AGENDA

WILSONVILLE CITY COUNCIL MEETING
MAY 2, 2016
7:00 P.M.

CITY HALL
29799 SW TOWN CENTER LOOP
WILSONVILLE, OREGON

Mayor Tim Knapp

Council President Scott Starr — Councilor Julie Fitzgerald
Councilor Susie Stevens — Councilor Charlotte Lehan

CITY COUNCIL MISSION STATEMENT

To protect and enhance Wilsonville's livability by providing quality service to ensure a safe, attractive, economically vital community while preserving our natural environment and heritage.

NO EXECUTIVE SESSION OR WORK SESSION WILL BE HELD MAY 2, 2016

CITY COUNCIL MEETING

The following is a summary of the legislative and other matters to come before the Wilsonville City Council a regular session to be held, Monday, May 2, 2016 at City Hall. Legislative matters must have been filed in the office of the City Recorder by 10 a.m. on April 22, 2016. Remonstrances and other documents pertaining to any matters listed in said summary filed at or prior to the time of the meeting may be considered therewith except where a time limit for filing has been fixed.

7:00 P.M. CALL TO ORDER

A. Roll Call – Mayor Knapp will join the meeting via telephone connection to complete a quorum.
B. Pledge of Allegiance
C. Motion to approve the following order of the agenda and to remove items from the consent agenda.

7:10 P.M. CITIZEN INPUT & COMMUNITY ANNOUNCEMENTS

This is an opportunity for visitors to address the City Council on items ***not*** on the agenda. It is also the time to address items that are on the agenda but not scheduled for a public hearing. Staff and the City Council will make every effort to respond to questions raised during citizens input before tonight's meeting ends or as quickly as possible thereafter. Please limit your comments to three minutes.

7:15 P.M. PUBLIC HEARING

A. **Ordinance No. 789** – first reading
An Ordinance Of The City Of Wilsonville Approving A Minor Amendment To Wilsonville's 2013 Transportation Systems Plan (2016 TSP Amendment). (staff – Mende)

Links to the April 13, 2016 Planning Commission Record Documents:

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

TSP Additional Attachment "G" 4.12.2016
TSP Additional BP Project Memo ATTACH G-4.12.2016.Pdf

TSP Additional Memo Attachment H
VI. A.2. Additional Memo ATTACH H 4.13.2016.Pdf

TSP Additional BW-15 Project Memo Attachment I
VI. A.3. TSP Additional BW-15 Project Memo ATTACH I Final 4 13.Pdf

TSP Amendment Presentation PC Hearing 4.13.16
Wilsonville TSP Amendment Presentation_PC Hearing 4.13.16.Pdf

ADJOURN

Time frames for agenda items are not time certain (i.e. Agenda items may be considered earlier than indicated. The Mayor will call for a majority vote of the Council before allotting more time than indicated for an agenda item.) Assistive Listening Devices (ALD) are available for persons with impaired hearing and can be scheduled for this meeting if required at least 48 hours prior to the 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 contact the City Recorder, (503)570-1506 or king@ci.wilsonville.or.us

CITY COUNCIL PUBLIC HEARING **Exhibit A**
STAFF REPORT

Meeting Date: May 02, 2016	**Subject: Ordinance No. 789** Proposed minor amendments to the 2013 Transportation Systems Plan (TSP). **Staff Member:** Eric Mende, Capital Projects Manager **Department:** Community Development
Action Required	**Advisory Board/Commission Recommendations**
☒ Motion ☒ Public Hearing Date: 05.02.2016 ☒ Ordinance ☒ Information or Direction ☐ Information Only ☐ Council Direction ☐ Consent Agenda	**Comments:** On April 13, 2016 the Planning Commission conducted a public hearing on the proposed TSP modifications forwarding a unanimous recommendation of approval onto the City Council.
Staff Recommendation: Staff recommends Council adopt Ordinance No. 789.	
Recommended Language for Motion: I move to approve Ordinance No. 789.	
PROJECT / ISSUE RELATES TO:	

☒Council Goals/Priorities Ensure efficient, cost effective and sustainable development and infrastructure. Multi-modal transportation.	☒Adopted Master Plan(s) 2013 Transportation Systems Plan	☐Not Applicable

ISSUE BEFORE THE CITY COUNCIL:
The issue before the City Council is an Ordinance relating to minor amendments (2016 TSP Amendments) to the 2013 TSP, a sub-element of the City's Comprehensive Plan.

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.

Having a TSP in place is essential for the City to compete for federal, state and regional funding for transportation projects. This 2016 TSP Amendment, once adopted, will update and replace the Executive Summary and Chapters 3,4, and 5 of the 2013 TSP.

Wilsonville, like other cities in the state, needs to update its TSP to remain current with changes in state and regional transportation policy as well as to address changing local conditions. Major TSP updates typically occur on an 8 to 10-year cycle. Minor amendments are common, and occur as needed between major updates. The key changes driving this 2016 TSP Amendment include completion of concept planning for the Frog Pond/Advance Road area; development of a revised transportation network for the Coffee Creek Industrial Area; and having an accurate project list to use for the Transportation System Development Charge update.

The amendments incorporate input received to date from City Council, Planning Commission, and the public. The information and recommendations contained in the 2016 TSP Amendment have been previously presented to Planning Commission and state mandated public notices have been distributed. As of the date of this staff report, approximately seven requests for information have been made, and responded to, however, written comments have been received from only one party - Republic Services (see Planning Commission Record). At the Planning Commission Hearing, minor edits to a couple of figures were identified, and an additional project requested by staff (Project BW-15) was included to identify a funding set-aside for acquisition of properties having strategic potential to facilitate bike and ped connections identified in the TSP. Based on this input, Ordinance 789 includes an updated Executive Summary and proposed Chapters 3, 4, and 5 (**Exhibit B** to the ordinance**)**. This staff report, conclusionary findings, an updated April 18, 2016 Summary Memorandum from DKS Associates, and the Planning Commission hearing record comprise **Exhibit A** to the ordinance.

EXPECTED RESULTS:
Adoption of the 2016 TSP 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:
On April 13, 2016, the Planning Commission conducted a Public Hearing and unanimously approved Resolution LP 16-0001 recommending approval of the minor amendments. On May 2, 2016, City Council will hold a public hearing, solicit testimony, and continue the public hearing to May 16, 2016. At the May 16 meeting, there will be an opportunity for additional public comment before the public hearing is closed. If Council chooses to approve the 2016 TSP Amendment, it will be done via approval of Ordinance 789. Both the 1st and 2nd readings of Ordinance 789 are currently scheduled for May 16. 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).

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 and City Council 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. As referenced in the Conclusionary Findings (Attachment 1 to Exhibit A) Statewide Planning Goal #1 – Citizen Involvement, is met.

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 Council can approve the Amendment as presented, as presented but with changes, or may choose not to approve. City Council 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:

EXHIBITS TO ORDINANCE 789:

EXHIBIT A: Staff Report with the following attachments:
Attachment 1: Conclusionary findings dated April 13, 2016
Attachment 2: April 18, 2016 DKS Memorandum, Wilsonville Transportation System Plan (TSP) Amendment Summary
Attachment 3: Planning Commission Hearing Record
EXHIBIT B: 2016 Transportation System Plan Amendment

ORDINANCE NO. 789

AN ORDINANCE OF THE CITY OF WILSONVILLE APPROVING A MINOR AMENDMENT TO WILSONVILLE'S 2013 TRANSPORTATION SYSTEMS PLAN (2016 TSP AMENDMENT).

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 and a public hearing on April 13, 2016 to discuss and take public testimony on the proposed amendments; and

WHEREAS, the Wilsonville City Council held a public hearings on May 2, 2016 and May 16, 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, THE CITY OF WILSONVILLE ORDAINS AS FOLLOWS:

1. FINDINGS.

   The above-recited findings and those findings and conclusions in **Exhibit A,** attached hereto and incorporated by reference herein, 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 (2016 TSP Amendment), attached hereto as **Exhibit B** and incorporated by reference herein.

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.

_____

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 Fitzgerald -
Councilor Stevens –
Councilor Lehan -

EXHIBITS:
EXHIBIT A: Staff Report with the following attachments:
Attachment 1: Conclusionary findings dated April 13, 2016
Attachment 2: April 18, 2016 DKS Memorandum, Wilsonville Transportation System Plan (TSP) Amendment Summary
Attachment 3: Planning Commission Hearing Record
EXHIBIT B: 2016 Transportation System Plan Amendment

CONCLUSIONARY FINDINGS
April 13, 2016

In support of Approval of Ordinance 789
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 9th, and then conducted a public hearing on April 13th, 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 13th, 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 April 13 public hearing, the public was afforded an opportunity to provide public testimony to the Planning Commission. The public will also be provided the opportunity to provide public testimony to City Council at the May 2nd City Council hearing.

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.

Exhibit A, Attachment 2

DKS

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Salem, OR 97301
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MEMORANDUM

DATE: April 18, 2016

TO: Project Management Team

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

SUBJECT: **Wilsonville Transportation System Plan (TSP) Amendment Summary** P15125-003

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. [1]
- Provide updated information for project UU-01 (Boeckman Road Dip Improvements) based on the recent OBEC bridge study.[2]
- 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.

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[1] *Frog Pond Area Plan*, Angelo Planning Group, DKS Associates, November 2015.

[2] Boeckman Dip Reconstruction Option A Preliminary Cost Estimate, OBEC.

- Update the City's urban growth boundary (UGB) to include the area surrounding the proposed Meridian Creek Middle School and City Park site.

- 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 ~~strikethrough~~ 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 Meridian Creek 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
- BW-15 Property Acquisitions for Bike/Ped Connectivity

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 Meridian Creek Middle School and include 63rd Avenue and Hazel Street as collector roadways.
- Show Advance Road as a collector road to 60th 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 60th 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 Meridian Creek 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 Meridian Creek 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.

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 Meridian Creek 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 Meridian Creek 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 Meridian Creek 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 Meridian Creek 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 and disconnect Clutter Street from Grahams Ferry Road.

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~~ intersection~~s~~

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 63rd Avenue (entrance to proposed Meridian Creek Middle School)

- RE-11 Meridian Creek Middle School Site Improvements ($1,600,000)

  Construct the collector roadways and site improvements associated with the proposed Meridian Creek 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.

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.

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 60th Avenue Trail ($240,000)

  Construct the 60th 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.

NOTICE OF DECISION

PLANNING COMMISSION

RECOMMENDATION OF APPROVAL TO CITY COUNCIL

FILE NO.:	**LP16-0001**
APPLICANT:	**City of Wilsonville**
REQUEST:	**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).**

After conducting a public hearing on April 13, 2016, the Planning Commission voted to recommend this action to the City Council by passing Resolution No. LP16-0001.

The City Council is scheduled to conduct a Public Hearing on this matter on May 2, 2016**, at 7:00 p.m., at the Wilsonville City Hall, 29799 SW Town Center Loop East.**

For further information, please contact the Wilsonville Planning Division, 29799 SW Town Center Loop East, or telephone (503) 682-4960.

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.

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.

Wilsonville Planning Commission Chair

Attest:

Tami Bergeron, Administrative Assistant III

SUMMARY of Votes:

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

PLANNING COMMISSION
WEDNESDAY, APRIL 13, 2016
6:00 P.M.

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

MOTIONS

V. CONSIDERATION OF THE MINUTES

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

The March 9, 2016 Planning Commission minutes were accepted as presented.

VI. PUBLIC HEARING

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

The following items were distributed to the Planning Commission at the dais:

- Attachment G: Memorandum dated April 12, 2016 from DKS Associates regarding Wilsonville TSP Additional Bike/Ped Project Amendment, identified as Page 113 of 113.
- Attachment I: Memorandum dated April 13, 2016, from DKS Associates regarding Wilsonville TSP Additional Bike/Ped Project Amendment, identified as Page 1 of 1. Attachment I replaced Attachment G.
- Attachment H: Email dated April 13, 2016 with attachments from Planning Director Chris Neamtzu to Commissioner Peter Hurley.

Commissioner Postma moved to adopt LP16-0001 with the addition of Attachment I, which replaced Attachment G, and excluding Attachment H. Commissioner Levit seconded the motion, which passed unanimously.

Draft
Minutes

PLANNING COMMISSION
WEDNESDAY, APRIL 13, 2016
6:00 P.M.

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

Minutes
LP16-0001 – TSP Amendments Excerpt

I. CALL TO ORDER - ROLL CALL

Chair Jerry Greenfield called the meeting to order at 6:00 p.m. Those present:

Planning Commission:	Jerry Greenfield, Eric Postma, Peter Hurley, Al Levit, Phyllis Millan, and Kamran Mesbah. Simon Springall arrived after Roll Call. City Councilor Charlotte Lehan was absent.
City Staff:	Chris Neamtzu, Michael Kohlhoff, Nancy Kraushaar, Miranda Bateschell, Stephan Lashbrook, and Jen Massa Smith

II. PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was recited.

III. CITIZEN'S INPUT - This is an opportunity for visitors to address the Planning Commission on items not on the agenda. There was none.

IV. CITY COUNCIL LIAISON REPORT

Chris Neamtzu, Planning Director, stated Councilor Lehan was not able to attend the meeting, so he was asked to give the report on her behalf. He reported City Council's last meeting had a light agenda, but a considerable amount of time was spent discussing affordable housing during their work session. Council received a briefing from Community Relations Coordinator John Gale and City Attorney Barbara Jacobson regarding different programs that could be utilized by the City. Mr. Gale had many years of extensive experience with affordable housing and non-profits. Materials presented at that work session could be provided to the Planning Commission upon request. Council wanted more time for discussion and decided to continue the affordable housing discussion to a future meeting.

- He asked if the Planning Commission was interested in having Mr. Gale present some of affordable housing the programs to the Commission, noting Councilor Lehan also proposed having a joint City Council/Planning Commission work session to discuss the topic. Council was very interested in the topic from a renter, no-fault eviction point of view, about which the City has received correspondence. He added Commissioner Springall had brought forward several concerns about that issue, as well as first-time homebuyer programs, in general.

Chair Greenfield noted he had talked with several community members about this topic last night and there was considerable concern. One resident, who had become more active in the city, described how he was being priced out of his apartment in Wilsonville. He was concerned that Wilsonville would lose the man to another community because he could not find affordable housing in Wilsonville. Everyone was aware of the housing crisis in Portland, but affordable housing was a nationwide crisis. He supported holding a joint meeting with City Council.

The Planning Commission consented to holding a joint work session with City Council.

Commissioner Postma added he was uncertain about his role because his law firm was currently involved in an organization that had taken a role in the affordable housing process. He agreed nothing prohibited him from sitting in to listen.

Commissioner Millan suggested conducting a work session first to update the Commission on what the City Council had already seen. She added that although the affordable housing issue seemed like an abstract issue, she was meeting and talking to people actually affected by the problem. She suggested at least having the Council's materials available to review if a preliminary work session was not held.

Commissioner Springall noted that after reading the City Council packet with Mr. Gale's and the City Attorney's reports, he had some concerns that the focus was on home buying and not the need for short- and near-term rentals, which was the most critical, pressing issue. Obviously, home affordability was a long-term issue that needed work, but there was a crisis that needed to be addressed.

Mr. Neamtzu agreed to distribute the Council's materials to the Commission and talk to Council about scheduling a joint work session.

V. CONSIDERATION OF THE MINUTES

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

The March 9, 2016 Planning Commission minutes were accepted as presented.

VI. PUBLIC HEARING

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

The following items were distributed to the Planning Commission at the dais:

- Attachment G: Memorandum dated April 12, 2016 from DKS Associates regarding Wilsonville TSP Additional Bike/Ped Project Amendment, identified as Page 113 of 113.
- Attachment I: Memorandum dated April 13, 2016, from DKS Associates regarding Wilsonville TSP Additional Bike/Ped Project Amendment, identified as Page 1 of 1. Attachment I replaced Attachment G.
- Attachment H: Email dated April 13, 2016 from Planning Director Chris Neamtzu to Commissioner Peter Hurley with attachments.

Chair Greenfield read the legislative hearing procedure into the record and opened the public hearing at 6:10 pm.

Chris Neamtzu, Planning Director, noted the Planning Commission conducted a work session last month on what were considered to be fairly minor amendments to the Transportation Systems Plan (TSP), adopted in 2013 after a significant amount of work by the Planning Commission and City Council in 2012 and 2013.

- A lot of planning work had been done in various areas of the community, such as in Frog Pond and Coffee Creek, and projects had emerged from those additional planning efforts that were the focus of the proposed minor amendments, which were minor updates to the TSP.
- He noted some exhibits had been distributed to the Planning Commission, but he was uncertain whether Commissioner Hurley's comments (Attachment H) belonged in the TSP record. He realized late in the day that assumption might be incorrect, but he had been unable to talk about it with Commissioner Hurley.

Commissioner Hurley confirmed the documents were not meant to be added to the TSP record, but were intended for discussion by the Planning Commission at a later date, though they were fostered by the creation of the TSP.

Eric Mende, Capital Projects Engineering Manager, stated tonight's presentation would be the same given to the Planning Commission last month; however, due to the public hearing, it needed to be presented again for the benefit of the public.

- As indicated in the Staff report, the public hearing was noticed to potentially affected individual property owners, as well as Metro, Washington County and Tualatin Valley Fire and Rescue.
- He noted the scope of the TSP Amendment was limited and that full updates to the TSP usually occurred on an eight to ten year schedule. Minor amendments in between the major updates were common when ongoing planning efforts created a need to include additional or revised projects into the overall TSP, as was the case with this amendment.
    - The City's Capital Improvement Plan was directly linked to the City's adopted master plans, which were part of the City's overall Comprehensive Plan. In general, expenditures for major infrastructure projects must first be identified in a master plan before the City could spend any significant money on them. The TSP, along with the Sewer, Water, and Stormwater Master Plans, were the four big master plans that drove the Capital Program.
    - For the subject amendment, Staff was in the process of reevaluating the City's road system development charges (SDCs) and having an accurate and adopted list of projects was important to that effort.
- The scope and timing of the proposed amendment was driven by the City's planning efforts, primarily for the Coffee Creek Industrial Area, located south of Day Rd, and for the Frog Pond/Advanced Rd area, which was north and east of Boeckman Rd and Wilsonville Rd.
    - In the Coffee Creek area, the City was moving forward with development of district boundaries, a project list, and a financing plan for a future Urban Renewal District (URD). Staff had refined the transportation network and project cost estimates needed to support the URD. The proposed TSP would incorporate the refined URD project list.
    - There was also a pending development with the Republic Services property on Ridder Rd that was in direct conflict with the current TSP. The development application for the Republic Services property had been submitted but could not move forward without an amendment to the TSP. Testimony included in the Planning Commission packets from a Republic Services representative stated they were in favor of the adoption of the proposed amendment.
    - In the Frog Pond/Advanced Rd area, the Frog Pond Concept Plan had been completed and the Meridian Creek Middle School application had been approved. The proposed TSP Amendment incorporated roadway and trail designation changes to make the project list consistent with the Frog Pond Plan.
    - There were also a couple discreet development projects that warranted minor revisions to the TSP projects list, which included the Printer Parkway redesignation and the sidewalk infill project on Boones Ferry Rd that was associated with the Universal Health Project.
    - All of the projects modifications were described in the summary memo from DKS Associates included in the Planning Commission packet and within the amendment. Wilsonville continues to grow and the City's planning efforts were bearing fruit more rapidly than anticipated, and the proposed TSP Amendment was necessary to proactively stay ahead of the growth in Wilsonville.

Scott Mansur, Transportation Planning Consultant, DKS Associates, noted the one-page memorandum (Attachment I) that was distributed to the Planning Commission regarding an additional project that had been added in relation to bicycle and pedestrian connectivity, which he would discuss in his presentation. He presented the Wilsonville TSP Amendment via PowerPoint with these additional comments:

- TSP amendments were needed because things were always changing with regard to long-term, adopted system plans, so it was important to be flexible and update funding information accessible for transportation funding. The TSP needed to be current with state and regional transportation policies as well as updated based on rapidly changing development and local conditions.
- The deliverables provided included a memorandum that identified which sections and figures of the TSP would have modified projects. As mentioned, the modifications were related to changing local conditions, which he reviewed as follows:
    - The adoption of the Frog Pond Master Plan was the first project to warrant TSP modifications.

- Portions of the West Linn-Wilsonville School District, as well as a city park, were added within the City's urban growth boundary (UGB).
- The City had done some additional engineering work on the Boeckman Road Dip and now had updated cost estimates and engineering information that needed to be updated within the TSP.
- Transportation changes within the Coffee Creek Industrial Area mostly related to replacing the Kinsman Road Extension, north of Ridder Rd, with Garden Acres as a collector roadway.
- The ongoing transportation analysis and evaluation of Basalt Creek.
- Xerox's desire to make Printer Parkway a public street.

- He reviewed the recommended modifications to the 2013 TSP (Slides 5 through 8) with these additional comments:
  - Replace the Kinsman Road Extension north of Ridder Rd with Garden Acres Rd as a collector roadway.
  - There was still ongoing work regarding whether the future intersection at Day Rd and Garden Acres Rd would have a traffic signal or be a roundabout. This was discussed by the Planning Commission during work session.
  - Within Frog Pond, add a north-south collector in the west neighborhood, as well as an east-west collector between the future collector and Stafford Rd.
  - Related to the Advance Middle School, now called Meridian Creek Middle School, designate 63rd Ave and Hazel Rd future collectors, as well as Advanced Rd between Wilsonville Rd and 60th Ave since they were now in the UGB and would be adjacent to the future city park and middle school sites.
  - Update Project UU-O1, which was the Boeckman Road Dip.
  - Extend Commerce Circle Loop Sidewalk Infill on Boones Ferry Rd to Day Rd.
- Functional designation changes were also modified on TSP Figure 3-2 to reflect the recommended changes that he had reviewed. (Slides 9 and 10) He added that Printer Parkway would be designated as a collector between Parkway Ave and Canyon Creek Rd.
- Proposed modifications to the Freight Routes (Figure 3-4) included replacing Kinsman Rd, which was previously designated as a freight route, with Garden Acres as the north-south connection between Ridder Rd and Day Rd.
  - The UGB was updated on Figure 3-4 as well.
- The recommended bicycle route modifications (Figure 3-5; Slide 12) were noted with these comments:
  - For the Meridian Creek Middle School, add bicycle facilities including bike lanes on Advanced Rd, 60th Ave, 63rd Ave and Hazel Rd.
  - Bicycle facilities were also added to Garden Acres Rd, which would replace Kinsman Rd.
  - Add bicycle facilities on Java Rd. In the future, Java Rd would replace the existing connection of Clutter Rd to Grahams Ferry Rd to address the site distance and safety issues.
  - Bicycle facilities were identified on Printer Parkway that included bike lanes on the street and a multi-use path along the eastern portion of that project.
  - Bicycle facilities were also identified for Frog Pond.
- Based on the projects described, cross-section deficiencies were identified to determine what road modifications were needed to meet current cross sectional standards based on the roadway classifications discussed. (Figure 4-1)
- He reviewed the recommended changes in the Higher Priority Projects List (Figure 5-2) with these key comments:
  - Replace Project BW-11, which was a Frog Pond Trail, with a new trail.
  - Replace Project RT-02, the Frog Pond Trail, with the following projects:
    - UU-08, Garden Acres Road Urban Upgrade
    - UU-09, Urban Upgrade of Printer Parkway
    - RR-11, Advanced Middle School Collector Roads
    - UU-10, Advanced Road Urban Upgrade between Wilsonville Rd and 60th Ave
    - RE-12A, Frog Pond West Neighborhood Collector Road

    - RE-12B, Frog Pond South Neighborhood Collector Road
    - RE-13, Java Rd Connector and Signal. He reminded that Java Rd was intended to be the future replacement of the Clutter Rd intersection where an additional traffic signal would be added.
    - RT-O7, Revised Frog Pond Regional Trail.
- Other Additional Planned Projects (Figure 5-7; Slide 15) not on the Higher Priority Projects List included Project BW-P2, the Commerce Circle Loop Sidewalk Infill on Boones Ferry Rd from Commerce Circle to Day Rd.
    - Project UU-P1, the Advanced Road Urban Upgrade between Wilsonville Rd and the old UGB, was deleted.
- An additional project had been added since the last Planning Commission meeting to be consistent with the City Council Goals 4, 9 and 10, which regarded the desire to set aside funds to strategically purchase properties that could facilitate future bicycle and pedestrian connectivity between neighborhoods or other properties. A planning level cost estimate of $1 million had been identified for BW-15 (Slide 16) and the intent was to support policy areas discussed in Chapter 2 of the existing TSP. These policy areas included looking at system design to provide a well-connected system; connectivity by adding bicycle and pedestrian connections between neighborhoods; and at active transportation to encourage transportation options within the city. Information about this added project was provided in the supplemental information distributed to the Commission. (Attachments G and I)

Chair Greenfield asked when the $1 million dollar estimated planning cost would be budgeted.

- Mr. Mende replied that was undefined at this point. If a property were to become available that would qualify for meeting this goal, Staff would have to budget for it or submit a supplemental budget if it occurred in a current year. The estimate had not yet been added to the Capital Improvement Plan.

Commissioner Postma noted on Page 44 of 112 of the TSP, Figure 3-4 Freight Routes was incorrect because it was identical to Figure 3-5, which was the Bicycle Route map.

- Mr. Mansur assured that correction would be made.

Commissioner Springall asked why the TSP was not being updated with projects that had been completed, such as the Barber Street Bridge or Canyon Creek Road Extension, which were still showing as needs in some cases or connectivity gaps in the TSP.

- Mr. Mende confirmed that was the intent and explained that with a minor amendment, Staff did not change everything in the existing TSP. Projects that had been completed would stay in the overall TSP until the next major update, and only the amendments discussed this evening would be reflected in this process.

Commissioner Levit:

- Noticed that none of the maps indicated the intent to close Clutter Rd at Grahams Ferry Rd with an X and suggested Staff make the correction.
    - Commissioner Springall understood the proposed amendments stopped short of specifying the project to close Clutter Rd, though it was an intended project. He agreed it was a point of confusion.
    - Mr. Mende clarified that project would be incorporated in the next major TSP update.
- Asked if the planning level cost estimate of $1 million was just for planning costs or acquisition. (Slide 16)
    - Michael Kohlhoff, Special Projects City Attorney, suggested Staff rephrase the wording as it could be misinterpreted.
    - Mr. Mende confirmed the $1 million was just for the acquisition of property and not planning costs. The amount was based on the acquisition of two properties at $500,000 each.
- Asked how the City became aware of the availability of properties.
    - Mr. Mende replied the City found available properties like everyone else, through a real estate listing or a sign displayed on the street. He did not believe the City had any active plan to go out and research properties that might or might not be coming available on the market.

Chair Greenfield called for public testimony in favor of, opposed, and neutral to the proposed TSP amendments.

Ben Altman, Pioneer Design Group, 9020 SW Washington Square Rd, Suite 170, Portland, OR, 97223, stated he was representing Republic Services, which currently had a submitted application for a project that was pending a design review hearing next month. There were two pieces to the project, which included annexing some property, but the primary development application was for SORT Bioenergy which was an anaerobic digestion facility designed to process food waste and create usable energy from the methane gas that was a by-product, as well as some soil amendment by-product and items from the processing.

- The Kinsman Rd right-of-way was discussed at the first preapplication meeting with the City and posed a problem. The information he submitted laid out the road alignment. With a typical alignment, half of the road was expected to be on your site. The City had already talked with Bonneville Power Administration (BPA), which was the adjacent property to the east and they opposed having a road in their right-of-way. As a result, 100 percent of the right-of-way would be on Republic Services' property, which was bad enough, but the crux of the issue was that alignment would have closed the east driveway of Republic Services, which was the primary access for all their trucks, which would essentially shut down the operation because all the trucks come in across the scales located on the east side, dump their load in the material recovery building, and come back out over the scales. The site was not designed to move those scales anywhere. Locating the road there would force an entire redesign of the whole facility, which obviously was not feasible from both the City's and Republic Service's perspective.
    - At the workshop last month, Mr. Mende noted that because of BPA's adjacency on the east side, the alignment on Kinsman Rd would have been a one-side, loaded street clear to Day Rd for the industrial properties, making it a very expensive road; mostly likely the most expensive road in the State once finished.
- Adding the modification related to Garden Acres Rd replacing Kinsman Rd to the TSP amendments made sense. Republic Services supported that change since it worked better for the public and also resolved the conflict with Republic's operations. As the analysis showed, it still provided a functional, albeit not the most ideal, collector alignment that functioned reasonably in comparison with regard to the operational capacity of the Kinsman Rd alignment by moving the collector to Garden Acres. This would salvage Republic Services' operation and kept the transportation system whole in terms of function. Republic Services strongly supported that modification in the TSP amendment.

Chair Greenfield closed the public hearing at 6:38 pm.

Mr. Neamtzu clarified that Attachment H was not part of the TSP record and that Attachment I, dated April 13, 2016, replaced Attachment G dated April 12, 2016.

Commissioner Postma moved to adopt LP16-0001 with the addition of Attachment I, which replaced Attachment G, and excluding Attachment H. Commissioner Levit seconded the motion, which passed unanimously.

VII. WORK SESSION

A. Transit Master Plan Update (Massa Smith)

VIII. OTHER BUSINESS

A. 2016 Planning Commission Work Program
B. Annual Housing Report

IX. ADJOURNMENT

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

Meeting Date: April 13, 2016	**Subject: Resolution LP16-001**: Proposed minor amendments to the 2013 Transportation System Plan (TSP). **Staff Member:** Eric Mende, Capital Projects Manager **Department:** Community Development
Action Required	**Advisory Board/Commission Recommendations**
☒ Motion ☒ Public Hearing Date: 04.13.16 ☒ Resolution ☐ Information or Direction ☐ Information Only ☐ Council Direction ☐ Consent Agenda	**Comments: N/A**
Staff Recommendation: Approve Resolution LP16-001 forwarding a recommendation to City Council for adoption of the 2016 Transportation System Plan minor amendments.	
Recommended Language for Motion: I move to approve Resolution LP16-001 forwarding a recommendation to City Council for adoption of the 2016 Transportation System Plan minor amendments.	

PROJECT / ISSUE RELATES TO:		
☒Council Goals/Priorities Ensure efficient, cost effective and sustainable development and infrastructure. Multi-modal transportation.	☒Adopted Master Plan(s) 2013 Transportation Systems Plan,	☐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 2nd regular meeting (Public Hearing and 1st Reading). If Council approves at 1st Reading, 2nd Reading and Adoption is scheduled for May 16th. 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 18th 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 9th, and then conducted a public hearing on April 13th, 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 13th, 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.

DKS

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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

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. [1]
- Provide updated information for project UU-01 (Boeckman Road Dip Improvements) based on the recent OBEC bridge study.[2]
- 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.

---

[1] *Frog Pond Area Plan*, Angelo Planning Group, DKS Associates, November 2015.

[2] 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 ~~strikethrough~~ and additions or new code shown as <u>underlined</u>. 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:

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

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 63rd Avenue and Hazel Street as collector roadways.
- Show Advance Road as a collector road to 60th 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 60th 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 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.

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 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 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~~ intersection~~s~~

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 63rd 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 60th Avenue Trail ($240,000)

  Construct the 60th 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.

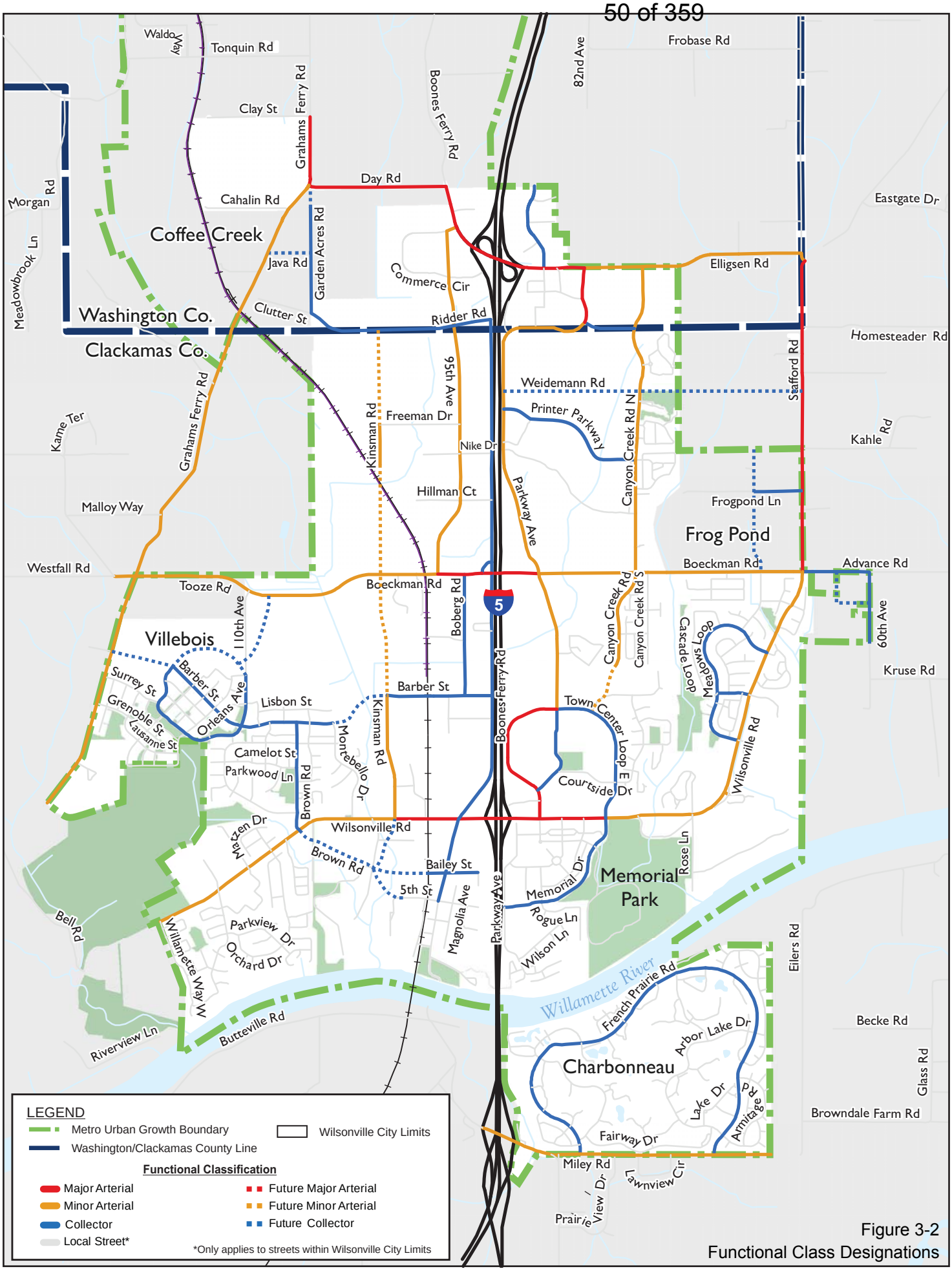
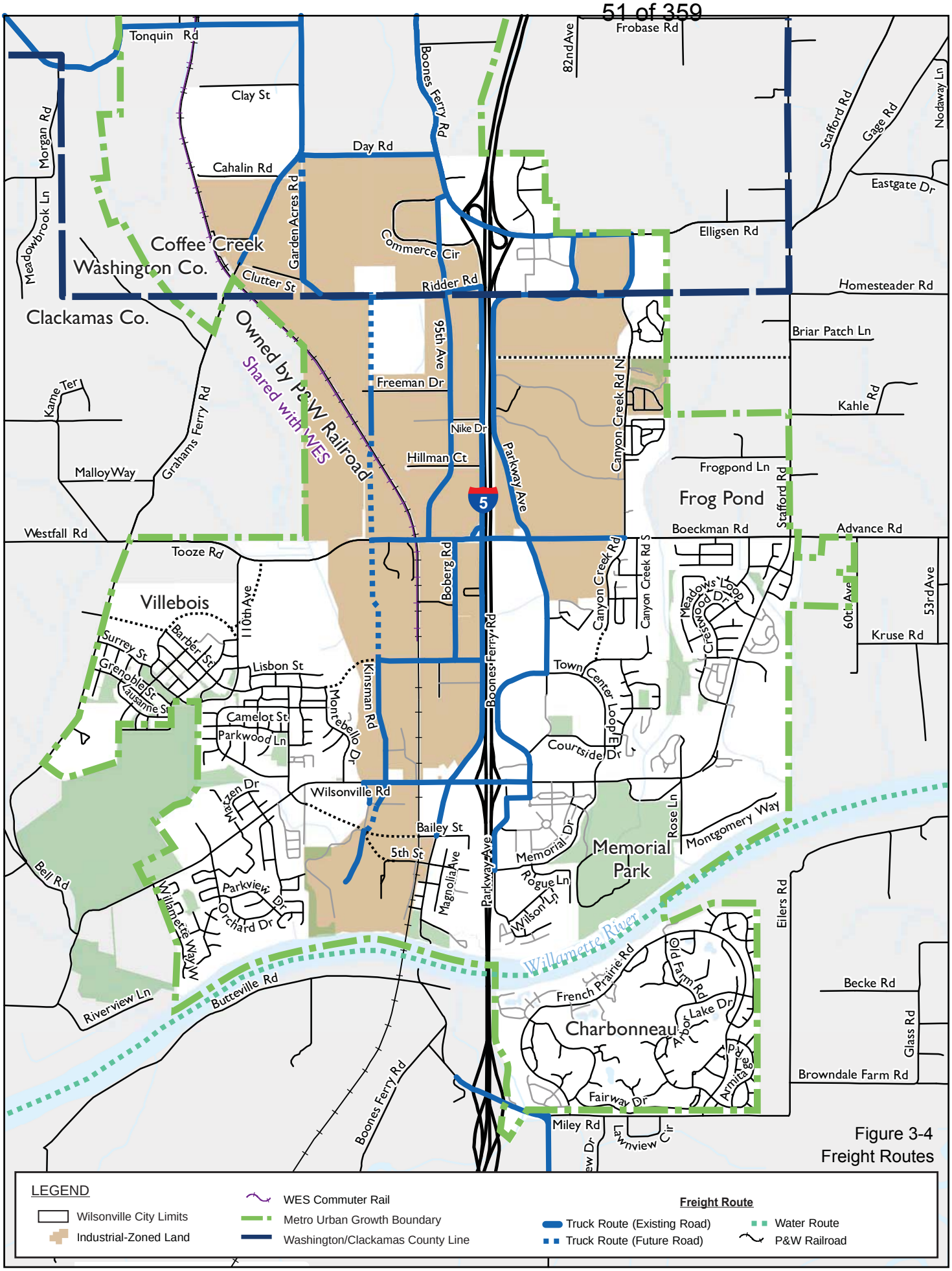


Figure 3-2
Functional Class Designations


Tonquin Rd
Clay St
Day Rd
Cahalin Rd
Morgan Rd
Meadowbrook Ln
Garden Acres Rd
Boones Ferry Rd
82nd Ave
Frobase Rd
Stafford Rd
Gage Rd
Nodaway Ln
Eastgate Dr
Elligsen Rd
Commerce Cir
Coffee Creek
Washington Co.
Clackamas Co.
Clutter St
Ridder Rd
Homesteader Rd
Briar Patch Ln
Owned by P&W Railroad
Shared with WES
95th Ave
Freeman Dr
Kame Ter
Grahams Ferry Rd
Nike Dr
Hillman Ct
Parkway Ave
Canyon Creek Rd N
Kahle Rd
Frogpond Ln
Frog Pond
Stafford Rd
Malloy Way
Westfall Rd
Tooze Rd
Boeckman Rd
Advance Rd
Villebois
110th Ave
Boberg Rd
Canyon Creek Rd
Canyon Creek Rd S
Meadows Loop
Crossing Dr
60th Ave
53rd Ave
Kruse Rd
Surrey St
Barber St
Grenoble St
Lausanne St
Lisbon St
Kinsman Rd
Montebello Dr
Town Center Loop E
Camelot St
Parkwood Ln
Courtside Dr
Wilsonville Rd
Mazzen Dr
Bailey St
5th St
Magnolia Ave
Memorial Dr
Memorial Park
Rose Ln
Montgomery Way
Rogue Ln
Wilson Ln
Bell Rd
Parkview Dr
Orchard Dr
Willamette Way W
Willamette River
Eilers Rd
Riverview Ln
Butteville Rd
French Prairie Rd
Old Farm Rd
Arbor Lake Dr
Becke Rd
Glass Rd
Charbonneau
Armitage Pl
Fairway Dr
Browndale Farm Rd
Boones Ferry Rd
Miley Rd
Lawnview Cir
Figure 3-4
Freight Routes
LEGEND
Wilsonville City Limits
Industrial-Zoned Land
WES Commuter Rail
Metro Urban Growth Boundary
Washington/Clackamas County Line
Freight Route
Truck Route (Existing Road)
Truck Route (Future Road)
Water Route
P&W Railroad

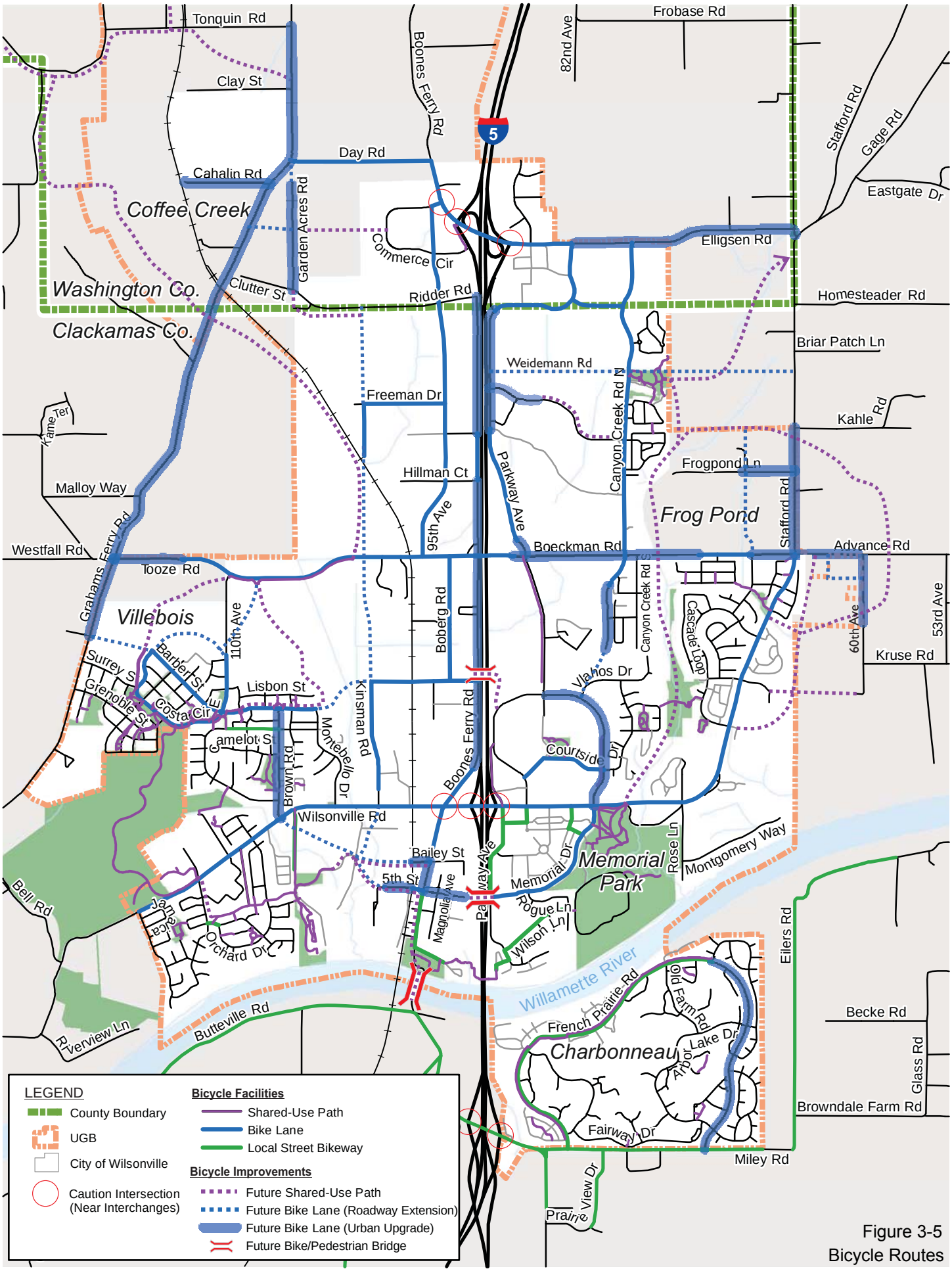


Figure 3-5
Bicycle Routes

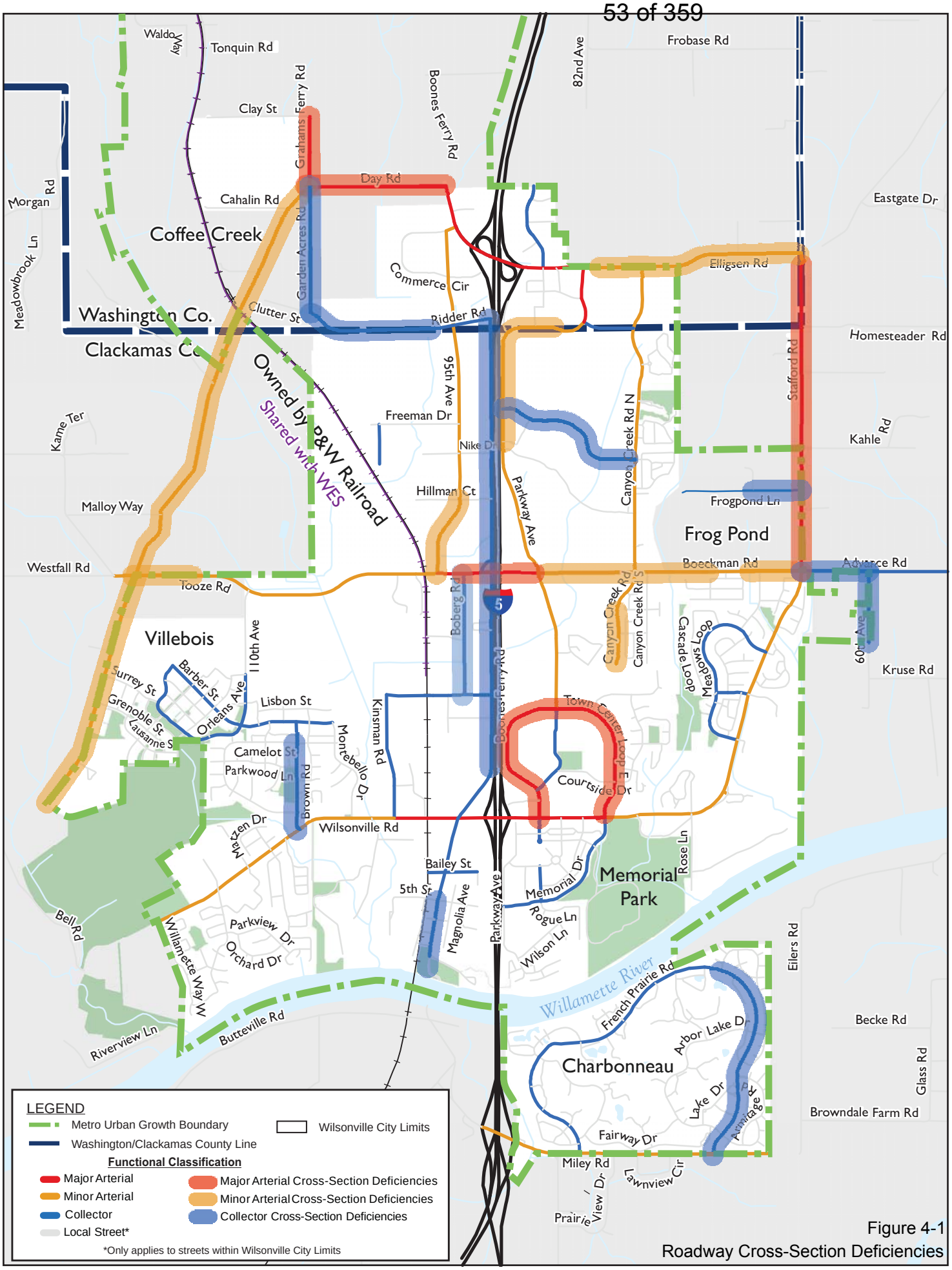


Figure 4-1
Roadway Cross-Section Deficiencies

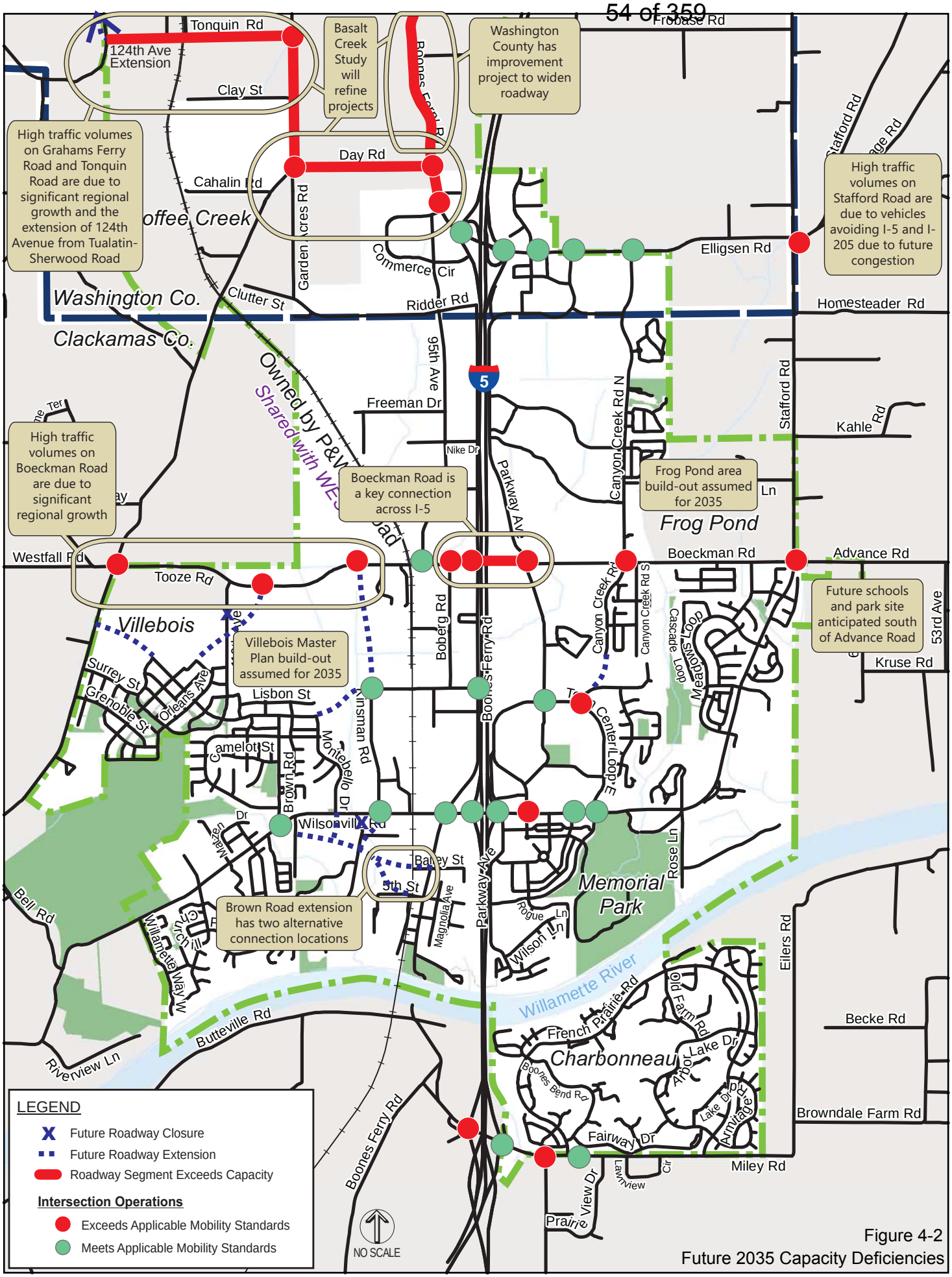


Figure 4-2
Future 2035 Capacity Deficiencies

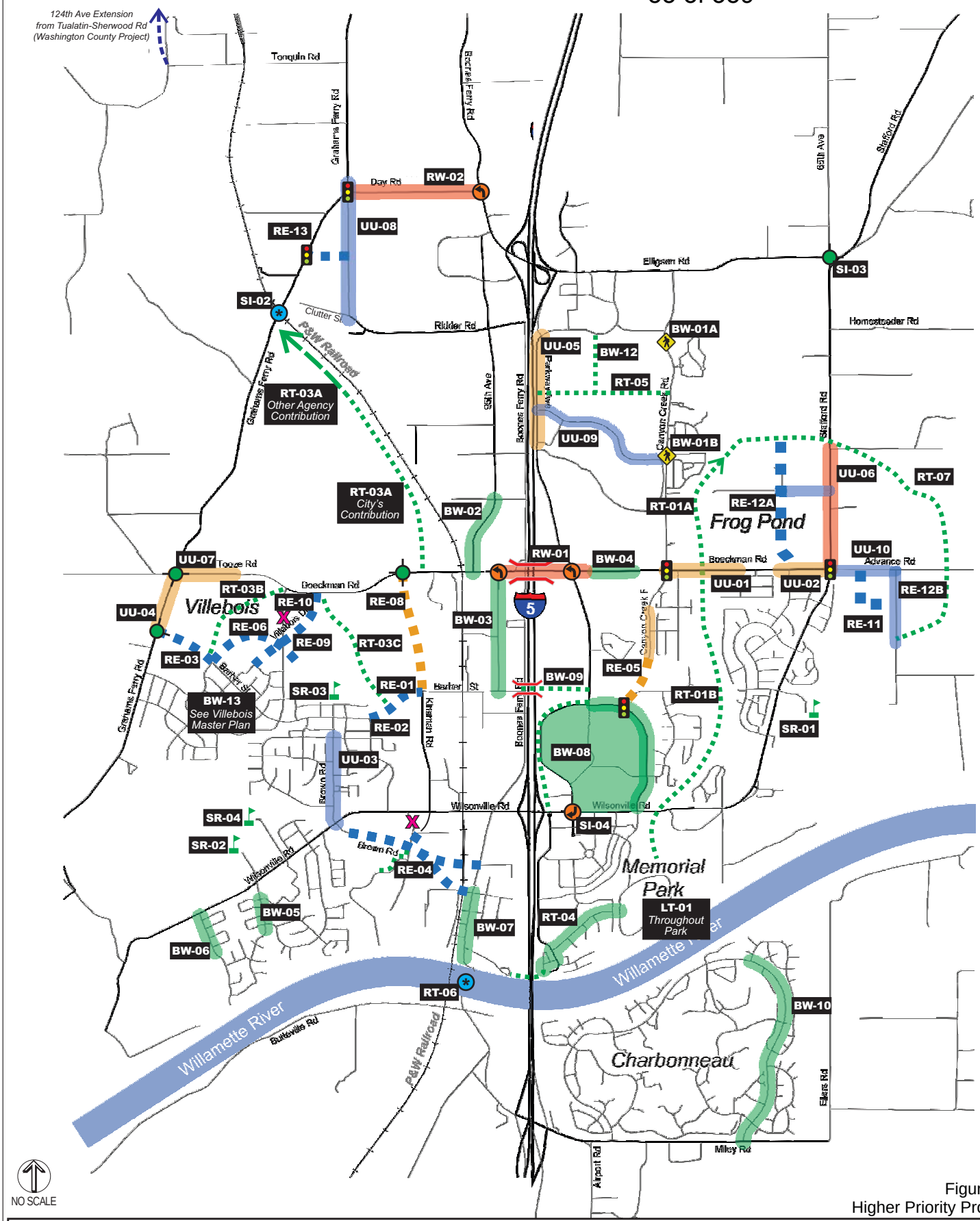


Figure 5-2
Higher Priority Projects

LEGEND

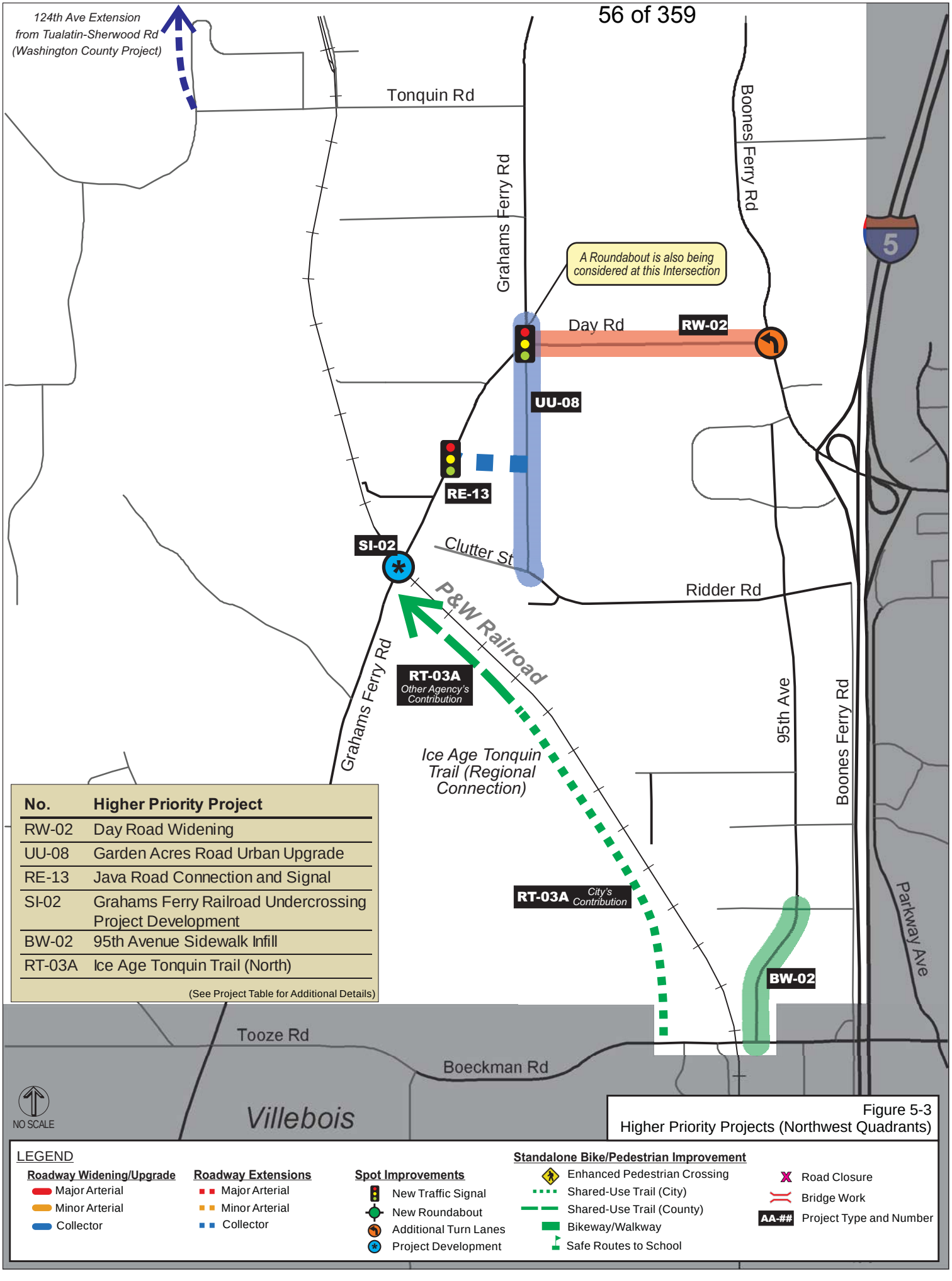
Roadway Widening/Upgrade
- Major Arterial
- Minor Arterial
- Collector

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
- AA-## Project Type and Number



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

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
- AA-## Project Type and Number

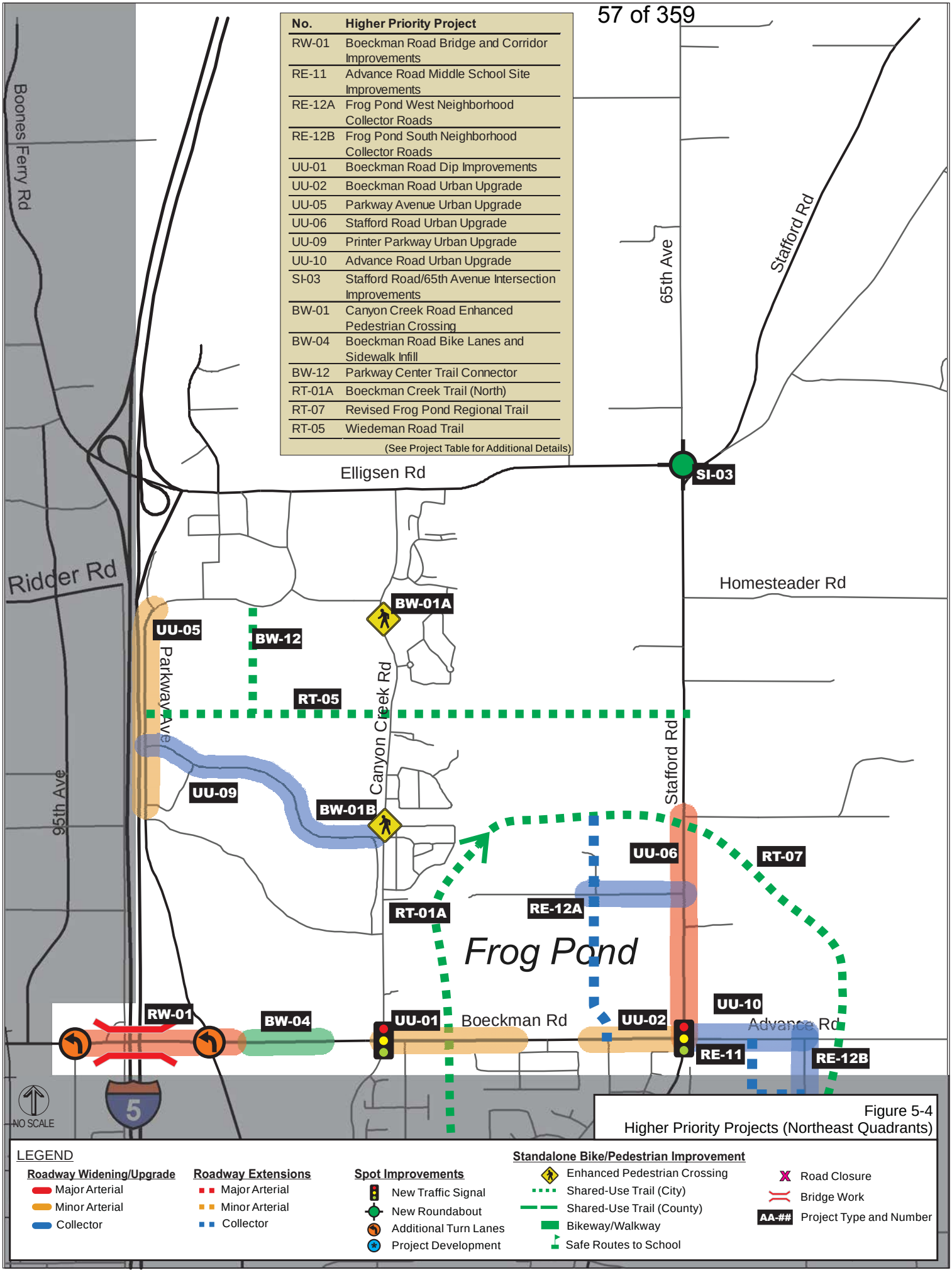
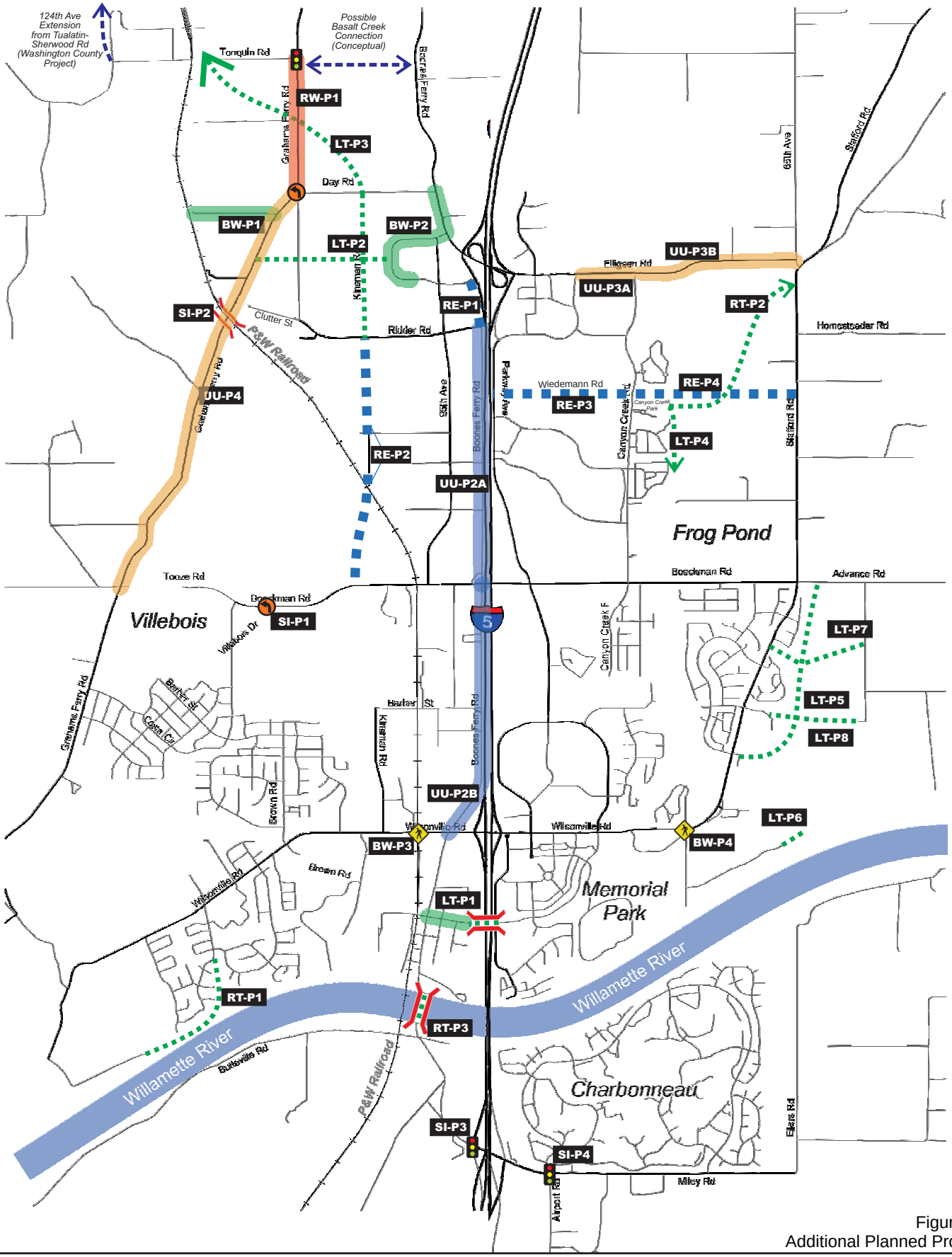


Figure 5-4
Higher Priority Projects (Northeast Quadrants)



NO SCALE

Figure 5-7
Additional Planned Projects

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
- AA-## Project Type and Number

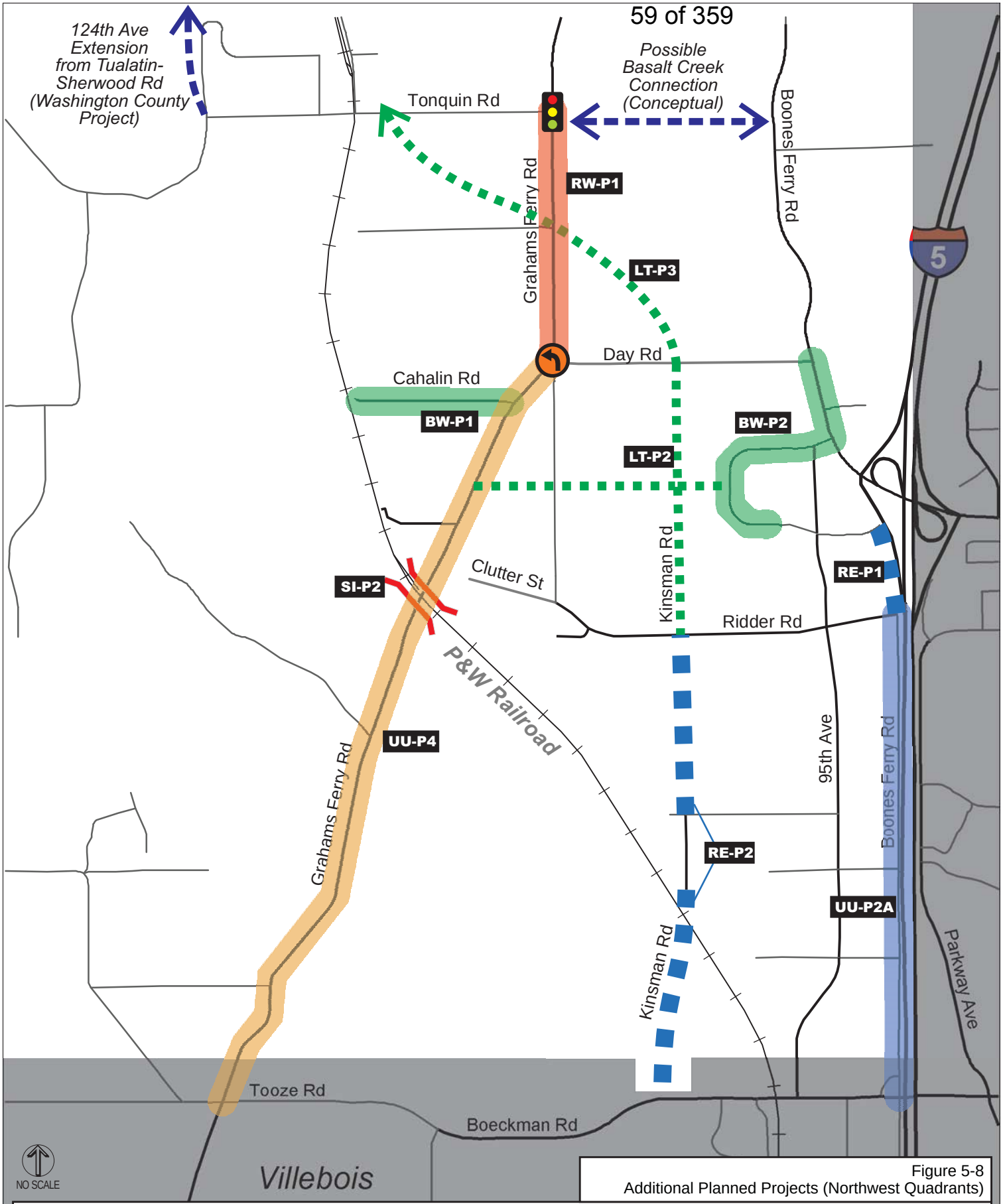


Figure 5-8
Additional Planned Projects (Northwest Quadrants)

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
- AA-## Project Type and Number

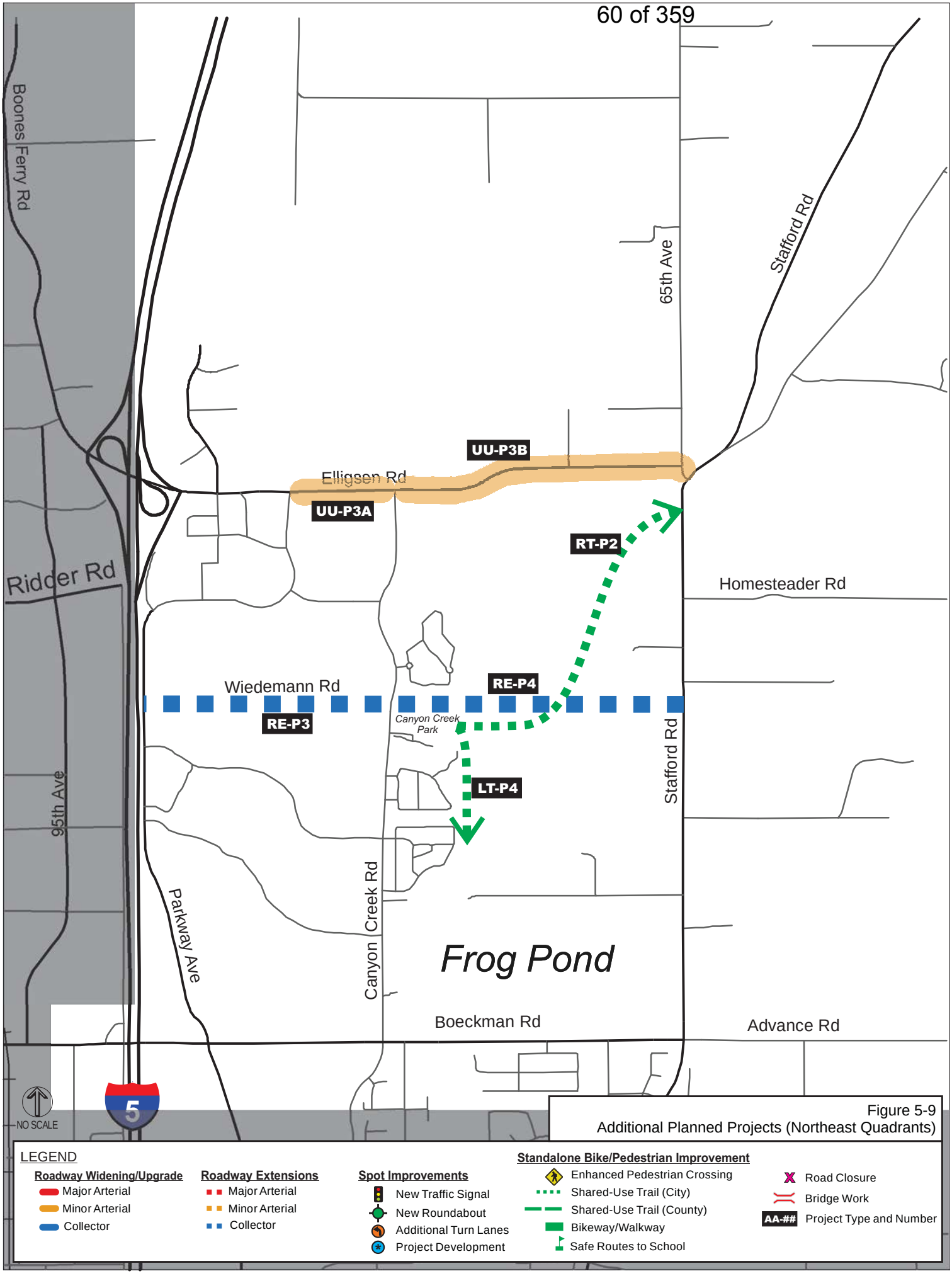


Figure 5-9
Additional Planned Projects (Northeast Quadrants)

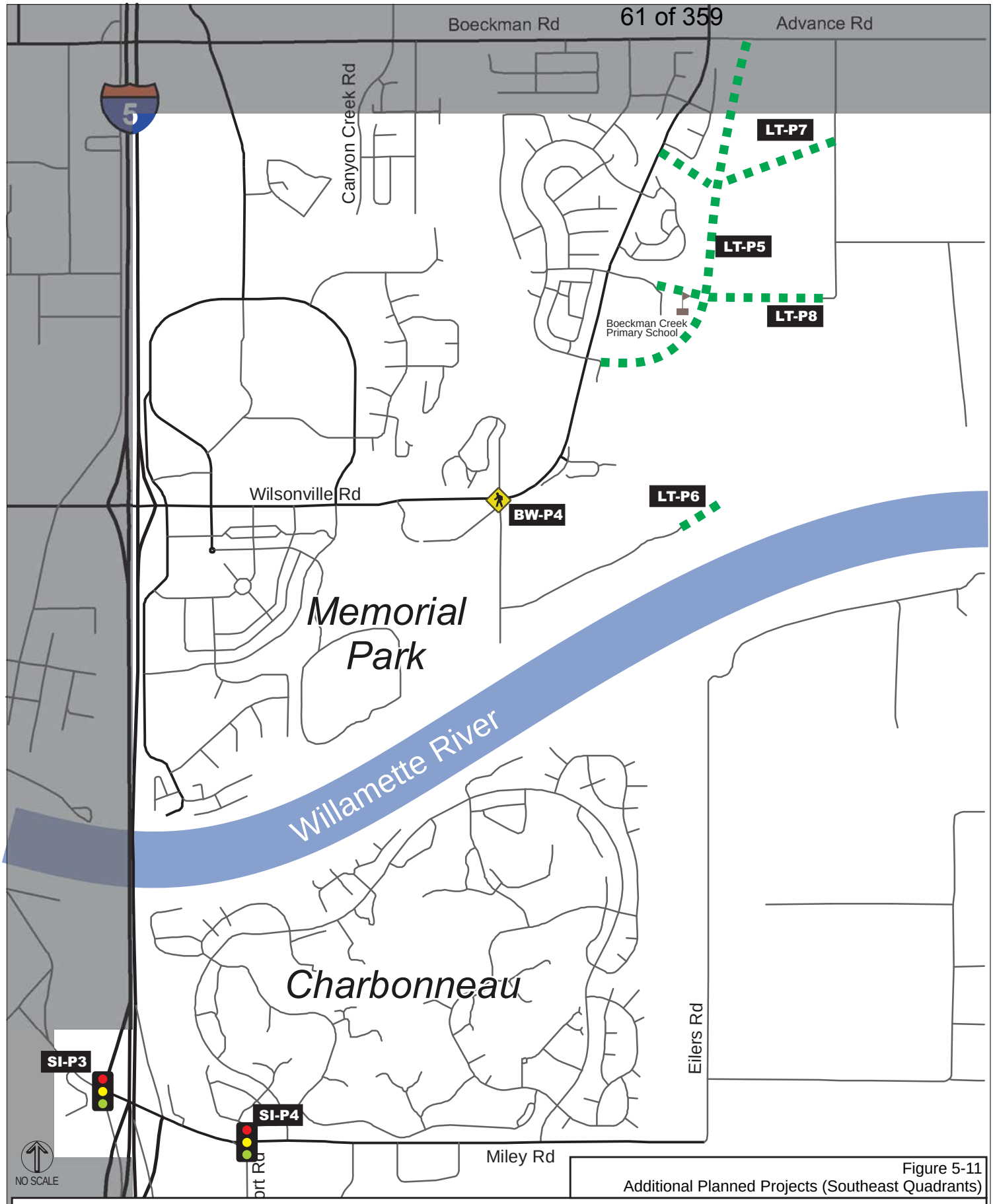


Figure 5-11
Additional Planned Projects (Southeast Quadrants)

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
- AA-## Project Type and Number

Executive Summary

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

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.

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	**Safe**	Follow current safety practices for design, operations, and maintenance of transportation facilities.
2	**Connected and Accessible**	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	**Functional and Reliable**	Provide, manage, and maintain sufficient transportation infrastructure and services throughout Wilsonville to ensure functional and reliable multimodal and freight operations as development occurs.
4	**Cost Effective**	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	**Compatible**	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	**Robust**	Encourage and support the availability of a variety of transportation choices for moving people and goods.
7	**Promotes Livability**	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:

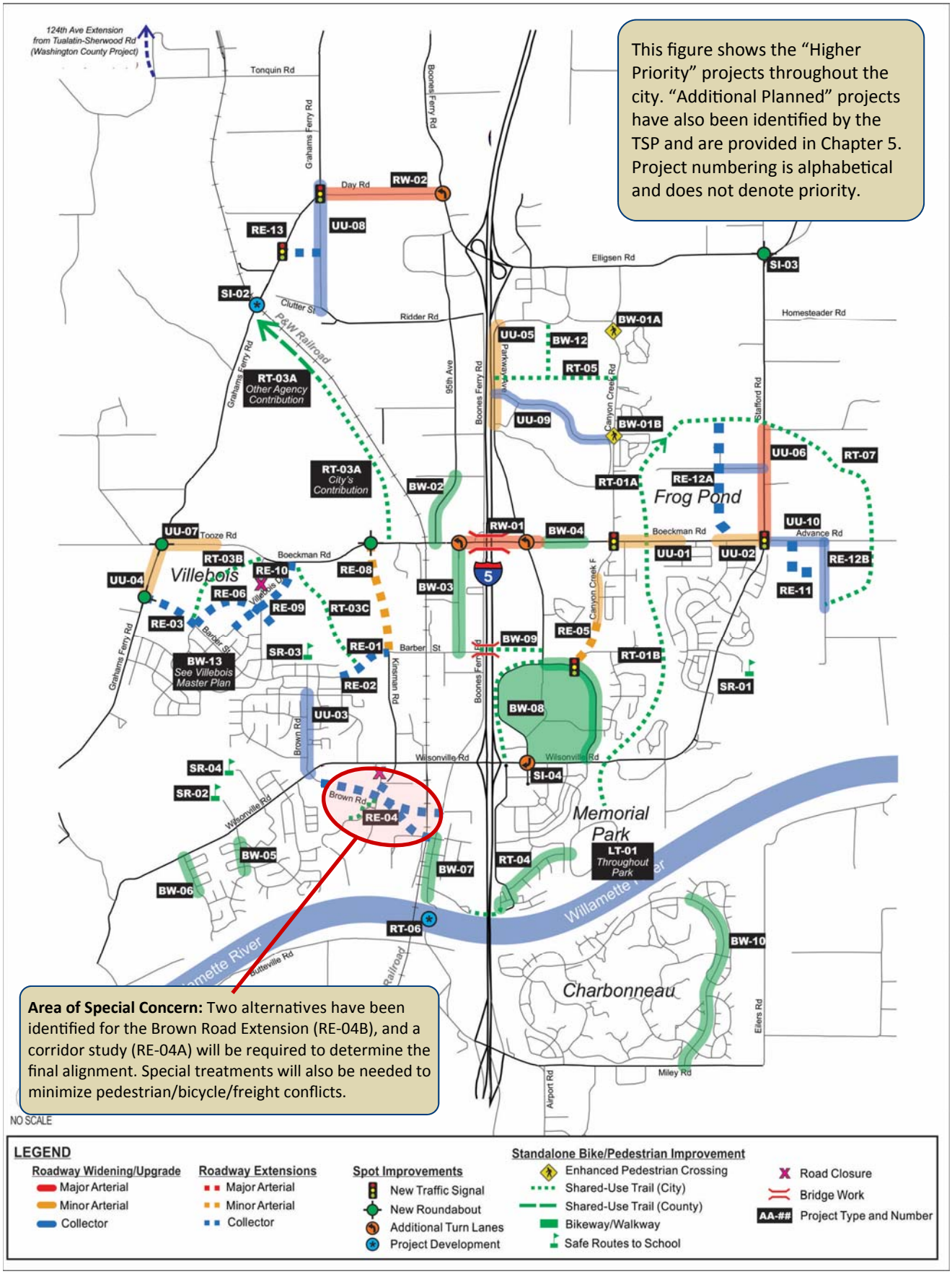
- The "Higher Priority" project list includes the recommended projects reasonably expected to be funded through 2035. These are the highest priority projects and will inform the City's yearly budget and 5-year Capital Improvement Plan (CIP). These projects are identified in the following figure (page 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.

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.

Higher Priority Projects



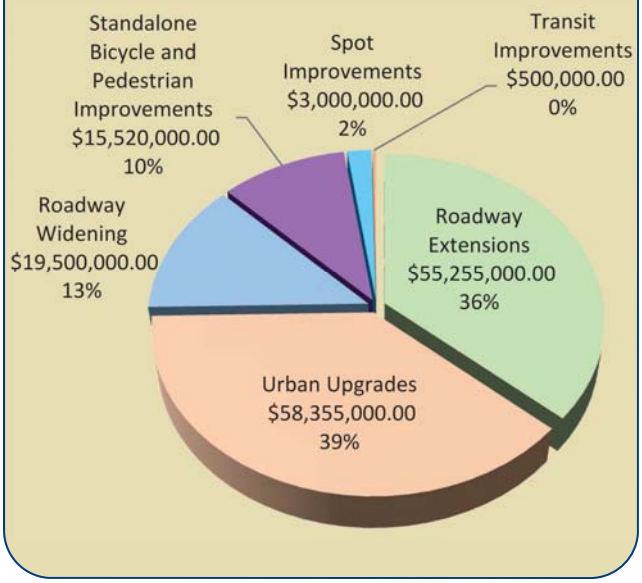
Higher Priority Projects (Listed Alphabetically By Improvement

No.	Higher Priority Project
Roadway Extensions (Multimodal Connectivity)	
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
Roadway Widening (Capacity)	
RW-01	Boeckman Road Bridge and Corridor Improvements
RW-02	Day Road Widening
Urban Upgrades (Multimodal Connectivity and Safety)	
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
Spot Improvements (Transportation System Management/Operations)	
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
Bikeways and Walkways (Standalone Pedestrian and Bicycle Improvements)	
BW-01 A/B	Canyon Creek Road Enhanced Pedestrian Crossings

No.	Higher Priority Project
Bikeways and Walkways (Standalone Pedestrian and Bicycle Improvements) . . . Continued	
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
Safe Routes to School (Standalone Pedestrian and Bicycle Improvements)	
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
Local Trails (Standalone Pedestrian and Bicycle Improvements)	
LT-01	Memorial Park Trail Improvements
Regional Trails (Standalone Pedestrian and Bicycle ImprovementsSafety)	
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
Transit Improvements	
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.

Higher Priority Project Costs (by Project Type)



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
Total Funds	**$123.4 million**

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.

The Standards

Chapter 3

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.

Roadway Jurisdiction

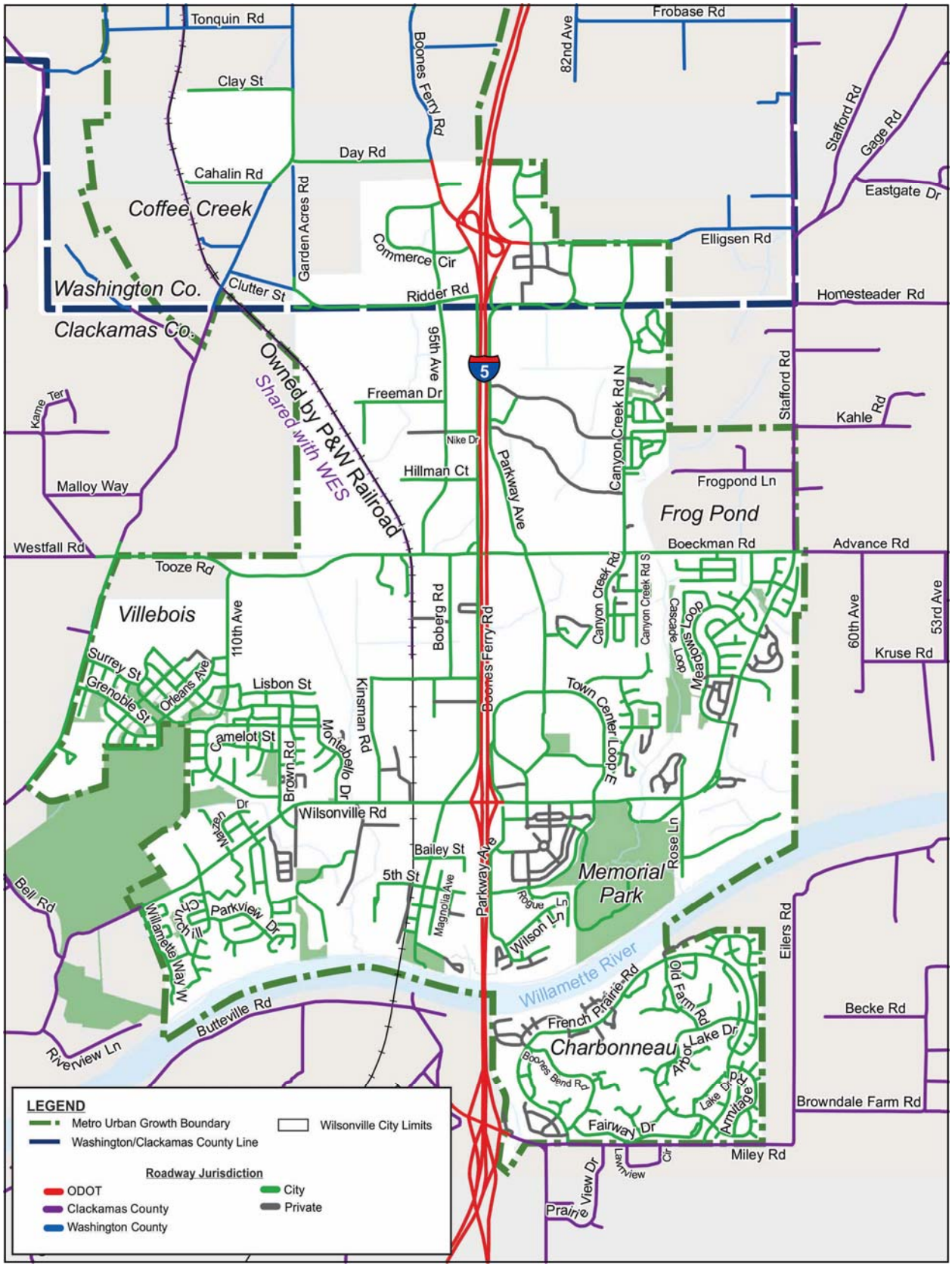
A roadway's jurisdiction affects who will have the ultimate authority over improvements and what standards apply. In the Wilsonville vicinity, there are four agencies with jurisdiction:

- **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.

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.

Figure 3-1. Roadway Jurisdiction



Functional Classification

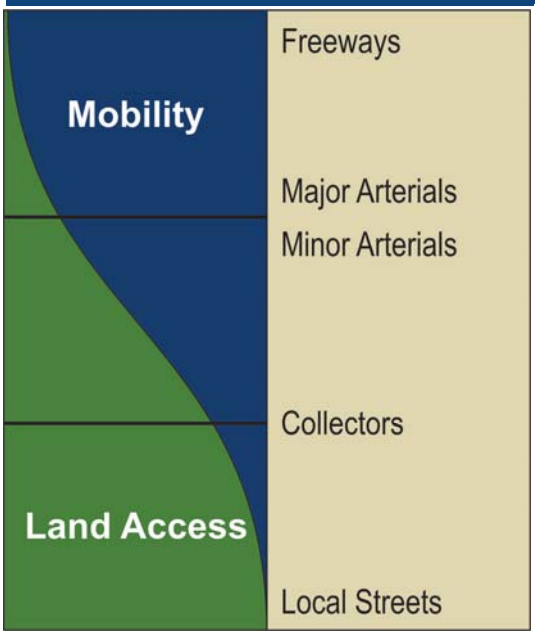
The City's street functional classification system is an important tool for managing public roadways. It is based on a hierarchical system of roads (see diagram at right) where streets with a higher classification, such as arterial streets, emphasize a higher level of mobility for through-movement. They 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 Class Hierarchy

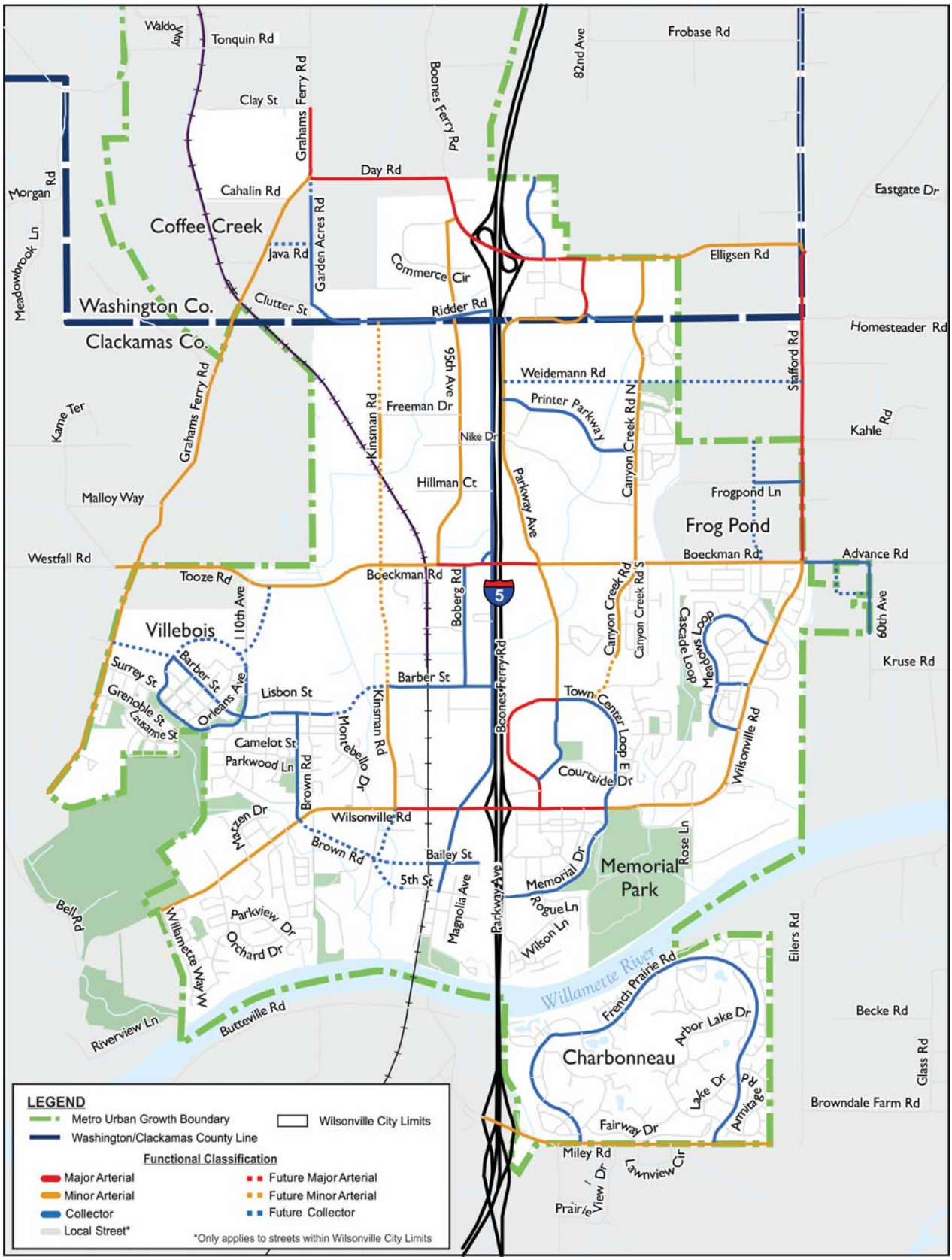


Functional Classification as a Framework for Standards

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.

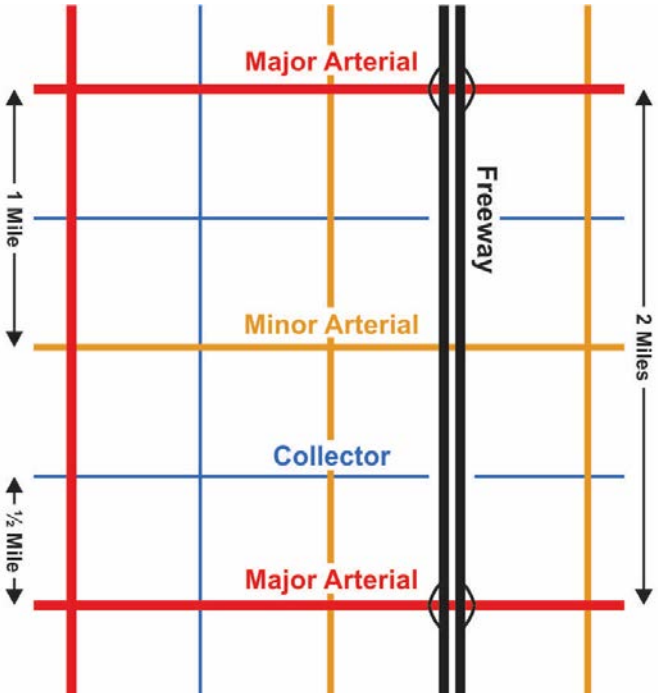
Bicyclists and pedestrians benefit the most from closely spaced facilities because they are the most affected by distance. By providing walking and biking facilities spaced less than 300 feet apart, Wilsonville will support walking and biking use within and between its neighborhoods. In addition, these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

Table 3-1. Facility Spacing Guidelines

Facility Type	Desired Spacing[a]
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

[a] 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.

"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

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

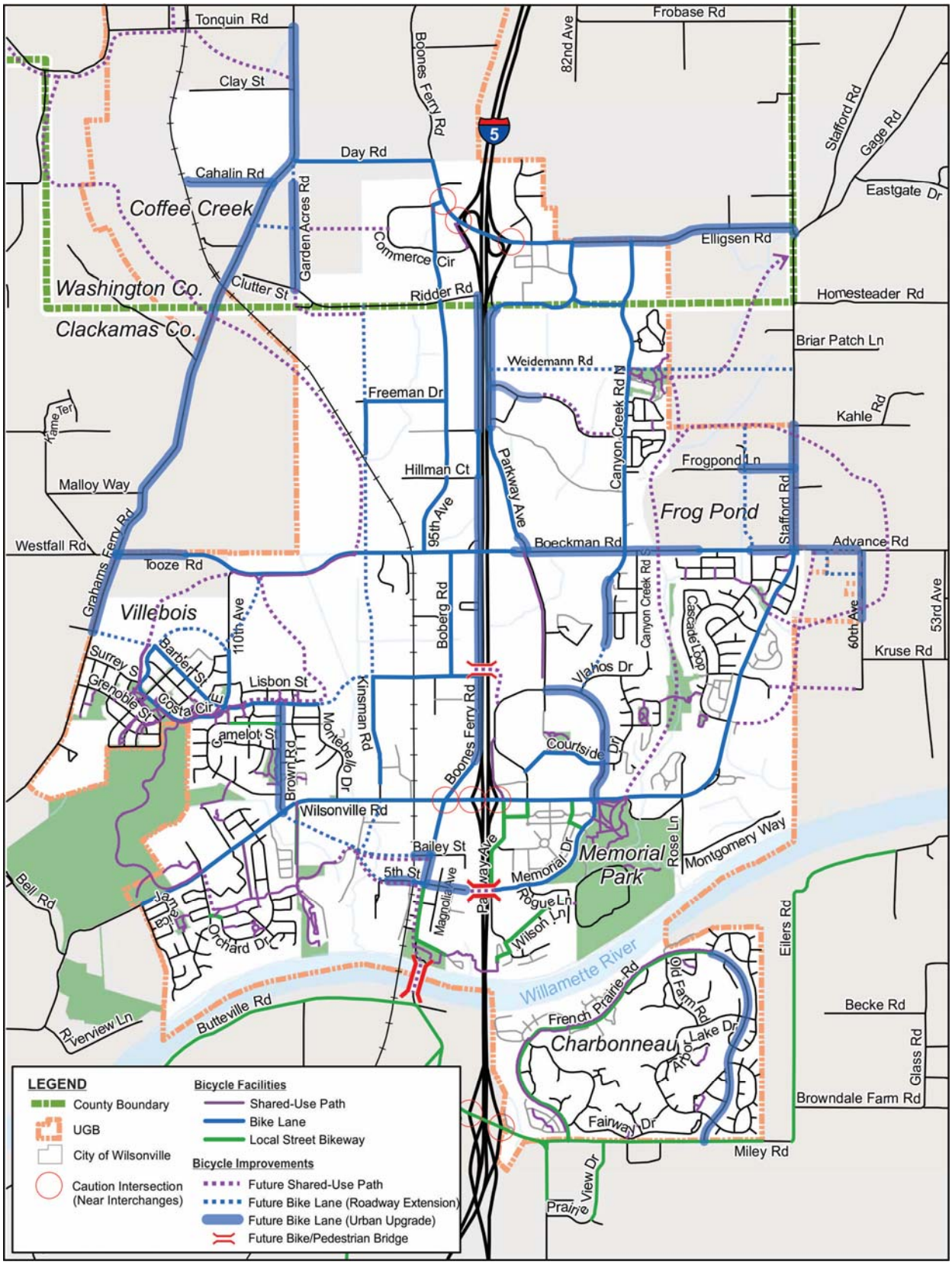
By having designated freight routes, various City efforts regarding freight and non-freight users will be improved:

- **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

"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

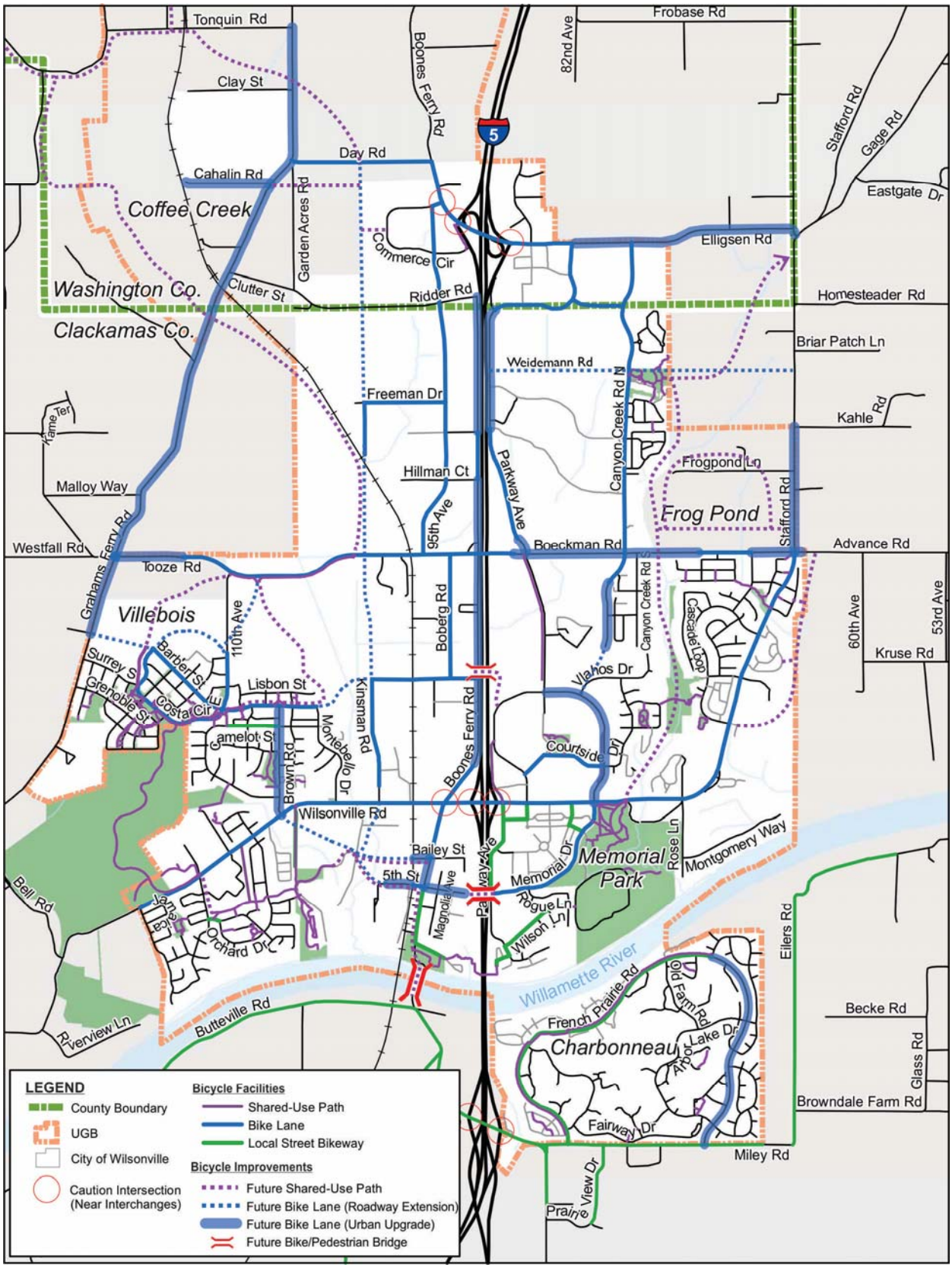
Bike Lanes

- 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:

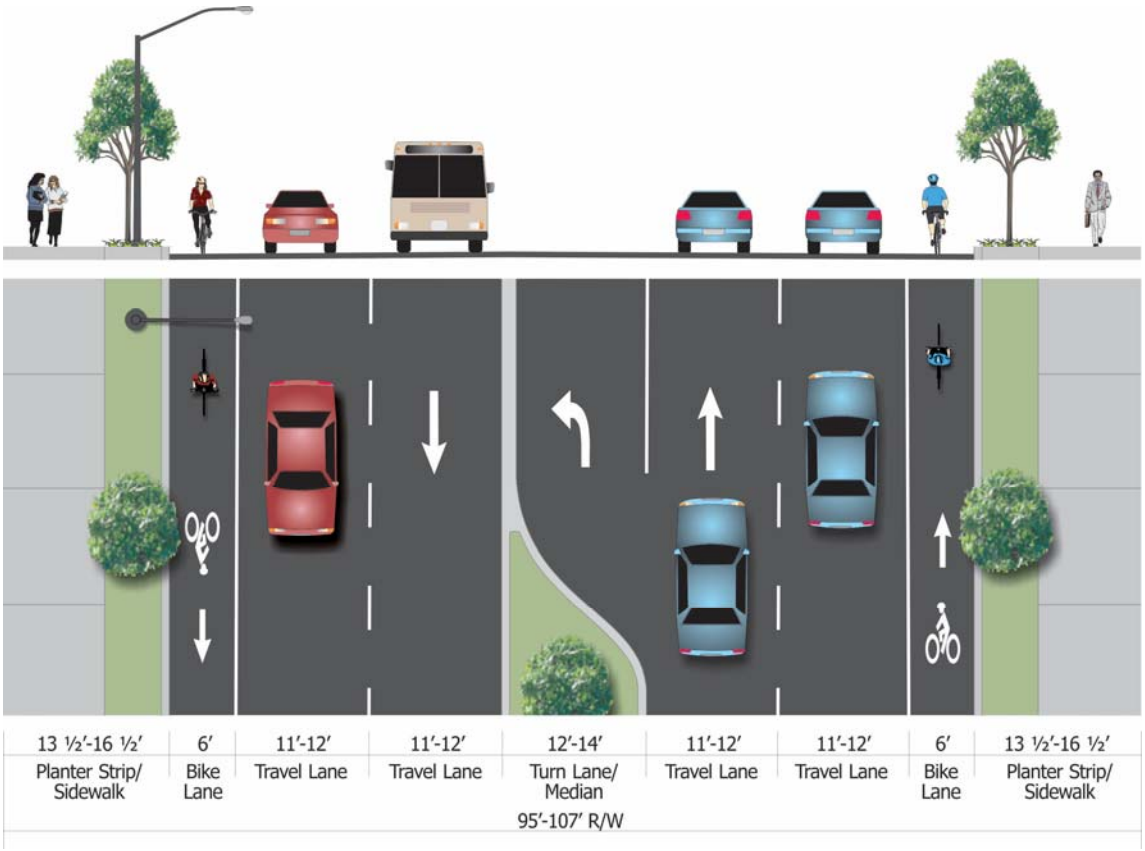
- Major Arterials
- Minor Arterials
- Collectors
- Local Streets
- Low Impact Development (LID) Local Streets (similar modifications may be made to other streets regardless of classification)
- Shared-Use Paths and Trails
- Bicycle Facility Design Options

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

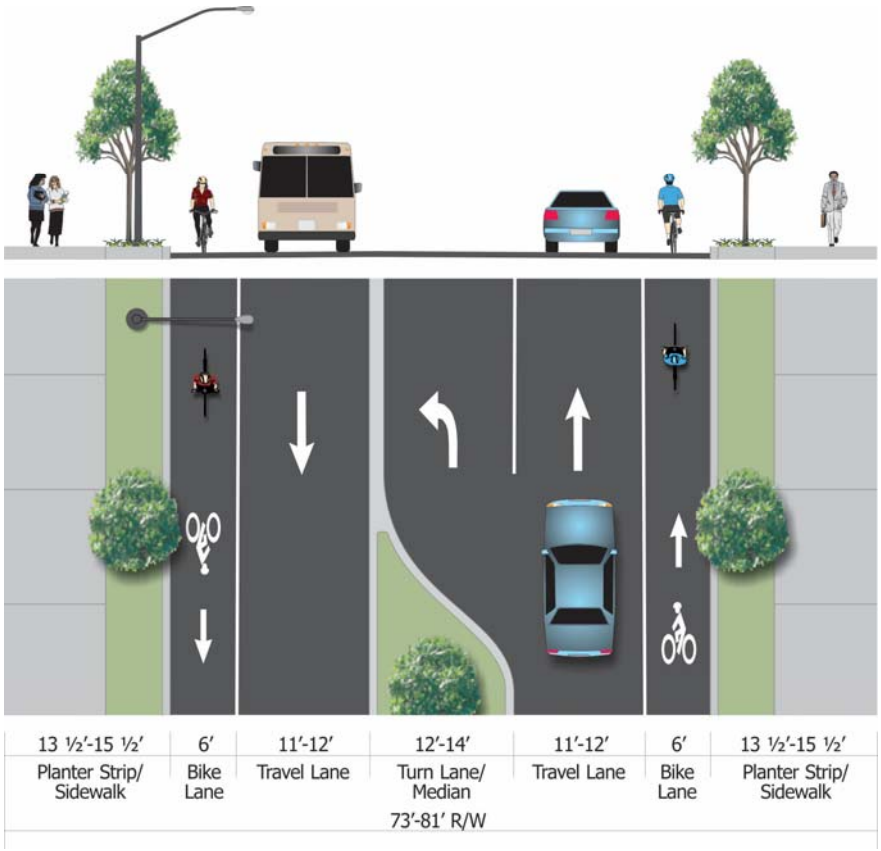
FIGURE 3-6. MAJOR ARTERIAL CROSS-SECTION



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).

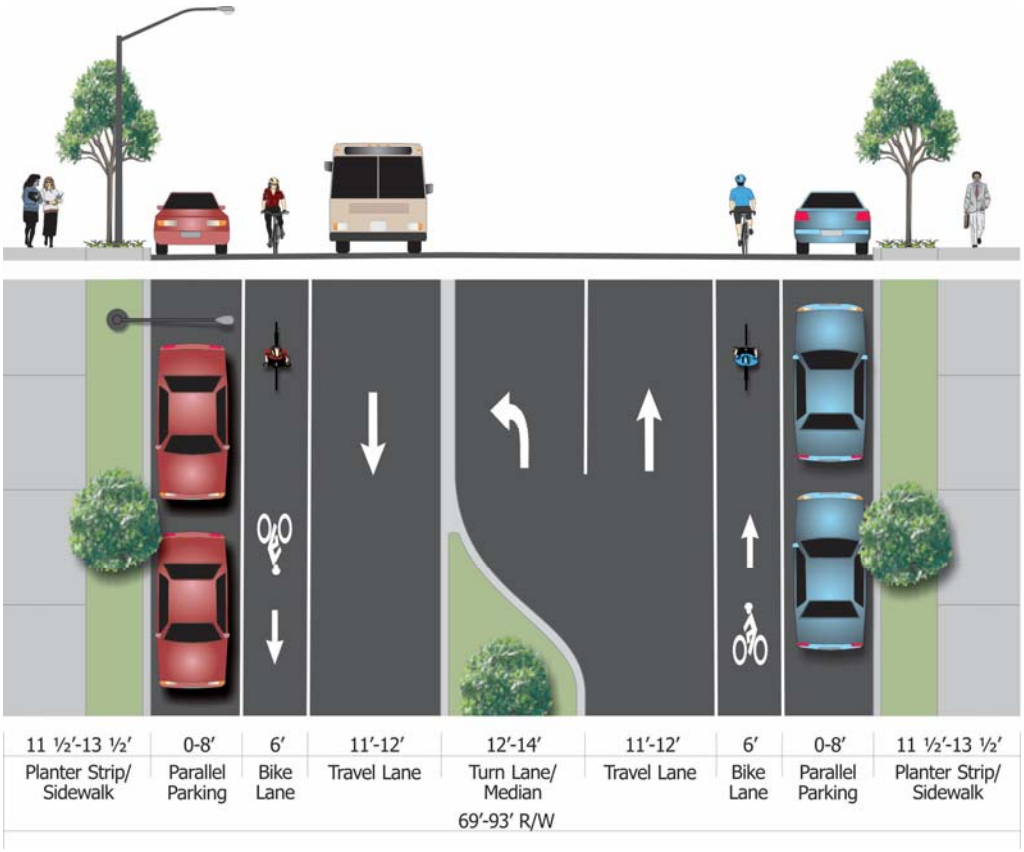
FIGURE 3-7. MINOR ARTERIAL CROSS-SECTION



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).

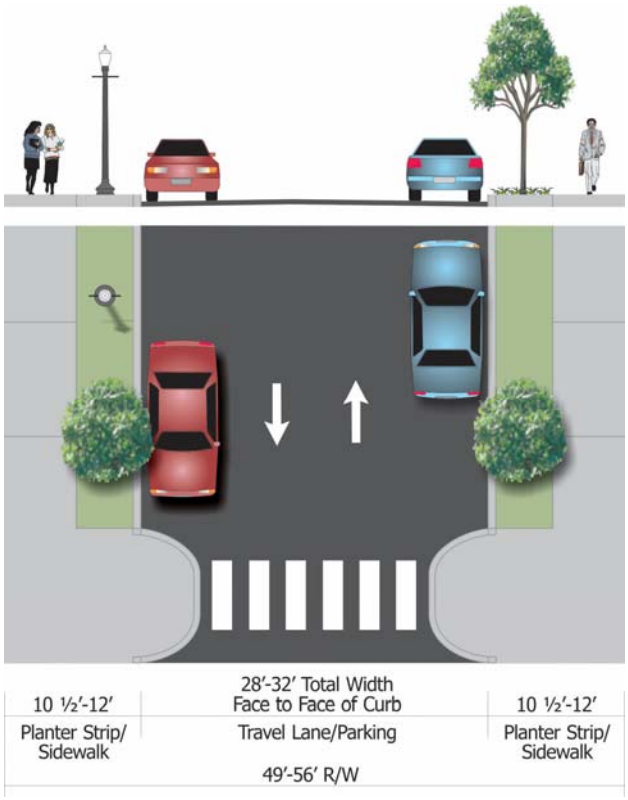
FIGURE 3-8. COLLECTOR CROSS-SECTION



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.

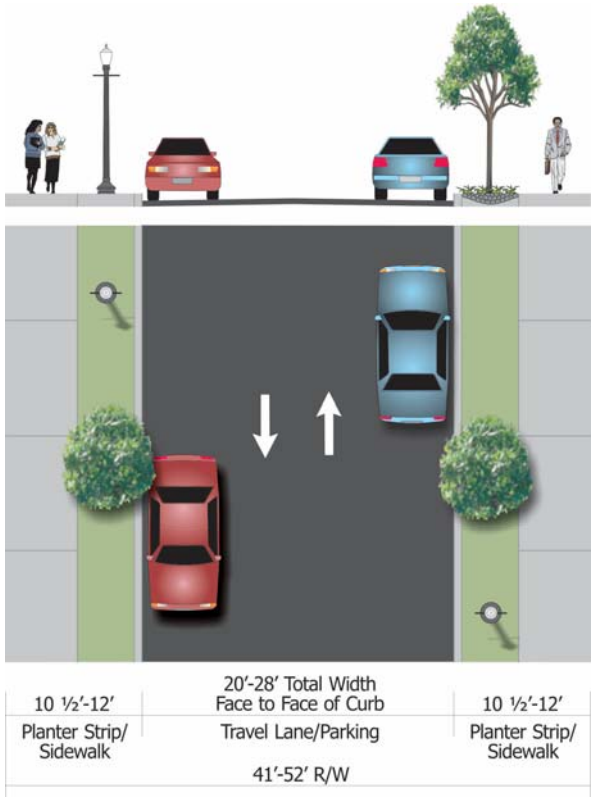
FIGURE 3-9. LOCAL STREET CROSS-SECTION



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.

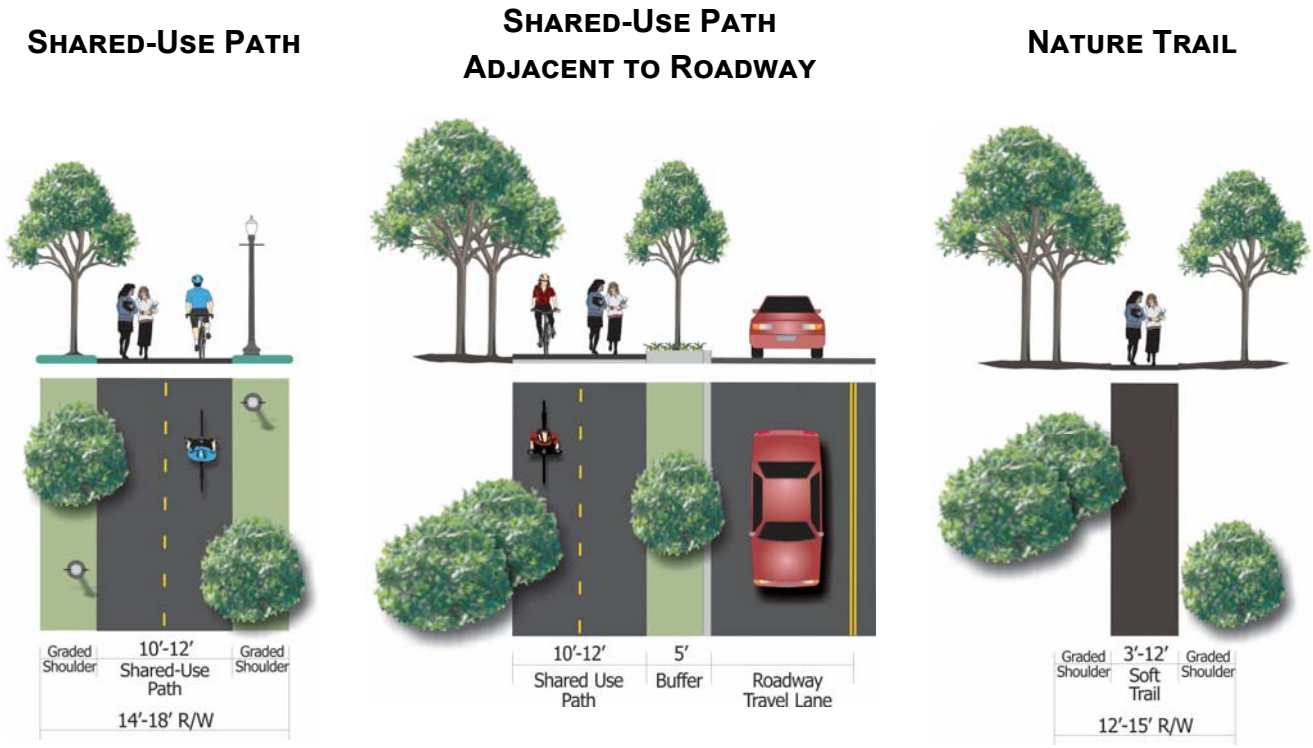
FIGURE 3-10. LOW IMPACT DEVELOPMENT (LID) LOCAL STREET CROSS-



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.

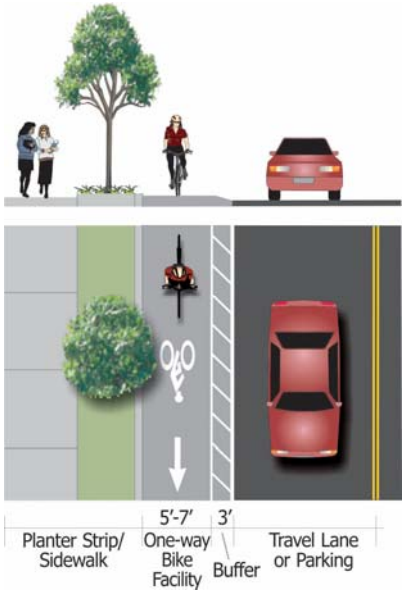
Figure 3-12. Bicycle Facility Design Options

Buffered Bike Lanes and Cycle Tracks

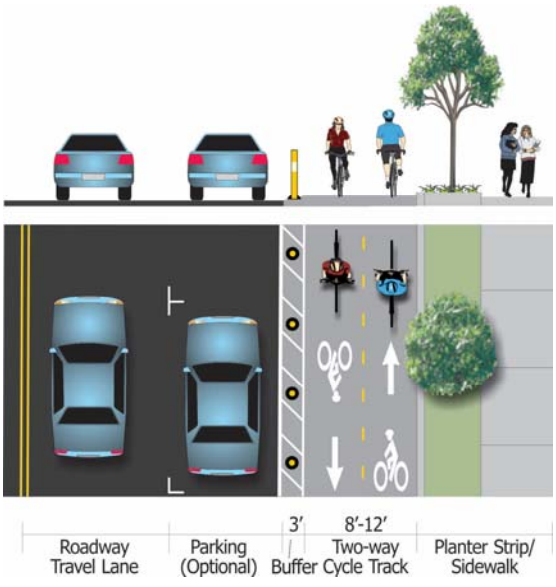
Buffered bike lanes (buffer between travel lane and bike lane) and cycle tracks (parking and/or other buffer between travel lane and one- or two-way bike facility) are two alternate bicycle facility options that are gaining popularity throughout the United States and have been implemented in other parts 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[a]	
	Desired[b]	*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	

[a] Spacing is measured from centerline to centerline on Major Arterials and Minor Arterials and between adjacent curb returns on Collectors and Local Streets

[b] 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.

"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

The Needs
Chapter 4

Header Photo Source: OBEC

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)***

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.

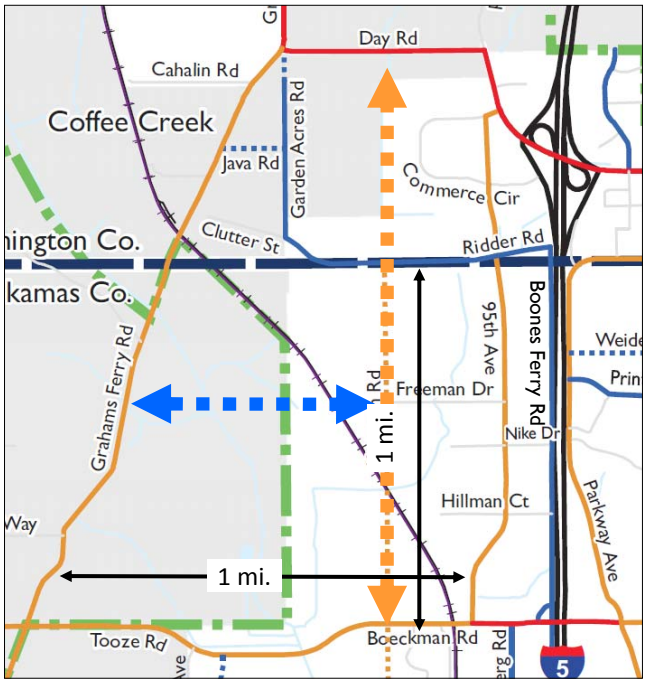
Gaps and Deficiencies

- **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.

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

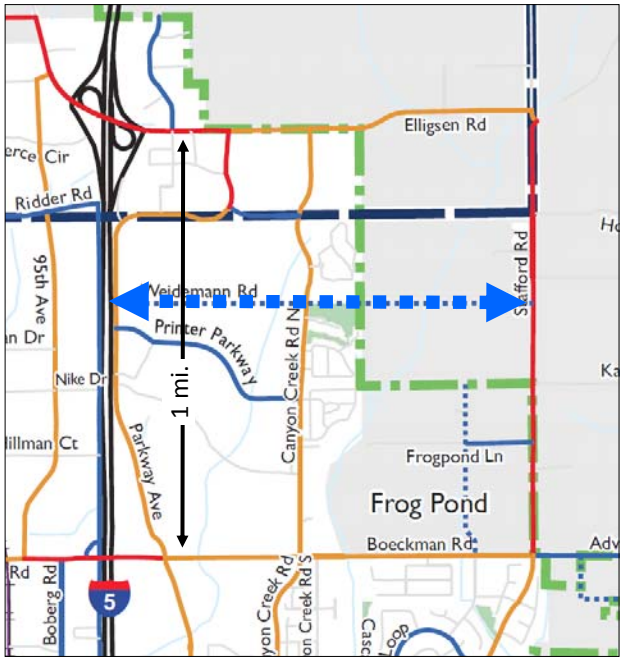


Two connectivity gaps exist in this quadrant:

- 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.

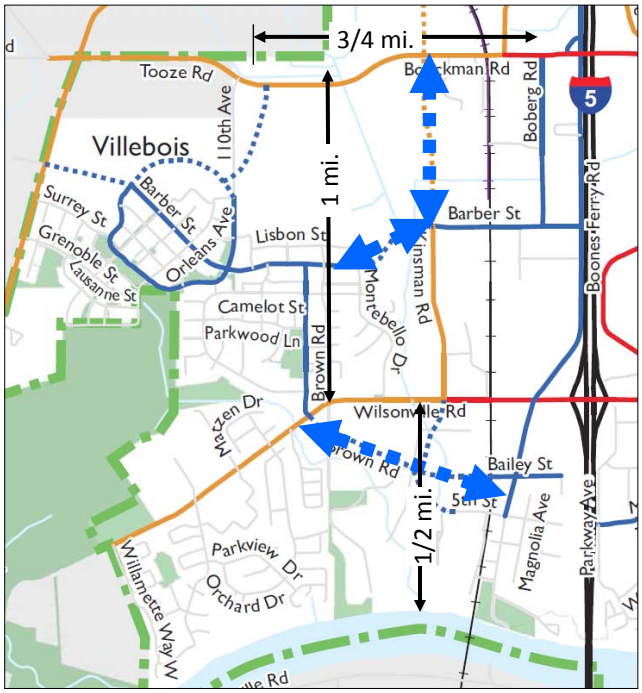
An east/west Collector from Parkway Avenue to Stafford Road would be needed to fill this gap. The City currently owns partial right-of-way along the west end of Wiedemann Road, which is a single-lane gravel road that runs east/west for a short distance east of Parkway Avenue.

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



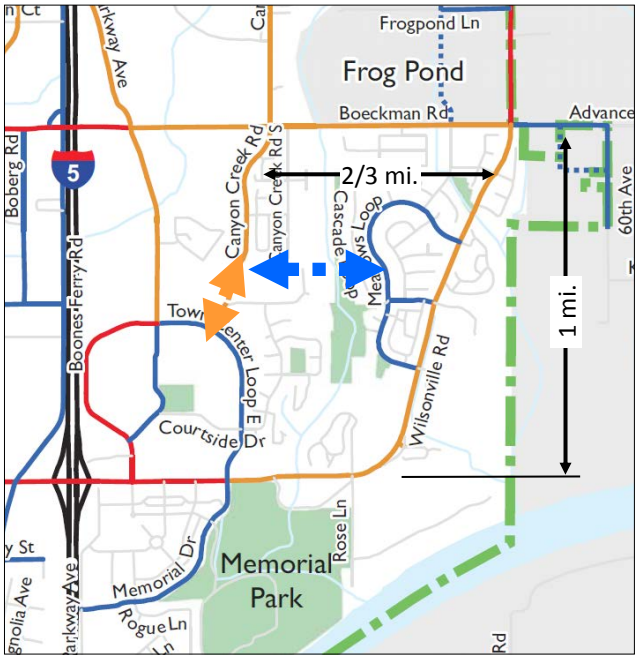
There are several gaps in east-west and north-south connectivity as follows:

- 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.

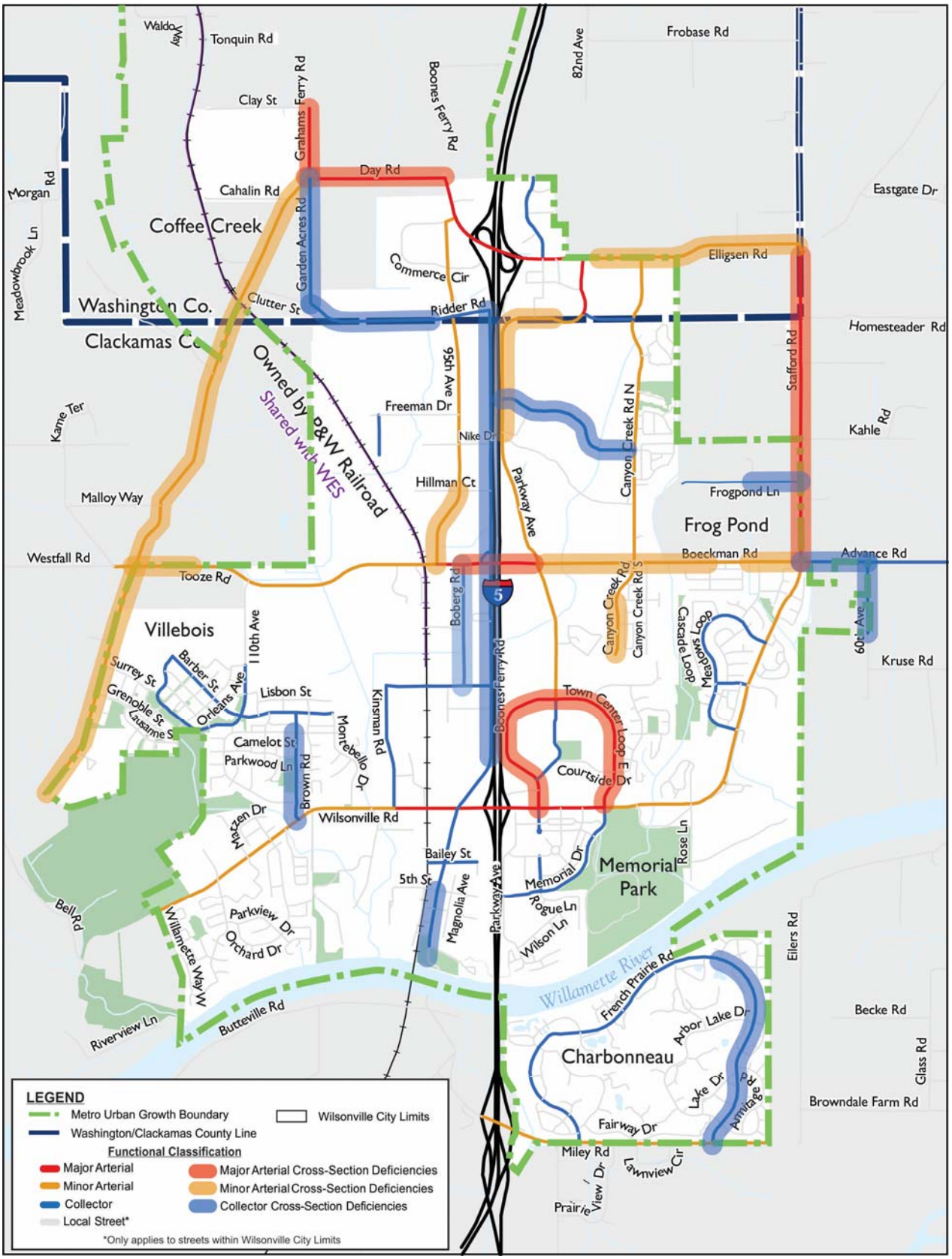
Parkway Avenue near the Xerox campus is a Minor Arterial but does not include bike lanes. There is a sidewalk on the east side, but it ends at the boundary with the vacant parcel to the north.

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

"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

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.

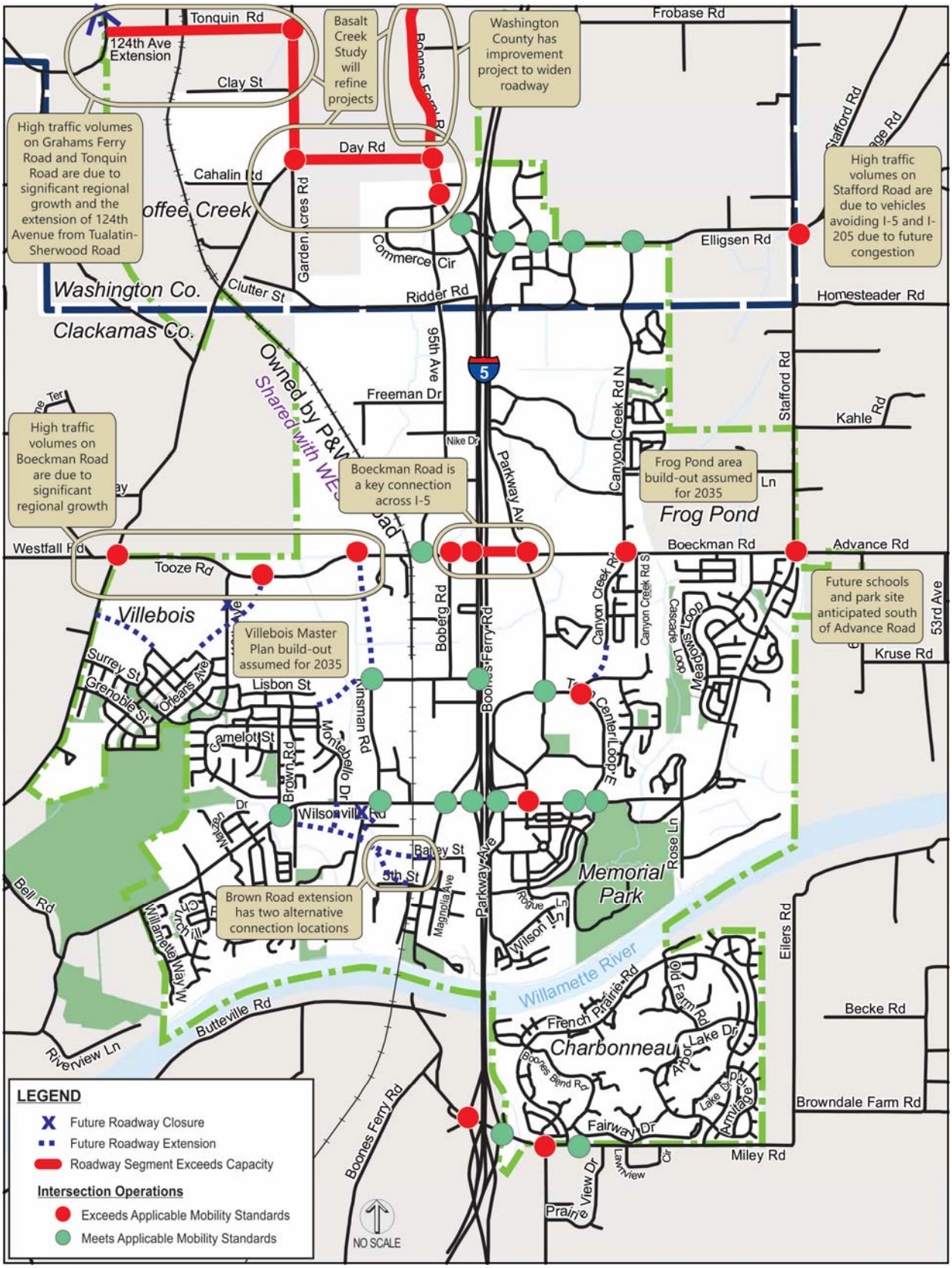
2035 Baseline Roadway Extension Assumptions

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 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.

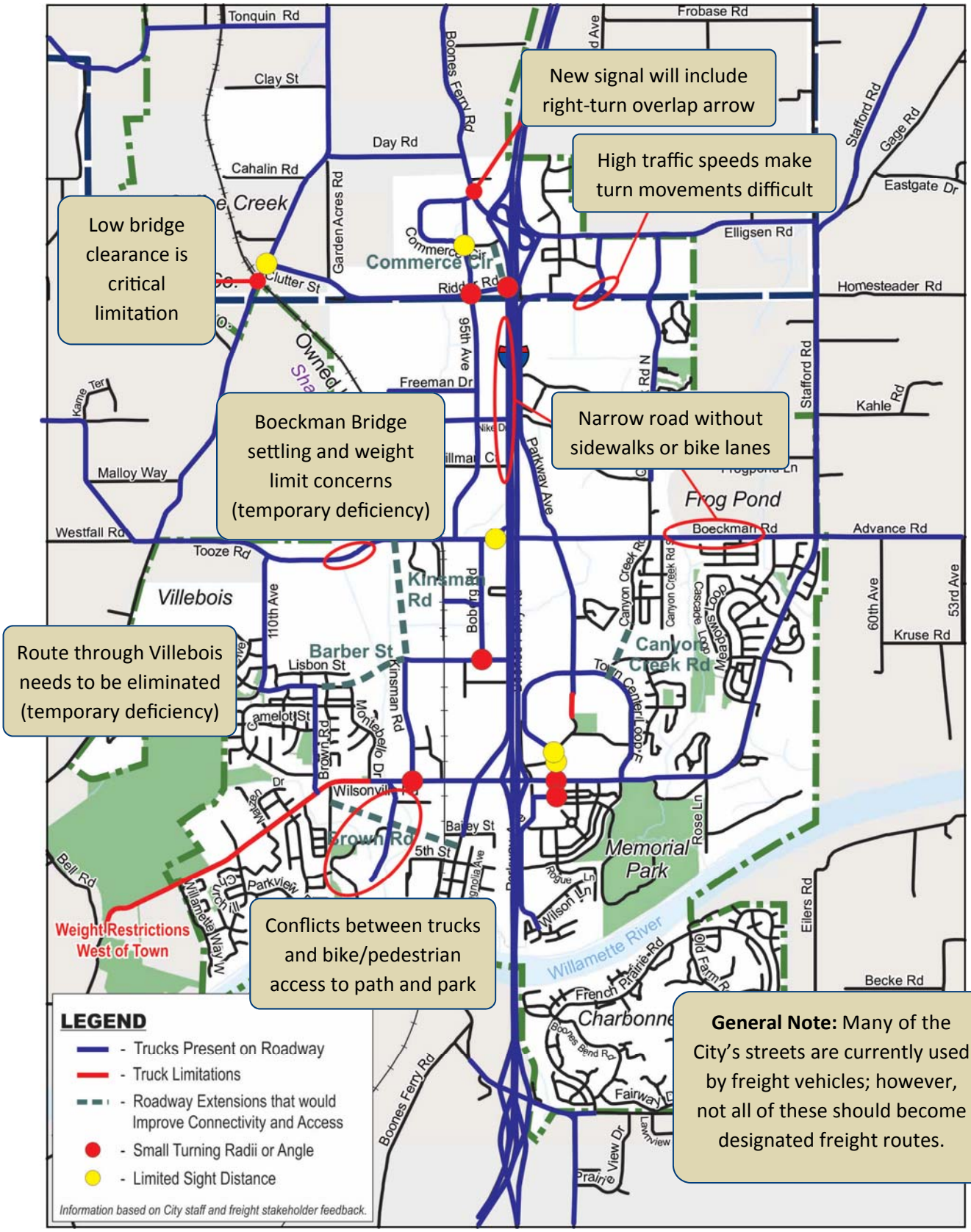
Freight Carrier Outreach

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

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

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

Safe Routes to School

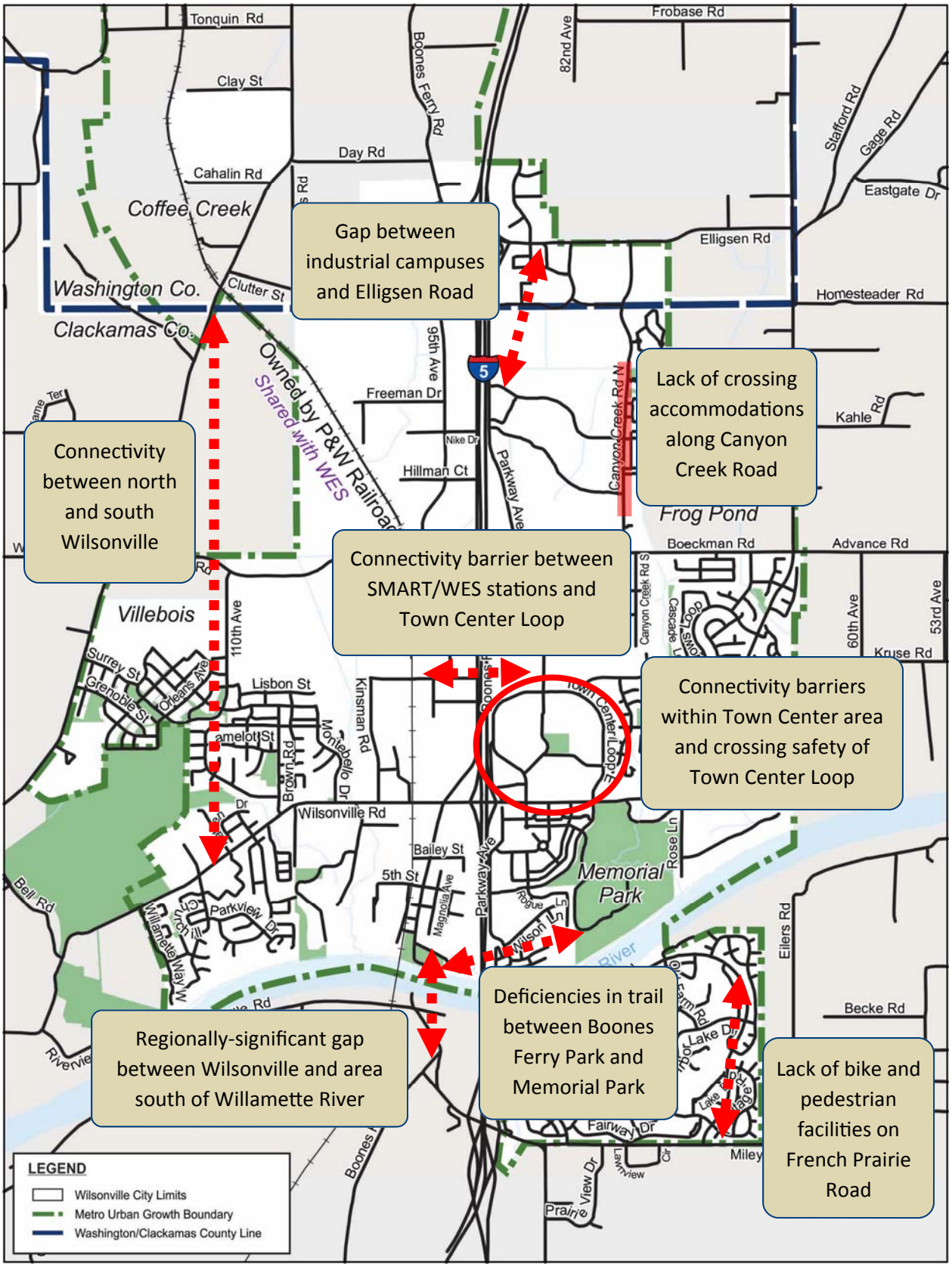
Additional bicycle and pedestrian gaps and deficiencies were identified as part of the Safe Routes to School assessment that the City performed in collaboration with the West Linn-Wilsonville School District and each of the city's primary and middle school. These needs are identified in Chapter 6: The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

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.

> *"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*

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:

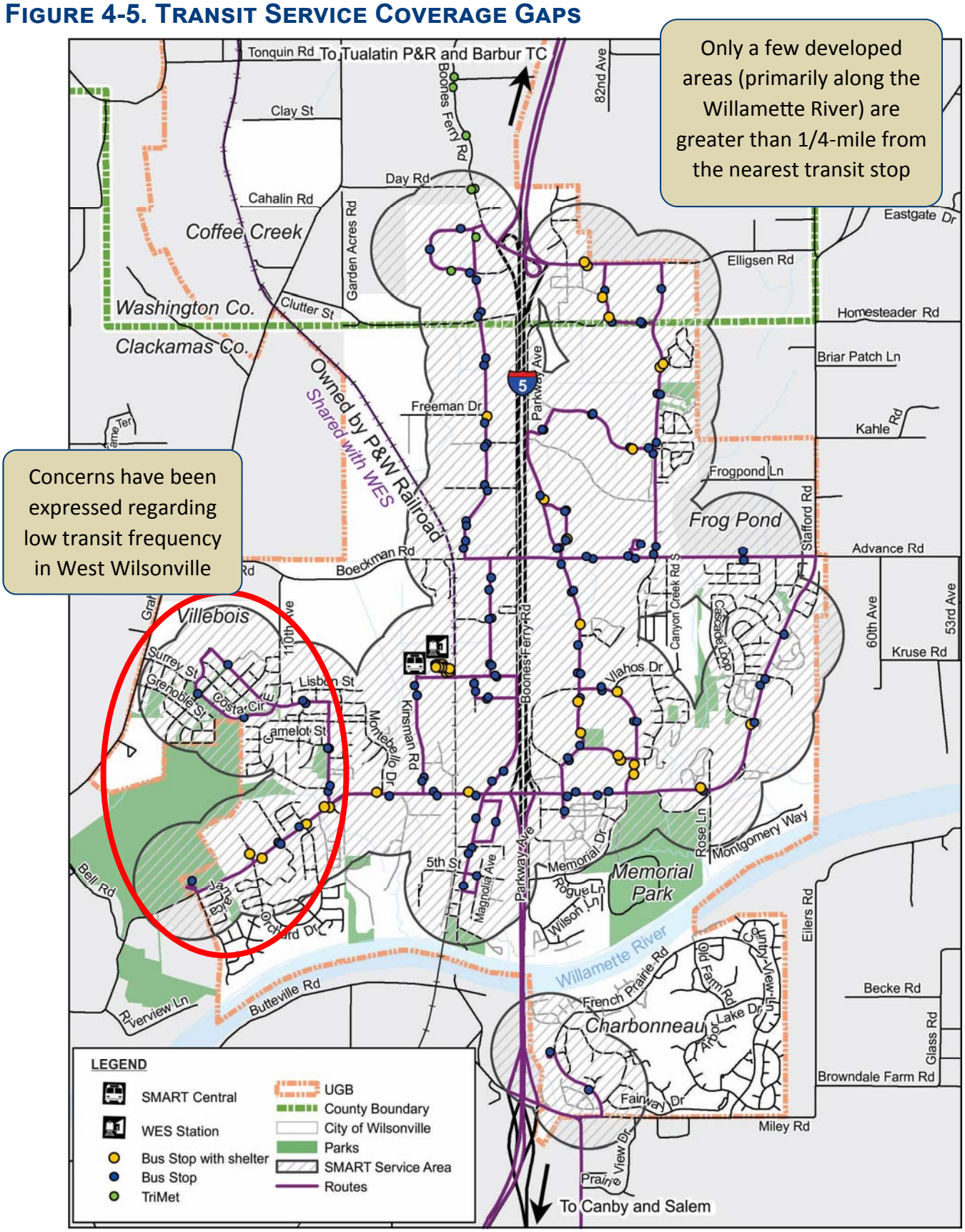
- **Regional Transit Connections** are important for SMART due to Wilsonville's central location between two metropolitan areas (Portland Metro and Salem-Keizer) and its large employment base. While it has existing connections to TriMet (Portland Metro) and Cherriots (Salem-Keizer), these connections 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).

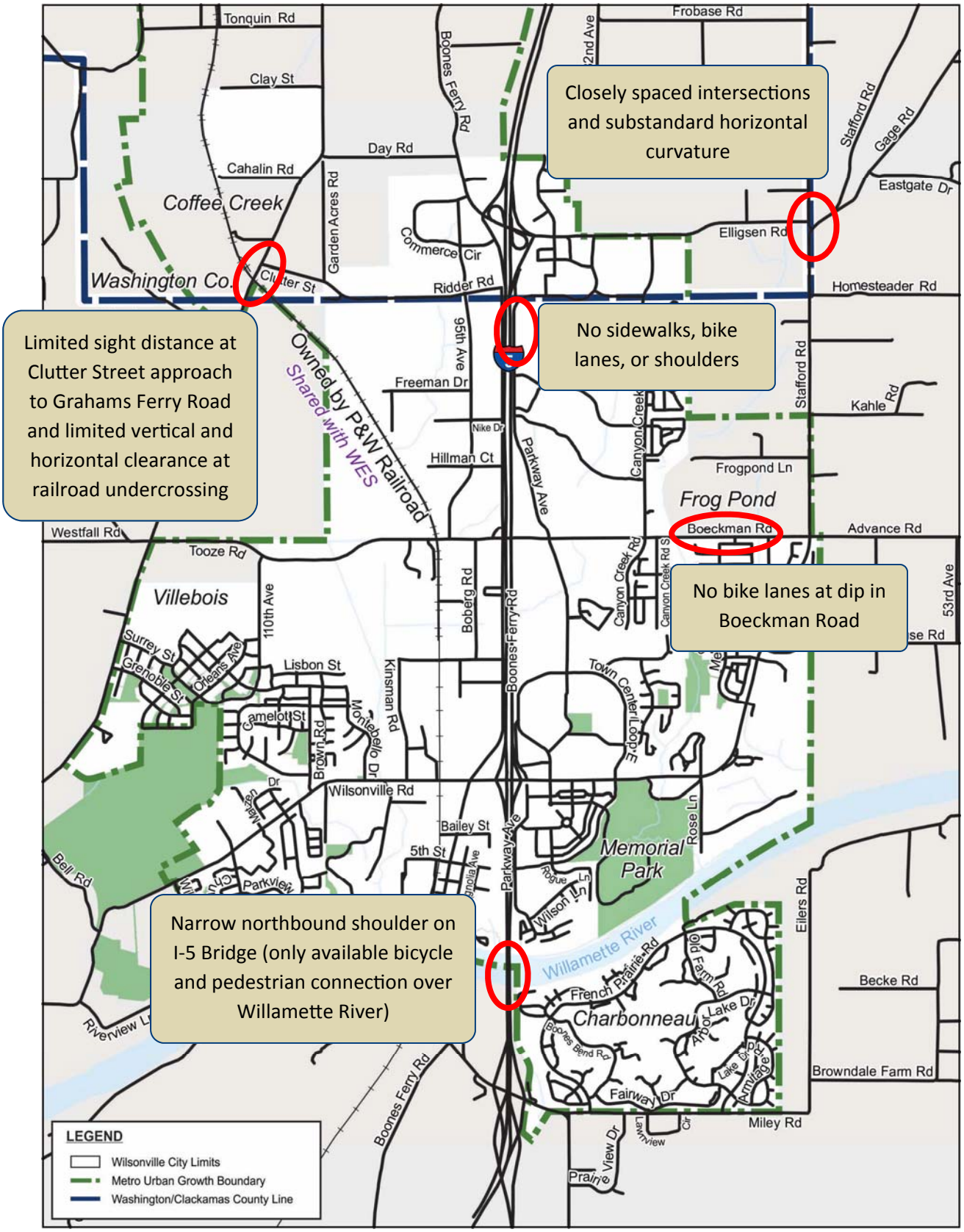
Within the context of the TSP, Environmental Justice is an effort to identify underserved and vulnerable populations so the City can improve transportation services while reduce future inequalities. Two areas of particular need are Charbonneau (due to the higher proportion of elderly residents) and a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

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.

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, 65th 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).

"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

- **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.

The Projects
Chapter 5

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[a]

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
Total Higher Priority Project Costs	**$152,130,000**

[a] 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

This figure provides an overall perspective of the Higher Priority projects throughout the city. Additional details are provided on the pages that follow for each of the City's four quadrants (Northwest, Northeast, Southwest, Southeast), which use I-5 and Boeckman Road as dividing lines.

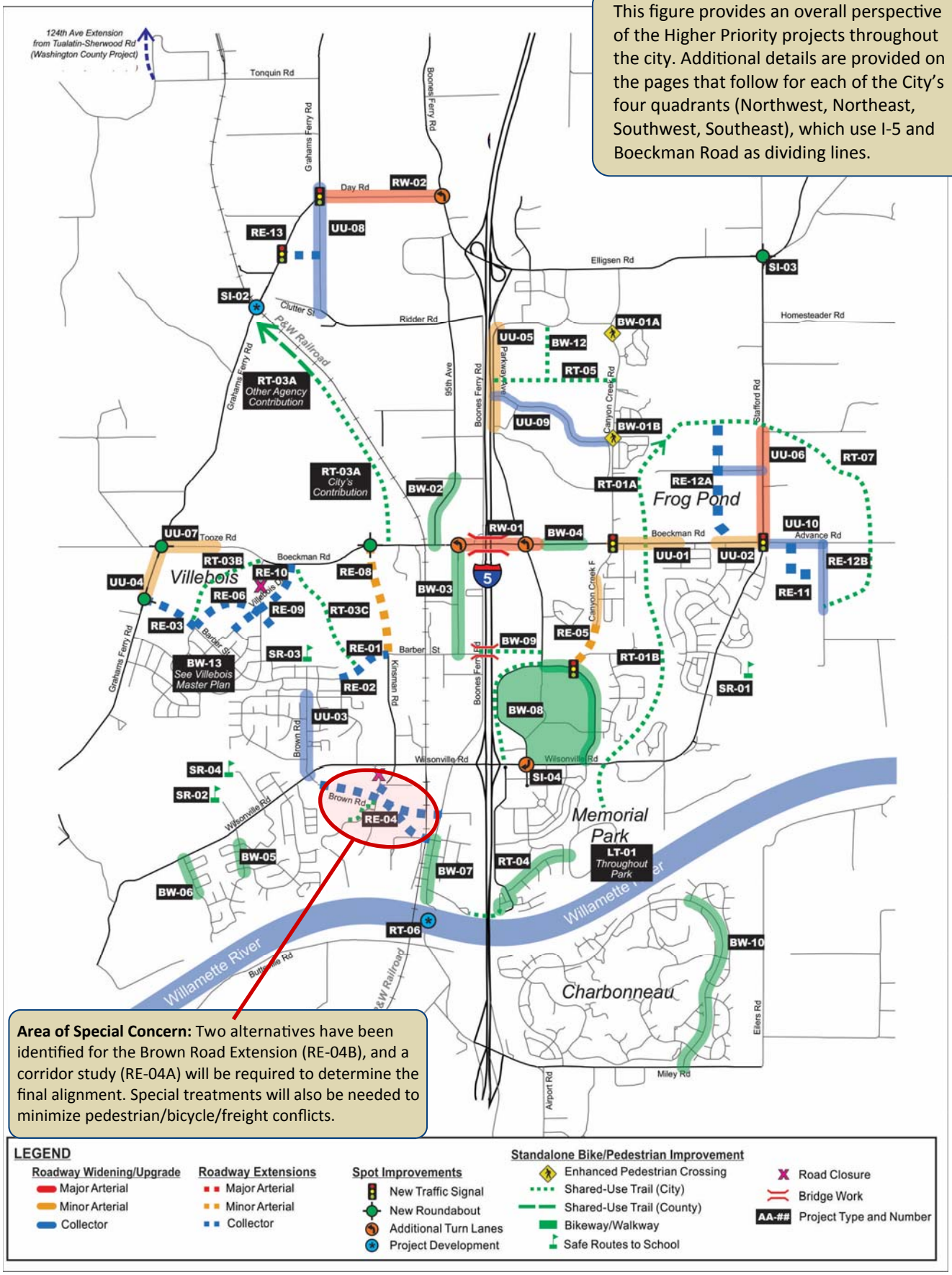


Table 5-2. Higher Priority Projects (Northwest Quadrant)

Project		Description	Cost
Roadway Extensions			
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
Urban Upgrades			
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
Roadway Widening			
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
Spot Improvements			
SI-02	Grahams Ferry Railroad Undercrossing Project Development	Perform preliminary analysis to determine needs, feasibility, etc.	$500,000
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)			
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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)			
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)

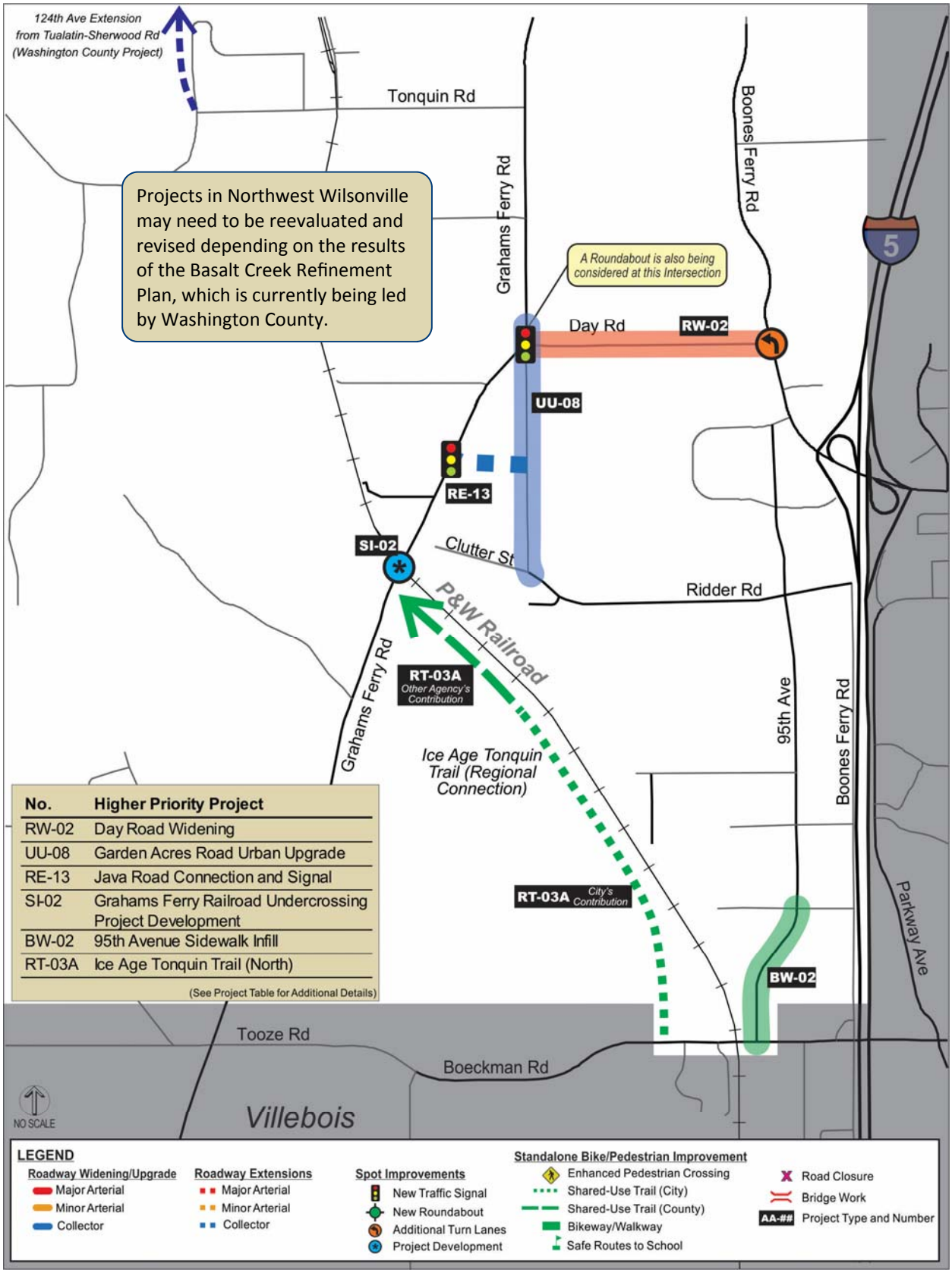


Table 5-3. Higher Priority Projects (Northeast Quadrant)

Project		Description	Cost
Roadway Extensions			
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
Roadway Widening			
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
Urban Upgrades			
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 63rd Avenue (entrance to proposed Advance Road Middle School)	$3,175,000
Spot Improvements			
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)
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)			
BW-01 A/B	Canyon Creek Road Enhanced 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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)			
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)

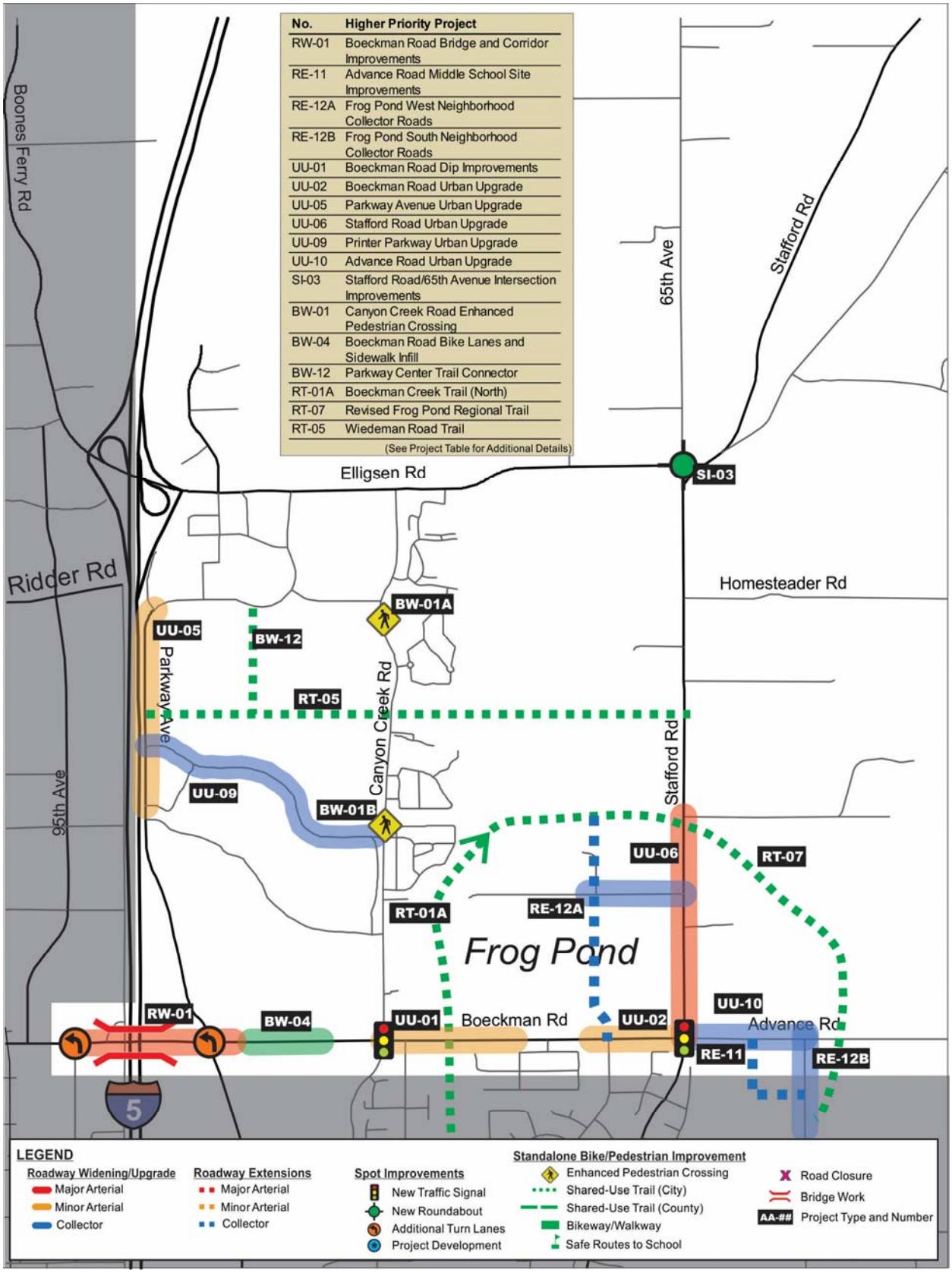
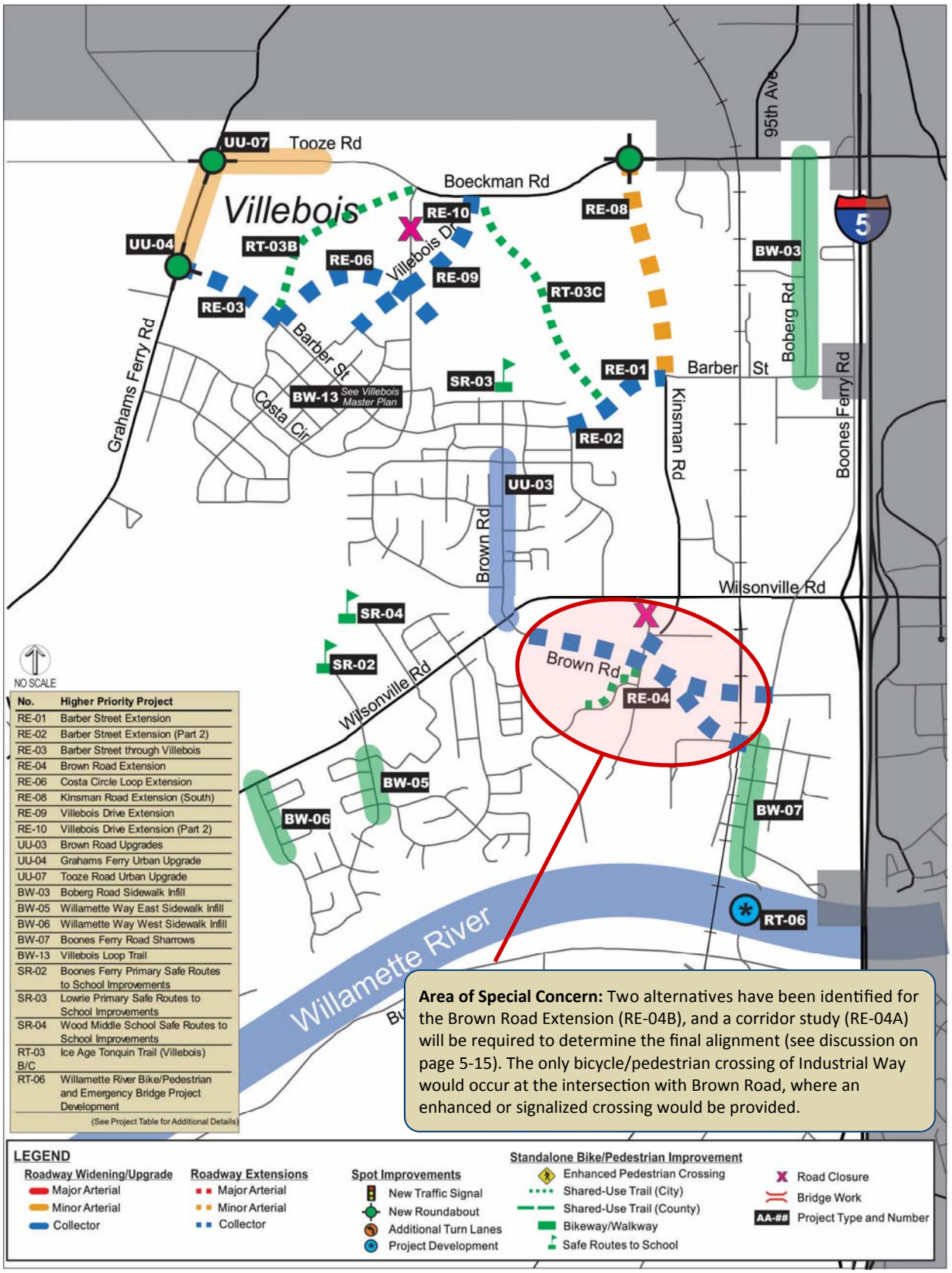


Table 5-4. Higher Priority Projects (Southwest Quadrant)

Project		Description	Cost
Roadway Extensions			
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
Urban Upgrades			
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
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)			
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
Standalone Pedestrian and Bicycle Improvements (Safe Routes to School)			
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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)			
RT-03 B/C	Ice Age Tonquin Trail (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)



No.	Higher Priority Project
RE-01	Barber Street Extension
RE-02	Barber Street Extension (Part 2)
RE-03	Barber Street through Villebois
RE-04	Brown 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)
UU-03	Brown Road Upgrades
UU-04	Grahams Ferry Urban Upgrade
UU-07	Tooze Road Urban Upgrade
BW-03	Boberg Road Sidewalk Infill
BW-05	Willamette Way East Sidewalk Infill
BW-06	Willamette Way West Sidewalk Infill
BW-07	Boones Ferry Road Sharrows
BW-13	Villebois Loop Trail
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
RT-03 B/C	Ice Age Tonquin Trail (Villebois)
RT-06	Willamette River Bike/Pedestrian and Emergency Bridge Project Development

(See Project Table for Additional Details)

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

Project		Description	Cost
Roadway Extensions			
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
Spot Improvements			
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
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)			
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
Standalone Pedestrian and Bicycle Improvements (Safe Routes to School)			
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
Standalone Pedestrian and Bicycle Improvements (Local Trails)			
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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)			
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)

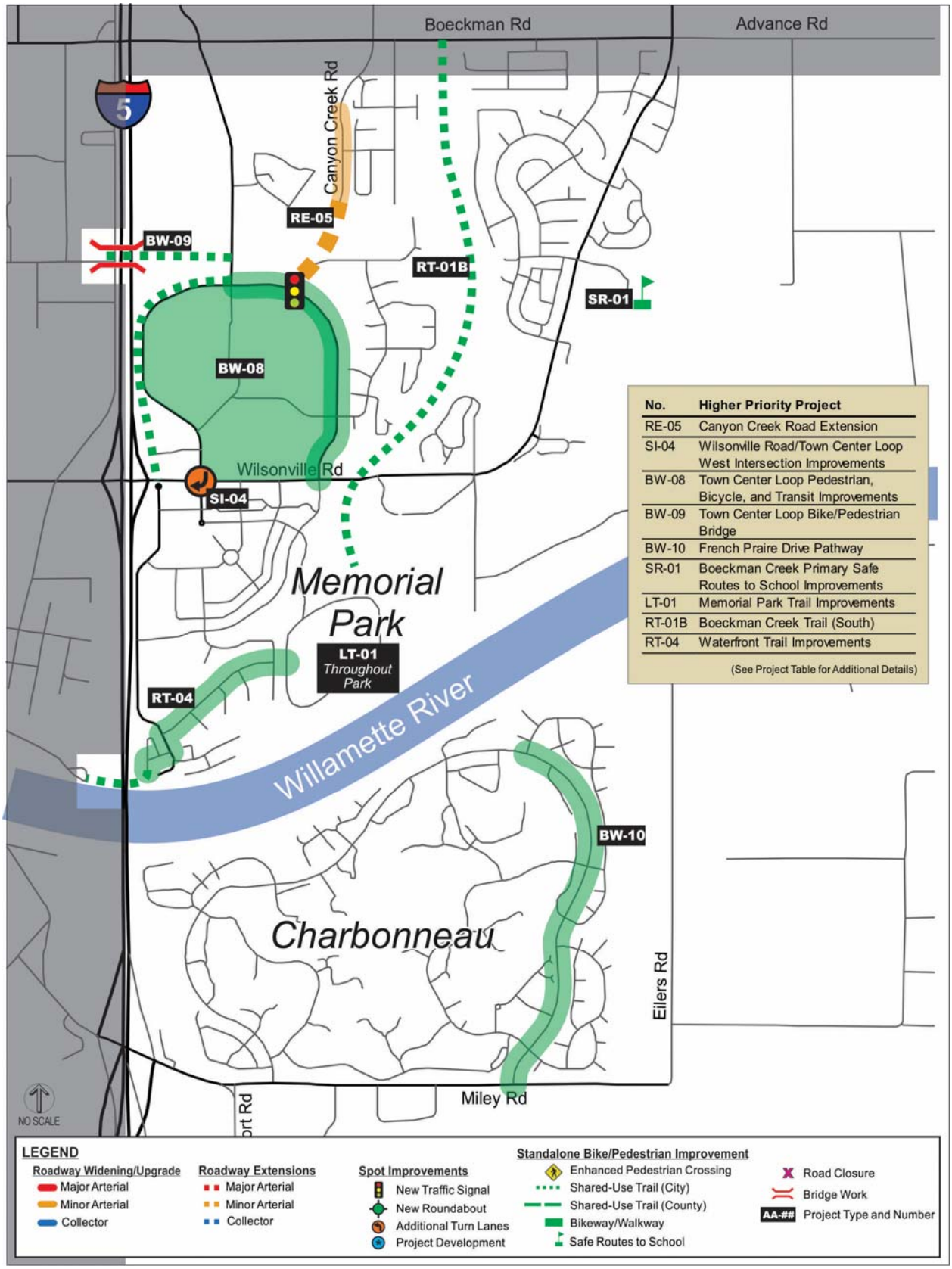


Table 5-6. Higher Priority Projects (Citywide)

Project	Description	Cost
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)		
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
Transit Improvements		
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[a]	$0.7 million
Local/Regional Partnerships	$2.9 million[a]	$2.9 million
Grants	$3.2 million[a]	$3.2 million
State and Federal Funding	$12.6 million[a]	$12.6 million
Total	**$123.4 million**[a]	**$118.1 million**

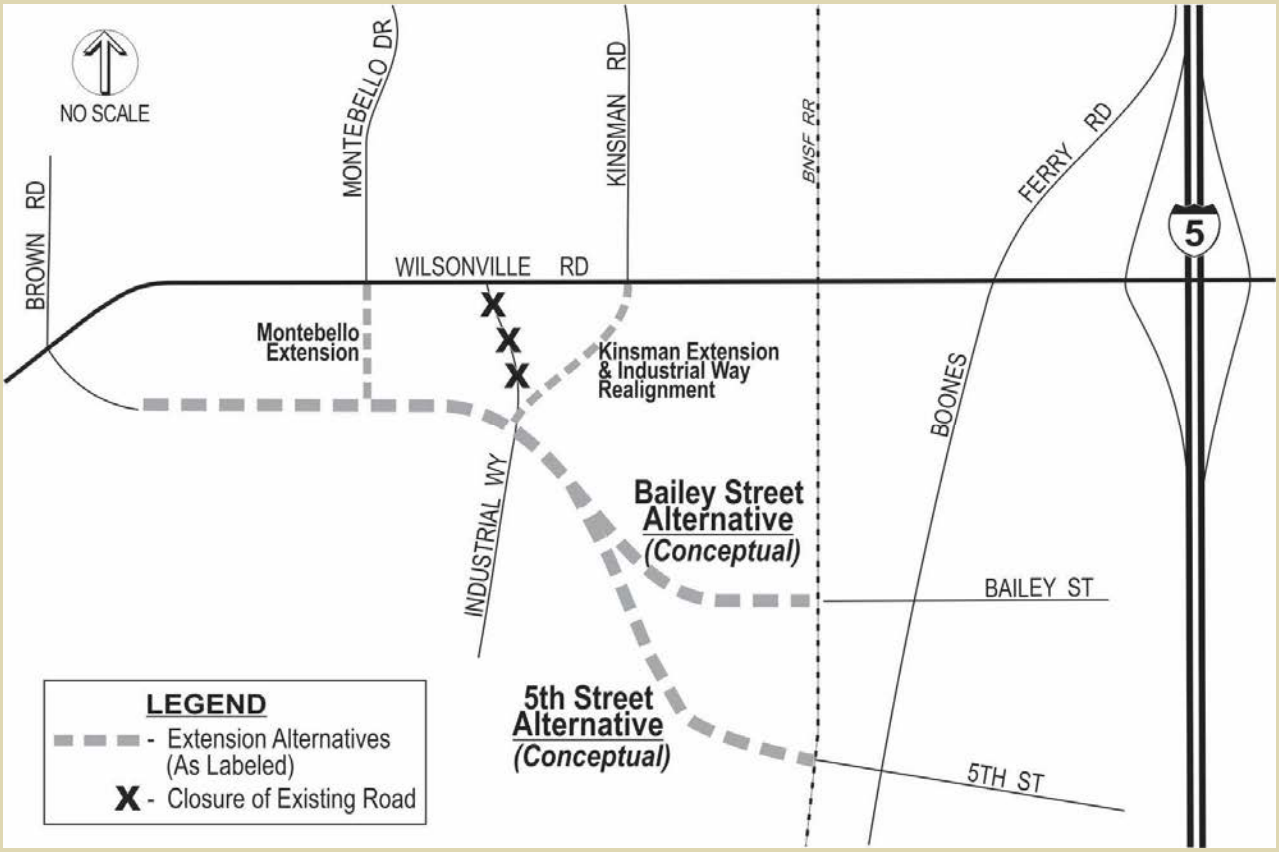
[a] The approximate funding levels estimated for various sources were considered to be equal to the contributions due to the prior experience of how the City has been able to fund transportation projects. If the City is unable to obtain local/regional partnerships, grants, and/or state and federal funding, 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[a]

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
Total Additional Planned Project Costs	**$100,560,000**

[a] 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

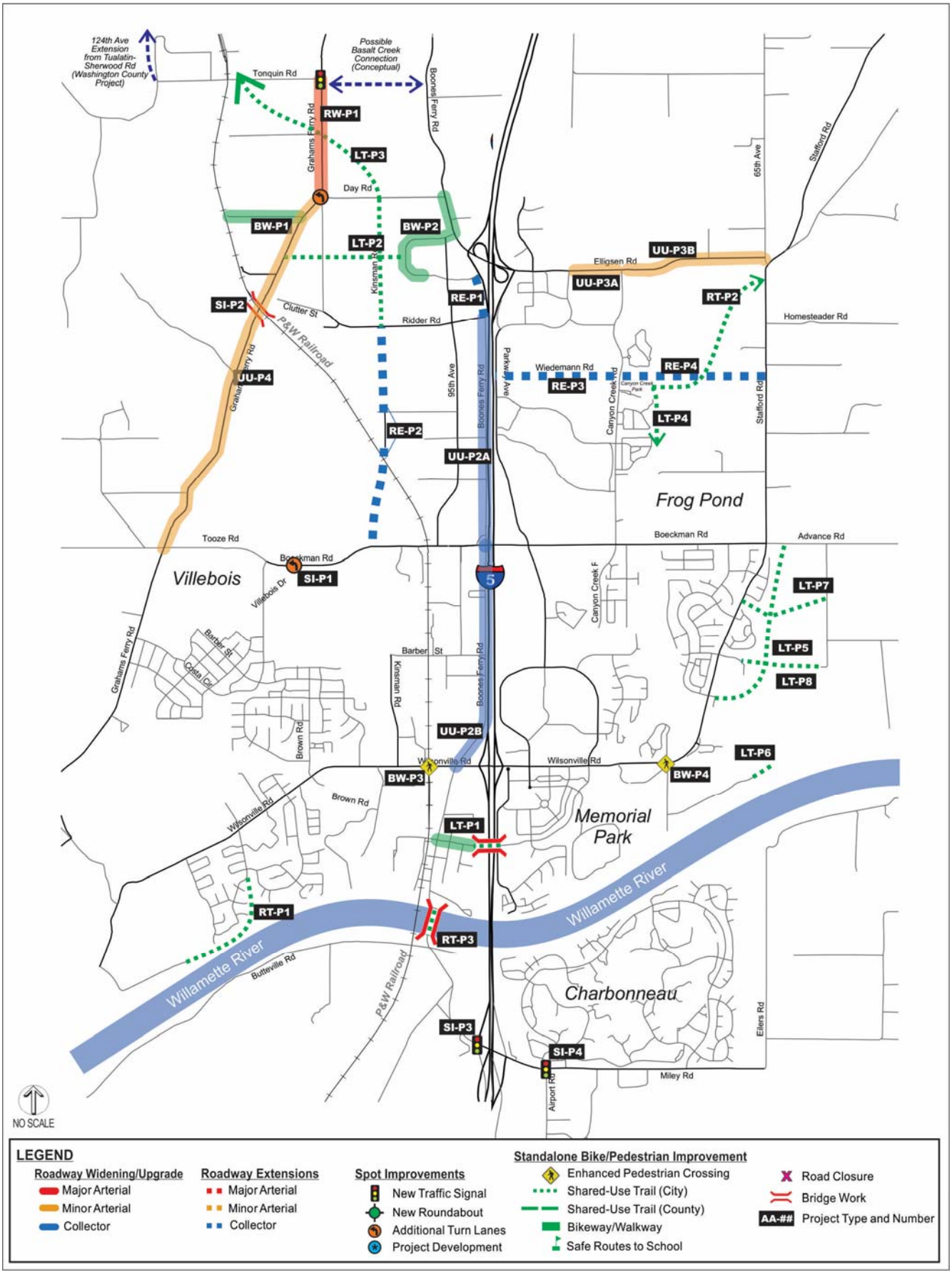


Table 5-9. Additional Planned Projects (Northwest Quadrant)

Project		Description	Why Not Higher Priority?	Cost
Roadway Extensions				
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
Roadway Widening				
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
Urban Upgrades				
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
Spot Improvements				
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
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)				
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
Standalone Pedestrian and Bicycle Improvements (Local Trails)				
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)

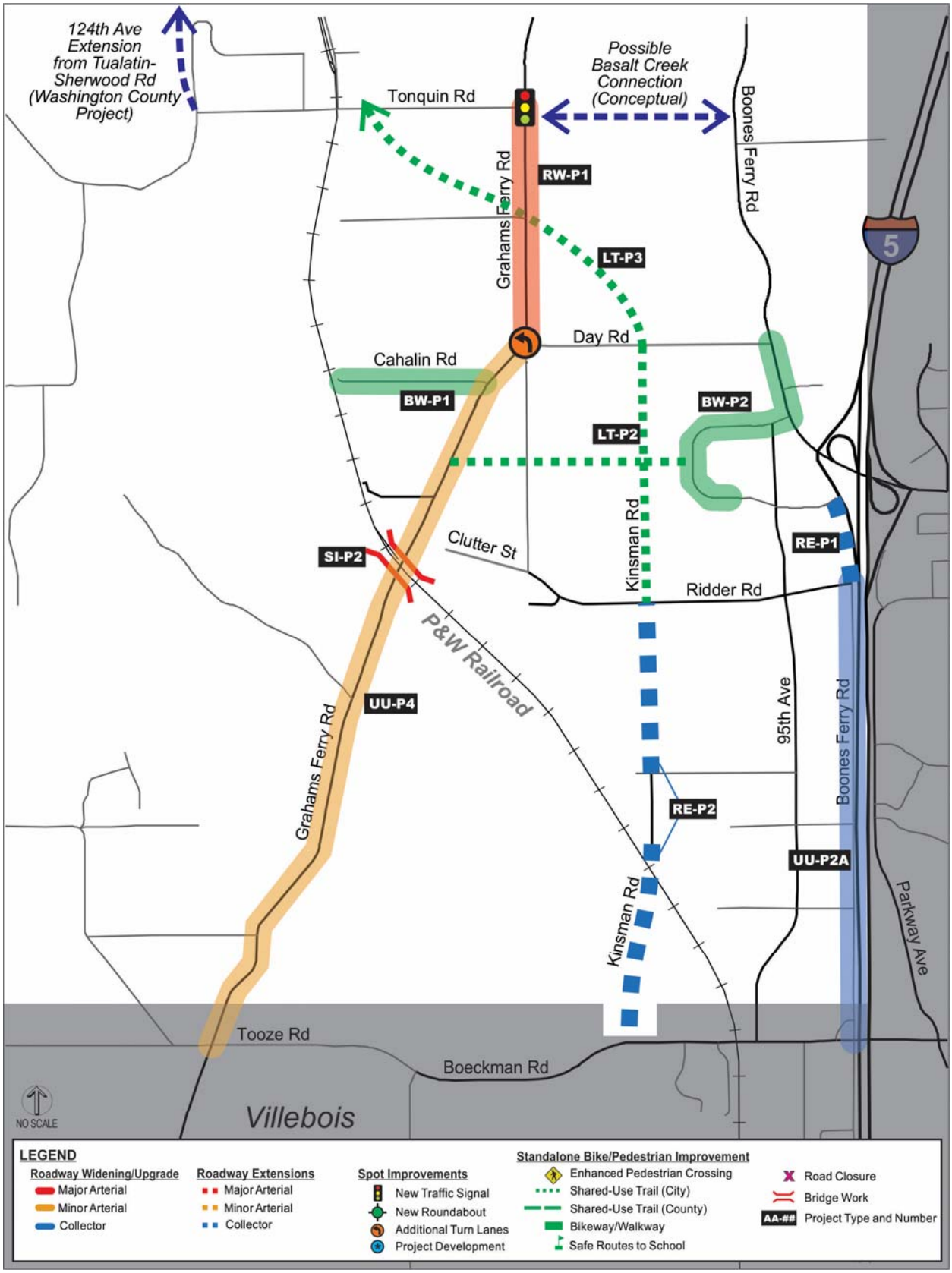


Table 5-10. Additional Planned Projects (Northeast Quadrant)

Project		Description	Why Not Higher Priority?	Cost
Roadway Extensions				
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
Urban Upgrades				
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)
Standalone Pedestrian and Bicycle Improvements (Local Trails)				
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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)				
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)

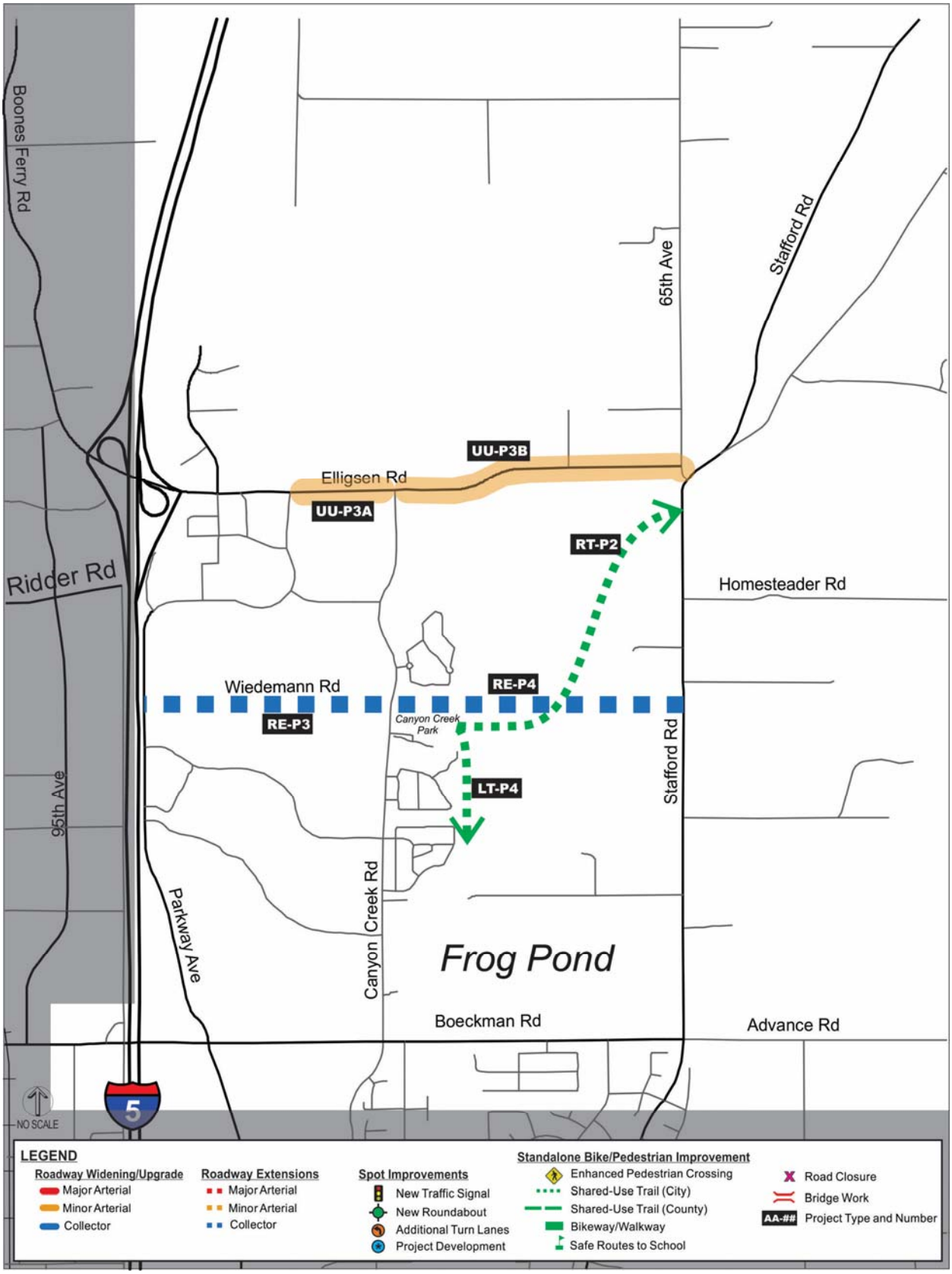


Table 5-11. Additional Planned Projects (Southwest Quadrant)

Project		Description	Why Not Higher Priority?	Cost
Urban Upgrades				
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
Spot Improvements				
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
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)				
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
Standalone Pedestrian and Bicycle Improvements (Local Trails)				
LT-P1	5th Street Bike/ Pedestrian Bridge and Connections	Construct bike/pedestrian bridge over I-5 approximately aligned with 5th Street; also construct bike lanes and sidewalks on 5th 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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)				
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)

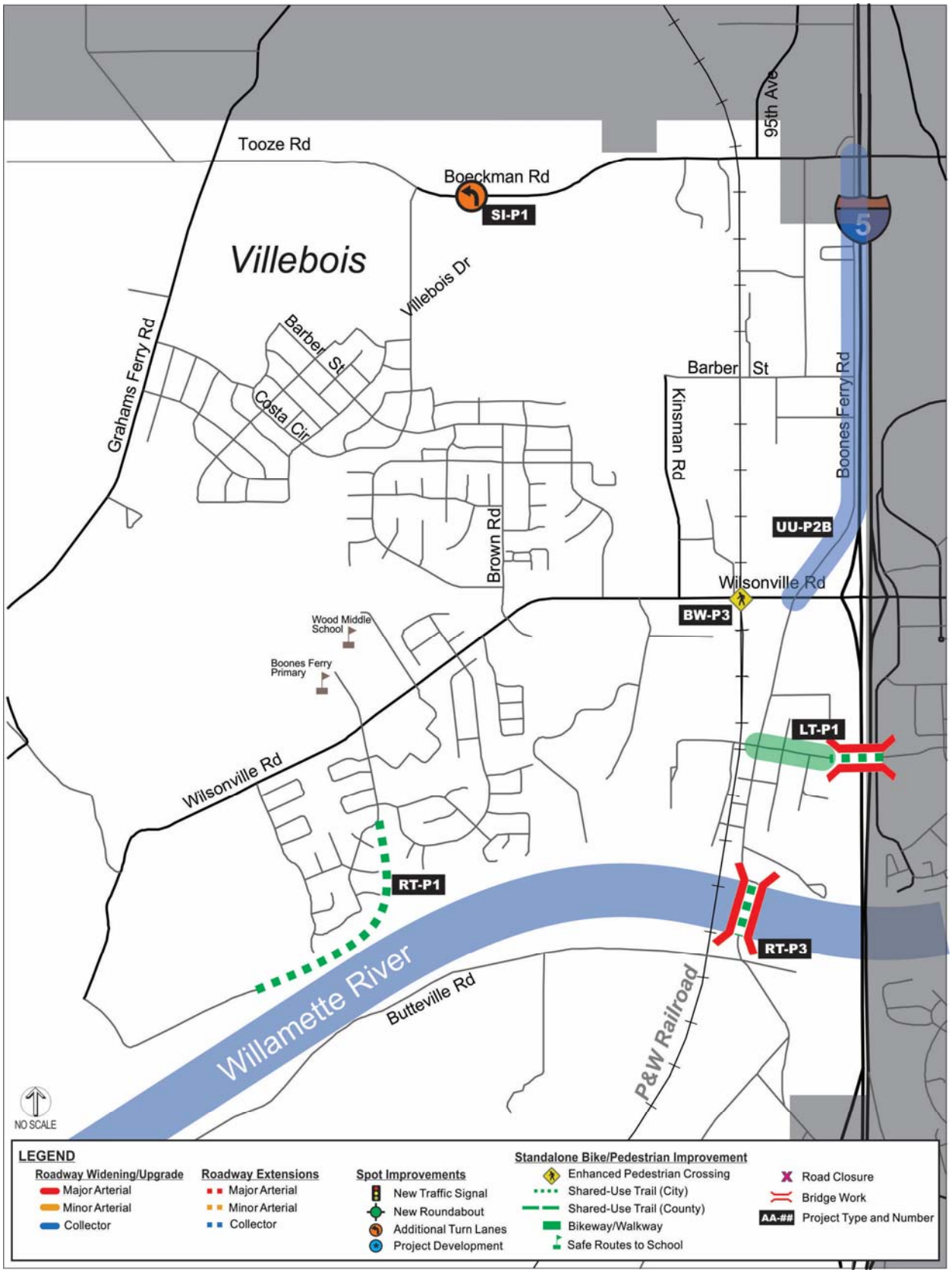


Table 5-12. Additional Planned Projects (Southeast Quadrant)

Project		Description	Why Not Higher Priority?	Cost
Spot Improvements				
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
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)				
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
Standalone Pedestrian and Bicycle Improvements (Local Trails)				
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	60th Avenue Trail	Construct the 60th 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)

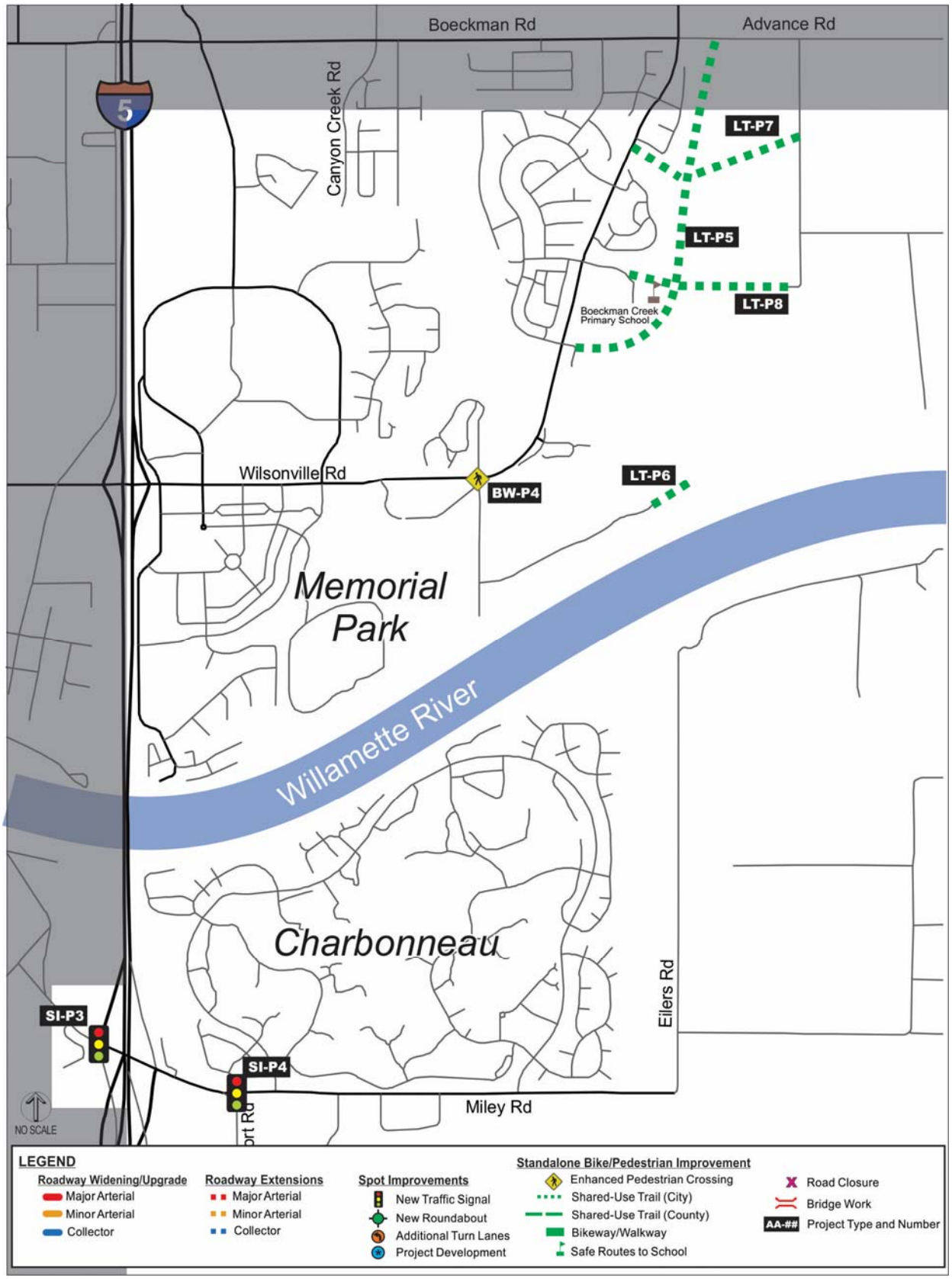


Table 5-13. Additional Planned Projects (Citywide)

Project		Description	Why Not Higher Priority?	Cost
Spot Improvements				
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

"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

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.

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.

_____
Wilsonville Planning Commission Chair

Attest:

_____
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	_____

PIONEER DESIGN GROUP, INC.
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 par 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.

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 95th Avenue, approximately one half mile to the east. 95th 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:

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 95th 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.

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 3rd 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.

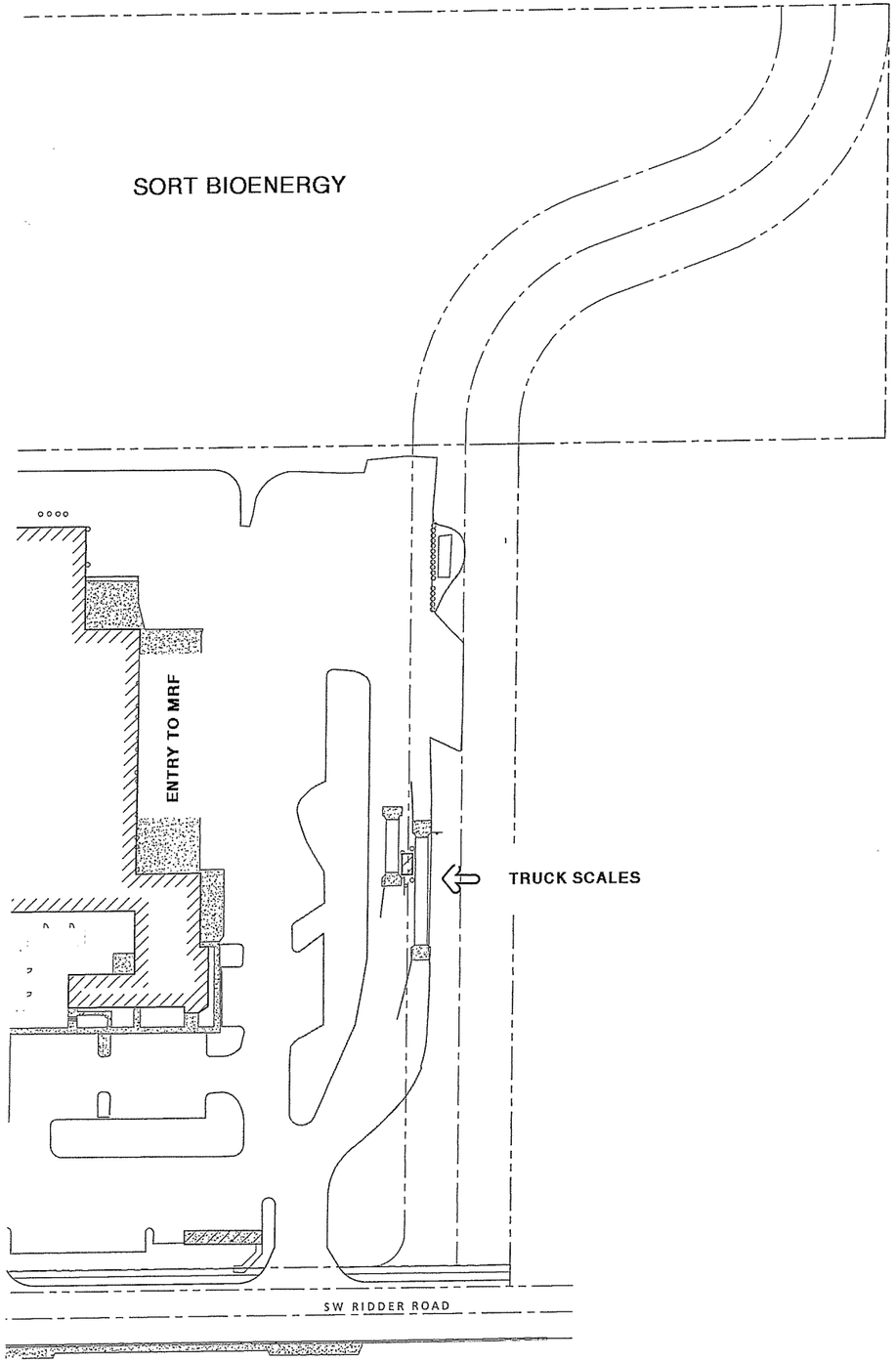
With pending TSP revisions, Garden Acres Road is expected to become the major north/south link, replacing the Kinsman Road to Day Road alignment. This amendment will result in a re-alignment of the intersections of Ridder and Garden Acres Roads, with cul-de-sac for Clutter Road. This new alignment is 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:

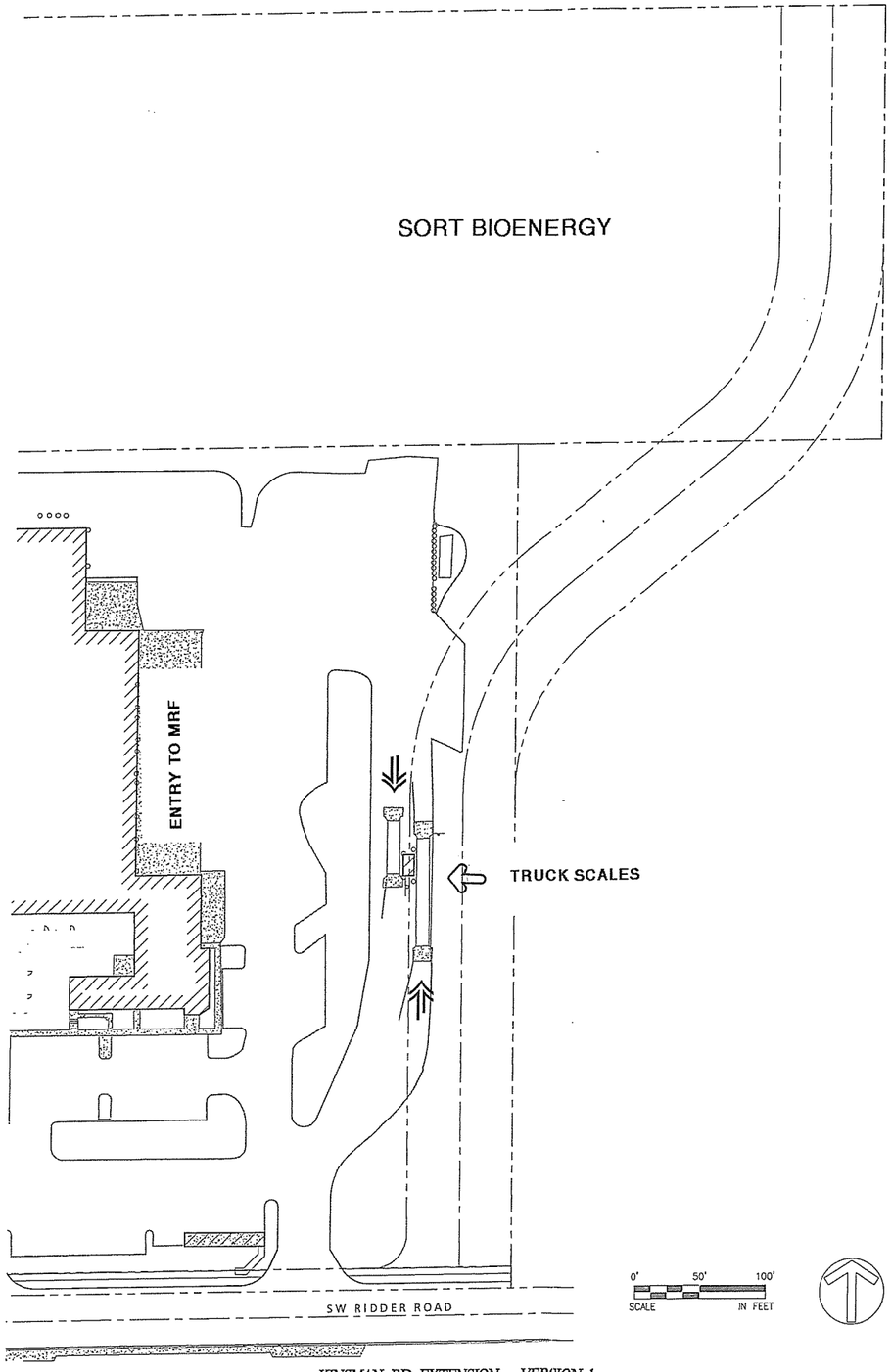
1. A significant portion of the existing operations, as well as the eastern portion of tl 600 would be lost to right-of-way. This is further compounded by the possibility that the City would shift the entire right-of-way onto Republic, in order to avoid impacts to the BPA substation.
2. The location 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.



KINSMAN RD EXTENSION - VERSION 2

HORZ. 1"=50'



KINSMAN RD EXTENSION - VERSION 1

HORZ. 1"=50'

PIONEER DESIGN GROUP, INC.
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PORTLAND, OREGON 97223
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www.pd-grp.com

ANNEXATION

REPUBLIC SERVICES - PDI STAGE I
WASHINGTON COUNTY, OR

Designed by	SFG	Date	06/19/15
Drawn by	SFG	Date	06/19/15
Reviewed by	BEF	Date	06/19/15
Project No.	999-158	REF.	
Horiz. Scale:	1"=50'		
Vert. Scale:			

999158_01ANNX

No.	Date	Revision	By

Project
REPUBLIC SERVICES
No.
999-158
Type
PLANNING
Sheet
1 of 1

PROPOSED 10' PGE ESMT.
PROPOSED TEMPORARY 10' GRAVEL ACCESS
PROPOSED POWER VAULT
PROPOSED POWER VAULT
FLARE 50'Ø CLEAR
POST DIGEST TANK 35'Ø
30' SETBACK
826.99'
11.5' DEDICATION
DIGESTER #1 75'Ø
DIGESTER BUILDING 60'x40'
DIGESTER #2 75'Ø
ODOR CONTROL 60'Ø
BLEND TANK 35'Ø
PROPOSED 10' PGE ESMT
PROPOSED 20' TVF&R SECONDARY ACCESS
PROPOSED POWER VAULT
BIOGAS STORAGE
RESERVED FOR WWTP
SOLIDS STORAGE
FOOD WASTE DEPACKAGING 150'x145'
GENERATION UNITS
30' SETBACK
PROPOSED FENCE TO BE WITHIN 10-15 FEET OF PROPERTY LINE AND ADJUSTED IN THE FIELD TO PROTECT EXISTING TREES.
PROPOSED WATER QUALITY FACILITY
PROPOSED FDC
PROPOSED HYDRANT LOCATION
EX. ISLAND TO BE PAVED
EMPLOYEE PARKING
EX. HYDRANT TO BE RELOCATED
GARDEN ACRES ROAD
CNG FACILITY
CONTAINER STORAGE AREA
28 TRUCK SPACES
2" WATER METER W/ APPROVED BACKFLOW PREVENTER
487.2' 3" WIR5BQ WATER SERVICE
232' 4" DI PUBLIC FIRE SERVICE
PROPOSED PATH FROM RIDDER ROAD TO PARKING LOT
3CY RIP RAP CLASS 50
15 TRUCK SPACES
FRENCH DRAIN AT BOTTOM OF RAMP
8"X4" REDUCER
11 TRAILER SPACES
TEMP OFFICES
CONNECT TO EXISTING FIRE SERVICE INSTALL 8"X6" TEE
EXISTING SCALE FACILITY
6 TRAILER SPACES
5 STANDARD PARKING SPACES
11 STANDARD PARKING SPACES PLUS 2 ADA SPACES
4 STANDARD PARKING SPACES
12 STANDARD PARKING SPACES
13 STANDARD PARKING SPACES
13 STANDARD PARKING SPACES
VACATED 310.56' N00°18'42"W
SCALE 0' 50' 100' IN FEET
SW RIDDER ROAD

SHEET INDEX

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PRELIMINARY SITE PLAN

SORT BIOENERGY
CITY OF WILSONVILLE, OREGON

No.	Date	By
	Revision	

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

Project
SORT BIOENERGY
No.
999-174
Type
PLANNING
Sheet
1 of 7

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:

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.

_____

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 -

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

TSP AMENDMENT
ATTACHMENT G
(Received 4/12/2016)

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 mange 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 <u>underlined</u>.

Higher Priority Projects Table (Page v)

Add the following projects to this table:

- <u>BW-15 Property Acquisitions for Bike/Ped Connectivity</u>

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

Add the following project and associated costs and descriptions:

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

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

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

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
503-349-4168

Report for

City of
WILSONVILLE
in OREGON

Fred Meyer
Transportation Impact Study

Prepared by

DKS Associates
TRANSPORTATION SOLUTIONS

August 2008

DKS Associates
TRANSPORTATION SOLUTIONS

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

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

DKS Associates
TRANSPORTATION SOLUTIONS

TABLE OF CONTENTS

DKS Associates
TRANSPORTATION SOLUTIONS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION AND SUMMARY

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[1]), 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.[2] 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:

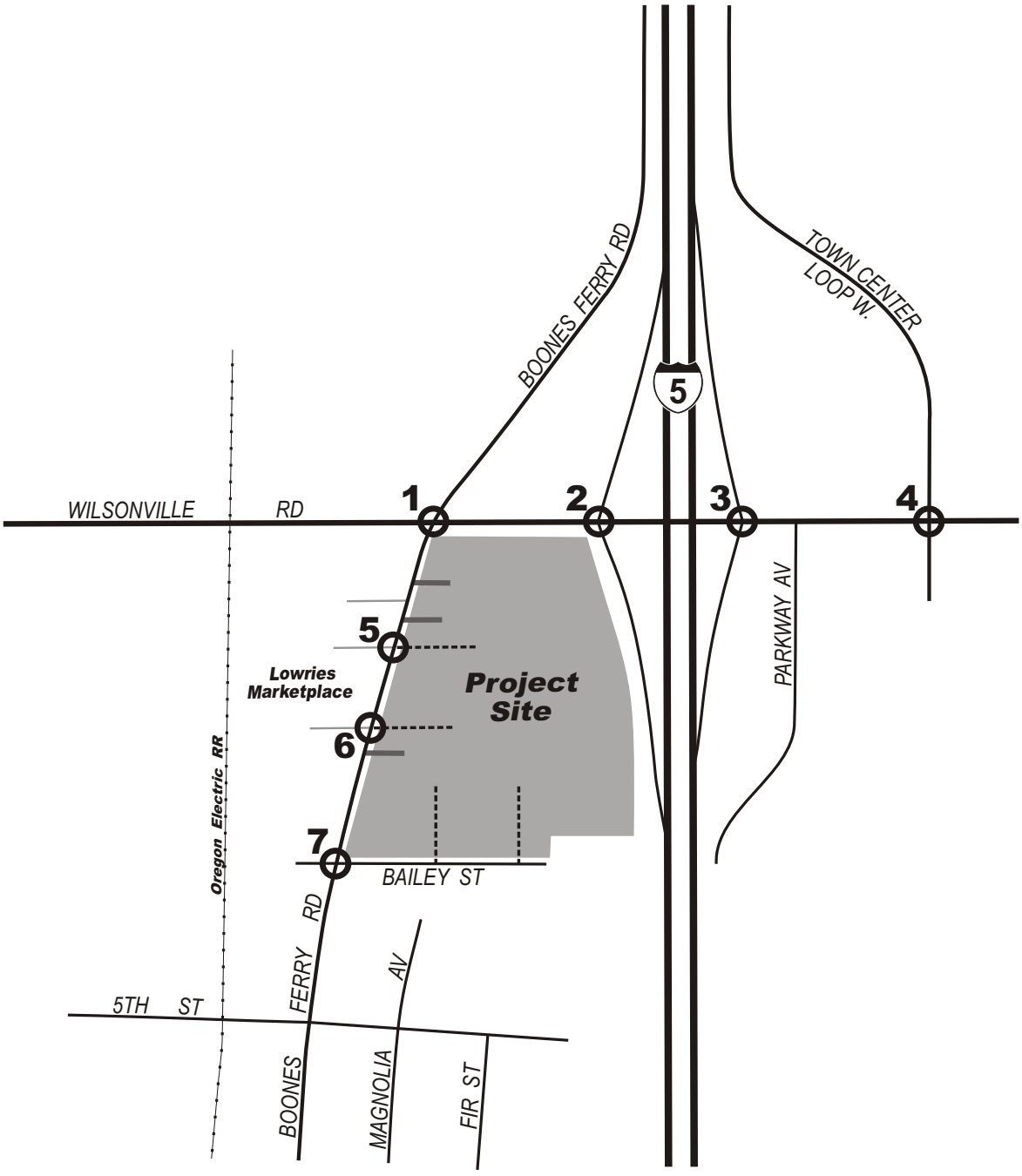
- Boones Ferry Road/Wilsonville Road
- I-5 Southbound Ramps/Wilsonville Road
- I-5 Northbound Ramps/Wilsonville Road
- Town Center Loop West/Wilsonville Road
- Boones Ferry Road/Fred Meyer north access
- Boones Ferry Road/Fred Meyer south access
- Boones Ferry Road/Bailey Street

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.

[1] Tenant space within a Fred Meyer building is typically occupied by businesses providing additional goods or services, such as coffee shops or banks.
[2] 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

Figure 1

STUDY AREA

TABLE 1: Study Area and Proposed Project Characteristics

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

[a] Non-Pass-by project trips account for pass-by and internal trip reductions.
[b] 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*
Signalized										
Boones Ferry Rd / Wilsonville Rd	LOS D	36.0	D	0.77	44.5	D	0.89	>80	**F**	>1.0
I-5 SB Ramps / Wilsonville Rd	LOS D, 0.99 V/C	36.1	D	0.90	79.1	**E**	**>1.0**	>80	**F**	**>1.0**
I-5 NB Ramps / Wilsonville Rd	LOS D, 0.99 V/C	37.2	D	0.91	70.9	**E**	**>1.0**	>80	**F**	**>1.0**
Town Center Loop W / Wilsonville Rd	LOS D	37.7	D	0.80	51.2	D	0.94	56.2	**E**	0.97
Unsignalized										
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

Signalized intersections:
Delay = Average Stopped Delay per Vehicle (sec) for All Movements
LOS = Level of Service of Intersection
V/C = Volume-to-Capacity Ratio of Intersection
Bold Underlined values do not meet standards.

Unsignalized intersections:
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
Bold Underlined 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*
Signalized										
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) V/C = Volume-to-Capacity Ratio of Intersection
LOS = Level of Service of Intersection **Bold Underlined** 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*
Unsignalized – Two-way Stop Control				
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
Bold Underlined 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
Bold Underlined 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[3], 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.[4]

[3] *Geometric Design of Highways and Streets,* AASHTO, 2004; Case B1, p. 661.
[4] *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[5]	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[a]	Major Collector	2 to 3 Lanes	35 mph	No	West Side	West side
Town Center Lp W[a]	Major Arterial	5 Lanes	35 mph	No	Yes	No
Bailey Street	Local Street	2 Lanes	Not Posted	No	South Side	No

[a] The City's *Bicycle and Pedestrian Master Plan*[6] 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

[5] *City of Wilsonville Transportation Systems Plan*, Figure 4.8, Adopted by City Council on June 2, 2003.
[6] *Bicycle and Pedestrian Master Plan*, Alta Planning and Design, Adopted December 2006; replaces Chapter 5 of City of Wilsonville Transportation System Plan.

developments.[7] 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.[8] 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:

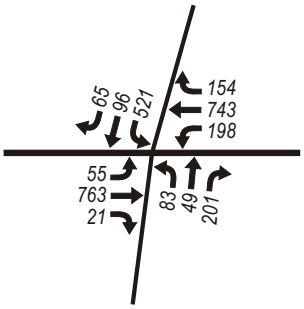
- **Level of service (LOS):** A "report card" rating (A through F) based on the average delay experienced by vehicles at the intersection.[9] LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. 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.

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

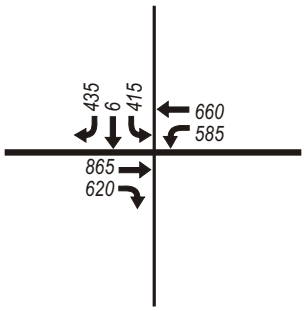
[8] PM peak hour turn movement counts were collected at the study intersections from 4:00 p.m. to 6:00 p.m. on January 29, 2008; June 24, 2008; or July 1, 2008. Count dates are shown in detailed turn movement count sheets in appendix. Saturday peak hour counts were collected on July 12, 2008.

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

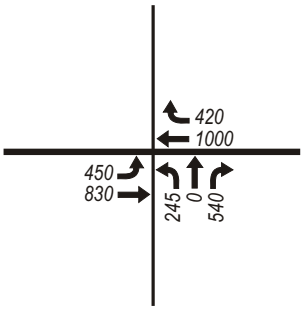
1. WILSONVILLE RD @ BOONES FERRY RD



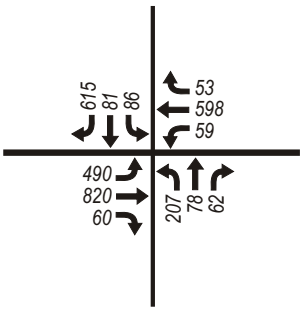
2. WILSONVILLE RD @ I-5 SB ON/OFF RAMPS



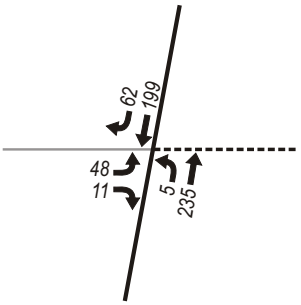
3. WILSONVILLE RD @ I-5 NB ON/OFF RAMPS



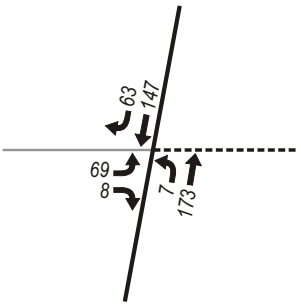
4. WILSONVILLE RD @ TOWN CENTER LOOP W.



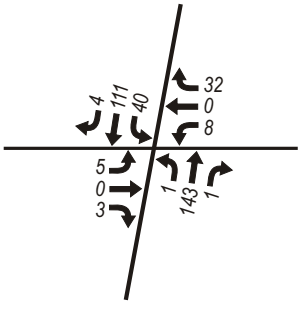
5. BOONES FERRY RD @ LOWRIES/N. PROJECT DRIVEWAY

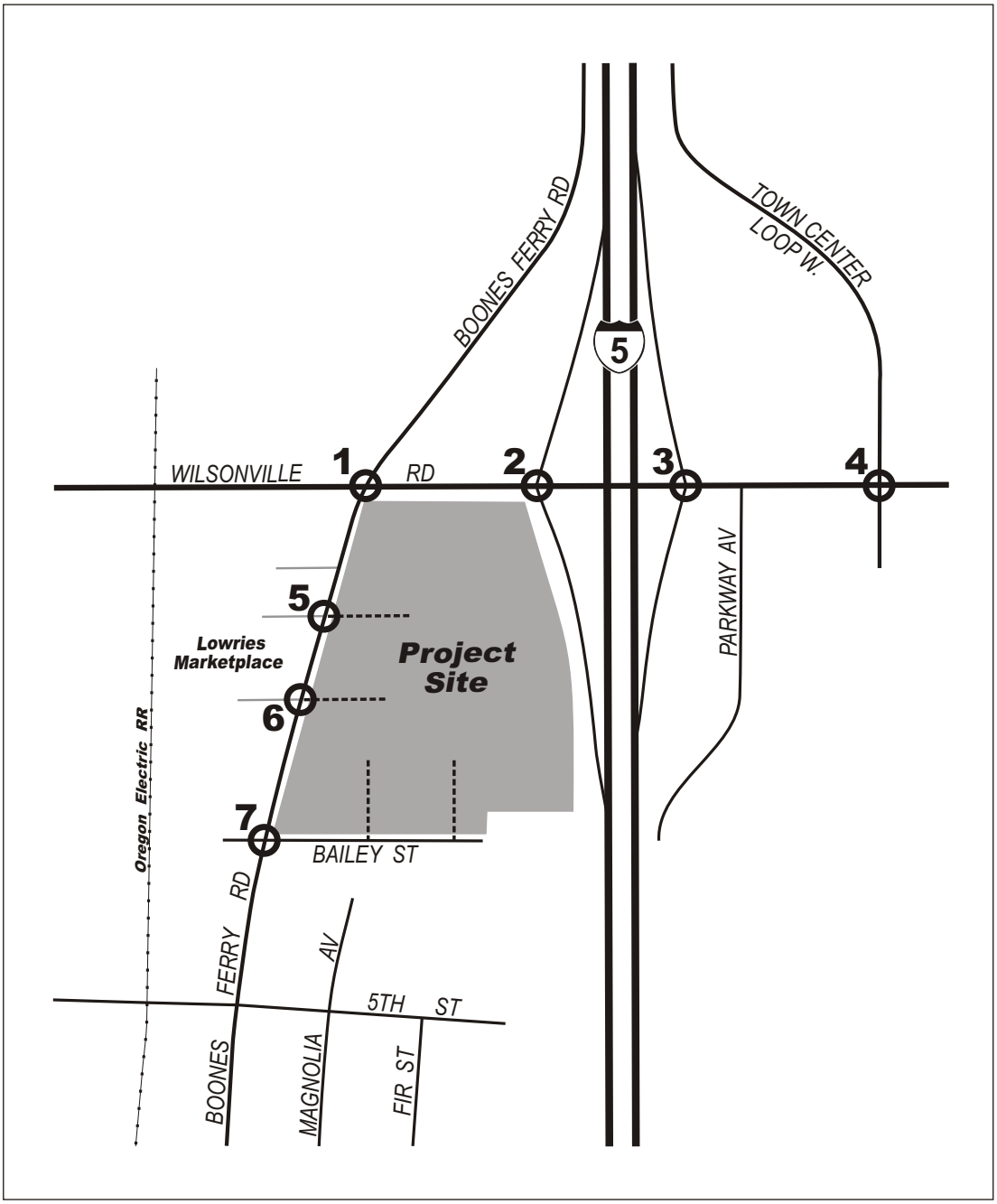


6. BOONES FERRY RD @ LOWRIES/S. PROJECT DRIVEWAY



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

NO SCALE

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.[10] 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[11] 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*
Signalized				
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
Unsignalized				
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

Signalized intersections:
Delay = Average Stopped Delay per Vehicle (sec) for All Movements
LOS = Level of Service of Intersection
V/C = Volume-to-Capacity Ratio of Intersection
Bold Underlined values do not meet standards.

Unsignalized intersections:
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
Bold Underlined 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.[12] 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

[10] *City of Wilsonville Code*, City of Wilsonville Section 4.140, p.163.
[11] *Guidelines for the Preparation of Transportation Impact Analyses*, City of Salem, Effective December 28, 1994.
[12] 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[b]
	Fatal	*Injury*	*PDO*[a]	***Total***		
Signalized Intersections						
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**
Unsignalized Intersections						
Boones Ferry Rd / Bailey St	0	0	0	**0**	0.0	**0.00**

[a] PDO = Property damage only.
[b] Collision rate = average annual collisions per million entering vehicles (MEV); MEV estimates based on PM peak-hour traffic count.
[c] 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.[13] 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.

[13] 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 95th 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

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[14]), 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.[15] A site plan is included in the appendix. Compared to the proposed uses analyzed in the 2004 Fred Meyer traffic study[16], 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[17]. Because residential units were not part of the previous study, new trip assumptions were made regarding the proposed 60 residential units.

[14] Tenant space within a Fred Meyer building is typically occupied by businesses providing additional goods or services, such as coffee shops or banks.
[15] Email from Christine McKelvey, Group Mackenzie, July 2, 2008.
[16] *The Fred Meyer Development Transportation Impact Study*, DKS Associates, November 2004.
[17] *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, 7th Edition*[18] manual as well as a Fred Meyer trip rate that was based on historical trip surveys of existing Fred Meyer stores[19]. 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[a]	386	385	771
Shopping Center (820)[b]	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
Apartments/Condos/Townhouses[c]	60 units	0.78 trips/unit	27	20	47
Total Trips			**627**	**628**	**1,255**

[a] Fred Meyer trip rate based on surveyed Fred Meyer stores in Oregon and Washington.
[b] Office space analyzed as retail to allow for future conversion (retail is the higher trip rate).
[c] 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.

[18] *Trip Generation, 7th Edition*, Institute of Transportation Engineers, 2003.
[19] *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*.[20] 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[a]			
Residential Trip Ends	8	11	19
Retail/Restaurant Trip Ends	11	8	19
Total Internal Trips	**79**	**79**	**158**

[a] 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).[21] 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.

[20] *Trip Generation Handbook, 2nd 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.

[21] 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[22] 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[23] 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 and 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		
	In	*Out*	*Total*
Pass-by Trips (15% of Retail/Restaurant)	80	80	160
Diverted Trips (42% of Retail/Restaurant)	224	225	449
Primary Trips	244	244	488
Total Driveway Trips	**548**	**549**	**1,097**

[22] No residential driveway trips were considered to be pass-by trips.
[23] 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[24] and correspond to the existing driveway volumes analyzed in the 2004 Fred Meyer Transportation Impact Study[25]. 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		
	In	*Out*	*Total*
Grandfathered U.S. Bank Trips			
Pass-by Trips	8	8	16
Diverted Trips	46	52	98
Primary Trips	18	20	38
Total	**72**	**80**	**152**
Grandfathered Gas Station Trips			
Pass-by Trips	7	6	13
Diverted Trips	29	31	60
Primary Trips	6	7	13
Total	**42**	**44**	**86**
Total Grandfathered Trips (U.S. Bank and Gas Station)			
Pass-by Trips	15	14	29
Diverted Trips	75	83	158
Primary Trips	24	27	51
Total	**114**	**124**	**238**

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

[24] *Fred Meyers Transportation Issues Letter Review*, DKS Associates, April 19, 2005.
[25] *The Fred Meyer Development Transportation Impact Study*, DKS Associates, November 2004.

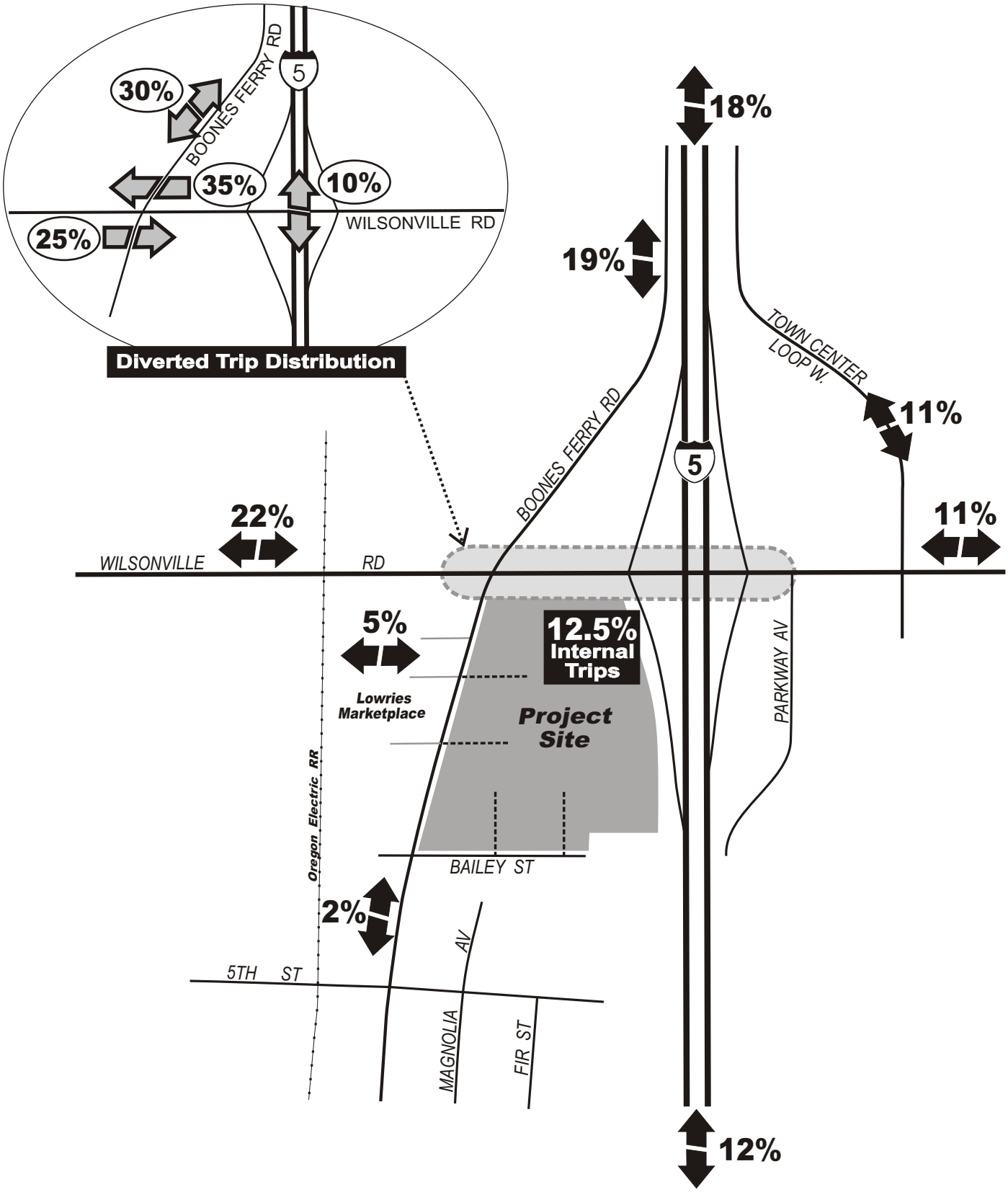
would be credited to the Fred Meyer development include 238 (114 in, 124 out) PM peak hour trips; this accounts for both the gas station and the U.S. Bank.

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

Trip Type	PM Peak Hour Trips		
	In	*Out*	*Total*
Proposed Fred Meyer Development Trips			
Total Internal Trips	79	79	158
Total Driveway Trips	548	549	1,097
Total Proposed Trips	**627**	**628**	**1,255**
Grandfathered Trips			
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[26]) 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*
Proposed Fred Meyer Trips		
Diverted Trips	314	N/A
Primary Trips	454	2
Total Fred Meyer Trips through Interchange	**768**	**2**
Grandfathered Trips		
Grandfathered Diverted Trips	-114	N/A
Grandfathered Primary Trips	-42	-0
Total Grandfathered Trips through Interchange	**-156**	**0**
Net-New PM Peak Trips through Interchange Area	**612**	**2**

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.

[26] *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.[27] 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.

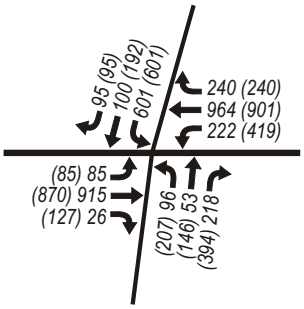
FUTURE ANALYSIS WITH EXISTING WILSONVILLE ROAD CROSS-SECTION

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[28] 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.

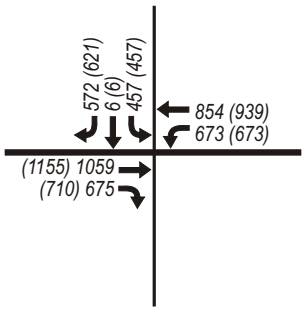
The intersection operating conditions for each of the three future PM peak hour traffic scenarios are listed in Table 15. As shown in the table, all four study intersections on Wilsonville Road exceed operating standards under the "Existing plus Project plus Stage II" scenario. Both northbound and southbound 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.

[27] Email from Blaise Edmonds, City of Wilsonville, July 1, 2008 (see appendix for Stage II list).
[28] *Guidelines for the Preparation of Transportation Impact Analyses*, City of Salem, Effective December 28, 1994.

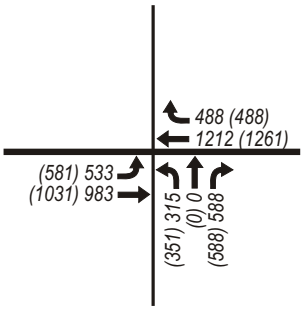
1. WILSONVILLE RD @ BOONES FERRY RD



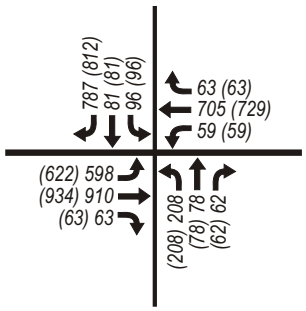
2. WILSONVILLE RD @ I-5 SB ON/OFF RAMPS



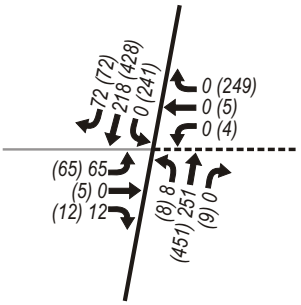
3. WILSONVILLE RD @ I-5 NB ON/OFF RAMPS



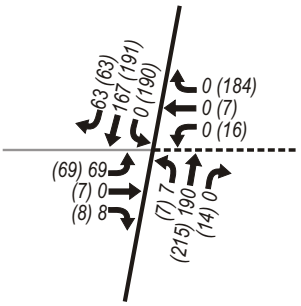
4. WILSONVILLE RD @ TOWN CENTER LOOP W.



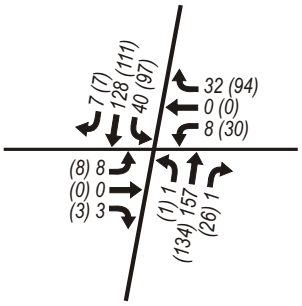
5. BOONES FERRY RD @ LOWRIES/N. PROJECT DRIVEWAY

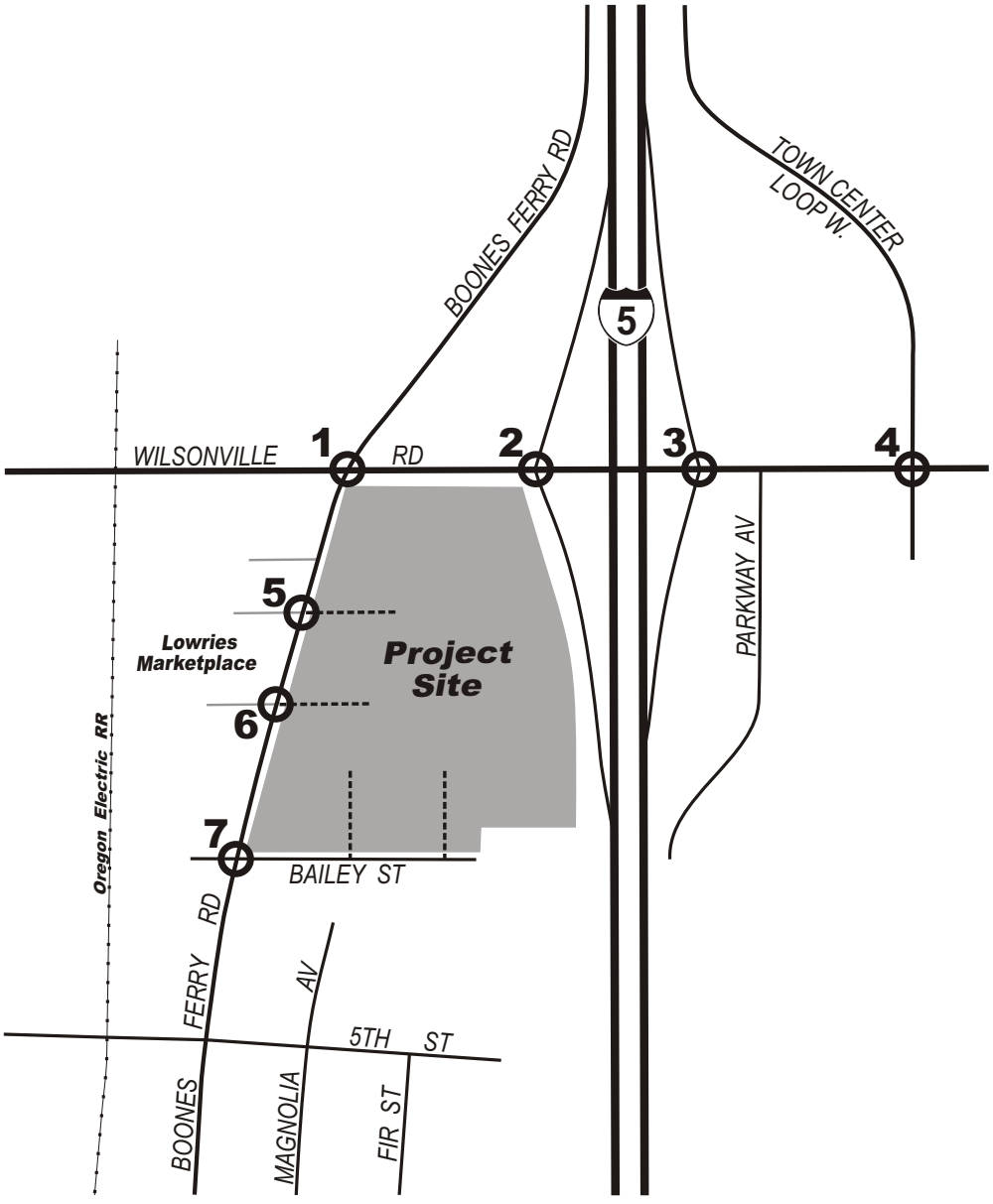


6. BOONES FERRY RD @ LOWRIES/S. PROJECT DRIVEWAY



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

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Figure 4

EXISTING+STAGE II+PROJECT PM PEAK HOUR TRAFFIC VOLUMES

NO SCALE

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*
Signalized										
Boones Ferry Rd / Wilsonville Rd	LOS D	36.0	D	0.77	44.5	D	0.89	>80	**F**	>1.0
I-5 SB Ramps / Wilsonville Rd	LOS D, 0.99 V/C	36.1	D	0.90	79.1	**E**	**>1.0**	>80	**F**	**>1.0**
I-5 NB Ramps / Wilsonville Rd	LOS D, 0.99 V/C	37.2	D	0.91	70.9	**E**	**>1.0**	>80	**F**	**>1.0**
Town Center Loop W / Wilsonville Rd	LOS D	37.6	D	0.80	51.2	D	0.94	56.2	**E**	0.97
Unsignalized										
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

Signalized intersections:
Delay = Average Stopped Delay per Vehicle (sec) for All Movements
LOS = Level of Service of Intersection
V/C = Volume-to-Capacity Ratio of Intersection
Bold Underlined values do not meet standards.

Unsignalized intersections:
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
Bold Underlined 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*
Signalized										
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) V/C = Volume-to-Capacity Ratio of Intersection
LOS = Level of Service of Intersection **Bold Underlined** 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 95th percentile queue for each intersection approach movement. The 95th 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 95th 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[a]	Available Vehicle Storage[b]	95th Percentile Queue[c] (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[d]	300 ft
	NB Right	TBD[d]	300 ft[f]
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[e]	250 ft
	SB Right	400/975 ft[e]	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[e]	225 ft
	NB Right	360/760 ft[e]	250 ft

[a] EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound
[b] Available vehicle storage = distance from stop bar to upstream intersection crosswalk/stop bar
[c] 95th percentile queues are rounded to nearest 25 feet
[d] 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.
[e] x/x = available turn lane storage/distance from stop bar to mainline freeway.
[f] 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.[29] 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).

[29] 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)

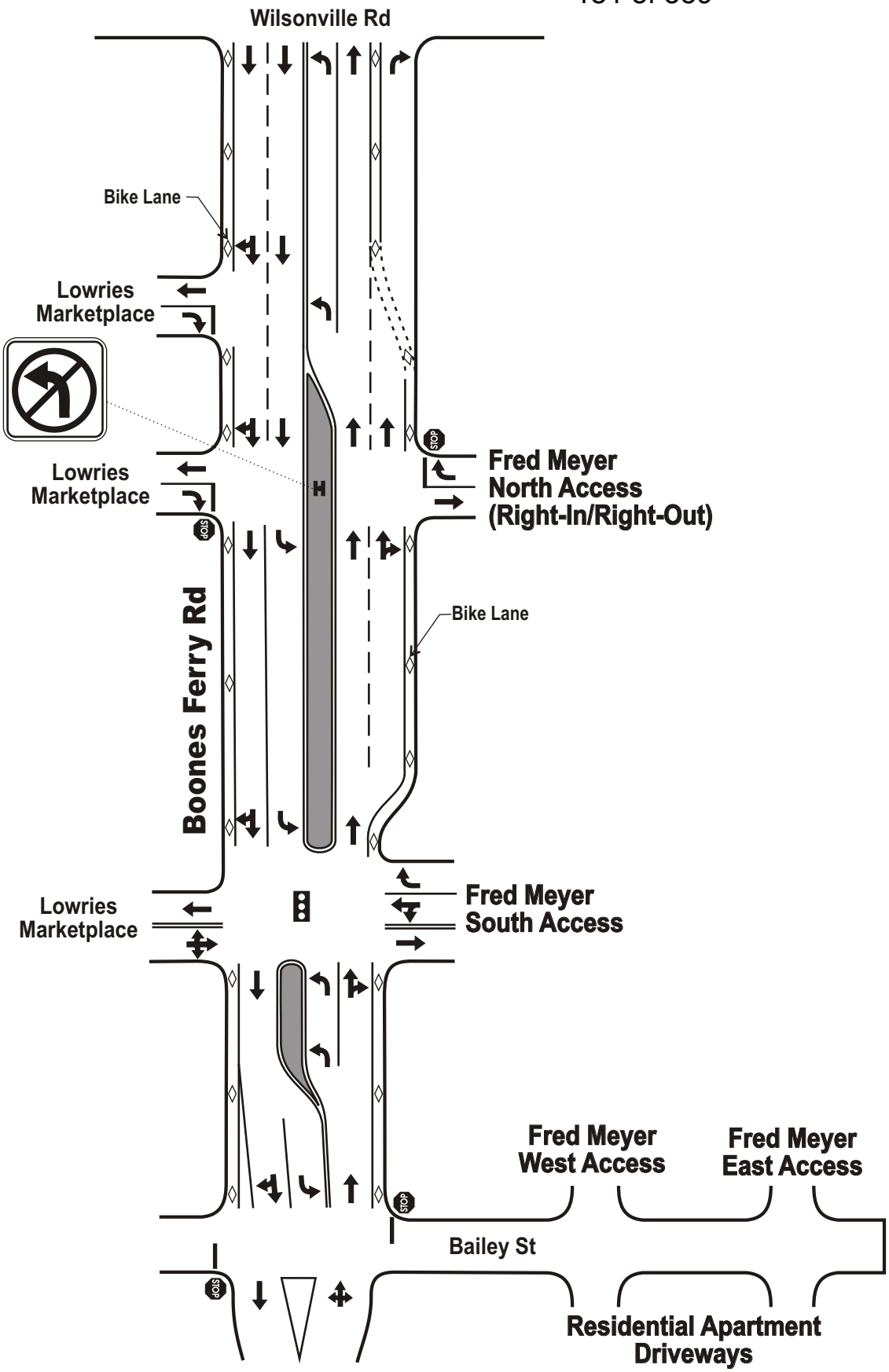
Section of Boones Ferry Road	Intersection Movement[a]	95th Percentile Queue[b] (PM Peak Hour)	Available Vehicle Storage
Between Wilsonville Road and North Fred Meyer Access	NB Left at Wilsonville Road	300 ft	
	SB Left at North Fred Meyer Access	175 ft	
	Total	**475 ft[c]**	**370 ft[c]**
Between North and South Fred Meyer Accesses	NB Left at North Fred Meyer Access	50 ft	
	SB Left at South Fred Meyer Access	150 ft	
	Total	**200 ft**	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	
	Total	**175 ft**	400 ft

[a] EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound
[b] 95th percentile queues are rounded to nearest 25 feet
[c] 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 Sign
- Traffic Signal

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NO SCALE

Figure 5

CONCEPTUAL LAYOUT FOR BOONES FERRY ROAD

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*
Unsignalized – Two-way Stop Control				
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
Bold Underlined 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
Bold Underlined values do not meet standards.

1. WILSONVILLE RD @ BOONES FERRY RD

SAME AS UNMITIGATED

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

SAME AS UNMITIGATED

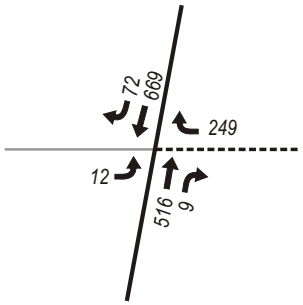
3. WILSONVILLE RD @ I-5 NB ON/OFF RAMPS

SAME AS UNMITIGATED

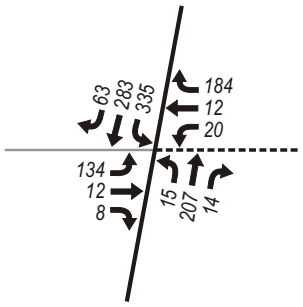
4. WILSONVILLE RD @ TOWN CENTER LOOP W.

SAME AS UNMITIGATED

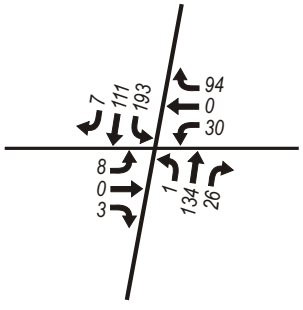
5. BOONES FERRY RD @ LOWRIES/N. PROJECT DRIVEWAY

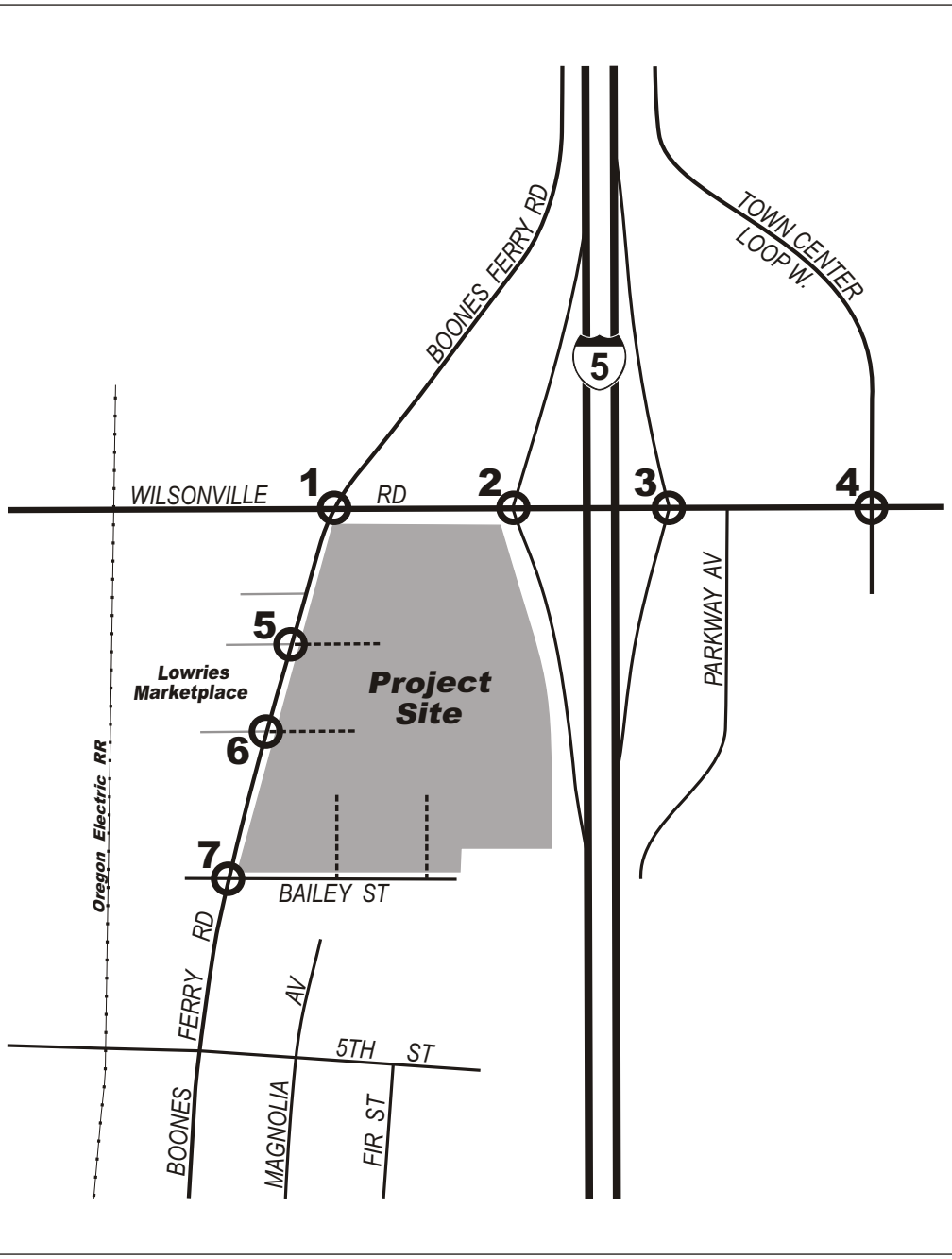


6. BOONES FERRY RD @ LOWRIES/S. PROJECT DRIVEWAY



7. BOONES FERRY RD @ BAILEY ST





LEGEND

- 1O - 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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NO SCALE

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 95th 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[a]	Available Vehicle Storage[b]	95th Percentile Queue[c]
Wilsonville Road	NB Left	350 ft	300 ft
	NB Right	525 ft	600 ft[d]
South Fred Meyer Access	NB Left	175 ft	50 ft
	SB Left	275 ft	200 ft
Bailey Street	SB Left	150 ft	50 ft

[a] EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound
[b] Available vehicle storage = distance from stop bar to upstream intersection crosswalk/stop bar
[c] 95th percentile queues are rounded to nearest 25 feet
[d] Based on long-term needs for this movement.

CHAPTER 4: WEEKEND SAFETY ANALYSIS

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[30] 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[31].

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, 7th Edition*[32] publication. Based on the published ITE rates for a drive-in bank (land use code 912), Saturday peak hour trip generation is approximately

[30] Two of the PM peak hour study intersections are not included in the weekend analysis.
[31] *The Fred Meyer Development Transportation Impact Study*, DKS Associates, November 2004.
[32] *Trip Generation, 7th 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		
	In	*Out*	*Total*
Fred Meyer Internal Trips	103	103	206
Fred Meyer Driveway Trips	712	713	1,425
Total Fred Meyer Trips	**815**	**816**	**1,631**

TABLE 23: Saturday Peak Hour Trips Added to Network

Trip Type	PM Peak Hour Trips		
	In	*Out*	*Total*
Fred Meyer Driveway Trips			
Pass-by Trips	104	104	208
Diverted Trips	291	292	583
Primary Trips	317	317	634
Total Fred Meyer Driveway Trips	**712**	**713**	**1,425**
U.S. Bank Trips			
Pass-by Trips	*-6*	*-6*	*-12*
Diverted Trips	*-37*	*-42*	*-79*
Primary Trips	*-15*	*-16*	*-31*
Total U.S. Bank Trips	***-58***	***-64***	***-122***
Total Trips Added to Network[a]	**654**	**649**	**1,303**

[a] 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.

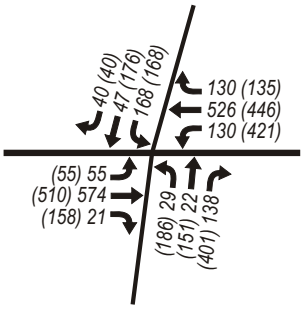
INTERSECTION OPERATIONS

Future Saturday peak hour traffic operations were analyzed at the study intersection for two operating scenarios:

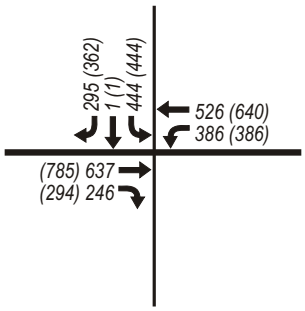
- Existing Conditions
- Existing plus Project (includes Fred Meyer traffic and removes the existing U.S. Bank traffic)

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.

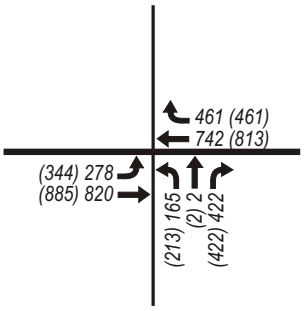
1. WILSONVILLE RD @ BOONES FERRY RD



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



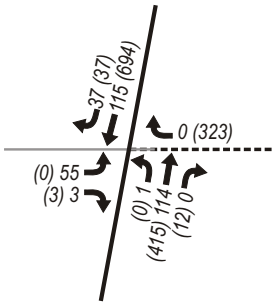
3. WILSONVILLE RD @ I-5 NB ON/OFF RAMPS



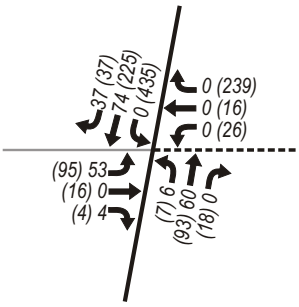
4. WILSONVILLE RD @ TOWN CENTER LOOP W.

NOT ANALYZED

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

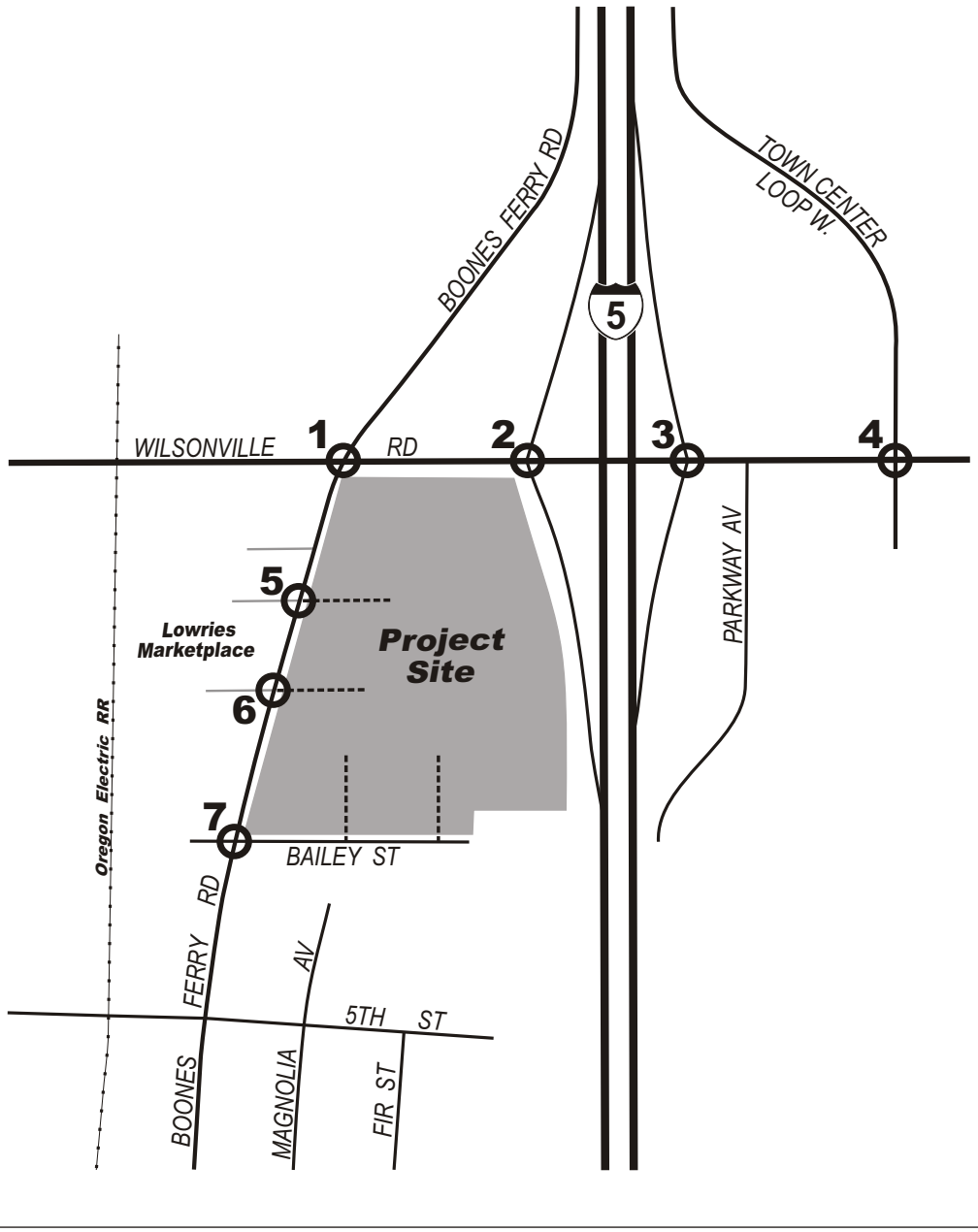


6. BOONES FERRY RD @ LOWRIES/S. PROJECT DRIVEWAY



7. BOONES FERRY RD @ BAILEY ST

NOT ANALYZED



LEGEND

- 1 - Study Intersection & Number
- ------- - Proposed Fred Meyer Driveway
- ——— - Existing Lowries Driveway
- ← 00 (00) - Existing (Existing + Project) PM Peak Hour Traffic Volumes

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NO SCALE

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*
Signalized							
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
Unsignalized – Two-way Stop Control							
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[a]	LOS D	9.8	A/B	0.08	[a]	[a]	[a]

Signalized and Four-way Stop Control:
Delay = Average Stopped Delay per Vehicle (sec) for All Movements
LOS = Level of Service of Intersection
V/C = Volume-to-Capacity Ratio of Intersection
Bold Underlined values do not meet standards.

Two-way Stop Control:
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
Bold Underlined values do not meet standards.

[a] 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
Bold Underlined 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 95th percentile queue for each intersection approach movement. The 95th 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 95th 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[a]	Available Vehicle Storage[b]	95th Percentile Queue[c] (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[d]	250 ft
	NB Right	TBD[d]	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[e]	200 ft
	SB Right	400/975 ft[e]	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[e]	125 ft
	NB Right	360/760 ft[e]	125 ft

[a] EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound
[b] Available vehicle storage = distance from stop bar to upstream intersection crosswalk/stop bar
[c] 95th percentile queues are rounded to nearest 25 feet
[d] 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
[e] 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[a]	Available Vehicle Storage[b]	95th Percentile Queue[c]	
			Option 1[d]	*Option 2*[e]
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

[a] EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound
[b] Available vehicle storage = distance from stop bar to upstream intersection crosswalk/stop bar
[c] 95th percentile queues are rounded to nearest 25 feet
[d] Option 1 = Signal at South Fred Meyer Access
[e] Option 2 = Four-way Stop Control at South Fred Meyer Access

CHAPTER 5: SITE EVALUATION

The site plan provided for the proposed Fred Meyer development[33] 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.[34] 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[35] 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).

[33] The site plan that was provided is included in the appendix.
[34] *Transportation System Plan*, City of Wilsonville, by Entranco, June 2, 2003, Page 4-69, Table 4.o.
[35] *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.

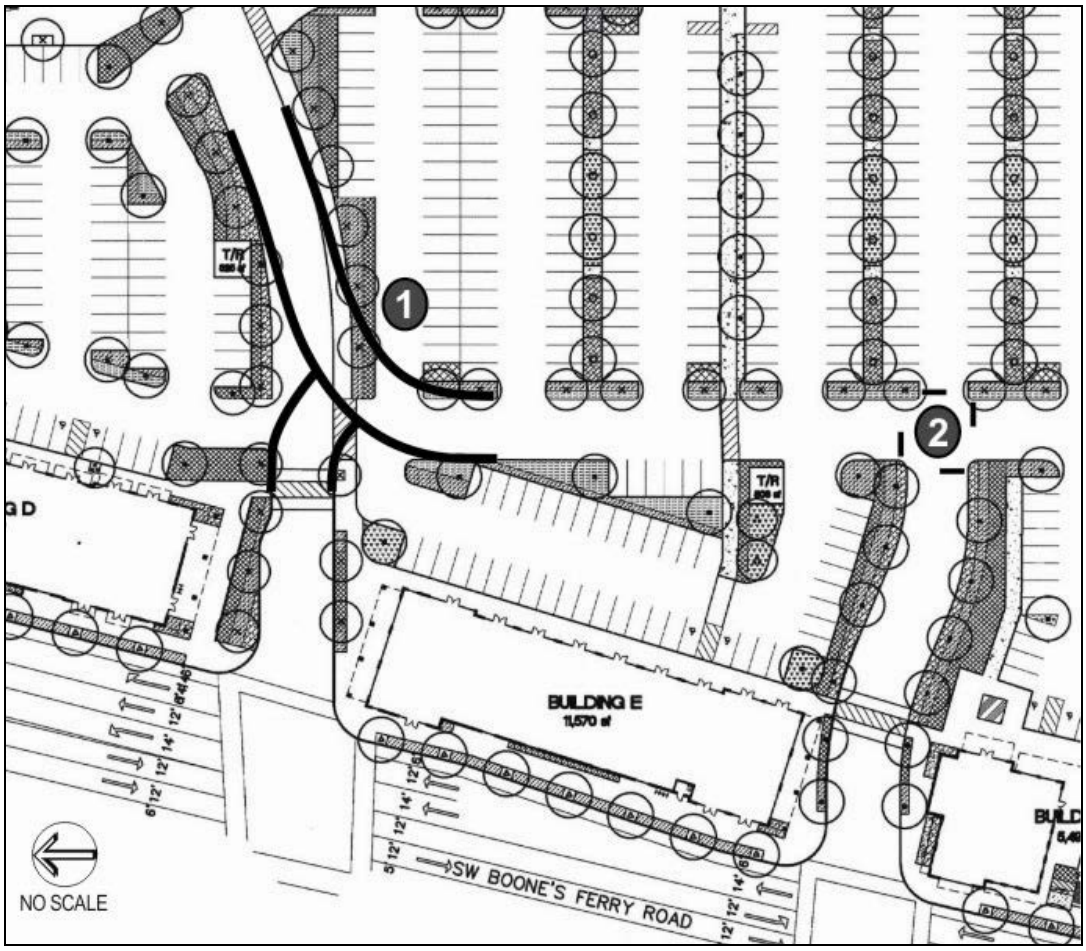


FIGURE 8: Conceptual Internal Circulation Adjustments

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[36] 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.[37] 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

[36] *City of Wilsonville Transportation System Plan*, Entranco, Adopted June 2, 2003; Project C-17
[37] City of Wilsonville, Planning and Land Development Ordinance, Sections 4.154-4.198, Updated Feb. 2004.

provided on the site.[38] 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,[39] 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[a]	
				Minimum	*Maximum*
Fred Meyer[b]	155.7 KSF	[c]	654	639	966
Shopping Center	50.9 KSF	[c]	214	195	298
Restaurant	3.3 KSF	[c]	37	51	76
Apartments	60 units	[c]	78	77	N/A
Total		**885**	**983**	**962**	**N/A**

[a] City of Wilsonville, Planning and Land Development Ordinance, Sections 4.154-4.198, Updated Feb. 2004.
[b] Fred Meyer land use includes tenant spaces "J" and "K".
[c] 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.[40] 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[a]
Fred Meyer[b]	155.7 KSF	48	39
Shopping Center and Restaurant	54.2 KSF	30	17
Apartments	60 units	60	60
Total		**138**	**116**

[a] City of Wilsonville, Planning and Land Development Ordinance, Sections 4.154-4.198, Updated Feb. 2004.
[b] Fred Meyer land use includes tenant spaces "J" and "K".

[38] Letter by Lee D. Leighton, Westlake Consultants, July 2, 2008.
[39] *Parking Generation*, 3rd Edition, Institute of Transportation Engineers, 2003.
[40] Letter by Lee D. Leighton, Westlake Consultants, July 2, 2008.

CHAPTER 6: PROJECT MITIGATIONS

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[41], 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.[42]

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

[41] *Geometric Design of Highways and Streets,* AASHTO, 2004; Case B1, p. 661.
[42] *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.

DKS Associates
TRANSPORTATION SOLUTIONS

Appendix

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

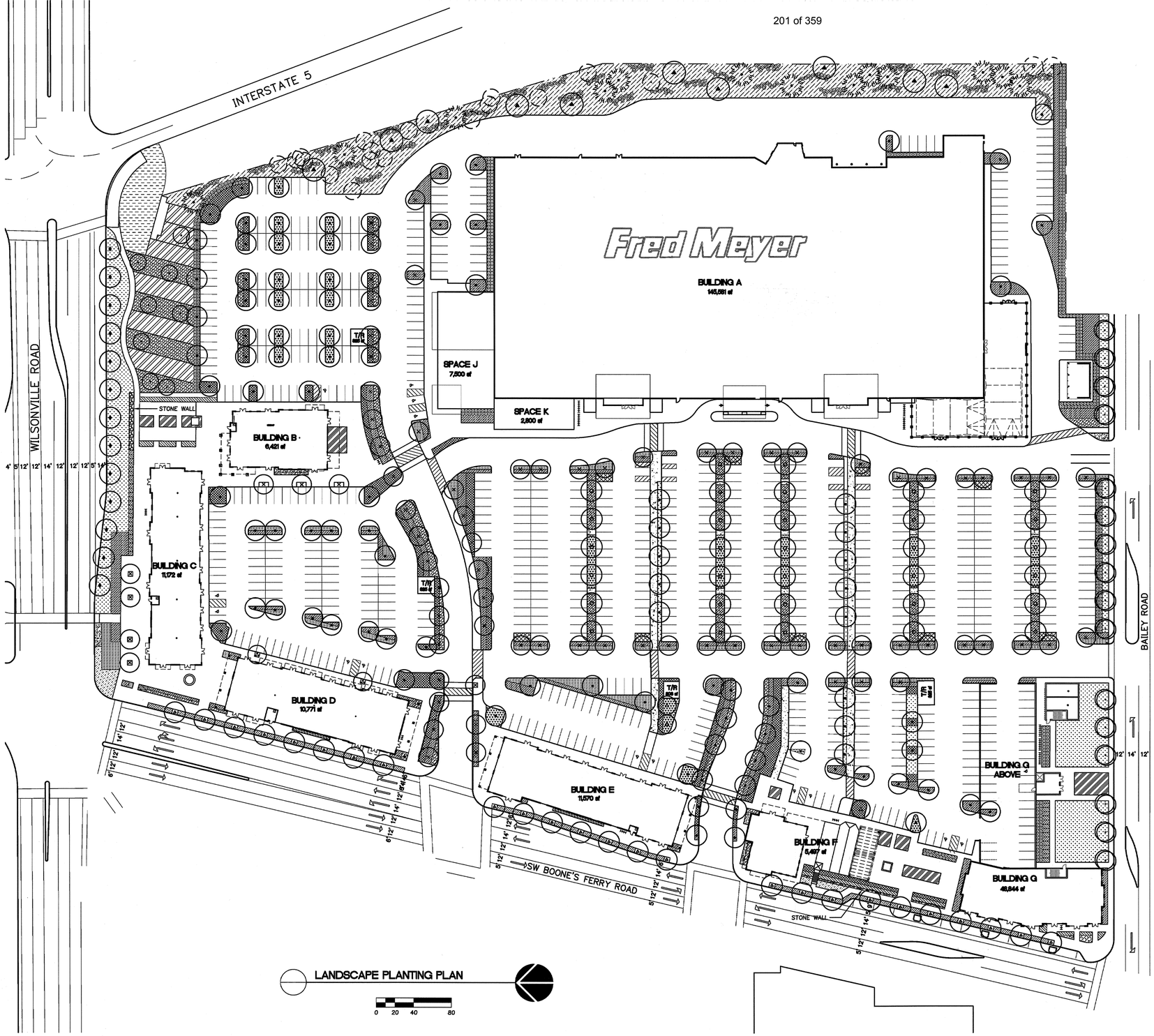
Queuing Analysis

Warrant Analysis

Trip Generation and Distribution

DKS Associates
TRANSPORTATION SOLUTIONS

Site Information



PLANT MATERIAL SCHEDULE

SYMBOL		BOTANICAL NAME – COMMON NAME	SIZE / SPACING
TREES			
		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	
SHRUBS			
		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' GOLDMOND SPIRAEA	2 GAL.CONT. 30" O.C.
		VIBURNUM DAVIDII DAVID'S VIBURNUM	2 GAL.CONT. 30" O.C.
		CORNUS SERICEA 'KELSEYI' DWARF REDTWIG DOGWOOD	2 GAL.CONT. 30" O.C.
		BERBERIS THUNBERGII 'CRIMSON PYGMY' CRIMSON PYGMY BARBERRY	2 GAL.CONT. 30" O.C.
		BUXUS MICROPHYLA JAPONICA 'GREEN BEAUTY' 'GREEN BEAUTY' JAPANESE BOXWOOD	2 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 KINNIKINNICK	1 GAL.CONT. 24" O.C.
		JUNCUS PATENS CALIFORNIA GRAY RUSH	1 GAL.CONT. 24" O.C.
		EXISTING LANDSCAPE TO REMAIN	
STORMWATER PLANTING			
		33% CORNUS SERICEA 'KELSEYI' DWARF REDTWIG DOGWOOD	1 GAL.CONT. 30" O.C.
		33% CAREX MUSKINGUMENSIS 'OEHME' VARIEGATED 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

Fred Meyer GRAMOR DEVELOPMENT

GR-L1

GM#2080070.00

GROUP MACKENZIE | Westlake Consultants, Inc

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 quare feet of retail space.

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

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 %
Total Site Area (Net of Right-of-Way Dedications)	784,554	100.0 %
Buildings	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 % *
Parking & Circulation Area	407,662	51.9 %
Landscaping	125,056	15.9 %
Parking Lot Landscaping (** % of Parking & Circulation Area)	41,874	5.3 % **
Other Landscaping	83,182	10.6 %
	Total Regular Spaces	ADA Spaces
Parking Spaces	885	21
Retail/Restaurant	802 dedicated, 48 shared	19 dedicated, 2 shared
Residential	35 dedicated, 48 shared	1 dedicated, 2 shared
Overall Non-Residential Parking Ratio	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
	TOTAL	251,836			970	1427		113	138
			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:	1 per D.U. (less than 500 sq. ft.)		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 resideutial 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 transportatiou 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:

DKS Associates
TRANSPORTATION SOLUTIONS

Wilsonville Stage II Project List

Wilsonville Planning Division **July 1, 2008**
Stage II Approved, Vested, and Other Projects

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	
	Total		**270**	**46/224**	
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	
	Total Approved		**326**	**134/192**	
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 **July 1, 2008**
Stage II Approved, Vested, and Other Projects

Stage II Approved Project	Land Use (ITE Code)	Size	PM Peak Trips	IN/OUT	% Pass-By/Divert
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
	Total		**242**	**119/123**	
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 **July 1, 2008**
Stage II Approved, Vested, and Other Projects

Vested Projects (Trips through WV IC Area)					
Vested Project	**Land Use (ITE Code)**	**Size**	**PM Peak Trips**	**IN/OUT**	**% Pass-By/Divert**
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				

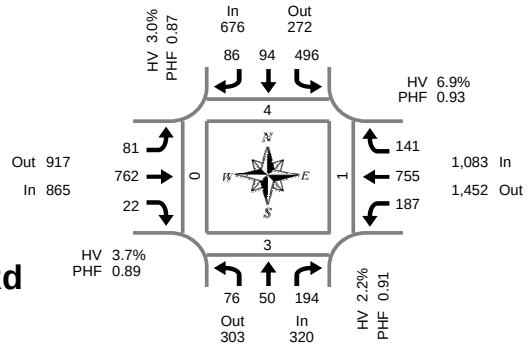
Projects Without Stage II Approval ("Other" Projects)					
Other Project	**Land Use (ITE Code)**	**Size**	**PM Peak Trips**	**IN/OUT**	**% Pass-By/Divert**
Wilsonvillage – Old Town	Residential – Phase 2	8 lots plus 8 accessory units			
Shefrin Mixed-Use (other portions of development are approved)	Residential	~~25~~ 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	

DKS Associates
TRANSPORTATION SOLUTIONS

Weekday Traffic Counts

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW Boones Ferry Rd & SW Wilsonville Rd

Tuesday, January 29, 2008
4:00 PM to 6:00 PM

Peak Hour Summary
4:40 PM to 5:40 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				

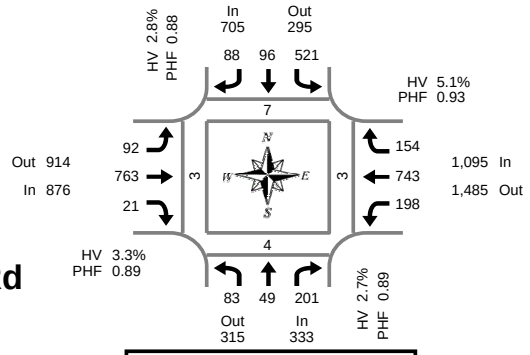
By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	76	50	194	320	496	94	86	676	81	762	22	865	187	755	141	1,083	2,944
%HV	2.6%	0.0%	2.6%	2.2%	3.2%	0.0%	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

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW Boones Ferry Rd & SW Wilsonville Rd

Tuesday, June 24, 2008
4:00 PM to 6:00 PM

Peak Hour Summary
4:50 PM to 5:50 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
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	333	315	648	0	705	295	1,000	1	876	914	1,790	0	1,095	1,485	2,580	0	3,009
%HV	2.7%				2.8%				3.3%				5.1%				3.8%
PHF	0.89				0.88				0.89				0.93				0.97

Pedestrians Crosswalk			
North	South	East	West
7	4	3	3

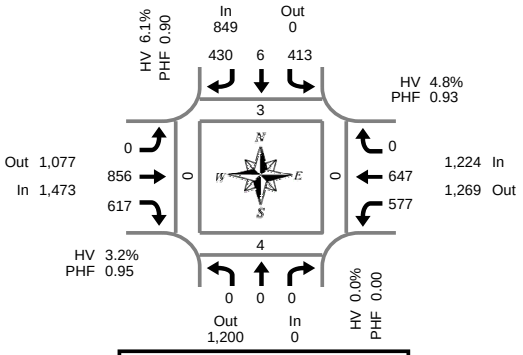
By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	83	49	201	333	521	96	88	705	92	763	21	876	198	743	154	1,095	3,009
%HV	2.4%	2.0%	3.0%	2.7%	2.7%	1.0%	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

All Traffic Data Services Inc.
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				

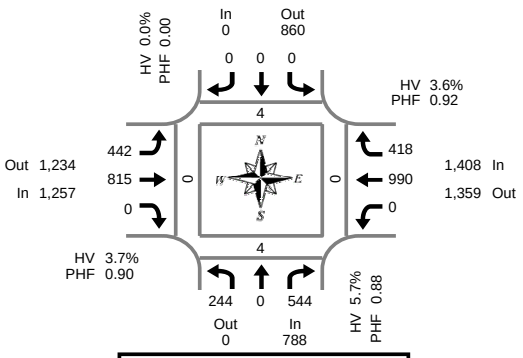
By Movement	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	413	6	430	849	0	856	617	1,473	577	647	0	1,224	3,546
%HV	0.0%	0.0%	0.0%	0.0%	2.9%	0.0%	9.3%	6.1%	0.0%	3.7%	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

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:35 PM to 5:35 PM

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				

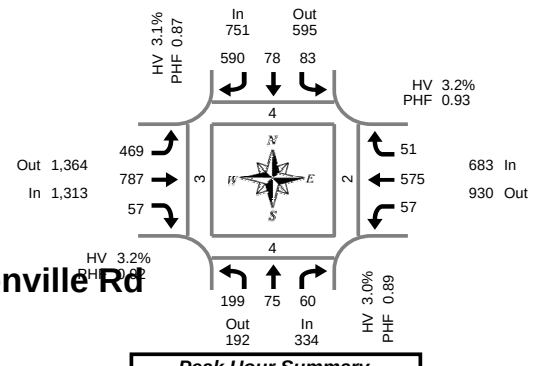
By Movement	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	244	0	544	788	0	0	0	0	442	815	0	1,257	0	990	418	1,408	3,453
%HV	9.8%	0.0%	3.9%	5.7%	0.0%	0.0%	0.0%	0.0%	5.0%	2.9%	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

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:40 PM to 5:40 PM

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				

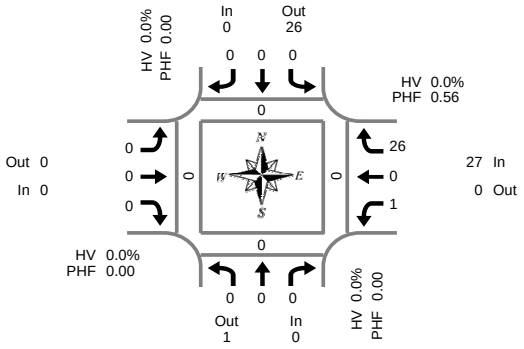
By Movement	Northbound SW Town Center Loop West				Southbound SW Town Center Loop West				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	199	75	60	334	83	78	590	751	469	787	57	1,313	57	575	51	683	3,081
%HV	3.5%	2.7%	1.7%	3.0%	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

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Boones Ferry & North Bank Access

Tuesday, July 01, 2008
4:00 PM to 6:00 PM

Peak Hour Summary
4:00 PM to 5:00 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	2	0	2	0	0	0	0
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	5	0	0	0	0
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	5	0	0	0	0
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	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	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	0	0	0	0
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	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	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	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	0
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	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	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	0	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	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	0	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	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	4	0	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	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	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

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				

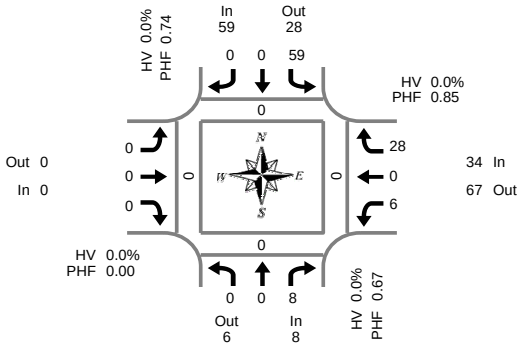
By Movement	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Bank Access				Westbound North Bank Access				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	26	27	27
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	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	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	23	0	24	0	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	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	14	0	16	0	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	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:00 PM to 5:00 PM

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	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	0	4	0	13	0	0	0	0
4:25 PM	0	0	1	0	4	0	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	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	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	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	0	5	0	7	0	0	0	0
5:05 PM	0	0	0	0	1	0	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	0	2	0	5	0	0	0	0
5:15 PM	0	0	0	0	4	0	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	0	2	0	7	0	0	0	0
5:25 PM	0	0	0	0	1	0	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	0	2	0	6	0	0	0	0
5:35 PM	0	0	0	0	2	0	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	0	1	0	0	0	0
5:45 PM	0	0	1	0	2	0	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	0	2	0	4	0	0	0	0
5:55 PM	0	0	0	0	1	0	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	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	0	1	0	8	0	30	0	0	0	0
4:15 PM	0	0	2	0	19	0	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	0	1	0	7	0	20	0	0	0	0
4:45 PM	0	0	1	0	12	0	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	0	11	0	17	0	0	0	0
5:15 PM	0	0	0	0	10	0	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	0	3	0	10	0	0	0	0
5:45 PM	0	0	1	0	5	0	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	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	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				

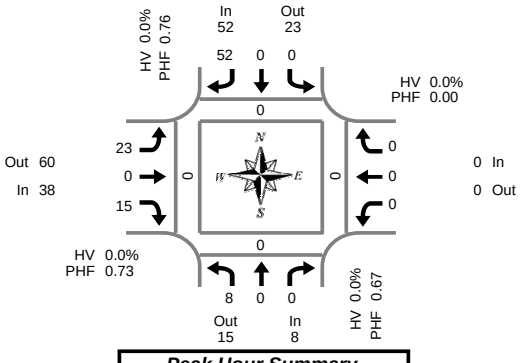
By Movement	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Bank Access				Westbound South Bank Access				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	8	8	59	0	0	59	0	0	0	0	6	0	28	34	101
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	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

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:00 PM to 5:00 PM

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	9	0	0	0	0
4:05 PM	0	0	0	0	0	0	6	0	2	0	3	0	0	0	0	0	11	0	0	0	0
4:10 PM	0	0	0	0	0	0	5	0	3	0	1	0	0	0	0	0	9	0	0	0	0
4:15 PM	1	0	0	0	0	0	1	0	3	0	1	0	0	0	0	0	6	0	0	0	0
4:20 PM	0	0	0	0	0	0	4	0	3	0	0	0	0	0	0	0	7	0	0	0	0
4:25 PM	2	0	0	0	0	0	7	0	1	0	1	0	0	0	0	0	11	0	0	0	0
4:30 PM	0	0	0	0	0	0	6	0	1	0	0	0	0	0	0	0	7	0	0	0	0
4:35 PM	1	0	0	0	0	0	4	0	0	0	1	0	0	0	0	0	6	0	0	0	0
4:40 PM	0	0	0	0	0	0	3	0	3	0	2	0	0	0	0	0	8	0	0	0	0
4:45 PM	2	0	0	0	0	0	5	0	3	0	2	0	0	0	0	0	12	0	0	0	0
4:50 PM	1	0	0	0	0	0	3	0	1	0	1	0	0	0	0	0	6	0	0	0	0
4:55 PM	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	6	0	0	0	0
5:00 PM	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	3	0	0	0	0
5:05 PM	0	0	0	0	0	0	3	0	3	0	3	0	0	0	0	0	9	0	0	0	0
5:10 PM	1	0	0	0	0	0	6	0	2	0	2	0	0	0	0	0	11	0	0	0	0
5:15 PM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	3	0	0	0	0
5:20 PM	2	0	0	0	0	0	5	0	0	0	1	0	0	0	0	0	8	0	0	0	0
5:25 PM	0	0	0	0	0	0	2	0	4	0	1	0	0	0	0	0	7	0	0	0	0
5:30 PM	1	0	0	0	0	0	2	0	1	0	1	0	0	0	0	0	5	0	0	0	0
5:35 PM	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	5	0	0	0	0
5:40 PM	1	0	0	0	0	0	4	0	1	0	2	0	0	0	0	0	8	0	0	0	0
5:45 PM	0	0	0	0	0	0	6	0	1	0	1	0	0	0	0	0	8	0	0	0	0
5:50 PM	1	0	0	0	0	0	2	0	2	0	1	0	0	0	0	0	6	0	0	0	0
5:55 PM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	3	0	0	0	0
Total Survey	14	0	0	0	0	0	91	0	41	0	28	0	0	0	0	0	174	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	29	0	0	0	0
4:15 PM	3	0	0	0	0	0	12	0	7	0	2	0	0	0	0	0	24	0	0	0	0
4:30 PM	1	0	0	0	0	0	13	0	4	0	3	0	0	0	0	0	21	0	0	0	0
4:45 PM	3	0	0	0	0	0	12	0	6	0	3	0	0	0	0	0	24	0	0	0	0
5:00 PM	1	0	0	0	0	0	11	0	5	0	6	0	0	0	0	0	23	0	0	0	0
5:15 PM	2	0	0	0	0	0	9	0	5	0	2	0	0	0	0	0	18	0	0	0	0
5:30 PM	2	0	0	0	0	0	9	0	4	0	3	0	0	0	0	0	18	0	0	0	0
5:45 PM	1	0	0	0	0	0	10	0	4	0	2	0	0	0	0	0	17	0	0	0	0
Total Survey	14	0	0	0	0	0	91	0	41	0	28	0	0	0	0	0	174	0	0	0	0

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	98	0	0	0	0
%HV	0.0%				0.0%				0.0%				0.0%				0.0%				
PHF	0.67				0.76				0.73				0.00				0.84				

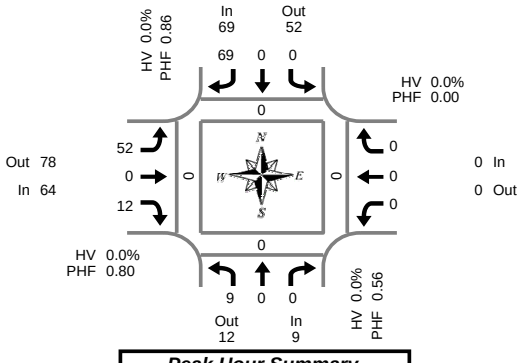
By Movement	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound Walgreens Access				Westbound Walgreens Access				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	8	0	0	8	0	0	52	52	23	0	15	38	0	0	0	0	98
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	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	98	0	0	0	0
4:15 PM	8	0	0	0	0	0	48	0	22	0	14	0	0	0	0	0	92	0	0	0	0
4:30 PM	7	0	0	0	0	0	45	0	20	0	14	0	0	0	0	0	86	0	0	0	0
4:45 PM	8	0	0	0	0	0	41	0	20	0	14	0	0	0	0	0	83	0	0	0	0
5:00 PM	6	0	0	0	0	0	39	0	18	0	13	0	0	0	0	0	76	0	0	0	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:35 PM to 5:35 PM

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	14	0	0	0	0
4:05 PM	1	0	0	0	0	0	7	0	2	0	1	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	14	0	0	0	0
4:15 PM	0	0	0	0	0	0	3	0	5	0	1	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	7	0	0	0	0
4:25 PM	1	0	0	0	0	0	8	0	6	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	9	0	0	0	0
4:35 PM	2	0	0	0	0	0	10	0	7	0	1	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	9	0	0	0	0
4:45 PM	0	0	0	0	0	0	4	0	5	0	1	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	4	0	0	0	0
4:55 PM	0	0	0	0	0	0	7	0	1	0	2	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	12	0	0	0	0
5:05 PM	1	0	0	0	0	0	6	0	2	0	1	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	17	0	0	0	0
5:15 PM	0	0	0	0	0	0	2	0	7	0	2	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	5	0	0	0	0
5:25 PM	3	0	0	0	0	0	9	0	5	0	1	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	16	0	0	0	0
5:35 PM	0	0	0	0	0	0	6	0	2	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	7	0	0	0	0
5:45 PM	1	0	0	0	0	0	5	0	2	0	1	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	16	0	0	0	0
5:55 PM	0	0	0	0	0	0	7	0	1	0	1	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	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	39	0	0	0	0
4:15 PM	1	0	0	0	0	0	13	0	13	0	4	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	38	0	0	0	0
4:45 PM	0	0	0	0	0	0	13	0	8	0	3	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	39	0	0	0	0
5:15 PM	3	0	0	0	0	0	15	0	13	0	3	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	31	0	0	0	0
5:45 PM	1	0	0	0	0	0	21	0	10	0	2	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	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	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				

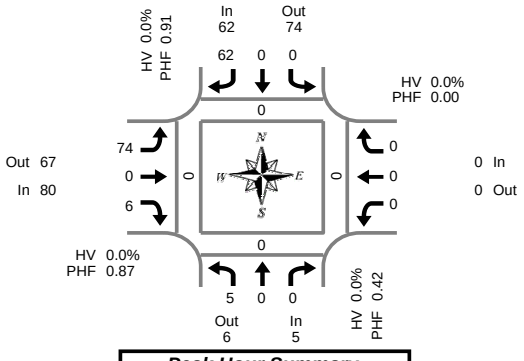
By Movement	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound North Access				Westbound North Access				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	9	0	0	9	0	0	69	69	52	0	12	64	0	0	0	0	142
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	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
4:15 PM	6	0	0	0	0	0	66	0	47	0	13	0	0	0	0	0	132	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
4:45 PM	7	0	0	0	0	0	62	0	48	0	11	0	0	0	0	0	128	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

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:35 PM to 5:35 PM

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	11	0	0	0	0
4:05 PM	1	0	0	0	0	0	4	0	2	0	1	0	0	0	0	0	8	0	0	0	0
4:10 PM	0	0	0	0	0	0	6	0	8	0	0	0	0	0	0	0	14	0	0	0	0
4:15 PM	1	0	0	0	0	0	2	0	5	0	2	0	0	0	0	0	10	0	0	0	0
4:20 PM	0	0	0	0	0	0	6	0	2	0	0	0	0	0	0	0	8	0	0	0	0
4:25 PM	2	0	0	0	0	0	7	0	6	0	1	0	0	0	0	0	16	0	0	0	0
4:30 PM	0	0	0	0	0	0	4	0	8	0	1	0	0	0	0	0	13	0	0	0	0
4:35 PM	0	0	0	0	0	0	6	0	4	0	0	0	0	0	0	0	10	0	0	0	0
4:40 PM	0	0	0	0	0	0	2	0	9	0	0	0	0	0	0	0	11	0	0	0	0
4:45 PM	1	0	0	0	0	0	8	0	8	0	1	0	0	0	0	0	18	0	0	0	0
4:50 PM	1	0	0	0	0	0	6	0	3	0	1	0	0	0	0	0	11	0	0	0	0
4:55 PM	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	5	0	0	0	0
5:00 PM	0	0	0	0	0	0	7	0	5	0	1	0	0	0	0	0	13	0	0	0	0
5:05 PM	0	0	0	0	0	0	5	0	8	0	1	0	0	0	0	0	14	0	0	0	0
5:10 PM	0	0	0	0	0	0	3	0	8	0	0	0	0	0	0	0	11	0	0	0	0
5:15 PM	0	0	0	0	0	0	5	0	5	0	1	0	0	0	0	0	11	0	0	0	0
5:20 PM	2	0	0	0	0	0	4	0	7	0	0	0	0	0	0	0	13	0	0	0	0
5:25 PM	0	0	0	0	0	0	6	0	9	0	0	0	0	0	0	0	15	0	0	0	0
5:30 PM	1	0	0	0	0	0	7	0	6	0	1	0	0	0	0	0	15	0	0	0	0
5:35 PM	1	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	7	0	0	0	0
5:40 PM	1	0	0	0	0	0	5	0	6	0	2	0	0	0	0	0	14	0	0	0	0
5:45 PM	0	0	0	0	0	0	2	0	5	0	1	0	0	0	0	0	8	0	0	0	0
5:50 PM	0	0	0	0	0	0	3	0	2	0	1	0	0	0	0	0	6	0	0	0	0
5:55 PM	0	0	0	0	0	0	2	0	6	0	0	0	0	0	0	0	8	0	0	0	0
Total Survey	11	0	0	0	0	0	114	0	130	0	15	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 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	33	0	0	0	0
4:15 PM	3	0	0	0	0	0	15	0	13	0	3	0	0	0	0	0	34	0	0	0	0
4:30 PM	0	0	0	0	0	0	12	0	21	0	1	0	0	0	0	0	34	0	0	0	0
4:45 PM	2	0	0	0	0	0	17	0	13	0	2	0	0	0	0	0	34	0	0	0	0
5:00 PM	0	0	0	0	0	0	15	0	21	0	2	0	0	0	0	0	38	0	0	0	0
5:15 PM	2	0	0	0	0	0	15	0	21	0	1	0	0	0	0	0	39	0	0	0	0
5:30 PM	3	0	0	0	0	0	16	0	14	0	3	0	0	0	0	0	36	0	0	0	0
5:45 PM	0	0	0	0	0	0	7	0	13	0	2	0	0	0	0	0	22	0	0	0	0
Total Survey	11	0	0	0	0	0	114	0	130	0	15	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 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	147	0	0	0	0
%HV	0.0%				0.0%				0.0%				0.0%				0.0%				
PHF	0.42				0.91				0.87				0.00				0.85				

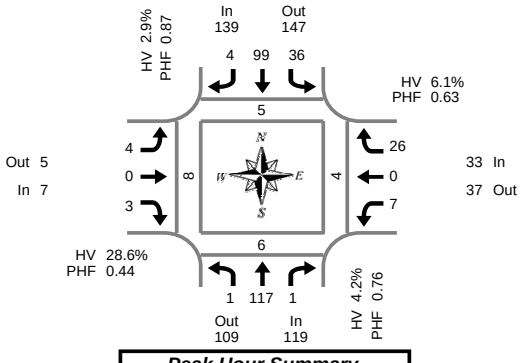
By Movement	Northbound Boones Ferry				Southbound Boones Ferry				Eastbound South Access				Westbound South Access				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	5	0	0	5	0	0	62	62	74	0	6	80	0	0	0	0	147
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	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	135	0	0	0	0
4:15 PM	5	0	0	0	0	0	59	0	68	0	8	0	0	0	0	0	140	0	0	0	0
4:30 PM	4	0	0	0	0	0	59	0	76	0	6	0	0	0	0	0	145	0	0	0	0
4:45 PM	7	0	0	0	0	0	63	0	69	0	8	0	0	0	0	0	147	0	0	0	0
5:00 PM	5	0	0	0	0	0	53	0	69	0	8	0	0	0	0	0	135	0	0	0	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:45 PM to 5:45 PM

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	0	2	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	1	0	4	0	45	1	0	0	0
4:45 PM	0	26	0	0	7	21	0	0	0	0	1	0	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
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	119	109	228	1	139	147	286	2	7	5	12	0	33	37	70	0	298
%HV	4.2%				2.9%				28.6%				6.1%				4.4%
PHF	0.76				0.87				0.44				0.63				0.87

Pedestrians Crosswalk			
North	South	East	West
5	6	4	8

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

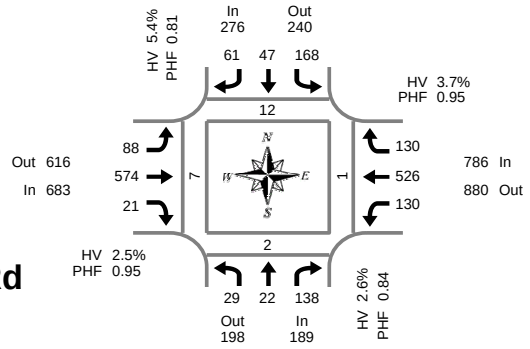
Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Bailey St				Westbound SW Bailey St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	102	2	3	30	85	4	1	4	1	2	0	4	0	25	0	259	5	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

DKS Associates
TRANSPORTATION SOLUTIONS

Saturday Traffic Counts

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW Boones Ferry Rd & SW Wilsonville Rd

Saturday, July 12, 2008
11:00 AM to 1:00 PM

Peak Hour Summary
11:55 AM to 12:55 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
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	189	198	387	0	276	240	516	0	683	616	1,299	0	786	880	1,666	0	1,934
%HV	2.6%				5.4%				2.5%				3.7%				3.4%
PHF	0.84				0.81				0.95				0.95				0.96

Pedestrians Crosswalk			
North	South	East	West
12	2	1	7

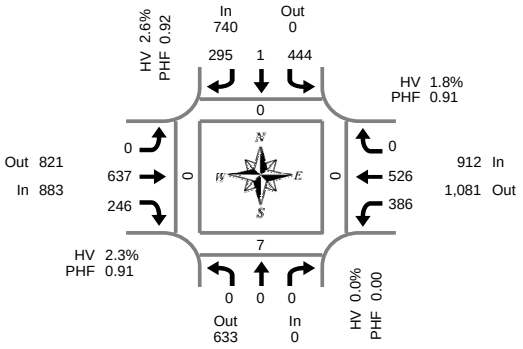
By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	29	22	138	189	168	47	61	276	88	574	21	683	130	526	130	786	1,934
%HV	3.4%	9.1%	1.4%	2.6%	3.6%	6.4%	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

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
11:55 AM to 12:55 PM

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	36	34	0	0	176	0	1	0	0
11:05 AM	0	0	0	0	45	0	19	0	0	58	24	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	32	46	0	0	211	0	0	0	0
11:15 AM	0	0	0	0	30	0	20	0	0	69	11	2	25	36	0	0	191	0	0	0	0
11:20 AM	0	0	0	0	47	0	23	0	0	40	15	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	23	42	0	0	198	0	2	0	0
11:30 AM	0	0	0	0	56	0	23	0	0	47	14	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	41	37	0	0	204	0	0	0	0
11:40 AM	0	0	0	0	40	0	16	0	0	61	17	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	37	48	0	0	233	0	1	0	0
11:50 AM	0	0	0	0	47	0	24	0	0	48	26	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	42	36	0	0	215	0	0	0	0
12:00 PM	0	0	0	0	38	0	23	0	0	44	14	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	38	42	0	0	200	0	0	0	0
12:10 PM	0	0	0	0	32	0	19	0	0	61	19	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	24	46	0	0	183	0	0	0	0
12:20 PM	0	0	0	0	50	0	23	0	0	45	22	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	36	32	0	0	224	0	0	0	0
12:30 PM	0	0	0	0	36	0	22	0	0	49	31	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	27	48	0	0	204	0	0	0	0
12:40 PM	0	0	0	0	41	0	25	0	0	63	21	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	35	49	0	0	223	0	2	0	0
12:50 PM	0	0	0	0	42	1	30	0	0	59	19	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	45	38	0	0	203	0	0	0	0
Total Survey	0	0	0	0	934	2	563	0	0	1,240	470	2	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	97	112	0	0	594	0	1	0	0
11:15 AM	0	0	0	0	114	0	64	0	0	163	47	2	76	134	0	0	598	0	2	0	0
11:30 AM	0	0	0	0	133	0	61	0	0	158	48	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	110	119	0	1	659	0	1	0	0
12:00 PM	0	0	0	0	102	0	70	0	0	155	43	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	84	131	0	0	624	0	1	0	0
12:30 PM	0	0	0	0	111	0	72	0	0	169	65	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	112	133	0	0	655	0	4	0	0
Total Survey	0	0	0	0	934	2	563	0	0	1,240	470	2	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				

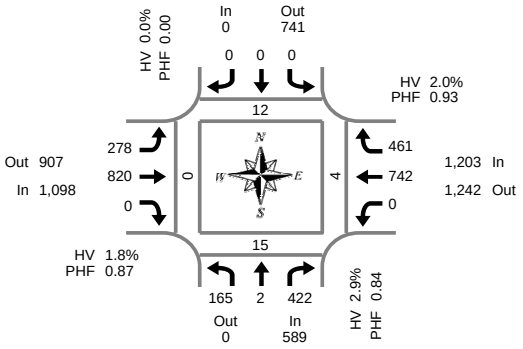
By Movement	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	444	1	295	740	0	637	246	883	386	526	0	912	2,535
%HV	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	4.7%	2.6%	0.0%	1.6%	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	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	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	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	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	389	528	0	0	2,523	0	7	0	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
12:00 PM to 1:00 PM

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				

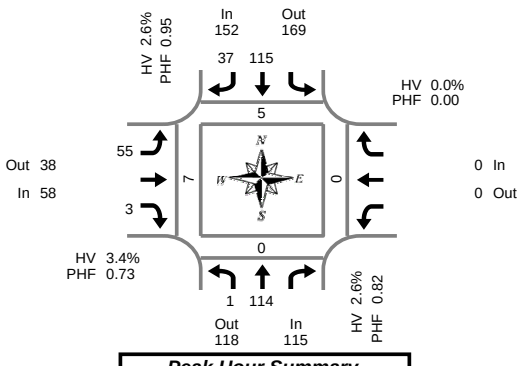
By Movement	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	165	2	422	589	0	0	0	0	278	820	0	1,098	0	742	461	1,203	2,890
%HV	3.6%	0.0%	2.6%	2.9%	0.0%	0.0%	0.0%	0.0%	3.6%	1.2%	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

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
11:55 AM to 12:55 PM

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	1	0					0	19	0	0	0	0
11:10 AM	0	11		0	6	3	0		8	0	0					0	28	0	0	0	2
11:15 AM	0	8		0	7	2	0		2	0	0					0	19	0	0	0	0
11:20 AM	0	10		0	10	1	0		2	0	0					0	23	0	0	0	0
11:25 AM	0	11		0	11	1	0		5	0	0					0	28	0	0	0	0
11:30 AM	0	7		0	6	1	0		3	0	0					0	17	0	0	0	0
11:35 AM	0	3		0	6	7	1		3	0	0					0	19	0	0	0	0
11:40 AM	0	6		0	6	5	0		8	0	0					0	25	0	0	0	2
11:45 AM	0	11		0	7	1	0		4	0	0					0	23	0	0	0	0
11:50 AM	0	8		0	7	2	0		6	0	0					0	23	0	0	0	2
11:55 AM	0	11		0	11	5	0		3	0	0					0	30	0	0	0	2
12:00 PM	0	7		0	7	1	0		7	2	0					0	24	0	0	0	2
12:05 PM	0	3		1	13	3	0		7	0	0					0	26	0	0	0	0
12:10 PM	0	9		0	6	2	0		4	0	0					0	21	0	0	0	0
12:15 PM	0	10		0	8	3	0		5	0	0					0	26	0	0	0	0
12:20 PM	0	11		0	12	4	0		1	0	0					0	28	0	0	0	0
12:25 PM	0	14		0	10	3	0		4	0	0					0	31	0	0	0	0
12:30 PM	0	8		0	6	5	1		5	0	0					0	24	0	0	0	0
12:35 PM	0	12		0	11	2	0		2	1	0					0	28	0	0	0	0
12:40 PM	0	7		0	10	4	0		7	0	0					0	28	0	0	0	0
12:45 PM	1	9		0	8	3	0		5	0	0					0	26	5	0	0	3
12:50 PM	0	13		0	13	2	0		5	0	0					0	33	0	0	0	0
12:55 PM	0	12		0	6	2	0		4	0	0					0	24	0	0	0	1
Total Survey	1	213		1	199	68	2		108	4	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	67	1	0	0	3
11:15 AM	0	29		0	28	4	0		9	0	0					0	70	0	0	0	0
11:30 AM	0	16		0	18	13	1		14	0	0					0	61	0	0	0	2
11:45 AM	0	30		0	25	8	0		13	0	0					0	76	0	0	0	4
12:00 PM	0	19		1	26	6	0		18	2	0					0	71	0	0	0	2
12:15 PM	0	35		0	30	10	0		10	0	0					0	85	0	0	0	0
12:30 PM	0	27		0	27	11	1		14	1	0					0	80	0	0	0	0
12:45 PM	1	34		0	27	7	0		14	0	0					0	83	5	0	0	4
Total Survey	1	213		1	199	68	2		108	4	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				

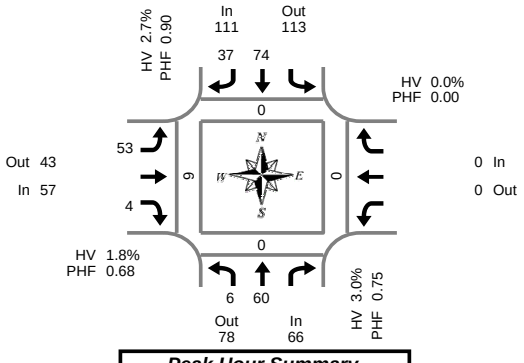
By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound North Access				Westbound North Access				Total
	L	T		Total	T	R	Total		L	R	Total					Total	
Volume	1	114		115	115	37	152		55	3	58					0	325
%HV	0.0%	2.6%	NA	2.6%	2.6%	2.7%	2.6%		3.6%	0.0%	3.4%		NA	NA	NA	0.0%	2.8%
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	274	1	0	0	9
11:15 AM	0	94		1	97	31	1		54	2	0					0	278	0	0	0	8
11:30 AM	0	100		1	99	37	1		55	2	0					0	293	0	0	0	8
11:45 AM	0	111		1	108	35	1		55	3	0					0	312	0	0	0	6
12:00 PM	1	115		1	110	34	1		56	3	0					0	319	5	0	0	6

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
12:00 PM to 1:00 PM

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	24	0	0	0	0
11:05 AM	0	2		0	2	3	0		4		1	0				0	12	0	0	0	1
11:10 AM	1	5		0	6	1	0		5		0	0				0	18	0	0	0	0
11:15 AM	0	5		0	4	4	0		1		1	0				0	15	0	0	0	2
11:20 AM	0	3		0	8	1	0		4		0	0				0	16	0	0	0	0
11:25 AM	1	8		0	7	4	0		4		0	0				0	24	0	0	0	0
11:30 AM	2	8		0	3	4	0		2		0	0				0	19	0	0	0	0
11:35 AM	1	5		0	4	3	0		1		0	0				0	14	0	0	0	1
11:40 AM	1	4		0	7	0	0		0		2	0				0	14	0	0	0	0
11:45 AM	0	3		0	4	2	0		5		1	0				0	15	0	0	0	0
11:50 AM	2	6		0	5	2	0		4		1	0				0	20	0	0	0	2
11:55 AM	0	3		0	6	4	0		3		2	0				0	18	0	0	0	2
12:00 PM	1	7		0	6	4	0		7		0	0				0	25	0	0	0	4
12:05 PM	1	2		1	4	3	0		2		0	0				0	12	0	0	0	0
12:10 PM	0	2		0	7	3	0		3		0	0				0	15	0	0	0	0
12:15 PM	0	4		0	8	2	0		3		0	0				0	17	0	0	0	1
12:20 PM	0	9		0	3	4	0		4		0	0				0	20	0	0	0	0
12:25 PM	2	6		0	7	4	0		5		1	0				0	25	0	0	0	0
12:30 PM	0	5		0	6	2	0		6		0	0				0	19	0	0	0	1
12:35 PM	1	2		0	6	1	0		5		1	0				0	16	0	0	0	0
12:40 PM	1	4		0	9	4	0		9		0	0				0	27	0	0	0	0
12:45 PM	0	4		0	6	2	0		4		0	0				0	16	0	0	0	3
12:50 PM	0	5		0	6	4	0		2		0	0				0	17	0	0	0	0
12:55 PM	0	10		0	6	4	0		3		2	0				0	25	0	0	0	0
Total Survey	14	124		1	134	69	0		90		12	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	54	0	0	0	1
11:15 AM	1	16		0	19	9	0		9		1	0				0	55	0	0	0	2
11:30 AM	4	17		0	14	7	0		3		2	0				0	47	0	0	0	1
11:45 AM	2	12		0	15	8	0		12		4	0				0	53	0	0	0	4
12:00 PM	2	11		1	17	10	0		12		0	0				0	52	0	0	0	4
12:15 PM	2	19		0	18	10	0		12		1	0				0	62	0	0	0	1
12:30 PM	2	11		0	21	7	0		20		1	0				0	62	0	0	0	1
12:45 PM	0	19		0	18	10	0		9		2	0				0	58	0	0	0	3
Total Survey	14	124		1	134	69	0		90		12	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
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
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

Pedestrians Crosswalk			
North	South	East	West
0	0	0	9

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	74	37	111		53		4	57				0	234
%HV	0.0%	3.3%	NA	3.0%	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	209	0	0	0	8
11:15 AM	9	56		1	65	34	0		36		7	0				0	207	0	0	0	11
11:30 AM	10	59		1	64	35	0		39		7	0				0	214	0	0	0	10
11:45 AM	8	53		1	71	35	0		56		6	0				0	229	0	0	0	10
12:00 PM	6	60		1	74	37	0		53		4	0				0	234	0	0	0	9

DKS Associates
TRANSPORTATION SOLUTIONS

Level of Service Descriptions

TRAFFIC LEVELS OF SERVICE

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of *level of service* has been developed to subjectively describe traffic performance. Level of service can be measured at intersections and along key roadway segments.

Level of service categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. Levels of Service A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. Level of service D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day. The *Highway Capacity Manual* provides level of service calculation methodology for both intersections and arterials.[1] The following two sections provide interpretations of the analysis approaches.

[1] *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	**Free Flow/Insignificant Delays:** No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
B	10.1-20.0	**Stable Operation/Minimal Delays:** An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
C	20.1-35.0	**Stable Operation/Acceptable Delays:** Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
D	35.1-55.0	**Approaching Unstable/Tolerable Delays:** The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
E	55.1-80.0	**Unstable Operation/Significant Delays:** Volumes at or near capacity. Vehicles may wait though several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
F	≥80.0	**Forced Flow/Excessive Delays:** Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

Source: *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C.

DKS Associates
TRANSPORTATION SOLUTIONS

HCM Intersection Analysis - Unmitigated

HCM Signalized Intersection Capacity Analysis — WV Fred Meyer TIA
1: Wilsonville Rd & I-5 SB — 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		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	67.1	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 — WV Fred Meyer TIA
2: Wilsonville Rd & Boones Ferry Rd — 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	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	0.94	
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	1599		3400	1721	
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	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		58.5	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 — WV Fred Meyer TIA
15: Wilsonville Rd & I-5 NB — 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			
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	11.9		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 — WV Fred Meyer TIA
16: Wilsonville Rd & Town Center Lp West — 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	16.9
Effective Green, g (s)	23.4	49.4		6.4	32.4		10.8	10.8		17.4	17.4	17.4
Actuated g/C Ratio	0.23	0.49		0.06	0.32		0.11	0.11		0.17	0.17	0.17
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)	594	1708		116	859		171	340		302	266	255
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	0.28
Uniform Delay, d1	36.8	17.5		45.4	30.7		42.9	42.7		36.0	39.6	35.9
Progression Factor	1.10	1.12		1.00	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	0.4
Delay (s)	51.6	20.0		49.0	38.0		52.0	46.4		36.4	53.9	36.3
Level of Service	D	C		D	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 #138 Boones Ferry Rd/North Fred Meyer's

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: B[12.7]

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	1! 0	0
Volume Module: >> Count Date: 1 Jul 2008 << PM Peak Hr (4:45 pm)																
Base Vol:	7	235		0	0	199		62	48		0	11	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	235		0	0	199		62	48		0	11	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	270		0	0	229		71	55		0	13	0		0	0
Reduct Vol:	0	0		0	0	0		0	0		0	0	0		0	0
FinalVolume:	8	270		0	0	229		71	55		0	13	0		0	0
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx		6.4	6.5		6.2	xxxxx	xxxx	xxxxx		
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx		3.5	4.0		3.3	xxxxx	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	300	xxxx	xxxxx	xxxx	xxxx	xxxxx		551	551		264	xxxx	xxxx	xxxxx		
Potent Cap.:	1273	xxxx	xxxxx	xxxx	xxxx	xxxxx		499	445		779	xxxx	xxxx	xxxxx		
Move Cap.:	1273	xxxx	xxxxx	xxxx	xxxx	xxxxx		497	442		779	xxxx	xxxx	xxxxx		
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx		0.11	0.00		0.02	xxxx	xxxx	xxxx		
Level Of Service Module:																
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		
Control Del:	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		
LOS by Move:	A	*		*	*		*		*			*	*		*	
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	533	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	0.4	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	12.7	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*		*	*		*		B		*		*	*		*
ApproachDel:	xxxxxx				xxxxxx				12.7				xxxxxx			
ApproachLOS:	*				*				B				*			

Note: Queue reported is the number of cars per lane.

Fred Meyer TIA - 2008
PM Peak Hour
Existing Conditions

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #189 Boones Ferry Rd/Bailey St

Average Delay (sec/veh): 2.3 Worst Case Level Of Service: B[10.9]

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	1! 0	0
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
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	164		1	46	128		5	6		0	3	9		0	37
Reduct Vol:	0	0		0	0	0		0	0		0	0	0		0	0
FinalVolume:	1	164		1	46	128		5	6		0	3	9		0	37
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:																
Cnflict Vol:	132	xxxx	xxxxx		166	xxxx	xxxxx		407	390		130	391	391		165
Potent Cap.:	1434	xxxx	xxxxx		1401	xxxx	xxxxx		558	549		925	572	547		885
Move Cap.:	1434	xxxx	xxxxx		1401	xxxx	xxxxx		520	530		925	555	529		885
Volume/Cap:	0.00	xxxx	xxxx		0.03	xxxx	xxxx		0.01	0.00		0.00	0.02	0.00		0.04
Level Of Service Module:																
2Way95thQ:	0.0	xxxx	xxxxx		0.1	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	7.5	xxxx	xxxxx		7.7	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	623	xxxxx		xxxx	791	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	0.0	xxxxx		xxxxx	0.2	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	10.9	xxxxx		xxxxx	9.8	xxxxx	
Shared LOS:	*	*		*	*		*		B		*		*	A		*
ApproachDel:	xxxxxx				xxxxxx				10.9				9.8			
ApproachLOS:	*				*				B				A			

Note: Queue reported is the number of cars per lane.

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

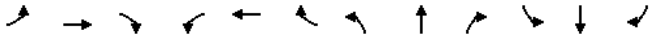
Average Delay (sec/veh): 2.1 Worst Case Level Of Service: B[11.9]

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	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	241	xxxx	xxxxx	xxxx	xxxx	xxxxx	420	420	205	xxxx	xxxx	xxxxx
Potent Cap.:	1337	xxxx	xxxxx	xxxx	xxxx	xxxxx	594	528	840	xxxx	xxxx	xxxxx
Move Cap.:	1337	xxxx	xxxxx	xxxx	xxxx	xxxxx	591	524	840	xxxx	xxxx	xxxxx
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	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	610	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.5	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.9	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			11.9			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



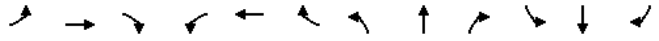
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frpb, ped/bikes		1.00	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	
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	0.94	
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	1599		3400	1721	
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	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		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	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	16.9
Effective Green, g (s)	23.4	49.4		6.4	32.4		10.8	10.8		17.4	17.4	17.4
Actuated g/C Ratio	0.23	0.49		0.06	0.32		0.11	0.11		0.17	0.17	0.17
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)	594	1708		116	859		171	340		302	266	255
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	0.28
Uniform Delay, d1	36.8	17.5		45.4	30.7		42.9	42.7		36.0	39.5	35.9
Progression Factor	1.10	1.12		1.00	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	0.4
Delay (s)	51.6	20.0		49.0	38.0		52.0	46.4		36.4	53.3	36.3
Level of Service	D	C		D	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				

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:	7	235		0	0	199		62	48		0	11	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	235		0	0	199		62	48		0	11	0		0	0
Added Vol:	0	223		0	228	223		0	0		5	0	0		5	229
FM:	0	-24		9	13	-13		0	0		0	0	4		0	21
Initial Fut:	7	434		9	241	409		62	48		5	11	4		5	250
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	499		10	277	470		71	55		6	13	5		6	287
Reduct Vol:	0	0		0	0	0		0	0		0	0	0		0	0
FinalVolume:	8	499		10	277	470		71	55		6	13	5		6	287
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx		4.1	xxxx	xxxxx		7.5	6.5		6.9	7.5	6.5		6.9
FollowUpTim:	2.2	xxxx	xxxxx		2.2	xxxx	xxxxx		3.5	4.0		3.3	3.5	4.0		3.3
Capacity Module:																
Cnflict Vol:	548	xxxx	xxxxx		509	xxxx	xxxxx		1340	1592		278	1312	1623		260
Potent Cap.:	1031	xxxx	xxxxx		1066	xxxx	xxxxx		113	108		726	118	104		745
Move Cap.:	1025	xxxx	xxxxx		1066	xxxx	xxxxx		48	72		721	82	69		742
Volume/Cap:	0.01	xxxx	xxxx		0.26	xxxx	xxxx		1.15	0.08		0.02	0.06	0.08		0.39
Level Of Service Module:																
2Way95thQ:	0.0	xxxx	xxxxx		1.0	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	8.5	xxxx	xxxxx		9.6	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	59	xxxxx		xxxx	566	xxxxx	
SharedQueue:	0.0	xxxx	xxxxx		1.0	xxxx	xxxxx		xxxxx	6.2	xxxxx		xxxxx	3.1	xxxxx	
Shrd ConDel:	8.5	xxxx	xxxxx		9.6	xxxx	xxxxx		xxxxx	314	xxxxx		xxxxx	18.2	xxxxx	
Shared LOS:	A	*	*		A	*	*		*	F	*		*	C	*	
ApproachDel:	xxxxxx				xxxxxx				314.3				18.2			
ApproachLOS:	*				*				F				C			

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 #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:	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	1		4	53	1		0	0		0	0	4		0	53
PasserByVol:	0	-24		21	4	-18		0	0		0	0	18		0	9
Initial Fut:	1	120		26	97	94		4	5		0	3	30		0	94
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	138		30	111	108		5	6		0	3	34		0	108
Reduct Vol:	0	0		0	0	0		0	0		0	0	0		0	0
FinalVolume:	1	138		30	111	108		5	6		0	3	34		0	108
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:																
Cnflict Vol:	113	xxxx	xxxxx		168	xxxx	xxxxx		543	503		110	490	491		153
Potent Cap.:	1458	xxxx	xxxxx		1398	xxxx	xxxxx		454	473		948	492	481		899
Move Cap.:	1458	xxxx	xxxxx		1398	xxxx	xxxxx		375	435		948	460	443		899
Volume/Cap:	0.00	xxxx	xxxx		0.08	xxxx	xxxx		0.02	0.00		0.00	0.07	0.00		0.12
Level Of Service Module:																
2Way95thQ:	0.0	xxxx	xxxxx		0.3	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.2	xxxx	xxxxx	
Control Del:	7.5	xxxx	xxxxx		7.8	xxxx	xxxxx		xxxxx	xxxx	xxxxx		13.5	xxxx	xxxxx	
LOS by Move:	A	*	*		A	*	*		*	*	*		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	485	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	0.1	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	12.6	xxxxx	
Shared LOS:	*	*	*		*	*	*		*	*	*		*	B	*	
ApproachDel:	xxxxxx				xxxxxx				12.6				10.5			
ApproachLOS:	*				*				B				B			

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
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
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
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	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:												
Cnflict 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	xxxx	0.16	xxxx	xxxx	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
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	90	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	19.2
Effective Green, g (s)	24.3	47.5		6.4	29.6		10.4	10.4		19.7	19.7	19.7
Actuated g/C Ratio	0.24	0.48		0.06	0.30		0.10	0.10		0.20	0.20	0.20
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)	617	1644		116	784		164	327		342	299	289
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	0.47
Uniform Delay, d1	37.9	19.5		45.4	35.2		43.3	43.1		34.2	38.7	35.6
Progression Factor	1.12	1.15		1.00	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	0.9
Delay (s)	79.5	23.2		49.0	73.2		55.1	47.8		34.6	58.7	36.5
Level of Service	E	C		D	E		E	D		C	E	D
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				

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)												
Base Vol:	7	235	0	0	199	62	48	0	11	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	235	0	0	199	62	48	0	11	0	0	0
Added Vol:	1	16	0	0	19	10	17	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	251	0	0	218	72	65	0	12	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:	9	289	0	0	251	83	75	0	14	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	9	289	0	0	251	83	75	0	14	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	333	xxxx	xxxxx	xxxx	xxxx	xxxxx	599	599	292	xxxx	xxxx	xxxxx
Potent Cap.:	1237	xxxx	xxxxx	xxxx	xxxx	xxxxx	468	418	752	xxxx	xxxx	xxxxx
Move Cap.:	1237	xxxx	xxxxx	xxxx	xxxx	xxxxx	465	415	752	xxxx	xxxx	xxxxx
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	0.16	0.00	0.02	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	495	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.6	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	13.9	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	A	*	*	*	*	*	*	B	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			13.9			xxxxxx		
ApproachLOS:	*			*			B			*		

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)

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 1! 0	0	0	0 1! 0	0	0	0 1! 0	0
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	14	0	0	17	3	3	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	157	1	40	128	7	8	0	3	8	0	32
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	180	1	46	147	8	9	0	3	9	0	37
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	180	1	46	147	8	9	0	3	9	0	37
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:												
Cnflict Vol:	155	xxxx	xxxxx	182	xxxx	xxxxx	445	427	151	428	430	181
Potent Cap.:	1407	xxxx	xxxxx	1382	xxxx	xxxxx	527	523	900	540	521	867
Move Cap.:	1407	xxxx	xxxxx	1382	xxxx	xxxxx	491	505	900	524	502	867
Volume/Cap:	0.00	xxxx	xxxx	0.03	xxxx	xxxx	0.02	0.00	0.00	0.02	0.00	0.04
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.6	xxxx	xxxxx	7.7	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	561	xxxxx	xxxx	767	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	0.2	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.6	xxxxx	xxxxx	10.0	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	A	*
ApproachDel:	xxxxxx			xxxxxx			11.6			10.0		
ApproachLOS:	*			*			B			A		

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)

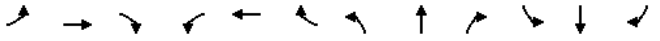
Intersection #253 Boones Ferry Rd/South Fred Meyer's

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
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
Added Vol:	0	17	0	0	20	0	0	0	0	0	0	0
PasserByVol:	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
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
Reduct Vol:	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
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	264	xxxx	xxxxx	xxxx	xxxx	xxxxx	463	463	228	xxxx	xxxx	xxxxx
Potent Cap.:	1311	xxxx	xxxxx	xxxx	xxxx	xxxxx	561	499	816	xxxx	xxxx	xxxxx
Move Cap.:	1311	xxxx	xxxxx	xxxx	xxxx	xxxxx	558	496	816	xxxx	xxxx	xxxxx
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	0.14	0.00	0.01	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	577	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.5	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	12.4	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	A	*	*	*	*	*	*	B	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			12.4			xxxxxx		
ApproachLOS:	*			*			B			*		

Note: Queue reported is the number of cars per lane.

HCM Signalized Intersection Capacity Analysis — WV Fred Meyer TIA
1: Wilsonville Rd & I-5 SB — PM Peak (Ex. Config.) -- Ex + Proj + Stg2

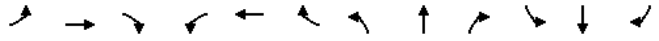


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frpb, ped/bikes		1.00	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	
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	0.98		1.00	1.00	0.85	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	
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	
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 — WV Fred Meyer TIA
15: Wilsonville Rd & I-5 NB — 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 — WV Fred Meyer TIA
16: Wilsonville Rd & Town Center Lp West — 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	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												4
Actuated Green, G (s)	24.2	46.8		6.4	29.0		10.1	10.1		19.7	19.7	19.7
Effective Green, g (s)	24.2	47.3		6.4	29.5		10.1	10.1		20.2	20.2	20.2
Actuated g/C Ratio	0.24	0.47		0.06	0.29		0.10	0.10		0.20	0.20	0.20
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)	615	1637		116	782		159	318		351	306	296
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	0.52
Uniform Delay, d1	37.9	19.9		45.4	35.2		43.6	43.4		33.8	38.6	35.6
Progression Factor	1.12	1.16		1.00	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	1.1
Delay (s)	93.3	23.8		49.0	83.6		57.7	49.0		34.1	59.8	36.7
Level of Service	F	C		D	F		E	D		C	E	D
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				

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:	7	235		0		0	199		62		48		0		11		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	235		0		0	199		62		48		0		11		0		0		0			
Added Vol:	1	240		0		228	242		10		17		5		1		0		5		229			
FM:	0	-24		9		13	-13		0		0		0		0		4		0		21			
Initial Fut:	8	451		9		241	428		72		65		5		12		4		5		250			
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	518		10		277	492		83		75		6		14		5		6		287			
Reduct Vol:	0	0		0		0	0		0		0		0		0		0		0		0			
FinalVolume:	9	518		10		277	492		83		75		6		14		5		6		287			
Critical Gap Module:																								
Critical Gp:	4.1	xxxx	xxxxx			4.1	xxxx	xxxxx			7.5		6.5		6.9		7.5		6.5		6.9			
FollowUpTim:	2.2	xxxx	xxxxx			2.2	xxxx	xxxxx			3.5		4.0		3.3		3.5		4.0		3.3			
Capacity Module:																								
Cnflict Vol:	582	xxxx	xxxxx			529	xxxx	xxxxx			1380		1641		294		1345		1678		269			
Potent Cap.:	1002	xxxx	xxxxx			1049	xxxx	xxxxx			105		101		708		112		96		735			
Move Cap.:	997	xxxx	xxxxx			1049	xxxx	xxxxx			44		67		704		76		63		732			
Volume/Cap:	0.01	xxxx	xxxx			0.26	xxxx	xxxx			1.71		0.09		0.02		0.06		0.09		0.39			
Level Of Service Module:																								
2Way95thQ:	0.0	xxxx	xxxxx			1.1	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx						
Control Del:	8.6	xxxx	xxxxx			9.7	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		52	xxxxx	xxxx		547	xxxxx						
SharedQueue:	0.0	xxxx	xxxxx			1.1	xxxx	xxxxx			xxxxx		9.1	xxxxx	xxxxx		3.2	xxxxx						
Shrd ConDel:	8.6	xxxx	xxxxx			9.7	xxxx	xxxxx			xxxxx		557	xxxxx	xxxxx		19.1	xxxxx						
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:	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		53	18		3		3		0		0		4		0		53			
PasserByVol:	0	-24		21		4	-18		0		0		0		0		18		0		9			
Initial Fut:	1	135		26		97	111		7		8		0		3		30		0		94			
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		111	128		8		9		0		3		34		0		108			
Reduct Vol:	0	0		0		0	0		0		0		0		0		0		0		0			
FinalVolume:	1	155		30		111	128		8		9		0		3		34		0		108			
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:																								
Cnflict Vol:	136	xxxx	xxxxx			185	xxxx	xxxxx			581		542		132		529		531		170			
Potent Cap.:	1430	xxxx	xxxxx			1378	xxxx	xxxxx			428		450		923		464		457		879			
Move Cap.:	1430	xxxx	xxxxx			1378	xxxx	xxxxx			352		414		923		433		419		879			
Volume/Cap:	0.00	xxxx	xxxx			0.08	xxxx	xxxx			0.03		0.00		0.00		0.08		0.00		0.12			
Level Of Service Module:																								
2Way95thQ:	0.0	xxxx	xxxxx			0.3	xxxx	xxxxx			xxxx	xxxx	xxxxx			0.3	xxxx	xxxxx						
Control Del:	7.5	xxxx	xxxxx			7.8	xxxx	xxxxx			xxxxx	xxxx	xxxxx			14.0	xxxx	xxxxx						
LOS by Move:	A	*	*			A	*	*			*	*	*			B	*	*						
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT				
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx		423	xxxxx	xxxx		xxxx							
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx		0.1	xxxxx	xxxxx		xxxx							
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx		13.8	xxxxx	xxxxx		xxxx							
Shared LOS:	*	*	*			*	*	*			*		B	*	*		*	*						
ApproachDel:	xxxxxx					xxxxxx					13.8						10.7							
ApproachLOS:	*					*					B						B							

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 #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
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
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:												
Cnflict 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	xxxx	0.17	xxxx	xxxx	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		

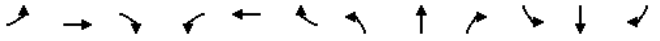
Note: Queue reported is the number of cars per lane.

DKS Associates
TRANSPORTATION SOLUTIONS

HCM Intersection Analysis - Mitigated

HCM Signalized Intersection Capacity Analysis
1: Wilsonville Rd & I-5 SB

Fred Meyer TIA
Existing + Project

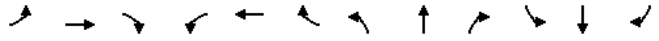


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Lane Util. Factor		0.91	1.00	0.91	0.91					0.97		0.88
Frpb, ped/bikes		1.00	0.99	1.00	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	
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	0	86	0	0	35	0	12	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			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

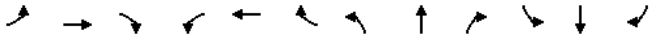
Fred Meyer TIA
Existing + Project

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

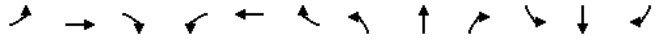


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Lane Util. Factor		0.91	1.00	0.91	0.91					0.97		0.88
Frpb, ped/bikes		1.00	0.99	1.00	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	

Intersection Summary				
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

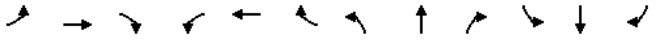


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, 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			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	

Intersection Summary				
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

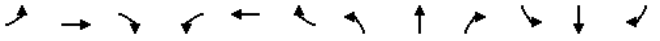


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	0.91	0.91			0.91	1.00	0.97		0.88			
Frpb, ped/bikes	1.00	1.00			1.00	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	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	92	0	0	246	0	0	0
Lane Group Flow (vph)	414	1216	0	0	1303	433	339	0	386	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	1828			1360	832	723		621			
v/s Ratio Prot	c0.26	0.26			c0.26	0.12	0.11		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			
Uniform Delay, d1	27.8	9.3			39.4	18.6	36.8		38.2			
Progression Factor	0.16	1.15			0.62	1.05	1.00		1.00			
Incremental Delay, d2	5.2	1.6			11.2	1.4	2.2		4.6			
Delay (s)	9.8	12.3			35.6	20.8	38.9		42.9			
Level of Service	A	B			D	C	D		D			
Approach Delay (s)		11.6			31.4			41.5			0.0	
Approach LOS		B			C			D			A	

Intersection Summary				
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
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	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	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	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
Effective Green, g (s)	29.8	53.3		5.2	28.7		12.4	12.4		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
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	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	

Intersection Summary				
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	
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	1.00	0.95	1.00	
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 — Fred Meyer TIA
15: Wilsonville Rd & I-5 NB — 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 — Fred Meyer TIA
16: Wilsonville Rd & Town Center Lp West — 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 1	1 0		0 0 0	0 1		0 0 1!	0 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
FinalVolume:	0	593	10	0	769	83	0	0	14	0	0	286
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.9	7.5	6.5	6.9
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	433	983	1457	307
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	576	206	131	695
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	573	201	130	692
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.02	0.00	0.00	0.41
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.1	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	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
SharedQueue:	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	1 0	0 1	0	0 0	1! 0	0	0 1	0	1
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
FinalVolume:	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  0  1! 0  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
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:
Cnflict 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  xxxx  0.15 xxxx  xxxx  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
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.
********************************************************************************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HCM Signalized Intersection Capacity Analysis — Fred Meyer TIA
253: Freds South Access & Boones Ferry Rd — Existing + Project + Stage II -- Mitigated

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		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected		0.96			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1790			1824	1599	1787	1864		1787	1830	
Flt Permitted		0.73			0.84	1.00	0.54	1.00		0.26	1.00	
Satd. Flow (perm)		1362			1587	1599	1012	1864		482	1830	
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		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		19.6			19.6	78.1	22.4	19.9		82.4	75.9	
Effective Green, g (s)		19.6			19.6	78.1	22.4	19.9		82.4	75.9	
Actuated g/C Ratio		0.18			0.18	0.71	0.20	0.18		0.75	0.69	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		243			283	1193	224	337		1055	1263	
v/s Ratio Prot						0.06	0.00	c0.13		c0.18	0.20	
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		0.35	0.29	
Uniform Delay, d1		42.3			38.0	5.1	35.4	42.3		5.6	6.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.55	1.66	
Incremental Delay, d2		7.7			0.2	0.0	0.1	6.5		0.6	0.4	
Delay (s)		50.1			38.2	5.1	35.6	48.8		9.4	11.4	
Level of Service		D			D	A	D	D		A	B	
Approach Delay (s)		50.1			10.0			47.9			10.4	
Approach LOS		D			B			D			B	

Intersection Summary			
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		

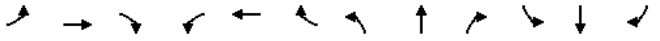
c Critical Lane Group

DKS Associates
TRANSPORTATION SOLUTIONS

HCM Intersection Analysis - Saturday

HCM Signalized Intersection Capacity Analysis
1: Wilsonville Rd & I-5 SB

WV Fred Meyer TIA
Existing -- Saturday

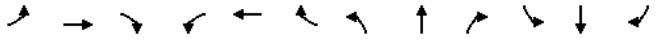


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frpb, ped/bikes		1.00	0.96	1.00	1.00					1.00	1.00	1.00
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	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		
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			
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00	1.00			
Frpb, ped/bikes	1.00	1.00			1.00	0.94		1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99	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	3574			2700	1380		1650	1760			
Flt Permitted	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (perm)	2000	3574			2700	1380		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				
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	

Intersection Summary			
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			

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	1!	0 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
PHF Volume:	1	119		0	0	116		40	45		0	3	0		0	0
Reduct Vol:	0	0		0	0	0		0	0		0	0	0		0	0
FinalVolume:	1	119		0	0	116		40	45		0	3	0		0	0
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx		6.4	6.5		6.2	xxxxx	xxxx	xxxxx		
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx		3.5	4.0		3.3	xxxxx	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	156	xxxx	xxxxx	xxxx	xxxx	xxxxx		258	258		136	xxxx	xxxx	xxxxx		
Potent Cap.:	1436	xxxx	xxxxx	xxxx	xxxx	xxxxx		736	650		918	xxxx	xxxx	xxxxx		
Move Cap.:	1436	xxxx	xxxxx	xxxx	xxxx	xxxxx		735	650		918	xxxx	xxxx	xxxxx		
Volume/Cap:	0.00	xxxx	xxxx	xxxx	xxxx	xxxx		0.06	0.00		0.00	xxxx	xxxx	xxxx		
Level Of Service Module:																
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		
Control Del:	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		
LOS by Move:	A	*		*	*	*		*	*	*		*	*	*		
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	745	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	0.0	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	0.2	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	7.5	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	10.2	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	A	*		*	*	*		*	B		*	*	*		*	*
ApproachDel:	xxxxxx				xxxxxx				10.2				xxxxxx			
ApproachLOS:	*				*				B				*			

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	1!	0 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
PHF Volume:	7	66		0	0	81		41	58		0	4	0		0	0
Reduct Vol:	0	0		0	0	0		0	0		0	0	0		0	0
FinalVolume:	7	66		0	0	81		41	58		0	4	0		0	0
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx		6.4	6.5		6.2	xxxxx	xxxx	xxxxx		
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx		3.5	4.0		3.3	xxxxx	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	122	xxxx	xxxxx	xxxx	xxxx	xxxxx		181	181		102	xxxx	xxxx	xxxxx		
Potent Cap.:	1478	xxxx	xxxxx	xxxx	xxxx	xxxxx		813	717		959	xxxx	xxxx	xxxxx		
Move Cap.:	1478	xxxx	xxxxx	xxxx	xxxx	xxxxx		811	714		959	xxxx	xxxx	xxxxx		
Volume/Cap:	0.00	xxxx	xxxx	xxxx	xxxx	xxxx		0.07	0.00		0.00	xxxx	xxxx	xxxx		
Level Of Service Module:																
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		
Control Del:	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		
LOS by Move:	A	*		*	*	*		*	*	*		*	*	*		
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	819	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	0.0	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	0.2	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	7.4	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	9.8	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	A	*		*	*	*		*	A		*	*	*		*	*
ApproachDel:	xxxxxx				xxxxxx				9.8				xxxxxx			
ApproachLOS:	*				*				A				*			

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							
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	

Intersection Summary				
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			

c Critical Lane Group

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	
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	0.95	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	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	
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)	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	
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		12	1		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	5	8	8	
Permitted Phases		6				2			4			
Actuated Green, G (s)	6.4	35.2		16.9	45.7	45.7	14.5	14.5	31.4	16.4	16.4	
Effective Green, g (s)	6.4	36.2		16.9	46.7	46.7	14.5	14.5	31.4	16.4	16.4	
Actuated g/C Ratio	0.06	0.36		0.17	0.47	0.47	0.14	0.14	0.31	0.16	0.16	
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)	113	1764		580	1621	678	254	253	496	552	283	
v/s Ratio Prot	0.03	c0.13		c0.13	0.13		c0.11	0.09	0.09	0.05	c0.13	
v/s Ratio Perm						0.05			0.08			
v/c Ratio	0.50	0.37		0.76	0.29	0.10	0.76	0.62	0.55	0.32	0.77	
Uniform Delay, d1	45.3	23.5		39.6	16.4	14.9	41.1	40.2	28.5	36.9	40.0	
Progression Factor	1.00	1.00		1.21	0.86	0.80	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.6	0.6		4.8	0.4	0.3	12.2	4.0	1.1	0.2	11.2	
Delay (s)	47.8	24.1		52.8	14.5	12.1	53.3	44.2	29.6	37.1	51.2	
Level of Service	D	C		D	B	B	D	D	C	D	D	
Approach Delay (s)		25.9			30.3			38.6			45.0	
Approach LOS		C			C			D			D	

Intersection Summary				
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			

c Critical Lane Group

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	

Intersection Summary			
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:																
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		xxxxx	xxxx	xxxxx		xxxx		6.9		xxxxx	xxxx	6.9	
FollowUpTim:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxx		3.3		xxxxx	xxxx	3.3	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	400		xxxx	xxxx	235	
Potent Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	605		xxxx	xxxx	773	
Move Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	602		xxxx	xxxx	770	
Volume/Cap:	xxxx	xxxx	xxxx		xxxx	xxxx	xxxx		xxxx	xxxx	0.01		xxxx	xxxx	0.45	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	0.0		xxxx	xxxx	2.4	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	11.0		xxxxx	xxxx	13.5	
LOS by Move:	*	*	*		*	*	*		*	*	B		*	*	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	xxxx	xxxxx	
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				11.0				13.5			
ApproachLOS:	*				*				B				B			

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:																
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 — Fred Meyer TIA
253: Freds South Access & Boones Ferry Rd — Existing + Project -- Saturday (mitigated)

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		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		0.99	1.00	
Frt		1.00			1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected		0.96			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787			1843	1615	1805	1794		1788	1798	
Flt Permitted		0.73			0.83	1.00	0.58	1.00		0.56	1.00	
Satd. Flow (perm)		1360			1582	1615	1108	1794		1054	1798	
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		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		8.2			8.2	19.1	20.1	18.9		33.8	28.6	
Effective Green, g (s)		8.2			8.2	19.1	20.1	18.9		33.8	28.6	
Actuated g/C Ratio		0.16			0.16	0.38	0.40	0.38		0.68	0.57	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		223			259	746	462	678		873	1028	
v/s Ratio Prot						0.03	0.00	0.06		c0.12	0.16	
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		0.55	0.27	
Uniform Delay, d1		19.2			18.0	10.1	9.0	10.3		3.8	5.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		2.03	1.15	
Incremental Delay, d2		3.0			0.3	0.1	0.0	0.5		0.5	0.5	
Delay (s)		22.2			18.3	10.1	9.0	10.8		8.3	6.7	
Level of Service		C			B	B	A	B		A	A	
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

DKS Associates
TRANSPORTATION SOLUTIONS

Queuing Analysis

Intersection: 1: Wilsonville Rd & I-5 SB

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	LT	T	L	L	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
Directions Served	L	T	T	TR	L	L	T	T	R	L	T	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)			

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)	

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		

Nework Summary

Network wide Queuing Penalty: 387

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Warrant Analysis

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

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Trip Generation and Distribution

Previous Study (2004 TIA)

Building/Pad	Name	LU	Size	Trip Rate	Trip Gen In	Trip Gen Out	Trip Gen Total	Internal Capture Rate	Internal Capture Trips
	Fred Meyer		166,887	4.95			826	5%	
1 through 3	Shopping Center		9,000	14.2			128	30%	
4	Restaurant		6,000	10.86			65	40%	
	Total		**181,887**				1,019		
						Net PM Driveway Trips	**917**		

New Study (2008 TIA)

Building	Name	Size	Trip Rate	Trip Gen In	Trip Gen Out	Trip Gen Total	Internal Capture Rate	Internal Capture Trips
A	Fred Meyer	145,581	based on counts					
Space J	Tenant Space	7,500						
Space K	Tenant Space	2,600						
	Total	**155,681**	**4.95**			**771**	5%	39

Building	Name	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		
	Total	**50,879**	**7.88**	**192**	**209**	**401**	20%	80

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

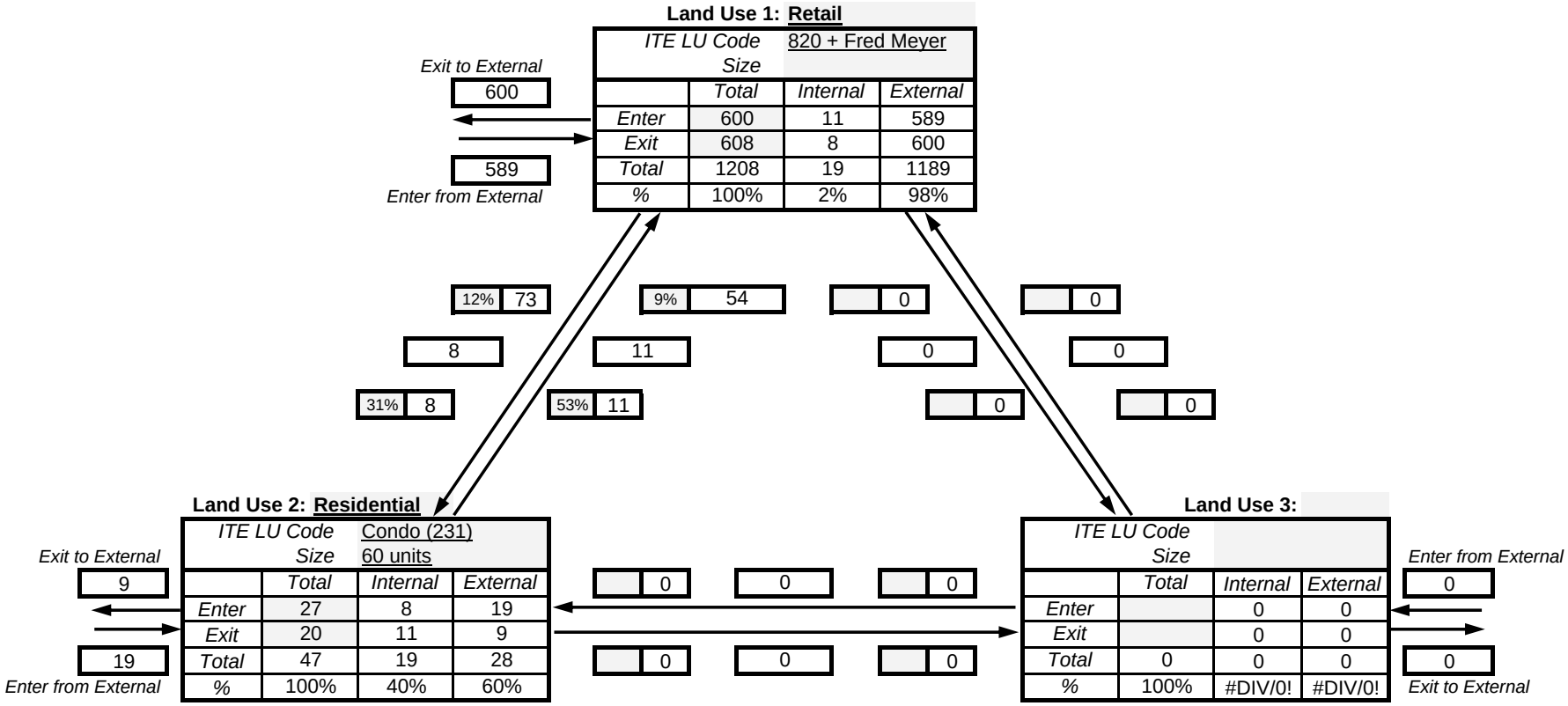
Total		**209,876**	**SF retail and 60 residential units**			1,255		
	15%			**Net PM Driveway Trips**	**1,107**	148	Total Internal Trips	
				Increase in Total Trips	**21%**	11.8%	Total Internal Rate	
				Net PM Driveway Trips for Retail Uses only	**1,078**	130	Retail/Restaurant Internal Trips	
				Increase in Retail Trips (excluding new residential trips)	**18%**	10.8%	Retail Internal Rate	

Analyst BBC
Date July 6, 2008

Multi-Use Development Trip Generation And Internal Capture Summary

This worksheet only calculates trips between residential and retail uses.

Name of Dvlpt Fred Meyer Development
Time Period PM Peak Hr



Net External Trips for Multi-Use Development

	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

NO PASS-BY TRIPS

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

NO PASS-BY TRIPS

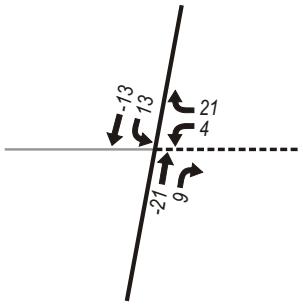
3. WILSONVILLE RD @ I-5 NB ON/OFF RAMPS

NO PASS-BY TRIPS

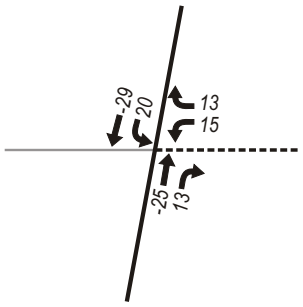
4. WILSONVILLE RD @ TOWN CENTER LOOP W.

NO PASS-BY TRIPS

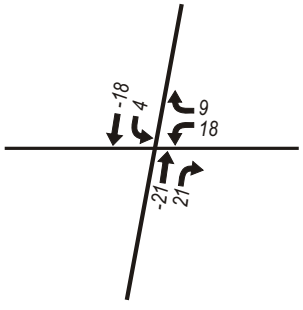
5. BOONES FERRY RD @ LOWRIES/N. PROJECT DRIVEWAY

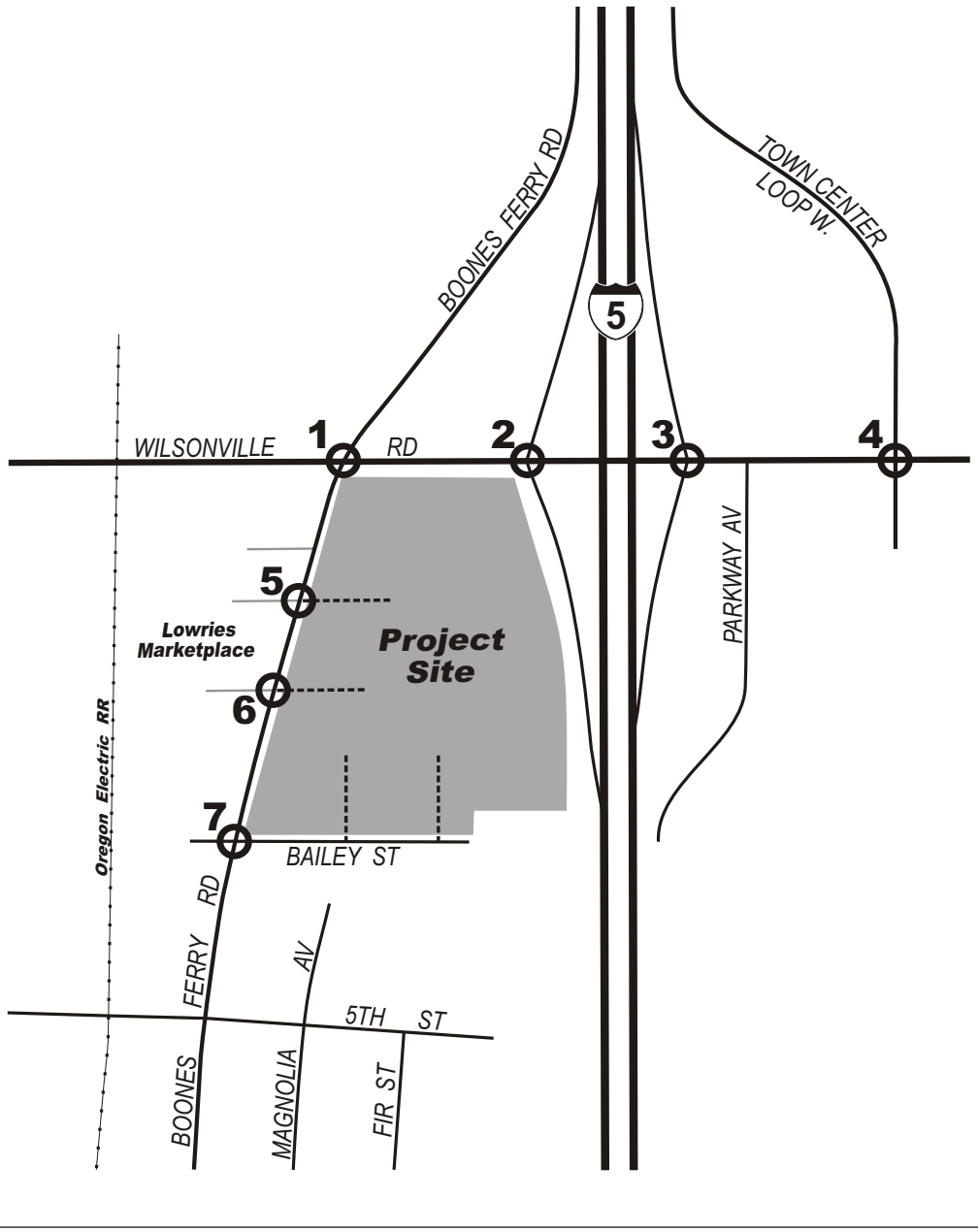


6. BOONES FERRY RD @ LOWRIES/S. PROJECT DRIVEWAY



7. BOONES FERRY RD @ BAILEY ST





LEGEND

1 - Study Intersection & Number

------- - Proposed Fred Meyer Driveway

——— - Existing Lowries Driveway

← 00 - Pass-by Project PM Peak Hour Traffic Volumes

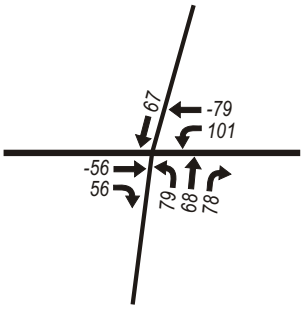
DKS Associates
TRANSPORTATION SOLUTIONS

NO SCALE

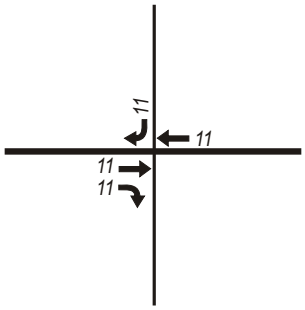
PASS-BY PROJECT PM PEAK HOUR TRIPS

160 Trips (80 in, 80 out)

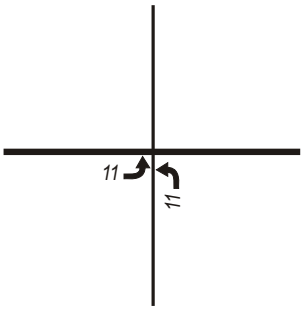
1. WILSONVILLE RD @ BOONES FERRY RD



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



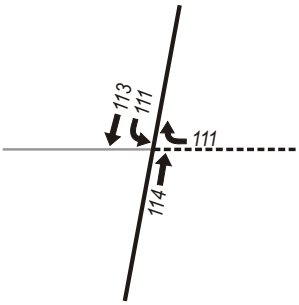
3. WILSONVILLE RD @ I-5 NB ON/OFF RAMPS



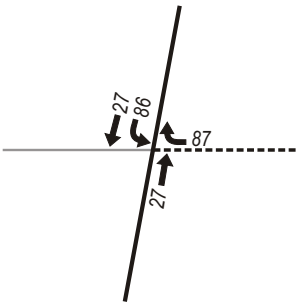
4. WILSONVILLE RD @ TOWN CENTER LOOP W.

NO DIVERTED TRIPS

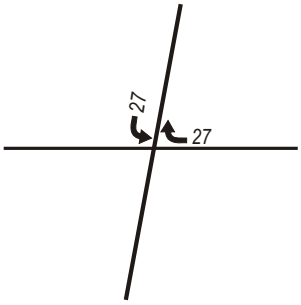
5. BOONES FERRY RD @ LOWRIES/N. PROJECT DRIVEWAY

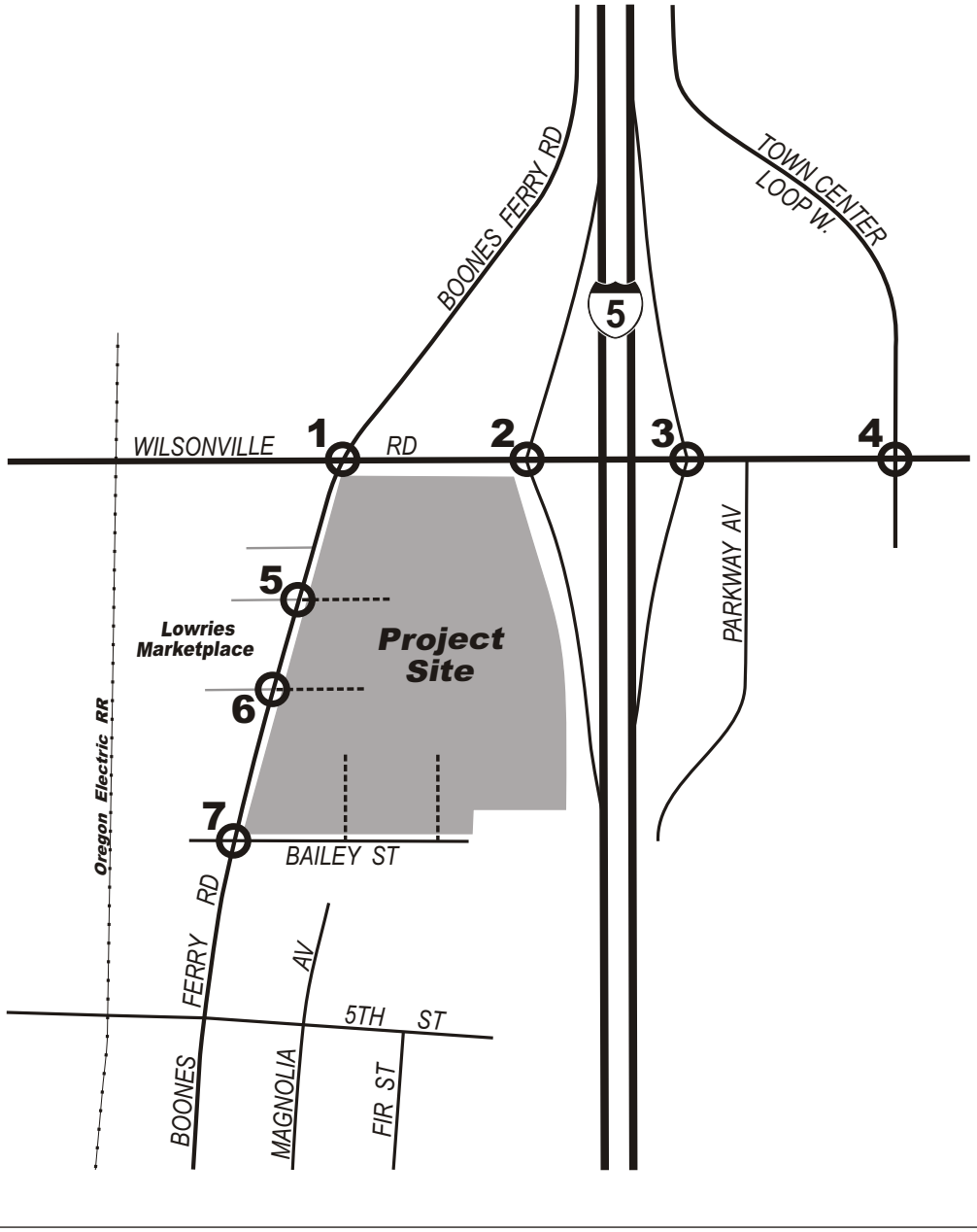


6. BOONES FERRY RD @ LOWRIES/S. PROJECT DRIVEWAY



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

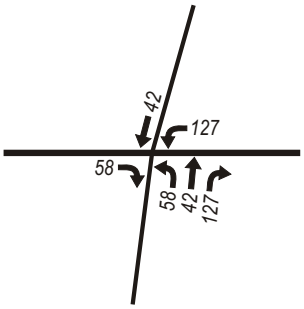
DKS Associates
TRANSPORTATION SOLUTIONS

NO SCALE

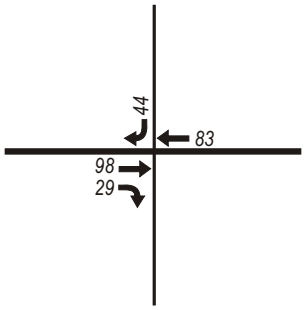
DIVERTED PROJECT PM PEAK HOUR TRIPS

449 Trips (224 in, 225 out)

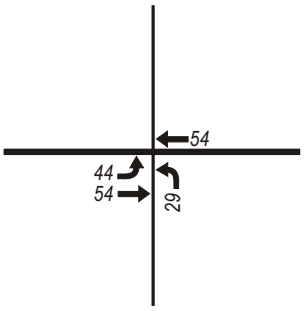
1. WILSONVILLE RD @ BOONES FERRY RD



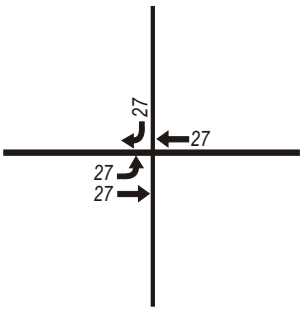
2. WILSONVILLE RD @ I-5 SB ON/OFF RAMPS



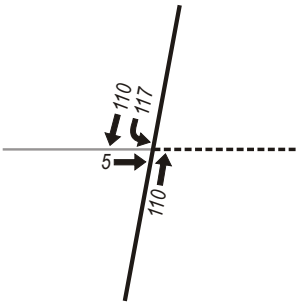
3. WILSONVILLE RD @ I-5 NB ON/OFF RAMPS



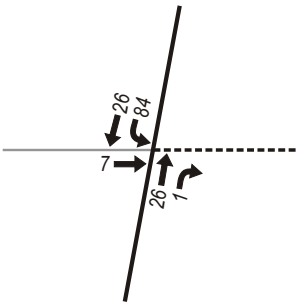
4. WILSONVILLE RD @ TOWN CENTER LOOP W.



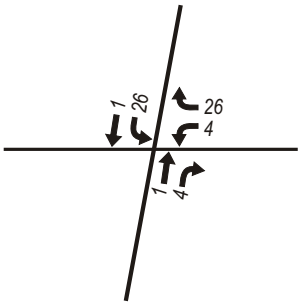
5. BOONES FERRY RD @ LOWRIES/N. PROJECT DRIVEWAY

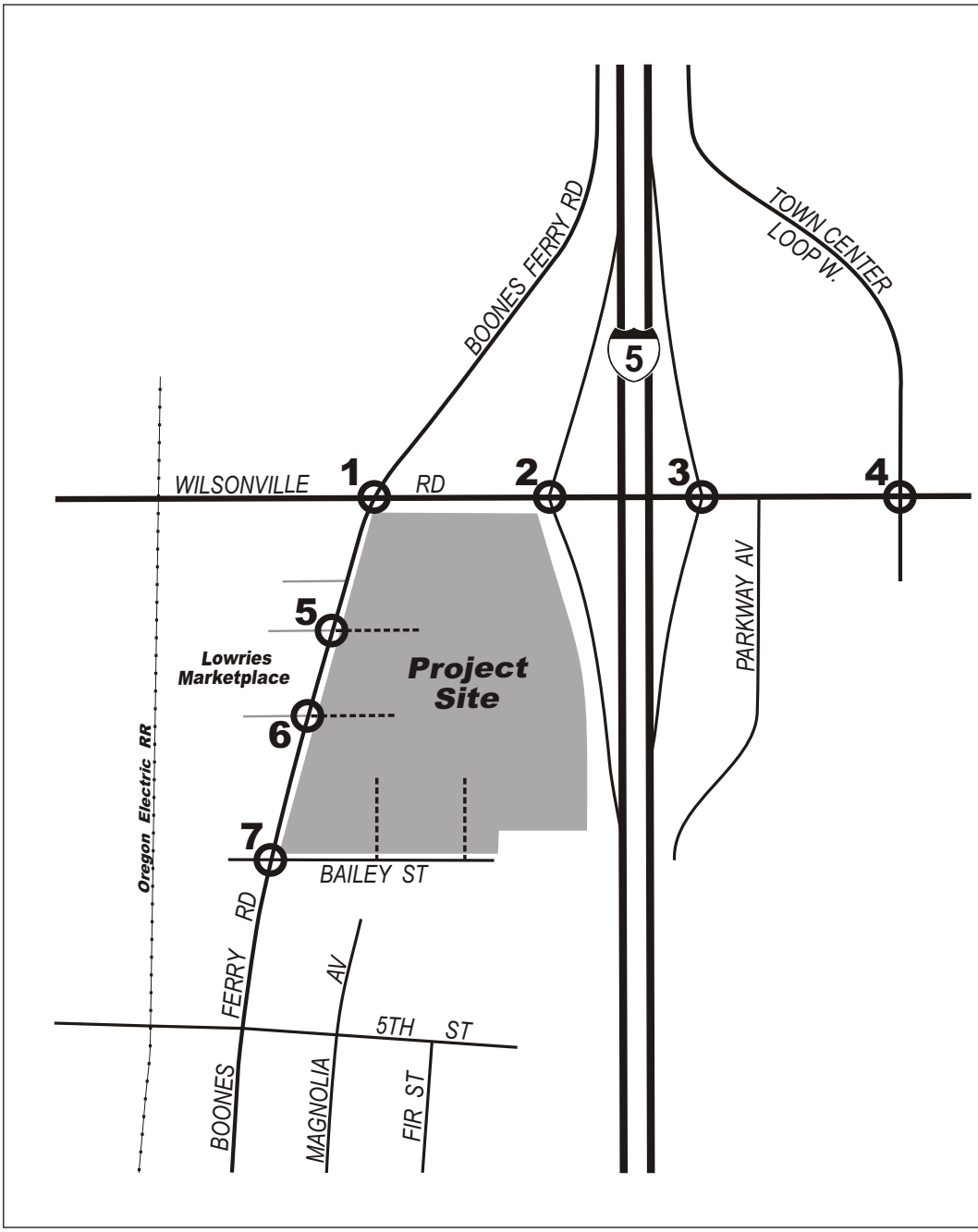


6. BOONES FERRY RD @ LOWRIES/S. PROJECT DRIVEWAY



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

NO SCALE

PRIMARY PROJECT PM PEAK HOUR TRIPS

488 Trips (244 in, 244 out)

City of Wilsonville, Oregon

Adopted BUDGET

FY 2015-16

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
	36.44	35.74	36.07	37.00

Operating Summary	Actual 2012-13	Actual 2013-14	Budget 2014-15	Proposed 2015-16	Approved 2015-16	Adopted 2015-16
Personnel Services						
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
Total	2,615,777	2,758,432	2,985,140	3,081,390	3,081,390	3,081,390
Materials and Services						
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
Total	1,689,911	1,662,177	1,904,669	1,846,865	1,846,865	1,846,865
Capital Outlay						
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
Total	436,185	785,703	1,523,506	380,000	380,000	380,000
Total Department	$ 4,741,873	$ 5,206,312	$ 6,413,315	$ 5,308,255	$ 5,308,255	$ 5,308,255

Resources Summary	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
Total	$ 7,210,704	$ 5,676,911	$ 6,713,542	$ 5,776,916	$ 5,776,916	$ 5,776,916

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)

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.

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

	Funding Source			Funding Use	
Intergovernmental Agreement /Grant	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
	$ 959,915	$ 20,821	$ 165,255	$ 775,991	$ 370,000

Performance Measurements

Strategy	*Measure*	Actual 2011-12	Actual 2012-13	Actual 2013-14	Estimate 2014-15	Forecast 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.

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

Full Time Equivalent Positions

Position	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
	6.50	6.50	6.60	6.60

Operating Summary	Actual 2012-13	Actual 2013-14	Budget 2014-15	Proposed 2015-16	Approved 2015-16	Adopted 2015-16
Personnel Services						
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
Total	453,729	525,008	557,560	558,930	558,930	558,930
Materials and Services						
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
Total	601,407	683,347	717,589	681,487	681,487	681,487
Capital Outlay						
Vehicles	75,725	124,834	114,000	75,000	75,000	75,000
Total Department	$ 1,130,861	$ 1,333,189	$ 1,389,149	$ 1,315,417	$ 1,315,417	$ 1,315,417

Resources Summary	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
Total	$ 1,243,660	$ 1,327,947	$ 1,401,780	$ 1,373,027	$ 1,373,027	$ 1,373,027

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.

Performance Measurements

Strategy	*Measure*	Actual 2011-12	Actual 2012-13	Actual 2013-14	Estimate 2014-15	Forecast 2015-16
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 mange 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 ~~strikethrough~~ and additions or new code shown as <u>underlined</u>.

Higher Priority Projects Table (Page v)

Add the following projects to this table:

- <u>BW-15 Property Acquisitions for Bike/Ped Connectivity</u>

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

Add the following project and associated costs and descriptions:

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

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

The Standards

Chapter 3

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.

Roadway Jurisdiction

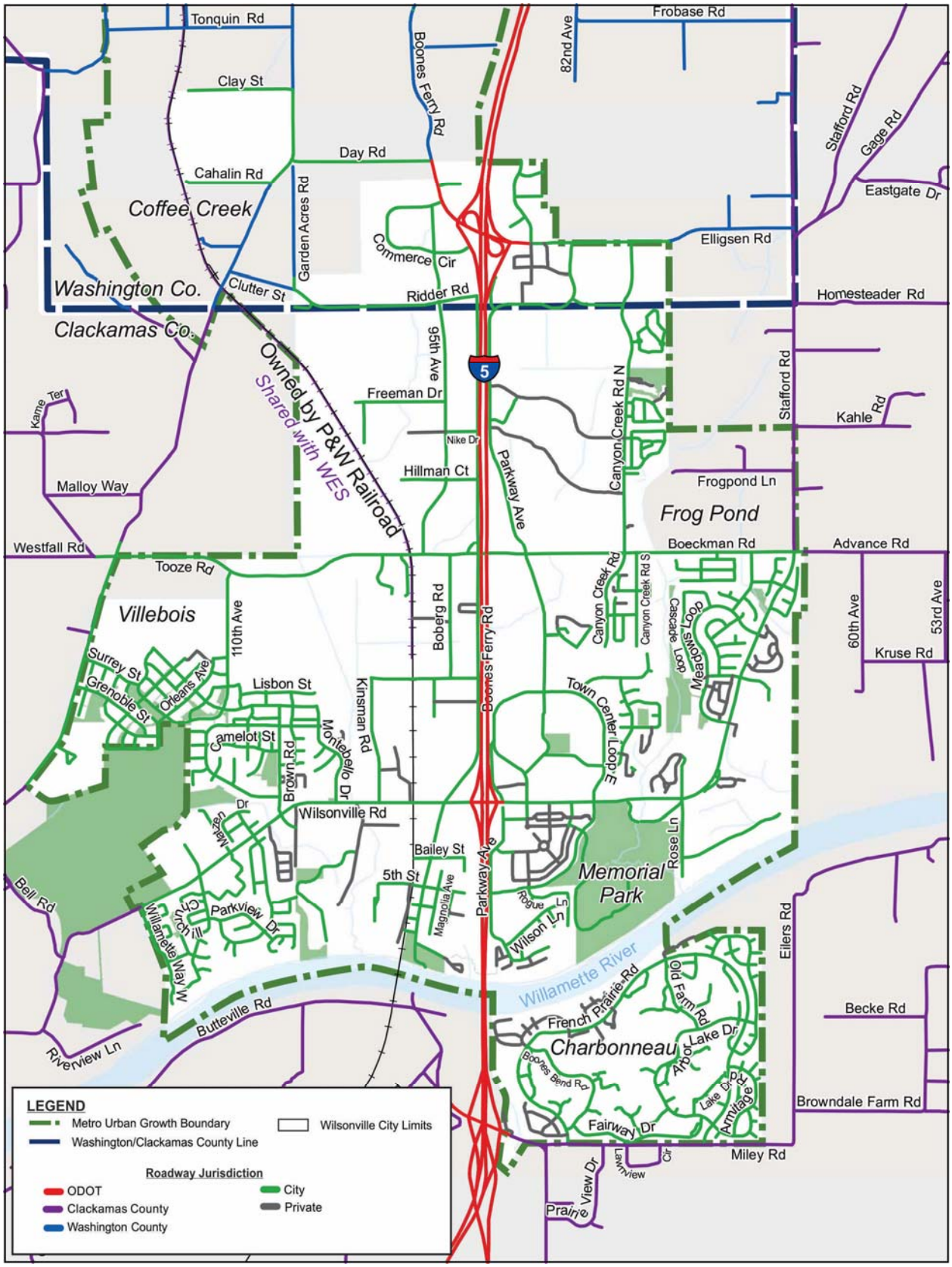
A roadway's jurisdiction affects who will have the ultimate authority over improvements and what standards apply. In the Wilsonville vicinity, there are four agencies with jurisdiction:

- **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.

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.

FIGURE 3-1. ROADWAY JURISDICTION



Functional Classification

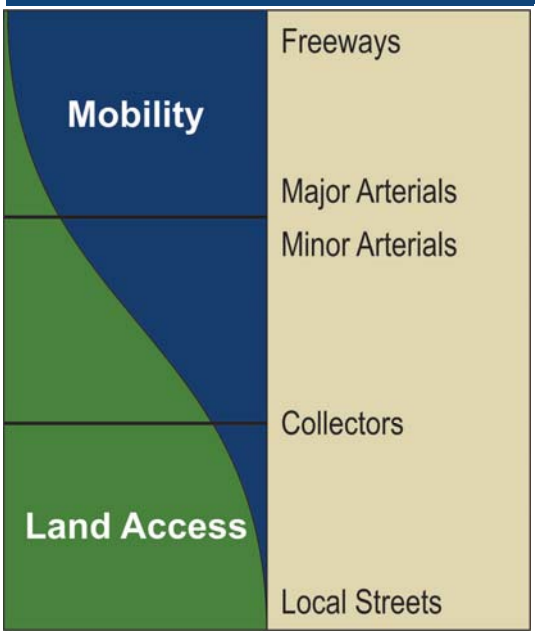
The City's street functional classification system is an important tool for managing public roadways. It is based on a hierarchical system of roads (see diagram at right) where streets with a higher classification, such as arterial streets, emphasize a higher level of mobility for through-movement. They 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 Class Hierarchy

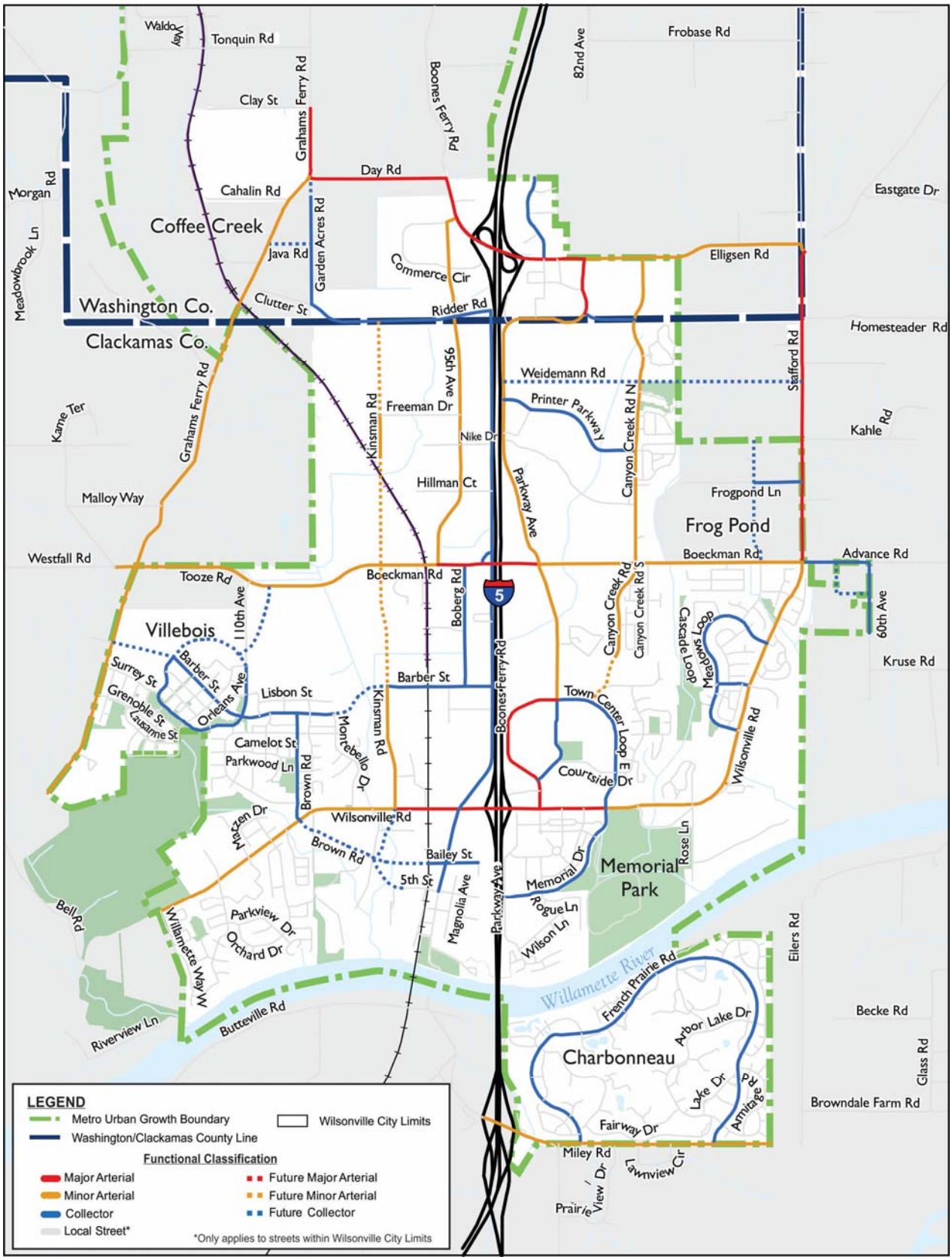


Functional Classification as a Framework for Standards

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.

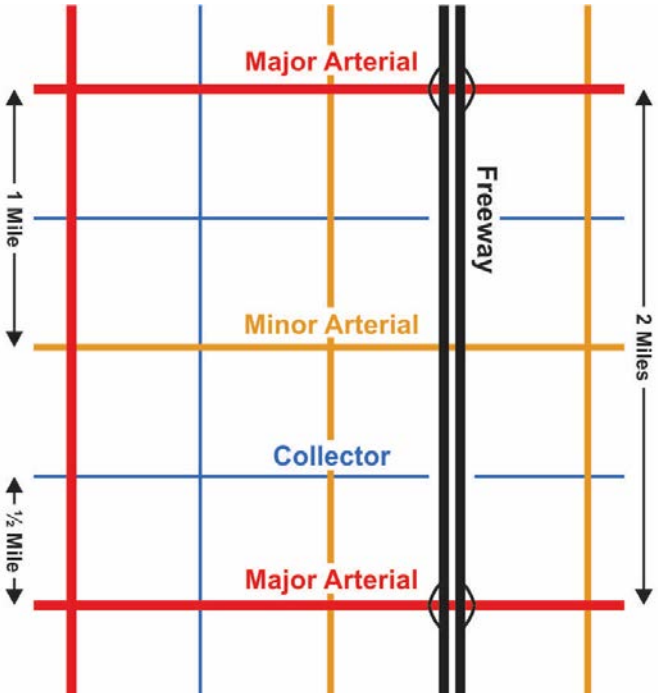
Bicyclists and pedestrians benefit the most from closely spaced facilities because they are the most affected by distance. By providing walking and biking facilities spaced less than 300 feet apart, Wilsonville will support walking and biking use within and between its neighborhoods. In addition, these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

Table 3-1. Facility Spacing Guidelines

Facility Type	Desired Spacing[a]
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

[a] 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.

"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

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

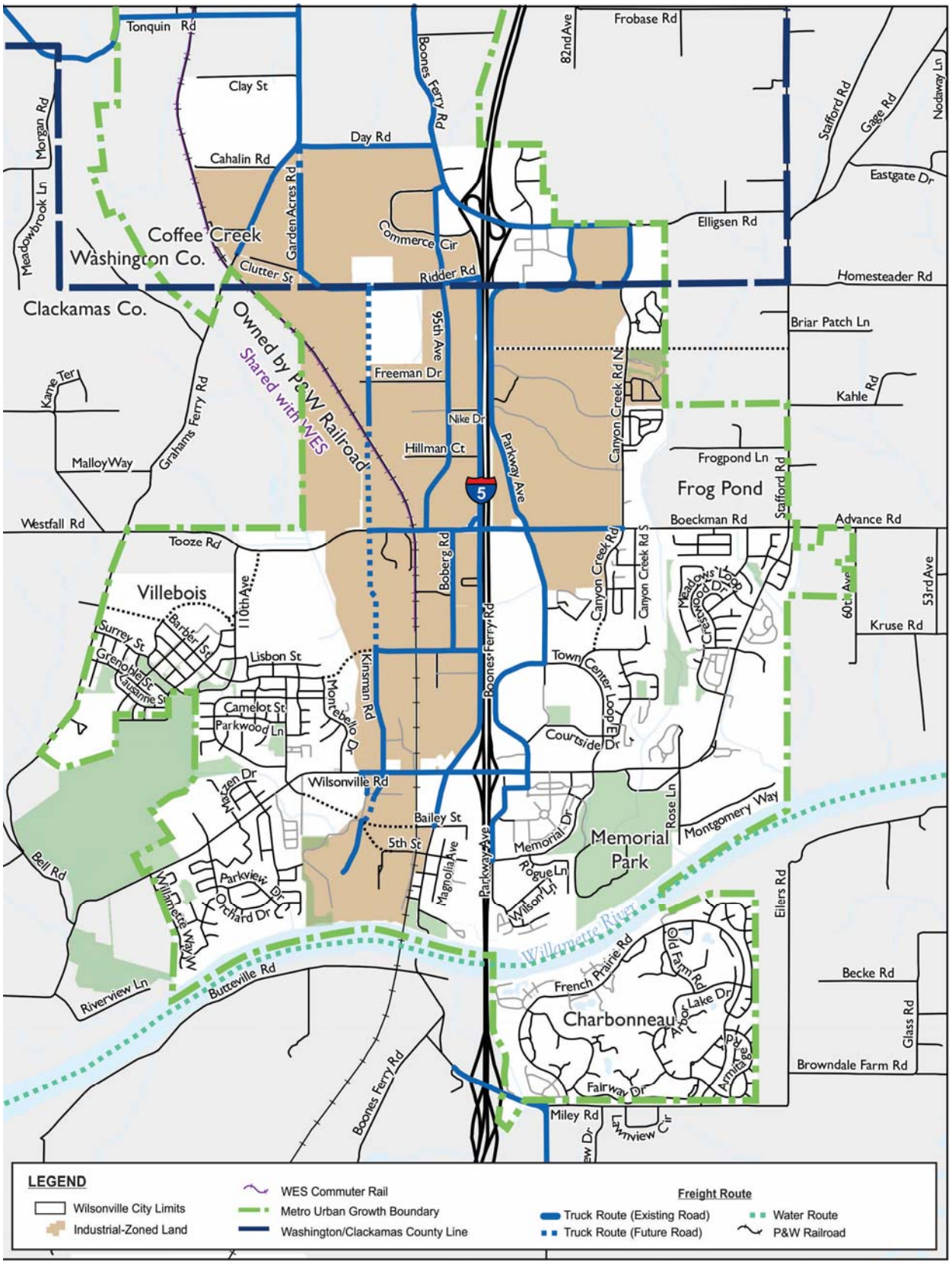
By having designated freight routes, various City efforts regarding freight and non-freight users will be improved:

- **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

"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

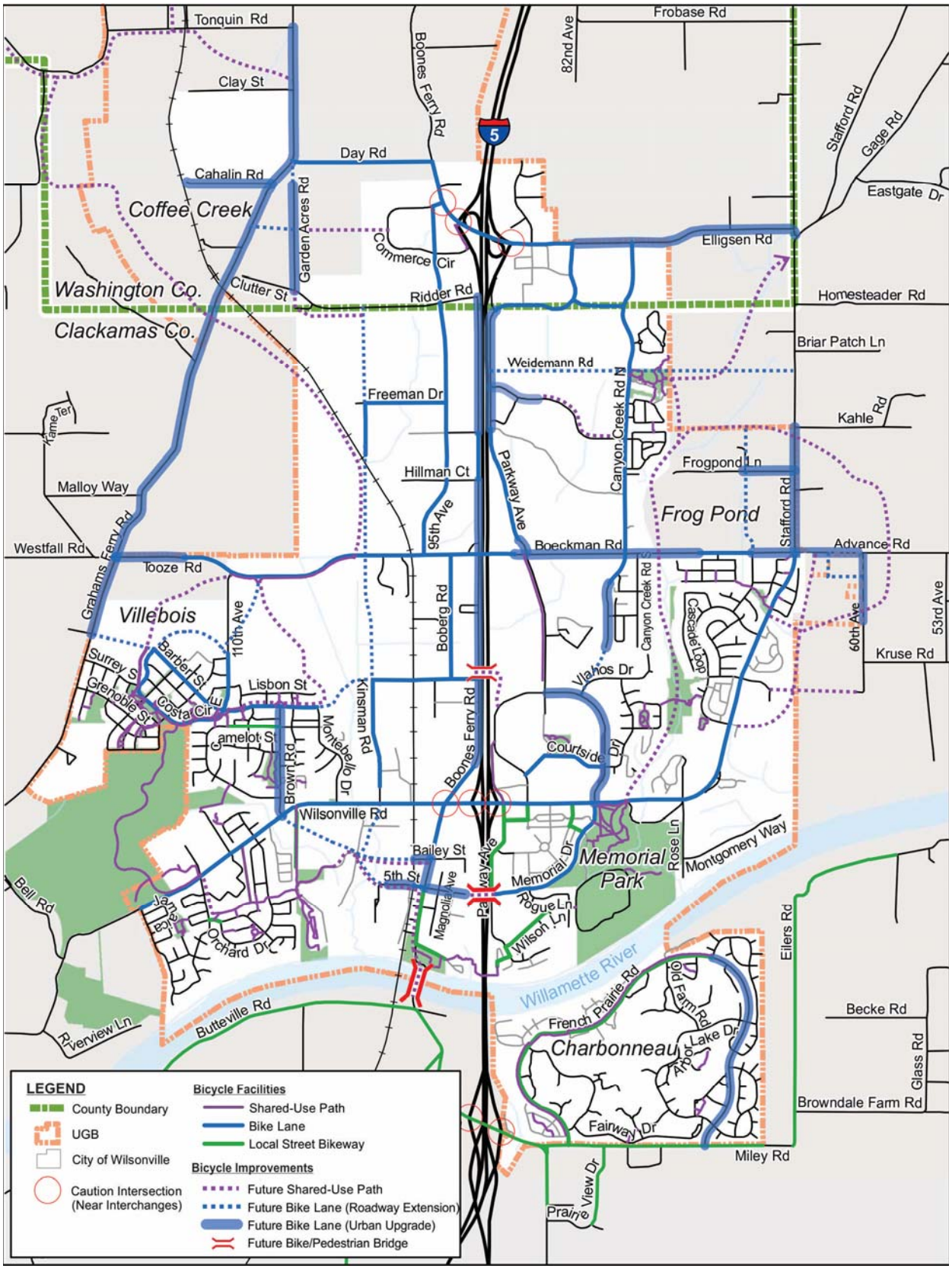
Bike Lanes

- 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:

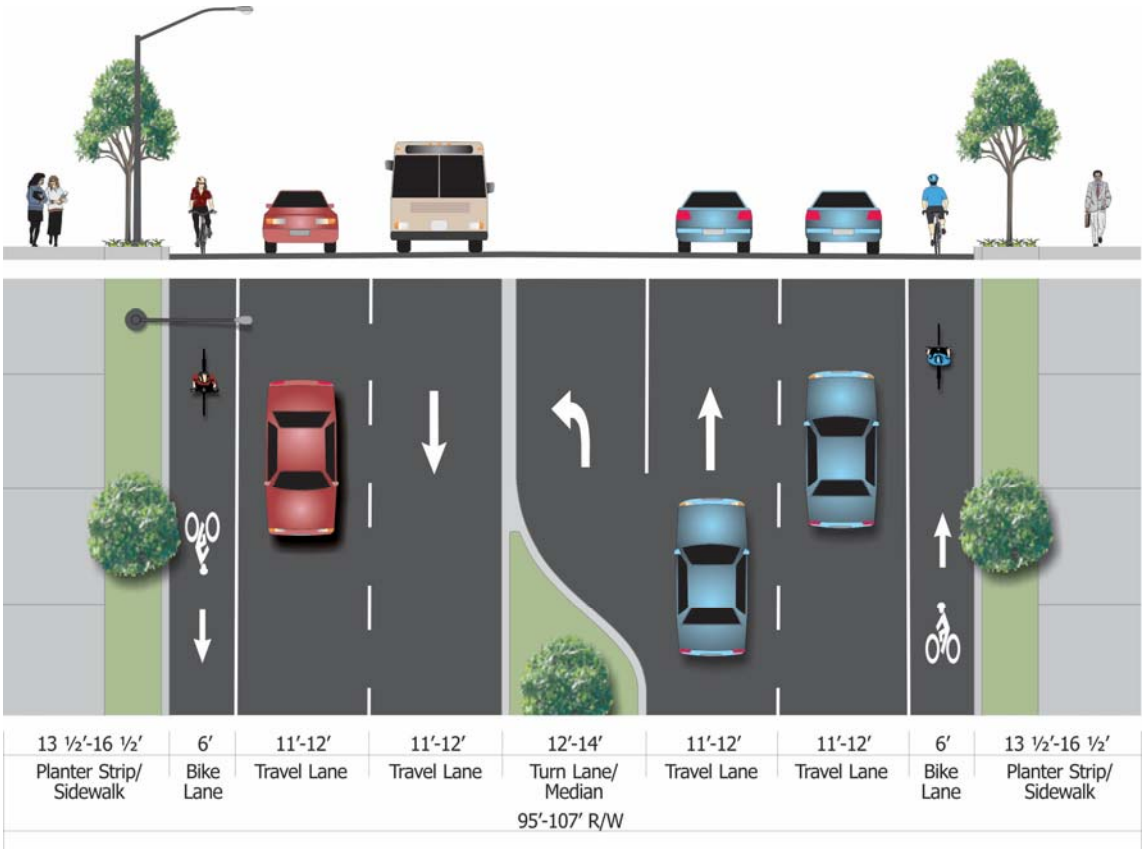
- Major Arterials
- Minor Arterials
- Collectors
- Local Streets
- Low Impact Development (LID) Local Streets (similar modifications may be made to other streets regardless of classification)
- Shared-Use Paths and Trails
- Bicycle Facility Design Options

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

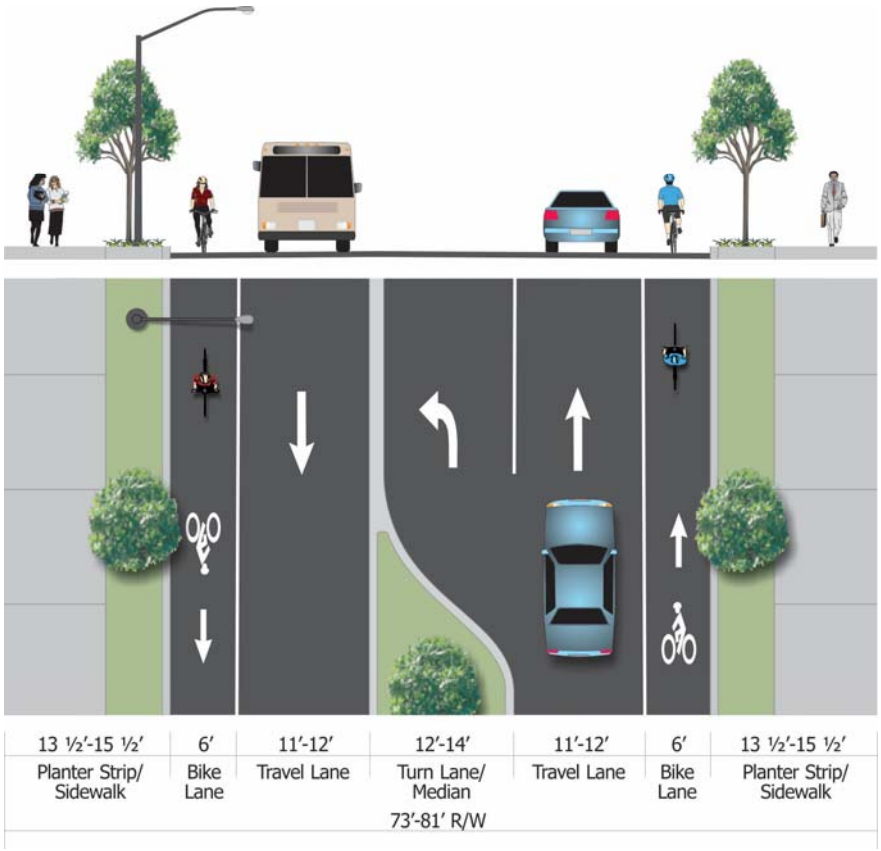
FIGURE 3-6. MAJOR ARTERIAL CROSS-SECTION



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).

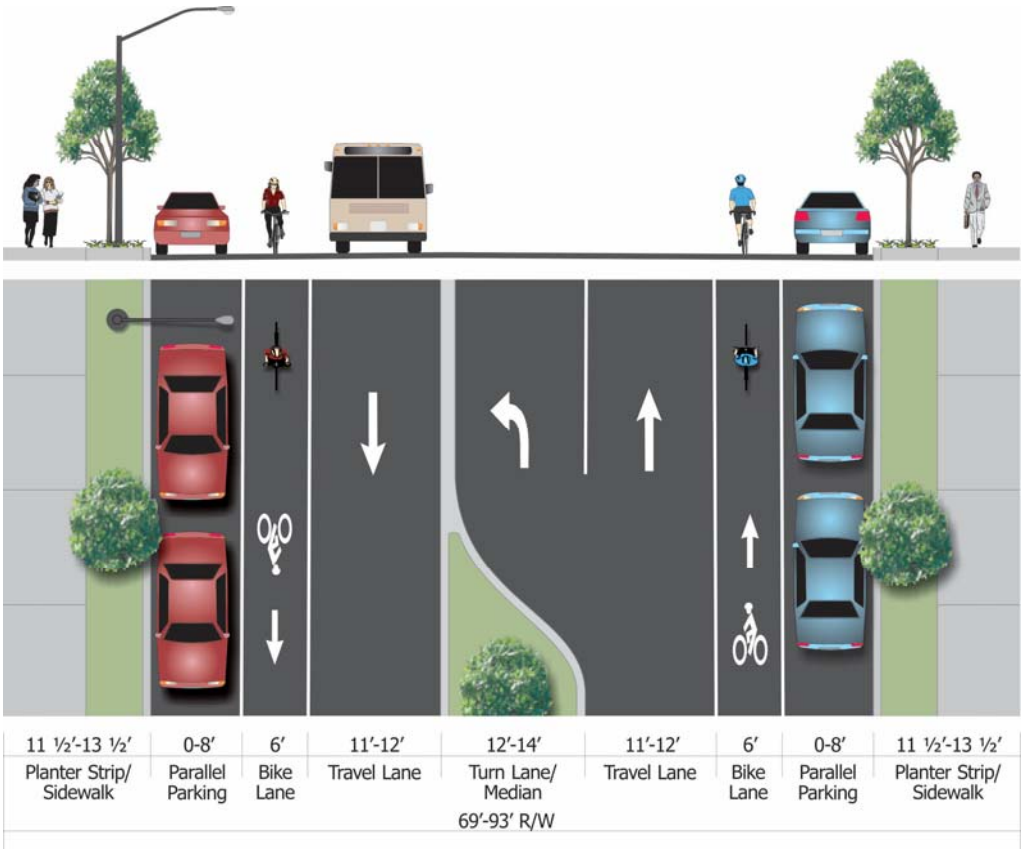
FIGURE 3-7. MINOR ARTERIAL CROSS-SECTION



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).

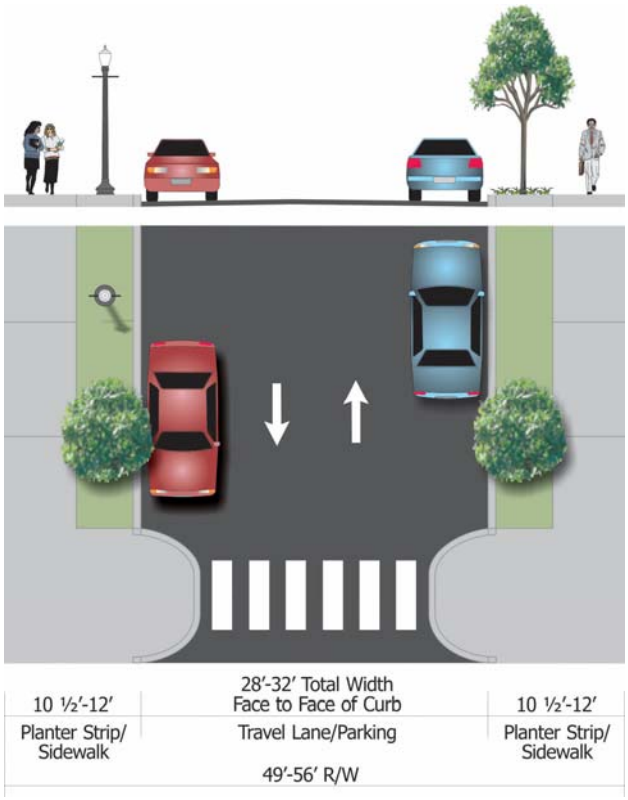
FIGURE 3-8. COLLECTOR CROSS-SECTION



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.

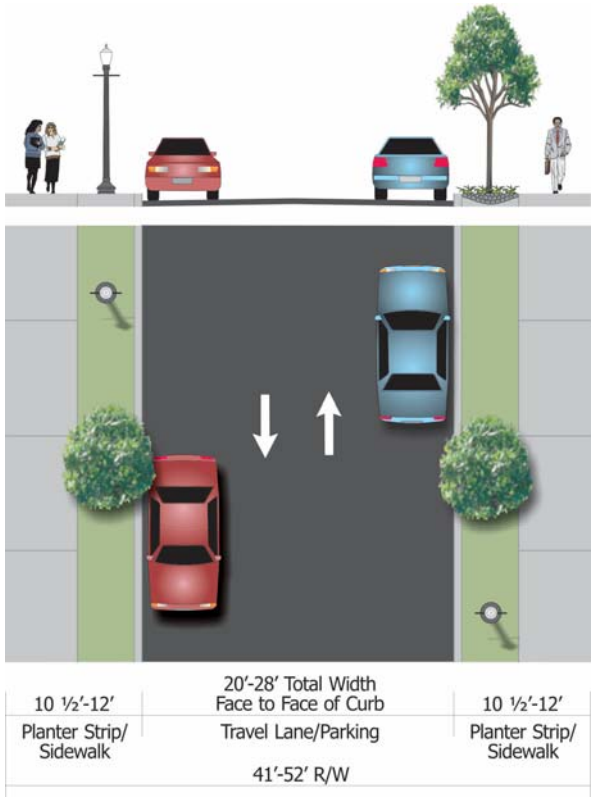
FIGURE 3-9. LOCAL STREET CROSS-SECTION



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.

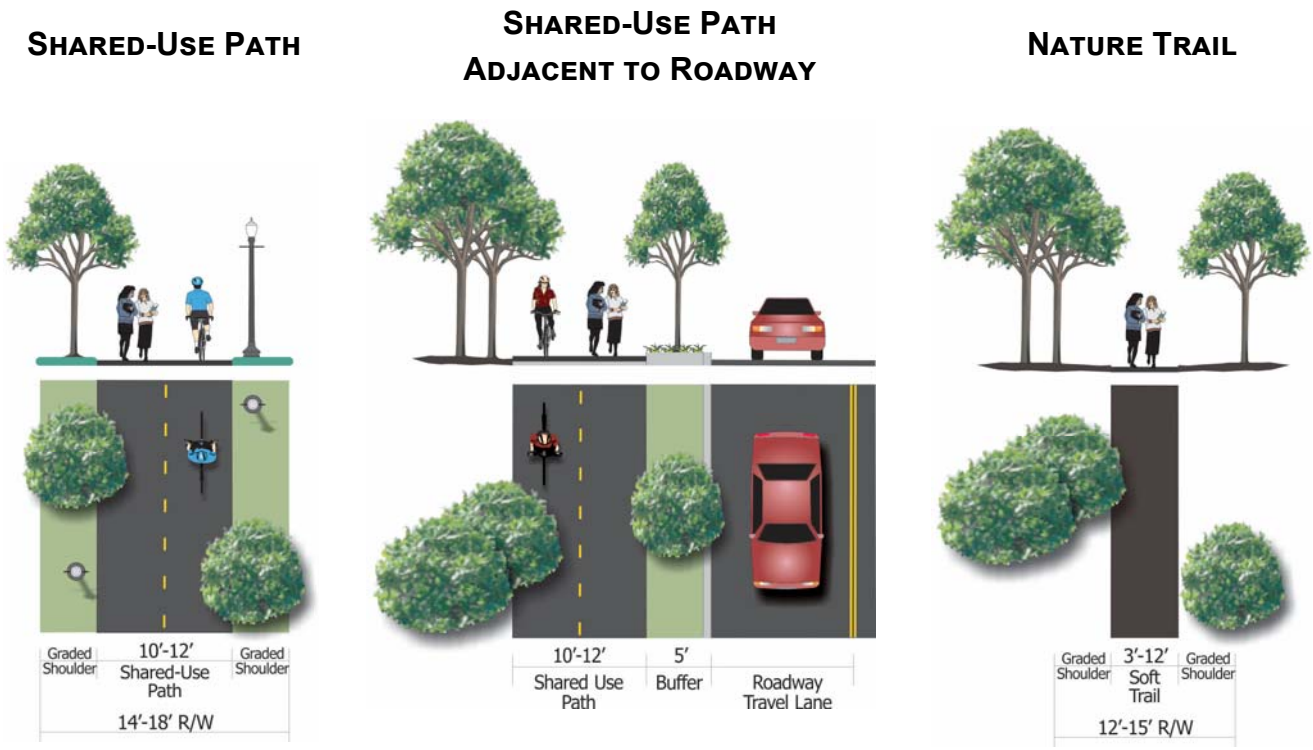
FIGURE 3-10. LOW IMPACT DEVELOPMENT (LID) LOCAL STREET CROSS-



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.

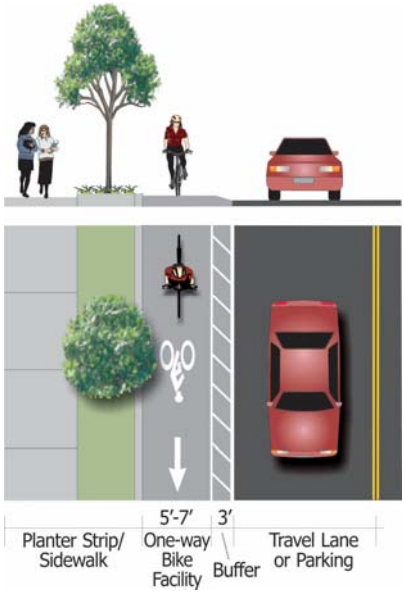
Figure 3-12. Bicycle Facility Design Options

Buffered Bike Lanes and Cycle Tracks

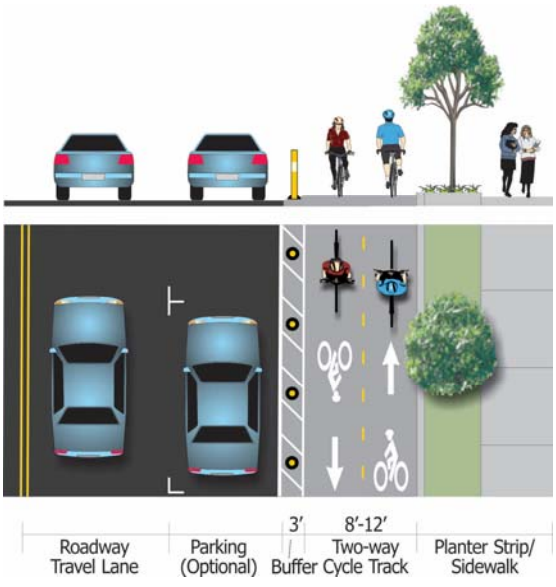
Buffered bike lanes (buffer between travel lane and bike lane) and cycle tracks (parking and/or other buffer between travel lane and one- or two-way bike facility) are two alternate bicycle facility options that are gaining popularity throughout the United States and have been implemented in other parts 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[a]	
	Desired[b]	*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	

[a] Spacing is measured from centerline to centerline on Major Arterials and Minor Arterials and between adjacent curb returns on Collectors and Local Streets

[b] 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.

"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

The Needs
Chapter 4

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 . . .

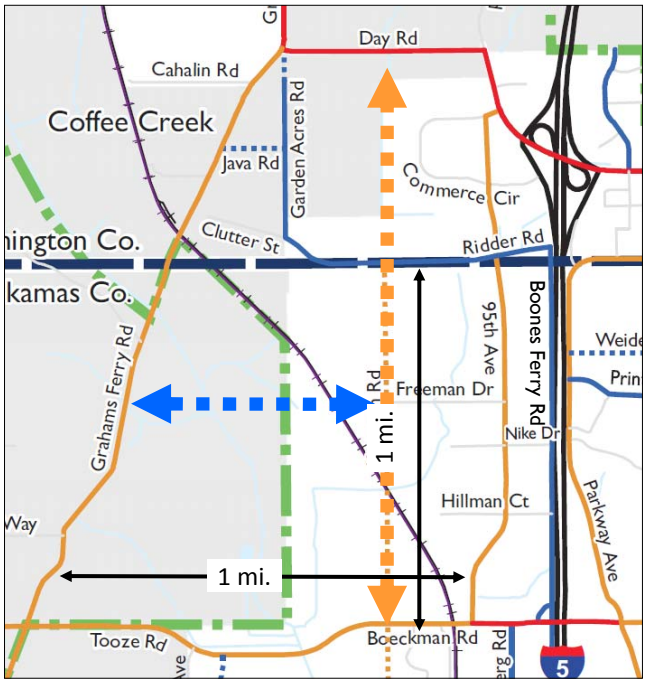
- ***Improvement projects (Chapter 5)***
- ***Programs (Chapter 6)***

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

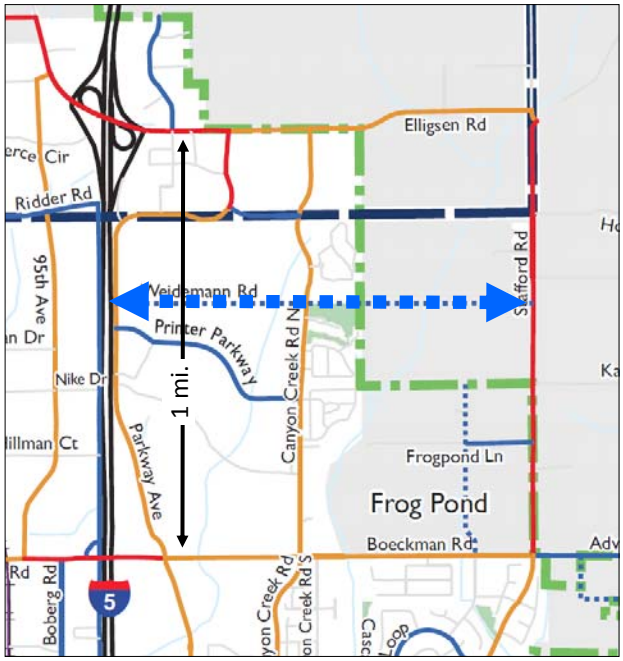


Two connectivity gaps exist in this quadrant:

- 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.

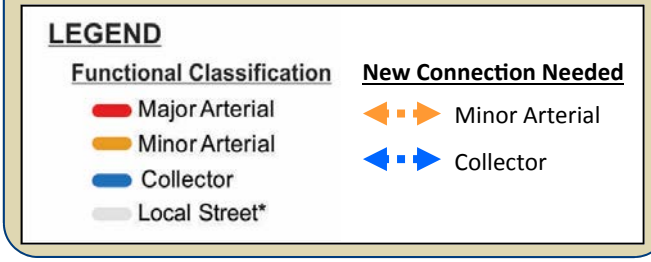
Northeast Quadrant Connectivity



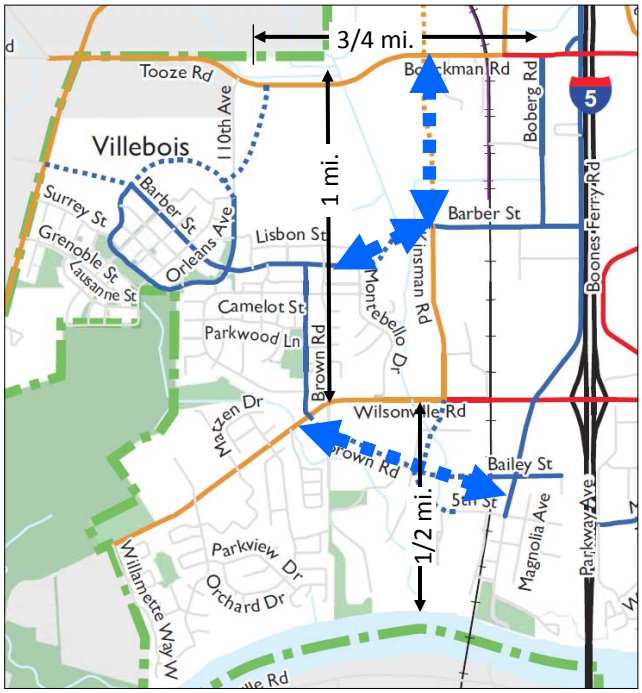
There is a gap in the east west connectivity between Elligsen Road and Boeckman Road.

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.



Southwest Quadrant Connectivity



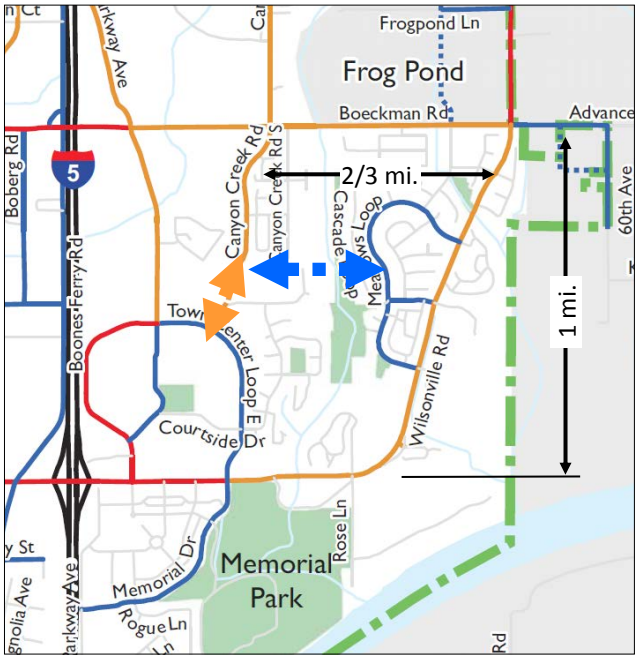
There are several gaps in east-west and north-south connectivity as follows:

- 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.

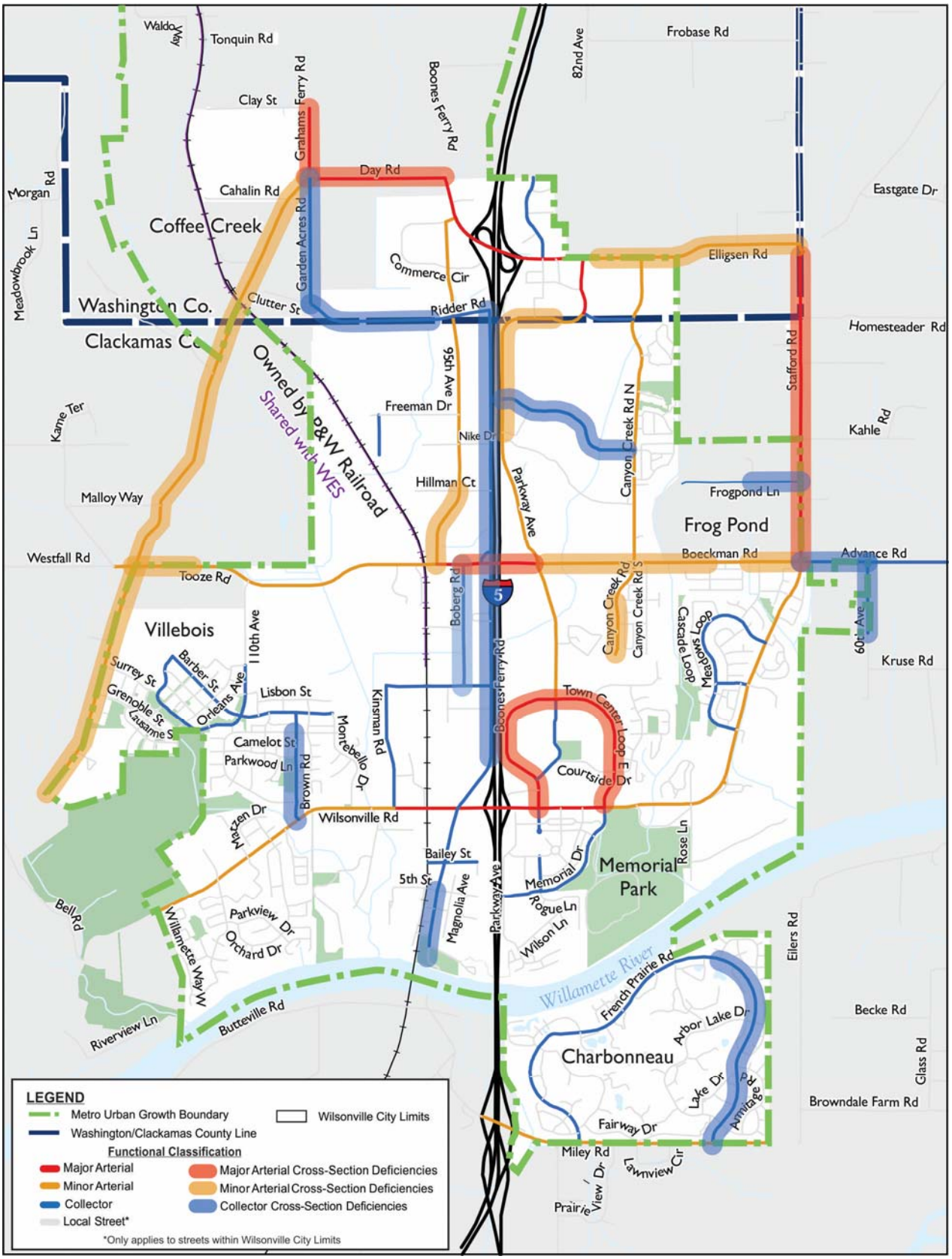
Parkway Avenue near the Xerox campus is a Minor Arterial but does not include bike lanes. There is a sidewalk on the east side, but it ends at the boundary with the vacant parcel to the north.

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

"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

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.

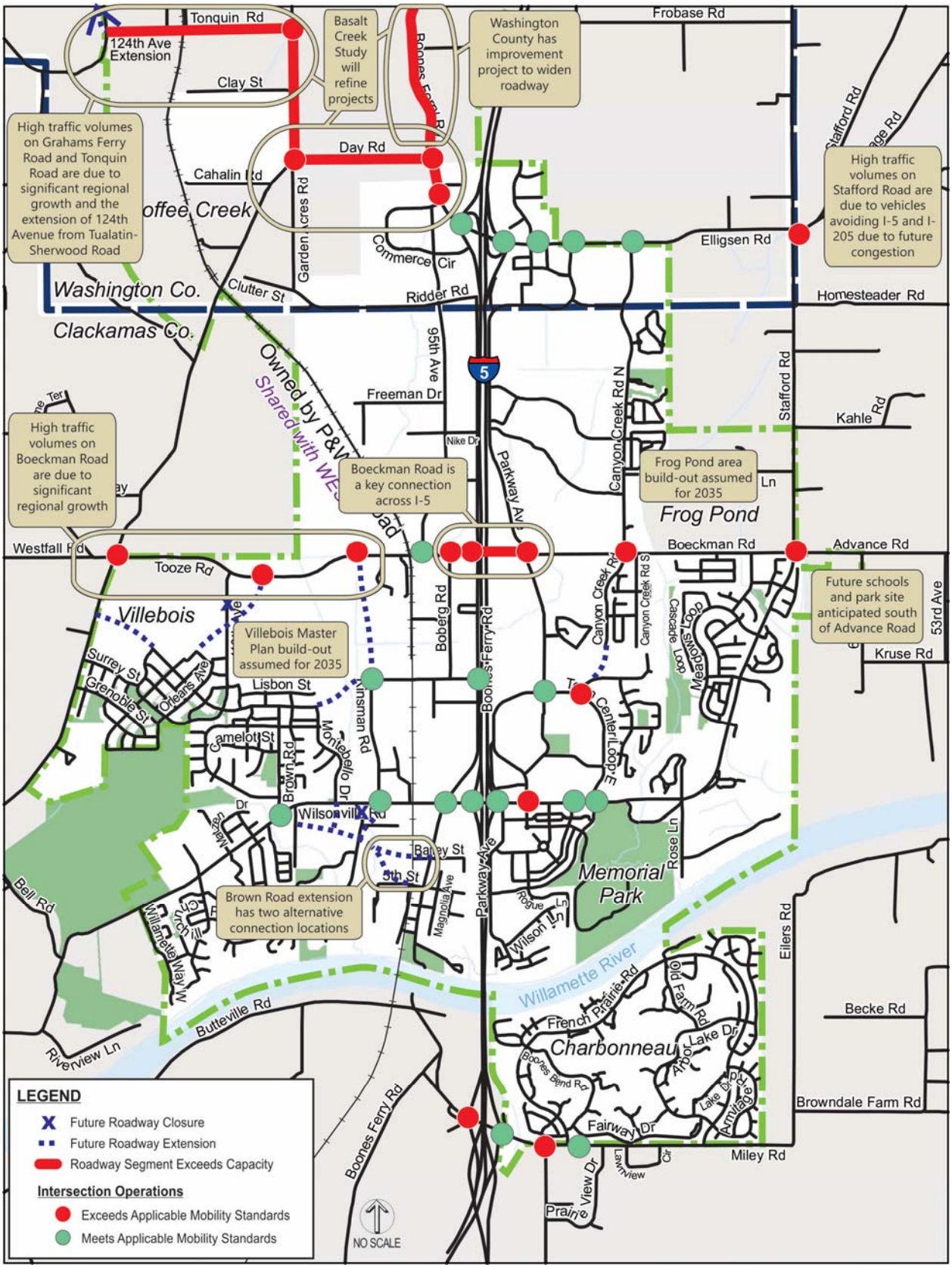
2035 Baseline Roadway Extension Assumptions

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 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.

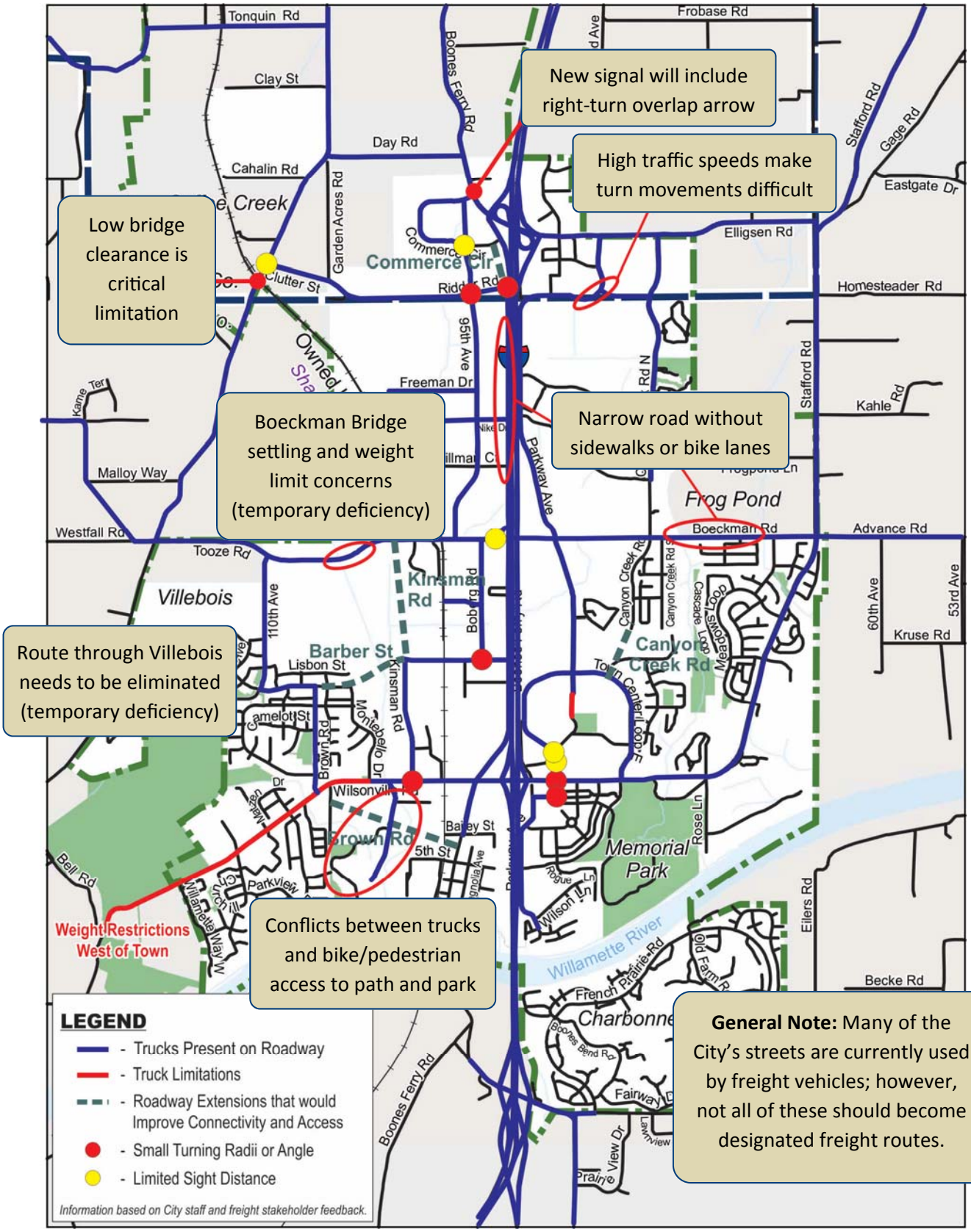
Freight Carrier Outreach

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

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

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

Safe Routes to School

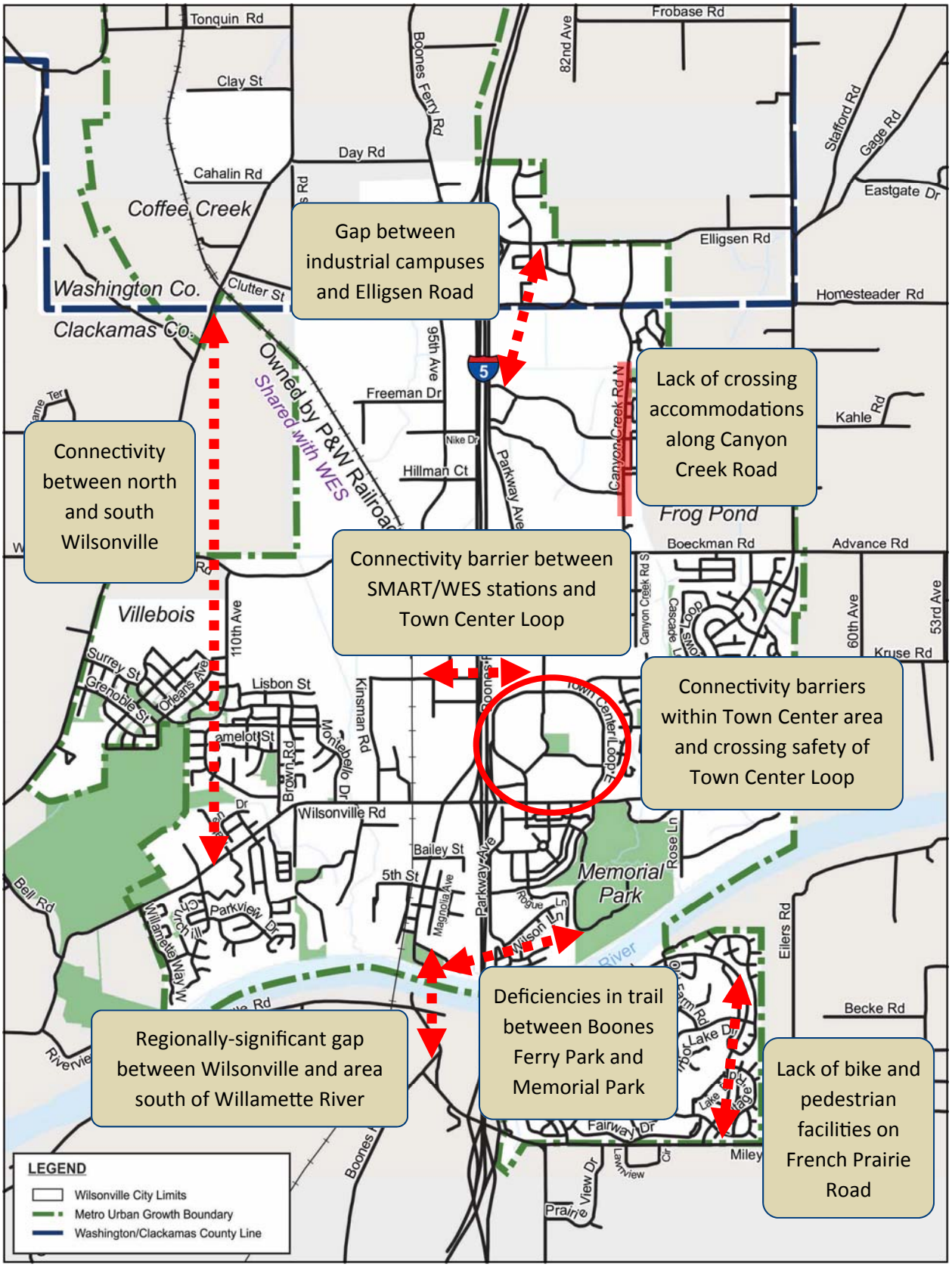
Additional bicycle and pedestrian gaps and deficiencies were identified as part of the Safe Routes to School assessment that the City performed in collaboration with the West Linn-Wilsonville School District and each of the city's primary and middle school. These needs are identified in Chapter 6: The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

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.

> *"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*

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:

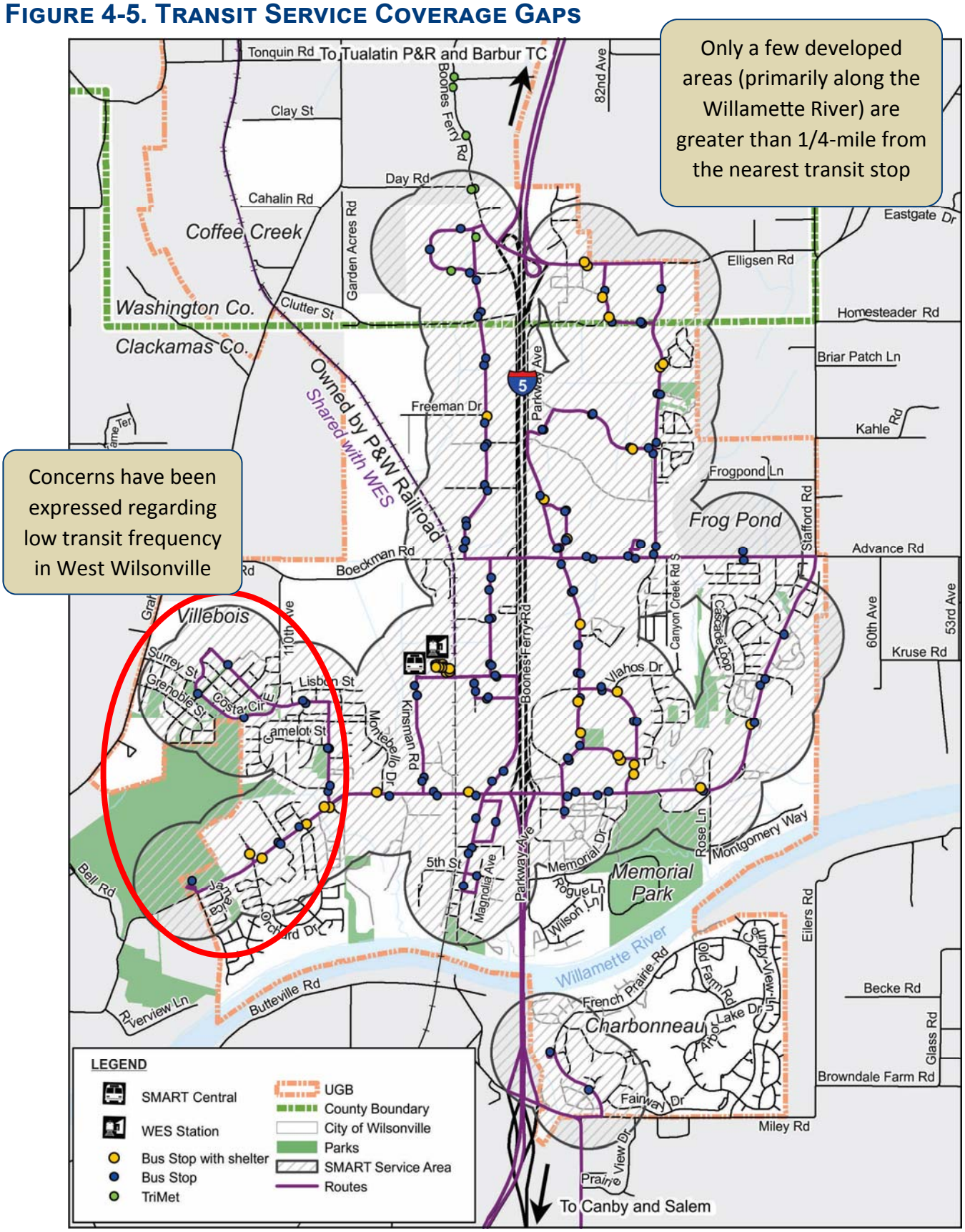
- **Regional Transit Connections** are important for SMART due to Wilsonville's central location between two metropolitan areas (Portland Metro and Salem-Keizer) and its large employment base. While it has existing connections to TriMet (Portland Metro) and Cherriots (Salem-Keizer), these connections 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).

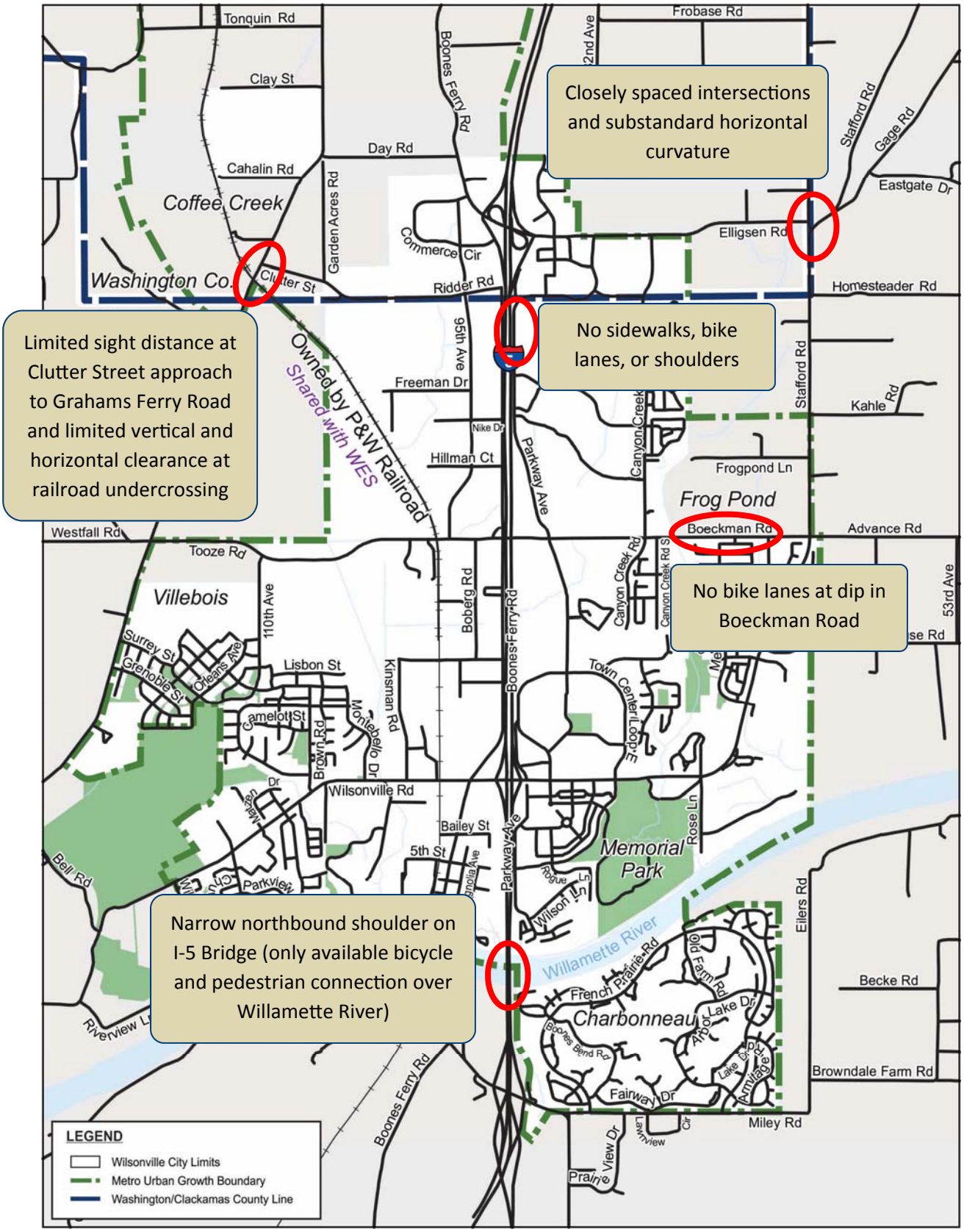
Within the context of the TSP, Environmental Justice is an effort to identify underserved and vulnerable populations so the City can improve transportation services while reduce future inequalities. Two areas of particular need are Charbonneau (due to the higher proportion of elderly residents) and a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

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.

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, 65th 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).

"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

- **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.

The Projects
Chapter 5

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[a]

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	$16,520,000
Transit Improvements	$500,000
Total Higher Priority Project Costs	**$153,130,000**

[a] See Tables 5-2, 5-3, 5-4, 5-5, and 5-6 for individual project costs.

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

This figure provides an overall perspective of the Higher Priority projects throughout the city. Additional details are provided on the pages that follow for each of the City's four quadrants (Northwest, Northeast, Southwest, Southeast), which use I-5 and Boeckman Road as dividing lines.

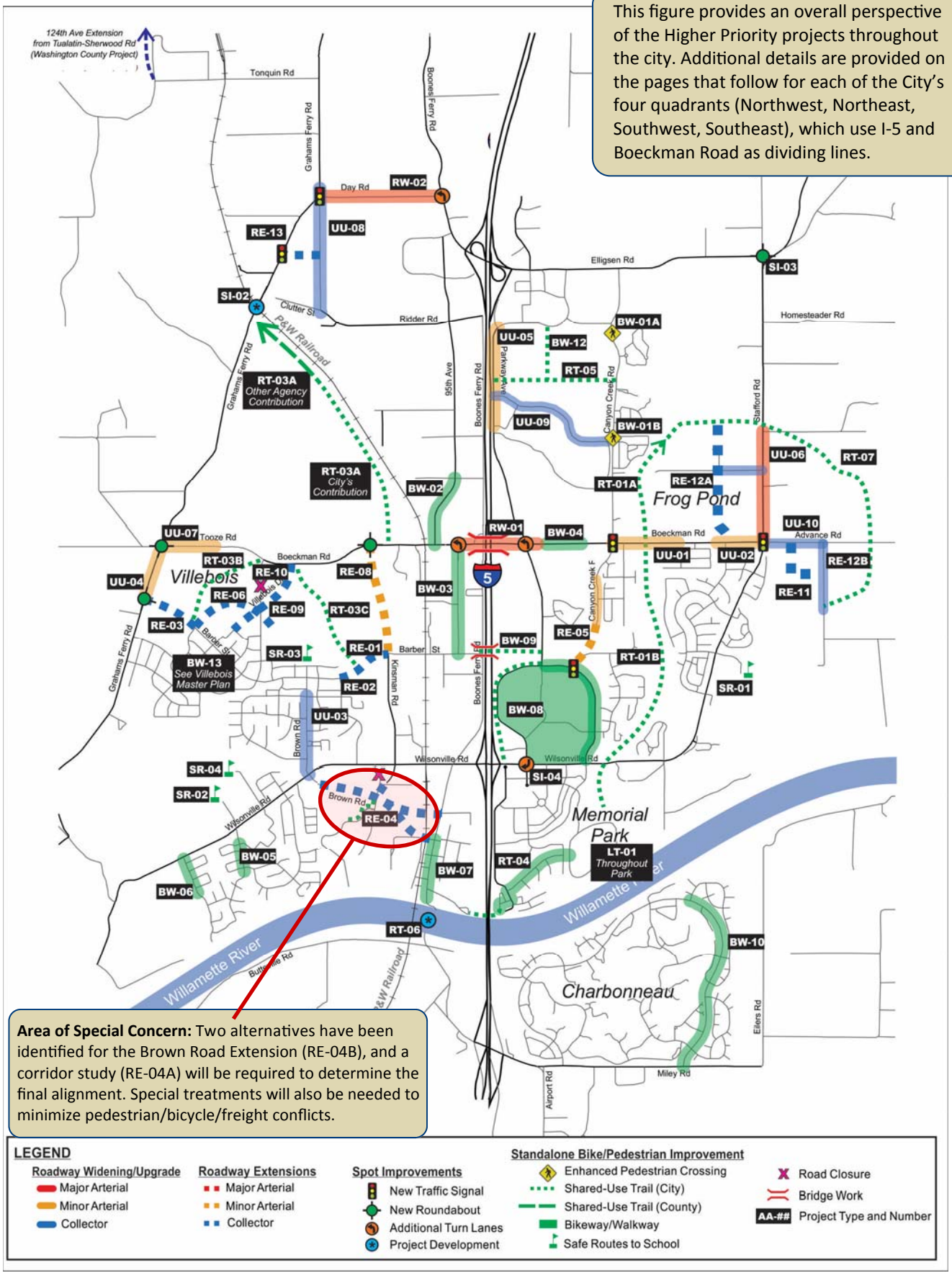


Table 5-2. Higher Priority Projects (Northwest Quadrant)

Project		Description	Cost
Roadway Extensions			
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 and disconnect Clutter Street from Grahams Ferry Road.	$1,500,000
Urban Upgrades			
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
Roadway Widening			
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
Spot Improvements			
SI-02	Grahams Ferry Railroad Undercrossing Project Development	Perform preliminary analysis to determine needs, feasibility, etc.	$500,000
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)			
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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)			
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)

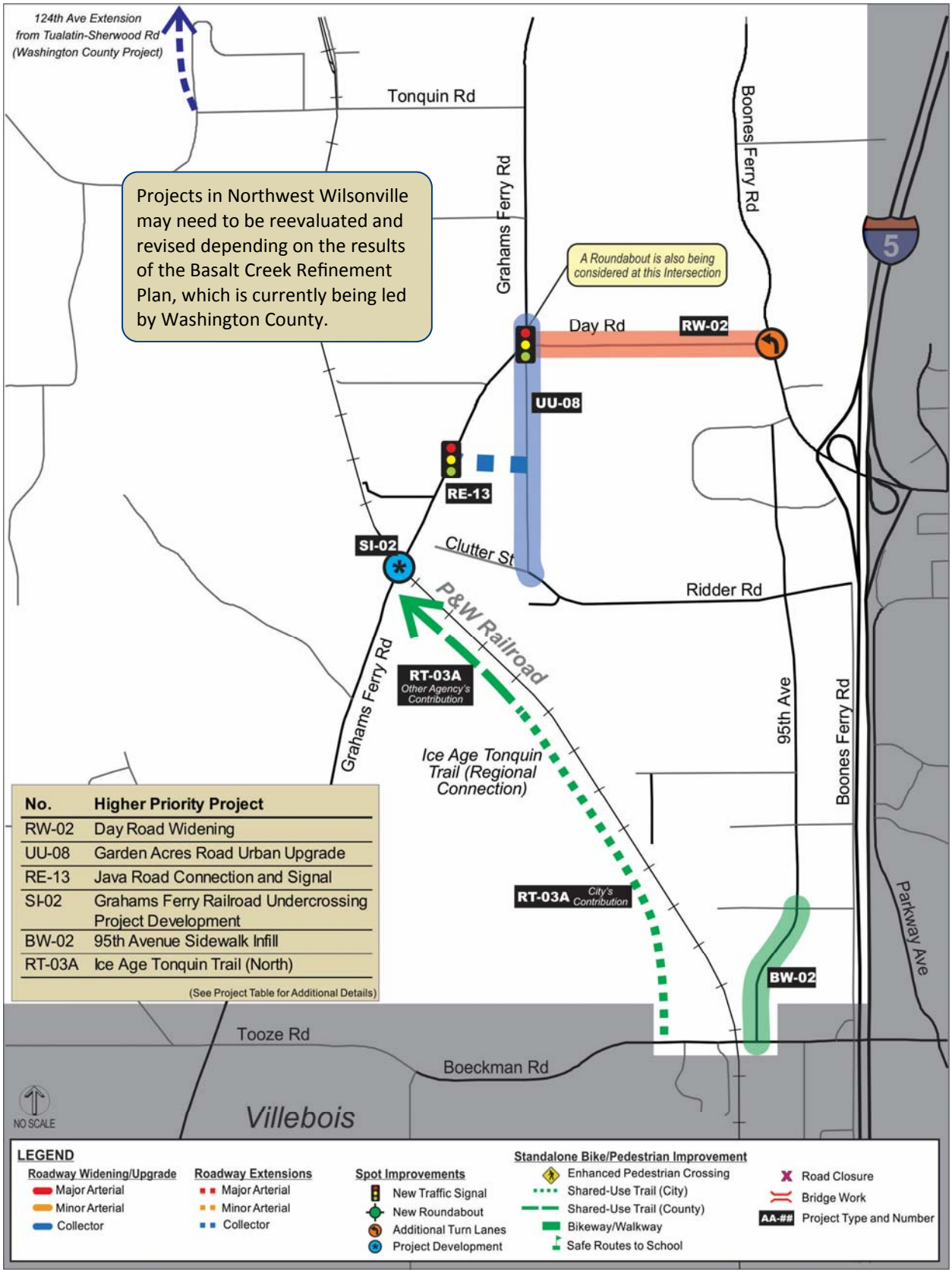


Table 5-3. Higher Priority Projects (Northeast Quadrant)

Project		Description	Cost
Roadway Extensions			
RE-11	Meridian Creek Middle School Site Improvements	Construct the collector roadways and site improvements associated with the proposed Meridian Creek 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
Roadway Widening			
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
Urban Upgrades			
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 63rd Avenue (entrance to proposed Meridian Creek Middle School)	$3,175,000
Spot Improvements			
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)
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)			
BW-01 A/B	Canyon Creek Road Enhanced 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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)			
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)

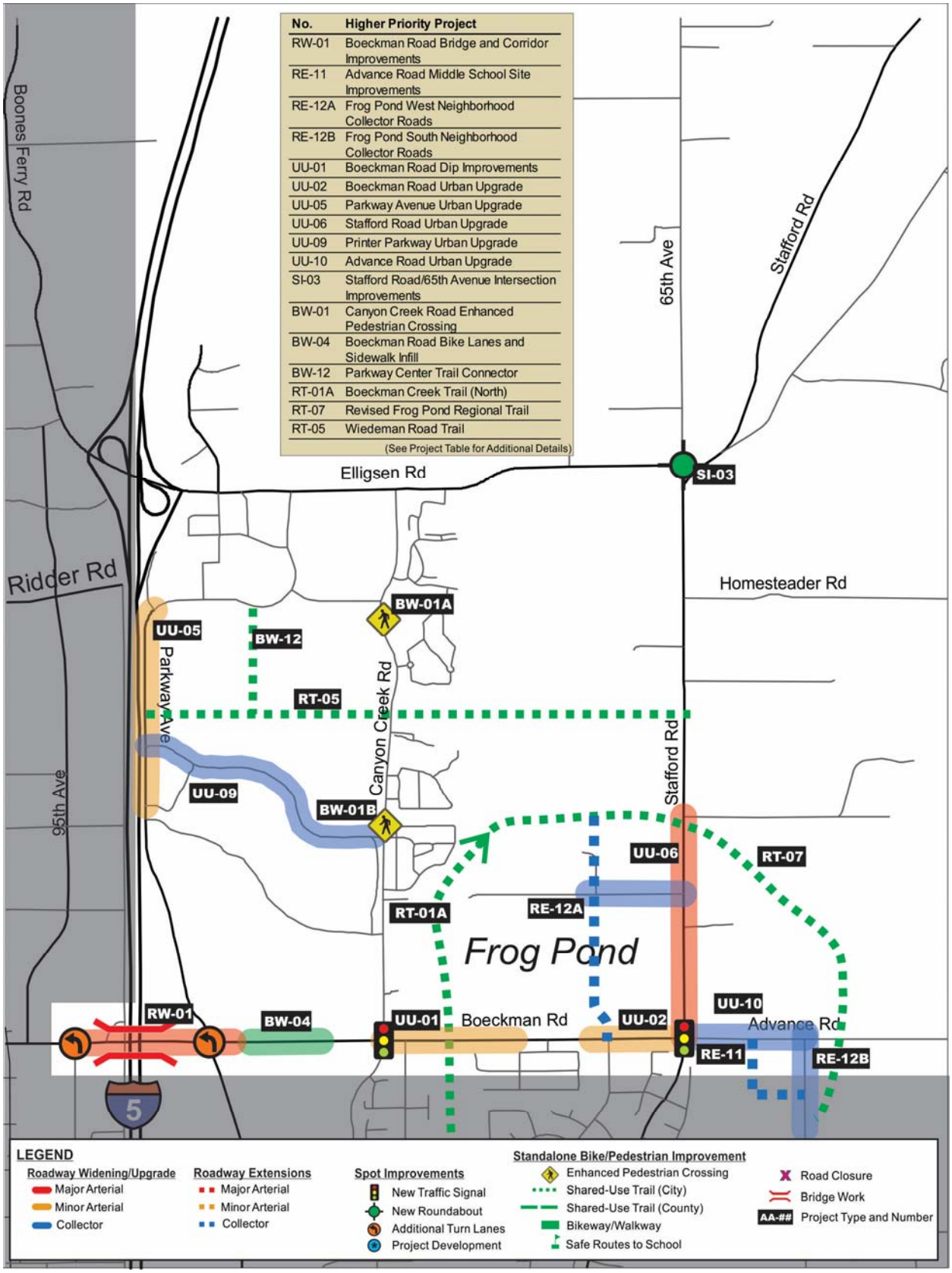
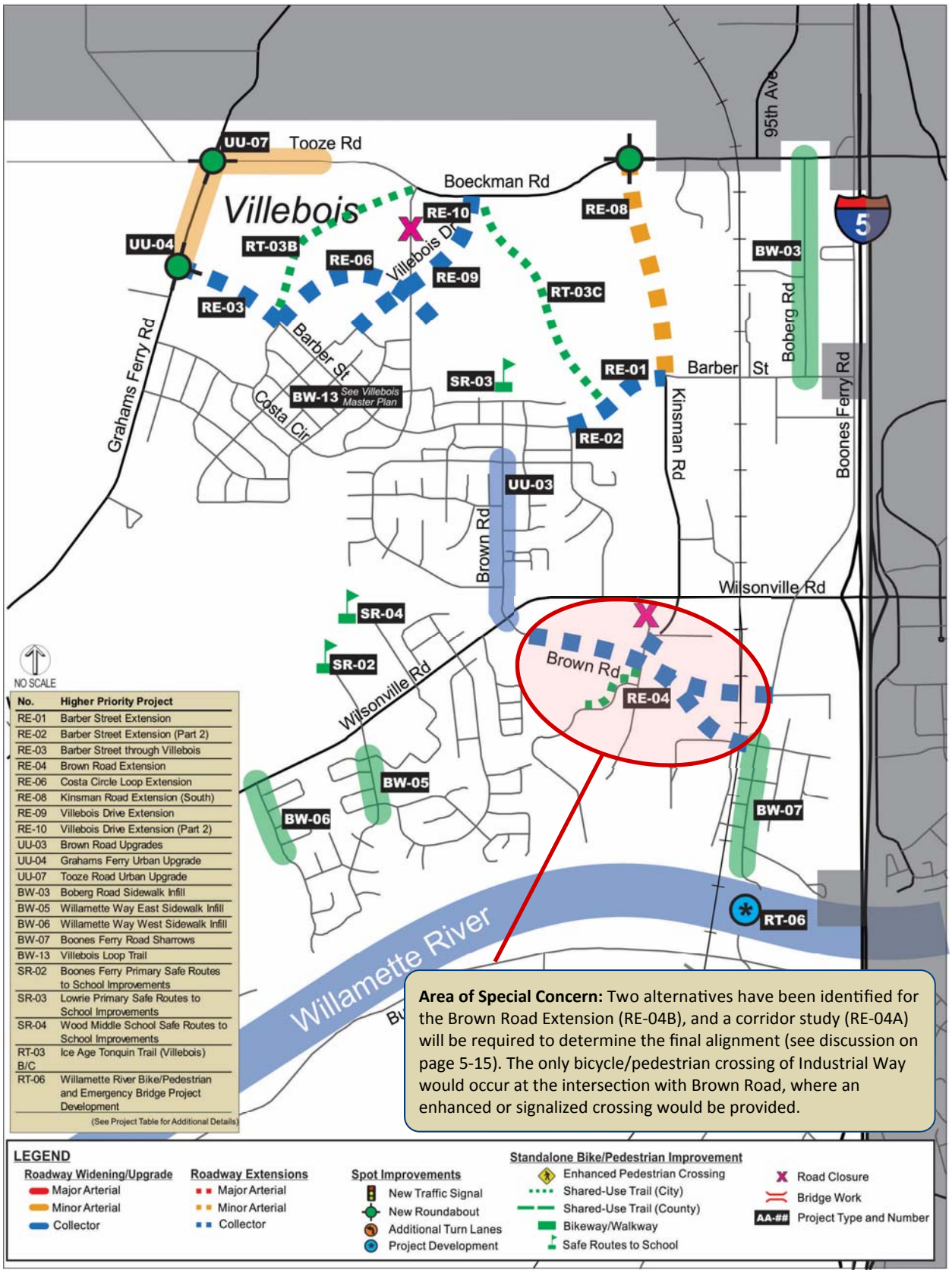


Table 5-4. Higher Priority Projects (Southwest Quadrant)

Project		Description	Cost
Roadway Extensions			
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
Urban Upgrades			
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
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)			
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
Standalone Pedestrian and Bicycle Improvements (Safe Routes to School)			
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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)			
RT-03 B/C	Ice Age Tonquin Trail (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)



No.	Higher Priority Project
RE-01	Barber Street Extension
RE-02	Barber Street Extension (Part 2)
RE-03	Barber Street through Villebois
RE-04	Brown 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)
UU-03	Brown Road Upgrades
UU-04	Grahams Ferry Urban Upgrade
UU-07	Tooze Road Urban Upgrade
BW-03	Boberg Road Sidewalk Infill
BW-05	Willamette Way East Sidewalk Infill
BW-06	Willamette Way West Sidewalk Infill
BW-07	Boones Ferry Road Sharrows
BW-13	Villebois Loop Trail
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
RT-03 B/C	Ice Age Tonquin Trail (Villebois)
RT-06	Willamette River Bike/Pedestrian and Emergency Bridge Project Development

(See Project Table for Additional Details)

Area of Special Concern: Two alternatives have been identified for the Brown Road Extension (RE-04B), and a corridor study (RE-04A) will be required to determine the final alignment (see discussion on page 5-15). The only bicycle/pedestrian crossing of Industrial Way would occur at the intersection with Brown Road, where an enhanced or signalized crossing would be provided.

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
- AA-## Project Type and Number

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

Project		Description	Cost
Roadway Extensions			
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
Spot Improvements			
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
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)			
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
Standalone Pedestrian and Bicycle Improvements (Safe Routes to School)			
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
Standalone Pedestrian and Bicycle Improvements (Local Trails)			
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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)			
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)

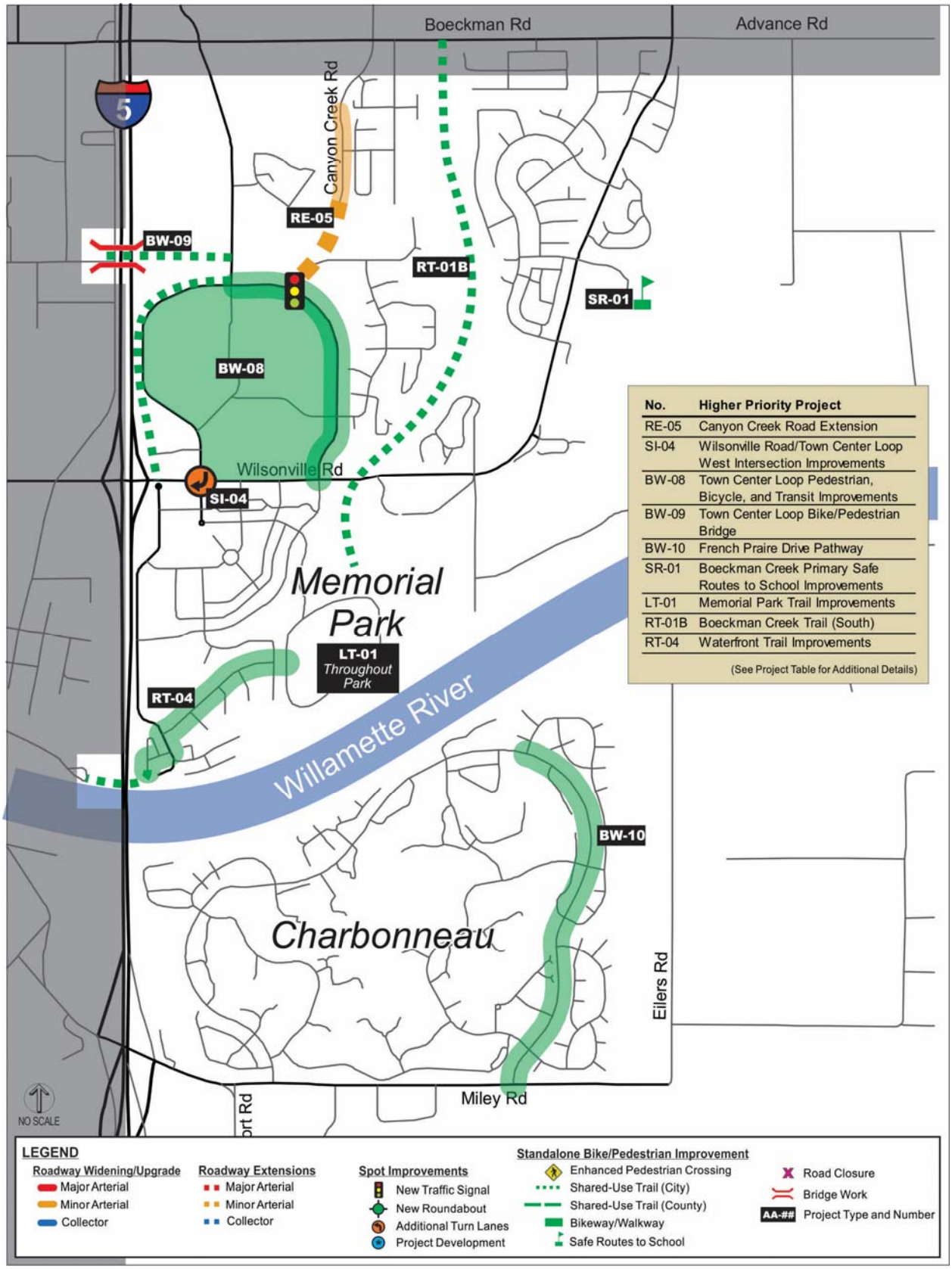


Table 5-6. Higher Priority Projects (Citywide)

Project		Description	Cost
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)			
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
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.	$1,000,000
Transit Improvements			
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) and Developer Contributions	$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[a]	$0.7 million
Local/Regional Partnerships	$2.9 million[a]	$2.9 million
Grants	$3.2 million[a]	$3.2 million
State and Federal Funding	$12.6 million[a]	$12.6 million
Total	**$123.4 million**[a]	**$118.1 million**

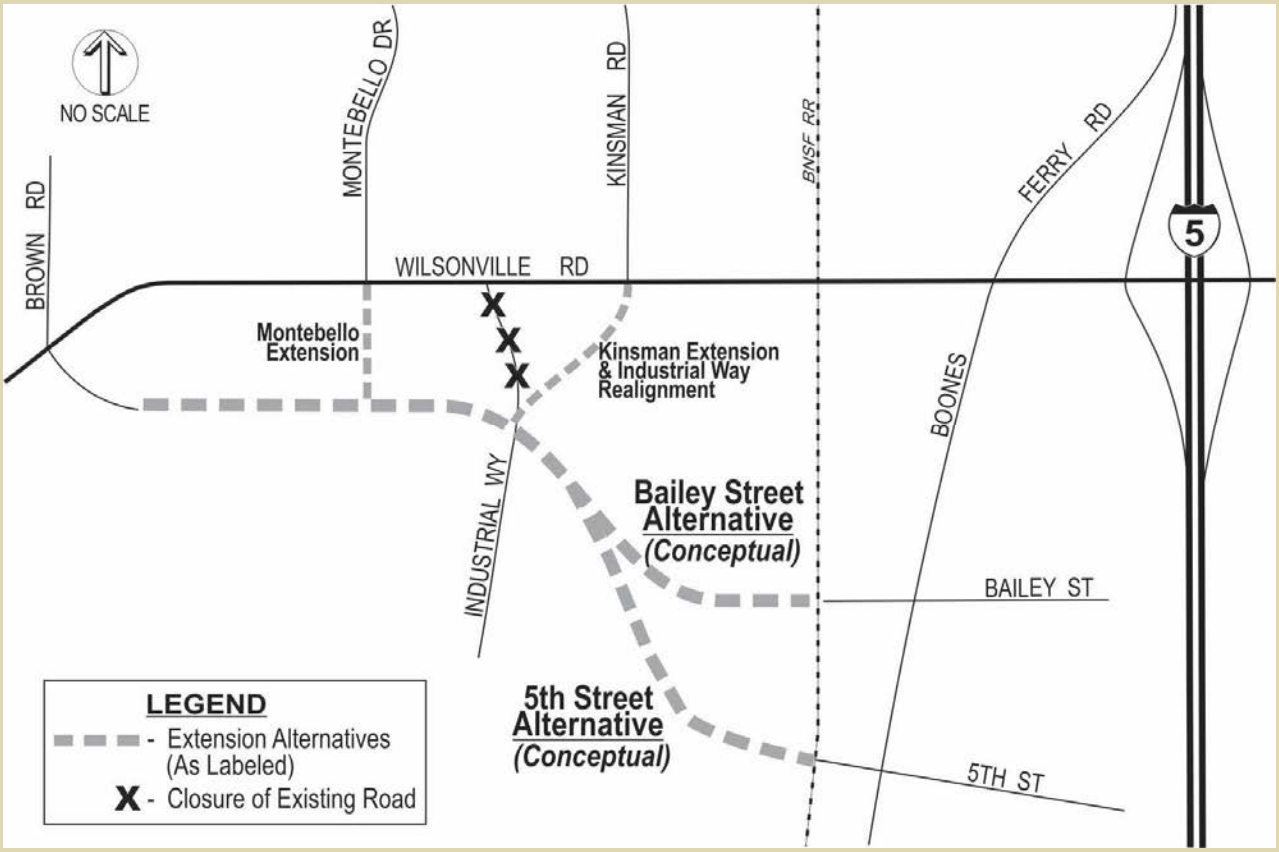
[a] The approximate funding levels estimated for various sources were considered to be equal to the contributions due to the prior experience of how the City has been able to fund transportation projects. If the City is unable to obtain local/regional partnerships, grants, and/or state and federal funding, 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[a]

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
Total Additional Planned Project Costs	**$100,560,000**

[a] 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

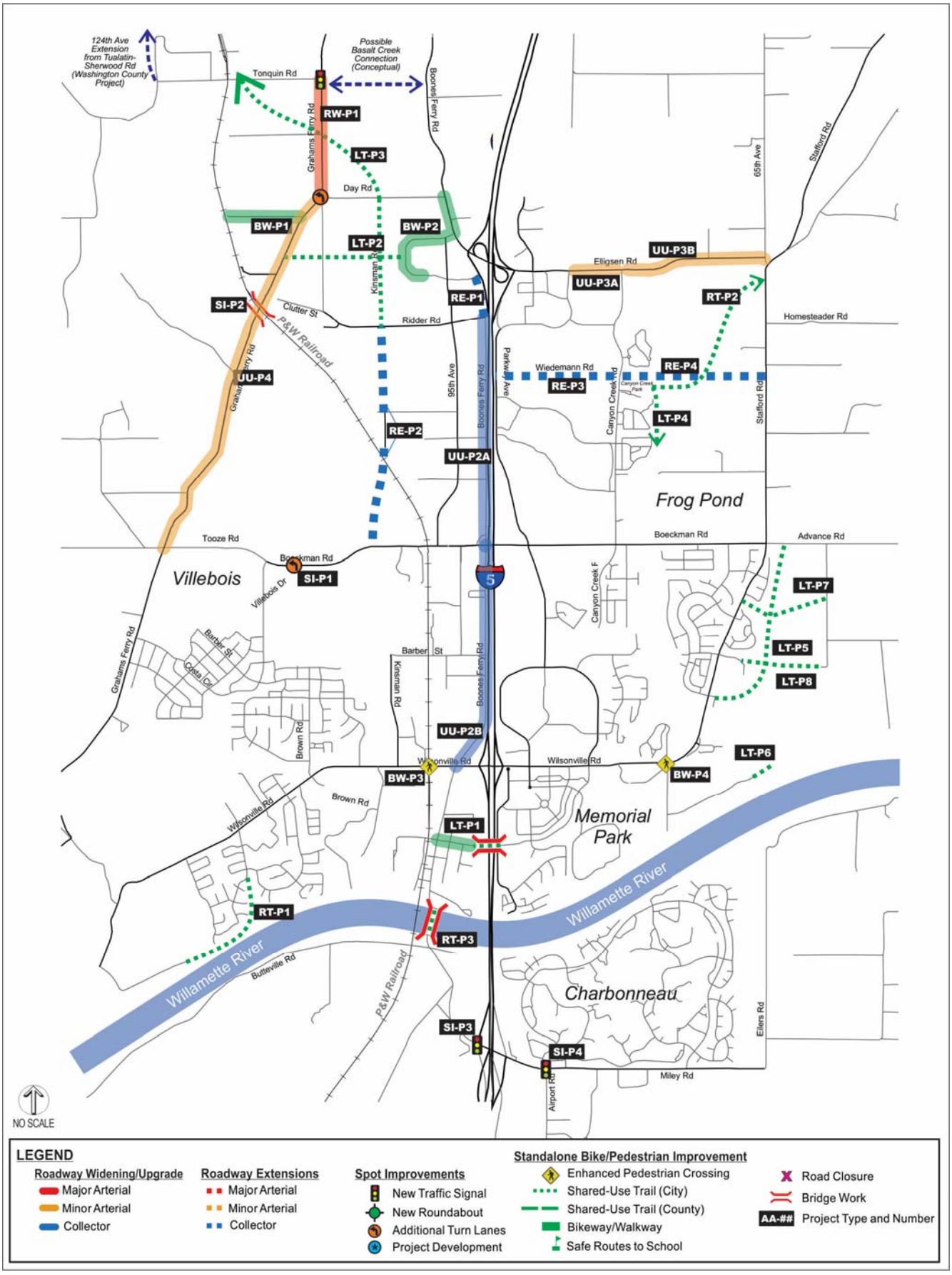


Table 5-9. Additional Planned Projects (Northwest Quadrant)

Project		Description	Why Not Higher Priority?	Cost
Roadway Extensions				
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
Roadway Widening				
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
Urban Upgrades				
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
Spot Improvements				
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
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)				
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
Standalone Pedestrian and Bicycle Improvements (Local Trails)				
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)

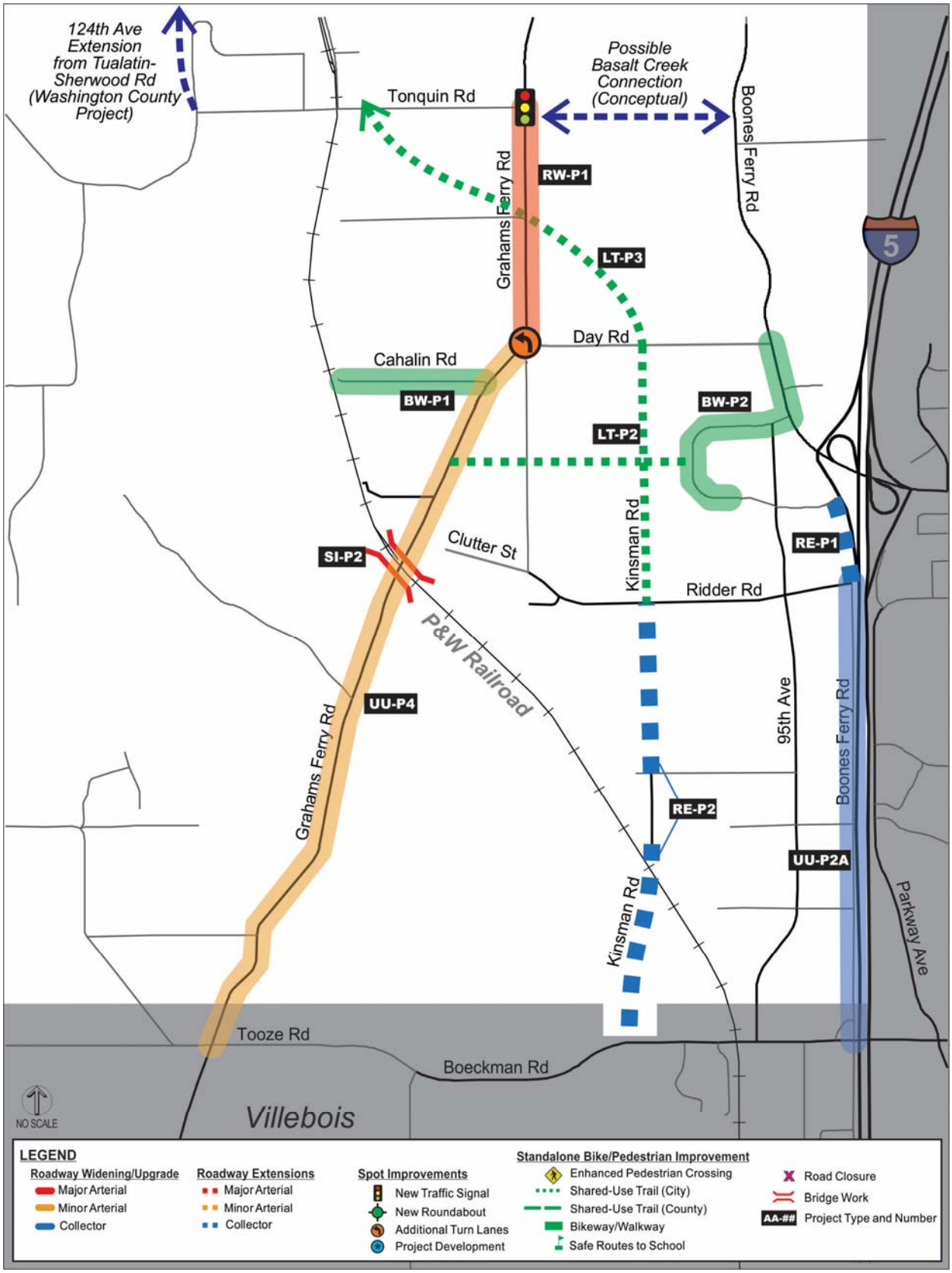


Table 5-10. Additional Planned Projects (Northeast Quadrant)

Project		Description	Why Not Higher Priority?	Cost
Roadway Extensions				
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
Urban Upgrades				
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)
Standalone Pedestrian and Bicycle Improvements (Local Trails)				
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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)				
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)

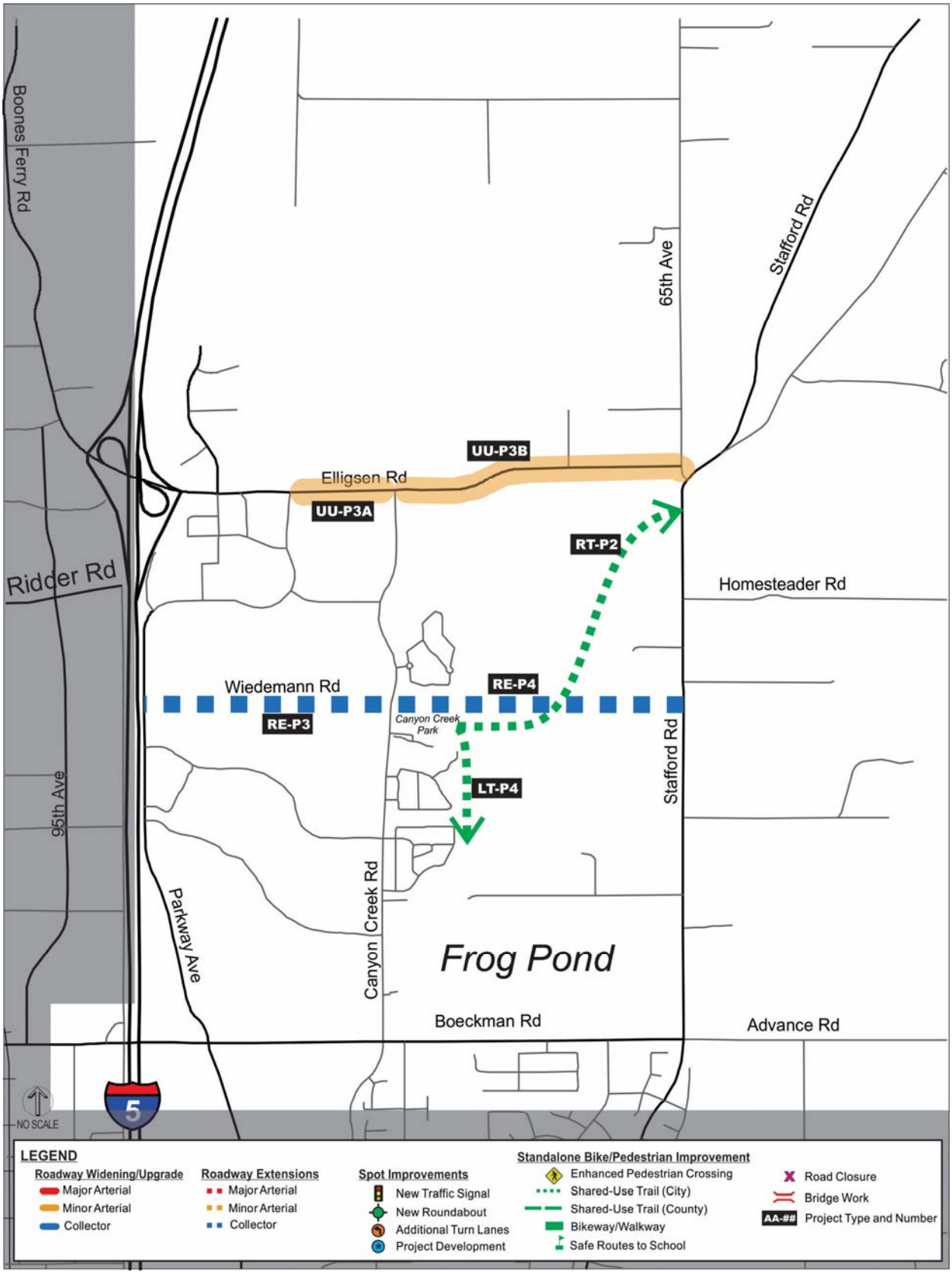


Table 5-11. Additional Planned Projects (Southwest Quadrant)

Project		Description	Why Not Higher Priority?	Cost
Urban Upgrades				
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
Spot Improvements				
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
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)				
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
Standalone Pedestrian and Bicycle Improvements (Local Trails)				
LT-P1	5th Street Bike/ Pedestrian Bridge and Connections	Construct bike/pedestrian bridge over I-5 approximately aligned with 5th Street; also construct bike lanes and sidewalks on 5th 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
Standalone Pedestrian and Bicycle Improvements (Regional Trails)				
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)

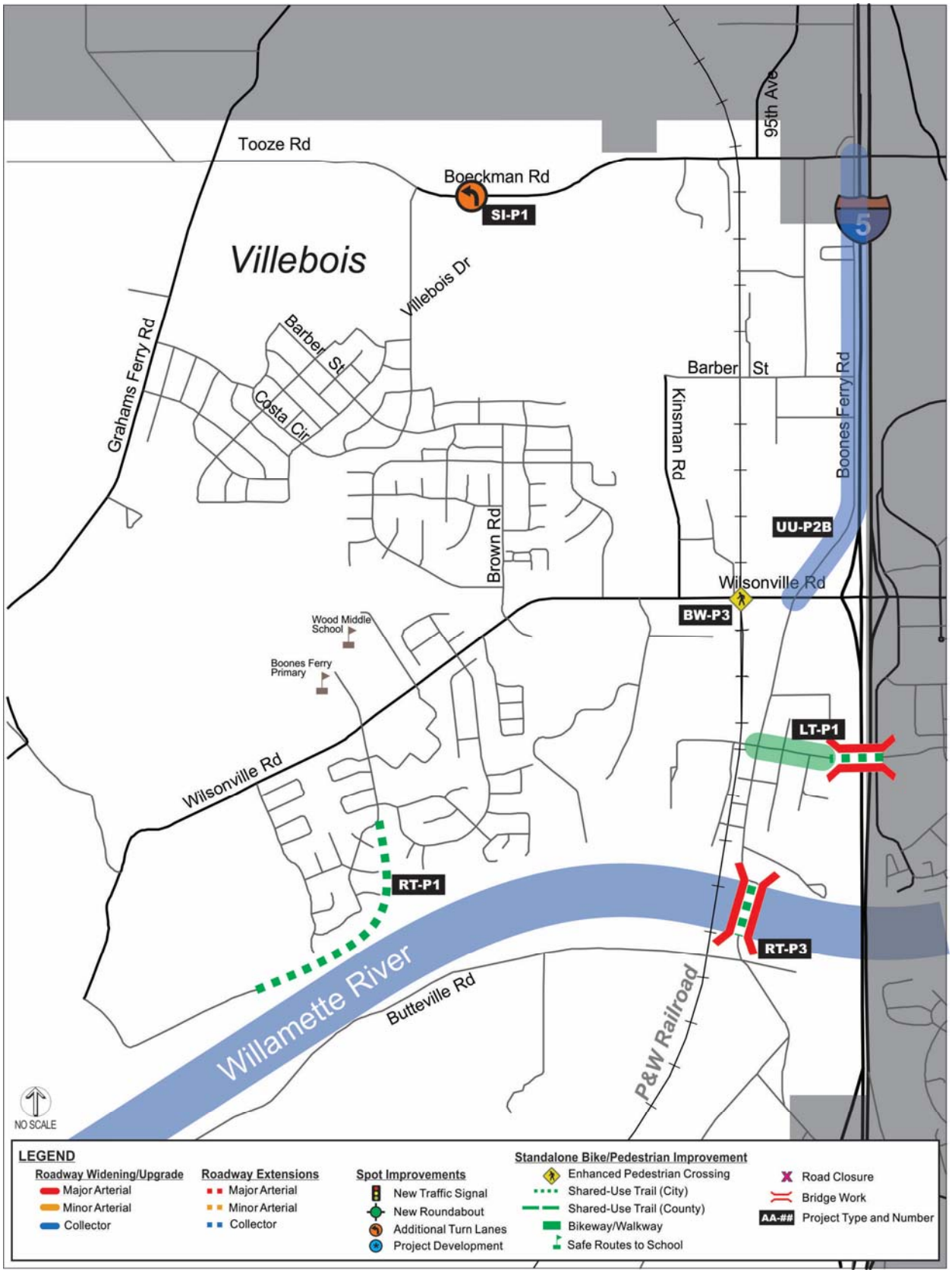


Table 5-12. Additional Planned Projects (Southeast Quadrant)

Project		Description	Why Not Higher Priority?	Cost
Spot Improvements				
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
Standalone Pedestrian and Bicycle Improvements (Bikeways and Walkways)				
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
Standalone Pedestrian and Bicycle Improvements (Local Trails)				
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	60th Avenue Trail	Construct the 60th 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)

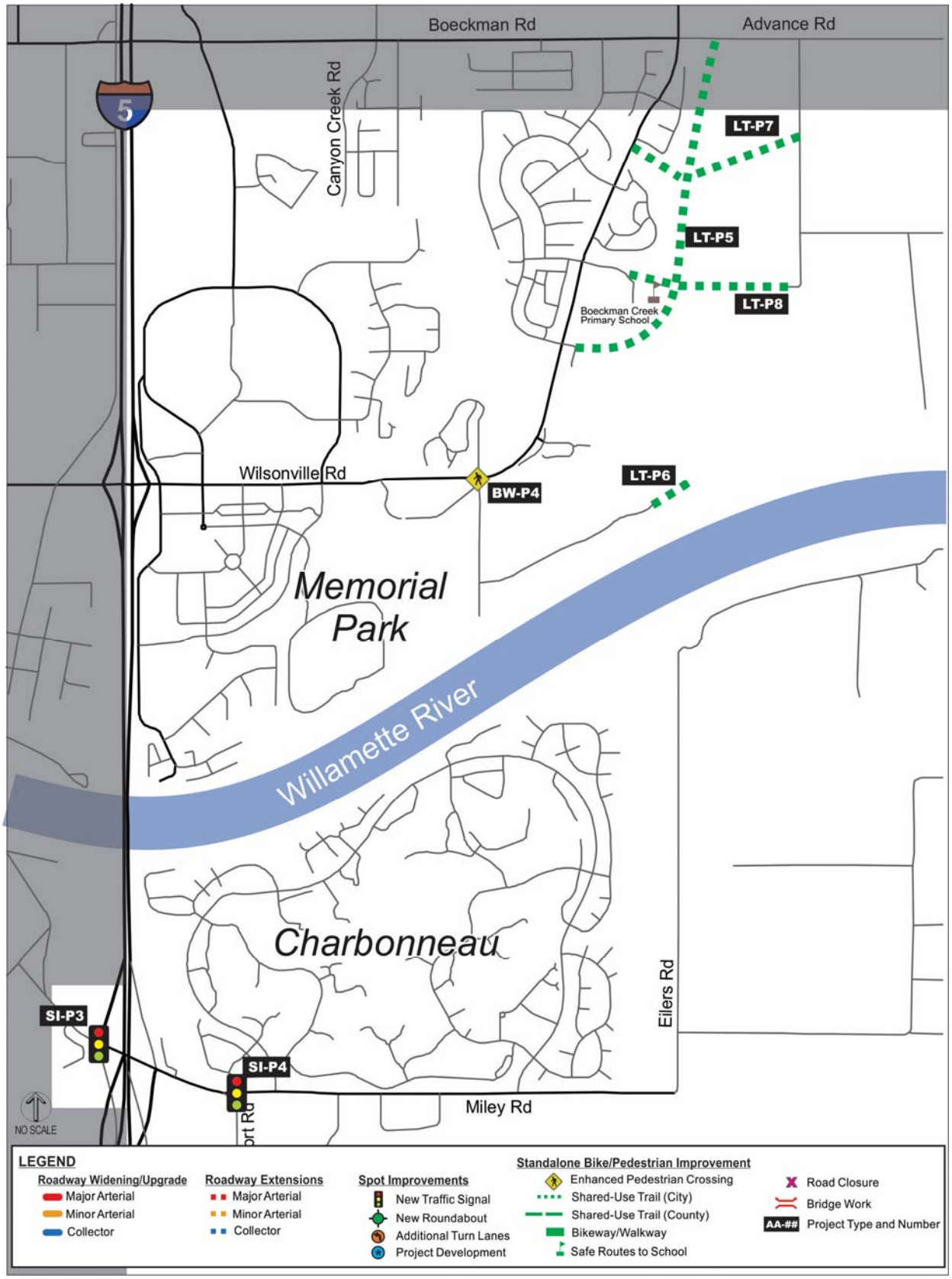


Table 5-13. Additional Planned Projects (Citywide)

Project		Description	Why Not Higher Priority?	Cost
Spot Improvements				
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

"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

Executive Summary

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

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.

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	**Safe**	Follow current safety practices for design, operations, and maintenance of transportation facilities.
2	**Connected and Accessible**	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	**Functional and Reliable**	Provide, manage, and maintain sufficient transportation infrastructure and services throughout Wilsonville to ensure functional and reliable multimodal and freight operations as development occurs.
4	**Cost Effective**	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	**Compatible**	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	**Robust**	Encourage and support the availability of a variety of transportation choices for moving people and goods.
7	**Promotes Livability**	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:

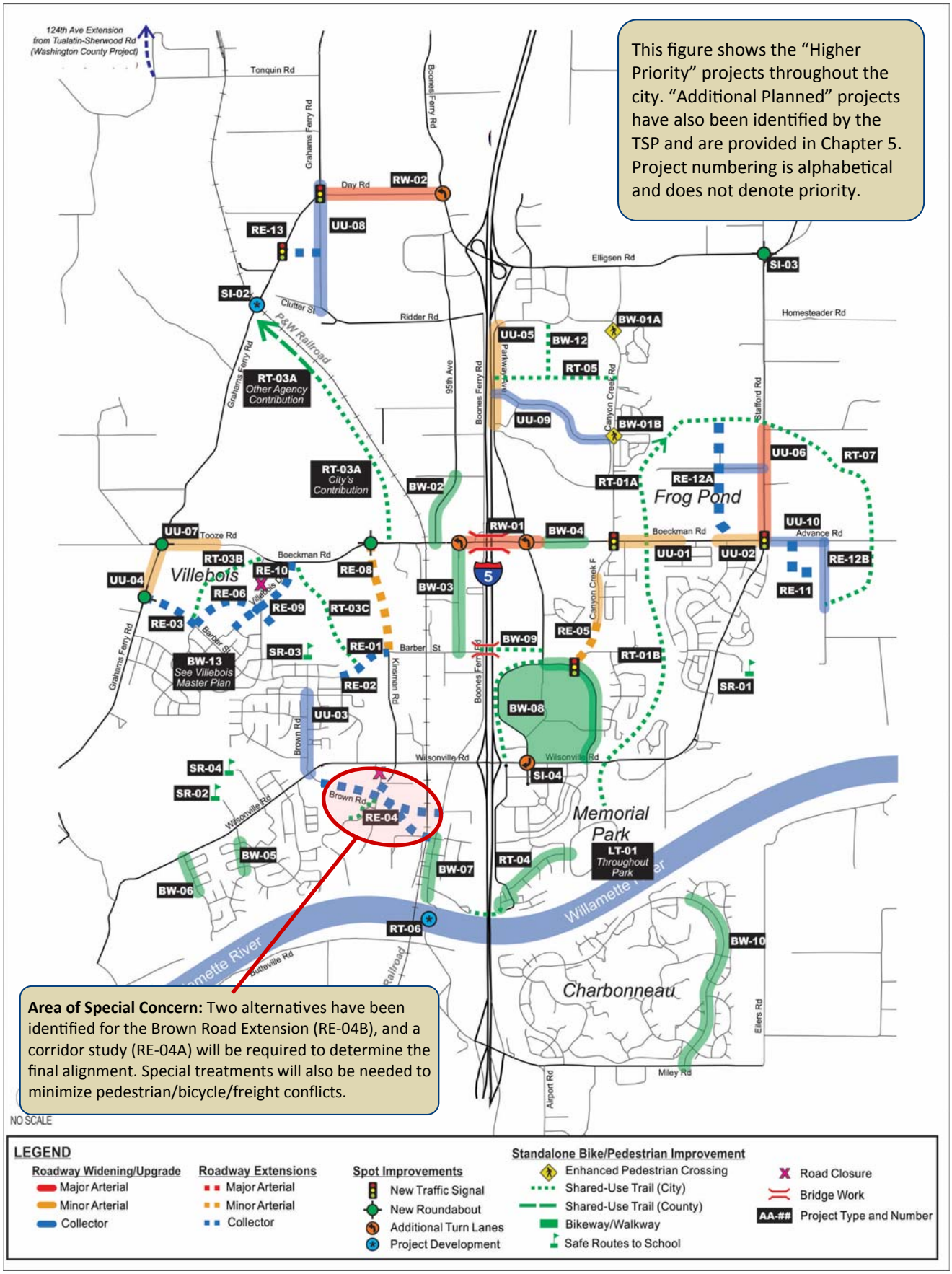
- The "Higher Priority" project list includes the recommended projects reasonably expected to be funded through 2035. These are the highest priority projects and will inform the City's yearly budget and 5-year Capital Improvement Plan (CIP). These projects are identified in the following figure (page 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.

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.

Higher Priority Projects



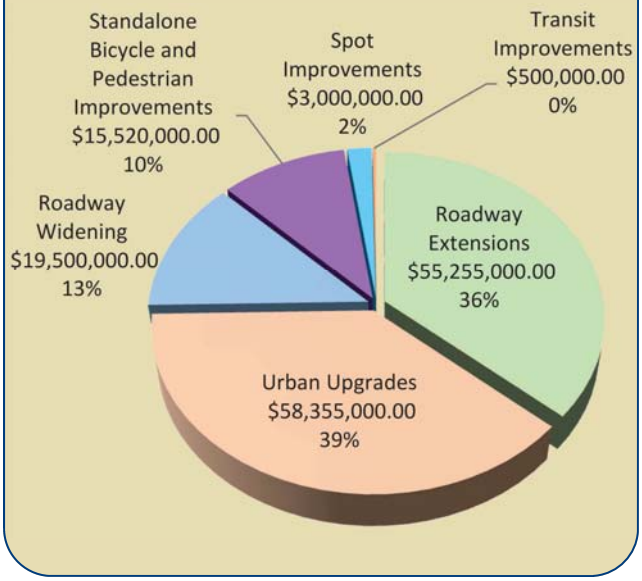
Higher Priority Projects (Listed Alphabetically By Improvement

No.	Higher Priority Project
Roadway Extensions (Multimodal Connectivity)	
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	Meridian Creek 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
Roadway Widening (Capacity)	
RW-01	Boeckman Road Bridge and Corridor Improvements
RW-02	Day Road Widening
Urban Upgrades (Multimodal Connectivity and Safety)	
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
Spot Improvements (Transportation System Management/Operations)	
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
Bikeways and Walkways (Standalone Pedestrian and Bicycle Improvements)	
BW-01 A/B	Canyon Creek Road Enhanced Pedestrian Crossings

No.	Higher Priority Project
Bikeways and Walkways (Standalone Pedestrian and Bicycle Improvements) . . . Continued	
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
BW-15	Property Acquisition for Bike/Ped Connectivity
Safe Routes to School (Standalone Pedestrian and Bicycle Improvements)	
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
Local Trails (Standalone Pedestrian and Bicycle Improvements)	
LT-01	Memorial Park Trail Improvements
Regional Trails (Standalone Pedestrian and Bicycle ImprovementsSafety)	
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
Transit Improvements	
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.

Higher Priority Project Costs (by Project Type)



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
Total Funds	**$123.4 million**

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.

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April 20, 2016

Wilsonville City Council
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).

Honorable Mayor Knapp and Councilors:

Ben Altman, Pioneer Design Group, 9020 SW Washington Square Road, Suite 170, Portland, Oregon 97233.

First, as the former Chair of the Planning Commission, when the TSP was adopted, I believe the proposed package of minor amendments to the TSP is a logical and appropriate and response to a variety of unforeseen or changed circumstances. The Staff has been very proactive in assembling this set of amendments to address situations that have arisen since the TSP was adopted in 2013. These amendments are minor, within the context of the whole plan, but adjust to specific issues not previously identified.

More specifically, on behalf of Republic Services, I presented testimony to the Planning Commission (dated march 23, 2016) in support of the proposed TSP Amendment, specifically the amendments related to Kinsman and Garden Acres Roads. That testimony is in your record of the Commission's hearing.

As addressed in more detail in my March 23rd testimony, the current TSP alignment for Kinsman Road created an untenable situation for Republic Services. If constructed, as planned, this road would devastate functional operations of the Material Recovery Facility (MRF).

In response to this unintended set of consequences the Staff has analyzed alternatives and has recommended elimination of the Kinsman alignment, replacing it with Garden Acres Road, classified as a Collector. This alternative provides sufficient comparable enhanced collector circulation, without the significant impacts to adjacent properties, resulting from the Kinsman alignment.

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.

We (Republic Services) believe this specific amendment is appropriate and necessary to avoid unacceptable and unnecessary site and operational impacts to Republic Services facilities. It is also necessary to avoid excessive and unnecessary public costs of constructing the Kinsman alignment. Given the specific circumstances involved here, Kinsman Road could be the most expensive road ever built in the City, which is clearly not a desired result.

In contrast, the shift of the Collector alignment to Garden Acres Road results in the following net benefits:

1. Avoids devastating impacts to Republic Services.
2. Results in less needed additional right-of-way, as improvements will be made to an existing road.
3. Avoids a single loaded street.
4. Significantly less cost (public & private) to acquire right-of-way and construct.
5. More net buildable industrial land.
6. Net enhanced Collector Street circulation, and sets the stage for the Java link to Grahams Ferry Road, allowing for ultimate closure of the Clutter intersection at Grahams Ferry.

Respectfully Submitted;

Ben Altman
Senior Planner/Project Manager

cc: Republic Services