14	0	0	0	0
11:45 AM	0	3	0	4	2	0	5	1	0	0	0	0	15	0	0	0	0
11:50 AM	2	6	0	5	2	0	4	1	0	0	0	0	20	0	0	0	2
11:55 AM	0	3	0	6	4	0	3	2	0	0	0	0	18	0	0	0	2
12:00 PM	1	7	0	6	4	0	7	0	0	0	0	0	25	0	0	0	4
12:05 PM	1	2	1	4	3	0	2	0	0	0	0	0	12	0	0	0	0
12:10 PM	0	2	0	7	3	0	3	0	0	0	0	0	15	0	0	0	0
12:15 PM	0	4	0	8	2	0	3	0	0	0	0	0	17	0	0	0	1
12:20 PM	0	9	0	3	4	0	4	0	0	0	0	0	20	0	0	0	0
12:25 PM	2	6	0	7	4	0	5	1	0	0	0	0	25	0	0	0	0
12:30 PM	0	5	0	6	2	0	6	0	0	0	0	0	19	0	0	0	1
12:35 PM	1	2	0	6	1	0	5	1	0	0	0	0	16	0	0	0	0
12:40 PM	1	4	0	9	4	0	9	0	0	0	0	0	27	0	0	0	0
12:45 PM	0	4	0	6	2	0	4	0	0	0	0	0	16	0	0	0	3
12:50 PM	0	5	0	6	4	0	2	0	0	0	0	0	17	0	0	0	0
12:55 PM	0	10	0	6	4	0	3	2	0	0	0	0	25	0	0	0	0
Total Survey	14	124	1	134	69	0	90	12	0	0	0	0	443	0	0	0	17

**15-Minute Interval Summary  
11:00 AM to 1:00 PM**

Interval Start Time	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd			Eastbound South Access			Westbound South Access			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes		North	South	East	West
11:00 AM	1	19	0	12	8	0	13	1	0	0	0	0	54	0	0	0	1
11:15 AM	1	16	0	19	9	0	9	1	0	0	0	0	55	0	0	0	2
11:30 AM	4	17	0	14	7	0	3	2	0	0	0	0	47	0	0	0	1
11:45 AM	2	12	0	15	8	0	12	4	0	0	0	0	53	0	0	0	4
12:00 PM	2	11	1	17	10	0	12	0	0	0	0	0	52	0	0	0	4
12:15 PM	2	19	0	18	10	0	12	1	0	0	0	0	62	0	0	0	1
12:30 PM	2	11	0	21	7	0	20	1	0	0	0	0	62	0	0	0	1
12:45 PM	0	19	0	18	10	0	9	2	0	0	0	0	58	0	0	0	3
Total Survey	14	124	1	134	69	0	90	12	0	0	0	0	443	0	0	0	17

**Peak Hour Summary  
12:00 PM to 1:00 PM**

By Approach	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd			Eastbound South Access			Westbound South Access			Total	Pedestrians Crosswalk			
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total		North	South	East	West
Volume	66	78	144	1	111	113	224	0	57	43	100	0	0	0	0	0	234
%HV	3.0%			2.7%			1.8%			0.0%			2.6%				
PHF	0.75			0.90			0.68			0.00			0.91				

By Movement	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd			Eastbound South Access			Westbound South Access			Total				
	L	T	Total	T	R	Total	L	R	Total			Total					
Volume	6	60	66	7	37	111	53	4	57			0	234				
%HV	0.0%	3.3%	NA	3.0%	NA	4.1%	0.0%	2.7%	1.9%	NA	0.0%	1.8%	NA	NA	NA	0.0%	2.6%
PHF	0.50	0.75	0.75	0.88	0.93	0.90	0.66	0.50	0.68			0.00	0.91				

**Rolling Hour Summary  
11:00 AM to 1:00 PM**

Interval Start Time	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd			Eastbound South Access			Westbound South Access			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes		North	South	East	West
11:00 AM	8	64	0	60	32	0	37	8	0	0	0	0	209	0	0	0	8
11:15 AM	9	56	1	65	34	0	36	7	0	0	0	0	207	0	0	0	11
11:30 AM	10	59	1	64	35	0	39	7	0	0	0	0	214	0	0	0	10
11:45 AM	8	53	1	71	35	0	56	6	0	0	0	0	229	0	0	0	10
12:00 PM	6	60	1	74	37	0	53	4	0	0	0	0	234	0	0	0	9

# **Level of Service Descriptions**

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## TRAFFIC LEVELS OF SERVICE

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of *level of service* has been developed to subjectively describe traffic performance. Level of service can be measured at intersections and along key roadway segments.

Level of service categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. Levels of Service A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. Level of service D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day. The *Highway Capacity Manual* provides level of service calculation methodology for both intersections and arterials.<sup>1</sup> The following two sections provide interpretations of the analysis approaches.

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<sup>1</sup> 2000 *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000, Chapters 16 and 17.

**UNSIGNALIZED INTERSECTIONS (Two-Way Stop Controlled)**

Unsignalized intersection level of service is reported for the major street and minor street (generally, left turn movements). The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The *2000 Highway Capacity Manual* describes the detailed methodology. It is not unusual for an intersection to experience level of service E or F conditions for the minor street left turn movement. It should be understood that, often, a poor level of service is experienced by only a few vehicles and the intersection as a whole operates acceptably.

Unsignalized intersection levels of service are described in the following table.

Level of Service	Expected Delay	(Sec/Veh)
A	Little or no delay	0-10.0
B	Short traffic delay	>10.1-15.0
C	Average traffic delays	>15.1-25.0
D	Long traffic delays	>25.1-35.0
E	Very long traffic delays	>35.1-50.0
F	Extreme delays potentially affecting other traffic movements in the intersection	> 50

Source: 2000 *Highway Capacity Manual*, Transportation Research Board Washington, D.C.

## SIGNALIZED INTERSECTIONS

For signalized intersections, level of service is evaluated based upon average vehicle delay experienced by vehicles entering an intersection. Control delay (or signal delay) includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In previous versions of this chapter of the HCM (1994 and earlier), delay included only stopped delay. As delay increases, the level of service decreases. Calculations for signalized and unsignalized intersections are different due to the variation in traffic control. The *2000 Highway Capacity Manual* provides the basis for these calculations.

Level of Service	Delay (secs.)	Description
A	≤10.00	<b>Free Flow/Insignificant Delays:</b> No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
B	10.1-20.0	<b>Stable Operation/Minimal Delays:</b> An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
C	20.1-35.0	<b>Stable Operation/Acceptable Delays:</b> Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
D	35.1-55.0	<b>Approaching Unstable/Tolerable Delays:</b> The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
E	55.1-80.0	<b>Unstable Operation/Significant Delays:</b> Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
F	≥80.0	<b>Forced Flow/Excessive Delays:</b> Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

Source: *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C.

# **HCM Intersection Analysis - Unmitigated**

HCM Signalized Intersection Capacity Analysis  
1: Wilsonville Rd & I-5 SB

WV Fred Meyer TIA  
Existing PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0						4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95						0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00						1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00						1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00						1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00						0.95	0.95	1.00
Satd. Flow (prot)	2600	1534	1920	3406						1640	1640	1482
Flt Permitted	1.00	1.00	0.95	1.00						0.95	0.95	1.00
Satd. Flow (perm)	2600	1534	1920	3406						1640	1640	1482
Volume (vph)	0	865	620	585	660	0	0	0	0	415	0	435
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	892	639	603	680	0	0	0	0	428	0	448
RTOR Reduction (vph)	0	0	307	0	0	0	0	0	0	0	0	246
Lane Group Flow (vph)	0	892	332	603	680	0	0	0	0	214	214	202
Confl. Peds. (#/hr)	3		4	4		3						
Confl. Bikes (#/hr)		1				3						
Heavy Vehicles (%)	0%	4%	2%	4%	6%	0%	0%	0%	0%	3%	0%	9%
Turn Type	Perm		Prot	Perm		Prot	Perm		Prot	Perm		Prot
Protected Phases	2		1	6			4			4		
Permitted Phases	2			6			4			4		
Actuated Green, G (s)	39.0	39.0	28.0	71.0			21.0	21.0	21.0			
Effective Green, g (s)	39.0	39.0	28.0	71.0			21.0	21.0	21.0			
Actuated g/C Ratio	0.39	0.39	0.28	0.71			0.21	0.21	0.21			
Clearance Time (s)	4.0	4.0	4.0	4.0			4.0	4.0	4.0			
Lane Grp Cap (vph)	1014	598	538	2418			344	344	311			
v/s Ratio Prot	c0.34		c0.31	0.20			0.13	0.13	c0.14			
v/s Ratio Perm	0.22						0.62	0.62	0.65			
v/c Ratio	0.88	0.56	1.12	0.28			35.9	35.9	36.1			
Uniform Delay, d1	28.3	23.8	36.0	5.3			1.00	1.00	1.00			
Progression Factor	0.97	1.34	0.28	0.04			8.2	8.2	10.1			
Incremental Delay, d2	7.2	2.3	57.0	0.1			44.1	44.1	46.3			
Delay (s)	34.6	34.2	67.1	0.3								
Level of Service	C	C	E	A			D	D	D			
Approach Delay (s)	34.5			31.7		0.0	45.2					
Approach LOS	C			C		A	D					

Intersection Summary			
HCM Average Control Delay	36.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
2: Wilsonville Rd & Boones Ferry Rd

WV Fred Meyer TIA  
Existing PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	0.98	1.00	0.99	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	1.00	0.85	1.00	0.88	1.00	0.88	1.00	0.94	
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3030	1770	3240	1383	1770	1599	3400	1721			
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	1719	3030	1770	3240	1383	1770	1599	3400	1721			
Volume (vph)	55	763	21	198	743	154	83	49	201	521	96	65
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	57	787	22	204	766	159	86	51	207	537	99	67
RTOR Reduction (vph)	0	2	0	0	0	0	0	89	0	0	25	0
Lane Group Flow (vph)	57	807	0	204	766	159	86	169	0	537	141	0
Confl. Peds. (#/hr)	7		4	4		7	3		3	3		3
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	5%	3%	19%	2%	4%	14%	2%	2%	3%	3%	1%	6%
Turn Type	Prot		Prot	Free		Split	Split		Split		Split	
Protected Phases	1		6	5		2	4		4		8	
Permitted Phases	6			Free			8		8			
Actuated Green, G (s)	5.6	34.5		12.5	41.4	100.0	8.7	8.7		19.3	19.3	
Effective Green, g (s)	7.6	37.5		14.5	44.4	100.0	10.7	10.7		21.3	21.3	
Actuated g/C Ratio	0.08	0.38		0.14	0.44	1.00	0.11	0.11		0.21	0.21	
Clearance Time (s)	6.0	7.0		6.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	131	1136		257	1439	1383	189	171		724	367	
v/s Ratio Prot	0.03	c0.27		c0.12	0.24		0.05	c0.11		c0.16	0.08	
v/s Ratio Perm	0.11											
v/c Ratio	0.44	0.71		0.79	0.53	0.11	0.46	0.99		0.74	0.38	
Uniform Delay, d1	44.1	26.6		41.3	20.2	0.0	41.9	44.6		36.8	33.7	
Progression Factor	1.00	1.00		1.08	0.64	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.3	3.8		13.8	1.3	0.1	1.7	64.3		4.1	0.7	
Delay (s)	46.5	30.4		58.5	14.3	0.1	43.7	108.9		40.9	34.4	
Level of Service	D	C		E	B	A	D	F		D	C	
Approach Delay (s)	31.5			20.3			92.6			39.4		
Approach LOS	C			C			F			D		

Intersection Summary			
HCM Average Control Delay	36.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



HCM Signalized Intersection Capacity Analysis  
15: Wilsonville Rd & I-5 NB

WV Fred Meyer TIA  
Existing PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↘	↔	↕	↘	↔	↕	↘	↔	↕	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		0.95	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.85		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		1.00	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2000	3505		2700	1380		1650	1760		1650	1760	
Flt Permitted	0.95	1.00		1.00	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2000	3505		2700	1380		1650	1760		1650	1760	
Volume (vph)	450	830	0	0	1000	420	245	0	540	0	0	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	484	892	0	0	1075	452	263	0	581	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	289	0	0	316	0	0	0
Lane Group Flow (vph)	484	892	0	0	1075	163	0	263	265	0	0	0
Confl. Peds. (#/hr)	4		4	4		4						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	5%	3%	0%	0%	4%	3%	10%	0%	4%	0%	0%	0%
Turn Type	Prot				Perm	Perm		Perm				
Protected Phases	5	2			6			8				
Permitted Phases		2				6	8		8			
Actuated Green, G (s)	31.0	71.0			36.0	36.0		21.0	21.0			
Effective Green, g (s)	31.0	71.0			36.0	36.0		21.0	21.0			
Actuated g/C Ratio	0.31	0.71			0.36	0.36		0.21	0.21			
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Lane Grp Cap (vph)	620	2489			972	497		347	370			
v/s Ratio Prot	c0.24	0.25			c0.40							
v/s Ratio Perm						0.12		0.16	0.15			
v/c Ratio	0.78	0.36			1.11	0.33		0.76	0.72			
Uniform Delay, d1	31.4	5.6			32.0	23.2		37.1	36.7			
Progression Factor	0.18	0.21			0.67	0.46		1.00	1.00			
Incremental Delay, d2	5.9	0.3			58.2	1.2		14.4	11.3			
Delay (s)	11.5	1.4			79.7	11.9		51.5	48.0			
Level of Service	B	A			E	B		D	D			
Approach Delay (s)		5.0			59.6			49.1			0.0	
Approach LOS		A			E			D			A	

Intersection Summary			
HCM Average Control Delay	37.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
16: Wilsonville Rd & Town Center Lp West

WV Fred Meyer TIA  
Existing PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↘	↔	↕	↘	↔	↕	↘	↔	↕	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.91	0.91		1.00	0.95	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.99	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		1.00	0.89	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (prot)	2540	3457		1805	2650		1579	3144		1736	1531	1467
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (perm)	2540	3457		1805	2650		1579	3144		1736	1531	1467
Volume (vph)	490	820	60	59	598	53	207	78	62	86	81	615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	516	863	63	62	629	56	218	82	65	91	85	647
RTOR Reduction (vph)	0	5	0	0	6	0	0	32	0	0	107	343
Lane Group Flow (vph)	516	921	0	62	679	0	115	218	0	91	210	72
Confl. Peds. (#/hr)	4		4	4		4	2		3	3		2
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	3%	3%	5%	0%	4%	0%	4%	3%	2%	4%	6%	3%
Turn Type	Prot				Prot		Split			Split		Perm
Protected Phases	5	2			1	6		8	8		4	4
Permitted Phases												4
Actuated Green, G (s)	23.4	48.9			6.4	31.9		10.8	10.8		16.9	16.9
Effective Green, g (s)	23.4	49.4			6.4	32.4		10.8	10.8		17.4	17.4
Actuated g/C Ratio	0.23	0.49			0.06	0.32		0.11	0.11		0.17	0.17
Clearance Time (s)	4.0	4.5			4.0	4.5		4.0	4.0		4.5	4.5
Vehicle Extension (s)	2.5	4.3			2.5	4.3		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	594	1708			116	859		171	340		302	266
v/s Ratio Prot	c0.20	0.27			0.03	c0.26		c0.07	0.07		0.05	c0.14
v/s Ratio Perm												0.05
v/c Ratio	0.87	0.54			0.53	0.79		0.67	0.64		0.30	0.79
Uniform Delay, d1	36.8	17.5			45.4	30.7		42.9	42.7		36.0	39.6
Progression Factor	1.10	1.12			1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	10.9	0.4			3.6	7.3		9.1	3.6		0.4	14.3
Delay (s)	51.6	20.0			49.0	38.0		52.0	46.4		36.4	53.9
Level of Service	D	C			D	D		D	D		D	D
Approach Delay (s)		31.3				39.0		48.1				43.1
Approach LOS		C				D		D				D

Intersection Summary			
HCM Average Control Delay	37.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Fred Meyer TIA - 2008  
PM Peak Hour  
Existing Conditions

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*  
Intersection #253 Boones Ferry Rd/South Fred Meyer's  
\*\*\*\*\*

Average Delay (sec/veh): 2.1 Worst Case Level Of Service: B [ 11.9]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 0 1: 0 0	0 0 1: 0 0	0 0 1: 0 0	0 0 0 0 0

Volume Module: >> Count Date: 1 Jul 2008 << PM Peak Hr (4:45 pm)

Base Vol:	7	173	0	0	147	63	69	0	8	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	7	173	0	0	147	63	69	0	8	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	8	199	0	0	169	72	79	0	9	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	8	199	0	0	169	72	79	0	9	0	0	0

Critical Gap Module:

Critical Gp:	4.1	xxxx	xxxx	xxxx	xxxx	xxxx	6.4	6.5	6.2	xxxx	xxxx	xxxx
FollowUpTim:	2.2	xxxx	xxxx	xxxx	xxxx	xxxx	3.5	4.0	3.3	xxxx	xxxx	xxxx

Capacity Module:

Cnflct Vol:	241	xxxx	xxxx	xxxx	xxxx	xxxx	420	420	205	xxxx	xxxx	xxxx
Potent Cap.:	1337	xxxx	xxxx	xxxx	xxxx	xxxx	594	528	840	xxxx	xxxx	xxxx
Move Cap.:	1337	xxxx	xxxx	xxxx	xxxx	xxxx	591	524	840	xxxx	xxxx	xxxx
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	0.13	0.00	0.01	xxxx	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	0.0	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Control Del:	7.7	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	610	xxxx	xxxx	xxxx	xxxx	xxxx
SharedQueue:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.5	xxxx	xxxx	xxxx	xxxx	xxxx
Shrd ConDel:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	11.9	xxxx	xxxx	xxxx	xxxx	xxxx
Shared LOS:	*	*	*	*	*	*	B	*	*	*	*	*
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	11.9	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
ApproachLOS:	*	*	*	*	*	*	B	*	*	*	*	*

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

HCM Signalized Intersection Capacity Analysis  
1: Wilsonville Rd & I-5 SB

WV Fred Meyer TIA  
PM Peak (Ex. Config.) -- Ex + Proj

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓	↓	↓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0						4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95						0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00						1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00						1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00						1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00						0.95	0.95	1.00
Satd. Flow (prot)	2600	1534	1920	3406						1640	1640	1482
Flt Permitted	1.00	1.00	0.95	1.00						0.95	0.95	1.00
Satd. Flow (perm)	2600	1534	1920	3406						1640	1640	1482
Volume (vph)	0	865	620	585	660	0	0	0	0	415	0	435
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	892	639	603	680	0	0	0	0	428	0	448
RTOR Reduction (vph)	0	0	307	0	0	0	0	0	0	0	0	246
Lane Group Flow (vph)	0	892	332	603	680	0	0	0	0	214	214	202
Confl. Peds. (#/hr)	3		4	4		3						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	0%	4%	2%	4%	6%	0%	0%	0%	0%	3%	0%	9%
Turn Type		Perm	Prot							Perm	Perm	
Protected Phases	2		1		6						4	
Permitted Phases		2			6					4		4
Actuated Green, G (s)	39.0	39.0	28.0	71.0						21.0	21.0	21.0
Effective Green, g (s)	39.0	39.0	28.0	71.0						21.0	21.0	21.0
Actuated g/C Ratio	0.39	0.39	0.28	0.71						0.21	0.21	0.21
Clearance Time (s)	4.0	4.0	4.0	4.0						4.0	4.0	4.0
Lane Grp Cap (vph)	1014	598	538	2418						344	344	311
v/s Ratio Prot	c0.34		c0.31	0.20								
v/s Ratio Perm		0.22								0.13	0.13	c0.14
v/c Ratio	0.88	0.56	1.12	0.28						0.62	0.62	0.65
Uniform Delay, d1	28.3	23.8	36.0	5.3						35.9	35.9	36.1
Progression Factor	0.97	1.34	0.28	0.04						1.00	1.00	1.00
Incremental Delay, d2	7.2	2.3	57.0	0.1						8.2	8.2	10.1
Delay (s)	34.6	34.2	67.2	0.3						44.1	44.1	46.3
Level of Service	C	C	E	A						D	D	D
Approach Delay (s)	34.5			31.7			0.0			45.2		
Approach LOS	C			C			A			D		

Intersection Summary			
HCM Average Control Delay	36.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
2: Wilsonville Rd & Boones Ferry Rd

WV Fred Meyer TIA  
PM Peak (Ex. Config.) -- Ex + Proj

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓	↓	↓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	0.98	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	1.00	0.85	1.00	0.88	1.00	0.88	1.00	0.94	
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3030	1770	3240	1383	1770	1599	3400	1721			
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	1719	3030	1770	3240	1383	1770	1599	3400	1721			
Volume (vph)	55	763	21	198	743	154	83	49	201	521	96	65
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	57	787	22	204	766	159	86	51	207	537	99	67
RTOR Reduction (vph)	0	2	0	0	0	0	0	89	0	0	25	0
Lane Group Flow (vph)	57	807	0	204	766	159	86	169	0	537	141	0
Confl. Peds. (#/hr)	7		4	4		7	3		3	3		3
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	5%	3%	19%	2%	4%	14%	2%	2%	3%	3%	1%	6%
Turn Type		Prot			Prot	Free	Split			Split		
Protected Phases	1	6			5	2		4	4		8	8
Permitted Phases		6				Free						
Actuated Green, G (s)	5.6	34.5			12.5	41.4	100.0	8.7	8.7		19.3	19.3
Effective Green, g (s)	7.6	37.5			14.5	44.4	100.0	10.7	10.7		21.3	21.3
Actuated g/C Ratio	0.08	0.38			0.14	0.44	1.00	0.11	0.11		0.21	0.21
Clearance Time (s)	6.0	7.0			6.0	7.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	131	1136			257	1439	1383	189	171		724	367
v/s Ratio Prot	0.03	c0.27			c0.12	0.24		0.05	c0.11		c0.16	0.08
v/s Ratio Perm							0.11					
v/c Ratio	0.44	0.71			0.79	0.53	0.11	0.46	0.99		0.74	0.38
Uniform Delay, d1	44.1	26.6			41.3	20.2	0.0	41.9	44.6		36.8	33.7
Progression Factor	1.00	1.00			1.08	0.64	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.3	3.8			13.8	1.3	0.1	1.7	64.3		4.1	0.7
Delay (s)	46.5	30.4			58.6	14.3	0.1	43.7	108.9		40.9	34.4
Level of Service	D	C			E	B	A	D	F		D	C
Approach Delay (s)		31.5				20.3			92.6			39.4
Approach LOS		C				C			F			D

Intersection Summary			
HCM Average Control Delay	36.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
15: Wilsonville Rd & I-5 NB

WV Fred Meyer TIA  
PM Peak (Ex. Config.) -- Ex + Proj

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑			↑↑	↑		↔	↑			↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00	1.00			
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (prot)	2000	3505			2700	1380		1650	1760			
Flt Permitted	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (perm)	2000	3505			2700	1380		1650	1760			
Volume (vph)	450	830	0	0	1000	420	245	0	540	0	0	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	484	892	0	0	1075	452	263	0	581	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	289	0	0	316	0	0	0
Lane Group Flow (vph)	484	892	0	0	1075	163	0	263	265	0	0	0
Confl. Peds. (#/hr)	4		4	4		4						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	5%	3%	0%	0%	4%	3%	10%	0%	4%	0%	0%	0%
Turn Type	Prot				Perm	Perm		Perm				
Protected Phases	5	2			6		8					
Permitted Phases		2				6	8		8			
Actuated Green, G (s)	31.0	71.0			36.0	36.0		21.0	21.0			
Effective Green, g (s)	31.0	71.0			36.0	36.0		21.0	21.0			
Actuated g/C Ratio	0.31	0.71			0.36	0.36		0.21	0.21			
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Lane Grp Cap (vph)	620	2489			972	497		347	370			
v/s Ratio Prot	c0.24	0.25			c0.40							
v/s Ratio Perm						0.12		0.16	0.15			
v/c Ratio	0.78	0.36			1.11	0.33		0.76	0.72			
Uniform Delay, d1	31.4	5.6			32.0	23.2		37.1	36.7			
Progression Factor	0.18	0.21			0.67	0.46		1.00	1.00			
Incremental Delay, d2	5.9	0.3			58.2	1.2		14.4	11.3			
Delay (s)	11.5	1.4			79.7	11.8		51.5	48.0			
Level of Service	B	A			E	B		D	D			
Approach Delay (s)		5.0			59.6			49.1			0.0	
Approach LOS		A			E			D			A	

Intersection Summary			
HCM Average Control Delay	37.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
16: Wilsonville Rd & Town Center Lp West

WV Fred Meyer TIA  
PM Peak (Ex. Config.) -- Ex + Proj

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑			↑↑	↑		↔	↑			↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Lane Util. Factor	0.97	0.95			1.00	0.95		0.91	0.91			
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Frt	1.00	0.99			1.00	0.99		1.00	0.96			
Flt Protected	0.95	1.00			0.95	1.00		0.95	0.98			
Satd. Flow (prot)	2540	3457			1805	2650		1579	3144			
Flt Permitted	0.95	1.00			0.95	1.00		0.95	0.98			
Satd. Flow (perm)	2540	3457			1805	2650		1579	3144			
Volume (vph)	490	820	60	59	598	53	207	78	62	86	81	615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	516	863	63	62	629	56	218	82	65	91	85	647
RTOR Reduction (vph)	0	5	0	0	6	0	32	0	0	107	344	
Lane Group Flow (vph)	516	921	0	62	679	0	115	218	0	91	209	72
Confl. Peds. (#/hr)	4		4	4		4	2		3	3		2
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	3%	3%	5%	0%	4%	0%	4%	3%	2%	4%	6%	3%
Turn Type	Prot				Prot		Split		Split		Perm	
Protected Phases	5	2			1	6		8	8		4	4
Permitted Phases												4
Actuated Green, G (s)	23.4	48.9			6.4	31.9		10.8	10.8		16.9	16.9
Effective Green, g (s)	23.4	49.4			6.4	32.4		10.8	10.8		17.4	17.4
Actuated g/C Ratio	0.23	0.49			0.06	0.32		0.11	0.11		0.17	0.17
Clearance Time (s)	4.0	4.5			4.0	4.5		4.0	4.0		4.5	4.5
Vehicle Extension (s)	2.5	4.3			2.5	4.3		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	594	1708			116	859		171	340		302	266
v/s Ratio Prot	c0.20	0.27			0.03	c0.26		c0.07	0.07		0.05	c0.14
v/s Ratio Perm												0.05
v/c Ratio	0.87	0.54			0.53	0.79		0.67	0.64		0.30	0.79
Uniform Delay, d1	36.8	17.5			45.4	30.7		42.9	42.7		36.0	39.5
Progression Factor	1.10	1.12			1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	10.9	0.4			3.6	7.3		9.1	3.6		0.4	13.8
Delay (s)	51.6	20.0			49.0	38.0		52.0	46.4		36.4	53.3
Level of Service	D	C			D	D		D	D		D	D
Approach Delay (s)		31.3				39.0			48.1			42.9
Approach LOS		C				D			D			D

Intersection Summary			
HCM Average Control Delay	37.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

TSP AMENDMENT  
 ATTACHMENT H  
 (Received 4/13/2016)

Existing + Project Wed Jul 16, 2008 16:00:20 Page 2-1

Fred Meyer TIA - 2008  
 PM Peak Hour  
 Existing + Project

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #138 Boones Ferry Rd/North Fred Meyer's

Average Delay (sec/veh): 18.3 Worst Case Level Of Service: F[314.3]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module: >> Count Date: 1 Jul 2008 << PM Peak Hr (4:45 pm)	Base Vol:	Growth Adj:	Initial Bse:	Added Vol:	FM:	Initial Fut:	User Adj:	PHF Adj:	PHF Volume:	Reduct Vol:	FinalVolume:
	7 235 0	1.00 1.00	7 235 0	0 223 0	0 -24 9	7 434 9	1.00 1.00	0.87 0.87	8 499 10	0 0 0	8 499 10

Critical Gap Module:	Critical Gp:	FollowUpTim:
	4.1 xxxxx xxxxxx	2.2 xxxxx xxxxxx

Capacity Module:	Cnflct Vol:	Potent Cap.:	Move Cap.:	Volume/Cap:
	548 xxxxx xxxxxx	1031 xxxxx xxxxxx	1025 xxxxx xxxxxx	0.01 xxxxx xxxxx

Level Of Service Module:	2Way95thQ:	Control Del:	LOS by Move:	Movement:	Shared Cap.:	SharedQueue:	Shrd ConDel:	Shared LOS:	ApproachDel:	ApproachLOS:
	0.0 xxxxx xxxxxx	8.5 xxxxx xxxxxx	A * *	LT - LTR - RT	59 xxxxx xxxxx	0.0 xxxxx xxxxxx	8.5 xxxxx xxxxxx	A * *	xxxxxx	*

Note: Queue reported is the number of cars per lane.

Existing + Project Wed Jul 16, 2008 16:00:20 Page 3-1

Fred Meyer TIA - 2008  
 PM Peak Hour  
 Existing + Project

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #189 Boones Ferry Rd/Bailey St

Average Delay (sec/veh): 4.6 Worst Case Level Of Service: B[12.6]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 0 1 0 0	1 0 0 1 0	0 0 1 0 0	1 0 0 1 0

Volume Module: >> Count Date: 24 Jun 2008 << PM Peak (some factoring up)	Base Vol:	Growth Adj:	Initial Bse:	Added Vol:	PasserByVol:	Initial Fut:	User Adj:	PHF Adj:	PHF Volume:	Reduct Vol:	FinalVolume:
	1 143 1	1.00 1.00	1 143 1	0 1 4	0 -24 21	1 120 26	1.00 1.00	0.87 0.87	1 138 30	0 0 0	1 138 30

Critical Gap Module:	Critical Gp:	FollowUpTim:
	4.1 xxxxx xxxxxx	2.2 xxxxx xxxxxx

Capacity Module:	Cnflct Vol:	Potent Cap.:	Move Cap.:	Volume/Cap:
	113 xxxxx xxxxxx	1458 xxxxx xxxxxx	1458 xxxxx xxxxxx	0.00 xxxxx xxxxx

Level Of Service Module:	2Way95thQ:	Control Del:	LOS by Move:	Movement:	Shared Cap.:	SharedQueue:	Shrd ConDel:	Shared LOS:	ApproachDel:	ApproachLOS:
	0.3 xxxxx xxxxxx	7.8 xxxxx xxxxxx	A * *	LT - LTR - RT	485 xxxxx xxxxx	0.0 xxxxx xxxxxx	12.6 xxxxx xxxxxx	A * *	xxxxxx	*

Note: Queue reported is the number of cars per lane.

Fred Meyer TIA - 2008  
PM Peak Hour  
Existing + Project

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #253 Boones Ferry Rd/South Fred Meyer's  
\*\*\*\*\*

Average Delay (sec/veh): 11.1 Worst Case Level Of Service: F[ 67.4]  
\*\*\*\*\*

Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include

Lanes: 1 0 0 1 0 1 0 0 1 0 0 0 1 0 0 0 0 1 0 0

Volume Module: >> Count Date: 1 Jul 2008 << PM Peak Hr (4:45 pm)

Base Vol:	7	173	0	0	147	63	69	0	8	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	7	173	0	0	147	63	69	0	8	0	0	0	0
Added Vol:	1	53	1	170	53	0	0	7	1	1	7	171	
FM:	0	-28	13	20	-29	0	0	0	0	15	0	13	
Initial Fut:	8	198	14	190	171	63	69	7	9	16	7	184	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	9	228	16	218	197	72	79	8	10	18	8	211	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
FinalVolume:	9	228	16	218	197	72	79	8	10	18	8	211	

Critical Gap Module:

Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3

Capacity Module:

Cnflct Vol:	278	xxxx	xxxxx	244	xxxx	xxxxx	1042	941	242	933	969	236
Potent Cap.:	1296	xxxx	xxxxx	1334	xxxx	xxxxx	209	265	802	249	256	808
Move Cap.:	1287	xxxx	xxxxx	1334	xxxx	xxxxx	130	219	796	208	211	808
Volume/Cap:	0.01	xxxx	xxxxx	0.16	xxxx	xxxxx	0.61	0.04	0.01	0.09	0.04	0.26

Level Of Service Module:

2Way95thQ:	0.0	xxxx	xxxxx	0.6	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.8	xxxx	xxxxx	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	148	xxxxx	xxxx	613	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.7	xxxxx	xxxxx	1.8	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	67.4	xxxxx	xxxxx	14.6	xxxxx
Shared LOS:	*	*	*	*	*	*	*	F	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			67.4				14.6	
ApproachLOS:	*			*			F				B	

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

HCM Signalized Intersection Capacity Analysis  
1: Wilsonville Rd & I-5 SB

WV Fred Meyer TIA  
PM Peak (Ex. Config.) -- Ex + Stg2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↓	↑	↑↑					↓	↓	↓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0						4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95						0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00						1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00						1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00						1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00						0.95	0.95	1.00
Satd. Flow (prot)	2600	1534	1920	3406						1640	1640	1482
Flt Permitted	1.00	1.00	0.95	1.00						0.95	0.95	1.00
Satd. Flow (perm)	2600	1534	1920	3406						1640	1640	1482
Volume (vph)	0	1059	675	673	854	0	0	0	0	457	0	572
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1092	696	694	880	0	0	0	0	471	0	590
RTOR Reduction (vph)	0	0	299	0	0	0	0	0	0	0	0	168
Lane Group Flow (vph)	0	1092	397	694	880	0	0	0	0	236	235	422
Confl. Peds. (#/hr)	3		4	4						3		
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	0%	4%	2%	4%	6%	0%	0%	0%	0%	3%	0%	9%
Turn Type		Perm	Prot							Perm	Perm	
Protected Phases	2		1		6						4	
Permitted Phases		2			6					4		4
Actuated Green, G (s)	39.0	39.0	28.0	71.0						21.0	21.0	21.0
Effective Green, g (s)	39.0	39.0	28.0	71.0						21.0	21.0	21.0
Actuated g/C Ratio	0.39	0.39	0.28	0.71						0.21	0.21	0.21
Clearance Time (s)	4.0	4.0	4.0	4.0						4.0	4.0	4.0
Lane Grp Cap (vph)	1014	598	538	2418						344	344	311
v/s Ratio Prot	c0.42		c0.36	0.26								
v/s Ratio Perm		0.26								0.14	0.14	c0.28
v/c Ratio	1.08	0.66	1.29	0.36						0.69	0.68	1.36
Uniform Delay, d1	30.5	25.1	36.0	5.7						36.5	36.4	39.5
Progression Factor	0.93	1.07	0.31	0.05						1.00	1.00	1.00
Incremental Delay, d2	43.4	2.6	131.8	0.0						10.6	10.5	179.9
Delay (s)	71.6	29.5	143.0	0.3						47.1	46.9	219.4
Level of Service	E	C	F	A						D	D	F
Approach Delay (s)	55.2			63.2				0.0			142.9	
Approach LOS	E			E				A			F	

Intersection Summary			
HCM Average Control Delay	79.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
2: Wilsonville Rd & Boones Ferry Rd

WV Fred Meyer TIA  
PM Peak (Ex. Config.) -- Ex + Stg2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↓	↑↑	↓	↓	↑↑	↓	↓	↓	↓	↓	↓	↓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.88		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3030		1770	3240	1383	1770	1598		3400	1688	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1719	3030		1770	3240	1383	1770	1598		3400	1688	
Volume (vph)	85	915	26	222	964	240	96	53	218	601	100	95
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	88	943	27	229	994	247	99	55	225	620	103	98
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	34	0
Lane Group Flow (vph)	88	968	0	229	994	247	99	190	0	620	167	0
Confl. Peds. (#/hr)	7		4	4		7	3		3	3		3
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	5%	3%	19%	2%	4%	14%	2%	2%	3%	3%	1%	6%
Turn Type		Prot			Prot	Free	Split			Split		
Protected Phases	1	6			5	2		4	4		8	8
Permitted Phases		6				Free						
Actuated Green, G (s)	5.6	34.0			13.0	41.4	100.0	7.7	7.7		20.3	20.3
Effective Green, g (s)	7.6	37.0			15.0	44.4	100.0	9.7	9.7		22.3	22.3
Actuated g/C Ratio	0.08	0.37			0.15	0.44	1.00	0.10	0.10		0.22	0.22
Clearance Time (s)	6.0	7.0			6.0	7.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	131	1121			266	1439	1383	172	155		758	376
v/s Ratio Prot	0.05	c0.32			c0.13	0.31		0.06	c0.12		c0.18	0.10
v/s Ratio Perm							0.18					
v/c Ratio	0.67	0.86			0.86	0.69	0.18	0.58	1.22		0.82	0.44
Uniform Delay, d1	45.0	29.2			41.5	22.3	0.0	43.2	45.1		36.9	33.5
Progression Factor	1.00	1.00			1.01	0.75	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	12.7	8.9			17.5	1.9	0.2	4.6	144.9		6.9	0.8
Delay (s)	57.7	38.0			59.4	18.6	0.2	47.8	190.0		43.8	34.3
Level of Service	E	D			E	B	A	D	F		D	C
Approach Delay (s)		39.7				21.8			152.9			41.5
Approach LOS		D				C			F			D

Intersection Summary			
HCM Average Control Delay	44.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



HCM Signalized Intersection Capacity Analysis  
15: Wilsonville Rd & I-5 NB

WV Fred Meyer TIA  
PM Peak (Ex. Config.) -- Ex + Stg2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↕	↔	↕	↕	↔	↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0				
Lane Util. Factor	1.00	0.95		0.95	1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00		1.00	0.97		1.00	1.00				
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00				
Frt	1.00	1.00		1.00	0.85		1.00	0.85				
Flt Protected	0.95	1.00		1.00	1.00		0.95	1.00				
Satd. Flow (prot)	2000	3505		2700	1380		1650	1760				
Flt Permitted	0.95	1.00		1.00	1.00		0.95	1.00				
Satd. Flow (perm)	2000	3505		2700	1380		1650	1760				
Volume (vph)	533	983	0	0	1212	488	315	0	588	0	0	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	573	1057	0	0	1303	525	339	0	632	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	318	0	0	316	0	0	0
Lane Group Flow (vph)	573	1057	0	0	1303	207	0	339	316	0	0	0
Confl. Peds. (#/hr)	4		4	4		4						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	5%	3%	0%	0%	4%	3%	10%	0%	4%	0%	0%	0%
Turn Type	Prot				Perm	Perm		Perm				
Protected Phases	5	2			6			8				
Permitted Phases		2				6	8		8			
Actuated Green, G (s)	31.0	71.0			36.0	36.0		21.0	21.0			
Effective Green, g (s)	31.0	71.0			36.0	36.0		21.0	21.0			
Actuated g/C Ratio	0.31	0.71			0.36	0.36		0.21	0.21			
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Lane Grp Cap (vph)	620	2489			972	497		347	370			
v/s Ratio Prot	c0.29	0.30			c0.48							
v/s Ratio Perm						0.15		0.21	0.18			
v/c Ratio	0.92	0.42			1.34	0.42		0.98	0.85			
Uniform Delay, d1	33.4	6.0			32.0	24.1		39.3	38.0			
Progression Factor	0.17	0.20			0.68	0.42		1.00	1.00			
Incremental Delay, d2	8.9	0.3			156.7	1.2		42.8	21.5			
Delay (s)	14.6	1.5			178.5	11.4		82.1	59.5			
Level of Service	B	A			F	B		F	E			
Approach Delay (s)		6.1			130.5			67.4			0.0	
Approach LOS		A			F			E			A	

Intersection Summary			
HCM Average Control Delay	70.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
16: Wilsonville Rd & Town Center Lp West

WV Fred Meyer TIA  
PM Peak (Ex. Config.) -- Ex + Stg2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↕	↔	↕	↕	↔	↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.91	0.91		1.00	0.95	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.99	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		1.00	0.88	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (prot)	2540	3460		1805	2650		1579	3144		1736	1519	1467
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (perm)	2540	3460		1805	2650		1579	3144		1736	1519	1467
Volume (vph)	598	910	63	59	705	63	208	78	62	96	81	787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	629	958	66	62	742	66	219	82	65	101	85	828
RTOR Reduction (vph)	0	5	0	0	6	0	0	32	0	0	137	384
Lane Group Flow (vph)	629	1019	0	62	802	0	115	219	0	101	255	137
Confl. Peds. (#/hr)	4		4	4		4	2		3	3		2
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	3%	3%	5%	0%	4%	0%	4%	3%	2%	4%	6%	3%
Turn Type	Prot				Prot		Split		Split		Perm	
Protected Phases	5	2			1	6		8	8		4	4
Permitted Phases												4
Actuated Green, G (s)	24.3	47.0			6.4	29.1		10.4	10.4		19.2	19.2
Effective Green, g (s)	24.3	47.5			6.4	29.6		10.4	10.4		19.7	19.7
Actuated g/C Ratio	0.24	0.48			0.06	0.30		0.10	0.10		0.20	0.20
Clearance Time (s)	4.0	4.5			4.0	4.5		4.0	4.0		4.5	4.5
Vehicle Extension (s)	2.5	4.3			2.5	4.3		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	617	1644			116	784		164	327		342	299
v/s Ratio Prot	c0.25	0.29			0.03	c0.30		c0.07	0.07		0.06	c0.17
v/s Ratio Perm												0.09
v/c Ratio	1.02	0.62			0.53	1.02		0.70	0.67		0.30	0.85
Uniform Delay, d1	37.9	19.5			45.4	35.2		43.3	43.1		34.2	38.7
Progression Factor	1.12	1.15			1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	37.2	0.7			3.6	38.0		11.8	4.6		0.4	20.0
Delay (s)	79.5	23.2			49.0	73.2		55.1	47.8		34.6	58.7
Level of Service	E	C			D	E		E	D		C	E
Approach Delay (s)		44.6				71.4			50.1			44.9
Approach LOS		D				E			D			D

Intersection Summary			
HCM Average Control Delay	51.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

TSP AMENDMENT ATTACHMENT H (Received 4/13/2016)

Existing + Stage II Wed Jul 16, 2008 16:17:02 Page 2-1

Fred Meyer TIA - 2008 PM Peak Hour Existing + Stage II

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #138 Boones Ferry Rd/North Fred Meyer's

Average Delay (sec/veh): 1.8 Worst Case Level Of Service: B [ 13.9]

Approach: North Bound South Bound East Bound West Bound Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign Rights: Include Include Include Include Lanes: 0 1 0 0 0 0 0 0 1 0 0 0 1 0 0 0 0 0 0 0

Volume Module: >> Count Date: 1 Jul 2008 << PM Peak Hr (4:45 pm)

Table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume. Rows include various traffic metrics for North, South, East, and West Bound.

Critical Gap Module:

Critical Gp: 4.1 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.4 6.5 6.2 xxxxxx xxxxxx xxxxxx FollowUpTim: 2.2 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.5 4.0 3.3 xxxxxx xxxxxx xxxxxx

Capacity Module:

Cnflict Vol: 333 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 599 599 292 xxxxx xxxxx xxxxxx Potent Cap.: 1237 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 468 418 752 xxxxx xxxxx xxxxxx

Level Of Service Module:

2Way95thQ: 0.0 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx Control Del: 7.9 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Note: Queue reported is the number of cars per lane.

Existing + Stage II Wed Jul 16, 2008 16:17:02 Page 3-1

Fred Meyer TIA - 2008 PM Peak Hour Existing + Stage II

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #189 Boones Ferry Rd/Bailey St

Average Delay (sec/veh): 2.2 Worst Case Level Of Service: B [ 11.6]

Approach: North Bound South Bound East Bound West Bound Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign Rights: Include Include Include Include Lanes: 0 0 1 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0

Volume Module: >> Count Date: 24 Jun 2008 << PM Peak (some factoring up)

Table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume. Rows include various traffic metrics for North, South, East, and West Bound.

Critical Gap Module:

Critical Gp: 4.1 xxxxx xxxxxx 4.1 xxxxx xxxxxx 7.1 6.5 6.2 7.1 6.5 6.2 FollowUpTim: 2.2 xxxxx xxxxxx 2.2 xxxxx xxxxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflict Vol: 155 xxxxx xxxxxx 182 xxxxx xxxxxx 445 427 151 428 430 181 Potent Cap.: 1407 xxxxx xxxxxx 1382 xxxxx xxxxxx 527 523 900 540 521 867

Level Of Service Module:

2Way95thQ: 0.0 xxxxx xxxxxx 0.1 xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx Control Del: 7.6 xxxxx xxxxxx 7.7 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Note: Queue reported is the number of cars per lane.

Fred Meyer TIA - 2008  
PM Peak Hour  
Existing + Stage II

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

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*****
Intersection #253 Boones Ferry Rd/South Fred Meyer's
*****
Average Delay (sec/veh):      2.0      Worst Case Level Of Service: B[ 12.4]
*****
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:      L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|-----|
Control:      Uncontrolled      Uncontrolled      Stop Sign      Stop Sign
Rights:      Include      Include      Include      Include
Lanes:      0 1 0 0 0      0 0 0 1 0      0 0 1 0 0      0 0 0 0 0
-----|-----|-----|-----|-----|
Volume Module: >> Count Date: 1 Jul 2008 << PM Peak Hr (4:45 pm)
Base Vol:      7 173      0      0 147 63      69 0 8      0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 7 173      0      0 147 63      69 0 8      0 0 0 0
Added Vol: 0 17      0      0 20 0      0 0 0 0      0 0 0 0
PasserByVol: 0 0      0      0 0 0      0 0 0 0      0 0 0 0
Initial Fut: 7 190      0      0 167 63      69 0 8      0 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87
PHF Volume: 8 218      0      0 192 72      79 0 9      0 0 0 0
Reduct Vol: 0 0      0      0 0 0      0 0 0 0      0 0 0 0
FinalVolume: 8 218      0      0 192 72      79 0 9      0 0 0 0
-----|-----|-----|-----|-----|
Critical Gap Module:
Critical Gp: 4.1 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.4 6.5 6.2 xxxxxx xxxxx xxxxxx
FollowUpTim: 2.2 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.5 4.0 3.3 xxxxxx xxxxx xxxxxx
-----|-----|-----|-----|-----|
Capacity Module:
Cnflct Vol: 264 xxxxx xxxxxx xxxxx xxxxx xxxxxx 463 463 228 xxxxx xxxxx xxxxxx
Potent Cap.: 1311 xxxxx xxxxxx xxxxx xxxxx xxxxxx 561 499 816 xxxxx xxxxx xxxxxx
Move Cap.: 1311 xxxxx xxxxxx xxxxx xxxxx xxxxxx 558 496 816 xxxxx xxxxx xxxxxx
Volume/Cap: 0.01 xxxxx xxxxx xxxxx xxxxx xxxxx 0.14 0.00 0.01 xxxxx xxxxx xxxxx
-----|-----|-----|-----|-----|
Level Of Service Module:
2Way95thQ: 0.0 xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx
Control Del: 7.8 xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx
LOS by Move: A * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx 577 xxxxxx xxxxx xxxxx xxxxxx
SharedQueue: 0.0 xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx 0.5 xxxxxx xxxxxx xxxxx xxxxxx
Shrd ConDel: 7.8 xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx 12.4 xxxxxx xxxxxx xxxxx xxxxxx
Shared LOS: A * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
ApproachDel: xxxxxx * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
ApproachLOS: * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*****
Note: Queue reported is the number of cars per lane.
*****

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HCM Signalized Intersection Capacity Analysis

WV Fred Meyer TIA

1: Wilsonville Rd & I-5 SB

PM Peak (Ex. Config.) -- Ex + Proj + Stg2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↘	↘	↑↑					↘	↘	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0						4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95						0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00						1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00						1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00						1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00						0.95	0.95	1.00
Satd. Flow (prot)	2600	1534	1920	3406						1640	1640	1482
Flt Permitted	1.00	1.00	0.95	1.00						0.95	0.95	1.00
Satd. Flow (perm)	2600	1534	1920	3406						1640	1640	1482
Volume (vph)	0	1155	710	673	939	0	0	0	0	457	0	621
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1191	732	694	968	0	0	0	0	471	0	640
RTOR Reduction (vph)	0	0	299	0	0	0	0	0	0	0	0	142
Lane Group Flow (vph)	0	1191	433	694	968	0	0	0	0	236	235	498
Confl. Peds. (#/hr)	3		4	4		3						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	0%	4%	2%	4%	6%	0%	0%	0%	0%	3%	0%	9%
Turn Type		Perm	Prot							Perm	Perm	
Protected Phases	2		1		6						4	
Permitted Phases		2			6					4		4
Actuated Green, G (s)	39.0	39.0	28.0	71.0						21.0	21.0	21.0
Effective Green, g (s)	39.0	39.0	28.0	71.0						21.0	21.0	21.0
Actuated g/C Ratio	0.39	0.39	0.28	0.71						0.21	0.21	0.21
Clearance Time (s)	4.0	4.0	4.0	4.0						4.0	4.0	4.0
Lane Grp Cap (vph)	1014	598	538	2418						344	344	311
v/s Ratio Prot	c0.46		c0.36	0.28								
v/s Ratio Perm		0.28								0.14	0.14	c0.34
v/c Ratio	1.17	0.72	1.29	0.40						0.69	0.68	1.60
Uniform Delay, d1	30.5	25.9	36.0	5.9						36.5	36.4	39.5
Progression Factor	0.99	1.16	0.31	0.05						1.00	1.00	1.00
Incremental Delay, d2	79.6	0.7	131.8	0.0						10.6	10.5	284.9
Delay (s)	109.9	30.7	143.0	0.3						47.1	46.9	324.4
Level of Service	F	C	F	A						D	D	F
Approach Delay (s)	79.7			59.9			0.0				206.8	
Approach LOS	E			E			A				F	

Intersection Summary			
HCM Average Control Delay	102.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

WV Fred Meyer TIA

2: Wilsonville Rd & Boones Ferry Rd

PM Peak (Ex. Config.) -- Ex + Proj + Stg2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↘	↘	↑↑	↘	↘	↘	↘	↘	↘	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	0.98	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98	1.00	1.00	0.85	1.00	0.89	1.00	0.89	1.00	0.95	
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3030	1770	3240	1383	1770	1622	3400	1749			
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	1719	3030	1770	3240	1383	1770	1622	3400	1749			
Volume (vph)	85	870	127	419	901	240	207	146	394	601	192	95
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	88	897	131	432	929	247	213	151	406	620	198	98
RTOR Reduction (vph)	0	11	0	0	0	0	0	90	0	0	18	0
Lane Group Flow (vph)	88	1017	0	432	929	247	213	467	0	620	278	0
Confl. Peds. (#/hr)	7		4	4		7	3		3	3		3
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	5%	3%	19%	2%	4%	14%	2%	2%	3%	3%	1%	6%
Turn Type		Prot			Prot	Free	Split			Split		
Protected Phases	1	6			5	2		4	4		8	8
Permitted Phases		6				Free						
Actuated Green, G (s)	5.6	34.0			13.0	41.4	100.0	7.7	7.7		20.3	20.3
Effective Green, g (s)	7.6	37.0			15.0	44.4	100.0	9.7	9.7		22.3	22.3
Actuated g/C Ratio	0.08	0.37			0.15	0.44	1.00	0.10	0.10		0.22	0.22
Clearance Time (s)	6.0	7.0			6.0	7.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	131	1121			266	1439	1383	172	157		758	390
v/s Ratio Prot	0.05	c0.34			c0.24	0.29		0.12	c0.29		c0.18	0.16
v/s Ratio Perm							0.18					
v/c Ratio	0.67	0.91			1.62	0.65	0.18	1.24	2.97		0.82	0.71
Uniform Delay, d1	45.0	29.9			42.5	21.7	0.0	45.1	45.1		36.9	35.9
Progression Factor	1.00	1.00			1.00	0.76	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	12.7	12.1			290.5	1.3	0.2	147.0	904.6		6.9	6.1
Delay (s)	57.7	42.0			332.9	17.8	0.2	192.1	949.8		43.8	42.0
Level of Service	E	D			F	B	A	F	F		D	D
Approach Delay (s)			43.2				99.7		740.2			43.2
Approach LOS			D				F		F			D

Intersection Summary			
HCM Average Control Delay	185.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	114.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
15: Wilsonville Rd & I-5 NB

WV Fred Meyer TIA  
PM Peak (Ex. Config.) -- Ex + Proj + Stg2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔ ↑↑			↑↑			↔ ↑			↔ ↓		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0				
Lane Util. Factor	1.00	0.95		0.95	1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00		1.00	0.97		1.00	1.00				
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00				
Frt	1.00	1.00		1.00	0.85		1.00	0.85				
Flt Protected	0.95	1.00		1.00	1.00		0.95	1.00				
Satd. Flow (prot)	2000	3505		2700	1380		1650	1760				
Flt Permitted	0.95	1.00		1.00	1.00		0.95	1.00				
Satd. Flow (perm)	2000	3505		2700	1380		1650	1760				
Volume (vph)	581	1031	0	0	1261	488	351	0	588	0	0	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	625	1109	0	0	1356	525	377	0	632	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	310	0	0	316	0	0	0
Lane Group Flow (vph)	625	1109	0	0	1356	215	0	377	316	0	0	0
Confl. Peds. (#/hr)	4		4	4		4						
Confl. Bikes (#/hr)		1				3						
Heavy Vehicles (%)	5%	3%	0%	0%	4%	3%	10%	0%	4%	0%	0%	0%
Turn Type	Prot				Perm		Perm		Perm			
Protected Phases	5	2			6			8				
Permitted Phases	2				6		8		8			
Actuated Green, G (s)	31.0	71.0			36.0	36.0	21.0		21.0			
Effective Green, g (s)	31.0	71.0			36.0	36.0	21.0		21.0			
Actuated g/C Ratio	0.31	0.71			0.36	0.36	0.21		0.21			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Grp Cap (vph)	620	2489			972	497	347		370			
v/s Ratio Prot	c0.31	0.32			c0.50							
v/s Ratio Perm					0.16		0.23		0.18			
v/c Ratio	1.01	0.45			1.40	0.43	1.09		0.85			
Uniform Delay, d1	34.5	6.2			32.0	24.2	39.5		38.0			
Progression Factor	0.17	0.21			0.68	0.41	1.00		1.00			
Incremental Delay, d2	12.9	0.2			180.6	1.2	73.4		21.5			
Delay (s)	18.9	1.5			202.3	11.1	112.9		59.5			
Level of Service	B	A			F	B	F		E			
Approach Delay (s)	7.8				148.9		79.5			0.0		
Approach LOS	A				F		E			A		

Intersection Summary			
HCM Average Control Delay	80.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
16: Wilsonville Rd & Town Center Lp West

WV Fred Meyer TIA  
PM Peak (Ex. Config.) -- Ex + Proj + Stg2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔ ↑↑			↑↑			↔ ↑			↔ ↓		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.91	0.91		1.00	0.95	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.99	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		1.00	0.88	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (prot)	2540	3461		1805	2650		1579	3144		1736	1517	1467
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (perm)	2540	3461		1805	2650		1579	3144		1736	1517	1467
Volume (vph)	622	934	63	59	729	63	208	78	62	96	81	812
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	655	983	66	62	767	66	219	82	65	101	85	855
RTOR Reduction (vph)	0	4	0	0	6	0	32	0	0	143	380	
Lane Group Flow (vph)	655	1045	0	62	827	0	115	219	0	101	264	153
Confl. Peds. (#/hr)	4		4	4		4	2		3	3		2
Confl. Bikes (#/hr)					1							
Heavy Vehicles (%)	3%	3%	5%	0%	4%	0%	4%	3%	2%	4%	6%	3%
Turn Type	Prot				Prot		Split		Split		Perm	
Protected Phases	5	2			1	6	8		8	4		4
Permitted Phases	2						8		8		4	
Actuated Green, G (s)	24.2	46.8			6.4	29.0	10.1		10.1	19.7		19.7
Effective Green, g (s)	24.2	47.3			6.4	29.5	10.1		10.1	20.2		20.2
Actuated g/C Ratio	0.24	0.47			0.06	0.29	0.10		0.10	0.20		0.20
Clearance Time (s)	4.0	4.5			4.0	4.5	4.0		4.0	4.5		4.5
Vehicle Extension (s)	2.5	4.3			2.5	4.3	2.5		2.5	2.5		2.5
Lane Grp Cap (vph)	615	1637			116	782	159		318	351		306
v/s Ratio Prot	c0.26	0.30			0.03	c0.31	c0.07		0.07	0.06		c0.17
v/s Ratio Perm												0.10
v/c Ratio	1.07	0.64			0.53	1.06	0.72		0.69	0.29		0.86
Uniform Delay, d1	37.9	19.9			45.4	35.2	43.6		43.4	33.8		38.6
Progression Factor	1.12	1.16			1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	50.9	0.8			3.6	48.3	14.1		5.6	0.3		21.2
Delay (s)	93.3	23.8			49.0	83.6	57.7		49.0	34.1		59.8
Level of Service	F	C			D	F	E		D	C		E
Approach Delay (s)	50.6				81.2		51.7			45.5		
Approach LOS	D				F		D			D		

Intersection Summary			
HCM Average Control Delay	56.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

TSP AMENDMENT  
 ATTACHMENT H  
 (Received 4/13/2016)

Fred Meyer TIA - 2008  
 PM Peak Hour  
 Ex + Proj + Stg II

Level Of Service Computation Report  
 2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #138 Boones Ferry Rd/North Fred Meyer's

Average Delay (sec/veh): 34.2 Worst Case Level Of Service: F[556.6]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module: >> Count Date: 1 Jul 2008 << PM Peak Hr (4:45 pm)	Base Vol:	Growth Adj:	Initial Bse:	Added Vol:	FM:	Initial Fut:	User Adj:	PHF Adj:	PHF Volume:	Reduct Vol:	FinalVolume:
	7 235 0	1.00 1.00	7 235 0	1 240 0	0 -24 9	8 451 9	1.00 1.00	0.87 0.87	9 518 10	0 0 0	9 518 10
	0 199 62	1.00 1.00	0 199 62	228 242 10	13 -13 0	241 428 72	1.00 1.00	0.87 0.87	277 492 83	0 0 0	277 492 83
	48 0 11	1.00 1.00	48 0 11	17 5 1	0 0 0	65 5 12	1.00 1.00	0.87 0.87	75 6 14	0 0 0	75 6 14
	1.00 1.00 1.00	1.00 1.00	1.00 1.00 1.00	0 5 229	4 0 21	4 5 250	1.00 1.00 1.00	0.87 0.87 0.87	5 6 287	0 0 0	5 6 287

Critical Gap Module:

Critical Gp:	4.1	4.1	7.5	6.5	6.9	7.5	6.5	6.9
FollowUpTim:	2.2	2.2	3.5	4.0	3.3	3.5	4.0	3.3

Capacity Module:

Cnflct Vol:	582	529	1380	1641	294	1345	1678	269
Potent Cap.:	1002	1049	105	101	708	112	96	735
Move Cap.:	997	1049	44	67	704	76	63	732
Volume/Cap:	0.01	0.26	1.71	0.09	0.02	0.06	0.09	0.39

Level Of Service Module:

2Way95thQ:	0.0	1.1	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Control Del:	8.6	9.7	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
LOS by Move:	A	A	*	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	xxxx	xxxx	xxxx	52	xxxx	547	xxxx
SharedQueue:	0.0	1.1	xxxx	xxxx	9.1	xxxx	3.2	xxxx
Shrd ConDel:	8.6	9.7	xxxx	xxxx	557	xxxx	19.1	xxxx
Shared LOS:	A	A	*	*	F	*	C	*
ApproachDel:	xxxxxx	xxxxxx	556.6		19.1			
ApproachLOS:	*	*	F		C			

Note: Queue reported is the number of cars per lane.

Fred Meyer TIA - 2008  
 PM Peak Hour  
 Ex + Proj + Stg II

Level Of Service Computation Report  
 2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #189 Boones Ferry Rd/Bailey St

Average Delay (sec/veh): 4.4 Worst Case Level Of Service: B[ 13.8]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 0 1 0 0	1 0 0 1 0	0 0 1 0 0	1 0 0 1 0

Volume Module: >> Count Date: 24 Jun 2008 << PM Peak (some factoring up)	Base Vol:	Growth Adj:	Initial Bse:	Added Vol:	PasserByVol:	Initial Fut:	User Adj:	PHF Adj:	PHF Volume:	Reduct Vol:	FinalVolume:
	1 143 1	1.00 1.00	1 143 1	0 16 4	0 -24 21	1 135 26	1.00 1.00	0.87 0.87	1 155 30	0 0 0	1 155 30
	40 111 4	1.00 1.00	40 111 4	53 18 3	4 -18 0	97 111 7	1.00 1.00	0.87 0.87	111 128 8	0 0 0	111 128 8
	5 0 3	1.00 1.00	5 0 3	3 0 0	0 0 0	8 0 3	1.00 1.00	0.87 0.87	9 0 3	0 0 0	9 0 3
	1.00 1.00 1.00	1.00 1.00	1.00 1.00 1.00	4 0 53	0 18 0 9	30 0 94	1.00 1.00 1.00	0.87 0.87 0.87	34 0 108	0 0 0	34 0 108

Critical Gap Module:

Critical Gp:	4.1	4.1	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	2.2	3.5	4.0	3.3	3.5	4.0	3.3

Capacity Module:

Cnflct Vol:	136	185	581	542	132	529	531	170
Potent Cap.:	1430	1378	428	450	923	464	457	879
Move Cap.:	1430	1378	352	414	923	433	419	879
Volume/Cap:	0.00	0.08	0.03	0.00	0.00	0.08	0.00	0.12

Level Of Service Module:

2Way95thQ:	0.0	0.3	xxxx	xxxx	xxxx	xxxx	xxxx	0.3
Control Del:	7.5	7.8	xxxx	xxxx	xxxx	xxxx	14.0	xxxx
LOS by Move:	A	A	*	*	*	*	B	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	xxxx	xxxx	423	xxxx	xxxx	xxxx	879
SharedQueue:	xxxx	xxxx	xxxx	0.1	xxxx	xxxx	xxxx	0.4
Shrd ConDel:	xxxx	xxxx	xxxx	13.8	xxxx	xxxx	xxxx	9.7
Shared LOS:	*	*	*	B	*	*	*	A
ApproachDel:	xxxxxx	xxxxxx	13.8		10.7			
ApproachLOS:	*	*	B		B			

Note: Queue reported is the number of cars per lane.

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Fred Meyer TIA - 2008  
PM Peak Hour  
Ex + Proj + Stg II  
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Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

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*****
Intersection #253 Boones Ferry Rd/South Fred Meyer's
*****
Average Delay (sec/veh):    11.9      Worst Case Level Of Service: F[ 79.4]
*****
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:      L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|
Control:       Uncontrolled    Uncontrolled    Stop Sign      Stop Sign
Rights:        Include         Include         Include         Include
Lanes:         1 0 0 1 0      1 0 0 1 0      0 0 1 0 0      0 0 1 0 0
-----|-----|-----|-----|
Volume Module: >> Count Date: 1 Jul 2008 << PM Peak Hr (4:45 pm)
Base Vol:      7 173 0 0 147 63 69 0 8 0 0 0 0
Growth Adj:    1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:   7 173 0 0 147 63 69 0 8 0 0 0 0
Added Vol:     1 70 1 170 73 0 0 7 1 1 7 171
FM:            0 -28 13 20 -29 0 0 0 0 15 0 13
Initial Fut:   8 215 14 190 191 63 69 7 9 16 7 184
User Adj:      1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:       0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87
PHF Volume:    9 247 16 218 220 72 79 8 10 18 8 211
Reduct Vol:    0 0 0 0 0 0 0 0 0 0 0 0
FinalVolume:   9 247 16 218 220 72 79 8 10 18 8 211
-----|-----|-----|-----|
Critical Gap Module:
Critical Gp:   4.1 xxxx xxxxx 4.1 xxxx xxxxx 7.1 6.5 6.2 7.1 6.5 6.2
FollowUpTim:  2.2 xxxx xxxxx 2.2 xxxx xxxxx 3.5 4.0 3.3 3.5 4.0 3.3
-----|-----|-----|-----|
Capacity Module:
Cnflct Vol:   301 xxxx xxxxx 263 xxxx xxxxx 1085 983 265 975 1011 255
Potent Cap.: 1272 xxxx xxxxx 1313 xxxx xxxxx 196 251 779 233 241 788
Move Cap.:    1262 xxxx xxxxx 1313 xxxx xxxxx 120 206 773 193 198 788
Volume/Cap:   0.01 xxxx xxxxx 0.17 xxxx xxxxx 0.66 0.04 0.01 0.10 0.04 0.27
-----|-----|-----|-----|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx 0.6 xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx
Control Del:  7.9 xxxx xxxxx 8.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:  A * * A * * * * * * * * * * *
Movement:     LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.:  xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx 137 xxxxx xxxx 589 xxxxx
SharedQueue:  xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 4.1 xxxxx xxxxx 1.9 xxxxx
Shrd ConDel:  xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 79.4 xxxxx xxxxx 15.2 xxxxx
Shared LOS:   * * * * * * * * * * * F * * * C *
ApproachDel:  xxxxxx xxxxxx 79.4 15.2
ApproachLOS:  * * * * * F C
*****
Note: Queue reported is the number of cars per lane.
*****

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# **HCM Intersection Analysis - Mitigated**

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HCM Signalized Intersection Capacity Analysis  
 1: Wilsonville Rd & I-5 SB

Fred Meyer TIA  
 Existing + Project

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	↑↑↑		↑	↑	↑↑					↓	↓	↓			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Total Lost time (s)	4.0	4.0	4.0	4.0						4.0	4.0				
Lane Util. Factor	0.91	1.00	0.91	0.91						0.97	0.88				
Frpb, ped/bikes	1.00	0.99	1.00	1.00						1.00	1.00				
Flpb, ped/bikes	1.00	1.00	1.00	1.00						1.00	1.00				
Frt	1.00	0.85	1.00	1.00						1.00	0.85				
Flt Protected	1.00	1.00	0.95	0.99						0.95	1.00				
Satd. Flow (prot)	4988	1566	1579	3234						3400	2608				
Flt Permitted	1.00	1.00	0.95	0.51						0.95	1.00				
Satd. Flow (perm)	4988	1566	1579	1686						3400	2608				
Volume (vph)	0	961	655	585	745	0	0	0	0	415	0	484			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Adj. Flow (vph)	0	991	675	603	768	0	0	0	0	428	0	499			
RTOR Reduction (vph)	0	0	43	0	0	0	0	0	0	0	0	386			
Lane Group Flow (vph)	0	991	632	309	1062	0	0	0	0	428	0	113			
Confl. Peds. (#/hr)	3		4	4		3									
Confl. Bikes (#/hr)			1			3									
Heavy Vehicles (%)	0%	4%	2%	4%	6%	0%	0%	0%	0%	3%	0%	9%			
Turn Type	custom			Prot						Prot			custom		
Protected Phases	2	4	1	6						4		4			
Permitted Phases		2		6											
Actuated Green, G (s)	42.0	67.0	31.0	77.0						25.0		25.0			
Effective Green, g (s)	42.0	67.0	31.0	77.0						25.0		25.0			
Actuated g/C Ratio	0.38	0.61	0.28	0.70						0.23		0.23			
Clearance Time (s)	4.0	4.0	4.0	4.0						4.0		4.0			
Lane Grp Cap (vph)	1905	1011	445	1616						773		593			
v/s Ratio Prot	0.20	c0.14	c0.20	0.19						0.13		0.04			
v/s Ratio Perm		0.26		c0.27											
v/c Ratio	0.52	0.62	0.69	0.66						0.55		0.19			
Uniform Delay, d1	26.2	13.6	35.3	9.2						37.6		34.3			
Progression Factor	0.93	1.41	0.00	0.43						1.00		1.00			
Incremental Delay, d2	0.8	2.2	4.7	1.5						2.8		0.7			
Delay (s)	25.3	21.3	4.8	5.4						40.4		35.0			
Level of Service	C	C	A	A						D		D			
Approach Delay (s)	23.7			5.3			0.0				37.5				
Approach LOS	C			A			A				D				

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
 2: Wilsonville Rd & Boones Ferry Rd

Fred Meyer TIA  
 Existing + Project

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↓	↑↑↑	↑	↓	↑↑	↑	↓	↓	↓	↓	↓	↓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.99	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	4805		3433	3471	1364	1770	1863	1555	3400	1777	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1719	4805		3433	3471	1364	1770	1863	1555	3400	1777	
Volume (vph)	55	718	122	395	680	154	194	142	377	521	188	65
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	57	740	126	407	701	159	200	146	389	537	194	67
RTOR Reduction (vph)	0	20	0	0	86	0	0	35	0	12	0	0
Lane Group Flow (vph)	57	846	0	407	701	73	200	146	354	537	249	0
Confl. Peds. (#/hr)	7		4	4		7	3		3	3		3
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	5%	3%	19%	2%	4%	14%	2%	2%	3%	3%	1%	6%
Turn Type	Prot		Perm		Split		pm+ov		Split			
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases		6				2			4			
Actuated Green, G (s)	6.2	39.4		16.6	49.8	49.8	15.4	15.4	32.0	21.6	21.6	
Effective Green, g (s)	6.2	40.4		16.6	50.8	50.8	15.4	15.4	32.0	21.6	21.6	
Actuated g/C Ratio	0.06	0.37		0.15	0.46	0.46	0.14	0.14	0.29	0.20	0.20	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	4.3		2.5	0.5	0.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	97	1765		518	1603	630	248	261	452	668	349	
v/s Ratio Prot	0.03	c0.18		c0.12	0.20		c0.11	0.08	0.12	c0.16	0.14	
v/s Ratio Perm						0.05			0.11			
v/c Ratio	0.59	0.48		0.79	0.44	0.12	0.81	0.56	0.78	0.80	0.71	
Uniform Delay, d1	50.7	26.7		45.0	20.0	16.8	45.9	44.1	35.8	42.2	41.3	
Progression Factor	1.00	1.00		1.25	0.78	0.47	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.3	0.9		5.9	0.7	0.3	16.7	2.1	8.3	6.8	6.3	
Delay (s)	58.0	27.7		62.2	16.2	8.2	62.6	46.2	44.2	48.9	47.6	
Level of Service	E	C		E	B	A	E	D	D	D	D	
Approach Delay (s)		29.5			30.0			49.6			48.5	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	37.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
15: Wilsonville Rd & I-5 NB

Fred Meyer TIA  
Existing + Project

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91		0.91	1.00	0.97		0.88				
Frpb, ped/bikes	1.00	1.00		1.00	0.99	1.00		1.00				
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00				
Frt	1.00	1.00		1.00	0.85	1.00		0.85				
Flt Protected	0.95	0.99		1.00	1.00	0.95		1.00				
Satd. Flow (prot)	1564	3324		4988	1552	3183		2733				
Flt Permitted	0.95	0.51		1.00	1.00	0.95		1.00				
Satd. Flow (perm)	1564	1701		4988	1552	3183		2733				
Volume (vph)	498	878	0	0	1049	420	281	0	540	0	0	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	535	944	0	0	1128	452	302	0	581	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	105	0	0	292	0	0	0
Lane Group Flow (vph)	376	1103	0	0	1128	347	302	0	289	0	0	0
Confl. Peds. (#/hr)	4		4	4		4						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	5%	3%	0%	0%	4%	3%	10%	0%	4%	0%	0%	0%
Turn Type	Prot				custom		Prot	custom				
Protected Phases	5	2			6	8	8	8				
Permitted Phases		2				6						
Actuated Green, G (s)	43.0	77.0			30.0	55.0	25.0	25.0				
Effective Green, g (s)	43.0	77.0			30.0	55.0	25.0	25.0				
Actuated g/C Ratio	0.39	0.70			0.27	0.50	0.23	0.23				
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)	611	1825			1360	832	723	621				
v/s Ratio Prot	0.24	c0.24			c0.23	0.09	0.09	c0.11				
v/s Ratio Perm		0.19				0.13						
v/c Ratio	0.62	0.60			0.83	0.42	0.42	0.47				
Uniform Delay, d1	26.9	8.6			37.6	17.4	36.3	36.7				
Progression Factor	0.16	1.01			0.64	1.16	1.00	1.00				
Incremental Delay, d2	4.1	1.3			4.4	1.1	1.8	2.5				
Delay (s)	8.4	10.0			28.6	21.3	38.1	39.2				
Level of Service	A	A			C	C	D	D				
Approach Delay (s)		9.5			26.5		38.8				0.0	
Approach LOS		A			C		D				A	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
16: Wilsonville Rd & Town Center Lp West

Fred Meyer TIA  
Existing + Project

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95	0.97		1.00		1.00	0.95	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		0.99		1.00	0.99	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99	1.00		0.93		1.00	0.90	0.85
Flt Protected	0.95	1.00		0.95	1.00	0.95		1.00		0.95	1.00	1.00
Satd. Flow (prot)	3400	3458		1805	3435	3367		1717		1736	1542	1467
Flt Permitted	0.95	1.00		0.95	1.00	0.95		1.00		0.95	1.00	1.00
Satd. Flow (perm)	3400	3458		1805	3435	3367		1717		1736	1542	1467
Volume (vph)	514	844	60	59	622	53	207	78	62	86	81	640
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	541	888	63	62	655	56	218	82	65	91	85	674
RTOR Reduction (vph)	0	4	0	0	5	0	0	29	0	0	70	401
Lane Group Flow (vph)	541	947	0	62	706	0	218	118	0	91	200	88
Confl. Peds. (#/hr)	4		4	4		4	2		3	3		2
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	3%	3%	5%	0%	4%	0%	4%	3%	2%	4%	6%	3%
Turn Type	Prot				Prot		Split		Split		Perm	
Protected Phases	5	2			1	6	8	8		4	4	
Permitted Phases												4
Actuated Green, G (s)	29.8	55.5			5.9	31.6	12.4	12.4		19.2	19.2	19.2
Effective Green, g (s)	29.8	56.0			5.9	32.1	12.4	12.4		19.7	19.7	19.7
Actuated g/C Ratio	0.27	0.51			0.05	0.29	0.11	0.11		0.18	0.18	0.18
Clearance Time (s)	4.0	4.5			4.0	4.5	4.0	4.0		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.3			2.5	4.3	2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	921	1760			97	1002	380	194		311	276	263
v/s Ratio Prot	c0.16	0.27			0.03	c0.21	0.06	c0.07		0.05	c0.13	
v/s Ratio Perm												0.06
v/c Ratio	0.59	0.54			0.64	0.70	0.57	0.61		0.29	0.73	0.33
Uniform Delay, d1	34.8	18.3			51.0	34.7	46.3	46.5		39.1	42.6	39.4
Progression Factor	0.99	1.02			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.9			11.5	4.2	1.7	4.5		0.4	8.6	0.5
Delay (s)	35.2	19.6			62.5	38.9	48.0	50.9		39.5	51.2	40.0
Level of Service	D	B			E	D	D	D		D	D	D
Approach Delay (s)		25.2			40.8		49.2			43.5		
Approach LOS		C			D		D			D		

Intersection Summary			
HCM Average Control Delay	35.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
1: Wilsonville Rd & I-5 SB

Fred Meyer TIA  
Existing + Stage II

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑		↑	↑↑			↑			↑↑	↑	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0						4.0	4.0	
Lane Util. Factor	0.91	1.00	0.91	0.91						0.97	0.88	
Frpb, ped/bikes	1.00	0.99	1.00	1.00						1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00						1.00	1.00	
Frt	1.00	0.85	1.00	1.00						1.00	0.85	
Flt Protected	1.00	1.00	0.95	0.99						0.95	1.00	
Satd. Flow (prot)	4988	1566	1579	3234						3400	2608	
Flt Permitted	1.00	1.00	0.95	0.51						0.95	1.00	
Satd. Flow (perm)	4988	1566	1579	1674						3400	2608	
Volume (vph)	0	1059	675	673	854	0	0	0	0	457	0	572
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1092	696	694	880	0	0	0	0	471	0	590
RTOR Reduction (vph)	0	0	30	0	0	0	0	0	0	0	0	338
Lane Group Flow (vph)	0	1092	666	354	1220	0	0	0	0	471	0	252
Confl. Peds. (#/hr)	3		4	4		3						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	0%	4%	2%	4%	6%	0%	0%	0%	0%	3%	0%	9%
Turn Type	custom				Prot					Prot	custom	
Protected Phases	2	4	1	6					4	4		
Permitted Phases	2				6							
Actuated Green, G (s)	42.0	67.0	31.0	77.0					25.0	25.0		
Effective Green, g (s)	42.0	67.0	31.0	77.0					25.0	25.0		
Actuated g/C Ratio	0.38	0.61	0.28	0.70					0.23	0.23		
Clearance Time (s)	4.0	4.0	4.0	4.0					4.0	4.0		
Lane Grp Cap (vph)	1905	1011	445	1611					773	593		
v/s Ratio Prot	0.22	c0.15	c0.22	0.21					0.14	0.10		
v/s Ratio Perm		0.28		c0.32								
v/c Ratio	0.57	0.66	0.80	0.76					0.61	0.43		
Uniform Delay, d1	26.9	14.0	36.6	10.5					38.1	36.4		
Progression Factor	0.91	1.24	0.01	0.46					1.00	1.00		
Incremental Delay, d2	1.0	2.7	4.7	2.0					3.6	2.2		
Delay (s)	25.6	20.1	5.1	6.9					41.7	38.6		
Level of Service	C	C	A	A					D	D		
Approach Delay (s)	23.5			6.5	0.0				40.0			
Approach LOS	C			A	A				D			
<b>Intersection Summary</b>												
HCM Average Control Delay	21.4			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.72											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)				4.0				
Intersection Capacity Utilization	61.9%			ICU Level of Service				B				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
2: Wilsonville Rd & Boones Ferry Rd

Fred Meyer TIA  
Existing + Stage II

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑↑	↑↑	↑	↑	↑	↑	↑↑	↑	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.99	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	4991		3433	3471	1364	1770	1863	1555	3400	1686	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1719	4991		3433	3471	1364	1770	1863	1555	3400	1686	
Volume (vph)	85	915	26	222	964	240	96	53	218	601	100	95
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	88	943	27	229	994	247	99	55	225	620	103	98
RTOR Reduction (vph)	0	2	0	0	0	117	0	0	20	0	32	0
Lane Group Flow (vph)	88	968	0	229	994	130	99	55	205	620	169	0
Confl. Peds. (#/hr)	7		4	4		7	3		3	3		3
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	5%	3%	19%	2%	4%	14%	2%	2%	3%	3%	1%	6%
Turn Type	Prot		Perm		Split		pm+ov		Split			
Protected Phases	1	6	5		2	4		4	5	8	8	
Permitted Phases	6		2		4							
Actuated Green, G (s)	9.7	45.6	12.2		48.1	48.1	10.8	10.8	23.0	24.4	24.4	
Effective Green, g (s)	9.7	46.6	12.2		49.1	49.1	10.8	10.8	23.0	24.4	24.4	
Actuated g/C Ratio	0.09	0.42	0.11		0.45	0.45	0.10	0.10	0.21	0.22	0.22	
Clearance Time (s)	4.0	5.0	4.0		5.0	5.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	4.3	2.5		0.5	0.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	152	2114	381		1549	609	174	183	325	754	374	
v/s Ratio Prot	0.05	0.19	0.07		c0.29		0.06	0.03	c0.07	c0.18	0.10	
v/s Ratio Perm					0.10				0.06			
v/c Ratio	0.58	0.46	0.60		0.64	0.21	0.57	0.30	0.63	0.82	0.45	
Uniform Delay, d1	48.2	22.7	46.6		23.6	18.6	47.4	46.1	39.6	40.7	37.0	
Progression Factor	1.00	1.00	1.18		0.81	0.48	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	0.7	1.5		1.4	0.5	3.4	0.7	3.5	7.1	0.6	
Delay (s)	52.5	23.4	56.3		20.5	9.5	50.8	46.8	43.1	47.8	37.7	
Level of Service	D	C	E		C	A	D	D	D	D	D	
Approach Delay (s)	25.8		24.3		45.7		45.3					
Approach LOS	C		C		D		D					
<b>Intersection Summary</b>												
HCM Average Control Delay	31.5			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.67											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)				12.0				
Intersection Capacity Utilization	67.7%			ICU Level of Service				C				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
15: Wilsonville Rd & I-5 NB

Fred Meyer TIA  
Existing + Stage II

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕		↔	↕	↕	↔	↕	↕	↔	↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.91	0.91		0.91	1.00	0.97	0.88					
Frpb, ped/bikes	1.00	1.00		1.00	0.99	1.00	1.00					
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00					
Frt	1.00	1.00		1.00	0.85	1.00	0.85					
Flt Protected	0.95	0.99		1.00	1.00	0.95	1.00					
Satd. Flow (prot)	1564	3327		4988	1552	3183	2733					
Flt Permitted	0.95	0.51		1.00	1.00	0.95	1.00					
Satd. Flow (perm)	1564	1707		4988	1552	3183	2733					
Volume (vph)	533	983	0	1212	488	315	0	588	0	0	0	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	573	1057	0	1303	525	339	0	632	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	92	0	246	0	0	0	0	0
Lane Group Flow (vph)	414	1216	0	1303	433	339	0	386	0	0	0	0
Confl. Peds. (#/hr)	4		4	4		4						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	5%	3%	0%	0%	4%	3%	10%	0%	4%	0%	0%	0%
Turn Type	Prot				custom		Prot	custom				
Protected Phases	5	2			6	8	8	8				
Permitted Phases		2				6						
Actuated Green, G (s)	43.0	77.0		30.0	55.0	25.0	25.0	25.0				
Effective Green, g (s)	43.0	77.0		30.0	55.0	25.0	25.0	25.0				
Actuated g/C Ratio	0.39	0.70		0.27	0.50	0.23	0.23	0.23				
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)	611	1828		1360	832	723	621	621				
v/s Ratio Prot	c0.26	0.26		c0.26	0.12	0.11	c0.14	c0.14				
v/s Ratio Perm		0.21			0.16							
v/c Ratio	0.68	0.67		0.96	0.52	0.47	0.62	0.62				
Uniform Delay, d1	27.8	9.3		39.4	18.6	36.8	38.2	38.2				
Progression Factor	0.16	1.15		0.62	1.05	1.00	1.00	1.00				
Incremental Delay, d2	5.2	1.6		11.2	1.4	2.2	4.6	4.6				
Delay (s)	9.8	12.3		35.6	20.8	38.9	42.9	42.9				
Level of Service	A	B		D	C	D	D	D				
Approach Delay (s)		11.6			31.4		41.5			0.0		
Approach LOS		B			C		D			A		
<b>Intersection Summary</b>												
HCM Average Control Delay	26.3		HCM Level of Service				C					
HCM Volume to Capacity ratio	0.75											
Actuated Cycle Length (s)	110.0		Sum of lost time (s)				12.0					
Intersection Capacity Utilization	61.9%		ICU Level of Service				B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
16: Wilsonville Rd & Town Center Lp West

Fred Meyer TIA  
Existing + Stage II

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕		↔	↕	↕	↔	↕	↕	↔	↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95	0.97	1.00	1.00	0.95	0.95	0.95	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00	0.99	1.00	0.99	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99	1.00	0.93	1.00	0.93	1.00	0.89	0.85
Flt Protected	0.95	1.00		0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	3459		1805	3434	3367	1717	1736	1530	1468		
Flt Permitted	0.95	1.00		0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	3459		1805	3434	3367	1717	1736	1530	1468		
Volume (vph)	598	910	63	59	705	63	208	78	62	96	81	787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	629	958	66	62	742	66	219	82	65	101	85	828
RTOR Reduction (vph)	0	4	0	0	6	0	29	0	0	86	419	
Lane Group Flow (vph)	629	1020	0	62	802	0	219	118	0	101	235	173
Confl. Peds. (#/hr)	4		4	4		4	2		3	3		2
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	3%	3%	5%	0%	4%	0%	4%	3%	2%	4%	6%	3%
Turn Type	Prot				Prot		Split		Split		Perm	
Protected Phases	5	2			1	6	8	8	4	4		
Permitted Phases											4	
Actuated Green, G (s)	29.8	52.8		5.2	28.2	12.4	12.4	22.6	22.6	22.6	22.6	22.6
Effective Green, g (s)	29.8	53.3		5.2	28.7	12.4	12.4	23.1	23.1	23.1	23.1	23.1
Actuated g/C Ratio	0.27	0.48		0.05	0.26	0.11	0.11	0.21	0.21	0.21	0.21	0.21
Clearance Time (s)	4.0	4.5		4.0	4.5	4.0	4.0	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.3		2.5	4.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	921	1676		85	896	380	194	365	321	308		
v/s Ratio Prot	c0.19	0.29		0.03	c0.23	0.07	c0.07	0.06	c0.15			
v/s Ratio Perm											0.12	
v/c Ratio	0.68	0.61		0.73	0.90	0.58	0.61	0.28	0.73	0.56		
Uniform Delay, d1	35.9	20.7		51.7	39.2	46.3	46.5	36.4	40.6	38.9		
Progression Factor	1.05	1.08		1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.4	1.2		25.2	13.4	1.7	4.5	0.3	7.9	1.9		
Delay (s)	39.0	23.6		76.9	52.6	48.0	50.9	36.7	48.4	40.8		
Level of Service	D	C		E	D	D	D	D	D	D		
Approach Delay (s)		29.4			54.3		49.2		42.8			
Approach LOS		C			D		D		D			
<b>Intersection Summary</b>												
HCM Average Control Delay	40.3		HCM Level of Service				D					
HCM Volume to Capacity ratio	0.75											
Actuated Cycle Length (s)	110.0		Sum of lost time (s)				16.0					
Intersection Capacity Utilization	78.4%		ICU Level of Service				D					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
1: Wilsonville Rd & I-5 SB

Fred Meyer TIA  
Existing + Project + Stage II

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑	↑	↑	↑↑					↓	↓	↓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0						4.0	4.0	
Lane Util. Factor	0.91	1.00	0.91	0.91						0.97	0.88	
Frpb, ped/bikes	1.00	0.99	1.00	1.00						1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00						1.00	1.00	
Frt	1.00	0.85	1.00	1.00						1.00	0.85	
Flt Protected	1.00	1.00	0.95	0.99						0.95	1.00	
Satd. Flow (prot)	4988	1566	1579	3237						3400	2608	
Flt Permitted	1.00	1.00	0.95	0.51						0.95	1.00	
Satd. Flow (perm)	4988	1566	1579	1670						3400	2608	
Volume (vph)	0	1155	710	673	939	0	0	0	0	457	0	621
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1191	732	694	968	0	0	0	0	471	0	640
RTOR Reduction (vph)	0	0	29	0	0	0	0	0	0	0	0	296
Lane Group Flow (vph)	0	1191	703	374	1288	0	0	0	0	471	0	344
Confl. Peds. (#/hr)	3		4	4		3						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	0%	4%	2%	4%	6%	0%	0%	0%	0%	3%	0%	9%
Turn Type	custom			Prot			Prot			custom		
Protected Phases	2	4	1	6						4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	42.0	67.0	31.0	77.0						25.0	25.0	
Effective Green, g (s)	42.0	67.0	31.0	77.0						25.0	25.0	
Actuated g/C Ratio	0.38	0.61	0.28	0.70						0.23	0.23	
Clearance Time (s)	4.0	4.0	4.0	4.0						4.0	4.0	
Lane Grp Cap (vph)	1905	1011	445	1611						773	593	
v/s Ratio Prot	0.24	c0.16	c0.24	0.23						0.14	0.13	
v/s Ratio Perm		0.29		c0.33								
v/c Ratio	0.63	0.70	0.84	0.80						0.61	0.58	
Uniform Delay, d1	27.6	14.6	37.2	11.2						38.1	37.8	
Progression Factor	0.84	1.33	0.01	0.49						1.00	1.00	
Incremental Delay, d2	1.0	2.6	4.7	2.3						3.6	4.1	
Delay (s)	24.3	22.1	5.1	7.9						41.7	41.9	
Level of Service	C	C	A	A						D	D	
Approach Delay (s)	23.5			7.2			0.0				41.8	
Approach LOS	C			A			A				D	

Intersection Summary			
HCM Average Control Delay	22.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
2: Wilsonville Rd & Boones Ferry Rd

Fred Meyer TIA  
Existing + Project + Stage II

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑	↑	↑	↑	↑	↓	↓	↓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.99	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	
Satd. Flow (prot)	1719	4833		3433	3471	1364	1770	1863	1554	3400	1747	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1719	4833		3433	3471	1364	1770	1863	1554	3400	1747	
Volume (vph)	85	870	127	419	901	240	207	146	394	601	192	95
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	88	897	131	432	929	247	213	151	406	620	198	98
RTOR Reduction (vph)	0	16	0	0	0	131	0	0	19	0	16	0
Lane Group Flow (vph)	88	1012	0	432	929	116	213	151	387	620	280	0
Confl. Peds. (#/hr)	7		4	4		7	3		3	3		3
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	5%	3%	19%	2%	4%	14%	2%	2%	3%	3%	1%	6%
Turn Type	Prot		Prot		Perm		Split		pm+ov		Split	
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6		2				4					
Actuated Green, G (s)	8.1	37.0		16.4	45.3	45.3	15.8	15.8	32.2	23.8	23.8	
Effective Green, g (s)	8.1	38.0		16.4	46.3	46.3	15.8	15.8	32.2	23.8	23.8	
Actuated g/C Ratio	0.07	0.35		0.15	0.42	0.42	0.14	0.14	0.29	0.22	0.22	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	4.3		2.5	0.5	0.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	127	1670		512	1461	574	254	268	455	736	378	
v/s Ratio Prot	0.05	0.21		0.13	c0.27		0.12	0.08	c0.13	c0.18	0.16	
v/s Ratio Perm						0.09			0.12			
v/c Ratio	0.69	0.61		0.84	0.64	0.20	0.84	0.56	0.85	0.84	0.74	
Uniform Delay, d1	49.7	29.8		45.6	25.2	20.2	45.9	43.9	36.6	41.3	40.2	
Progression Factor	1.00	1.00		1.14	0.83	0.49	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.0	1.6		7.2	1.2	0.5	20.5	2.2	14.0	8.5	7.0	
Delay (s)	63.7	31.4		59.4	22.0	10.3	66.4	46.1	50.6	49.8	47.2	
Level of Service	E	C		E	C	B	E	D	D	D	D	
Approach Delay (s)		34.0			30.3			54.1			49.0	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	39.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
15: Wilsonville Rd & I-5 NB

Fred Meyer TIA  
Existing + Project + Stage II

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕		↔	↕	↕	↔	↕	↕	↔	↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91		0.91	1.00	0.97		0.88				
Frpb, ped/bikes	1.00	1.00		1.00	0.99	1.00		1.00				
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00				
Frt	1.00	1.00		1.00	0.85	1.00		0.85				
Flt Protected	0.95	0.99		1.00	1.00	0.95		1.00				
Satd. Flow (prot)	1564	3324		4988	1552	3183		2733				
Flt Permitted	0.95	0.52		1.00	1.00	0.95		1.00				
Satd. Flow (perm)	1564	1734		4988	1552	3183		2733				
Volume (vph)	581	1031	0	0	1261	488	351	0	588	0	0	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	625	1109	0	0	1356	525	377	0	632	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	79	0	0	227	0	0	0
Lane Group Flow (vph)	441	1293	0	0	1356	447	377	0	405	0	0	0
Confl. Peds. (#/hr)	4		4	4		4						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	5%	3%	0%	0%	4%	3%	10%	0%	4%	0%	0%	0%
Turn Type	Prot				custom		Prot		custom			
Protected Phases	5	2			6	8	8		8			
Permitted Phases		2				6						
Actuated Green, G (s)	43.0	77.0			30.0	55.0	25.0		25.0			
Effective Green, g (s)	43.0	77.0			30.0	55.0	25.0		25.0			
Actuated g/C Ratio	0.39	0.70			0.27	0.50	0.23		0.23			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Grp Cap (vph)	611	1835			1360	832	723		621			
v/s Ratio Prot	c0.28	0.28			c0.27	0.12	0.12		c0.15			
v/s Ratio Perm		0.22				0.17						
v/c Ratio	0.72	0.70			1.00	0.54	0.52		0.65			
Uniform Delay, d1	28.4	9.8			40.0	18.8	37.3		38.6			
Progression Factor	0.15	1.11			0.61	1.02	1.00		1.00			
Incremental Delay, d2	6.1	1.9			17.4	1.4	2.7		5.3			
Delay (s)	10.5	12.7			41.8	20.5	39.9		43.8			
Level of Service	B	B			D	C	D		D			
Approach Delay (s)		12.1			35.9		42.4				0.0	
Approach LOS		B			D		D				A	

Intersection Summary			
HCM Average Control Delay	28.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
16: Wilsonville Rd & Town Center Lp West

Fred Meyer TIA  
Existing + Project + Stage II

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕		↔	↕	↕	↔	↕	↕	↔	↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95	0.97		1.00		1.00	0.95	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		0.99		1.00	0.99	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99	1.00		0.93		1.00	0.89	0.85
Flt Protected	0.95	1.00		0.95	1.00	0.95		1.00		0.95	1.00	1.00
Satd. Flow (prot)	3400	3461		1805	3435	3367		1717		1736	1529	1468
Flt Permitted	0.95	1.00		0.95	1.00	0.95		1.00		0.95	1.00	1.00
Satd. Flow (perm)	3400	3461		1805	3435	3367		1717		1736	1529	1468
Volume (vph)	622	934	63	59	729	63	208	78	62	96	81	812
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	655	983	66	62	767	66	219	82	65	101	85	855
RTOR Reduction (vph)	0	4	0	0	5	0	0	29	0	0	88	415
Lane Group Flow (vph)	655	1045	0	62	828	0	219	118	0	101	243	194
Confl. Peds. (#/hr)	4		4	4		4	2		3	3		2
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	3%	3%	5%	0%	4%	0%	4%	3%	2%	4%	6%	3%
Turn Type	Prot				Prot		Split		Split		Perm	
Protected Phases	5	2			1	6	8	8		4	4	
Permitted Phases												4
Actuated Green, G (s)	29.8	52.2			4.9	27.3	12.4	12.4		23.5	23.5	23.5
Effective Green, g (s)	29.8	52.7			4.9	27.8	12.4	12.4		24.0	24.0	24.0
Actuated g/C Ratio	0.27	0.48			0.04	0.25	0.11	0.11		0.22	0.22	0.22
Clearance Time (s)	4.0	4.5			4.0	4.5	4.0	4.0		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.3			2.5	4.3	2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	921	1658			80	868	380	194		379	334	320
v/s Ratio Prot	c0.19	0.30			0.03	c0.24	0.07	c0.07		0.06	c0.16	
v/s Ratio Perm												0.13
v/c Ratio	0.71	0.63			0.78	0.95	0.58	0.61		0.27	0.73	0.61
Uniform Delay, d1	36.2	21.4			52.0	40.5	46.3	46.5		35.7	40.0	38.7
Progression Factor	1.05	1.08			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	1.2			35.2	21.2	1.7	4.5		0.3	7.2	2.7
Delay (s)	39.8	24.4			87.2	61.6	48.0	50.9		36.0	47.1	41.5
Level of Service	D	C			F	E	D	D		D	D	D
Approach Delay (s)		30.3			63.4		49.2			42.7		
Approach LOS		C			E		D			D		

Intersection Summary			
HCM Average Control Delay	42.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Fred Meyer TIA - 2008  
PM Peak Hour  
Ex + Proj + Stg II -- Mitigated

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*  
Intersection #138 Boones Ferry Rd/North Fred Meyer's  
\*\*\*\*\*

Average Delay (sec/veh): 2.3 Worst Case Level Of Service: B [ 13.8 ]  
\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0	0	1	1	0	0	0	0	0	0	1	0

Volume Module: >> Count Date:	1 Jul 2008 << PM Peak Hr (4:45 pm)											
Base Vol:	0	516	9	0	669	72	0	0	12	0	0	249
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	516	9	0	669	72	0	0	12	0	0	249
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	0	593	10	0	769	83	0	0	14	0	0	286
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	0	593	10	0	769	83	0	0	14	0	0	286

Critical Gap Module:

Critical Gap:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
	6.9	7.5	6.5	6.9	3.3	3.5	4.0	3.3				

Capacity Module:

Cnflct Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	433	983	1457	307
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	576	206	131	695
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	573	201	130	692
Volume/Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.02	0.00	0.00	0.41

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.4	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	692	xxxxx	
Shared Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	2.0	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	13.8	xxxxx	
Shared LOS:	*	*	*	*	*	*	*	*	*	B	*	*	*
ApproachDel:	xxxxxx			xxxxxx			11.4			13.8			
ApproachLOS:	*			*			B			B			

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Fred Meyer TIA - 2008  
PM Peak Hour  
Ex + Proj + Stg II -- Mitigated

Level Of Service Computation Report  
2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*  
Intersection #253 Boones Ferry Rd/South Fred Meyer's  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.748  
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 20.1  
Optimal Cycle: 0 Level Of Service: C  
\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	1	0	0	0	0	1	0	1	0

Volume Module: >> Count Date:	1 Jul 2008 << PM Peak Hr (4:45 pm)											
Base Vol:	15	207	14	335	283	63	134	12	8	20	12	184
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	207	14	335	283	63	134	12	8	20	12	184
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	17	238	16	385	325	72	154	14	9	23	14	211
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	238	16	385	325	72	154	14	9	23	14	211
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	17	238	16	385	325	72	154	14	9	23	14	211

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.94	0.06	1.00	0.82	0.18	0.87	0.08	0.05	0.63	0.37	1.00
Final Sat.:	453	460	31	515	462	103	389	35	23	274	164	502

Capacity Analysis Module:

Vol/Sat:	0.04	0.52	0.52	0.75	0.70	0.70	0.40	0.40	0.40	0.08	0.08	0.42
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Delay/Veh:	10.6	16.6	16.6	27.0	22.3	22.3	15.3	15.3	15.3	11.2	11.2	14.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.6	16.6	16.6	27.0	22.3	22.3	15.3	15.3	15.3	11.2	11.2	14.0
LOS by Move:	B	C	C	D	C	C	C	C	C	B	B	B
ApproachDel:	16.2			24.6			15.3			13.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	16.2			24.6			15.3			13.6		
LOS by Appr:	C			C			C			B		
AllWayAvgQ:	0.0	0.9	0.9	2.5	2.1	2.1	0.6	0.6	0.6	0.1	0.1	0.6

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Existing + Proj + Stg2 Tue Jul 22, 2008 14:18:22 Page 3-1

Fred Meyer TIA - 2008  
PM Peak Hour  
Ex + Proj + Stg II -- Mitigated

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #189 Boones Ferry Rd/Bailey St  
\*\*\*\*\*

Average Delay (sec/veh): 5.2 Worst Case Level Of Service: C[ 17.0]  
\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0	0	1	0	0	1	0	0	1	0	0	1

Volume Module: >> Count Date: 24 Jun 2008 << PM Peak (some factoring up)

Base Vol:	1	143	1	40	111	4	5	0	3	8	0	32
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	143	1	40	111	4	5	0	3	8	0	32
Added Vol:	0	16	4	133	18	3	3	0	0	4	0	45
FM:	0	-24	21	9	-18	0	0	0	0	18	0	9
Initial Fut:	1	135	26	182	111	7	8	0	3	30	0	86
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	1	155	30	209	128	8	9	0	3	34	0	99
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	155	30	209	128	8	9	0	3	34	0	99

Critical Gap Module:

Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3

Capacity Module:

Cnflct Vol:	136	xxxx	xxxxx	185	xxxx	xxxxx	772	737	132	724	726	170
Potent Cap.:	1430	xxxx	xxxxx	1378	xxxx	xxxxx	319	348	923	344	353	879
Move Cap.:	1430	xxxx	xxxxx	1378	xxxx	xxxxx	250	295	923	302	299	879
Volume/Cap:	0.00	xxxx	xxxxx	0.15	xxxx	xxxxx	0.04	0.00	0.00	0.11	0.00	0.11

Level Of Service Module:

2Way95thQ:	0.0	xxxx	xxxxx	0.5	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx
Control Del:	7.5	xxxx	xxxxx	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	18.4	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	C	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	312	xxxxx	xxxx	xxxx	879
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	0.4
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	17.0	xxxxx	xxxxx	xxxx	9.6
Shared LOS:	*	*	*	*	*	*	*	C	*	*	*	A
ApproachDel:	xxxxxx		xxxxxx				17.0			11.9		
ApproachLOS:	*		*				C			B		

\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*



HCM Signalized Intersection Capacity Analysis  
253: Freds South Access & Boones Ferry Rd Existing + Project + Stage II -- Mitigated Fred Meyer TIA

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0				4.0		4.0		4.0		4.0	
Lane Util. Factor	1.00				1.00		1.00		1.00		1.00	
Frt	0.99				1.00		0.85		1.00		0.99	
Flt Protected	0.96				0.97		1.00		0.95		1.00	
Satd. Flow (prot)	1790				1824		1599		1787		1830	
Flt Permitted	0.73				0.84		1.00		0.54		1.00	
Satd. Flow (perm)	1362				1587		1599		1012		1864	
Volume (vph)	134	12	8	20	12	184	15	207	14	335	283	63
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	146	13	9	22	13	200	16	225	15	364	308	68
RTOR Reduction (vph)	0	2	0	0	0	58	0	3	0	0	5	0
Lane Group Flow (vph)	0	166	0	0	35	142	16	237	0	364	371	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		Perm		pm+ov		pm+pt		pm+pt			
Protected Phases	4				8		1		5		2	
Permitted Phases	4		8		8		2		6			
Actuated Green, G (s)	19.6				19.6		78.1		22.4		19.9	
Effective Green, g (s)	19.6				19.6		78.1		22.4		19.9	
Actuated g/C Ratio	0.18				0.18		0.71		0.20		0.18	
Clearance Time (s)	4.0				4.0		4.0		4.0		4.0	
Vehicle Extension (s)	3.0				3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)	243				283		1193		224		337	
v/s Ratio Prot					0.06		0.00		c0.13		c0.18	
v/s Ratio Perm	c0.12				0.02		0.03		0.01		0.08	
v/c Ratio	0.68				0.12		0.12		0.07		0.70	
Uniform Delay, d1	42.3				38.0		5.1		35.4		42.3	
Progression Factor	1.00				1.00		1.00		1.00		1.55	
Incremental Delay, d2	7.7				0.2		0.0		0.1		6.5	
Delay (s)	50.1				38.2		5.1		35.6		48.8	
Level of Service	D				D		A		D		A	
Approach Delay (s)	50.1				10.0				47.9		10.4	
Approach LOS	D				B				D		B	
<b>Intersection Summary</b>												
HCM Average Control Delay	22.0		HCM Level of Service		C							
HCM Volume to Capacity ratio	0.49											
Actuated Cycle Length (s)	110.0		Sum of lost time (s)		12.0							
Intersection Capacity Utilization	55.5%		ICU Level of Service		B							
Analysis Period (min)	15											
c Critical Lane Group												

# **HCM Intersection Analysis - Saturday**

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HCM Signalized Intersection Capacity Analysis  
1: Wilsonville Rd & I-5 SB

WV Fred Meyer TIA  
Existing -- Saturday

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑					↓	↓	↓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0						4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	1.00	0.95					0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00						1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00						0.95	0.95	1.00
Satd. Flow (prot)	2600	1494	1920	3539						1640	1640	1538
Flt Permitted	1.00	1.00	0.95	1.00						0.95	0.95	1.00
Satd. Flow (perm)	2600	1494	1920	3539						1640	1640	1538
Volume (vph)	0	654	246	386	526	0	0	0	0	444	1	295
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	711	267	420	572	0	0	0	0	483	1	321
RTOR Reduction (vph)	0	0	154	0	0	0	0	0	0	0	0	260
Lane Group Flow (vph)	0	711	113	420	572	0	0	0	0	242	242	61
Confl. Peds. (#/hr)			7	7								
Heavy Vehicles (%)	0%	2%	4%	1%	2%	0%	0%	0%	0%	1%	0%	5%
Turn Type		Perm	Prot							Perm	Perm	
Protected Phases		2	1	6							4	
Permitted Phases			2							4		4
Actuated Green, G (s)		42.4	42.4	26.6	73.0					19.0	19.0	19.0
Effective Green, g (s)		42.4	42.4	26.6	73.0					19.0	19.0	19.0
Actuated g/C Ratio		0.42	0.42	0.27	0.73					0.19	0.19	0.19
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1102	633	511	2583					312	312	292
v/s Ratio Prot		c0.27		c0.22	0.16							
v/s Ratio Perm			0.08							c0.15	0.15	0.04
v/c Ratio		0.65	0.18	0.82	0.22					0.78	0.78	0.21
Uniform Delay, d1		22.8	17.9	34.5	4.3					38.5	38.5	34.2
Progression Factor		0.79	0.67	0.41	0.43					1.00	1.00	1.00
Incremental Delay, d2		2.6	0.6	8.4	0.2					10.8	10.8	0.2
Delay (s)		20.6	12.6	22.6	2.0					49.3	49.3	34.4
Level of Service		C	B	C	A					D	D	C
Approach Delay (s)		18.4			10.7			0.0			43.3	
Approach LOS		B			B			A			D	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
2: Wilsonville Rd & Boones Ferry Rd

WV Fred Meyer TIA  
Existing -- Saturday

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↓	↑↑	↑	↓	↑↑	↑	↓	↓	↓	↓	↓	↓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.87		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3030		1770	3240	1484	1752	1580		3400	1629	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3030		1770	3240	1484	1752	1580		3400	1629	
Volume (vph)	55	574	21	150	536	135	29	22	158	168	47	40
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	57	598	22	156	558	141	30	23	165	175	49	42
RTOR Reduction (vph)	0	2	0	0	0	0	0	86	0	0	35	0
Lane Group Flow (vph)	57	618	0	156	558	141	30	102	0	175	56	0
Confl. Peds. (#/hr)	12		2	2	12	1		7	7		1	
Heavy Vehicles (%)	2%	3%	0%	2%	4%	6%	3%	9%	1%	4%	6%	10%
Turn Type		Prot		Prot	Free	Split		Split		Split		
Protected Phases		1	6	5	2		4	4		8	8	
Permitted Phases			6		Free							
Actuated Green, G (s)		6.1	41.0	11.7	46.6	100.0	12.1	12.1		10.2	10.2	
Effective Green, g (s)		8.1	44.0	13.7	49.6	100.0	14.1	14.1		12.2	12.2	
Actuated g/C Ratio		0.08	0.44	0.14	0.50	1.00	0.14	0.14		0.12	0.12	
Clearance Time (s)		6.0	7.0	6.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		143	1333	242	1607	1484	247	223		415	199	
v/s Ratio Prot		0.03	c0.20	c0.09	0.17		0.02	c0.06		c0.05	0.03	
v/s Ratio Perm					0.10							
v/c Ratio		0.40	0.46	0.64	0.35	0.10	0.12	0.46		0.42	0.28	
Uniform Delay, d1		43.6	19.7	40.8	15.3	0.0	37.5	39.4		40.6	39.9	
Progression Factor		1.00	1.00	1.06	0.53	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.8	1.2	5.5	0.6	0.1	0.2	1.5		0.7	0.8	
Delay (s)		45.5	20.9	48.8	8.7	0.1	37.8	40.9		41.3	40.7	
Level of Service		D	C	D	A	A	D	D		D	D	
Approach Delay (s)		22.9		14.6			40.5			41.1		
Approach LOS		C		B			D			D		

Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
15: Wilsonville Rd & I-5 NB

WV Fred Meyer TIA  
Existing -- Saturday

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗		↘	↗		↘	↗		↘	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		0.95	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.94		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.85		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		1.00	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2000	3574		2700	1380		1650	1760		1650	1760	
Flt Permitted	0.95	1.00		1.00	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2000	3574		2700	1380		1650	1760		1650	1760	
Volume (vph)	278	820	0	0	747	461	165	2	422	0	0	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	299	882	0	0	803	496	177	2	454	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	242	0	0	340	0	0	0
Lane Group Flow (vph)	299	882	0	0	803	254	0	179	114	0	0	0
Confl. Peds. (#/hr)	12		15	15		12	4					4
Heavy Vehicles (%)	4%	1%	0%	0%	2%	2%	4%	0%	3%	0%	0%	0%
Turn Type	Prot		Perm				Perm		Perm			
Protected Phases	5		2		6		8		8		8	
Permitted Phases	2						6		8		8	
Actuated Green, G (s)	21.9	77.1			51.2	51.2		14.9	14.9			
Effective Green, g (s)	21.9	77.1			51.2	51.2		14.9	14.9			
Actuated g/C Ratio	0.22	0.77			0.51	0.51		0.15	0.15			
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Vehicle Extension (s)	2.3	4.9			4.9	4.9		2.3	2.3			
Lane Grp Cap (vph)	438	2756			1382	707		246	262			
v/s Ratio Prot	c0.15	0.25			c0.30							
v/s Ratio Perm						0.18		0.11	0.06			
v/c Ratio	0.68	0.32			0.58	0.36		0.73	0.43			
Uniform Delay, d1	35.9	3.5			16.9	14.6		40.6	38.7			
Progression Factor	0.27	0.27			0.61	0.42		1.00	1.00			
Incremental Delay, d2	2.9	0.2			1.2	1.0		9.3	0.7			
Delay (s)	12.7	1.2			11.5	7.1		49.9	39.4			
Level of Service	B	A			B	A		D	D			
Approach Delay (s)		4.1			9.9			42.4			0.0	
Approach LOS		A			A			D			A	
<b>Intersection Summary</b>												
HCM Average Control Delay	14.3		HCM Level of Service				B					
HCM Volume to Capacity ratio	0.63											
Actuated Cycle Length (s)	100.0		Sum of lost time (s)				12.0					
Intersection Capacity Utilization	64.4%		ICU Level of Service				C					
Analysis Period (min)	15											
c Critical Lane Group												

TSP AMENDMENT ATTACHMENT H (Received 4/13/2016)

WV Fred Meyer TIA Saturday Peak Hour Existing Conditions

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #138 Boones Ferry Rd/North Fred Meyer's

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B [ 10.2]

Approach: North Bound South Bound East Bound West Bound Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign Rights: Include Include Include Include Lanes: 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0

Volume Module: Base Vol: 1 111 0 0 108 37 42 0 3 0 0 0 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 1 111 0 0 108 37 42 0 3 0 0 0 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 PHF Adj: 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93

Critical Gap Module: Critical Gp: 4.1 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.4 6.5 6.2 xxxxxx xxxxxx xxxxxx FollowUpTim: 2.2 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.5 4.0 3.3 xxxxxx xxxxxx xxxxxx

Capacity Module: Cnflct Vol: 156 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 258 258 136 xxxxx xxxxx xxxxxx Potent Cap.: 1436 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 736 650 918 xxxxx xxxxx xxxxxx

Level Of Service Module: 2Way95thQ: 0.0 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx Control Del: 7.5 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx LOS by Move: A \* \* \* \* \* Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Note: Queue reported is the number of cars per lane.

WV Fred Meyer TIA Saturday Peak Hour Existing Conditions

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #253 Boones Ferry Rd/South Fred Meyer's

Average Delay (sec/veh): 2.6 Worst Case Level Of Service: A [ 9.8]

Approach: North Bound South Bound East Bound West Bound Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign Rights: Include Include Include Include Lanes: 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0

Volume Module: Base Vol: 6 60 0 0 74 37 53 0 4 0 0 0 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 6 60 0 0 74 37 53 0 4 0 0 0 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 PHF Adj: 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91

Critical Gap Module: Critical Gp: 4.1 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.4 6.5 6.2 xxxxxx xxxxxx xxxxxx FollowUpTim: 2.2 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.5 4.0 3.3 xxxxxx xxxxxx xxxxxx

Capacity Module: Cnflct Vol: 122 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 181 181 102 xxxxx xxxxx xxxxxx Potent Cap.: 1478 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 813 717 959 xxxxx xxxxx xxxxxx

Level Of Service Module: 2Way95thQ: 0.0 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx Control Del: 7.4 xxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx LOS by Move: A \* \* \* \* \* Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Note: Queue reported is the number of cars per lane.

HCM Signalized Intersection Capacity Analysis

Fred Meyer TIA

1: Wilsonville Rd & I-5 SB

Existing + Project -- Saturday (6-Lane Enhanced)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	↑↑↑	↑	↘	↘	↙	↙	↙	↙	↙	↘	↘	↘			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Total Lost time (s)	4.0	4.0	4.0	4.0						4.0	4.0				
Lane Util. Factor	0.91	1.00	0.91	0.91						0.97	0.88				
Frpb, ped/bikes	1.00	0.99	1.00	1.00						1.00	1.00				
Flpb, ped/bikes	1.00	1.00	1.00	1.00						1.00	1.00				
Frt	1.00	0.85	1.00	1.00						1.00	0.85				
Flt Protected	1.00	1.00	0.95	0.99						0.95	1.00				
Satd. Flow (prot)	5085	1538	1626	3367						3467	2707				
Flt Permitted	1.00	1.00	0.95	0.57						0.95	1.00				
Satd. Flow (perm)	5085	1538	1626	1943						3467	2707				
Volume (vph)	0	785	294	386	640	0	0	0	0	444	0	362			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	0	853	320	420	696	0	0	0	0	483	0	393			
RTOR Reduction (vph)	0	0	96	0	0	0	0	0	0	0	0	271			
Lane Group Flow (vph)	0	853	224	277	839	0	0	0	0	483	0	122			
Confl. Peds. (#/hr)			7	7											
Heavy Vehicles (%)	0%	2%	4%	1%	2%	0%	0%	0%	0%	1%	0%	5%			
Turn Type	custom			Prot						Prot			custom		
Protected Phases	2		4	1	6						4		4		
Permitted Phases	2			6						4			4		
Actuated Green, G (s)	26.0		57.0	31.0	61.0						31.0		31.0		
Effective Green, g (s)	26.0		57.0	31.0	61.0						31.0		31.0		
Actuated g/C Ratio	0.26		0.57	0.31	0.61						0.31		0.31		
Clearance Time (s)	4.0		4.0	4.0	4.0						4.0		4.0		
Lane Grp Cap (vph)	1322		938	504	1627						1075		839		
v/s Ratio Prot	c0.17		0.07	c0.17	0.16						c0.14		0.05		
v/s Ratio Perm			0.07	0.15											
v/c Ratio	0.65		0.24	0.55	0.52						0.45		0.15		
Uniform Delay, d1	32.9		10.7	28.7	11.1						27.7		24.9		
Progression Factor	0.97		1.19	0.10	0.26						1.00		1.00		
Incremental Delay, d2	2.2		0.5	3.7	1.1						1.4		0.4		
Delay (s)	34.1		13.2	6.4	3.9						29.0		25.3		
Level of Service	C		B	A	A						C		C		
Approach Delay (s)	28.4		4.5			0.0						27.3			
Approach LOS	C		A			A						C			
<b>Intersection Summary</b>															
HCM Average Control Delay	19.7		HCM Level of Service			B									
HCM Volume to Capacity ratio	0.54														
Actuated Cycle Length (s)	100.0		Sum of lost time (s)			12.0									
Intersection Capacity Utilization	44.4%		ICU Level of Service			A									
Analysis Period (min)	15														

HCM Signalized Intersection Capacity Analysis

Fred Meyer TIA

2: Wilsonville Rd & Boones Ferry Rd

Existing + Project -- Saturday (6-Lane Enhanced)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	↘	↑↑↑	↘	↘	↑↑	↘	↘	↘	↘	↘	↘	↘		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lane Util. Factor	1.00	0.91	0.97	0.95	1.00	1.00	1.00	1.00	1.00	0.97	1.00			
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.99	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt	1.00	0.96	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	1.00			
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	1770	4874	3433	3471	1452	1752	1743	1581	3367	1725				
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	1770	4874	3433	3471	1452	1752	1743	1581	3367	1725				
Volume (vph)	55	510	158	421	446	135	186	151	401	168	176	40		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		
Adj. Flow (vph)	57	531	165	439	465	141	194	157	418	175	183	42		
RTOR Reduction (vph)	0	49	0	0	0	75	0	0	143	0	8	0		
Lane Group Flow (vph)	57	647	0	439	465	66	194	157	275	175	217	0		
Confl. Peds. (#/hr)	12	2	2	2	12	1	7	7	7	7	1			
Heavy Vehicles (%)	2%	3%	0%	2%	4%	6%	3%	9%	1%	4%	6%	10%		
Turn Type	Prot		Prot		Perm		Split		pm+ov		Split			
Protected Phases	1		6		5		2		4		4			
Permitted Phases	6		6		2		2		4		4			
Actuated Green, G (s)	6.4		35.2		16.9		45.7		14.5		14.5			
Effective Green, g (s)	6.4		36.2		16.9		46.7		14.5		14.5			
Actuated g/C Ratio	0.06		0.36		0.17		0.47		0.14		0.14			
Clearance Time (s)	4.0		5.0		4.0		5.0		4.0		4.0			
Vehicle Extension (s)	2.5		4.3		2.5		0.5		2.5		2.5			
Lane Grp Cap (vph)	113		1764		580		1621		678		254			
v/s Ratio Prot	0.03		c0.13		c0.13		0.13		c0.11		0.09			
v/s Ratio Perm							0.05				0.08			
v/c Ratio	0.50		0.37		0.76		0.29		0.10		0.76			
Uniform Delay, d1	45.3		23.5		39.6		16.4		14.9		41.1			
Progression Factor	1.00		1.00		1.21		0.86		0.80		1.00			
Incremental Delay, d2	2.6		0.6		4.8		0.4		0.3		12.2			
Delay (s)	47.8		24.1		52.8		14.5		12.1		53.3			
Level of Service	D		C		D		B		B		D			
Approach Delay (s)	25.9				30.3				38.6		45.0			
Approach LOS	C				C				D		D			
<b>Intersection Summary</b>														
HCM Average Control Delay	33.3		HCM Level of Service			C								
HCM Volume to Capacity ratio	0.59													
Actuated Cycle Length (s)	100.0		Sum of lost time (s)			16.0								
Intersection Capacity Utilization	68.2%		ICU Level of Service			C								
Analysis Period (min)	15													

HCM Signalized Intersection Capacity Analysis

Fred Meyer TIA

15: Wilsonville Rd & I-5 NB

Existing + Project -- Saturday (6-Lane Enhanced)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘	↕	↗	↘	↕	↗	↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	0.91	0.91			0.91	1.00	0.97		0.88			
Frpb, ped/bikes	1.00	1.00			1.00	0.99	1.00		1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1579	3406			5085	1561	3367		2760			
Flt Permitted	0.95	0.85			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1579	2888			5085	1561	3367		2760			
Volume (vph)	344	885	0	0	813	461	213	0	422	0	0	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	370	952	0	0	874	496	229	0	454	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	109	0	0	243	0	0	0
Lane Group Flow (vph)	305	1017	0	0	874	387	229	0	211	0	0	0
Confl. Peds. (#/hr)	12		15	15		12	4					4
Heavy Vehicles (%)	4%	1%	0%	0%	2%	2%	4%	0%	3%	0%	0%	0%
Turn Type	Prot		custom				Prot		custom			
Protected Phases	5	2			6	8	8		8			
Permitted Phases		2				6						
Actuated Green, G (s)	31.0	66.0			31.0	57.0	26.0		26.0			
Effective Green, g (s)	31.0	66.0			31.0	57.0	26.0		26.0			
Actuated g/C Ratio	0.31	0.66			0.31	0.57	0.26		0.26			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Grp Cap (vph)	489	2067			1576	952	875		718			
v/s Ratio Prot	c0.19	0.15			c0.17	c0.11	0.07		0.08			
v/s Ratio Perm		0.17				0.14						
v/c Ratio	0.62	0.49			0.55	0.41	0.26		0.29			
Uniform Delay, d1	29.5	8.6			28.7	12.0	29.4		29.6			
Progression Factor	0.07	0.37			1.00	1.00	1.00		1.00			
Incremental Delay, d2	4.5	0.7			1.4	1.3	0.7		1.0			
Delay (s)	6.5	3.9			30.2	13.3	30.1		30.7			
Level of Service	A	A			C	B	C		C			
Approach Delay (s)		4.5			24.1		30.5				0.0	
Approach LOS		A			C		C				A	
<b>Intersection Summary</b>												
HCM Average Control Delay		17.7			HCM Level of Service				B			
HCM Volume to Capacity ratio		0.52										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)				8.0			
Intersection Capacity Utilization		44.4%			ICU Level of Service				A			
Analysis Period (min)		15										

c Critical Lane Group

Fred Meyer TIA - 2008  
 Saturday Peak Hour  
 Existing + Project -- Mitigated

Level Of Service Computation Report  
 2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #138 Boones Ferry Rd/North Fred Meyer's  
 \*\*\*\*\*

Average Delay (sec/veh): 3.0 Worst Case Level Of Service: B[ 13.5]  
 \*\*\*\*\*

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 0 1 1 0	0 0 1 1 0	0 0 0 0 1	0 0 0 0 1

Volume Module:

	North Bound	South Bound	East Bound	West Bound
Base Vol:	0 415 12	0 694 37	0 0 3	0 0 323
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	0 415 12	0 694 37	0 0 3	0 0 323
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.93 0.93 0.93	0.93 0.93 0.93	0.93 0.93 0.93	0.93 0.93 0.93
PHF Volume:	0 446 13	0 746 40	0 0 3	0 0 347
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0
FinalVolume:	0 446 13	0 746 40	0 0 3	0 0 347

Critical Gap Module:

Critical Gp:	xxxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx

Capacity Module:

Cnflct Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
ApproachLOS:	*	*	*	*	*	*	*	*	*	*	*	*

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Fred Meyer TIA - 2008  
 Saturday Peak Hour  
 Existing + Project -- Mitigated

Level Of Service Computation Report  
 2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #253 Boones Ferry Rd/South Fred Meyer's  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.880  
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 22.7  
 Optimal Cycle: 0 Level Of Service: C  
 \*\*\*\*\*

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 1 0 0 1

Volume Module:

	North Bound	South Bound	East Bound	West Bound
Base Vol:	7 93 18	435 225 37	95 16 4	26 16 239
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	7 93 18	435 225 37	95 16 4	26 16 239
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.91 0.91 0.91	0.91 0.91 0.91	0.91 0.91 0.91	0.91 0.91 0.91
PHF Volume:	8 102 20	478 247 41	104 18 4	29 18 263
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	8 102 20	478 247 41	104 18 4	29 18 263
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	8 102 20	478 247 41	104 18 4	29 18 263

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.84	0.16	1.00	0.86	0.14	0.83	0.14	0.03	0.62	0.38	1.00
Final Sat.:	456	415	80	543	510	84	387	65	16	292	180	545

Capacity Analysis Module:

Vol/Sat:	0.02	0.25	0.25	0.88	0.48	0.48	0.27	0.27	0.27	0.10	0.10	0.48
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Delay/Veh:	10.3	11.6	11.6	39.3	14.1	14.1	12.9	12.9	12.9	10.8	10.8	14.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.3	11.6	11.6	39.3	14.1	14.1	12.9	12.9	12.9	10.8	10.8	14.4
LOS by Move:	B	B	B	E	B	B	B	B	B	B	B	B
ApproachDel:	11.6			29.8			12.9			13.8		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	11.6			29.8			12.9			13.8		
LOS by Appr:	B			D			B			B		
AllWayAvgQ:	0.0	0.3	0.3	4.5	0.9	0.9	0.3	0.3	0.3	0.1	0.1	0.8

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*



HCM Signalized Intersection Capacity Analysis  
253: Freds South Access & Boones Ferry Rd Existing + Project -- Saturday (mitigated) Fred Meyer TIA

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0				4.0		4.0		4.0		4.0	
Lane Util. Factor	1.00				1.00		1.00		1.00		1.00	
Frbp, ped/bikes	1.00				1.00		1.00		0.99		1.00	
Flpb, ped/bikes	1.00				1.00		1.00		1.00		0.99	
Frt	1.00				1.00		0.85		1.00		0.98	
Flt Protected	0.96				0.97		1.00		0.95		1.00	
Satd. Flow (prot)	1787				1843		1615		1805		1794	
Flt Permitted	0.73				0.83		1.00		0.58		1.00	
Satd. Flow (perm)	1360				1582		1615		1108		1794	
Volume (vph)	95	16	4	26	16	239	7	93	18	435	225	37
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	104	18	4	29	18	263	8	102	20	478	247	41
RTOR Reduction (vph)	0	3	0	0	0	163	0	12	0	0	8	0
Lane Group Flow (vph)	0	123	0	0	47	100	8	110	0	478	280	0
Confl. Peds. (#/hr)										9	9	
Confl. Bikes (#/hr)										1		
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	0%	4%	0%
Turn Type	Perm		Perm		pm+ov		pm+pt		pm+pt			
Protected Phases	4				8		1		5		2	
Permitted Phases	4		8		8		2		6			
Actuated Green, G (s)	8.2				8.2		19.1		20.1		18.9	
Effective Green, g (s)	8.2				8.2		19.1		20.1		18.9	
Actuated g/C Ratio	0.16				0.16		0.38		0.40		0.38	
Clearance Time (s)	4.0				4.0		4.0		4.0		4.0	
Vehicle Extension (s)	3.0				3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)	223				259		746		462		678	
v/s Ratio Prot					0.03		0.00		0.06		c0.12	
v/s Ratio Perm	c0.09				0.03		0.03		0.01		c0.25	
v/c Ratio	0.55				0.18		0.13		0.02		0.16	
Uniform Delay, d1	19.2				18.0		10.1		9.0		10.3	
Progression Factor	1.00				1.00		1.00		1.00		2.03	
Incremental Delay, d2	3.0				0.3		0.1		0.0		0.5	
Delay (s)	22.2				18.3		10.1		9.0		10.8	
Level of Service	C				B		B		A		B	
Approach Delay (s)	22.2				11.4				10.7		7.7	
Approach LOS	C				B				B		A	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

# Queuing Analysis

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Fred Meyer TIA

Existing + Project + Stage II -- Mitigated  
8/14/2008

Intersection: 1: Wilsonville Rd & I-5 SB

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	LT	T	L	L	R	R	R	R
Maximum Queue (ft)	308	343	329	374	511	521	471	310	287	352	306		
Average Queue (ft)	190	221	167	159	247	356	201	163	162	142	107		
95th Queue (ft)	259	289	232	287	459	578	431	254	250	247	206		
Link Distance (ft)		474	474	474	406	406	406		1182				
Upstream Blk Time (%)					0	3	1						
Queuing Penalty (veh)					2	17	4						
Storage Bay Dist (ft)	350							400		400	400		
Storage Blk Time (%)		0											
Queuing Penalty (veh)		0											

Intersection: 2: Wilsonville Rd & Boones Ferry Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	R	L	T	R	R
Maximum Queue (ft)	173	328	576	539	295	440	512	491	220	291	410	402	
Average Queue (ft)	92	224	217	238	176	156	252	271	89	180	119	141	
95th Queue (ft)	169	302	402	454	269	278	420	450	260	288	240	275	
Link Distance (ft)		1279	1279				474	474			329	329	
Upstream Blk Time (%)							1	1			1	2	
Queuing Penalty (veh)							6	11			3	6	
Storage Bay Dist (ft)	450			500	400	400			180	325			
Storage Blk Time (%)				1			1	14	0		1		
Queuing Penalty (veh)				3			5	35	0		1		

Intersection: 2: Wilsonville Rd & Boones Ferry Rd

Movement	SB	SB	SB
Directions Served	L	L	TR
Maximum Queue (ft)	380	329	474
Average Queue (ft)	228	187	205
95th Queue (ft)	327	306	349
Link Distance (ft)		1018	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	600	600	
Storage Blk Time (%)			
Queuing Penalty (veh)			

5 Run Summary

SimTraffic Report  
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DKS Associates

Fred Meyer TIA

Existing + Project + Stage II -- Mitigated  
8/14/2008

Intersection: 15: Wilsonville Rd & I-5 NB

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	LT	T	T	T	T	R	L	L	R	R
Maximum Queue (ft)	422	474	498	569	578	609	330	232	267	235	194
Average Queue (ft)	242	346	245	340	390	348	138	115	133	154	80
95th Queue (ft)	511	556	497	499	559	588	324	196	220	236	150
Link Distance (ft)	406	406	406		587	587		1123			
Upstream Blk Time (%)	0	4	0	0	0	1					
Queuing Penalty (veh)	1	20	1	0	0	12					
Storage Bay Dist (ft)				677			300	360		360	360
Storage Blk Time (%)				0	0	8	0				
Queuing Penalty (veh)				0	0	37	0				

Intersection: 16: Wilsonville Rd & Town Center Lp West

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	TR	L	T	TR	L	L	TR	L	TR
Maximum Queue (ft)	337	370	354	328	129	459	503	144	154	227	110	678
Average Queue (ft)	228	243	212	222	60	297	305	84	94	113	80	443
95th Queue (ft)	314	338	307	321	102	439	443	123	156	204	142	661
Link Distance (ft)			587	587		864	864			869		1233
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	450	450			100			115	115		80	
Storage Blk Time (%)					5	44		3	4	11	14	70
Queuing Penalty (veh)					17	26		4	6	23	69	67

Intersection: 16: Wilsonville Rd & Town Center Lp West

Movement	SB
Directions Served	R
Maximum Queue (ft)	575
Average Queue (ft)	367
95th Queue (ft)	574
Link Distance (ft)	1233
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

5 Run Summary

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Fred Meyer TIA

Existing + Project + Stage II -- Mitigated  
8/14/2008

Intersection: 138: Freds North Access & Boones Ferry Rd

Movement	EB	WB	NB
Directions Served	R	R	T
Maximum Queue (ft)	34	129	46
Average Queue (ft)	11	68	2
95th Queue (ft)	36	112	16
Link Distance (ft)	262	339	202
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 189: Bailey & Boones Ferry Rd

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	L
Maximum Queue (ft)	46	160	29	104
Average Queue (ft)	11	59	1	26
95th Queue (ft)	37	112	10	69
Link Distance (ft)	215	370	435	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			250	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 253: Freds South Access & Boones Ferry Rd

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	240	81	111	28	389	265	194
Average Queue (ft)	116	21	45	9	192	89	47
95th Queue (ft)	193	61	98	28	325	209	116
Link Distance (ft)	238	387	387		374	202	202
Upstream Blk Time (%)	1				0	1	0
Queuing Penalty (veh)	0				0	4	0
Storage Bay Dist (ft)				100			
Storage Blk Time (%)					30		
Queuing Penalty (veh)					5		

Network Summary

Network wide Queuing Penalty: 387
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# Warrant Analysis

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## Peak Hour Traffic Signal Warrant Analysis

Project: Wilsonville Fred Meyer TIA

### PM Peak Hour -- Existing + Stage II + Project (Mitigated Boones Ferry Road Cross-section)

Int #	Major (N-S, E-W)	Minor (N,S, E,W)	Intersection	Urban (1) or Rural (2)*	Major Street Lanes (1 or 2)	Minor Street Lanes (1 or 2)	Major Volume	Minor TH and LT Volume	Minor RT Volume	RT Reduction	Minor Volume	Warrant Volume	Warrant Met?
326	N-S	E	South acces to Boones Ferry Rd	1	2	1	917	146	8	0.00	154	323	No
326	N-S	W	South acces to Boones Ferry Rd	1	2	1	917	32	184	0.00	216	323	No
327	N-S	E	Boones Ferry Rd & Bailey St	1	2	1	472	8	3	0.00	11	9999	No
327	N-S	W	Boones Ferry Rd & Bailey St	1	2	1	472	30	94	0.00	124	9999	No

### Saturday Peak Hour -- Existing + Project (Mitigated Boones Ferry Road Cross-section)

Int #	Major (N-S, E-W)	Minor (N,S, E,W)	Intersection	Urban (1) or Rural (2)*	Major Street Lanes (1 or 2)	Minor Street Lanes (1 or 2)	Major Volume	Minor TH and LT Volume	Minor RT Volume	RT Reduction	Minor Volume	Warrant Volume	Warrant Met?
336	N-S	E	South acces to Boones Ferry Rd	1	2	1	820	62	4	0.00	66	361	No
336	N-S	W	South acces to Boones Ferry Rd	1	2	1	820	42	239	0.00	281	361	No

\*Use Rural analysis for speeds on Major Street above 40 mph or in communities with less than 10,000 population

### PM Peak Hour -- Existing + Stage II + Project + Retail Development South of Fred's (Mitigated Boones Ferry Road Cross-section)

Int #	Major (N-S, E-W)	Minor (N,S, E,W)	Intersection	Urban (1) or Rural (2)*	Major Street Lanes (1 or 2)	Minor Street Lanes (1 or 2)	Major Volume	Minor TH and LT Volume	Minor RT Volume	RT Reduction	Minor Volume	Warrant Volume	Warrant Met?
326	N-S	E	South acces to Boones Ferry Rd	1	2	1	1174	146	8	0.00	154	227	No
326	N-S	W	South acces to Boones Ferry Rd	1	2	1	1174	32	224	0.00	256	227	Yes

### Saturday Peak Hour -- Existing + Project + Retail Development South of Fred's (Mitigated Boones Ferry Road Cross-section)

Int #	Major (N-S, E-W)	Minor (N,S, E,W)	Intersection	Urban (1) or Rural (2)*	Major Street Lanes (1 or 2)	Minor Street Lanes (1 or 2)	Major Volume	Minor TH and LT Volume	Minor RT Volume	RT Reduction	Minor Volume	Warrant Volume	Warrant Met?
336	N-S	E	South acces to Boones Ferry Rd	1	2	1	1149	62	4	0.00	66	237	No
336	N-S	W	South acces to Boones Ferry Rd	1	2	1	1149	42	239	0.00	281	237	Yes

\*Use Rural analysis for speeds on Major Street above 40 mph or in communities with less than 10,000 population

# **Trip Generation and Distribution**

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**Previous Study (2004 TIA)**

Building/Pad	Name	LU	Size	Trip Rate	In	Trip Gen		Total	Internal Capture		
						Out			Rate	Trips	
1 through 3 4	Fred Meyer		166,887	4.95				826	5%		
	Shopping Center		9,000	14.2				128	30%		
	Restaurant		6,000	10.86				65	40%		
<b>Total</b>			<b>181,887</b>					<b>1,019</b>			
								<b>Net PM Driveway Trips</b>	<b>917</b>		

**New Study (2008 TIA)**

Building	Name	LU	Size	Trip Rate	In	Out	Total	Internal Capture	
A	Fred Meyer		145,581	based on counts					
Space J	Tenant Space		7,500						
Space K	Tenant Space		2,600						
<b>Total</b>			<b>155,681</b>	<b>4.95</b>			<b>771</b>	<b>5%</b>	<b>39</b>

Building	Name	LU	Size	Trip Rate	In	Out	Total		
B	Retail		6,421	all summed as shopping center	48%		51		
C	Retail		11,172			88			
D	Retail		10,771			85			
E	Retail		11,570			91			
F	Retail		2,181			17			
G	Retail		8,764			69			
<b>Total</b>			<b>50,879</b>			<b>7.88</b>	<b>192</b>	<b>209</b>	<b>401</b>

F	Restaurant	932	3,316	10.92	22	14	36	30%	11
G	Low-rise Condo	231	60	0.78	27	20	47	38%	18

<b>Total</b>			<b>209,876 SF retail and 60 residential units</b>				<b>1,255</b>		
			<b>15%</b>			<b>Net PM Driveway Trips</b>	<b>1,107</b>	148	Total Internal Trips
						Increase in Total Trips	<b>21%</b>	11.8%	Total Internal Rate
						<b>Net PM Driveway Trips for Retail Uses only</b>	<b>1,078</b>	130	Retail/Restaurant Internal Trips
						Increase in Retail Trips (excluding new residential trips)	<b>18%</b>	10.8%	Retail Internal Rate

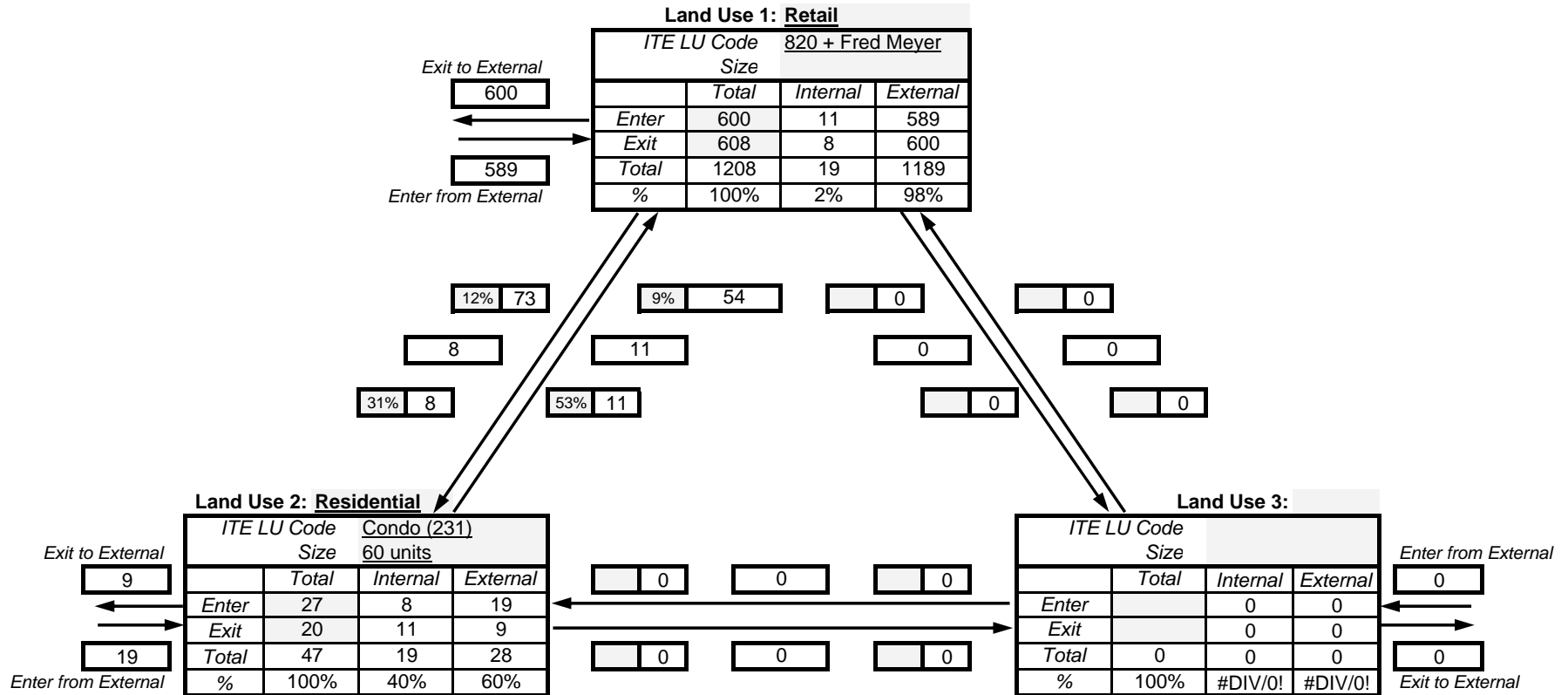


Analyst BBC  
Date July 6, 2008

### Multi-Use Development Trip Generation And Internal Capture Summary

Name of Dvlpt Fred Meyer Development  
Time Period PM Peak Hr

\*This worksheet only calculates trips between residential and retail uses.\*



	Retail	Residential	0	Total	
Enter	589	19	0	608	
Exit	600	9	0	609	
Total	1189	28	0	1217	Internal Capture
Single-Use Trip Gen. Est.	1208	47	0	1255	3.0%

1. WILSONVILLE RD @  
 BOONES FERRY RD



2. WILSONVILLE RD @  
 I-5 SB ON/OFF RAMP



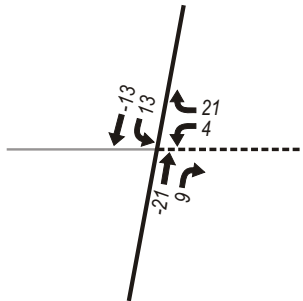
3. WILSONVILLE RD @  
 I-5 NB ON/OFF RAMP



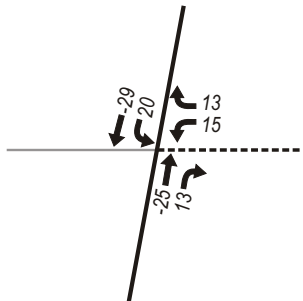
4. WILSONVILLE RD @  
 TOWN CENTER LOOP W.



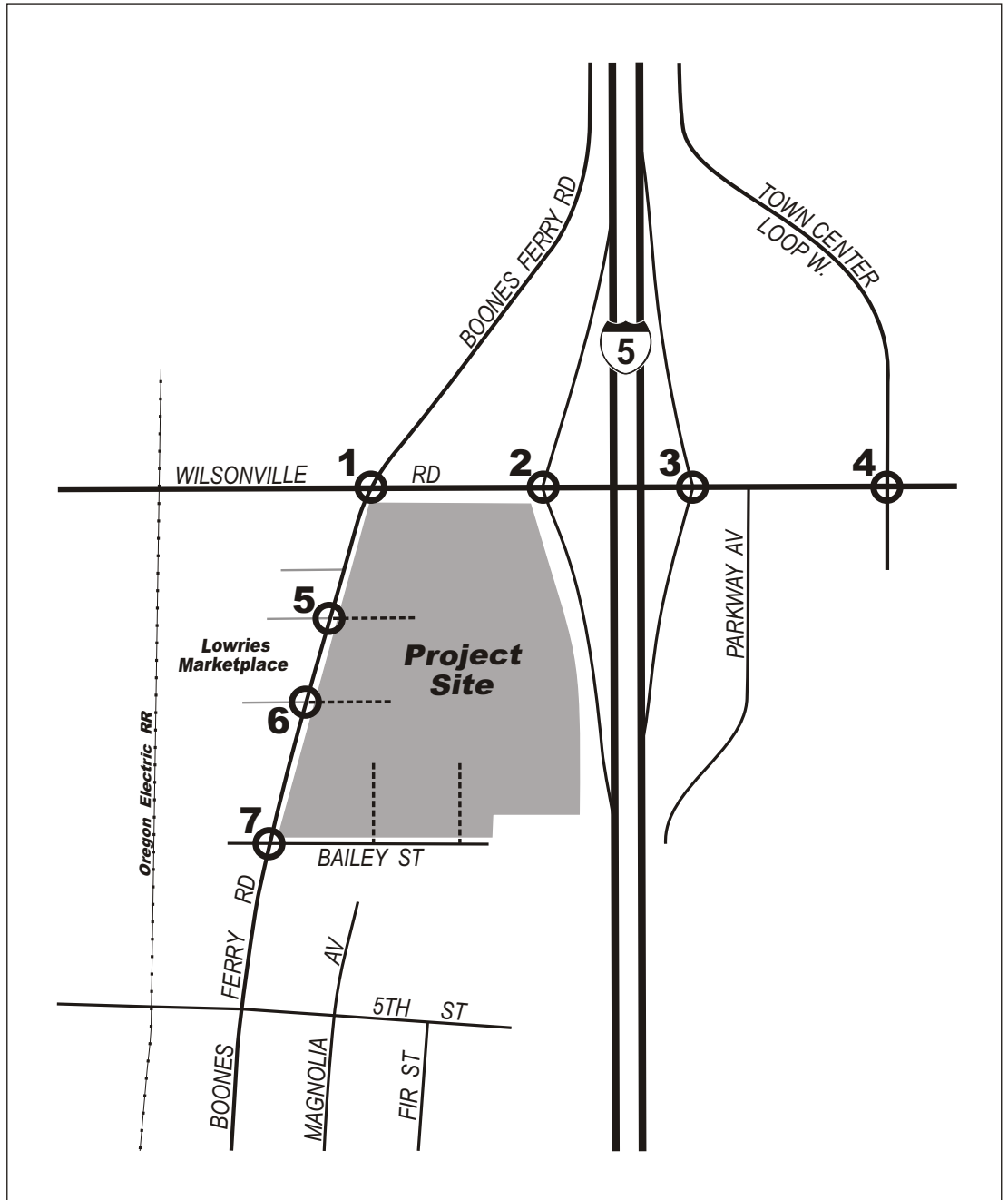
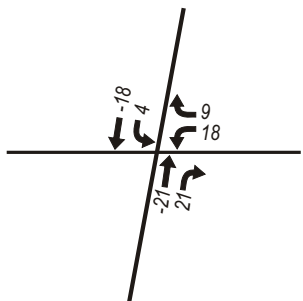
5. BOONES FERRY RD @  
 LOWRIES/N. PROJECT DRIVEWAY



6. BOONES FERRY RD @  
 LOWRIES/S. PROJECT DRIVEWAY



7. BOONES FERRY RD @  
 BAILEY ST



**LEGEND**

- 10 - Study Intersection & Number
- Proposed Fred Meyer Driveway
- Existing Lowries Driveway
- ← 00 - Pass-by Project PM Peak Hour Traffic Volumes

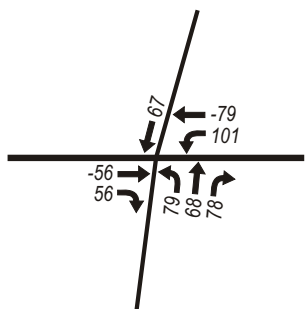
**DKS Associates**  
 TRANSPORTATION SOLUTIONS



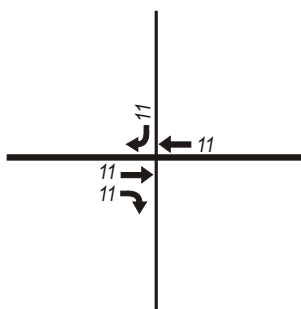
**PASS-BY PROJECT  
 PM PEAK HOUR TRIPS**

160 Trips (80 in, 80 out)

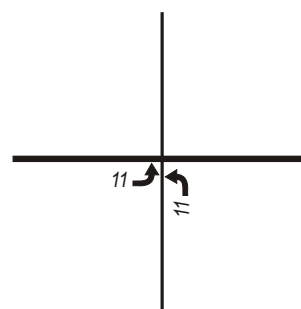
**1. WILSONVILLE RD @ BOONES FERRY RD**



**2. WILSONVILLE RD @ I-5 SB ON/OFF RAMP**



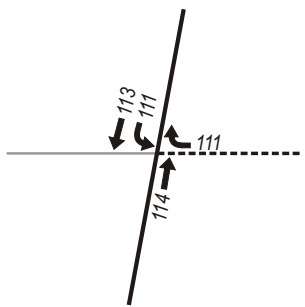
**3. WILSONVILLE RD @ I-5 NB ON/OFF RAMP**



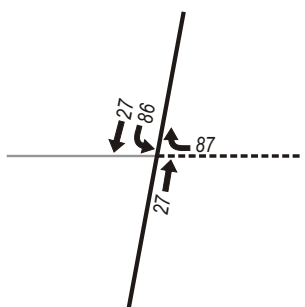
**4. WILSONVILLE RD @ TOWN CENTER LOOP W.**



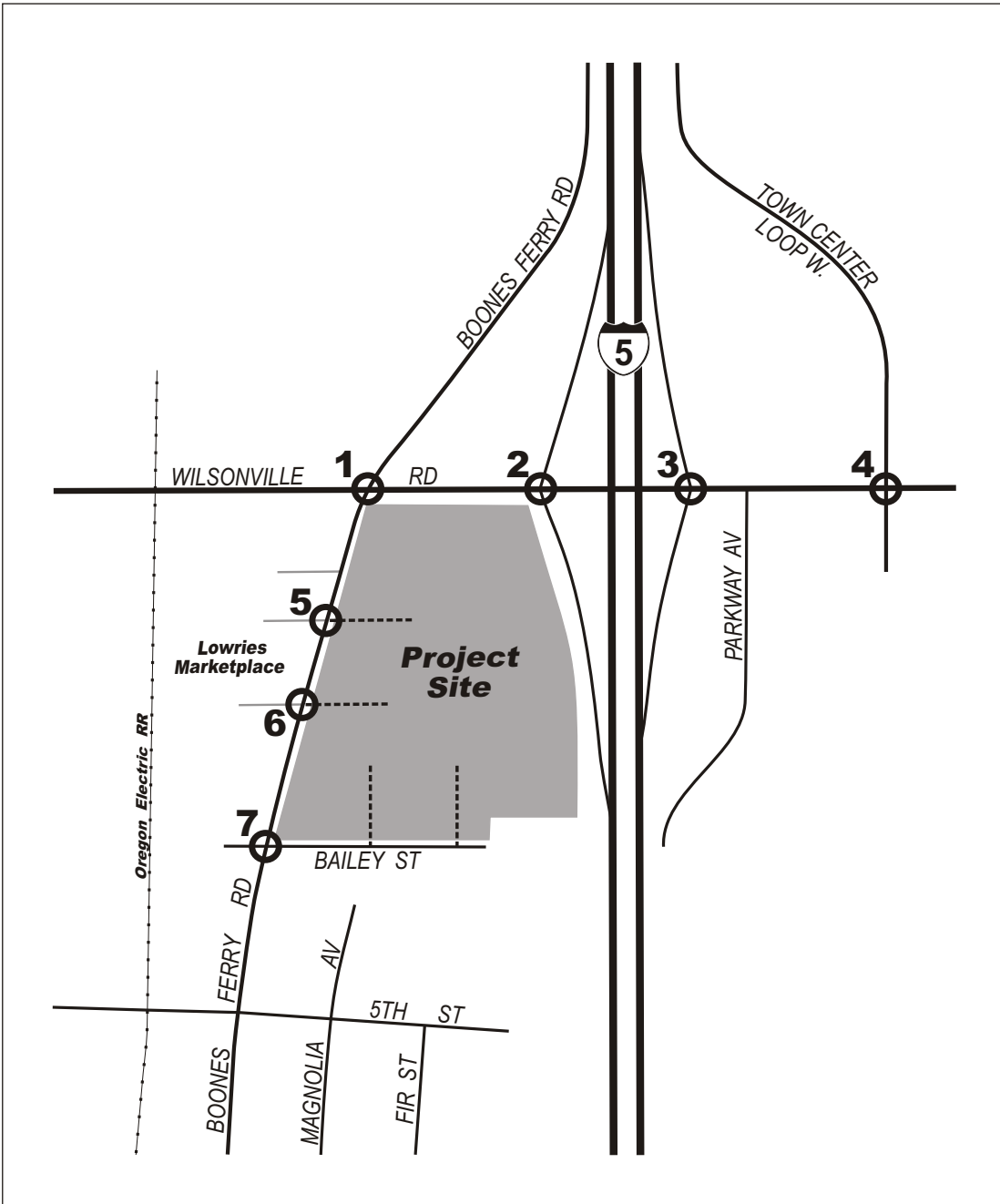
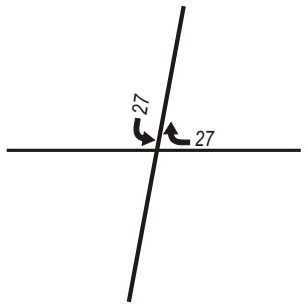
**5. BOONES FERRY RD @ LOWRIES/N. PROJECT DRIVEWAY**



**6. BOONES FERRY RD @ LOWRIES/S. PROJECT DRIVEWAY**



**7. BOONES FERRY RD @ BAILEY ST**



**LEGEND**

- 1** - Study Intersection & Number
- Proposed Fred Meyer Driveway
- Existing Lowries Driveway
- ← 00 - Diverted Project PM Peak Hour Traffic Volumes

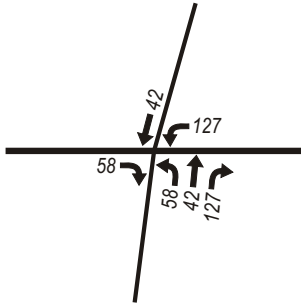
**DKS Associates**  
 TRANSPORTATION SOLUTIONS



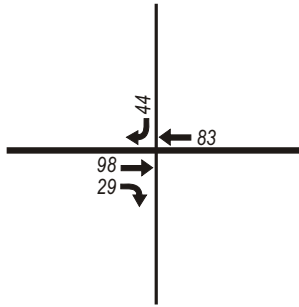
**DIVERTED PROJECT PM PEAK HOUR TRIPS**

449 Trips (224 in, 225 out)

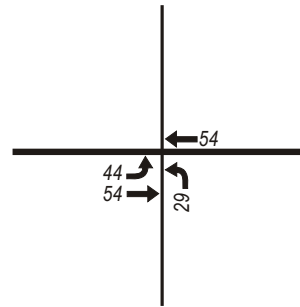
**1. WILSONVILLE RD @  
 BOONES FERRY RD**



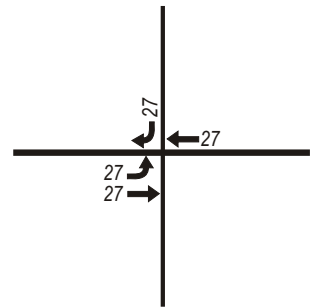
**2. WILSONVILLE RD @  
 I-5 SB ON/OFF RAMP**



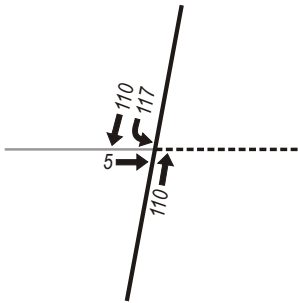
**3. WILSONVILLE RD @  
 I-5 NB ON/OFF RAMP**



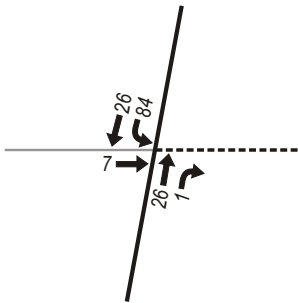
**4. WILSONVILLE RD @  
 TOWN CENTER LOOP W.**



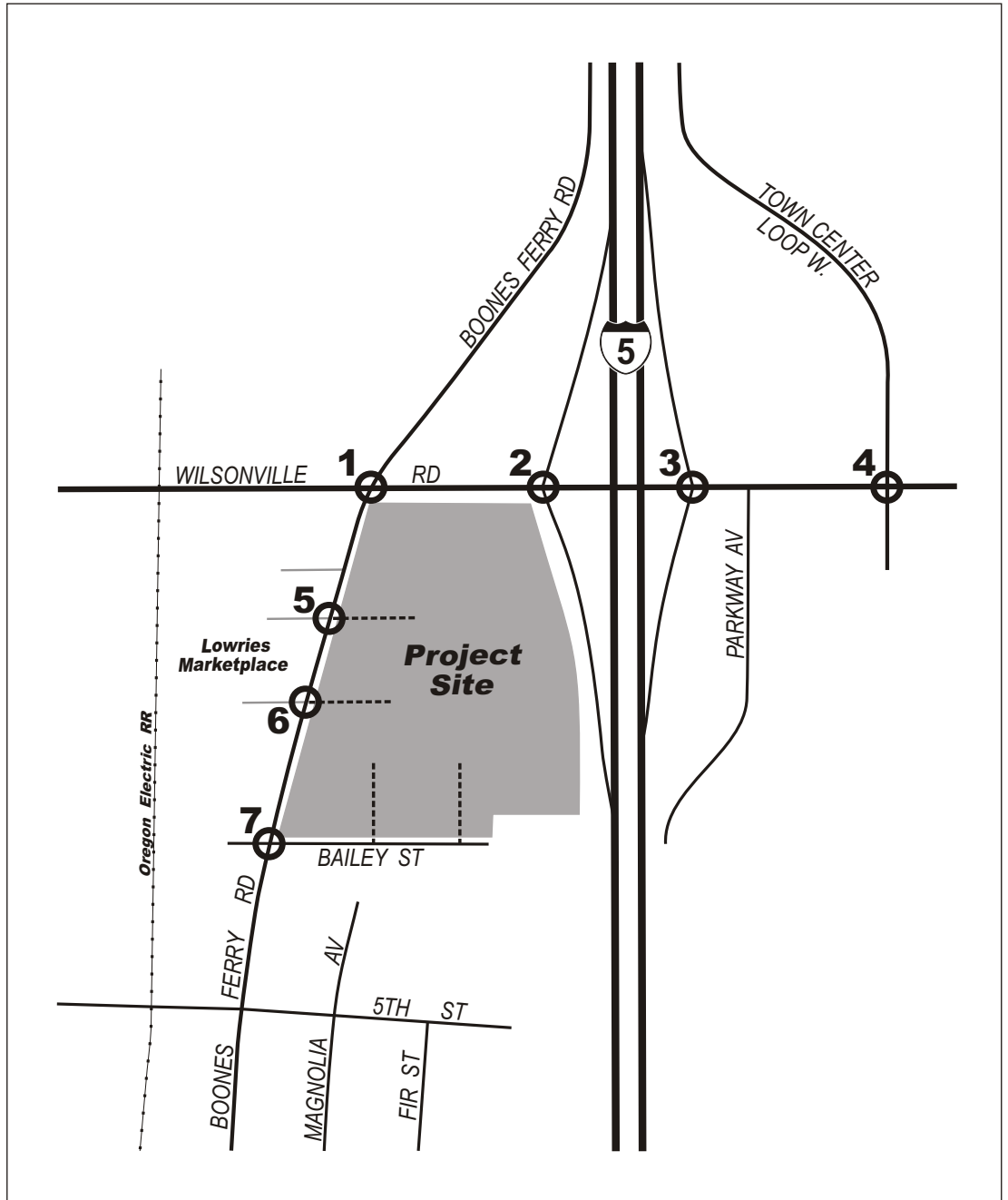
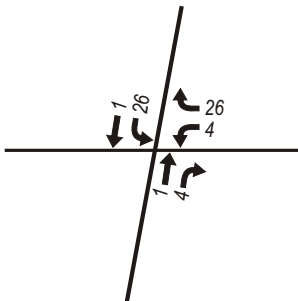
**5. BOONES FERRY RD @  
 LOWRIES/N. PROJECT DRIVEWAY**



**6. BOONES FERRY RD @  
 LOWRIES/S. PROJECT DRIVEWAY**



**7. BOONES FERRY RD @  
 BAILEY ST**



**LEGEND**

- 1** - Study Intersection & Number
- Proposed Fred Meyer Driveway
- Existing Lowries Driveway
- ← 00 - Primary Project PM Peak Hour Traffic Volumes

**DKS Associates**  
 TRANSPORTATION SOLUTIONS



**PRIMARY PROJECT  
 PM PEAK HOUR TRIPS**

**488 Trips (244 in, 244 out)**



# City of Wilsonville, Oregon

## Adopted BUDGET

# FY 2015-16



# Transportation

# SMART transit

South Metro Area Regional Transit (SMART) provides convenient, safe and reliable transportation services in a fiscally responsible manner to meet the needs of Wilsonville residents, employees and visitors of all ages, ethnicities and income levels. Fleet provides efficient and effective services to all City departments in the maintenance and repair of vehicles and equipment.

The Department's primary functions include overall administration for transit operations, grant management, commuter and community programs, and fleet services for all City-owned vehicles and equipment. Transit Operations includes demand-response, fixed-route bus service, dispatch center services and a comprehensive training program for transit operators. The SMART Options Program carries out commuter and community based initiatives to increase the use of transit, walking, bicycling and ridesharing to support local and regional transportation system management policies.

## Program Objectives

### **Multi-Modal Transportation Network**

- Continue update of the Transit Master Plan (a subset of the Transportation Systems Plan)
- Implement the recommendations of the Transit Integration Plan
- Support local, regional and statewide policies for transportation system management

### **Welcoming, Engaged and Satisfied Residents**

- Exceed customers' expectations and ensure continuous improvement
- Provide high quality customer service for commuters, residents and the business community
- Implement technology upgrades to buses and facilities

### **Economic Development**

- Plan to provide services to industrial, employment and future development lands (including Coffee Creek, Frog Pond, Advance and Basalt Creek areas)
- Work as part of the City's economic development team to retain and expand existing businesses and recruit new businesses to Wilsonville

### **Community Amenities and Recreation**

- Provide user-friendly outreach and education on transit and active transportation modes of travel

### **Safe Healthy & Aesthetically Pleasing Community**

- Increase the public's knowledge of safety for pedestrians and cyclists

### **Fiscal Discipline**

- Continue to actively pursue, secure and administer grant funding to help cover the costs of capital projects and operations

#### Full Time Equivalent Positions

Position	Budget 2012-13	Budget 2013-14	Budget 2014-15	Adopted 2015-16
Transit Director	1.00	1.00	1.00	1.00
Operation Manager	1.00	1.00	1.00	1.00
Dispatchers	2.00	2.00	2.00	2.00
Field Supervisors	2.00	2.00	3.00	3.00
Trainer	1.00	1.00	0.00	0.00
Drivers	26.44	26.44	26.77	26.70
Program Coordinator	1.00	1.00	1.00	1.00
Transportation Options Program Manager	1.00	1.00	1.00	1.00
Transit Grants Administrator	0.00	0.00	0.00	1.00
Bike & Ped Coordinator	1.00	0.00	0.00	0.00
Intern	0.00	0.30	0.30	0.30
	<b>36.44</b>	<b>35.74</b>	<b>36.07</b>	<b>37.00</b>

# SMART transit

# Transportation

<b>Operating Summary</b>	Actual 2012-13	Actual 2013-14	Budget 2014-15	Proposed 2015-16	Approved 2015-16	Adopted 2015-16
<b>Personnel Services</b>						
Salaries and wages	\$ 1,726,035	\$ 1,825,871	\$ 1,922,260	\$ 1,950,110	\$ 1,950,110	\$ 1,950,110
Employee benefits	889,742	932,561	1,062,880	1,131,280	1,131,280	1,131,280
<b>Total</b>	<b>2,615,777</b>	<b>2,758,432</b>	<b>2,985,140</b>	<b>3,081,390</b>	<b>3,081,390</b>	<b>3,081,390</b>
<b>Materials and Services</b>						
Supplies	32,336	66,638	50,465	80,101	80,101	80,101
Prof and tech services	264,835	442,494	216,565	190,222	190,222	190,222
Utility services	42,279	52,617	67,674	89,193	89,193	89,193
Repairs & maintenance	27,669	30,159	35,588	35,944	35,944	35,944
Fleet services	938,115	996,885	1,050,520	1,029,982	1,029,982	1,029,982
Rents & leases	9,500	1,781	2,164	2,185	2,185	2,185
Insurance	29,403	32,063	33,930	42,810	42,810	42,810
Commuter rail service	300,000	-	312,000	315,120	315,120	315,120
Comm svcs programs	11,524	1,001	76,515	1,530	1,530	1,530
Employee development	9,077	15,009	21,080	21,230	21,230	21,230
Fees, dues, advertising	24,410	21,059	35,047	35,396	35,396	35,396
Meeting expenses	763	2,471	3,121	3,152	3,152	3,152
<b>Total</b>	<b>1,689,911</b>	<b>1,662,177</b>	<b>1,904,669</b>	<b>1,846,865</b>	<b>1,846,865</b>	<b>1,846,865</b>
<b>Capital Outlay</b>						
Machinery & equipment	3,250	-	100,000	195,000	195,000	195,000
Software	-	-	-	100,000	100,000	100,000
Vehicles	432,935	785,703	1,423,506	85,000	85,000	85,000
<b>Total</b>	<b>436,185</b>	<b>785,703</b>	<b>1,523,506</b>	<b>380,000</b>	<b>380,000</b>	<b>380,000</b>
<b>Total Department</b>	<b>\$ 4,741,873</b>	<b>\$ 5,206,312</b>	<b>\$ 6,413,315</b>	<b>\$ 5,308,255</b>	<b>\$ 5,308,255</b>	<b>\$ 5,308,255</b>

<b>Resources Summary</b>	Actual 2012-13	Actual 2013-14	Budget 2014-15	Proposed 2015-16	Approved 2015-16	Adopted 2015-16
Payroll taxes	\$ 3,990,885	\$ 4,342,353	\$ 4,524,000	\$ 4,576,000	\$ 4,576,000	\$ 4,576,000
Charges for services	223,931	251,511	218,000	210,001	210,001	210,001
Intergovernmental grants	2,974,577	1,041,610	1,958,542	959,915	959,915	959,915
Other revenues	21,311	41,437	13,000	31,000	31,000	31,000
<b>Total</b>	<b>\$ 7,210,704</b>	<b>\$ 5,676,911</b>	<b>\$ 6,713,542</b>	<b>\$ 5,776,916</b>	<b>\$ 5,776,916</b>	<b>\$ 5,776,916</b>

## Explanation of Variances

At the time the budget was developed, labor negotiations were underway. Therefore, no changes in the Salaries and Wages scales are included. Once negotiations are complete, a supplemental budget will be prepared to implement necessary changes.

The Personnel Services category is increasing overall by 3%. An additional position is proposed for FY 2015-16, a Grant Administrator. Currently, grant administration is handled by an outside consultant. However, the work is on-going in nature and works closely with Transit and Finance Department staff, and is more suited to be performed by a full-time, regular City employee. The Federal Transit Administration criticized SMART for using a part-time consultant for grant administration work. This addition answers that criticism. The position will be instrumental in researching new grant opportunities and administering grants awarded. Additionally, the position will assist with procurement and planning functions. The cost of adding the Grant Administrator is fully offset within Transit's budget; partially absorbed within the Personnel Services category, and partially offset by decreasing the budget for Professional and Technical Services.

Other changes within Personnel Services include increasing the Employee Benefits line to account for increases to retirement system contributions, and changes in employee choices of and increases to health insurance plans.

*(continued on the next page)*

# Transportation

# SMART transit

## Explanation of Variances, (continued)

The Materials & Services category of expenditures is increasing approximately 1% to account for inflationary increases. Other changes are described below.

Supplies are increasing over the FY 2014-15 budget by just under \$30,000, or 59%. This increase represents grant funding for the new federal grant for the Travel Training Program to teach older adults and people with disabilities to travel independently and safely on public transportation. Professional and Technical Services are decreasing about \$26,000, or 12%. This represents a budget reduction for consulting services, replaced by the proposed addition of a Grants Administrator position, and is offset by an increase to recognize a grant to partially fund the Transit Master Plan work. Utilities are increasing about \$22,000, or 32%, representing rate increases, as well as the re-organization of expenses out of Public Works – Roads and into the Transit department. These expenses were always paid for by the Transit fund, but will now be expensed through Transit department instead of the Public Works - Roads. Fleet Services are decreasing 2%, or about \$21,000, representing fuel savings due to the transition to more fuel efficient vehicles and declining gas prices. Insurance is increasing about \$9,000, or 26%, truing the budget up to anticipated actuals, based on the composition of the fleet. Community Services are decreasing by about \$75,000, or 98%, representing the removal of budget for the one-time, federal-grant-funded Integration Project.

Capital Outlay items include the replacement of a copier, improvements and expansion of the natural gas fueling system, the purchase of a new bus, and technological upgrades for such things as upgrading SMART's on-vehicle equipment to monitor performance and enhance traveler information. Approximately \$290,000 of the Capital Outlay expense category is anticipated to be covered by grants.

When considering the budget of SMART, one factor to remain mindful of are the variances in the SMART budget attributed to grant funding from both state and federal sources. SMART has been fortunate to do well in competing for grant funds, but the availability of grant funding is uncertain from year to year. The SMART budget is based on best estimates and historic trends, but mid-year corrections may be necessary as state and federal budgets are adopted.

Another unexpected situation that could lead to variances has to do with the recent nationwide drop in fuel prices. While lower fuel prices mean lower costs for SMART, they also mean reduced ridership, as many people switch from riding the bus to driving their own cars.

### **Anticipated Grants for 2015-16**

SMART has already received approval for a number of grants that will bring revenue into the FY 2015-16 budget. However, these grants require matching funds that must come from SMART and often require consultant assistance, particularly for grant administration.

**Elderly & Disabled (E&D) Transportation Program Grant:** Grant funding in the amount of \$147,000 in State Transportation Formula (STF) funds is anticipated to offset the cost of the out of town Dial-A-Ride service.

**Dial-A-Ride Operations Clackamas County Agreement:** An agreement with Clackamas County is anticipated to provide \$56,000 in funding for the Dial-A-Ride demand response service.

**Transportation Demand Management (TDM) Grant:** Grant funding in the amount of \$75,545 plus \$8,216 in local match will support the SMART Options Program which is designed to work with Wilsonville employers and residents to reduce drive alone commute trips and improve air quality.

**Travel Training Grant:** Grant funding in the amount of \$20,000 plus \$2,289 in local match will support a program to teach older adults and people with disabilities to travel independently and safely on public transportation.

**Transit Integration Project Grant:** Grant funding in the amount of \$50,000 plus \$10,000 in local match will be used to complete this project integrating fixed route commuter and door-to-door elderly and disabled (E&D) services with the Wilsonville to Portland corridor.

**Section #5307 Grant:** Grant funding in the amount of \$316,500 plus \$79,125 in local match is anticipated to be used for preventative maintenance operations, technology upgrades, and a transit master plan.

**Capital Grant:** Grant funding in the amount of \$76,270 plus local match of \$8,730 will be used to purchase a bus.



# SMART transit

# Transportation

**Capital Grant:** Grant funding the amount of \$80,000 plus local match of \$20,000 will be used to upgrade SMART's on-vehicle technology to enhance abilities to monitor operational performance, enhance traveler information and improve data for planning and scheduling purposes.

**Capital Grant:** Grant funding in the amount of \$70,000 plus local match of \$40,000 will be used to expand and improve the existing natural gas fueling system.

### Anticipated Grant Funding for 2015-16

Intergovernmental Agreement /Grant	Funding Source			Funding Use	
	Grant Funding	Transit Tax	Reserve	Operations	Capital
State Grant - Elderly & Disabled Service	\$ 147,000	\$ -	\$ -	\$ 147,000	\$ -
Dial-a-Ride Operations - Clackamas County	56,000	-	-	56,000	-
Transportation Demand Management (TDM)	74,545	8,532	-	83,077	-
Travel Training Program	20,000	2,289	-	22,289	-
Integration Grant	50,000	10,000	-	60,000	-
Transportation Master Plan	69,600	-	17,400	87,000	-
Section #5307 - Maintenance, Master Plan, Technology	316,500	-	79,125	320,625	75,000
Capital Grant - Bus	76,270	-	8,730	-	85,000
Capital Grant - Software	80,000	-	20,000	-	100,000
Capital Grant - Compressed Natural Gas Equipment	70,000	-	40,000	-	110,000
	<b>\$ 959,915</b>	<b>\$ 20,821</b>	<b>\$ 165,255</b>	<b>\$ 775,991</b>	<b>\$ 370,000</b>

### Performance Measurements

Strategy	Measure	Actual	Actual	Actual	Estimate	Forecast
		2011-12	2012-13	2013-14	2014-15	2015-16
Provide efficient transit services to meet the needs of the community	Cost per passenger trip	\$8.92	\$10.91	\$10.44	\$11.30	\$11.21
	Cost per service hour	\$74.39	\$85.37	\$83.33	\$89.54	\$94.07
	Cost per mile	\$4.92	\$5.92	\$5.75	\$6.12	\$6.49
	Passenger trips per service hour	8.3	7.8	8.5	7.9	8.4
	Passenger trips per mile	0.55	0.54	0.55	0.54	0.58
Increase ridership within the community	Number of passenger trips	370,526	351,374	374,408	362,891	383,095
	Service hours	44,407	44,908	45,896	45,788	45,712
	Annual miles driven	671,903	647,786	679,941	670,289	662,161
	On-time performance	99%	99%	92%	90%	89%

### Performance Measurements Outcome

For FY 2013-14 ridership and other statistics were very close to projections. Our estimates for the remainder of FY2014-15 show that ridership will be lower than anticipated. With the drop in fuel prices, more people are driving and we have seen a corresponding drop in transit ridership. This will have a negative impact on revenues. We are also seeing a drop in on-time performance, due to a general increase in traffic, particularly on I-5 and the I-5/Wilsonville Road/Boones Ferry Road interchange. Traffic congestion on I-5 is especially bad between Wilsonville and Portland during evening commute times. Some cost savings will be realized as we recently combined two evening routes into a more efficient single route, thereby reducing operating hours and costs slightly.

# Transportation

# fleet

The Fleet Services program provides internal customers with safe, reliable and efficient vehicles and equipment needed to perform their duties. Fleet also protects the City's investment in vehicles and equipment through quality maintenance. Fleet charges participating departments through an internal work order system and depreciation in order to recover costs associated with operating, maintaining, and replacing vehicles.

Fleet Services manages the vehicle and equipment maintenance and replacement funds, coordinates and executes all fleet acquisitions and sales, repairs and maintains vehicles and equipment, manages outside vendor support and manages 2-way radio acquisition and maintenance for all City departments.

Fleet personnel are responsible for the repair and ongoing maintenance of 248 items including the SMART fleet of buses and vans, trucks and specialty equipment used by Public Works and Parks & Recreation, such as tractors and mowers, the general motor pool used by City staff, as well as emergency generators and trailers.

## Program Objectives

### *Well Maintained Infrastructure*

- Provide safe and clean vehicles and equipment

### *Fiscal Discipline*

- Monitor and adjust vehicle allocations to ensure efficient utilization of assets
- Extend vehicle service life through quality maintenance
- Maximize return on investments through effective vehicle purchase and disposal procedures

### *Environmental Stewardship*

- Continue exploration and implementation of fuel saving strategies, including the implementation of alternative fuel vehicles

Position	Full Time Equivalent Positions			
	Budget 2012-13	Budget 2013-14	Budget 2014-15	Adopted 2015-16
Fleet Services Manager	1.00	1.00	1.00	1.00
Mechanic II	2.00	2.00	2.00	2.00
Mechanic I	2.00	2.00	2.00	2.00
Fleet Hostler	1.50	1.50	1.60	1.60
	<b>6.50</b>	<b>6.50</b>	<b>6.60</b>	<b>6.60</b>

**fleet**

**Transportation**

<b>Operating Summary</b>	Actual 2012-13	Actual 2013-14	Budget 2014-15	Proposed 2015-16	Approved 2015-16	Adopted 2015-16
<b>Personnel Services</b>						
Salaries and wages	\$ 286,162	\$ 328,016	\$ 340,180	\$ 340,970	\$ 340,970	\$ 340,970
Employee benefits	167,567	196,992	217,380	217,960	217,960	217,960
<b>Total</b>	<b>453,729</b>	<b>525,008</b>	<b>557,560</b>	<b>558,930</b>	<b>558,930</b>	<b>558,930</b>
<b>Materials and Services</b>						
Supplies	162,670	180,276	185,380	191,741	191,741	191,741
Fuel	330,227	377,759	392,120	362,241	362,241	362,241
Utility services	83,295	85,146	85,100	72,066	72,066	72,066
Repairs & maintenance	21,914	28,964	36,338	36,701	36,701	36,701
Insurance	1,296	2,501	2,950	2,880	2,880	2,880
Employee development	2,005	8,701	15,701	15,858	15,858	15,858
<b>Total</b>	<b>601,407</b>	<b>683,347</b>	<b>717,589</b>	<b>681,487</b>	<b>681,487</b>	<b>681,487</b>
<b>Capital Outlay</b>						
Vehicles	75,725	124,834	114,000	75,000	75,000	75,000
<b>Total Department</b>	<b>\$ 1,130,861</b>	<b>\$ 1,333,189</b>	<b>\$ 1,389,149</b>	<b>\$ 1,315,417</b>	<b>\$ 1,315,417</b>	<b>\$ 1,315,417</b>

<b>Resources Summary</b>	Actual 2012-13	Actual 2013-14	Budget 2014-15	Proposed 2015-16	Approved 2015-16	Adopted 2015-16
Fleet charges	\$ 1,167,935	\$ 1,203,110	\$ 1,287,780	\$ 1,298,027	\$ 1,298,027	\$ 1,298,027
Assigned contingencies	75,725	124,837	114,000	75,000	75,000	75,000
<b>Total</b>	<b>\$ 1,243,660</b>	<b>\$ 1,327,947</b>	<b>\$ 1,401,780</b>	<b>\$ 1,373,027</b>	<b>\$ 1,373,027</b>	<b>\$ 1,373,027</b>

Fleet charges are calculated to cover Fleet’s operating budget and to fund future vehicle and equipment purchases.

**Explanation of Variances**

At the time the budget was developed, labor negotiations were underway. Therefore, no changes in the Salaries and Wages scales are included. Once negotiations are complete, a supplemental budget will be prepared to implement necessary changes.

The Personnel Services category remains flat when comparing FY 2014-15 to the FY 2015-16 Proposed Budget. Increases to retirement system contributions and health insurance plans are offset by changes in employee choices of plans.

The Materials & Services category of expenditures is increasing approximately 1% to account for inflationary increases. Other changes are described below.

Supplies are increasing about \$6,400, or 3%, representing increased costs for tires and other vehicle supplies. The fuel budget is decreasing approximately \$30,000, an 8% decrease. This represents the transition to more fuel efficient vehicles, such as the Hybrid and Compressed Natural Gas (CNG) buses, as well as gas prices that are expected to remain below the retail peak of \$4.00 per gallon seen in 2012. Utility Services are decreasing by 15%, or about \$13,000, due to reduced garbage costs upon moving to the new building, and also due to eliminating extra two way radios that brought down air-time costs.

Capital Outlay reflects the replacement of three City vehicles. These replacements are fully funded through the Fleet replacement fund. Factors used to determine vehicle replacements include pending repair needs, age, and suitability to assigned task.

# Transportation

fleet

## Performance Measurements

<i>Strategy</i>	<i>Measure</i>	<b>Actual 2011-12</b>	<b>Actual 2012-13</b>	<b>Actual 2013-14</b>	<b>Estimate 2014-15</b>	<b>Forecast 2015-16</b>
Track labor productivity in terms of time spent directly on maintenance activities, goal is a minimum of 70% of non-supervisory time	Percent of FTE applied to "wrench turning" labor activities	73%	71%	72%	70%	70%
Preventative maintenance	Percent completed on time	86%	87%	87%	90%	90%
Track number of road calls	Number of road calls per year	52	53	54	45	45

## Performance Measurements Outcome

Performance indicators include number of breakdowns (road calls), labor productivity and preventative maintenance on-time percentage. Fleet staff continue to meet or exceed the goals set for these measurements. Meeting these goals is of high importance, as data must be reported to both the Federal Transit Administration (maintenance on-time percentage) and National Transit Database (number of road calls).



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## MEMORANDUM

**DATE:** April 13, 2016

**TO:** Eric Mende, Capital Projects Engineer  
Chris Neamtzu, Planning Director

**FROM:** Scott Mansur, P.E., PTOE  
Jordin Ketelsen, EIT

**SUBJECT:** **Wilsonville TSP Additional Bike/Ped Project Amendment**

P15125-003

This memorandum discusses an additional project to be included in the Wilsonville Transportation System Plan (TSP) Amendment. This project would be categorized as a bicycle/pedestrian project and would entail providing set-aside funds to allow the City of Wilsonville to purchase strategically located properties that can facilitate future bicycle and pedestrian connections as these properties become available. The remainder of this memorandum outlines support for the inclusion of this project in the Wilsonville TSP Amendment as well as the necessary changes to the existing TSP document if the project was incorporated.

As outlined in Chapter 2 of the existing TSP document, policy areas including system design, connectivity, and active transportation support the addition of the aforementioned project. This project would help provide a safe, well-connected, and efficient system for all travel modes by adding pedestrian and bicycle connections throughout the city's transportation system. It would also improve access between neighborhoods, serve new development, and manage system performance as well as provide facilities that allow more people to walk and bike, not only as low-impact transportation choices, but also to benefit the health and economy of the community. This project is also consistent with Wilsonville City Council Goals 4) Clear Vision and Community Design, 9) Multi-Modal Transportation Network, and 10) Safe Healthy and Aesthetically Pleasing Community.

If this project is approved to be included in the city's TSP amendment, the following changes would be necessary. Revisions to existing TSP language are presented with deletions shown in ~~strike through~~ and additions or new code shown as underlined.

### ***Higher Priority Projects Table*** (Page v)

Add the following projects to this table:

- BW-15 Property Acquisitions for Bike/Ped Connectivity

### ***Table 5-6: Higher Priority Projects (Citywide) (Page 5-14)***

Add the following project and associated costs and descriptions:

- BW-15 Property Acquisitions for Bike/Ped Connectivity (\$1,000,000)

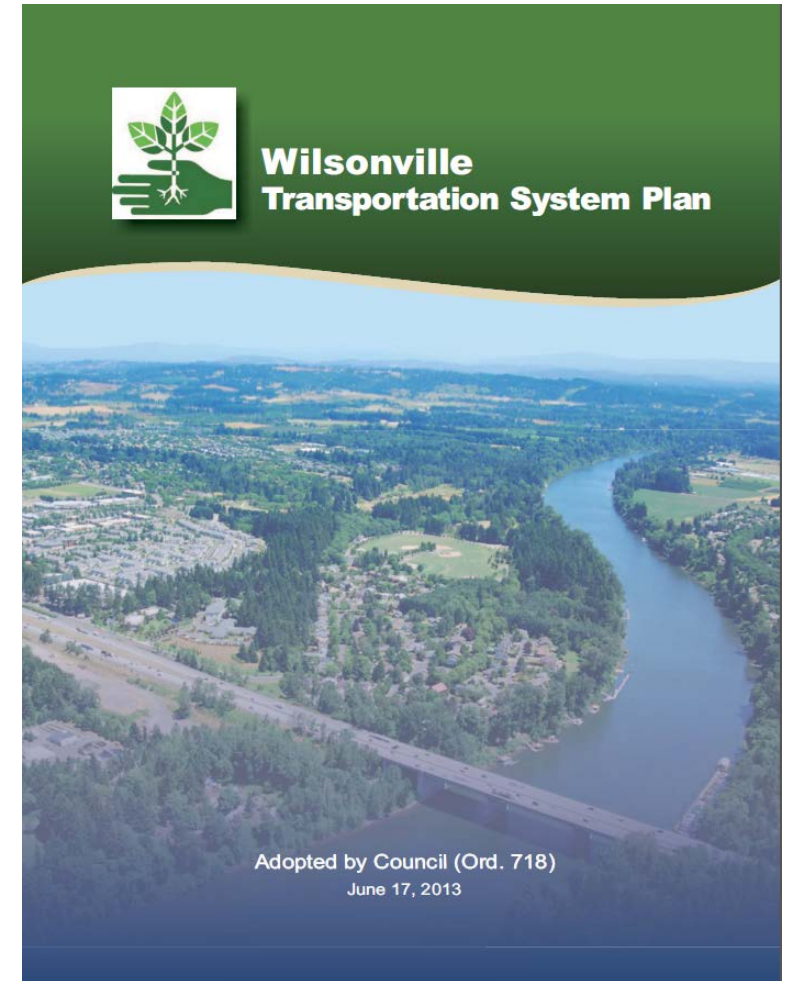
*Provide set-aside funds to allow purchase of strategically located properties that can facilitate bicycle and pedestrian connections as these properties become available.*

# WILSONVILLE TSP AMENDMENT

Planning Commission Hearing  
April 13, 2016

# WHAT IS A TSP AND WHY DOES IT NEED AN AMENDMENT?

- The Transportation System Plan is the City's long-term policy and planning document for transportation improvements
- Having a TSP in place is essential for the City to compete for federal, state, and regional funding for transportation projects
- Need to keep current with changes in state and regional transportation policy as well as to address **rapidly changing local conditions**
- Project deliverables include a memo documenting proposed changes and a fully revised, stand-alone TSP document



# CHANGING LOCAL CONDITIONS

1. Adoption of the Frog Pond Master Plan
2. Boeckmen Dip Engineering Refinement Study
3. Coffee Creek Industrial Area Transportation Analysis (includes Behavioral Health and Republic Services developments)
4. UGB Expansion for City Park and Advance Road MS
5. Basalt Creek Ongoing Transportation Analysis
6. Xerox Development Changes and Printer Parkway as a Public Facility

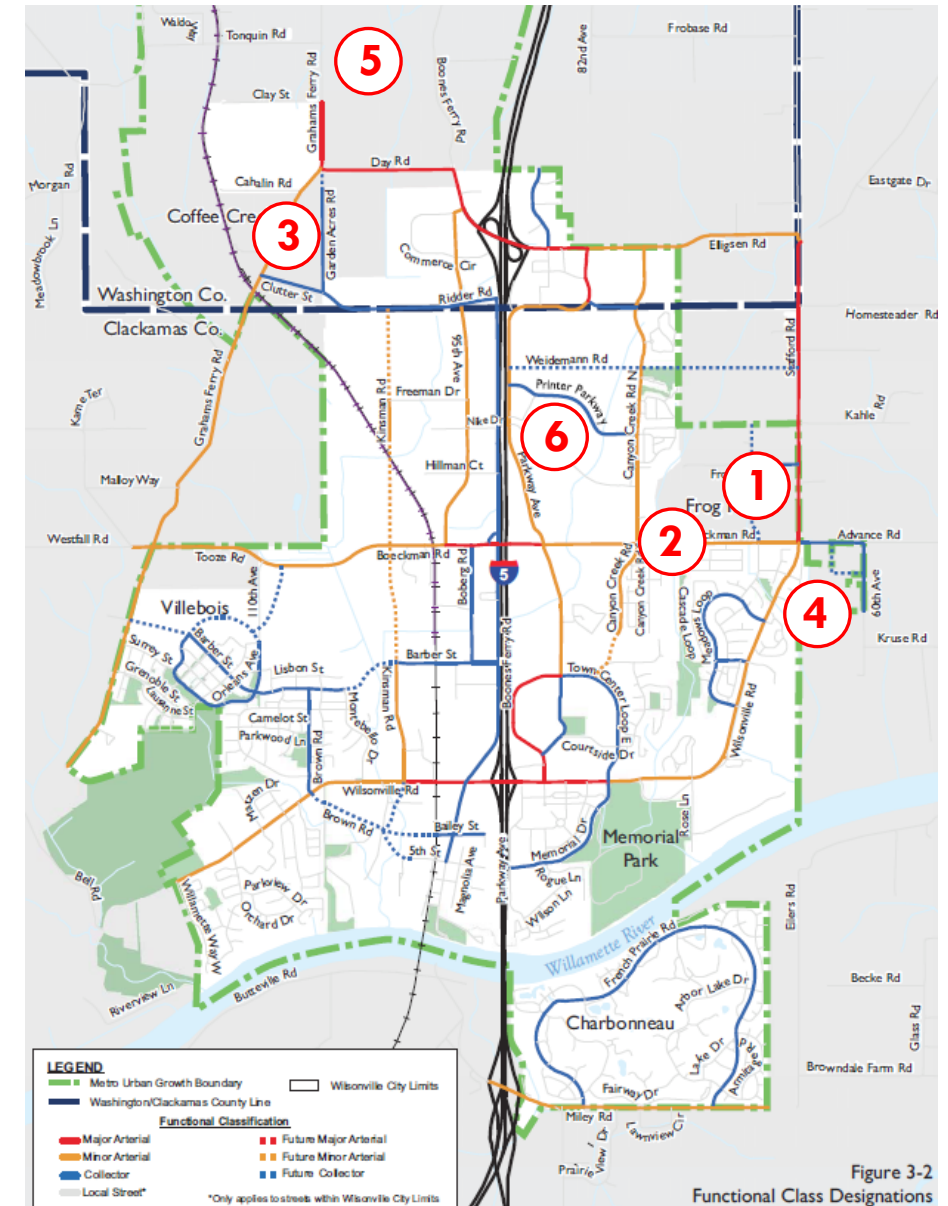
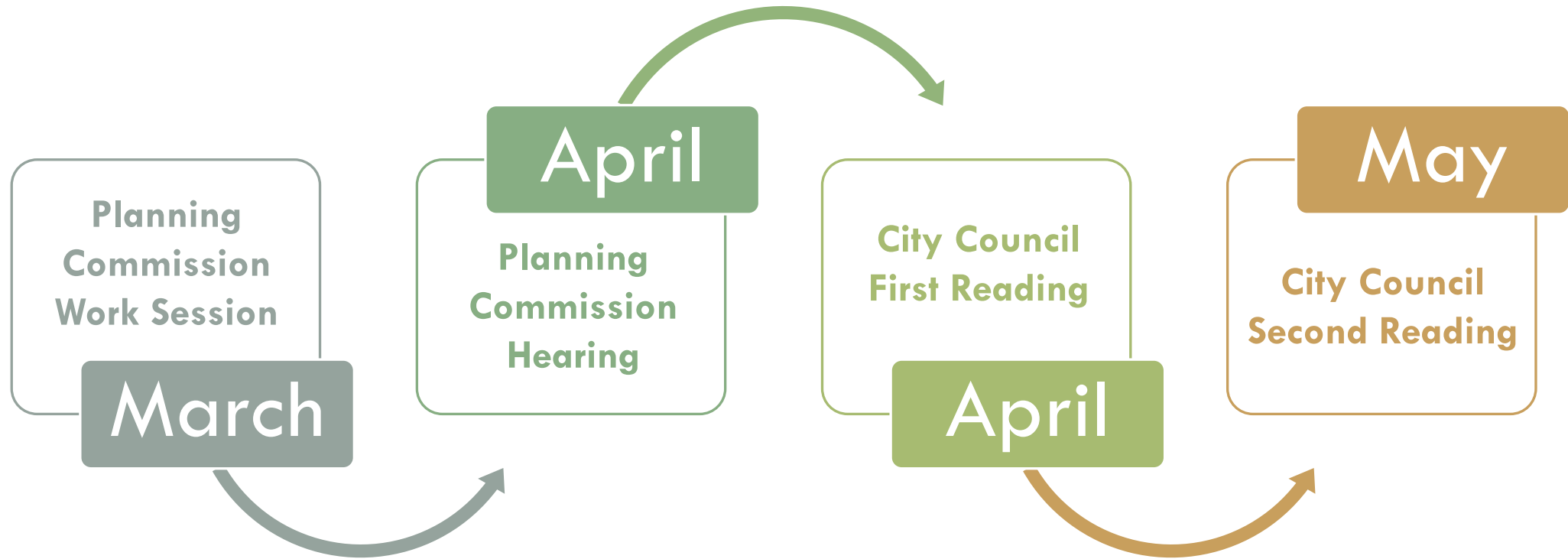


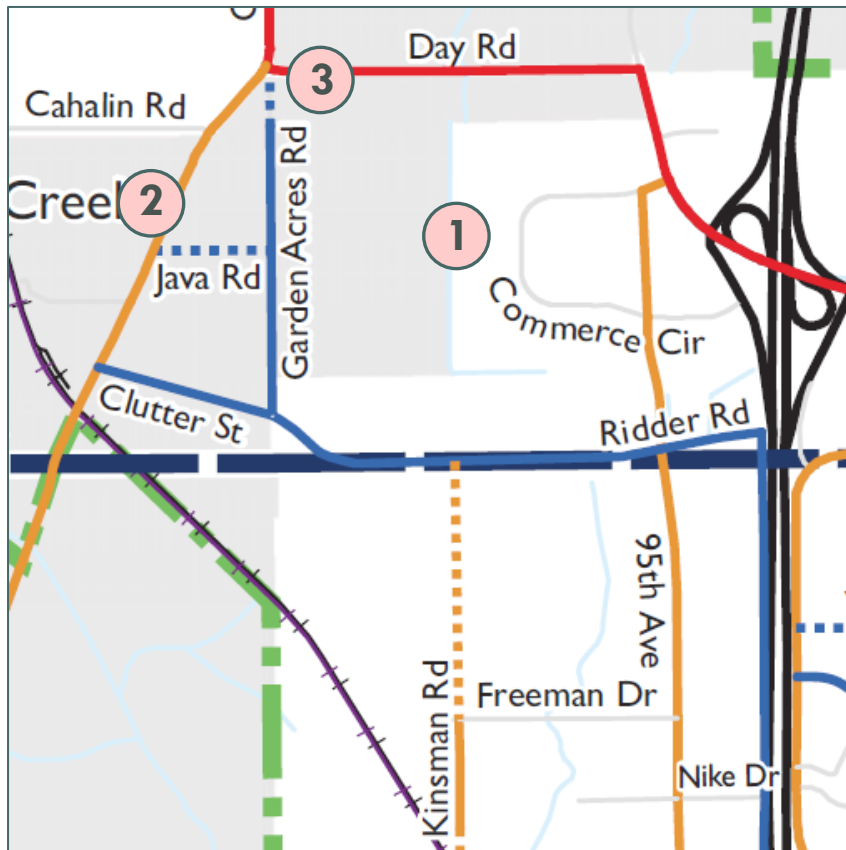
Figure 3-2  
Functional Class Designations



# GENERAL PROJECT SCHEDULE



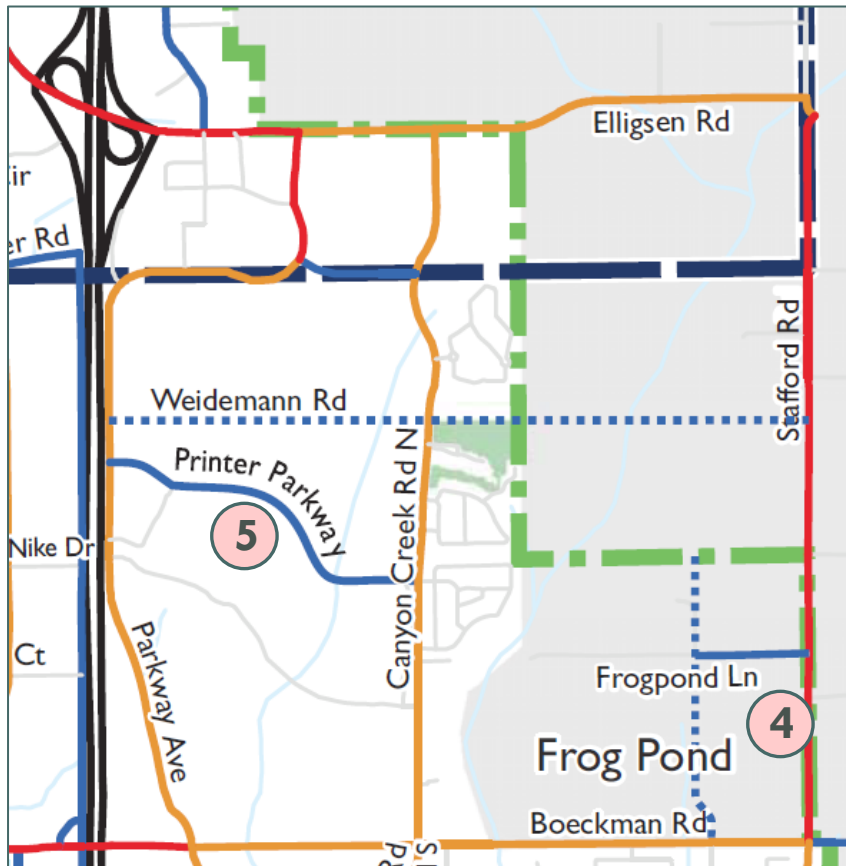
# WHAT'S CHANGED SINCE THE ADOPTION OF THE 2013 TSP?



Revised Figure 3-2: Functional Classification

1. **Kinsman Road Extension:** *Remove segment between Ridder Road and Day Road*
2. **Java Road Connection:** *Add east-west collector*
3. **Garden Acres Road Designation:** *Connect to Day Road/Grahams Ferry Road and add designation as a three-lane collector and as a bicycle route and freight route*

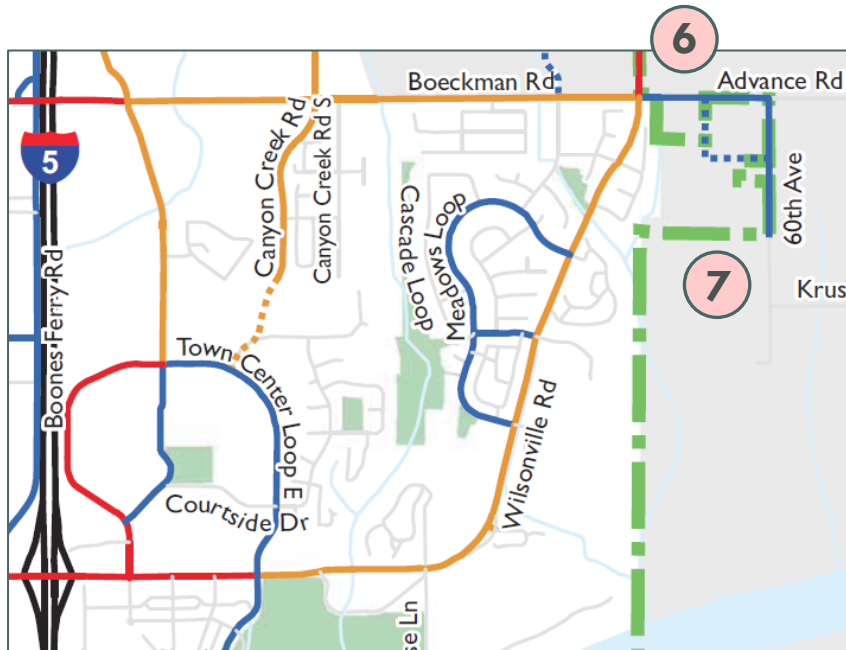
# WHAT'S CHANGED SINCE THE ADOPTION OF THE 2013 TSP?



Revised Figure 3-2: Functional Classification

4. **Frog Pond Collectors:** Add designated collector roadways and update proposed trail connections
5. **Printer Parkway:** Add collector designation, including proposed bicycle facilities

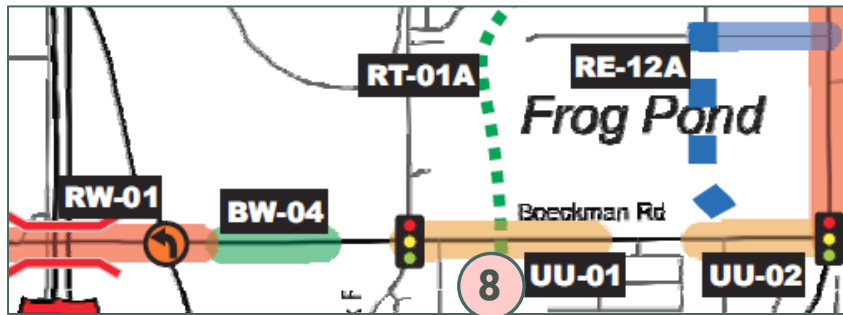
# WHAT'S CHANGED SINCE THE ADOPTION OF THE 2013 TSP?



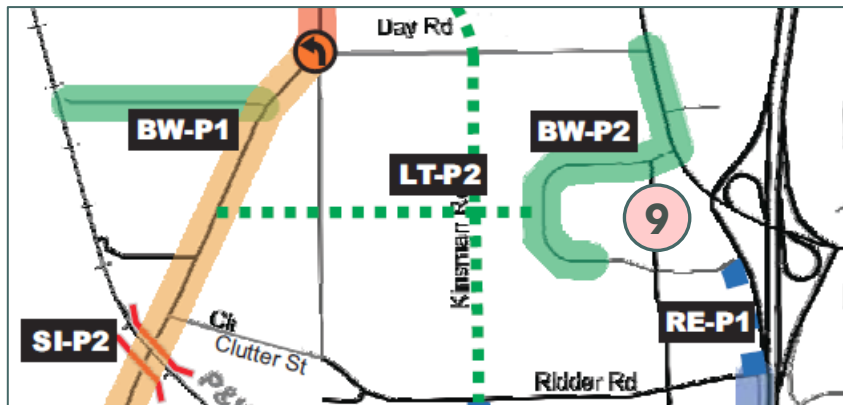
Revised Figure 3-2: Functional Classification

- 6. Advance Road Middle School:** Add designated collector roadways and site improvements
- 7. Urban Growth Boundary (UGB):** Update to include area surrounding proposed Advance Road Middle School and City Park

# WHAT'S CHANGED SINCE THE ADOPTION OF THE 2013 TSP?



Revised Figure 5-2: High Priority Projects



Revised Figure 5-7: Additional Planned Projects

8. **Boeckman Road Dip:** *Provide updated information for project UU-01 based on recent studies*
9. **Sidewalk Infill on Commerce Circle Loop:** *Extend sidewalk infill on Boones Ferry Road to Day Road*

# FIGURE 3-2: FUNCTIONAL CLASS DESIGNATIONS (P1)

- Update the UGB to include the area surrounding the proposed Advance Road Middle School and include 63<sup>rd</sup> Avenue and Hazel Street as collector roadways.
- Show Advance Road as a collector road to 60<sup>th</sup> Avenue.
- Add the future collector roadways proposed in the adopted Frog Pond Area Plan.
- Modify the functional classification of Printer Parkway from a private local street to a collector.
- Modify the functional classification of 60<sup>th</sup> Avenue adjacent to the proposed Advance Middle School site to a collector.

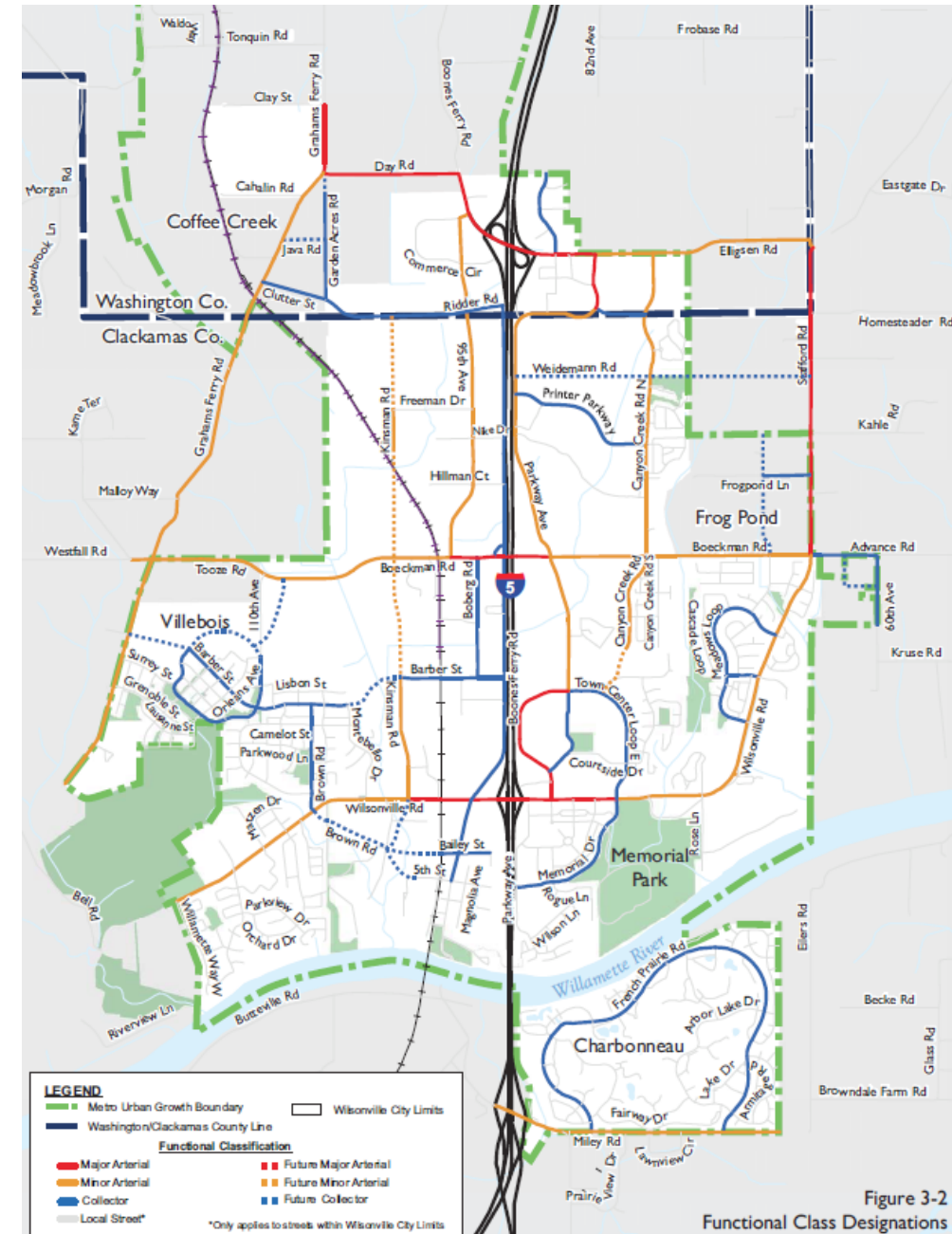


Figure 3-2  
Functional Class Designations

# FIGURE 3-2: FUNCTIONAL CLASS DESIGNATIONS (P2)

- Remove the Kinsman Road extension between Day Road and Ridder Road.
- Modify the functional classification of Garden Acres Road from a local street to a collector.
- Add the future Java Road collector.

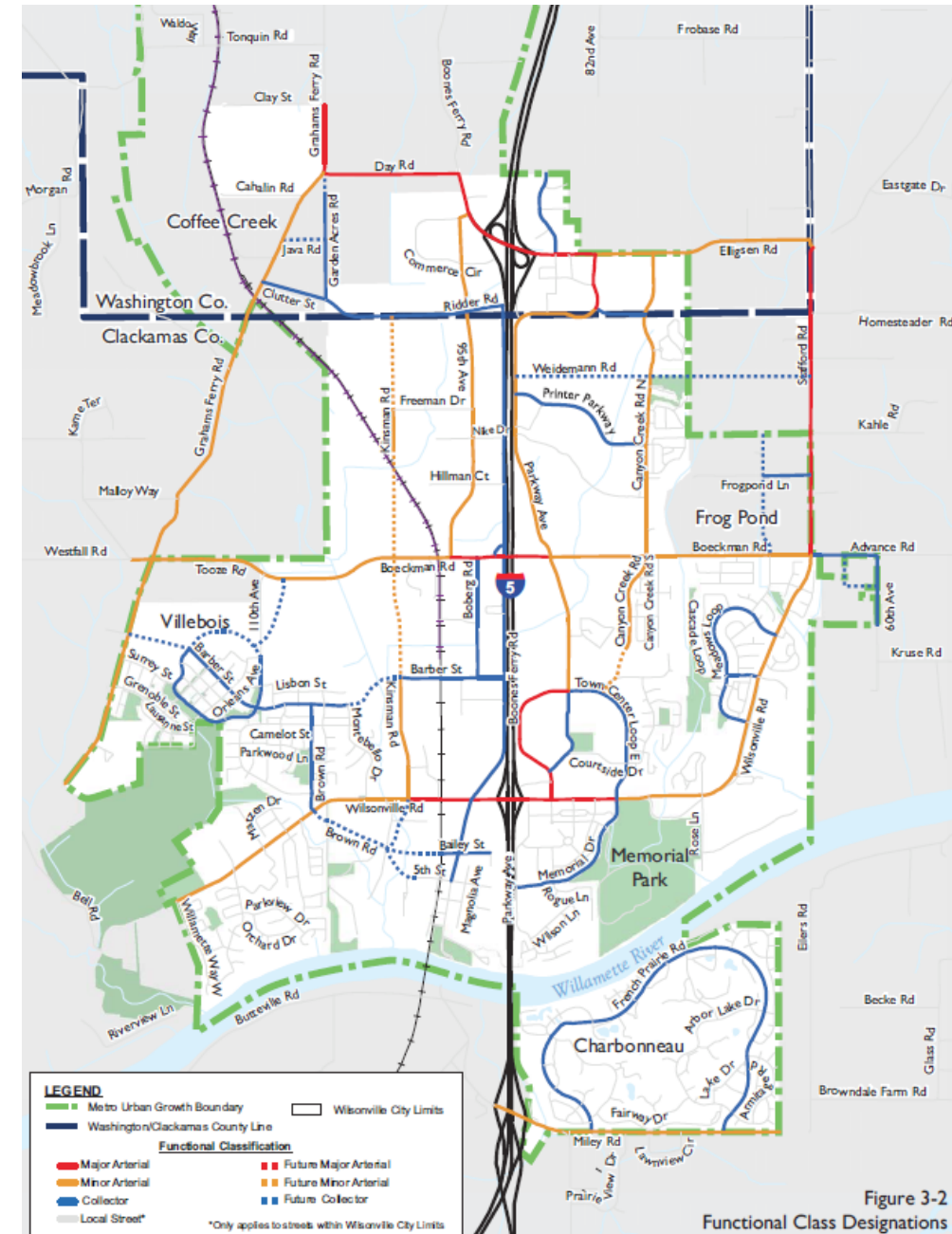


Figure 3-2  
Functional Class Designations

# FIGURE 3-4: FREIGHT ROUTES

- Update the UGB to include the area surrounding the proposed Advance Road Middle School.
- Remove the Kinsman Road extension.
- Classify Garden Acres Road as a truck route.

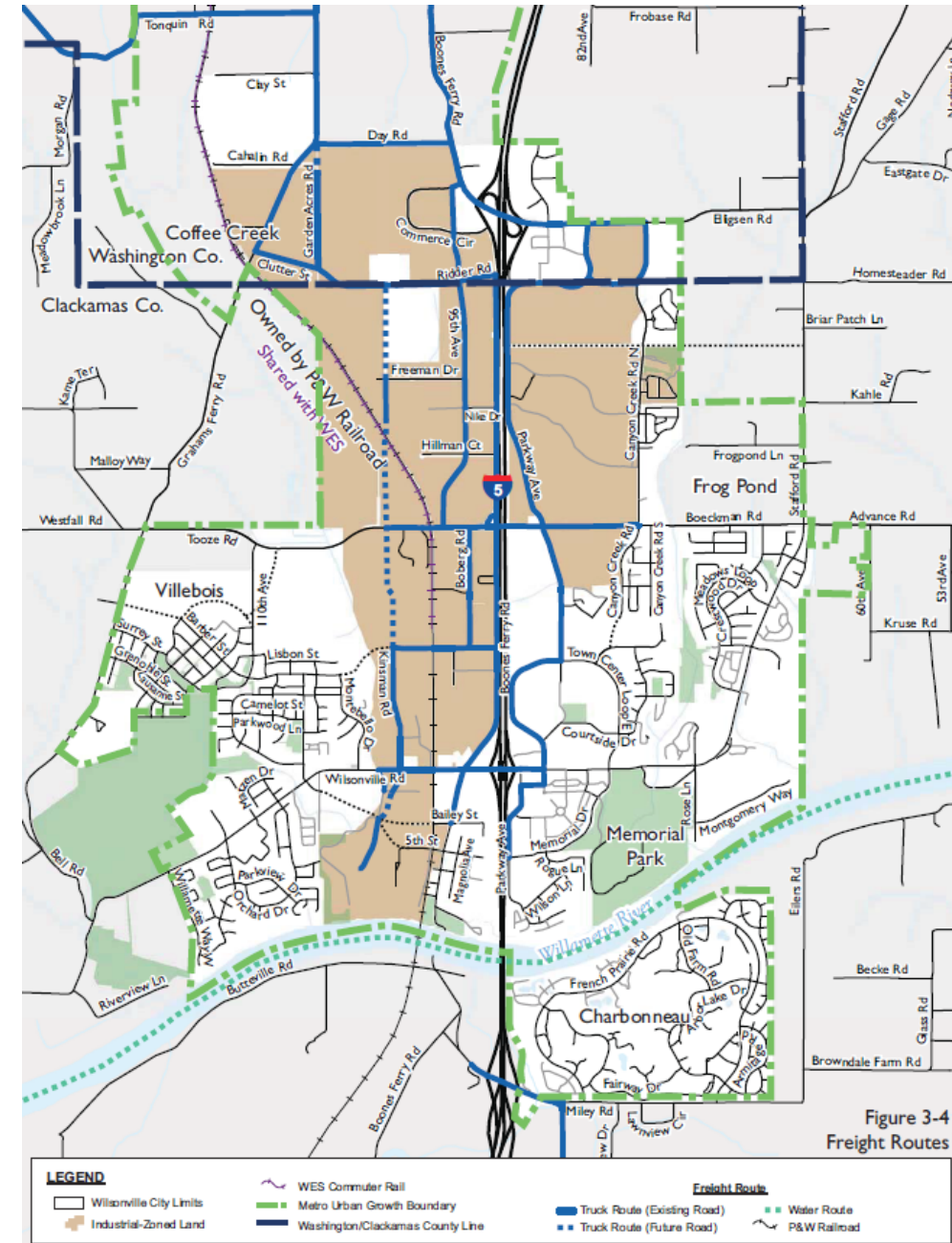


Figure 3-4  
Freight Routes



# FIGURE 3-5: BICYCLE ROUTES

- Update the UGB to include the area surrounding the proposed Advance Road Middle School and show bike lanes on 63rd Avenue and Hazel Street.
- Update to show bike lanes on Advance Road to 60th Avenue.
- Remove the Kinsman Road extension and update the alignment of the proposed future shared use paths in the area.
- Add the planned bike lanes on the future Java Road collector.
- Show the planned future bike lanes on Garden Acres Road.
- Show the planned future bike facilities on Printer Parkway.
- Update the bicycle facilities and shared used paths in the Frog Pond area as designated in the Frog Pond Area Plan.

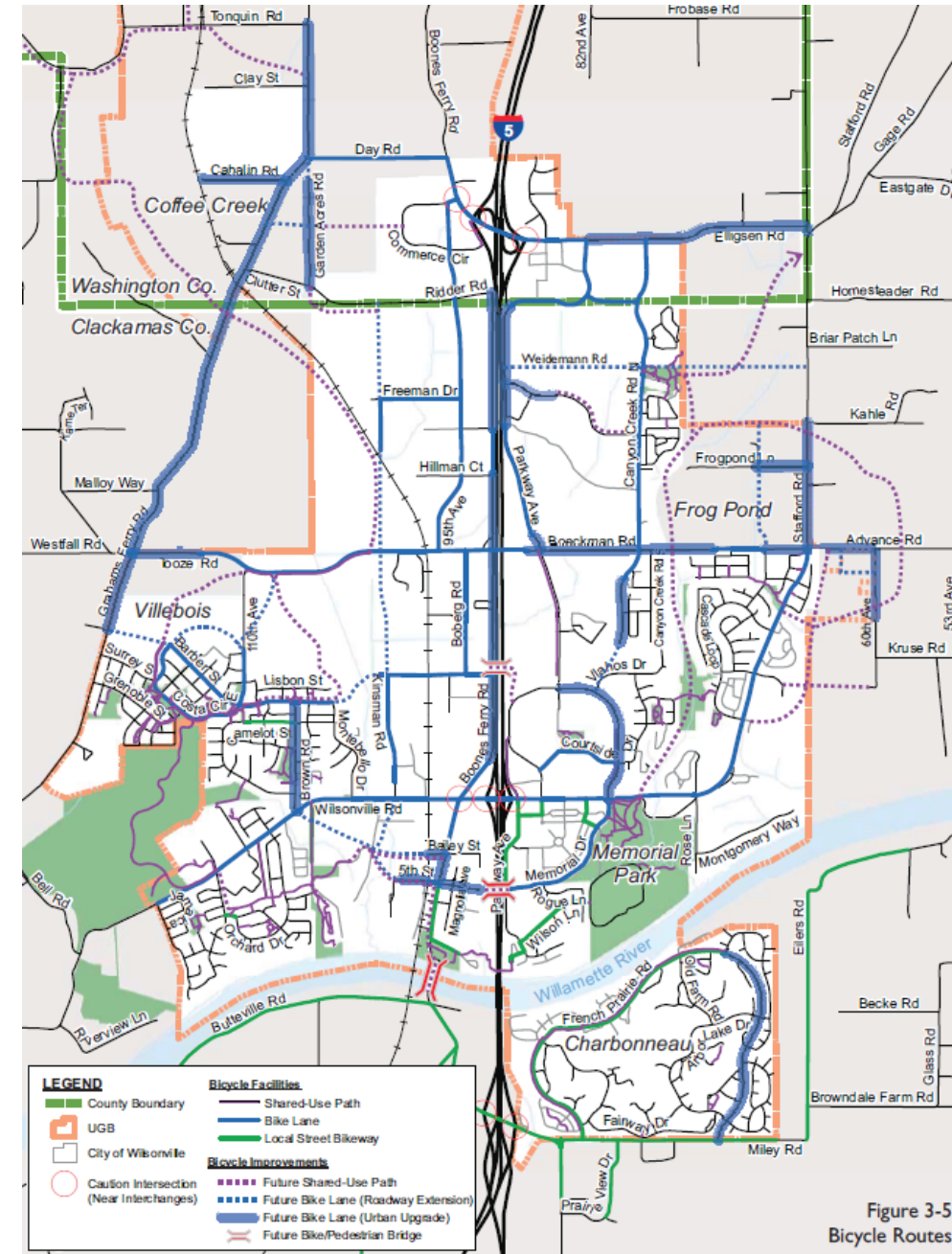
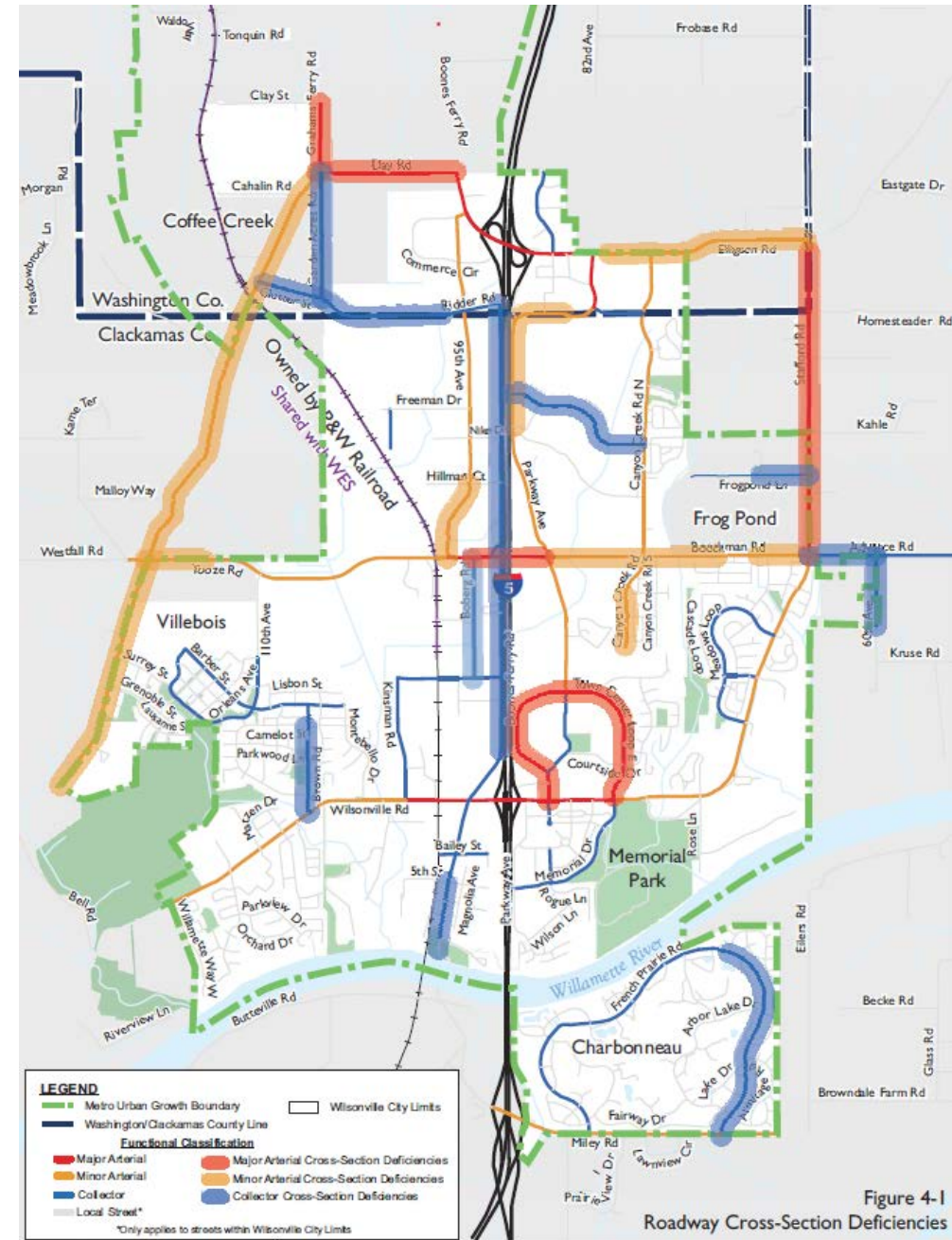


Figure 3-5  
Bicycle Routes

# FIGURE 4-1: CROSS-SECTION DEFICIENCIES

- Update the UGB to include the area surrounding the proposed Advance Road Middle School.
- Highlight Garden Acres Road as experiencing existing collector cross-section deficiencies.
- Highlight Printer Parkway as experiencing existing collector cross-section deficiencies.
- Highlight Advance Road between Stafford Road and 60th Avenue as experiencing collector cross-section deficiencies.
- Highlight 60th Avenue adjacent to the proposed Advance Road Middle School site as experiencing collector cross-section deficiencies.



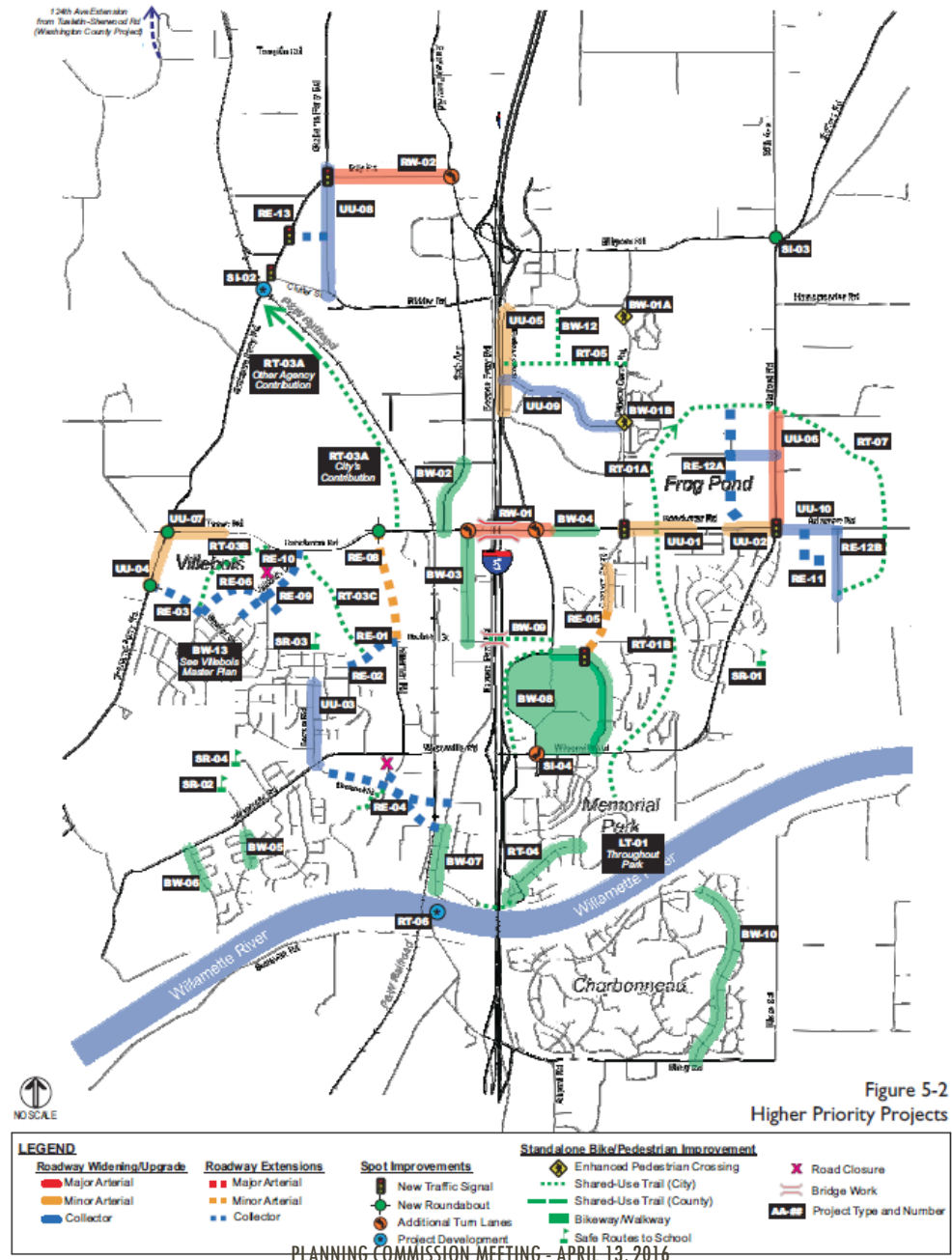
# FIGURE 5-2: HIGHER PRIORITY PROJECTS

## Remove the following projects:

- RE-07 Kinsman Road Extension
- BW-11 Frog Pond Trails
- RT-02 Frog Pond Trail

## Add the following projects:

- UU-08 Garden Acres Road Urban Upgrade
- UU-09 Printer Parkway Urban Upgrade
- RE-11 Advance Road Middle School Collector Roads
- UU-10 Advance Road Urban Upgrade
- RE-12A Frog Pond West Neighborhood Collector Roads
- RE-12B Frog Pond South Neighborhood Collector Road
- RE-13 Java Road Connection and Signal
- RT-07 Revised Frog Pond Regional Trail



# FIGURE 5-7: ADDITIONAL PLANNED PROJECTS

- Update project BW-P2 Commerce Circle Loop Sidewalk Infill to include sidewalk infill on Boones Ferry Road from Commerce Circle to Day Road.
- Delete project UU-P1 Advance Road Urban Upgrade (this was changed to a higher priority project UU-10).

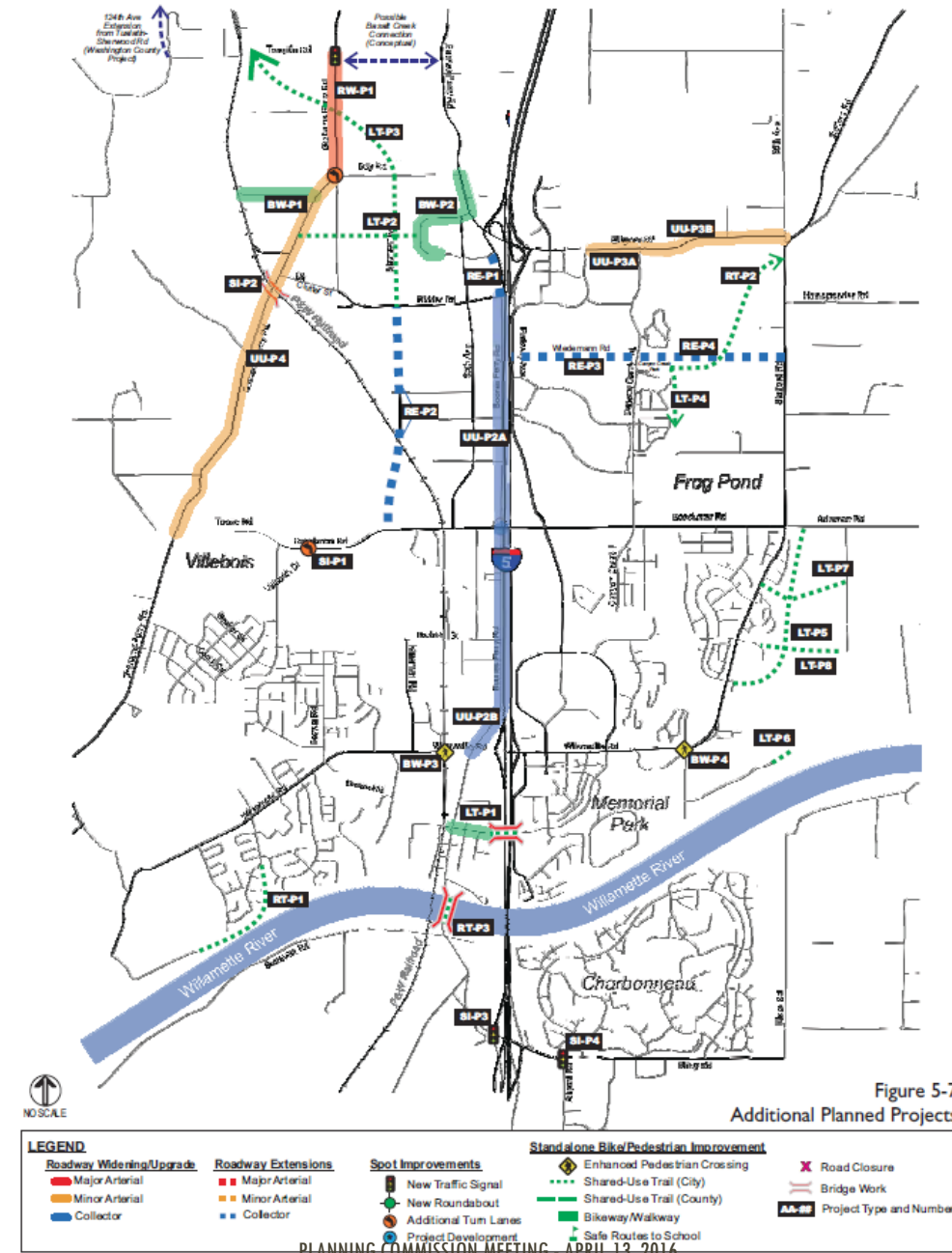


Figure 5-7  
Additional Planned Projects

# PROJECTS ADDED SINCE LAST MEETING

## BW-15 Property Acquisitions for Bike/Ped Connectivity

- “Provide set-aside funds to allow purchase of strategically located properties that can facilitate bicycle and pedestrian connections as these properties become available.”
- Consistent with City of Wilsonville Council Goals (Goals 4, 9, and 10)
- Estimated Planning level cost of \$1,000,000
- Would support policy areas (see Chapter 2 of existing TSP) including:
  - System Design – Provide safe, well-connected system for all modes
  - Connectivity – Adding bicycle and pedestrian connections
  - Active Transportation – Encouraging active transportation options





**PLANNING COMMISSION  
WEDNESDAY, APRIL 13, 2016**

**VII. WORK SESSION**

A. Transit Master Plan Update (Massa Smith)



## PLANNING COMMISSION MEETING STAFF REPORT

<b>Meeting Date:</b>  April 13, 2016	<b>Subject:</b> Transit Master Plan (TMP) update & Public Involvement Plan  <b>Staff Member:</b> Jen Massa Smith <b>Department:</b> Transit	
<b>Action Required</b>	<b>Advisory Board/Commission Recommendation</b>	
<input type="checkbox"/> Motion <input type="checkbox"/> Public Hearing Date: <input type="checkbox"/> Ordinance 1 <sup>st</sup> Reading Date: <input type="checkbox"/> Ordinance 2 <sup>nd</sup> Reading Date: <input type="checkbox"/> Resolution <input checked="" type="checkbox"/> Information or Direction <input type="checkbox"/> Information Only <input type="checkbox"/> Council Direction <input type="checkbox"/> Consent Agenda	<input type="checkbox"/> Approval <input type="checkbox"/> Denial <input type="checkbox"/> None Forwarded <input checked="" type="checkbox"/> Not Applicable	
<b>Comments:</b>		
<b>Staff Recommendation:</b>		
<b>Recommended Language for Motion:</b>		
<b>Project / Issue Relates To:</b> <i>[Identify which goal(s), master plans(s) your issue relates to.]</i>		
<input type="checkbox"/> Council Goals/Priorities	<input checked="" type="checkbox"/> Adopted Master Plan(s) Transit Master Plan (TMP)	<input type="checkbox"/> Not Applicable

### ISSUE BEFORE COMMISSION:

Staff and consultants will provide an update of SMART’s Transit Master Plan (TMP) public involvement related to the first community survey and various focus group workshops. An overview of upcoming activities including “Service Options Development” will be presented and discussed.

If you would like a quick refresher about SMART and the current TMP before your meeting, please visit [www.PlanSmartWilsonville.com](http://www.PlanSmartWilsonville.com)

**EXECUTIVE SUMMARY:**

The Transit Master Plan is SMART’s guiding planning document and as such, will lay out the framework for what types of transportation options the City of Wilsonville wants to provide and at what level of transit service the community would like to see and support.

Current operations will be analyzed so that SMART can offer relevant and quality service that has the potential to retain and attract more riders of all ages and backgrounds.

Public participation is a crucial part of preparing a strong and successful Transit Master Plan. The citizens and the business community of Wilsonville have been asked to provide input and help shape the plan.

**EXPECTED RESULTS:**

**TIMELINE:**

**Phases:**

The TMP update represents four key phases:

Phase 1: Identification of Issues and Opportunities (January – April)

Phase 2: Service and Options Development (May – June)

Phase 3: Service Options Review (July – August)

Phase 4: Plan Development and adoption (September – October/November)

**CURRENT YEAR BUDGET IMPACTS:**

This project is mainly grant funded by the Federal Transit Administration (FTA) and ODOT. All activities associated with this project during this fiscal year are included in the current adopted budget.

**FINANCIAL REVIEW / COMMENTS:**

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

**LEGAL REVIEW / COMMENT:**

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

**COMMUNITY INVOLVEMENT PROCESS:**

Public engagement efforts are being tailored to reach people in practical and convenient ways so that the updated plan reflects learning from the diverse spectrum of existing system users and potential users.



Core activities include:

- Interviews with community stakeholders in SMART's identified 11 geographic service areas (businesses, residents, civic organizations, faith-based institutions, commercial and retail centers, schools and higher educational institutions, social services, etc.)
- Workshop and focus groups for targeted input
- Community-wide surveys (online, paper, and via mobile kiosks) to identify needs and opportunities and the service options to address them
- Speaking engagements to reach community organizations
- Event outreach to bring information to where Wilsonville gathers
- E-updates [the initial interested parties list currently represents over 400 community individuals, businesses, civic organizations, churches, schools, etc.]

**POTENTIAL IMPACTS or BENEFIT TO THE COMMUNITY:**

Some people use transit because they want to save money or reduce pollution. Some ride SMART because they have to in order to get around. SMART's goals for this project all stem from the mission to provide high quality transportation options to employees and residents of Wilsonville.

Special attention is being given throughout the process to reach under-represented voices such as older adults, people with disabilities, youth, low-income, communities of color, and those with limited English proficiency.

**ALTERNATIVES:**

**CITY MANAGER COMMENT:**

**ATTACHMENTS:**

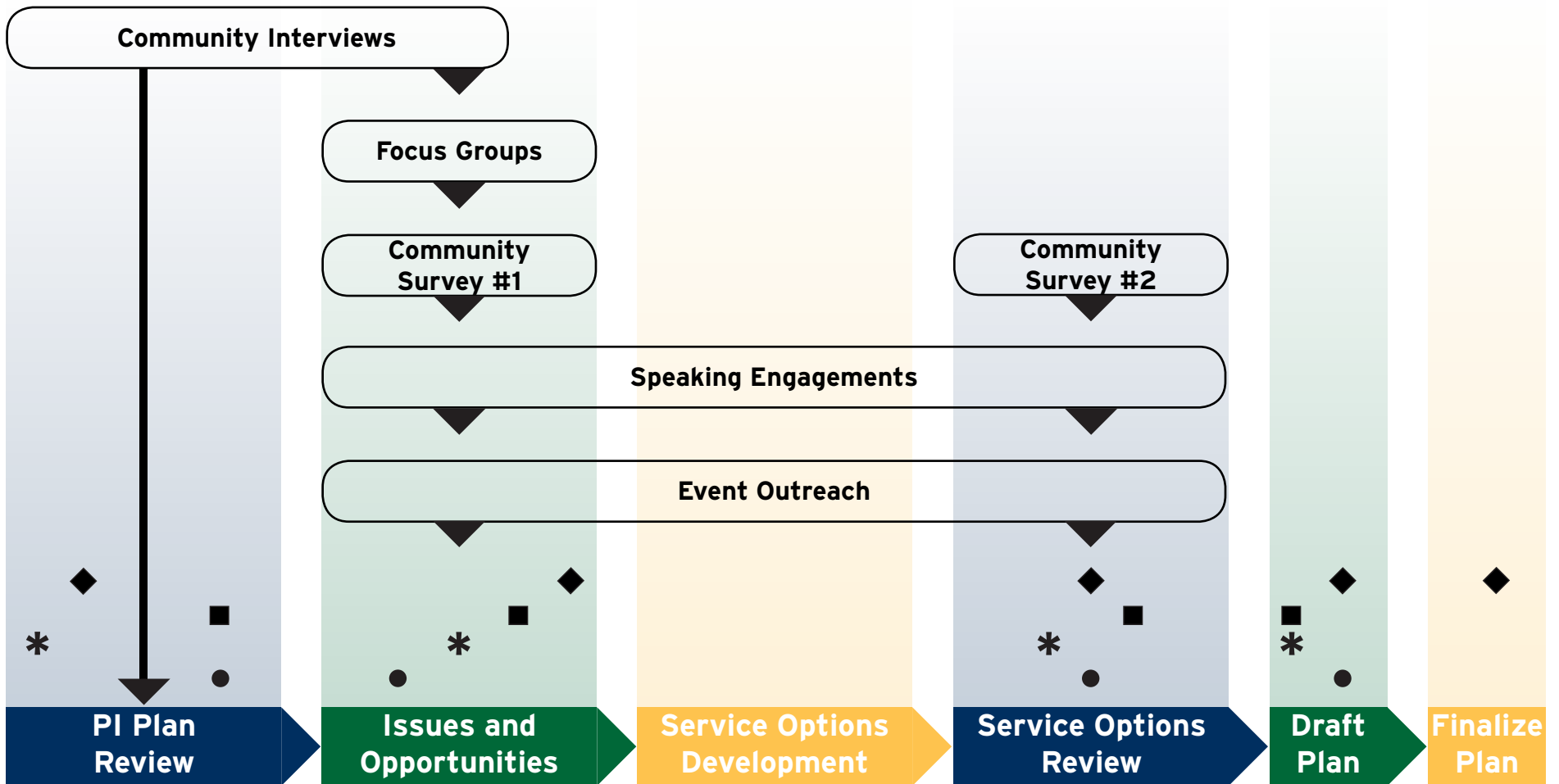
- A. Timeline

# Public Involvement Process



2016

Jan Feb Mar Apr May Jun Jul Aug Sept Oct



**Timeline Key:** ◆ City Council Update    ■ Planning Commission    \* TMP Task Force    ● E-Update



**PLANNING COMMISSION  
WEDNESDAY, APRIL 13, 2016**

**VIII. OTHER BUSINESS**

A. 2016 Planning Commission Work Program

**2016 WORK PROGRAM  
Planning Commission**

updated:  
4/6/2016

DATE	AGENDA ITEMS		
	Informational	Work Sessions	Public Hearings
<b>January 13</b>	Town Center Master Plan (Bateschell)	Basalt Creek Concept Planning Update (Bateschell)	
<b>February 10</b>	Bike Wayfinding Signage Plan	Transit Master Plan Public Involvement Strategy	
<b>March 9</b>	Basalt Creek Concept Plan 2015 Housing Report	Frog Pond Master Plan TSP Amendments	
<b>April 13</b>	2015 Housing Report	Transit Master Plan Update	TSP Amendments
<b>May 11</b>	<b>Committee For Citizen Involvement (CCI)</b> Open House: Frog Pond Master Plan 5:00 - 6:30		
<b>May 11</b> <small>PC Meeting to start 7 pm due to Open House</small>		Basalt Creek Concept Plan (Open House 4/28) Town Center Master Plan Frog Pond Master Plan	
<b>June 08</b>		FEMA Amendments FCC Cell Tower Amendments Industrial Form-based Code	
<b>July 13</b>	<b>Committee For Citizen Involvement (CCI)</b> Open House: Frog Pond Master Plan 5:00 - 6:30		
<b>July 13</b> <small>PC Meeting to start 7 pm due to Open House</small>		Frog Pond Master Plan (Open House Prior)	
<b>August 10</b>		Basalt Creek Concept Plan Transit Master Plan Update Frog Pond Master Plan	FEMA Amendments FCC Cell Tower Amendments
<b>September 14</b>		Citywide Signage & Wayfinding	Basalt Creek Concept Plan Transit Master Plan Update Frog Pond Master Plan
<b>October 12</b>	<b>Committee For Citizen Involvement (CCI)</b> Open House: French Prairie Bridge 5:00 - 6:30		
<b>October 12</b> <small>PC Meeting to start 7 pm due to Open House</small>		French Prairie Bridge (Open House)	
<b>November 9</b>		Town Center Master Plan	
<b>December 14</b>			

**2016**

- 1 **LP16-0001 Transportation System Plan (TSP)**
- 2 **Frog Pond Master Plan (Phase 2 )**
- 3 **Basalt Creek Concept Planning**
- 4 **Transit Master Plan**
- 5 **Coffee Creek Industrial Area Form-Based Code**
- 6 **French Prairie Bike/Ped Bridge**
- 7 Parks & Rec MP Update
- 8 Signage and way finding program
- 9 **Town Center Master Plan**
- 10 **Code Amendments**
- 11 **Floodplain Administration**

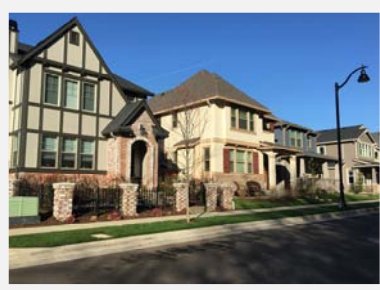
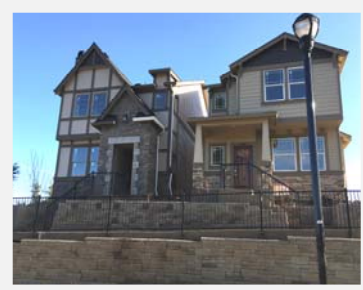
*\*Projects in bold are being actively worked on in preparation for future worksessions*



**PLANNING COMMISSION  
WEDNESDAY, APRIL 13, 2016**

**VIII. OTHER BUSINESS**

B. Annual Housing Report



# WILSONVILLE

## 2015

# ANNUAL HOUSING REPORT

ORIGINAL PUBLICATION: MARCH 2016

The City of Wilsonville Building Permit Database was the primary source for the data and information presented in this report.

Staff of the City of Wilsonville prepared this report, with special acknowledgement to:

CHRIS NEAMTZU, PLANNING DIRECTOR  
MIRANDA BATESCHELL, LONG-RANGE PLANNING MANAGER  
JENN SCOLA, ASSISTANT PLANNER  
DAN STARK, GIS MANAGER  
BECKY WHITE, PERMIT TECHNICIAN  
TAMI BERGERON, ADMINISTRATIVE ASSISTANT  
SUSAN ROTHENBERGER, GIS & MAPPING TECHNICIAN



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*Although an effort is made to assure the accuracy and completeness of the information provided in this annual report, the City of Wilsonville makes no expressed or implied warranty as to the accuracy, adequacy, completeness, legality, reliability or usefulness of the report's information. The City of Wilsonville provides this information and all report services on an "as is" basis. While there may be changes to the City of Wilsonville's information on topics covered in this annual report, these changes may or may not be made available until after this report publication.*

# A SNAPSHOT OF 2015



**324** HOUSEHOLDS  
PERMITTED

**312** SINGLE-FAMILY  
**96%**

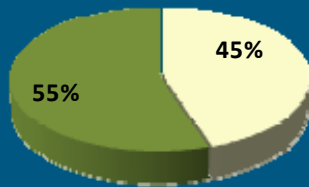
**12** MULTI-FAMILY  
**4%**

**\$80,299,804**

TOTAL VALUE OF CONSTRUCTION COSTS



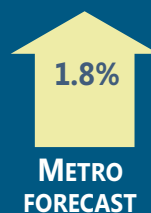
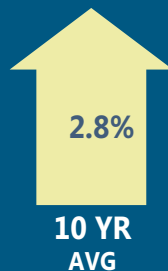
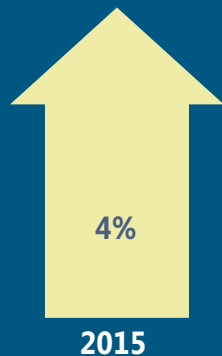
## 2015 CITYWIDE HOUSEHOLD INVENTORY



■ Single Family  
■ Multi-Family



## HOUSEHOLD GROWTH



**6.3%** POPULATION GROWTH (2013-2015)

*"I believe that our community benefits when we are better able to accommodate a range of housing options desired by residents at different times of their lives: as singles, couples, families and retirees.*

*Wilsonville experienced a second consecutive year of a record level of single-family home construction. As the economy has continued to recover from the Great Recession and unemployment declines, the housing market has swung back to traditional single-family homes."*

– MAYOR TIM KNAPP



# HOUSING ACTIVITY IN THE

The City of Wilsonville experienced a record-high level of single-family home construction in calendar year 2015. In 2015, the City of Wilsonville issued permits for a total of 312 households in single-family homes with a valuation of \$78.6 million and 12 households in multi-family homes with a valuation of \$1.7 million. For the third consecutive year, both the number of single-family home permits issued and the value of new residential construction are record Wilsonville levels. 2015 exceeded the prior record-setting years of 2013 and 2014 when 180 and 246 single-family building permits were issued, respectively.

The range of housing types developed over the past year offer exciting opportunities for everyone in the community: entry-level townhomes, traditional single-family homes, and riverfront living with boat amenities at the Renaissance Boat Club. The majority of residential projects permitted were single-family homes, which was expected given a 2014 housing study that identified a need for more detached single-family housing in the city. The impact citywide has been a shift of single-family homes representing 45% of the housing supply, up from 43% just two years ago.

In 2015, the total number of 324 new residential units built in Wilsonville is 34 percent greater than the 10-year average of 244 units per year. This household growth represents a rate increase of 3.3% in 2015, following a growth rate of 4% in 2014. This growth maintains a 10-year average annual household growth rate of 2.8% and remains well above the 1.8% household growth assumed by the regional forecast.



**\$384,500**

AVERAGE SELLING PRICE  
SOURCES: ZILLOW.COM, REALTOR.COM



in 2015

WITH A MORTGAGE PAYMENT OF **39%**  
OF THE AVERAGE FAMILY'S INCOME

# CITY OF WILSONVILLE

Major residential construction remains due to the continued emergence from the Great Recession as well as significant rates of migration to Oregon and Wilsonville due to the growing economy and high-quality of life here. The majority of new home-building is occurring in Villebois, where home-builders Legend Homes, Polygon Northwest, and Lennar are active, as well as Brenchley Estates, the Grove, and Renaissance Boat Club.

This growth also resulted in home prices showing strong gains in value; the average sale price rose 8% over 2015. The increase in housing values raised the average sale price of a home to \$385,000 putting it 6% above the affordability target<sup>1</sup> for the average Wilsonville family (based on the median household income reported by the 2013 U.S. Census: \$56,430). With a continued increase in home values, the city's commitment to providing a range of housing options to meet the various preferences and income levels of Wilsonville employees and residents remains critical.

Residential growth is expected to remain strong. In addition to the record-setting number of residential permits issued, the city approved plans for a total of 235 future single-family homes anticipated to be built between 2016 and 2018. These projects include row homes located in Villebois and residential infill in Old Town. Details on approved plans and issued permits are included in the following pages.

<sup>1</sup> Housing affordability is commonly defined as 33% or less of household income being spent on rent or mortgage expenses. Mortgage calculation assumes 20% down payment and 30-year term at a fixed rate of 3.8%. A mortgage payment of \$1565 meets the affordability index and represents a home sale price of \$317,000.

## 235 HOMES



WERE APPROVED BY THE DEVELOPMENT REVIEW BOARD IN 2015  
CONSTRUCTION ANTICIPATED 2016-2018

**235** SINGLE-FAMILY    **0** MULTI-FAMILY

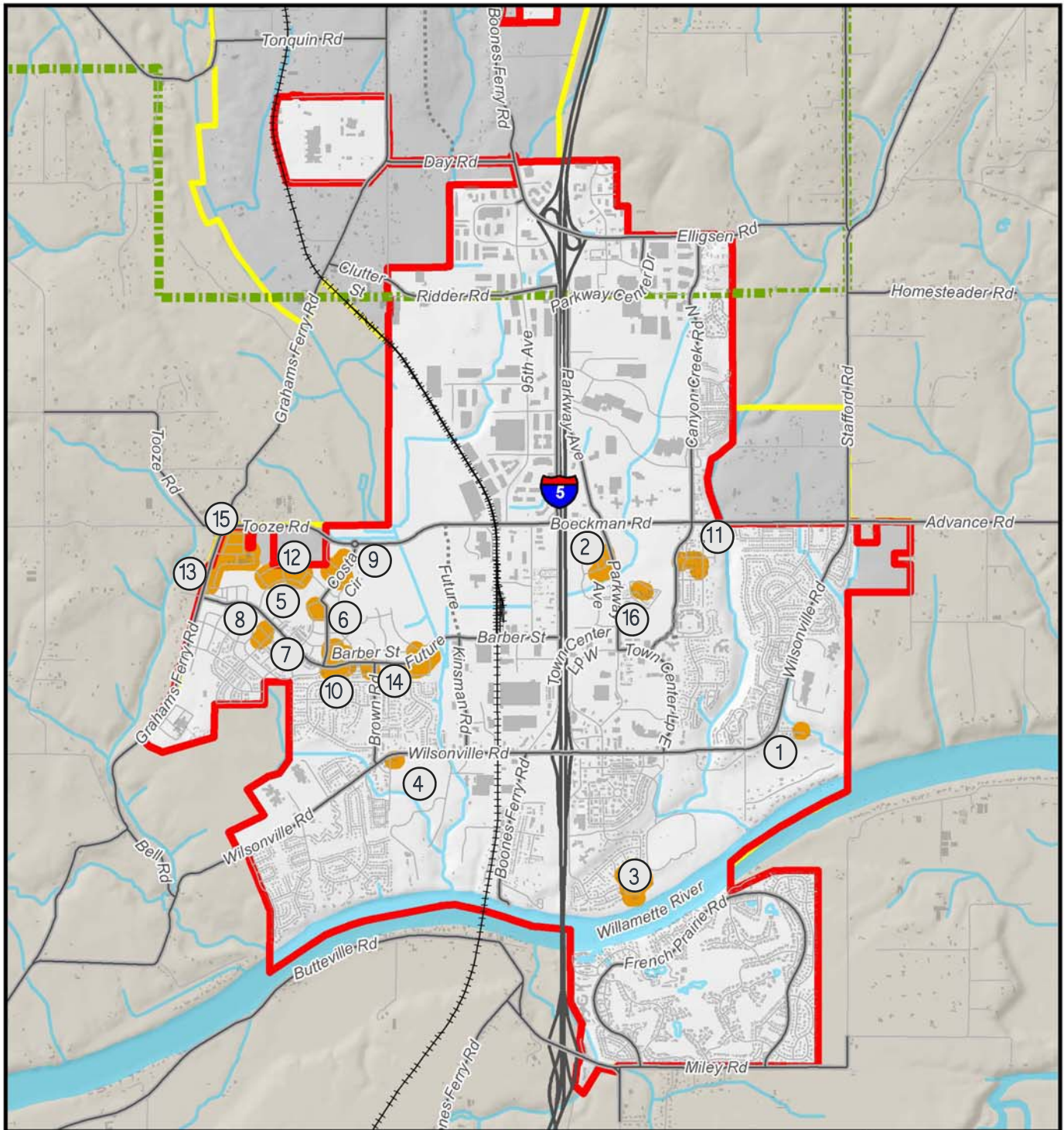
**100%**                      **0%**

# RESIDENTIAL PERMITS ISSUED



*“This is the second year in a row that the City has seen a record number of single family home starts. I feel fortunate to be part of our dedicated Community Development staff that continues to provide quality livability standards for our community in addition to the needed infrastructure and inspection services all while maintaining current staffing levels.”*

*Martin Brown  
Wilsonville Building Official*



**The City of Wilsonville, Oregon**  
Clackamas and Washington Counties

**2015 Approved Building Permits**

- City Limits
- County Boundary
- UGB

- |                               |                      |
|-------------------------------|----------------------|
| ① CEDAR POINTE                | ⑫ TONQUIN WOODS 6    |
| ② GROVE SINGLE FAMILY NORTH   | ⑬ TONQUIN WOODS 7    |
| ③ RENAISSANCE BOAT CLUB       | ⑭ RETHERFORD MEADOWS |
| ④ WILSONVILLE GREENS          | ⑮ CALAIS             |
| ⑤ TONQUIN WOODS 4             | ⑯ ASH MEADOWS        |
| ⑥ TONQUIN MEADOWS 2           |                      |
| ⑦ OFFICERS ROW                |                      |
| ⑧ CARVALHO DUPLEXES           |                      |
| ⑨ TONQUIN MEADOWS             |                      |
| ⑩ LEGEND AT VILLEBOIS         |                      |
| ⑪ RENAISSANCE AT CANYON CREEK |                      |



3/2/2016



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1

ISSUED BUILDING PERMITS

# CEDAR POINTE



aerial photo dated Summer 2015

APPROVED: SPRING 2015



PHOTO TAKEN FEBRUARY 2016

## SITE CHARACTERISTICS

NUMBER OF HOMES: 1 OF 15

LOT SIZE: 1400 SF (AVG 1,400 SF)

NET ACRES FOR HOUSING: 0.32

NET DENSITY: 3.11 UNITS PER ACRE

CONSTRUCTION BY: INDEPENDENT BUILDER

CONSTRUCTION VALUE: \$416,307

HOUSING TYPE: SINGLE FAMILY

LOCATION: CEDAR POINTE

ZONING: PDR-2

# 2

ISSUED BUILDING PERMITS

# GROVE SINGLE FAMILY NORTH



aerial photo dated Summer 2015

APPROVED: SPRING—FALL 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 21 OF 27

LOT SIZE: 4500– 6555 SF (AVG 5,116 SF)

NET ACRES FOR HOUSING: 2.47

NET DENSITY: 8.50 UNITS PER ACRE

CONSTRUCTION BY: LENNAR NW, INC.

CONSTRUCTION VALUE: \$5,438,833

HOUSING TYPE: SINGLE FAMILY

LOCATION: BRENCHLY ESTATES

ZONING: PDR-5



PHOTO TAKEN FEBRUARY 2016

# 3

ISSUED BUILDING PERMITS

# RENAISSANCE BOAT CLUB



aerial photo dated Summer 2015

APPROVED: SPRING—FALL 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 13 OF 33

LOT SIZE: 5,000—7,841 SF (AVG 6,252 SF)

NET ACRES FOR HOUSING: 1.87

NET DENSITY: 6.95 UNITS PER ACRE

CONSTRUCTION BY: RENAISSANCE CUSTOM HOMES

CONSTRUCTION VALUE: \$5,051,976

HOUSING TYPE: SINGLE FAMILY

LOCATION: WEST OF MEMORIAL PARK, ON THE RIVER

ZONING: PDR-4



PHOTOS TAKEN FEBRUARY 2016



aerial photo dated Summer 2015

APPROVED: FALL 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 12 OF 12

LOT SIZE: 17,206 (AVG 17,206 )

NET ACRES FOR HOUSING: 0.79

NET DENSITY: 15.19 UNITS PER ACRE

CONSTRUCTION BY: WEST COAST HOME SOLUTIONS

CONSTRUCTION VALUE: \$1,671,176

HOUSING TYPE: MULTI-FAMILY

LOCATION: SOUTH SIDE OF WILSONVILLE ROAD, BETWEEN BROWN ROAD AND MONTEBELLO

ZONING: PDR-5



PHOTOS TAKEN FEBRUARY 2016





aerial photo dated Summer 2015

APPROVED: SUMMER—FALL 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 6 OF 37

LOT SIZE: 2,349—2,974 SF (AVG 2,427 SF)

NET ACRES FOR HOUSING: 0.34

NET DENSITY: 17.65 PER ACRE

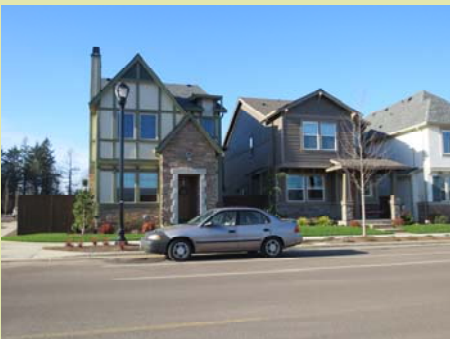
CONSTRUCTION BY: POLYGON

CONSTRUCTION VALUE: \$1,059,815

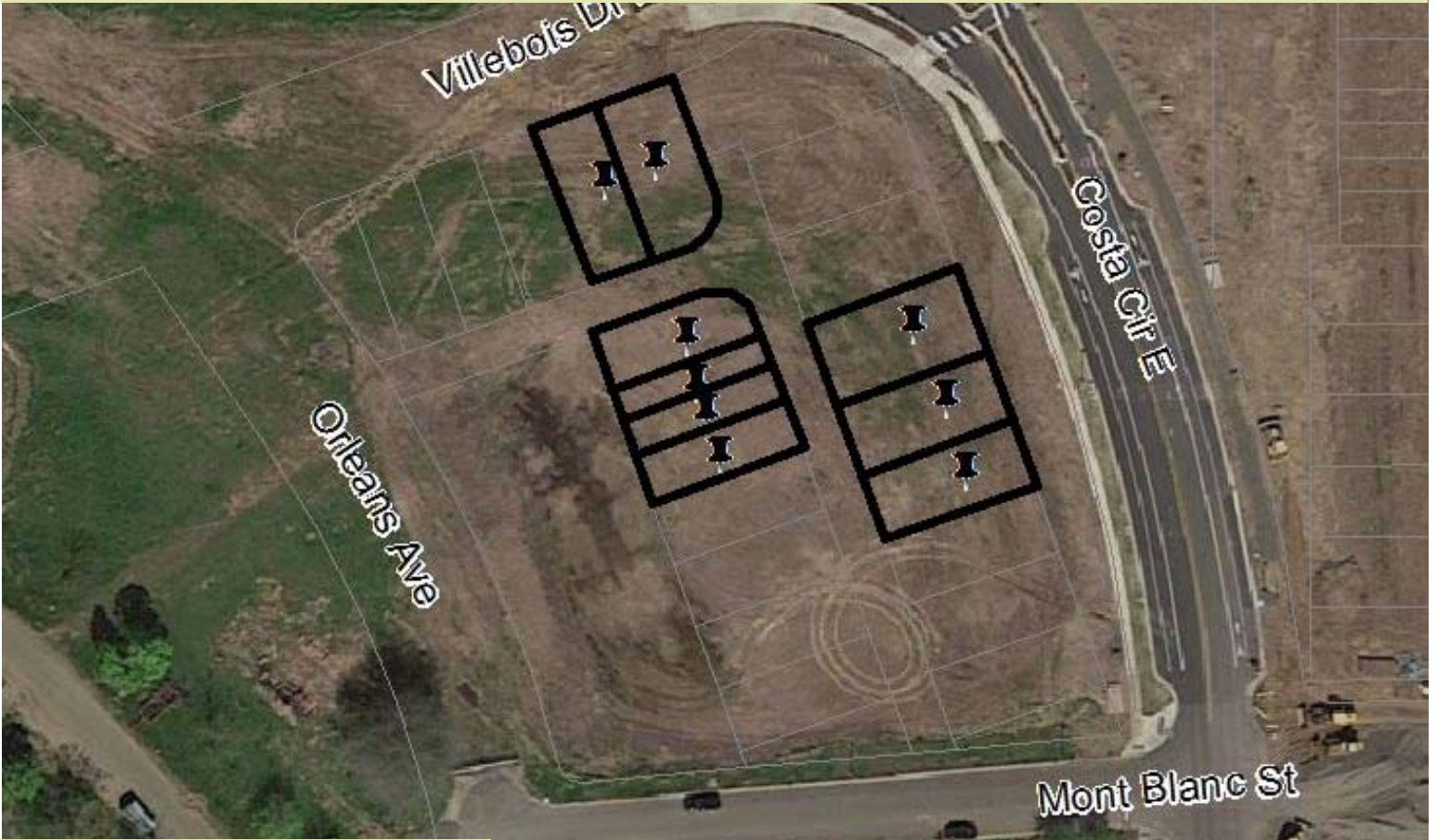
HOUSING TYPE: SINGLE FAMILY

LOCATION: VILLEBOIS NORTH

ZONING: VILLAGE



PHOTOS TAKEN FEBRUARY 2016



aerial photo dated Summer 2015

APPROVED: FALL 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 9 OF 21

LOT SIZE: 1,119—2,920 SF (AVG 2,039 SF)

NET ACRES FOR HOUSING: 0.42

NET DENSITY: 21.43 UNITS PER ACRE

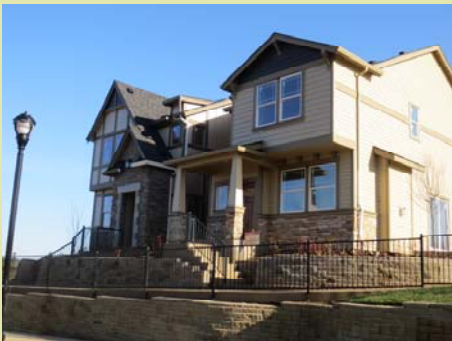
CONSTRUCTION BY: POLYGON

CONSTRUCTION VALUE: \$1,702,741

HOUSING TYPE: SINGLE FAMILY

LOCATION: VILLEBOIS EAST

ZONING: VILLAGE



PHOTOS TAKEN FEBRUARY 2016



aerial photo dated Summer 2015

APPROVED: FALL 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 7 OF 18

LOT SIZE: 1,974—2,432 SF (AVG 2,104 SF)

NET ACRES FOR HOUSING: 0.34

NET DENSITY: 20.59 UNITS PER ACRE

CONSTRUCTION BY: PNW LAND DEVELOPMENT

CONSTRUCTION VALUE: \$1,806,907

HOUSING TYPE: SINGLE FAMILY

LOCATION: VILLEBOIS CENTRAL

ZONING: VILLAGE



PHOTOS TAKEN FEBRUARY 2016



aerial photo dated Summer 2015

APPROVED: FALL 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 2 OF 3

LOT SIZE: 3,342 SF (AVG 3,342 SF)

NET ACRES FOR HOUSING: 0.15

NET DENSITY: 13.33 UNITS PER ACRE

CONSTRUCTION BY: PNW LAND DEVELOPMENT

CONSTRUCTION VALUE: \$167,967

HOUSING TYPE: SINGLE FAMILY

LOCATION: VILLEBOIS CENTRAL

ZONING: VILLAGE



PHOTOS TAKEN FEBRUARY 2016

# TONQUIN MEADOWS



aerial photo dated Summer 2015

APPROVED: SPRING—SUMMER 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 43 OF 205 (PHASE 1)

LOT SIZE: 951—3,429 SF (AVG 1,928 SF)

NET ACRES FOR HOUSING: 1.91

NET DENSITY: 22.51 UNITS PER ACRE

CONSTRUCTION BY: POLYGON

CONSTRUCTION VALUE: \$7,615,518

HOUSING TYPE: SINGLE FAMILY

LOCATION: VILLEBOIS EAST

ZONING: VILLAGE



PHOTO TAKEN FEBRUARY 2016

# LEGEND AT VILLEBOIS



aerial photo dated Summer 2015

APPROVED: SPRING—WINTER 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 38 OF 88

LOT SIZE: 2,720— 4,504 SF (AVG 3,375 SF)

NET ACRES FOR HOUSING: 2.94

NET DENSITY: 12.92 UNITS PER ACRE

CONSTRUCTION BY: LEGEND HOMES

CONSTRUCTION VALUE: \$10,054,621

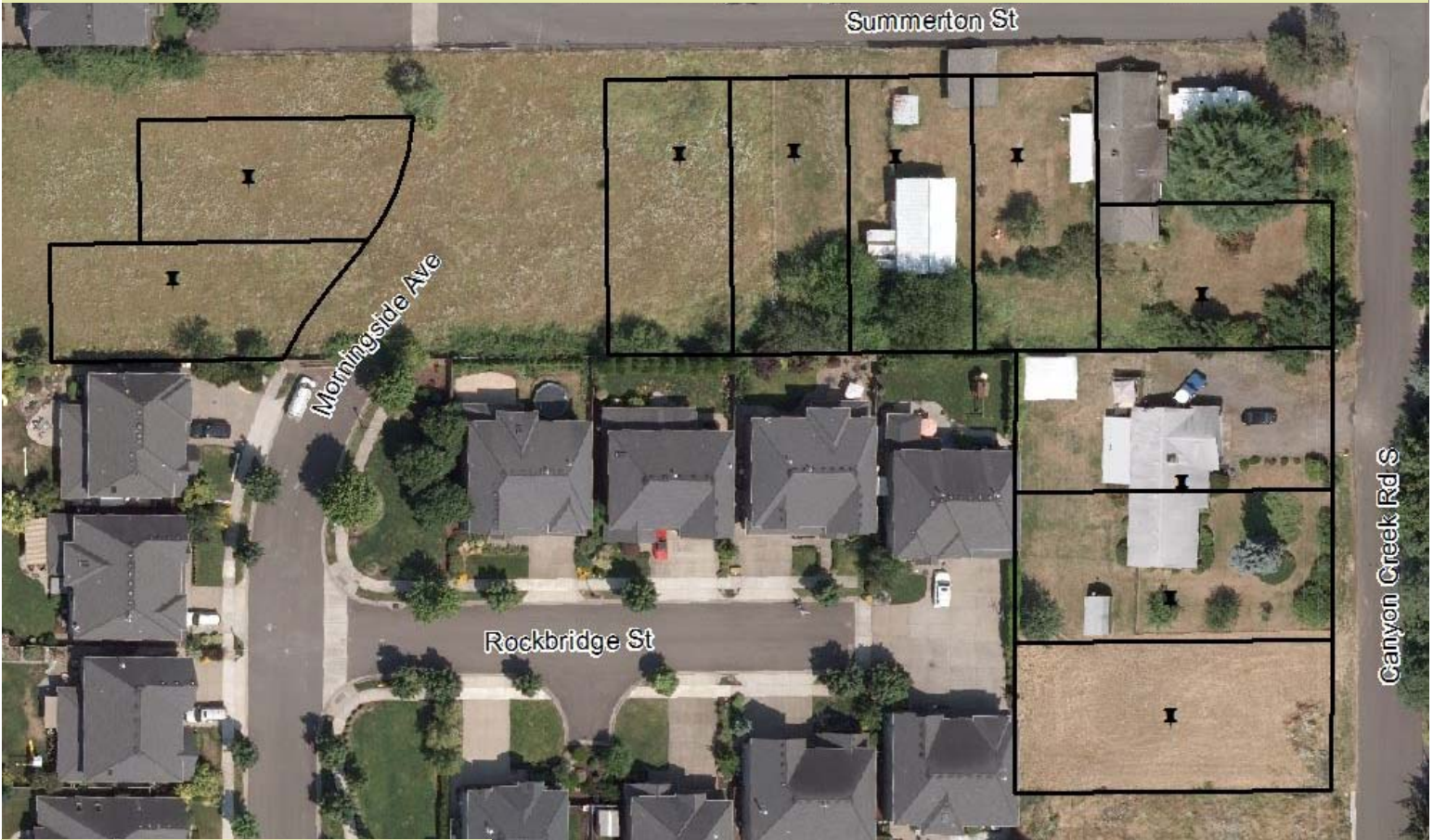
HOUSING TYPE: SINGLE FAMILY

LOCATION: VILLEBOIS EAST

ZONING: VILLAGE



PHOTOS TAKEN FEBRUARY 2016



aerial photo dated Summer 2015

APPROVED: SPRING—FALL 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 10 OF 10

LOT SIZE: 5,706—8,712 SF (AVG 6,582 SF)

NET ACRES FOR HOUSING: 1.51

NET DENSITY: 6.62 UNITS PER ACRE

CONSTRUCTION BY: RENAISSANCE HOMES

CONSTRUCTION VALUE: \$3,511,367

HOUSING TYPE: SINGLE FAMILY

LOCATION: SOUTH OF SUMMERTON ST, WEST OF CANYON CREEK ROAD SOUTH

ZONING: PDR-3



PHOTO TAKEN FEBRUARY 2016



aerial photo dated Summer 2015

APPROVED: SPRING—FALL 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 32 OF 32 BUILDING PERMITS

LOT SIZE: 2,336—3,024 SF (AVG 2,603 SF)

NET ACRES FOR HOUSING: 1.91

NET DENSITY: 16.75 UNITS PER ACRE

CONSTRUCTION BY: POLYGON

CONSTRUCTION VALUE: \$6,799,533

HOUSING TYPE: SINGLE FAMILY

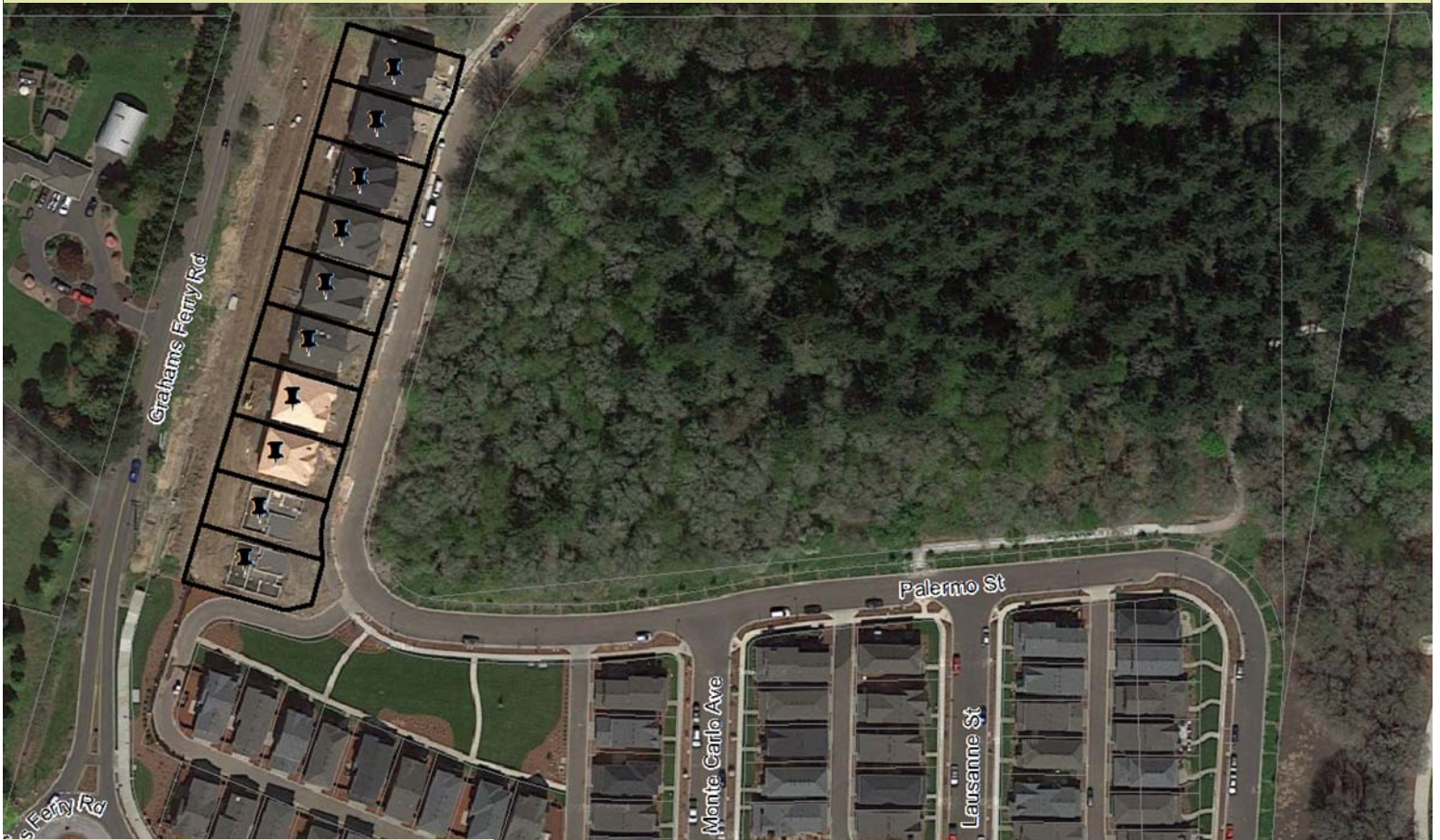
LOCATION: VILLEBOIS EAST

ZONING: VILLAGE



PHOTOS TAKEN FEBRUARY 2016





aerial photo dated Summer 2015

APPROVED: SPRING 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 10 OF 10 BUILDING PERMITS

LOT SIZE: 5,000—5,774 SF (AVG 5,138 SF)

NET ACRES FOR HOUSING: 1.18

NET DENSITY: 8.47 UNITS PER ACRE

CONSTRUCTION BY: POLYGON

CONSTRUCTION VALUE: \$3,193,862

HOUSING TYPE: SINGLE FAMILY

LOCATION: VILLEBOIS EAST

ZONING: VILLAGE

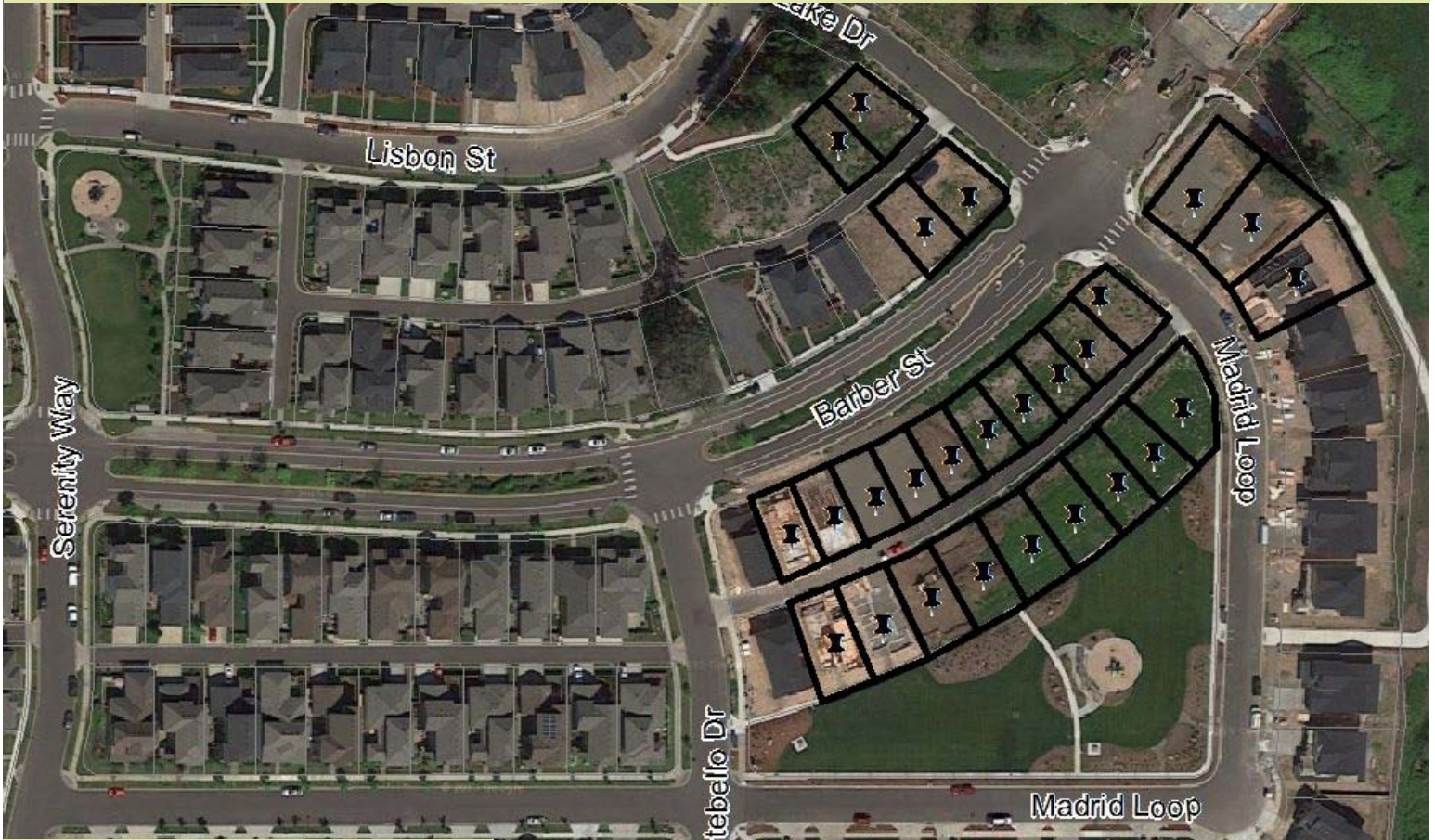


PHOTOS TAKEN FEBRUARY 2016

14

ISSUED BUILDING PERMITS

# RETFERFORD MEADOWS



aerial photo dated Summer 2015

APPROVED: SPRING-SUMMER 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 26 OF 88 BUILDING PERMITS

LOT SIZE: 2,590— 5,985 SF (AVG 3,471 SF)

NET ACRES FOR HOUSING: 2.07

NET DENSITY: 12.56 UNITS PER ACRE

CONSTRUCTION BY: LENNAR NW INC.

CONSTRUCTION VALUE: \$6,423,739

HOUSING TYPE: SINGLE FAMILY

LOCATION: VILLEBOIS EAST

ZONING: VILLAGE



PHOTO TAKEN FEBRUARY 2016



aerial photo dated Summer 2015

APPROVED: SPRING—SUMMER 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 84 OF 84 BUILDING PERMITS

LOT SIZE: 2,400—7,366 SF (AVG 4,037 SF)

NET ACRES FOR HOUSING: 7.79

NET DENSITY: 10.78 UNITS PER ACRE

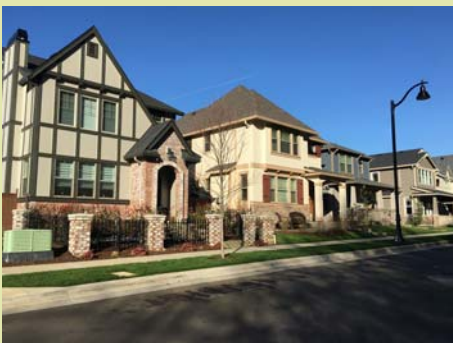
CONSTRUCTION BY: POLYGON

CONSTRUCTION VALUE: \$23,757,790

HOUSING TYPE: SINGLE FAMILY

LOCATION: VILLEBOIS NORTH

ZONING: VILLAGE



PHOTOS TAKEN FEBRUARY 2016



aerial photo dated Summer 2015

APPROVED: FALL 2015

## SITE CHARACTERISTICS

NUMBER OF HOMES: 10 OF 81

LOT SIZE: 1,204— 1,249 SF (AVG 1,220 SF)

NET ACRES FOR HOUSING: 0.28

NET DENSITY: 35.7 UNITS PER ACRE

CONSTRUCTION BY: BC CUSTOM CONSTRUCTION

CONSTRUCTION VALUE: \$1,490,623

HOUSING TYPE: SINGLE FAMILY

LOCATION: EAST OF PARKWAY, SOUTH OF MAXINE LN

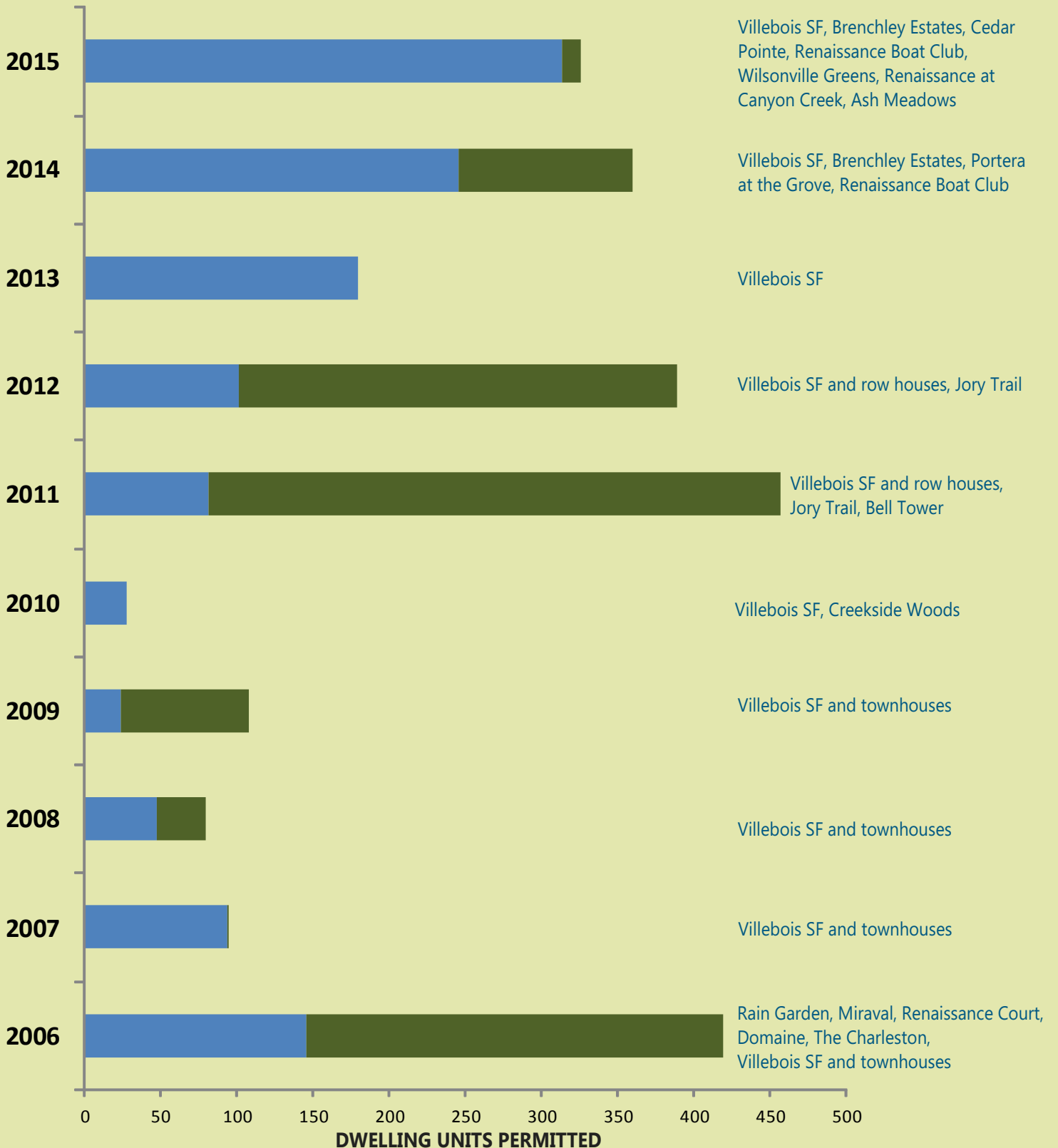
ZONING: PDR-5



PHOTOS TAKEN FEBRUARY 2016

# 10-YEAR DEVELOPMENT

SF Units Permitted MF Units Permitted



# TRENDS AND TIMELINE

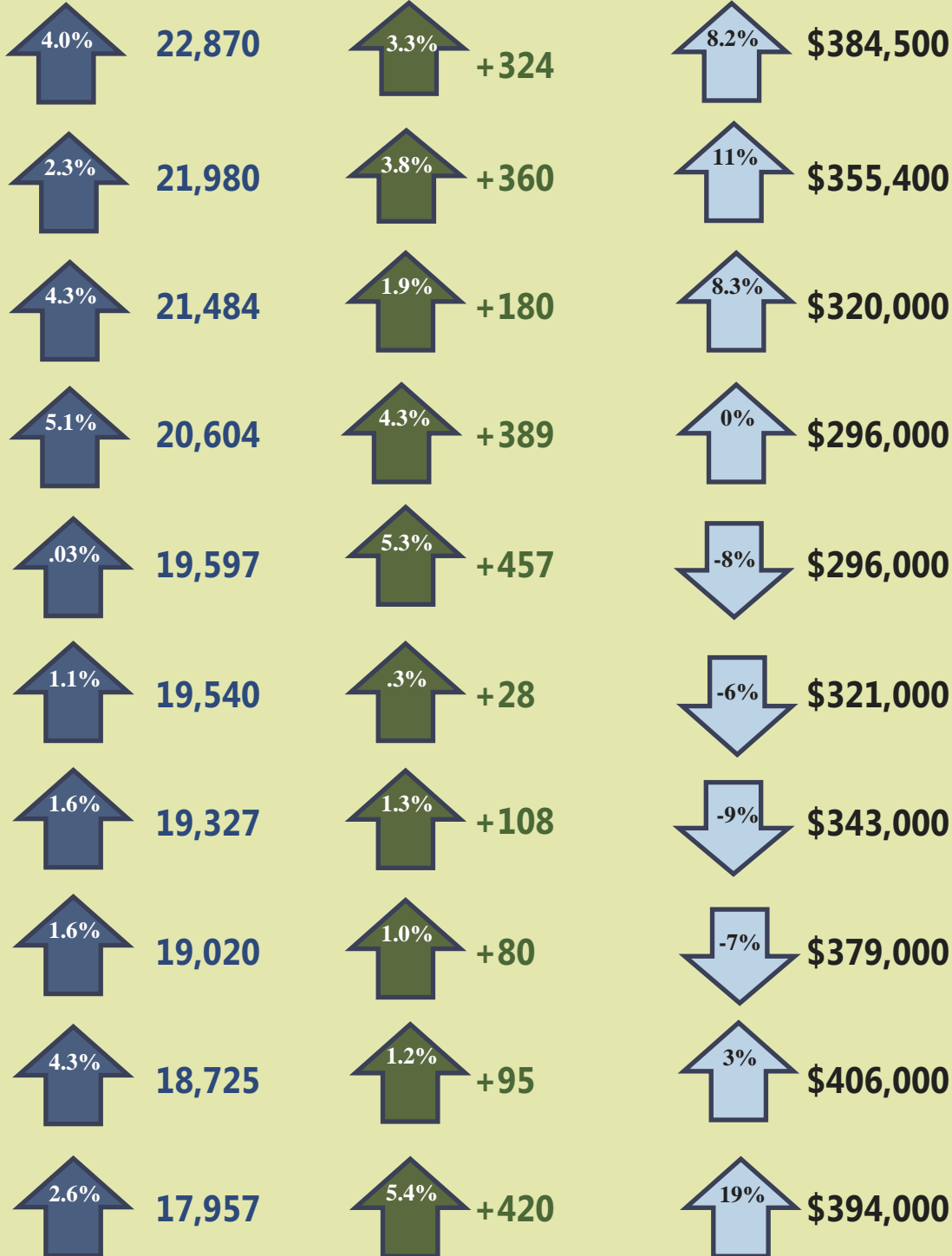
## POPULATION / GROWTH RATE

sources: US Census and PSU

## HOUSEHOLD GROWTH RATE

## AVERAGE SELLING PRICE OF HOME

source: Zillow.com



# RESIDENTIAL PERMITS ISSUED

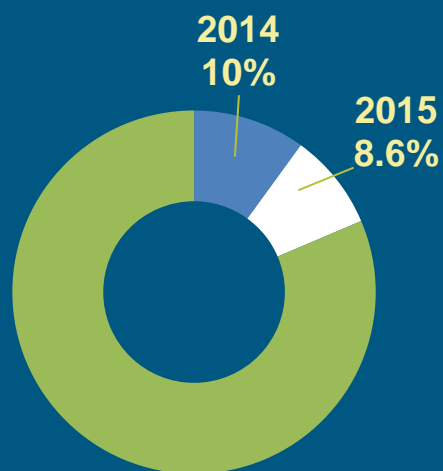


Permitted housing projects this past year provided an array of housing types to meet the various housing needs of the people who live in and are moving to the city. The projects reflect a range of lot sizes, from 1,100–14,000 square feet, with homes ranging in size, design and cost and providing both rental and ownership opportunities. The majority of residential projects permitted this year were single-family homes, which was expected given a recent housing study that identified a need for more detached single-family housing in the city and long range plans for single family residential development.

The 324 residential building permits issued in 2015 represent 10% of the 20-year Metro Household Growth Forecast, for the second consecutive year. Metro’s official estimate forecasts Wilsonville will add 3,749 households between 2014 and 2034, which represents an average annual growth rate of 1.8%. However actual building activity last year enforces a significantly higher growth rate (3.3%) in line with the city’s historical annual growth rate (2.8%). At the current rate of development, household growth would surpass the regional forecast by 2024, and the city would be looking beyond its current residential buildable land inventory.

## METRO HOUSEHOLD GROWTH FORECAST

2014 - 2034



# 8.6%

OF FORECASTED HOUSEHOLDS  
WERE PERMITTED FOR  
CONSTRUCTION LAST YEAR

# PARTITIONS

*A **land partition** is a division of an area or tract of land into two or three parcels when such area or tract of land exists as a unit or contiguous units of land under single ownership*



## 6 PARCELS

## 0.97 ACRES

ZONED SINGLE-FAMILY RESIDENTIAL

The city approved a handful of partition applications increasing potential development on those sites.

AR15-0058  
RENAISSANCE  
CREATED 3 PARCELS TOTAL  
0.49 ACRES  
CANYON CREEK ROAD S.

AR15-0059  
RENAISSANCE  
CREATED 3 PARCELS TOTAL  
0.48 ACRES  
CANYON CREEK ROAD S.

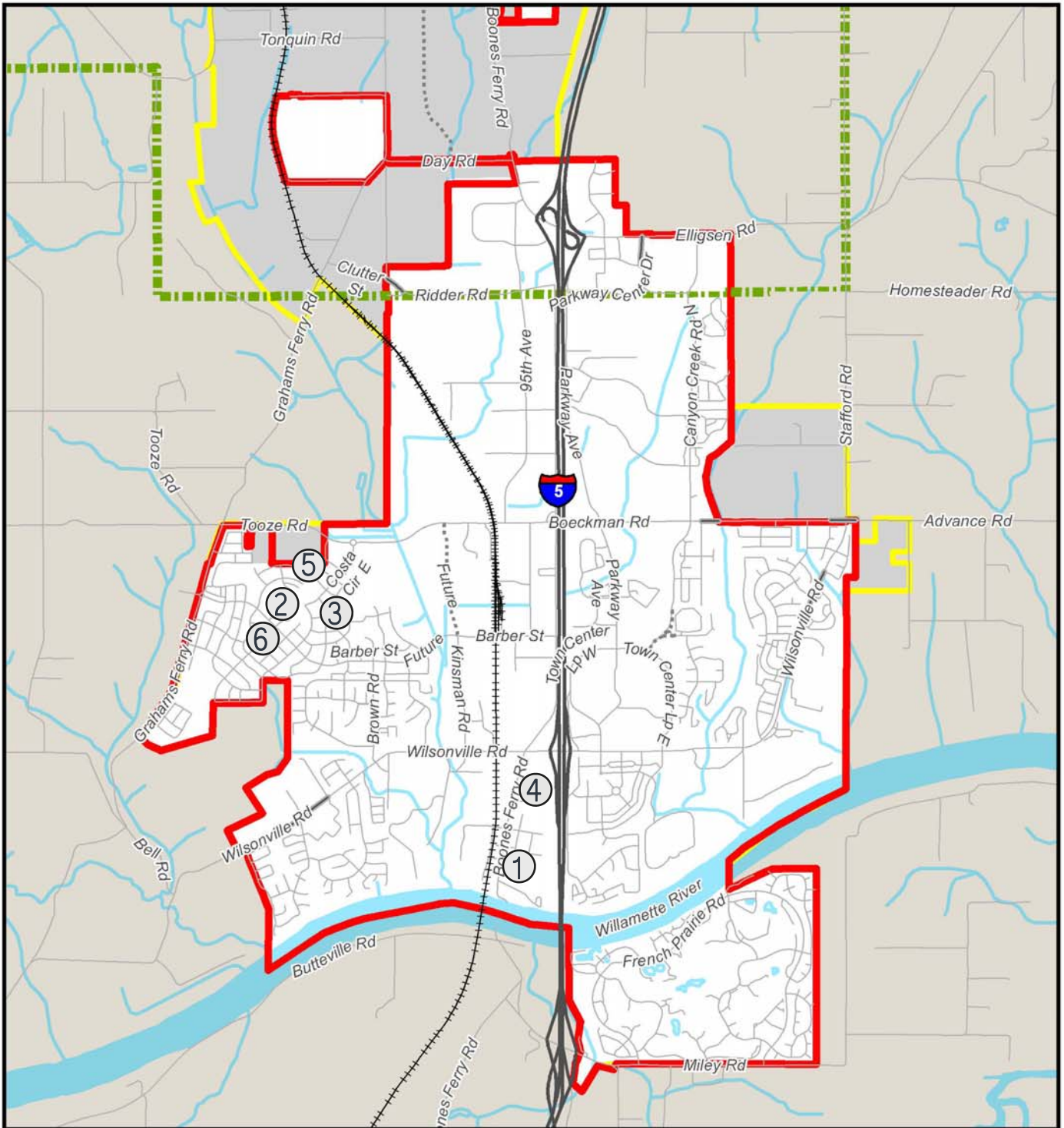


# HOUSING PLANS APPROVED



*“For the past three years, year over year, Wilsonville has set records for the number of single-family home construction permits issued. This activity offers citizens, both existing and new, everything from entry level townhomes in Villebois, to riverfront living with boat amenities at the Renaissance Boat Club. The diversity of housing choices in the community is truly indicative of an evolving, complete community.”*

— CHRIS NEAMTZU, WILSONVILLE PLANNING DIRECTOR



**The City of Wilsonville, Oregon**  
Clackamas and Washington Counties

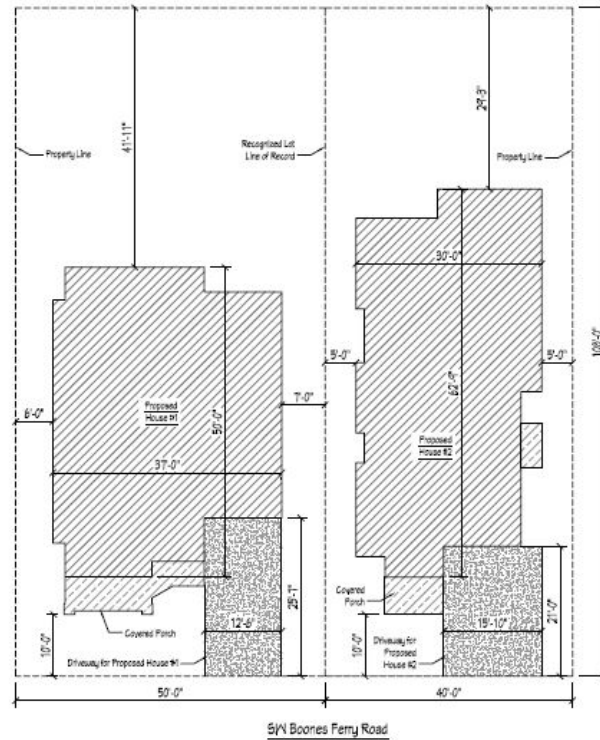
**2015 Approved Housing Plans**

- City Limits
- County Boundary
- UGB

- ① OLD TOWN INFILL – TAXLOT 800
- ② PHASE 6 CENTRAL VILLEBOIS ROW HOMES
- ③ MONT BLANC ROW HOMES
- ④ OLD TOWN INFILL – TAXLOTS 3801 AND 3802
- ⑤ BROOKESIDE TERRACE ROW HOMES
- ⑥ ROYAL CRESCENT AT VILLEBOIS AND CAMDEN SQUARE



M:\projects\2016\020116\_Housing\ApprovedPlans2015.mxd



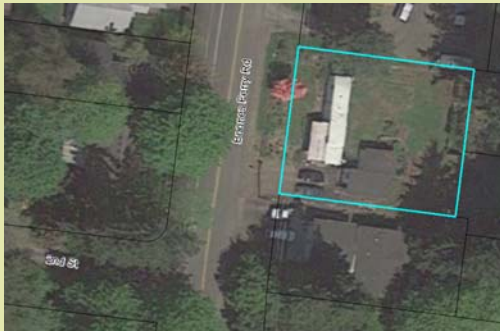
ACRES:  
0.22 GROSS

NUMBER OF HOMES:  
2

AVERAGE LOT SIZE:  
4,860 SF

NET DENSITY:  
10.5 UNITS PER ACRE

APPLICANT:  
RUPP FAMILY BUILDERS



APPROVED: JUNE 22, 2015

## LAND DEDICATIONS

HOUSING: 0.19 ACRES (85%)

OPEN SPACE: 0 ACRES\*

LANDSCAPING: 0.03 ACRES (15%)

ALLEYS: 0 ACRES

PUBLIC STREETS: 0 ACRES

HOUSING TYPES:

2 SINGLE FAMILY HOMES

1 ACCESSORY DWELLING UNIT PER LOT

LOCATION: OLD TOWN

\*OPEN SPACE NOT REQUIRED FOR DEVELOPMENTS WITHIN THE RA-H ZONE

# 2

APPROVED PLAN

# PHASE 6 CENTRAL VILLEBOIS ROW HOMES



**ACRES:**  
1.52 GROSS

**NUMBER OF HOMES:**  
31

**AVERAGE LOT SIZE:**  
1,096 SF

**NET DENSITY:**  
41 UNITS PER ACRE

**APPLICANT:**  
POLYGON NORTHWEST

APPROVED: JULY 13, 2015

## LAND DEDICATIONS

HOUSING: 0.78 ACRES (51%)

OPEN SPACE: 0.15 ACRES (10%)

ALLEYS: 0.28 ACRES (19%)

PUBLIC STREETS: 0.31 ACRES (20%)

HOUSING TYPES:

31 SINGLE FAMILY ROWHOMES

LOCATION: VILLEBOIS CENTRAL



# 3

APPROVED PLAN

# MONT BLANC ROW HOMES



APPROVED: JULY 13, 2015

**ACRES:**  
3.44 GROSS

**NUMBER OF LOTS:**  
68

**AVERAGE LOT SIZE:**  
1,210 SF

**NET DENSITY:**  
36 UNITS PER ACRE

**APPLICANT:**  
POLYGON NORTHWEST



## LAND DEDICATIONS

HOUSING: 1.89 ACRES (55%)

OPEN SPACE: 0.32 ACRES (9%)

ALLEYS: 0.43 ACRES (13%)

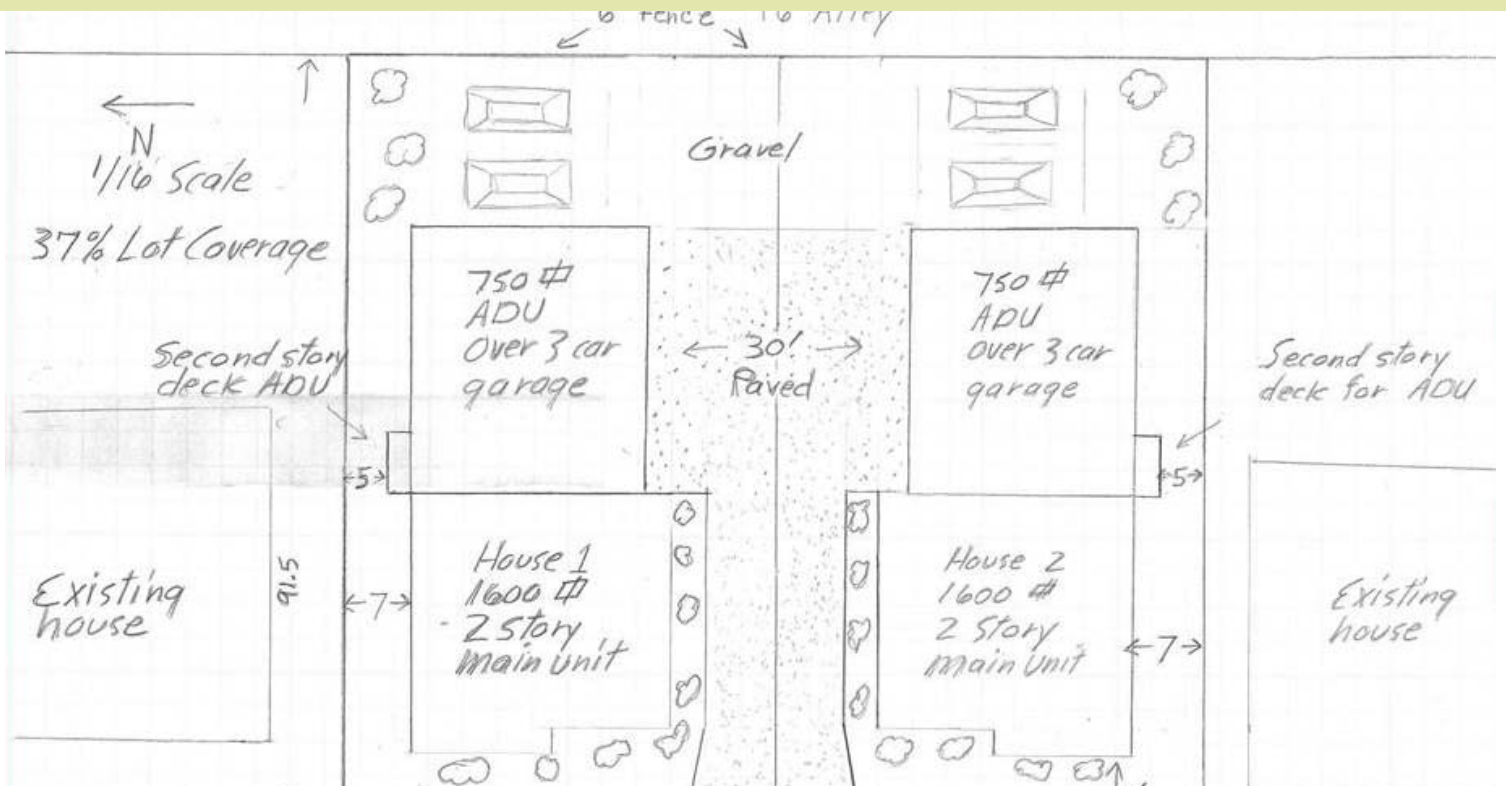
PUBLIC STREETS: 0.10 ACRES (3%)

PRIVATE STREETS: 0.59 ACRES (17%)

FUTURE DEVELOPMENT LOTS: 0.11 ACRES (3%)

HOUSING TYPES:  
68 ATTACHED SINGLE FAMILY

LOCATION: VILLEBOIS CENTRAL



ACRES:  
0.23 GROSS

NUMBER OF HOMES:  
2

AVERAGE LOT SIZE:  
5,033 SF

NET DENSITY:  
10 UNITS PER ACRE

APPLICANT:  
PROPERTY OWNER



APPROVED: DECEMBER 14, 2015

## LAND DEDICATIONS

HOUSING: 0.20 ACRES (85%)

OPEN SPACE: 0 ACRES\*

LANDSCAPING: 0.03 ACRES (15%)

ALLEYS: 0 ACRES

PUBLIC STREETS: 0 ACRES

HOUSING TYPES:

2 SINGLE FAMILY HOMES

1 ACCESSORY DWELLING UNIT PER LOT

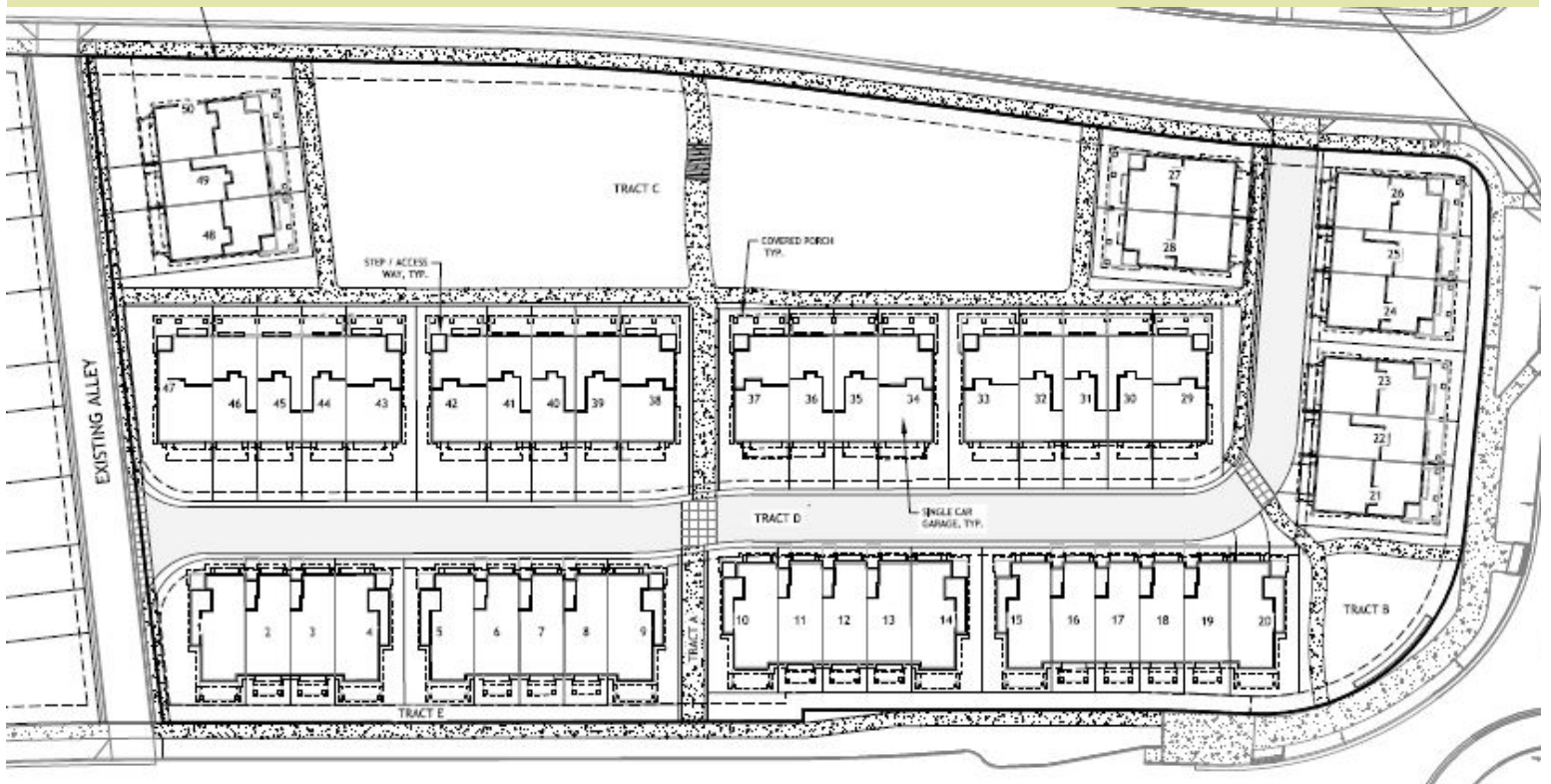
LOCATION: OLD TOWN

\*OPEN SPACE NOT REQUIRED FOR DEVELOPMENTS WITHIN THE RA-H ZONE

# 5

APPROVED PLAN

# BROOKESIDE TERRACE ROW HOMES



**ACRES:**  
2.25 GROSS

**NUMBER OF LOTS:**  
50

**AVERAGE LOT SIZE:**  
1,141 SF

**NET DENSITY:**  
38 UNITS PER ACRE

**APPLICANT:**  
POLYGON NORTHWEST

APPROVED: DECEMBER 14, 2015

## LAND DEDICATIONS

HOUSING: 1.31 ACRES (58%)

OPEN SPACE: 0.69 ACRES (31%)

ALLEYS: 0.24 ACRES (11%)

PUBLIC STREETS: 0.00 ACRES

HOUSING TYPES:  
50 ATTACHED SINGLE FAMILY

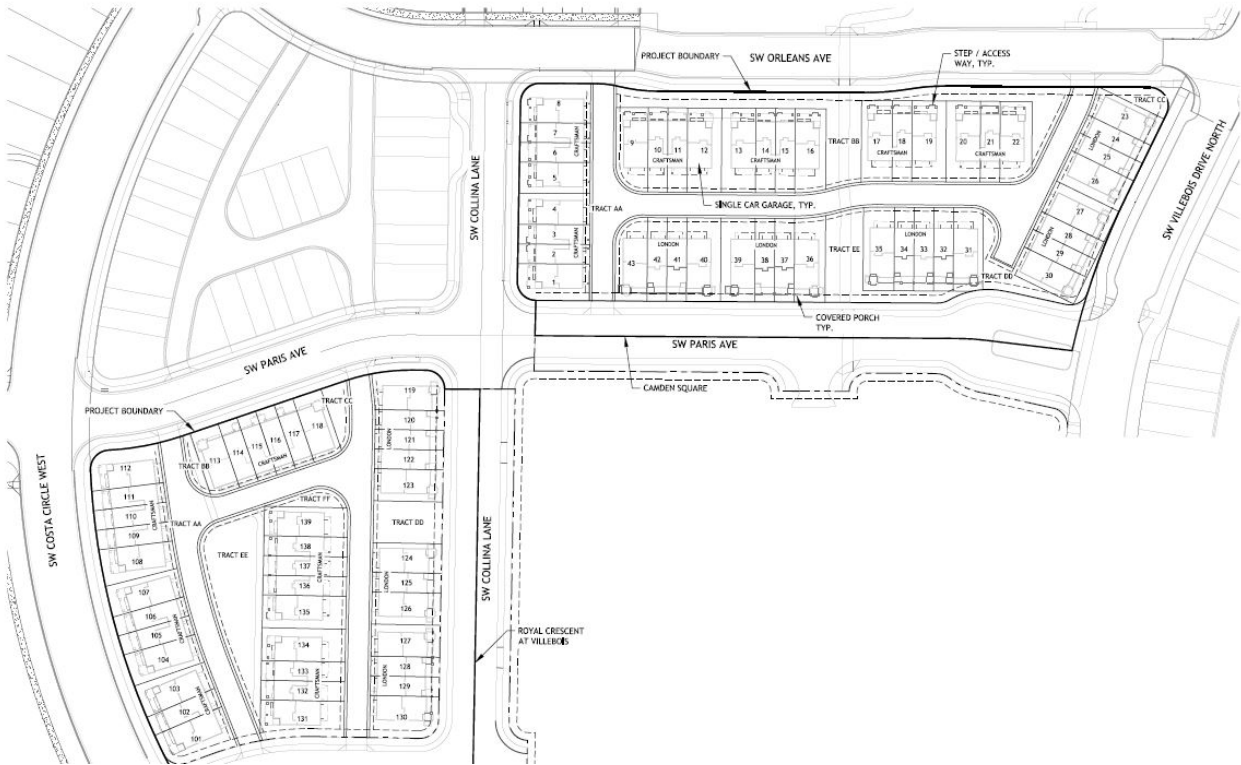
LOCATION: VILLEBOIS CENTRAL



# 6

APPROVED PLAN

# ROYAL CRESCENT & CAMDEN SQUARE



**ACRES:**  
3.94 GROSS

**NUMBER OF HOMES:**  
82

**AVERAGE LOT SIZE:**  
1,200 SF

**NET DENSITY:**  
36 UNITS PER ACRE

**APPLICANT:**  
POLYGON NORTHWEST

APPROVED: DECEMBER 14, 2015

## LAND DEDICATIONS

HOUSING: 2.26 ACRES (58%)

OPEN SPACE: 0.46 ACRES (12%)

ALLEYS: 0.61 ACRES (15%)

PUBLIC STREETS: 0.61 ACRES (15%)

HOUSING TYPES:  
82 ATTACHED SINGLE FAMILY

LOCATION: VILLEBOIS CENTRAL





# LOOKING FORWARD

The City of Wilsonville has experienced notable growth over the past four years; with 4% population growth and a 3.3% increase in households, it is nearly double regional expectations. As expected, with Villebois over half built and significant infrastructure projects completed, the fast pace of housing development continues.

As the city looks forward to 2016, development is expected to remain strong. In the past year, the city approved development plans for an additional 235 homes. In just the past two years, the city has approved residential development on 79 acres or 16% of the city's 20-year residential land inventory (477 acres). Construction of these projects is expected over the next few years. All of this activity reinforces the importance of the Frog Pond Area Plan and additional housing opportunities in other parts of the city such as the Town Center.

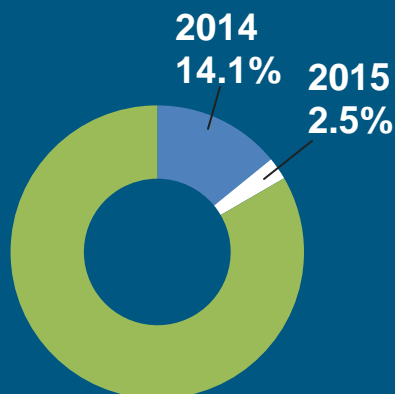
People are attracted to live in Wilsonville and employers continue to locate here, consistently rating the city as a great place to live, work, and do business. Looking forward, it will remain integral to the health and sustainability of the city to provide adequate and diverse housing options for new employees and residents, growing and changing families, and seniors who want to age-in-place.

*Wilsonville works with private and public interests to plan for our future—rather than just let it happen. Planning helps us get to where we want to be as a complete community offering a quality environment to live, work and play.*

— MAYOR TIM KNAPP

## RESIDENTIAL BUILDABLE LAND IN THE CITY

2014–2034



**16.6%** (79.2 OF 477 ACRES)

OF LAND INVENTORY DEDICATED BY PLANS APPROVED IN LAST TWO YEARS CONSTRUCTION ANTICIPATED 2015-2018