City of Washougal

TRANSPORTATION CAPITAL FACILITIES PLAN

Transportation Circulation Plan

To:

The Citizens of the Washougal Urban Growth Area

Originally Adopted:
December 5, 2005

Update Adopted:
DATE

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STREETS AND TRANSPORTATION

SECTION 1 INTRODUCTION

1.1 Purpose

In 2005 Washougal developed its first Transportation Capital Facilities Plan (CFP). The 2005 CFP has guided the city's transportation infrastructure investments. Every six (6) years the county requires each local jurisdiction to update their CFP. This document has been prepared to meet that requirement.

The CFP is the Transportation Element of the Comprehensive Plan. The purpose of the CFP is to develop an efficient, cost effective and comprehensive transportation management strategy consistent with regional plans and local needs. This comprehensive strategy combines current and future land use patterns, existing and planned transportation systems and alternatives to vehicular transportation.

1.2 Background

Washougal is located along SR-14 in eastern Clark County, Washington, and is known as the "Gateway to the (Columbia River) Gorge." Traffic on SR-14 is forecasted to nearly double during the p.m. peak traffic hour in the easterly peak direction. In addition, land use rezoning along E Street, from a mix of residential and Convenience Commercial to Community Commercial, is forecasted to increase travel demand along the street within the city. All new developments forecast for the City will result in increased traffic, particularly along the SR-14 corridor leading to and from the city, as well as on roadways connecting to and through the city, such as Washougal River Road, 32nd Street/Stiles Road, and E Street.

The 2005 CFP laid the groundwork for a street network that adequately provides a safe and efficient movement of people and goods. This update furthers this mission. Major concerns involve the need for improved access to and from SR-14 to provide for regional mobility, improved north-south and east-west traffic and pedestrian/bicycle circulation within the City of Washougal, and construction of a new grade-separated crossing over the BNSF Railroad. Washougal's existing roadway network within the current planning area is shown in Figure 1.

1.3 Plan Requirements

Pursuant to Washington's Growth Management Act (GMA), the Transportation CFP is to include the following information:

- Inventory of all transportation facilities and services (land, air, and water) to define existing capital facilities as a basis for future planning;
- Land-use assumptions used in estimating travel forecasts;
- Level of Service (LOS) standards for all arterials. These standards are to be regionally coordinated;
- Specific actions and requirements for bringing into compliance any facilities or services that are below an established LOS Standard (concurrency);
- Traffic forecasts for at least ten years (in this case, twenty years based on the adopted land-use plan) to provide information on the location, timing, and capacity needs of future growth; and
- Identification of system expansion needs and transportation system management needs to meet current and future demands.

1.4 Action Strategy

The transportation element must include an action plan for bringing into compliance any existing facilities that are below established LOS standards. The plan must also provide for expansion of facilities to meet future needs at established LOS. The action strategy must be financially sound, feasible and committed for implementation within six years. This action plan must be consistent with expected land development in that future growth should not cause transportation facilities to fall below the established LOS standards. Lastly, the action strategy must be consistent with the six-year transportation improvement programs prepared by the City of Washougal, Clark County and the Washington State Department of Transportation (WSDOT).

The City of Washougal Transportation Element and Transportation Circulation Plan contain the recommended transportation policies designed to serve the City of Washougal's needs through the year 2030.

1.5 Current Planning and Construction Efforts

The following is a summary of the major elements of selected reports relevant to the City of Washougal Transportation Plan:

SR-14 Phase II Conceptual Study – The City of Washougal prepared a study looking at interchange options between Washougal River Road and 32nd Street. This conceptual study identified interim and long term solutions.

E Street Improvements Project – This project reduced E Street from four lanes (two in each direction) to two thru-lanes and a center turn lane with bike lanes and a signalized intersection at Washougal River Road and E Street. This project was completed during the summer of 2011.

SR-14 Pedestrian Tunnel – This project was constructed in 2010 to reconnect pedestrian and bicycle access from Washougal River Road under SR-14 to the Columbia Waterfront. This tunnel connects to the shared-use trail along Cottonwood Beach Park.

SR-14 Camas-Washougal Widening & Interchange – This project included the widening SR-14 from two to four lanes from the end of the West Camas Slough Bridge to Union Street (SR 500); construction of a new bridge on the east end of Lady Island; construction of a split-diamond interchange at Union Street in Camas and at 2nd Street in Washougal; and installation of a median barrier throughout the length of the project. This project was completed in June of 2013.

SECTION 2 EXISTING CONDITIONS

The first step towards understanding the future needs of Washougal's transportation network is through examining how the existing transportation system serves the City's residents, business owners, freight traffic, pedestrians and bicyclists. Before a local government can adequately plan for its future it must assess the capability of its existing traffic circulation system to serve current demand. This Existing Conditions section presents an overview of Washougal's existing transportation network and determines how it functions under existing traffic conditions. Figure 1 shows the city's existing roadway network.

2.1 Roadway Functional Classification

This section defines the functional classification system in the city of Washougal. "The purpose of a functional classification system…is to define varying levels and types of transportation infrastructure and to provide for the safe and efficient movement of people and goods, while preserving residential areas and maintaining the economic vitality of commercial and industrial areas."[1] Roadways and streets are separated into different functional classes based on the type of service they are intended to provide. Two major considerations are: (1) to serve the through movement of traffic and (2) to provide access to abutting property.

The functional classification of different types of roadways and streets can vary depending upon the size of the community and the community's vision for its future. For instance, Clark County, as part of its countywide planning process, and the Regional Transportation Council, as part of the Metropolitan Transportation Planning process, define the functional classification system along the following guidelines:[2]

- The principal arterial system consists of a connected network of rural arterial routes with appropriate extensions into and through urban areas to serve regional and subregional trips. Access to and from the principal arterial system is often limited to other arterials and state highways. The principal arterial system typically connects regional trip generators, such as major activity centers and central business districts. Providing local access is not the primary function of a principal arterial.
- The minor arterial system provides for subregional access to and from the principal arterial system, and serves regional and subregional trips. Local access is less restrictive than for principal arterials but is not the primary function of a minor arterial.
- The collector system provides roadway connections for local traffic within a subarea to and from arterial roadways. Service to adjacent land uses is subordinate to traffic circulation. Access to abutting properties and parking is controlled through the use of driveway spacing, bicycle and/or pedestrian lanes, pavement markings, and raised channelization, such as curbed concrete, painted islands or travel lane delineators. Typically, collector streets are not continuous for any great length, nor do they form a connected network by themselves. Since collector streets provide access to arterial networks and also connect neighborhoods to commercial areas as well as each other, fixed route transit service is low while bicycle and pedestrian activities range from moderate to high. Access to abutting lots is limited.

[1] Clark County. 2009. 2010 – 2015 Transportation Improvement Program (TIP). Clark County Public Works. http://www.clark.wa.gov/publicworks/construction/documents/2010-2015TIP.pdf. Accessed February 15, 2011.
[2] Southwest Washington Regional Transportation Council. 2008. Metropolitan Transportation Plan for Clark County. http://www.rtc.wa.gov/reports/mtp/Mtp2008ch3.pdf. Accessed February 15, 2011.

- Collectors are broken into three categories: Urban Collectors, which are longer-distance collectors that travel through multiple land uses and connect to the regional roadway system; Industrial Collectors, which are typically located in industrial areas and have a deeper pavement cross section to accommodate large trucks; and Residential Collectors, which are primarily in residential areas to collect traffic from multiple neighborhoods and take that traffic to the regional roadway system. A subset of the Residential Collector is the Modified Collector, which provides a street cross section with a pedestrian path on one side of the street separated from the vehicle travel lanes by up to 17 feet of landscape space. The Modified Collector serves the same purpose as the Residential Collector.
- The local or neighborhood access roads serve local access functions to and from abutting land and to the higher classification facilities. These roadways usually do not contain bus routes and offer the lowest level of mobility.

A Functional Classification Plan was developed for the City of Washougal's street facility types, as shown on Figure 2. These functional classification designations and corresponding design standards are compatible between the city and county to allow the facilities to blend and function well (i.e., the sidewalks align and lanes are of similar width and configuration).

Figure 1. Existing Roadway Network

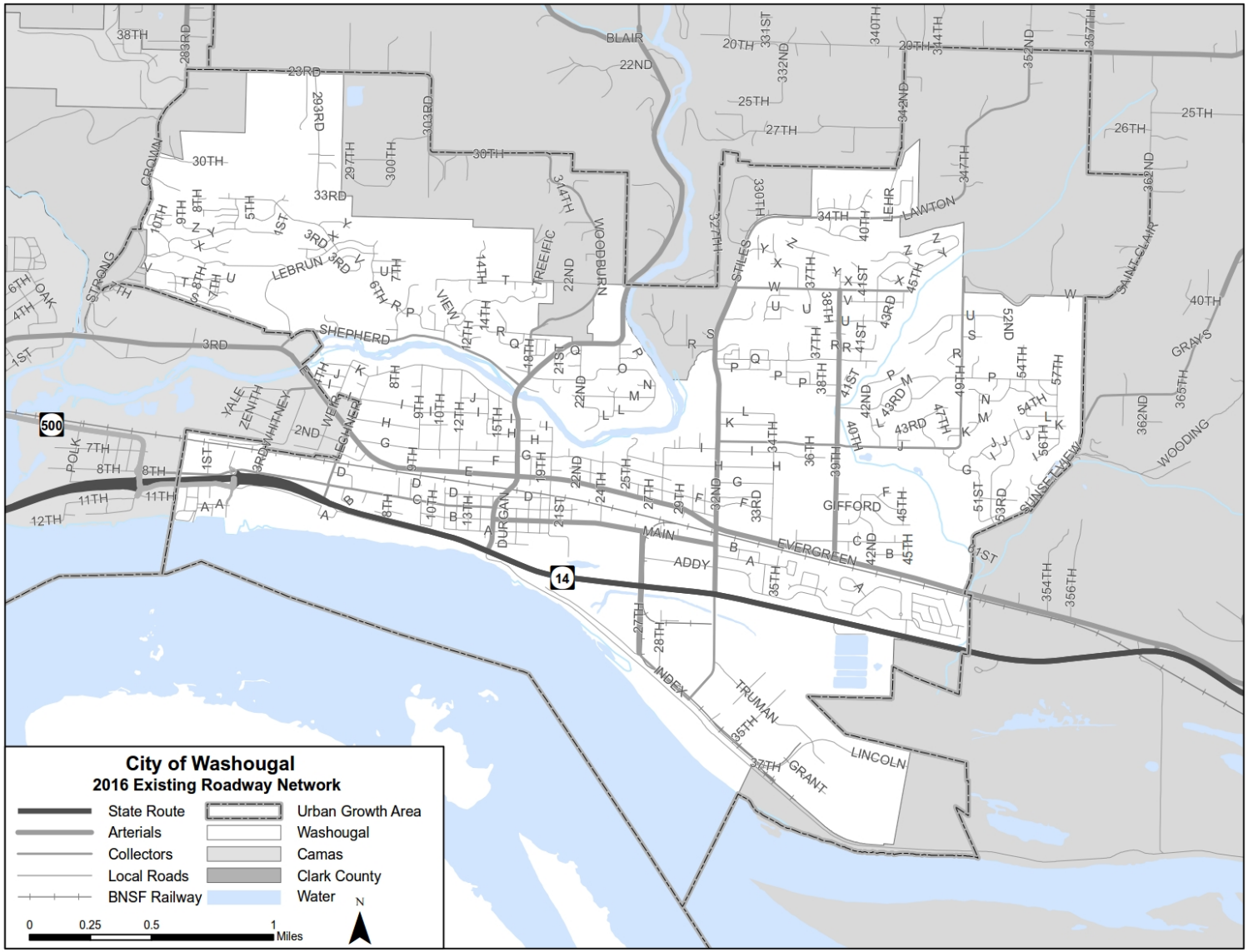
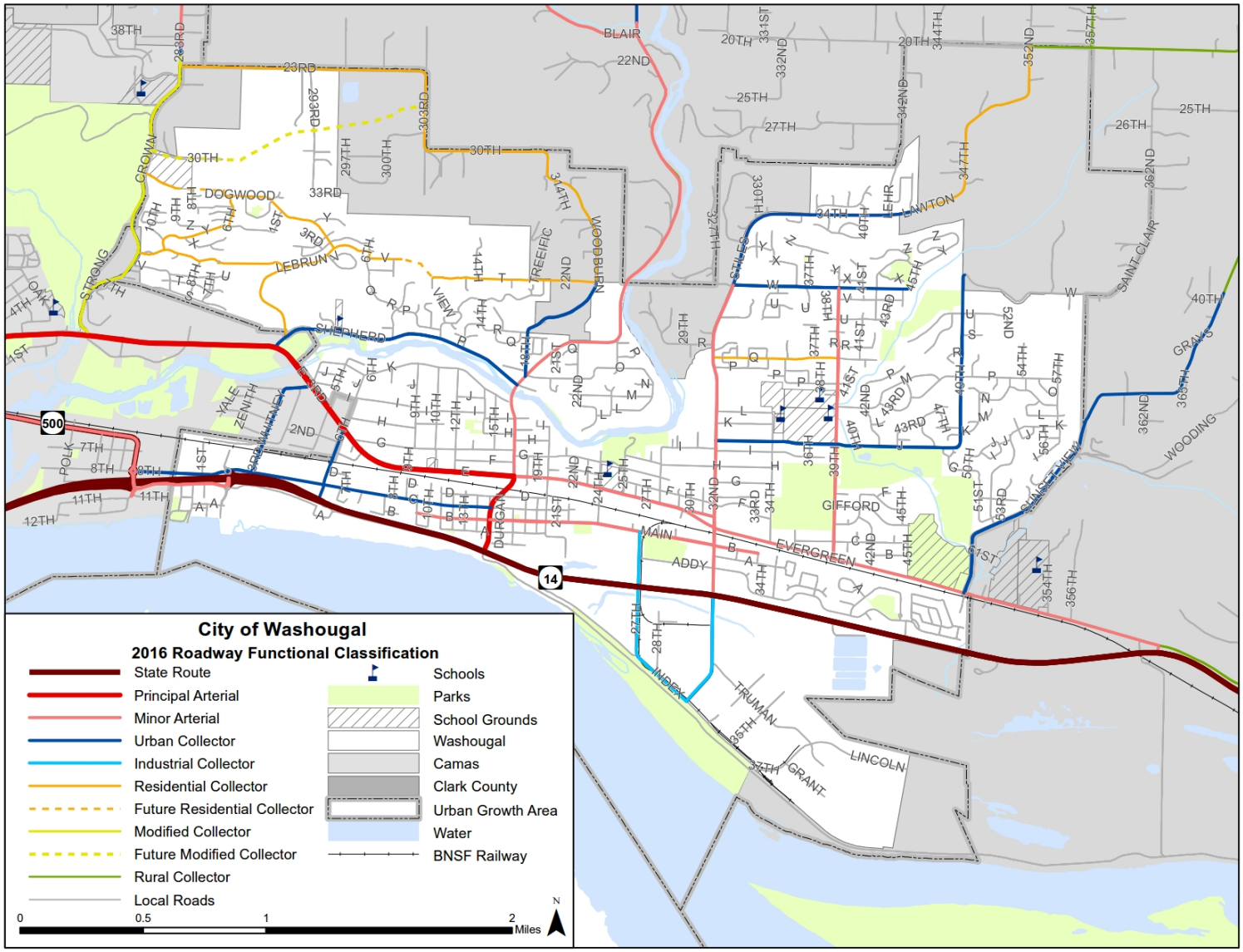


Figure 2. City of Washougal Functional Classification Map



2.2 Roadway Inventory

An inventory of the existing arterial and collector street system was prepared using information obtained from the City, Clark County GIS and field investigations. The existing physical roadway characteristics and traffic control for the Washougal Urban Growth area are illustrated in Figure 3 while 2005 traffic volumes are shown in Figure 4.

The existing street network is made up primarily of two-lane roadways. In 2011, E Street underwent reconstruction to transform it from two lanes in each direction to one traffic lane, sidewalk and bicycle lane in each direction as well as a center turn lane between 6th Street and approximately 32nd Street. Traffic control will remain as it is at present with posted stop sign control at most intersections except for several signalized intersections as shown in Figure 3. The highest traffic volumes occur along SR-14 west of Washougal River Road.

2.3 Traffic Capacity

Traffic capacity is the number of vehicles a particular road segment is designed to handle. To evaluate existing traffic conditions, intersection capacity analyses, a VISUM subarea model and Synchro/SimTraffic traffic analysis were prepared for the afternoon peak hours in the Washougal Urban Growth Area. The capacity analyses were conducted using the methodology of the 2000 Highway Capacity Manual (HCM). The HCM contains guidelines and computational procedures for computing the capacity and quality of service for various highway facilities, including freeways, signalized and unsignalized intersections, and rural highways. Synchro is a software package that employs the HCM guidelines and is used to assess roadway capacity. Use of SYNCHRO allowed assessment of the existing transportation infrastructure and to identify potential future improvement needs. Table 1 summarizes Level of Service (LOS) for existing (2010) conditions. See the Future Conditions section for more detail on LOS.

Table 1. 2010 Intersection Level of Service Summary

Intersection	2010 PM Peak Hour	
	LOS	Delay (Sec./Veh.)
E Street & Washougal River Road	D/B**	40/**
E Street & 32nd Street	C	21
E Street & 39th Street*	C	16
6th Street & C Street*	A	9
32nd Street & Addy Street*	F	102
Washougal River Road & Main/B Street	B	18
Washougal River Road & Shepherd Road*	B	14
Washougal River Road & Woodburn Hill Road/ O Street*	D	26
E Street & 6th/Lechner Street (Camas, Wa)	B	14

LOS = Level of Service
*Analyzed as unsignalized intersection. LOS and delay are for worst approach.
** E Street and Washougal River Road prior to construction of the E Street Road Diet performs at LOS D; with the improvements the intersection will perform at LOS B.[3]

[3] DKS Associates. *Memorandum: Washougal E Street Corridor Traffic Analysis.* August 20, 2009.

Figure 3. Existing Traffic Control

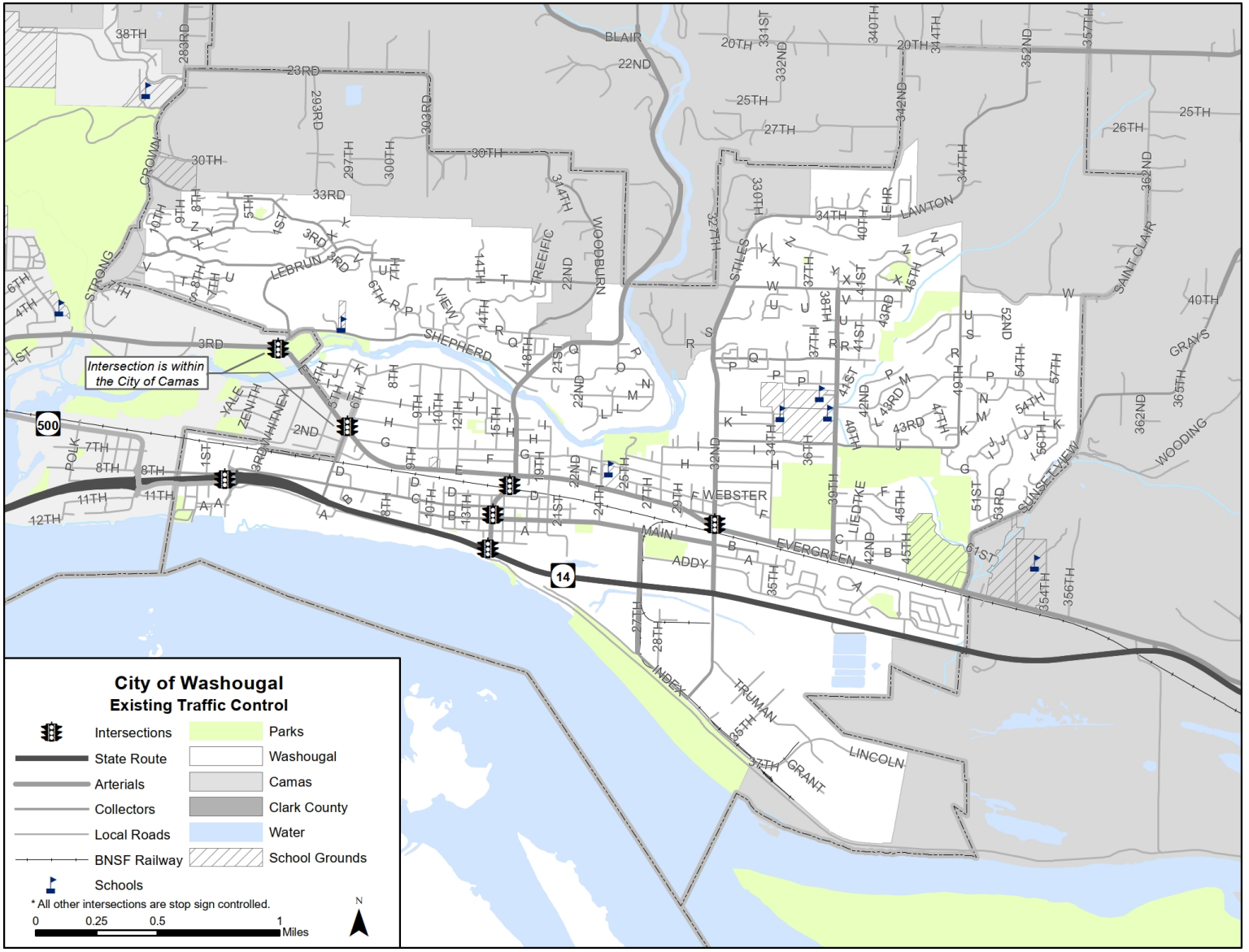
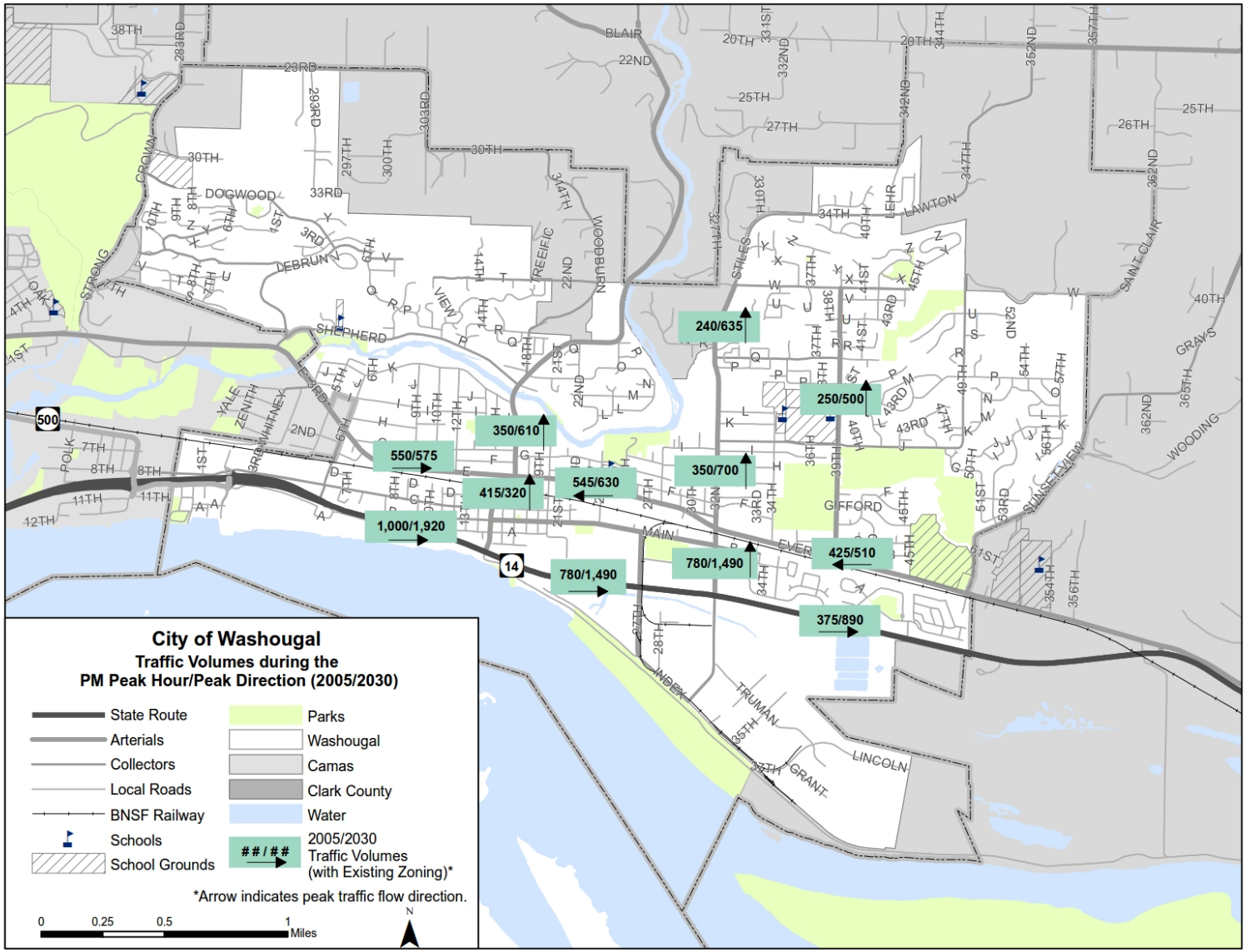


Figure 4. 2005 and 2030 (projected) Traffic Volumes



2.4 Accident History

A record of accidents that took place within the City of Washougal between January 1, 2006 and July 31, 2010 were obtained from the Washington State Department of Transportation Statewide Travel & Collision Data Office. Additionally, members of the City's police, fire, school district, and Public Works Department were consulted to locate known high accident locations as well as safety concern areas. These are mapped in Figure 5. Table 2 details the type of accidents that occurred during this timeframe. As shown in Table 3, the total number of accidents per year is declining significantly.

Table 2. City of Washougal Accident Summary January 2006 – July 2010[1]

Collision Severity	Number of Collisions	Primary Collision Type(s)
Property Damage Only	327	Entering/exiting driveway access; object, parked car or animal
Injury & Property Damage	94	Rear-end, pedestrian
Fatality	1	N/A
TOTAL	**421**	**---**

[1] Source: WSDOT. 2009. Statewide Travel & Collision Datahttps://remoteapps.wsdot.wa.gov/highwaysafety/collision/data/portal/public/.. Accessed February 15, 2011.

Table 3. City of Washougal Accident Summary January 2006 – July 2010

Year	Number of Accidents	% of Total[1]
2006	97	23%
2007	114	27%
2008	103	25%
2009	74	18%
2010[2]	33	8%
Total	**421**	**---**

[1] Percentages do not add up to 100 percent due to rounding.
[2] Data is provided through July 2010. A projection of accidents in 2010 would be about 66 total accidents (33 x 2 = 66); this would represent about 15 percent of 454 (421 + 33) accidents.

Since the 2005 CFP, 421 accidents have occurred (shown on Figure 6). Eighty-five percent of these accidents occurred between January 1, 2006 and June 30, 2009. As shown in Table 4, between July 1, 2009 and July 31, 2010 a total of 65 accidents occurred on the City of Washougal's transportation network and SR-14 (which is under state jurisdiction). This represents 15 percent of the accidents that occurred over the four and a half year period. Of the 65 accidents, 48 only caused property damage; the other 17 caused property damage and injury. Table 4 also summarizes the accident types.

Table 4. City of Washougal Accident Summary July 2009 – July 2010

Collision Severity	Number of Collisions	Primary Collision Type(s)
Property Damage Only	48	Entering/exiting driveway access; rear-end, angle, sideswipe; object, parked car or animal
Injury & Property Damage	17	Rear-end, pedestrian, bicycle
Fatality	0	N/A
TOTAL	**65**	**---**

Figure 5. 1-Year Accident Locations and Safety Concern Areas

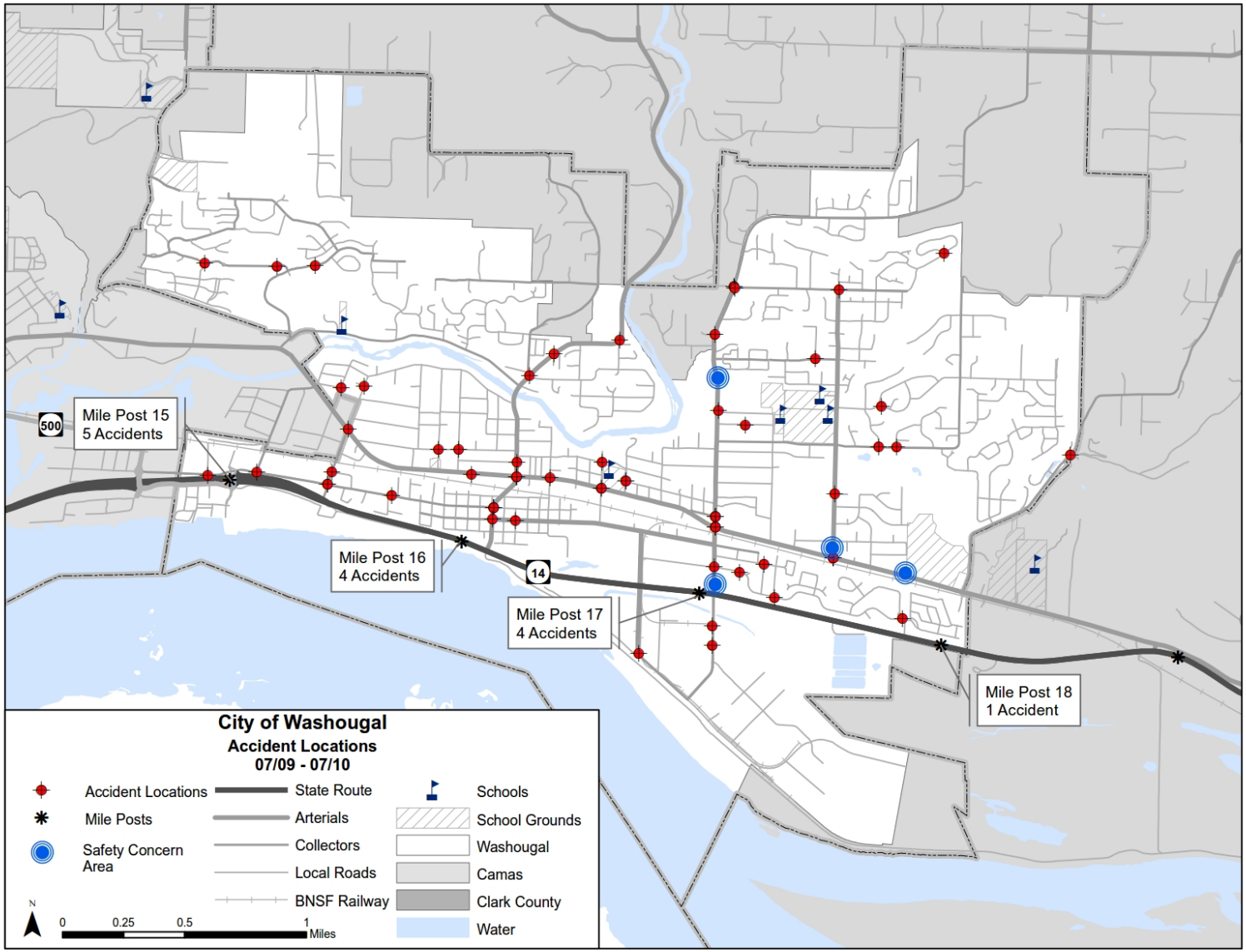
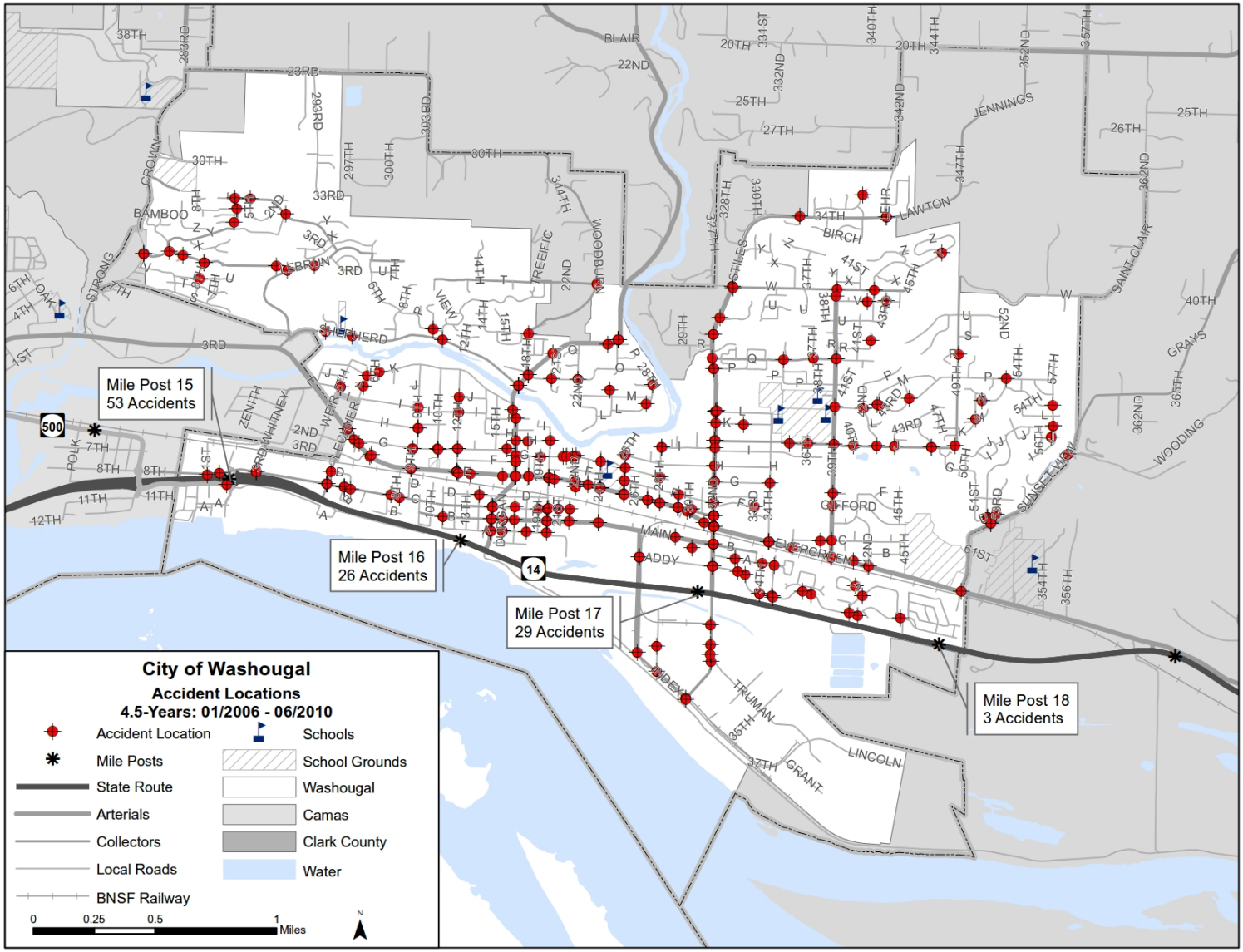


Figure 6. Accident Locations: January 1, 2006 through June 30, 2010



2.5 Transit

Transit service for Washougal consists of one local route, Route 92 provided by C-TRAN. The route travels between Fisher's Landing Transit Center and Addy Neighborhood and Washougal High School in Washougal. Route 92 operates on 30-minute service frequency between 6 am and 8 pm during the weekdays and between 8 am and 8 pm on Saturday. On Sundays and holidays service frequency is hourly between 8 am and 5:30 pm.

Since 2005 commuter Route 114 and limited service route 41 was cut, and Route 92 has experienced reduced service. Additional service cuts or reductions are not anticipated at this time. Transit service is shown in Figure 7.

2.6 Pedestrian and Bicycle Facilities

Existing bicycle and pedestrian facilities are discontinuous through the city. Facilities exist along E Street, Main Street, and segments of Washougal River Road, 39th and 32nd. Figure 8 shows the existing pedestrian facilities while Figure 9 shows the existing bicycle facilities.

Figure 7. Existing Transit Service

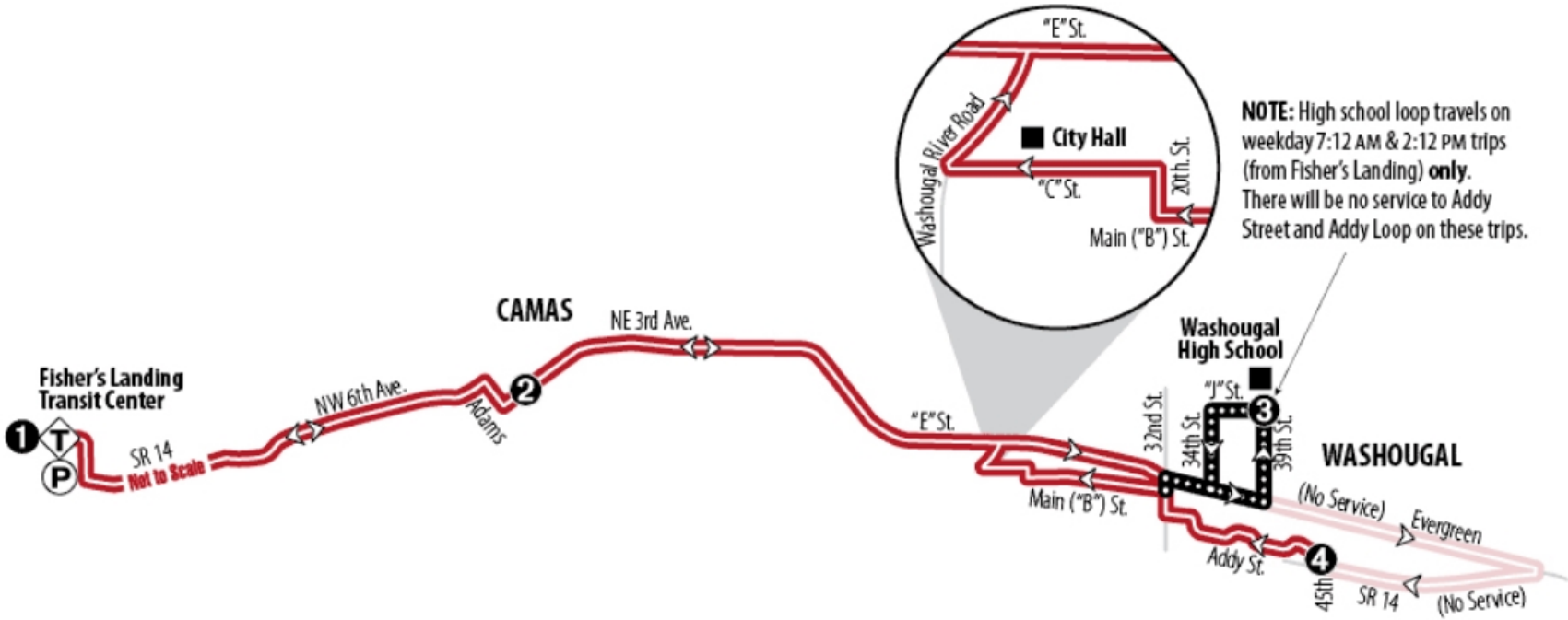


Figure 8. Existing Pedestrian Facilities

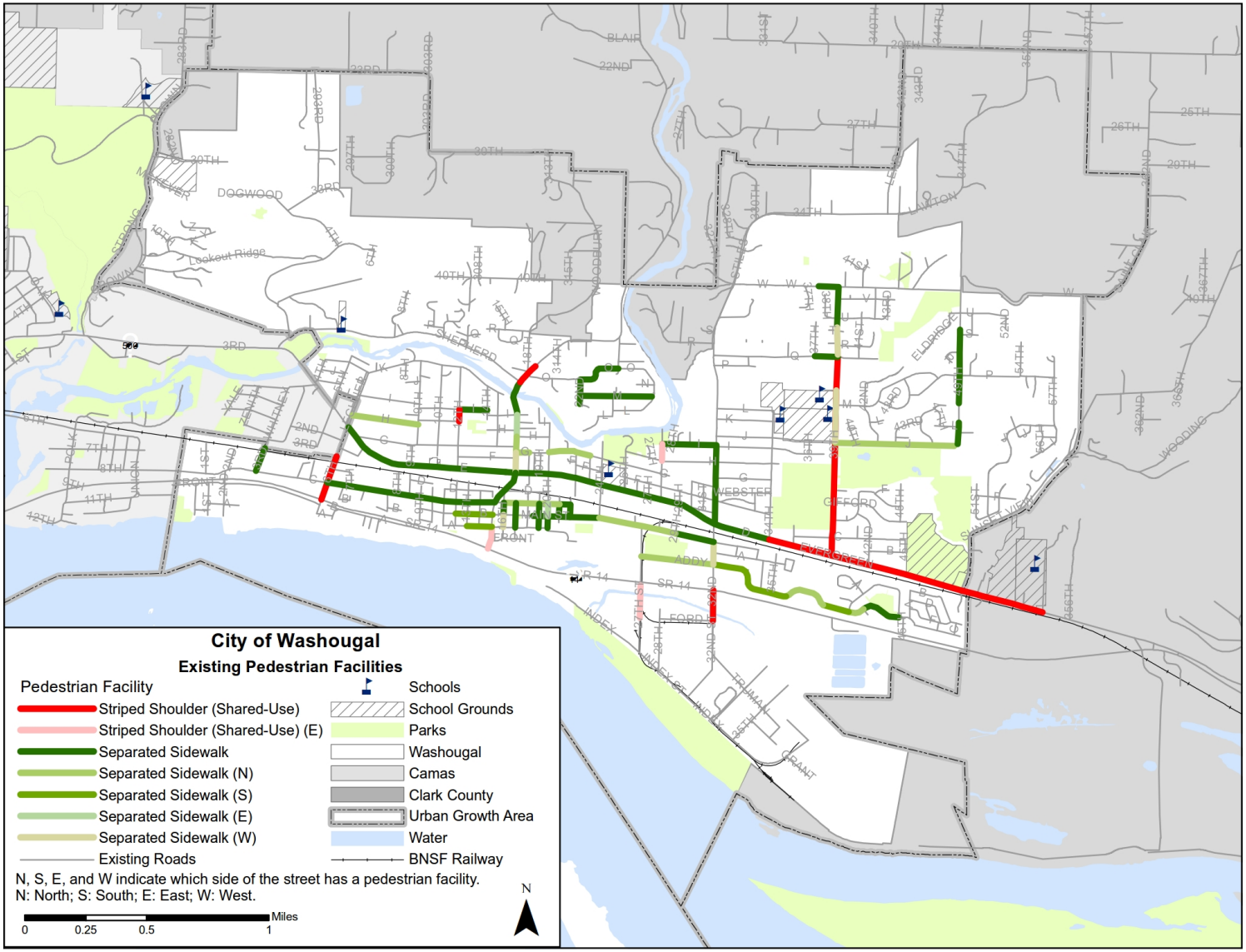
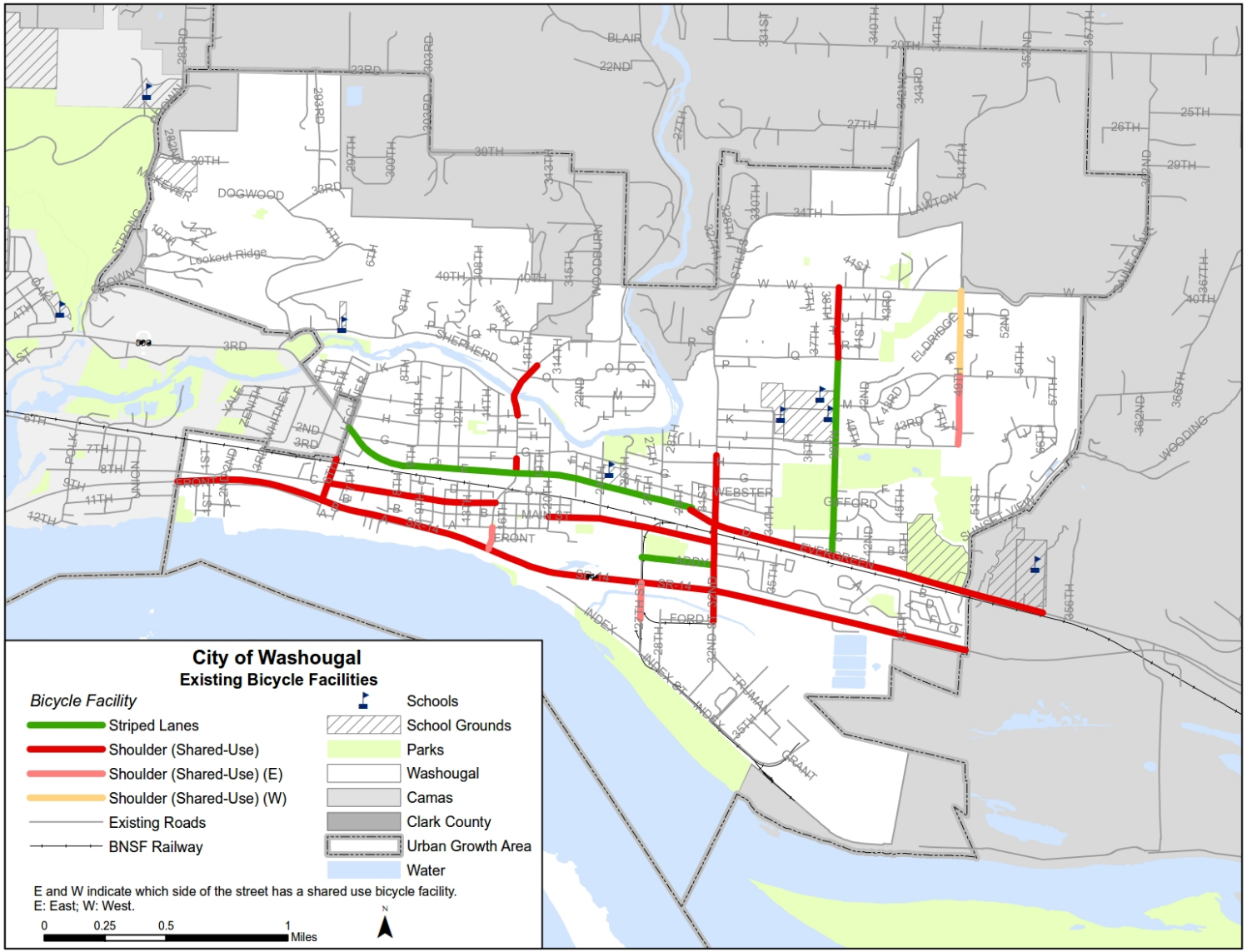


Figure 9. Existing Bicycle Facilities



SECTION 3 FUTURE CONDITIONS

3.1 Land Use/Transportation Linkage

A Washougal subarea traffic model was developed to examine the forecasted travel behaviors within the City in year 2030, the planning horizon year. The subarea model is based on the Southwest Washington Regional Transportation Council (RTC) regional travel demand model that is used to forecast travel behaviors within the greater Clark County area. The key input to the RTC model is a description of the land use (primarily population and employment) by traffic analysis zone (TAZ). The RTC model is then run to forecast trips on the local and regional road network as a function of the input land use. While the RTC model is used for regional planning in the RTC / Clark County region, the Washougal subarea traffic model is used for local planning exercises such as evaluating the traffic impacts of zoning changes.[4]

The Washougal subarea traffic model links the demand for travel generated by land uses to the transportation system to determine the network's performance at intersections and along roadways (i.e., level of service). An important function of the subarea model is its ability to analyze future development scenarios in terms of traffic impacts. This capability requires a model structure that incorporates trip generation based on land use characteristics, allowing the impact of different levels of development and different distributions of development to be tested. The orientation of the model is strategic, not operational. The model is designed to provide peak period roadway traffic volumes given specific land use scenarios. Information from the demand model was post processed and the post processed peak hour volumes were then input to the Synchro/SimTraffic operational model. The Synchro/SimTraffic model was used to perform traffic analysis and identify detailed operational issues such as intersection geometrics or traffic control such as roundabouts or traffic signals.

The land use data used as a basis for estimating future traffic volumes was developed in consultation with City, County and RTC planning staff. This data is consistent with local land development expectations and County population control totals. For planning purposes this data has been disaggregated into Transportation Analysis Zones (TAZ) as shown in Figure 10. The creation of the Washougal's TAZs was based on several factors:

- The existing boundaries of RTC's regional model TAZs
- Existing and future land use scenarios
- Travel demand patterns and volumes
- Existing roadway network structure and density
- Geographic features

The land use contained in each TAZ is divided into three categories:

- Residential dwelling units
- Retail employees
- Other non-retail employees

Table 5 displays land use assumptions for existing conditions and for 2030. The appendix includes a detailed summary of land use by TAZ. The 2030 land use scenario assumes an overall increase of 4,474

[4] A memo was prepared that provides a thorough description of how the subarea model was created. Please contact the city for more information about the Washougal Subarea Model.

housing units above today and an additional 5,449 employees. This results in a total of 10,780 households and 12,093 employees within the Washougal TAZ Planning Area in 2030.

Figure 10. Washougal Transportation Analysis Zones

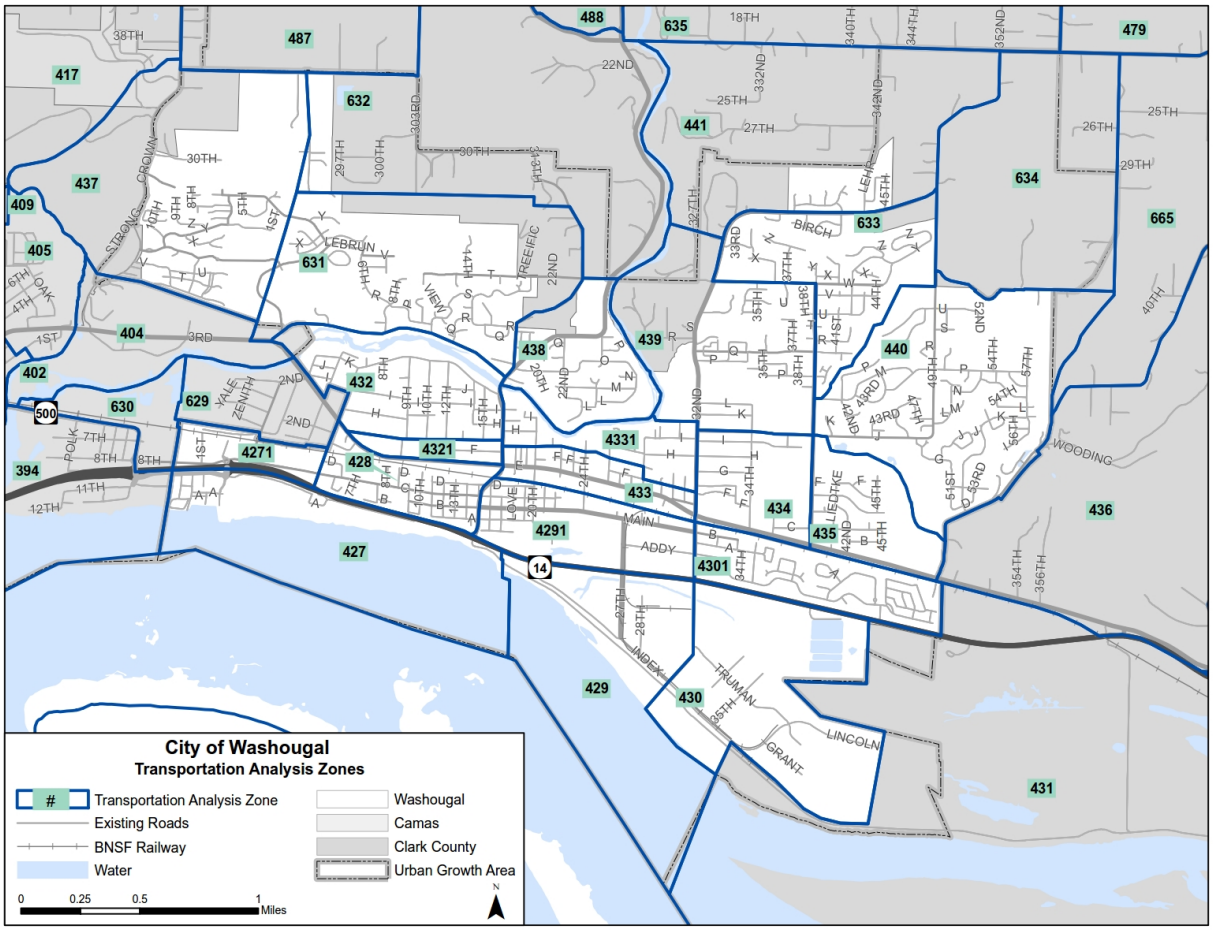


Table 5. Population and Employment by TAZ – Washougal Planning Area

	Estimated Households and Employment (2010)				Estimated Households and Employment (2030)			
	HH	Retail	Non-Retail	Total Emp.	HH	Retail	Non-Retail	Total Emp.
Totals	6,307	838	2,924	3,762	10,780	3,719	8,373	12,093

HH = Households
*Appendix A details the households and employment by TAZ.

3.2 Level-of-Service (LOS) Standards

The following section provides an outline of roadway LOS and methodology as developed for the Washougal UGA Transportation Circulation Plan. The purpose of this information is to provide an overview of LOS and identify its relationship to the Transportation Goals and Policies of the City.

3.3 Definition

LOS is an estimate of the quality and performance efficiency of transportation facilities in a community. The LOS categories provided in the Transportation Research Board's Highway Capacity Manual HCM were adopted for this study.

The HCM LOS system measures the degree of traffic congestion and delay using the letter rating "A" (the best) for least amount of congestion to letter rating "F" (the worst) for the most amount of congestion. The following LOS categories provide some general ideas as to the different levels of service used in the HCM and their performance measures. The community decides which level of traffic congestion is tolerable (the locally acceptable LOS threshold) by deciding whether their standard is "A," "B," "C," "D," "E," or "F." The choice of threshold can vary by land use and by road classification. For this effort, LOS D is considered acceptable except for unsignalized intersections, while LOS E is acceptable if the intersection does not meet traffic signal warrants. These standards are the city's current Concurrency ordinance.

3.3.1 Level of Service Categories (LOS)

Level of Service A - Low volumes, high speeds, and no delays. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high.

Level of Service B - Zone of stable flow. Drivers still have reasonable freedom to select their speed.

Level of Service C - Still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires vigilance on the part of the driver.

Level of Service D - Approaches unstable flow. Speed and freedom to maneuver are severely restricted. Small increases in traffic flow will generally cause operational problems at this level.

Level of Service E - Represents operating conditions at or near the capacity of the highway. Low speeds. Freedom to maneuver within the traffic stream is extremely difficult. Any incident can be expected to produce a serious breakdown with extensive queuing.

Level of Service F - Describes forced flow operation at very low speeds, where volumes are above theoretical capacity. Operations are characterized by stop-and-go traffic. Vehicles may progress at reasonable speeds for several hundred feet or more, and then be required to stop in a cyclic fashion, resulting in long delays.

The Volume/Capacity (V/C) ratio ranges in Table 6 were developed based on HCM methodology in determining mid-block roadway LOS performance. The V/C ratio represents the actual volume of traffic traveling on the roadway divided by the volume capacity of that roadway. Capacity is defined as the maximum rate of flow that can be accommodated on a particular roadway segment.

Table 6. Volume/Capacity Ratios

LOS	Volume/Capacity (V/C) Ratio
A	less than or equal to 0.3
B	greater than 0.3 and less than or equal to 0.5
C	greater than 0.5 and less than or equal to 0.75
D	greater than 0.75 and less than or equal to 0.9
E	greater than 0.9 and less than or equal to 1.0
F	greater than 1.0

More detailed methodologies to calculate LOS at specific locations such as unsignalized or signalized intersections are outlined in the HCM. These are typically used during the development review process to assess potential traffic impacts on roadway facilities in the vicinity.

3.4 Future Roadway Network

Most roadways within the Washougal UGA are already in place. There are a few new roadways that would be built in the northwestern part of the City, completing connections between existing roads.

3.5 Projected Traffic Conditions

The *Metropolitan Transportation Plan* (MTP) for Clark County is the region's principal transportation planning document.[5] The MTP is developed in coordination with local jurisdictions and agencies to develop regional transportation solutions. The MTP assumed the following improvements over current conditions:

- Widening of SR-14 to four lanes between Camas and Washougal River Road (completed)

Traffic assignments for the Washougal Subarea reflect the 2030 Metropolitan Transportation Plan (MTP) network. The Washougal Subarea traffic model output was applied to the Synchro/SimTraffic operations model for the PM peak period in the year 2030.

The resulting LOS for the year 2030 is shown on Table 7. LOS deficiencies would occur at the following locations in the no-build scenario:

- E Street/Washougal River Road
- E Street/32nd Street
- Evergreen Street/39th Street
- 6th Street/C Street

[5] Southwest Washington Regional Transportation Council. 2010. Metropolitan Transportation Plan. http://www.rtc.wa.gov/programs/mtp/outline.htm.

Table 7. Summary of Intersection Level of Service in 2030 MTP Network

Intersection	PM Peak Hour	
	2030 LOS	Delay (Sec./Veh.)
E Street & Washougal River Road	**F**	94
E Street & 27th Street	C	21
E Street & 32nd Street	**E**	65
Evergreen Street & 39th Street*	**F**	68
6th Street & C Street*	**F**	99
27th Street & Addy Street*	B	11
32nd Street & Addy Street (future signalized)	A	9
Washougal River Road & Main/B Street	C	29
Washougal River Road & Shepherd Road (future round about)	B	20
Washougal River Road & Woodburn Hill Road/ O Street (future round about)	B	17
E Street & 6th/Lechner Street (Camas, WA)	C	22

*Analyzed as unsignalized intersection. LOS and delay are for worst approach.
** Analyzed as roundabout. LOS is calculated based on v/c ratio.

SECTION 4 PROPOSED IMPROVEMENTS AND COSTS

4.1 Mobility and Safety Improvements

Table 8 lists the projects that have been identified during the development of this Washougal Transportation CFP update. The CFP includes a comprehensive circulation plan for new roadways, improved roadways, and bicycle and pedestrian improvements.

4.2 Roadways and Streets

Generally, all arterials and collectors in the current Washougal UGA will consist of two travel lanes (one per direction) with a center left turn lane at specific intersections. SR-14 is a limited access State Highway; plans for this corridor are discussed below. A construction project on E Street was recently completed which transformed the street from two lanes in each direction to one lane in each direction with a center left turn lane.

The City of Washougal is committed to achieving and maintaining the highest Pavement Condition Index (PCI) possible in the street network, based on funding available. To achieve this, various street reconstruction, repair, replacement, rehabilitation, or improvement projects are programmed each year. To identify the current and target PCI, and a prioritized and programmed schedule of street reconstruction, repair, replacement, rehabilitation, or improvement projects, the City targets to undertake a PCI study every three years. The current study is titled the Pavement Management Budget Options Report (PMBOR) dated March 2016. The PMBOR is integral to this overall Transportation Capital Facilities Plan, and it and subsequent updates is therefore adopted by reference.

4.3 SR-14

The Washington State Department of Transportation (WSDOT) completed reconstruction of SR-14 between the West Camas Slough Bridge and 6th Street.[6] This project included the construction of a new bridge and an interchange at Union Street and 2nd Street.

Jointly, the City and the Port of Camas-Washougal underwent a concept study for a new interchange on SR 14 between Washougal River Road and 32nd Street. During the development of the 2005 Washougal Transportation Circulation Plan it was determined that it was impractical and very expensive to build a grade-separated railroad crossing at 32nd Street. A subsequent Options Analysis determined that 32nd Street was a viable option for an underpass and that it would best serve the community.

[6] WSDOT. 2011. SR-14 – Camas-Washougal Widening & Interchange. http://www.wsdot.wa.gov/projects/sr14/camaswashougal/. Accessed April 16, 2014.

Table 8. Proposed Transportation Projects

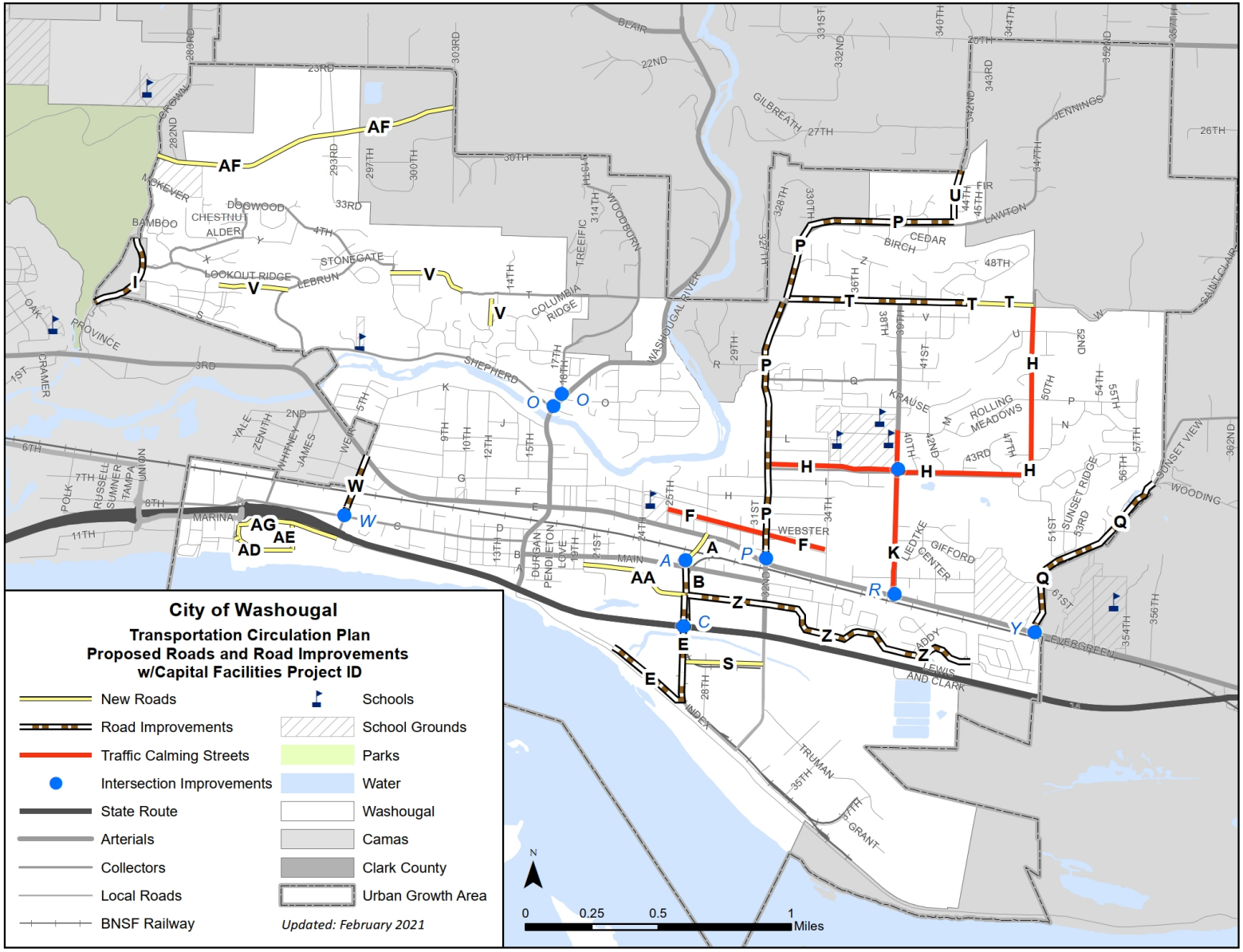
Washougal Traffic Impact Fee Calculations - 2021

Segment ID	Priority	Segment Name	From	To	Estimated Total Improvement Cost (2021)	TIF Elegible Project	Estimated Year of Completion
B	High	27th Street, widen for turn lanes and bike lanes, sidewalks	Main Street	SR-14	$ 3,862,541	Yes	2021-2025
AH	High	S 27th Street - Shared Use Path	SR-14	Index St terminus	$ 268,691	Yes	2021-2025
A	High	32nd Street Rail Underpass Project at BNSF	Main Street	E Street	$ 50,000,000	Yes	2021-2025
W	Low	6th Street, stripe to 3 lanes plus bike lanes and sidewalks (coordinate with Camas to extend improvements north of the BNSF Railroad/Lechner Road)	C Street	E Street	$ 300,000	No	2021-2025
AF	High	W Hood Avenue improvements to Urban Collector	SE Crown Road	SE 23rd Street	$ 26,206,159	Yes	2026-2030
F	High	F Street, traffic calming	25th Street	34th Street	$ 1,006,351	No	2026-2030
G	High	Shepherd Road bike/ped facilities	3rd Avenue	Washougal River Road	$ 3,713,047	No	2026-2030
J	Medium	Evergreen Way, widen to install bike lanes on south side	32nd Street	45th Street	$ 600,000	Yes	2026-2030
O	Medium	Washougal River Road intersection improvements	18th/O Street	Shepherd Rd	$ 1,756,666	Yes	2026-2030
P	Low	32nd/Stiles Road/34th Street, widen to 3 lanes, bike lanes, S/W, guard rail	Evergreen Way	SE Lehr Road	$ 14,607,893	Yes	2026-2030
Q	Low	Sunset View Road, widen to 2 lane collector with shoulders for bikes and pedestrians	Evergreen Way	SE Wooding Rd.	$ 10,645,689	No	2026-2030
T	Low	W Street, 2 lane collector and extension across creek	32nd Street	49th Street	$ 13,685,544	No	2026-2030
U	Low	Lehr Road, widen to collector stds. plus sidewalks	34th Street	UGA Boundary	$ 3,591,507	No	2026-2030
V	Low	Miscellaneous west city collectors			$ 5,317,375	No	2026-2030
I	Low	Crown Road/283rd Ave, widen to 3 lane arterial plus bike lanes and sidewalks (coordinate with Camas to extend improvements further north)	NE 7th	Camas UGA	$ 6,168,155	Yes	2026-2030
Y	Low	Evergreen Way & Sunset View Road Intersection Improvements	Intersection	Intersection	$ 2,600,956	Yes	2026-2030
Z	Low	Addy Street, widen for turn lanes, bike lanes, sidewalks	27th Street	45th Street	$ 7,810,160	No	2026-2030
AA	High	A Street/Addy Street Connection/Town Center Connector	20th Street	27th Street	$ 7,000,000	Yes	2026-2030
H	Medium	49th Street/J Street, traffic calming	W Street	32nd Street	$ 2,574,059	No	2031-2040
S	Medium	Ford Street Extension	27th Street	32nd Street	$ 7,470,047	No	2031-2040
L	Medium	C & Main Street bike lanes and sidewalks	Washougal River Road	34th Street	$ 3,094,408	No	2031-2040
M	Medium	C Street bike lanes and sidewalks	6th Street	Washougal River Road	$ 2,474,554	No	2031-2040
N	Medium	39th Street bike/ped facilities	W Street	Evergreen Way	$ 2,474,701	No	2031-2040
R	Low	Evergreen @ 39th Street, minor Intersection Improvements	Intersection	Intersection	$ 104,780	Yes	2031-2040
AC	Low	N T Street (previously 40th Street) bike/pedestrian facilities	Crown Rd/283rd Ave.	Woodburn Hill	$ 4,950,324	No	2031-2040
AB	Low	Washougal River Bike/ped trail and crossing @ 9th Street	Shepherd Road	K Street	$ 1,855,916	No	2031-2040
K	Medium	39th Street, traffic calming	Evergreen Way	M Street	$ 1,006,351	No	2031-2040
X	Low	Washougal River Bike/ped trail and crossing @ 28th Street	28th Street	L Street	$ 1,855,916	No	2031-2040
C	High	SR14 Access Improvements at 27th	Ramp Improvements	Ramp Improvements	$ 15,000,000	No	2021-2025
E	High	27th/Index Port Access Improvements Project	27th at Addy Street	Private Driveway on Index west of 27th	$ 8,000,000	Yes	2021-2025
AD	High	S. 2nd Street/A Street Realignment	S. 2nd Street RB	S. 4th Street	$ 1,900,000	Yes	2021-2025
AE	High	S. 4th Street	S. 2nd Street	S. Marina Way/ A Street	$ 770,000	Yes	2021-2025
AG	High	Marina Way/A Street Improvements	S. 2nd Street RB	S. 7th Street	$ 400,000	No	2021-2025

Recommended TIF Projects
Major Roadway Project
Neighborhood Project
Bike/Ped Project

Total Project Costs	**$ 213,071,789**	2021-2025	$	80,501,232
TIF Eligible Projects	**$ 123,845,840**	2026-2030	$	104,709,502
		2031-2040	$	27,861,056

Figure 11. Proposed Capital Improvements



4.4 Transit

Future transit service in Washougal should be expanded as the city grows, to provide travel options for citizens. The need for additional commuter service to Vancouver and Portland will likely grow with the population. The availability of transit service will depend to a large extent on the financial viability of C-TRAN.

As the Washougal area develops, especially in the areas to the northwest and northeast of the city, the city should implement transit-oriented development standards to encourage walking and bicycling use and potentially transit use (if transit service is extended in the future) in lieu of single-occupant vehicle trips to and within these areas. This will also increase mobility opportunities for those without access to an automobile.

4.5 Bicycle/Pedestrian

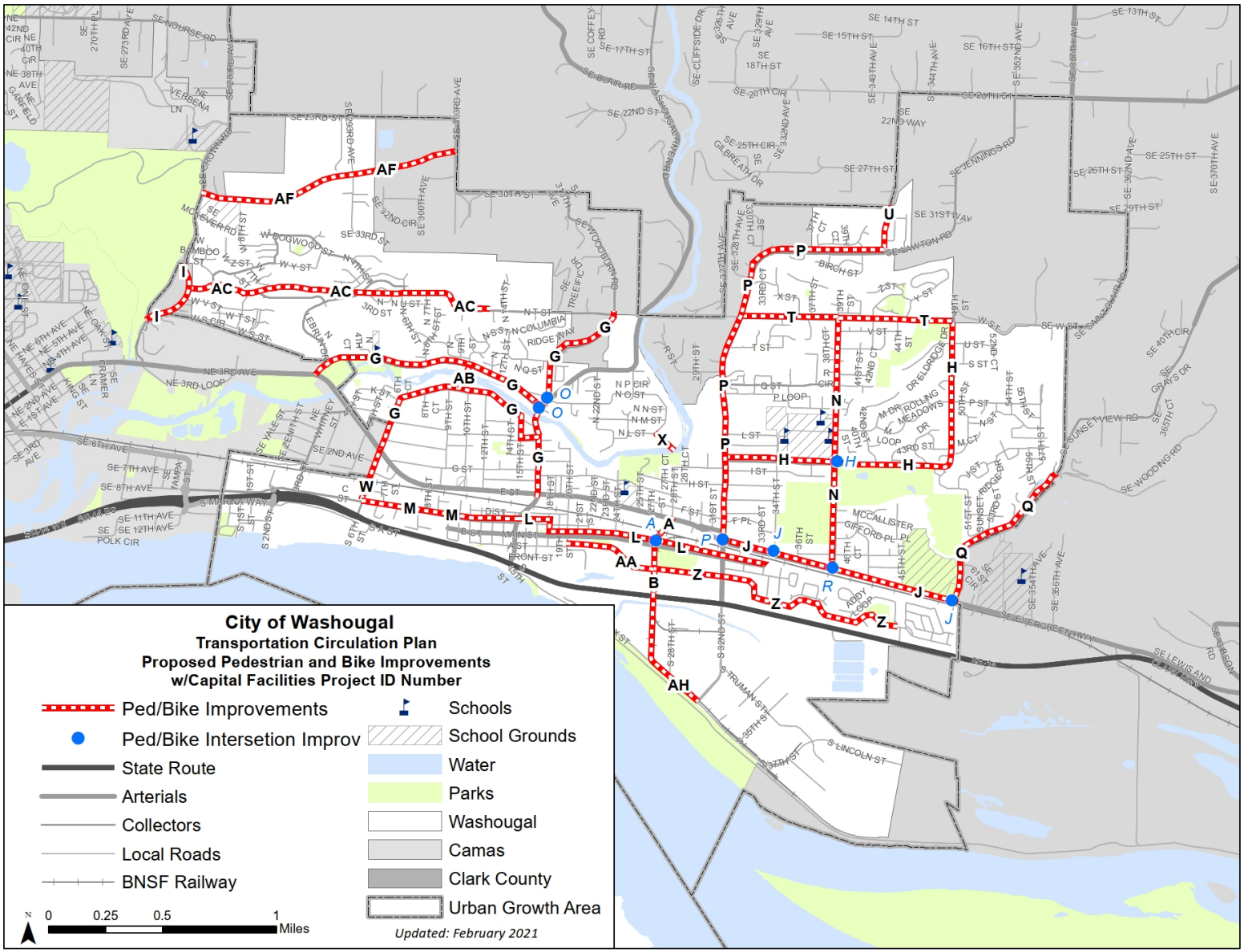
SR-14
Touring bicycles are allowed on SR-14. Existing shoulders should be maintained to accommodate touring bicycles

Sidewalks
Currently, several streets in Washougal have either no sidewalks or sidewalks on only one side of the street. As these streets are improved, sidewalks should be included on both sides of the street. Planter strips should also be considered for new sidewalk construction. Planter strips serve as buffer space between the sidewalks and the roadway for enhanced pedestrian usability. All newly constructed roads should include sidewalks on both sides.

Bicycles
The City of Washougal should plan for bike lanes to be provided on all arterials and non-Industrial and non-Residential collectors within the next 20 years. In addition, bike lanes should be striped on other streets where existing pavement widths allow. These improvements could be gained at relatively low cost. On local streets, traffic volumes and speeds are expected to be relatively low, so that cyclists can ride safely and comfortably in the vehicular travel lanes, so provision of bike lanes is not appropriate on these facilities. On Industrial and Residential collectors, adequate width is provided for a shared parking lane/bike lane in each direction.

Future bicycle improvements identified in conjunction with street improvements are intended to provide bicyclists with full accessibility on the city's major street system. These facilities will provide circulation for the destination-oriented bicyclist, including travel between residential areas and schools/work, routes between local social and environmental features for the recreational bicyclist, and result in a more balanced transportation system. Including bicycle lanes and/or routes on arterial and local roads provides opportunities for projects to receive funds from many of the funding sources identified in Section 5 (see Table 9). Without bicycle lanes and/or routes, many of the projects would be ineligible for funding. Proposed bicycle and pedestrian improvements are shown on Figure 14.

Figure 14. Bicycle and Pedestrian Circulation Plan (On-Street Facilities)



4.6 Parking

Parking supply is an issue in downtown Washougal as the city continues to promote downtown as a destination point for shoppers and visitors. On-street parking should remain on downtown streets to foster future downtown growth. An increase in the supply of off-street parking should be considered as downtown becomes more of a destination.

4.7 Port of Washougal

The Port of Camas-Washougal owns and operates a 350-slip marina with launch ramp, historical park, industrial lands and a general aviation airport. The Port has a stake in the efficient completion of the CFP projects because of the better access the improved system would provide for freight trucks serving industrial lands within the City and along SR-14.

4.8 Roadway Expansion and Improvements

The cost estimates contained in this Plan document assume roadway widening to City standards, including turn lanes and bike lanes as well as sidewalks. Previous sections detailed improvements planned for SR-14. This section briefly describes other mitigation/improvement projects contained in the Plan to resolve level-of-service deficiencies for 2030 as described in Table 7 above.

Washougal River Road Corridor

Along this corridor, there are several intersections that either have LOS issues (SR-14, B/C Street, E Street), or have safety issues (Shepherd Road, 18th Street). At SR-14, the long-term plan assumed for this location is an interchange, which would need to be coordinated with the improvements at 27th and/or 32nd Street described in Section 4.3.

Both the B Street (signalized) and C Street (unsignalized) intersections with Washougal River Road are projected to be at LOS F in 2030 PM peak hours. Currently, the C Street/ Washougal River Road intersection does not allow for westbound left turns or through traffic. The future LOS F condition is caused by growth in the central core of Washougal as well as traffic levels on Washougal River Road. This puts pressure on the Washougal River Road/B intersection to carry much of the traffic load into and out of downtown as it is signalized and allows all turning movements.

This Plan assumes that both the C and B Street intersections will be signalized and coordinated, and that intersection improvements to allow for all turning movements at each intersection will be included in the corridor improvements. This does affect the north-south “green signal progression” along Washougal River Road, but spreads the traffic load between B and C Streets rather than focusing most of the traffic at Washougal River Road and B Street. These improvements would result in a LOS C at both intersections in 2030.

The Washougal River Road/Shepherd Road and 18th Street/Washougal River Road intersections are skewed and problematic due to their proximity to each other. It is impractical to correct the skew of either intersection due to the Washougal River, close houses, and terrain. Widening Washougal River oad is constrained but there should be enough width to accommodate a center left turn lane at each intersection. However, the skew of 18th Street at Washougal River Road makes left turns from southbound 18th onto northeast-bound Washougal River Road problematic.

This Plan assumes both intersections are signalized and short left-turn lanes are provided at each signal. However, further study that is beyond the scope of this Plan is necessary to determine the appropriate improvement project. Restricting left turns from 18th Street onto Washougal River Road could be resolved by a roundabout at Shepherd Road (which would allow for u-turns there), but given the constrained environmental along Washougal River Road a roundabout may be impractical.

32nd Street Corridor

The 32nd Street corridor is the primary north-south route in the eastern part of the City connecting SR-14 to Stiles Road and the rural areas north and east of Washougal. It also experiences a significant amount of bicycle and pedestrian traffic, both traveling along the roadway as well as crossing the roadway. The intersections with SR-14 and with E Street are projected to be at LOS F and E, respectively, during peak hours in 2030.

The assumptions in this Plan for SR-14 are outlined in Section 4.3. The Main Street and 32nd Street intersection improvement in this Plan assumes a signal and minor intersection improvements. However, due to its proximity to the BNSF railroad crossing, the signal must be coordinated with the railroad crossing signal to prohibit traffic movements to the north while trains are crossing 32nd Street. The signalization of this intersection is important to support it as a primary connection between 27th and 32nd Streets (as well as E Street) and to relieve the pressure on Addy Street, which also provides this connection.

North of E Street, the Plan assumes a full widening of 32nd Street to three lanes plus bike lanes and sidewalks north to approximately W Street. From there, 32nd Street becomes Stiles Road and begins an ascent up a ridgeline that makes any significant widening expensive. The Plan assumes minor widening to increase shoulder widths to accommodate pedestrians and bicycles, and a guardrail along a section with a rather steep drop-off, from W Street to the northeast city limits.

Between E Street and J Street, the Plan also includes costs for pedestrian treatments across 32nd Street s well as "traffic calming" improvements to help slow down traffic. Although the Plan is not prescribing specifically what these improvements are (allowing the City to work with the adjacent neighborhoods to develop the preferred treatment), the following measures should be considered:

- Pedestrian crossings with center median refuge island
- Curb extensions at some intersections to reduce the width of 32nd and the length of the pedestrian crossing distance
- Actuated, flashing, lighted crosswalks at locations carrying significant amounts of pedestrian traffic
- Streetscape improvements to visually narrow the roadway and, thus, reduce auto speeds.

Speed bumps are discouraged as a traffic calming measure due to 32nd Street being the primary emergency response route from the fire station (at E Street and 39th Street) and points north and east along 32nd Street and Stiles Road.

4.9 Neighborhood Traffic Calming

Every year the City of Washougal Public Works Department receives requests for speed bumps, reduced speed limits, and better speeding enforcement throughout many of the city's neighborhoods. These types of items can be categorized as "Traffic Calming Solutions." In some instances these solutions are

warranted, but in many others these tools may exacerbate the traffic problem rather than solving the issue at hand. The intent of this section is to provide a methodological approach to determine:

a. if a traffic issue exists and, if so, an approach to define the issue and its cause;
b. if a traffic calming implement is warranted; and
c. if so, the appropriate traffic calming solution.

In accordance with Resolution 878, Traffic Calming Program, this approach has three phases as described below.

Phase I: Problem Identification

The focus of Phase I is to determine if a traffic problem exists. Resolution 878 outlines the initial steps of the Traffic Calming Process:

1. Staff will review with the individual expressing concern (citizen, Mayor, City Council member or city staff) how the traffic-calming program operates and the steps to be followed.
2. Staff to work with initial group that has registered concert to:
    a. Identify the individuals making the request, the location, and type of concern.
    b. Establish the affected area (area that will be contacted to become involved in the decision making).
3. Engineers Evaluation: staff to review the area of concern and summarize findings.
    a. Review existing pavement markings, signs, and/or signals.
    b. Perform traffic counts (if needed).
    c. Perform a speed study.
4. If the results from the engineers evaluation determine that action is needed then the project will proceed into Phase II. If not, the results shall be presented to the citizens but no further action will take place.

Phase II: Tier 1 Mitigation Measures

If a problem exists as determined by the Engineers Evaluation, the project will proceed to Phase II which provides the neighborhood with tools for resolution and documentation of traffic problems. Phase II measures should be thoroughly explored and implemented before seeking solutions under Phase III. The process for Phase II is as follows:

1. Hold a neighborhood meeting of all citizens within the affected area.
    a. Review concerns of initial group.
    b. Review alternatives (see Phase II).
2. Action – Implement Phase II alternatives that are put in place as requested by the neighborhood.
3. After a minimum of 30 days, Staff will mail a “Request To Review” form to each of the citizens within the affected area to evaluate the success or failure of action taken.

Phase II tools include, but are not limited to, the following:

- Radar Trailer – deployment of a portable, unmanned, trailer equipped with a radar and a speed limit sign to alert drivers of their speed.
- Passive Traffic Controls – installation of warning or guide signs.
- Traditional Police Enforcement of existing speed limits and other vehicle code violations
- Pavement Markings – improve the condition of existing roadway markings or modification or installation of new markings to assist vehicle drivers.

Phase III: Tier 2 Mitigation Measures

If the traffic issue still exists after Phase II steps have been taken, then more restrictive physical devices can be considered. Phase III addresses problems that require permanent and more costly traffic control solutions. Phase III measures are only to be used when Phase II measures are not effective or practical in solving the traffic issue. Phase III includes more substantial mitigation measures to calm traffic on residential and community commercial streets. The process for Phase III is as follows:

1. If more than 50 percent of the citizens request additional action then Phase III action will be sought.
2. Review the physical modifications that are possible for the affected area.
    a. Staff will prepare design and cost estimates of suggested alternatives.
    b. A public meeting will be held to review the alternatives with the neighborhood.
3. The physical modification will be selected by the neighborhood with the concurrence of the city. A cost estimate will be prepared by the city. The project can be submitted by the City of funding is available by the residents of the affected area as a Local Improvement District (LID).
4. With a successful vote of the neighborhood and funding the city will install the improvements.

Phase III Solutions include, but are not limited to, the following:

- Traffic Circles - Traffic circles are raised circular areas placed in an existing intersection. Drivers travel in a counter-clockwise direction around the circles. Traditional circles are "yield upon entry," meaning that cars in the circle have the right-of-way and cars entering the circle must wait until the path is clear. When a traffic circle is placed in an intersection, no automobile can travel in a straight path.
- Speed Humps – Speed humps are wave-shaped paved humps in the street. The height of the speed hump determines how fast it can be navigated without causing discomfort to the driver. Discomfort increases as the speed over the hump increases.
- Chokers - Chokers are curb extensions at mid-block that narrow a street by widening the sidewalk or planting strip. Two lanes of travel are maintained, and bike lanes are placed on the outside of the choker.
- Median Barriers – Medians are traffic islands, installed to prevent or ensure certain turning movements at intersections. They also provide for separation between opposing lanes of traffic.

SECTION 5 FINANCING

5.1 State Requirements

Under the Growth Management Act, the transportation financing analysis must include:

1. An analysis of a jurisdiction's funding capability comparing needs against anticipated revenues.
2. A multi-year financing plan based on the identified needs.
3. If anticipated funding falls short of identified needs, a strategy is required to show how additional funding will be raised, how land use assumptions will be reassessed to ensure that the level of service standards will be met, or that level of service standards will be adjusted accordingly.

5.2 Funding Sources

Potential transportation funding sources are identified in Table 9. This table identifies the funding source, the jurisdictions that are eligible to receive funds from that source, and possible uses for the funds. This is not intended to be a complete list, and funding sources are continually changing so vigilance on the part of local officials is advised so that opportunities are not overlooked.

It is estimated that public funding will provide about 20 percent of the total needs, while grants will provide about 24 percent, Traffic Impact Fees (TIF) will provide about 3.5 percent, private funding about 14 percent and WSDOT about 38.5 percent. Private funding will be primarily through developer frontage improvement and access road requirements.

Table 9. Potential Funding Sources

Funding Agency	Funding Program	Uses
WSDOT/Federal	Federal Highways Bridge Program	Provides funds to improve the condition of bridges through replacement, rehabilitation and preventative maintenance. Preventative maintenance is defined as steel bridge painting, scour mitigation, seismic retrofit, and deck/joint repair. WSDOT is focusing on funding local agency bridges that are classified as structurally deficient with a sufficiency rating of 40 or less for replacement and structurally deficient with a sufficiency rating of 80 or less for rehabilitation.
WSDOT/Federal	WSDOT Local Programs (distributes federal safety money from the Highway Safety Improvement Program (HSIP) in MAP-21)	**City Safety Program**: Fund the design/preliminary engineering, right-of-way, and construction phases of projects that will use engineering countermeasures to reduce fatal and serious injury collisions on: city streets in cities of any population/ and, state highways that serve as arterials within cities with population above 25,000. **County Safety Program**: Fund the design/preliminary engineering, right-of-way, and construction phases of projects that will use engineering countermeasures to reduce fatal and

Funding Agency	Funding Program	Uses
		serious injury collisions on county roads. **City/County Corridor Safety Program**: The program uses low cost, near term solutions to improve traffic safety. These include engineering, enforcement, education, encouragement, and emergency services solutions.
WSDOT/RTC	Surface Transportation Program (federal)	Construction of improvements on federally classified roads
WSDOT	Safe Routes to School	Fund capital projects for traffic and pedestrian safety improvements near schools
WSDOT	Pedestrian and Bicycle Program Funding	Funds transportation improvements that support infill and redevelopment, intensify land uses, and connect housing and employment in order to improve the mobility and safety.
RTC	Congestion Mitigation and Air Quality Improvement (federal)	For air quality improvement projects (not those that add lane capacity)
Washington Transportation Improvement Board (TIB)	Urban Arterial Program (UAP)	For roadway projects that improve safety and mobility.
TIB	Urban Sidewalk Program (SP)	For sidewalk projects that improve safety and connectivity.
Public Works Trust Fund Board	Public Works Trust Fund Construction Loan Program	Revolving low interest loan fund to help local government finance critical public works needs
Washington State County Road Administration Board	Rural Arterial Program (RAP)	County road and bridge reconstruction
Washington State County Road Administration Board	County Arterial Preservation Program (CAPP)	Preserve existing paved county arterial road networks
BNSF Railway	Federal CFR Title 23: Highways; Part 646.210: Classification of projects and railroad share of the cost	For separated railroad crossing projects, the railroad operator is required to share five (5) percent of the project cost.

5.3 Existing and Projected Revenue

The adopted transportation plan needs to be achievable, with a realistic expectation of funding based on a financial analysis. The appropriate transportation plan for a community is a balance between:

- One that can be readily afforded with existing revenue sources; and
- One that can be achieved if the community is willing to make a commitment to aggressively pursue a variety of additional funding sources.

Funding of the improvements in the recommended plan will be derived from the following sources:

- Ongoing Local Revenue

- State and Federal Programs
- Private Funding

A comparison of the cost of improvements identified in the Washougal Transportation Circulation Plan versus the anticipated revenues from traditional sources shows a shortfall over the next 20 years. Because of the rapid growth that is anticipated over that time, it is realistic to expect that some percentage of that shortfall could be made up from increases in the adopted traffic impact fee (TIF). To make the Washougal Transportation Circulation Plan a reality, the City should:

1. Continue the collection of local taxes and fees at or above the current levels.
2. Aggressively pursue all potential State and Federal funding sources, including any future updates to the state's "nickel gas tax package."
3. Work toward adopting a dedicated street and road fund.

5.4 Traffic Impact Fees

TIFs are collected to pay for a portion of the transportation improvements needed to accommodate traffic resulting from new development. TIFs are paid only for new development or redevelopment which would add trips compared to its current use. The fee is assessed by examining the number of trips expected to be generated from that development. The fees collected can be used to expand existing transportation facilities and to build new facilities.

The Traffic Impact Fee is $689 (2021$) per trip generated, which is calculated by estimating the net cost of applicable improvements and dividing by the estimated number of new trips in 2040. The TIF is indexed with inflation and will adjust annually, or as directed by the City, based on the Seattle Engineering News Record Construction Cost Index (ENR-CCI).

TIF Facilities

During the planning process, updated cost estimates (in Year 2021 dollars) were developed for roads currently in the plan, as well as new roadways proposed to be added to the plan. Some improvements are eligible for TIF funds, while others are not.

TIF eligible roadways were determined using the following criteria:

- Roads classified as principal or minor arterials, and State Highways
- Roads that serve primarily citywide trips, regional trips or trips over multiple land uses that serve the majority of trips to and from Washougal
- Roads that serve to reduce impacts on adjacent facilities

Projects that are considered TIF eligible are shaded grey on the Capital Facilities Plan list in Table 8. Non-TIF eligible roads would be built by the private developer to comply with City street standards, or would be funded as a public project (or some public/private combination that does not involve TIF).

Discussion has also focused on what parts of the transportation system improvements should be included in the TIF calculations (core road lanes, bike lanes, sidewalks, right-of-way, etc.). To help keep the TIF rate "affordable," improvements included in the TIF program should be limited to the basic roadway components. The following is recommended:

- The core roadway section is TIF eligible. This includes storm water costs, right-of-way costs, and environmental mitigation.
- Frontage improvements, including bike lanes, landscaping, and sidewalks are not included in TIF calculation. The costs of frontage improvements will be borne by the adjacent development.

TIF Zone Structure

This plan is based on a single-zone system. By having one zone, the TIF funding pool can be used on any TIF-eligible roadway citywide, and TIF credits can be used regardless of geographic location in the city.

In the future, the city may choose to implement a Transportation Benefit District (TBD). A TBD is a quasi-municipal corporation with independent taxing authority. Chapter 36.73 of the Revised Code of Washington provides for the establishment of TBDs by cities and counties to levy and impose various taxes and fees to generate revenues to support transportation improvements within the district that are consistent with state, regional or local transportation plans and necessitated by existing or reasonably foreseeable congestion levels.[7]

A TBD would provide added revenue to allow Washougal to move forward on many of the unfunded transportation projects in the six-year Transportation Improvement Program. Funds from the TBD could only be used to fund transportation projects specifically within the City of Washougal.

Per Chapter 36.73.065(4)(a) RCW, the Washougal City Council could vote to impose:

- an annual vehicle fee of up to twenty dollars, or
- a fee or charge on the construction or reconstruction of commercial buildings, industrial buildings, or any other commercial or industrial building or building space or appurtenance, or on the development, subdivision, classification, or reclassification of land for commercial purposes, only if done in accordance with Chapter 39.92 RCW.

Preliminary research found that there is moderate local support for implementation of a TBD in Washougal.[8]

Trip Basis

This plan implements a daily trip TIF system, as opposed to only considering the PM peak trips. The advantages of using Daily trips are:

- Captures all trips generated by new development
- Captures trips generated by land uses that typically do not generate a large proportion of trips during the peak period (warehousing, medical services, etc.)
- Captures truck trips that tend to occur outside peak hours

[7] Washington State Legislature. *Chapter 36.73 RCW Transportation Benefit Districts*. http://apps.leg.wa.gov/rcw/default.aspx?cite=36.73. Accessed June 10, 2011.
[8] This finding was concluded from the February 2011 Public Opinion Survey which was disseminated to about 300 residents and business owners within the City of Washougal via email. Paper copies of the survey were also provided at strategic locations such as the Washougal Library, City Hall and the Police and Fire Stations.

Truck Trips in TIF Calculations

The 2005 Plan update process included a discussion regarding the ability to include a factor for the number of truck trips generated or attracted to a development site. This plan does not separately factor truck trips. As further information becomes available, future TIF updates should consider incorporating a truck trip factor. Use of the daily TIF assessment will capture truck trips which typically occur during off-peak periods.

TIF Exemptions

Exempting new school facilities from TIF payments was considered during the 2005 Plan update process. This plan does not allow for such exemptions.

TIF Reductions

The 2005 Plan update process included discussion of several potential TIF reduction factors, including reductions for developments that increase sales tax revenues (retail developments), developments that include family wage jobs (office parks, industrial parks), and developments that occur early in the capital improvement program planning horizon. This Plan does not allow for these reductions. Future TIF updates should consider incorporating some or all of these reduction factors. Note, however, that the more reductions that are allowed, the higher the TIF rate.

TIF Reductions for Pass-by Trips

This Plan allows TIF reductions for pass-by trips. Pass by trips are those trips already on the system that access new developments as they pass by (e.g. gas stations, fast food, etc.). The advantages of pass-by TIF reductions are:

- Development does not pay for trips that are not generated solely by that development
- Pass-by TIF reductions are allowed by most jurisdictions
- Institute of Transportation Engineers (ITE) Traffic Generation Manual, current edition, provides specific guidance on pass-by trips by land use

Table 10 shows the potential impact of implementing a TIF reduction for pass-by trips.

Table 10. Example Pass-By Trip TIF Reduction

Land Use	Unadjusted TIF*	Pass-By Factor	Adjusted TIF
Commercial**	$689	15%	$360.65

*Cost per daily trip
**Reduction would be applicable to commercial uses

5.4.1 Trip Generation

The main criterion used in determining the traffic impacts of new development is the number of trips that will be generated, which is dependent on the type of development. The accepted source of trip generation rates is the "Trip Generation Manual" published by the Institute of Transportation Engineers (ITE). To reduce debate during the development review process, many jurisdictions codify a standardized rate for each common development type in their regulations. For small developments it is

fairly easy to ascertain the number of new trips by using the standard table. For large developments, a separate traffic study may be appropriate to determine the new trips that would be generated.

5.4.2 Cost of Improvements

The other essential ingredient needed to establish an impact fee schedule is the estimated cost of improvements that will be needed to maintain the adopted level of service. A net cost is calculated by subtracting the anticipated revenue from all other sources such as user fees, taxes from all governmental levels, grants, contributions, etc. This net cost (presumably a shortfall) becomes the basis for calculating the impact fee to be paid by the development.

In the case of Washougal, the total revenues that would be created through traffic impact fees are $15,769,044 This revenue, divided by the total additional trips[9] (22,849 daily trips), provides a cost per daily trip. Cost per daily trip, therefore, is $15,769,044 /22,849 = $689 per daily trip.

The full capital facilities improvement table is included in the Appendix.

5.4.3 Impact Fee Calculation for Specific Uses

The cost per trip multiplied by the total trips generated by a particular land use (residential, commercial, industrial, etc.) gives the impact fee for that use. The Institute of Transportation Engineers (ITE) Traffic Generation Manual, current edition, is a reference manual prepared by the Institute of Transportation Engineers, and includes trip generation rates for multiple land uses. By finding the appropriate trip generation rate in the Trip Generation Manual and multiplying that number by the cost per trip, the correct impact fee for a specific land use can be determined.

For instance, a single family residence would pay an impact fee of $6,559.28 (9.52 x $689).

This section may require modification whenever the City implements changes to the future land use scenario.

5.4.4 TIF Summary

A summary of the TIF provisions is provided below. A list of proposed projects, including TIF eligible projects, is shown in Appendix B.

- The TIF rate is $689er daily trip
- There is one citywide TIF zone
- TIF Credits can be used citywide
- TIFs are calculated based on the TIF share of project costs. Thus, credits will be issued based on TIF share of project cost, up to the proportionate TIF cost in the CFP
- Previously issued TIF credits will be honored
- The implementing ordinance will amend the current TIF code and will set administrative practice and rules

[9] Additional trips were extrapolated out to 2040. Additional trips were estimated to be 20,200 in 2030.

APPENDIX A – POPULATION AND EMPLOYMENT BY TAZ – WASHOUGAL PLANNING AREA

TAZ	2005 HH	Estimated 2010 Employment			Estimated 2030 HH & Employment			
		Retail	Non-Retail	Total Emp.	HH	Retail	Non-Retail	Total Emp.
394	253	8	46	54	308	8	108	116
402	164	121	36	157	165	139	79	218
404	205	25	38	63	293	44	75	119
405	203	0	5	5	217	0	35	35
427	7	186	96	282	68	468	27	495
4271	6	33	164	197	68	642	60	702
428	314	39	56	95	441	136	76	212
429	162	0	844	844	168	0	1,378	1,378
4291	0	102	0	102	0	177	0	177
430	20	1	575	576	21	1	1,305	1,306
4301	631	0	6	6	685	0	13	13
431	4	0	24	24	34	0	30	30
432	518	12	52	64	548	52	104	156
4321	130	11	0	11	163	381	0	381
433	69	9	145	154	55	194	238	432
4331	362	46	0	46	411	117	0	117
434	192	91	41	132	197	283	147	430
435	176	88	43	131	201	86	43	129
436	98	0	103	103	159	0	148	148
438	255	0	14	14	645	0	14	14
439	206	0	340	340	675	0	459	459
440	670	0	7	7	1,039	0	7	7
479	267	0	8	8	421	0	8	8
487	26	0	7	7	101	0	7	7
488	224	0	10	10	313	0	10	10
629	257	35	18	53	217	159	136	295
630	1	23	162	185	4	22	234	256
631	260	0	7	7	1,156	30	28	58
632	108	0	39	39	873	500	110	610
633	227	0	6	6	515	0	7	7
634	18	0	4	4	144	273	3,458	3,731
635	220	8	25	33	298	8	25	33
665	54	0	3	3	178	0	4	4
Total	**6,307**	**838**	**2,924**	**3,762**	**10,780**	**3,719**	**8,373**	**12,093**

APPENDIX B – DETAILED LIST OF PROPOSED TRANSPORTATION CAPITAL FACILITIES PROJECTS

Washougal Traffic Impact Fee Calculations - 2021

Segment	Priority	Segment Name	From	To	Estimated Year of Completion	Project Eligible for TIF Funds?	Grant	WSDOT	Public Share/Other City Source	TIF	Private Share	Total	Estimated Total Improvement Cost (2021 dollars)	Grant Share	WSDOT Share	Public Share	TIF Share	Private Share
B	High	27th Street, widen for turn lanes and bike lanes, sidewalks	Main Street	SR-14	2021-2025	Yes	25%	0%	30%	30%	15%	100%	$ 3,862,541	$ 965,635	$ -	$ 1,158,762	$ 1,158,762	$ 579,381
AH	High	S 27th Street - Shared Use Path	SR-14	Index St terminus	2021-2025	Yes	50%	0%	0%	50%	0%	100%	$ 268,691	$ 134,345	$ -	$ -	$ 134,345	$ -
A	High	32nd Street Rail Underpass Project at BNSF	Main Street	E Street	2021-2025	Yes	40%	0%	30%	15%	15%	100%	$ 50,000,000	$ 20,000,000	$ -	$ 15,000,000	$ 7,500,000	$ 7,500,000
W	Low	6th Street, stripe to 3 lanes plus bike lanes and sidewalks (coordinate with Camas to extend improvements north of the BNSF Railroad/Lechner Road)	C Street	E Street	2021-2025	No	40%	0%	40%	0%	20%	100%	$ 300,000	$ 120,000	$ -	$ 120,000	$ -	$ 60,000
AF	High	W Hood Avenue improvements to Urban Collector	SE Crown Road	SE 23rd Street	2026-2030	Yes	0%	0%	6%	14%	80%	100%	$ 26,206,159	$ -	$ -	$ 1,572,370	$ 3,689,566	$ 20,964,927
F	High	F Street, traffic calming	25th Street	34th Street	2026-2030	No	25%	0%	50%	0%	25%	100%	$ 1,006,351	$ 251,588	$ -	$ 503,176	$ -	$ 251,588
G	High	Shepherd Road bike/ped facilities	3rd Avenue	Washougal River Road	2026-2030	No	25%	0%	50%	0%	25%	100%	$ 3,713,047	$ 928,262	$ -	$ 1,856,524	$ -	$ 928,262
J	Medium	Evergreen Way, widen to install bike lanes on south side	32nd Street	45th Street	2026-2030	Yes	40%	0%	35%	10%	15%	100%	$ 600,000	$ 240,000	$ -	$ 210,000	$ 60,000	$ 90,000
O	Medium	Washougal River Road intersection improvements	18th/O Street	Shepherd Rd	2026-2030	Yes	35%	0%	30%	20%	15%	100%	$ 1,756,666	$ 614,833	$ -	$ 527,000	$ 351,333	$ 263,500
P	Low	32nd/Stiles Road/34th Street, widen to 3 lanes, bike lanes, S/W, guard rail	Evergreen Way	SE Lehr Road	2026-2030	Yes	50%	0%	29%	6%	15%	100%	$ 14,607,893	$ 7,303,946	$ -	$ 4,250,897	$ 861,866	$ 2,191,184
Q	Low	Sunset View Road, widen to 2 lane collector with shoulders for bikes and pedestrians	Evergreen Way	SE Wooding Rd.	2026-2030	No	45%	0%	40%	0%	15%	100%	$ 10,645,689	$ 4,790,560	$ -	$ 4,258,275	$ -	$ 1,596,853
T	Low	W Street, 2 lane collector and extension across creek	32nd Street	49th Street	2026-2030	No	75%	0%	10%	0%	15%	100%	$ 13,685,544	$ 10,264,158	$ -	$ 1,368,554	$ -	$ 2,052,832
U	Low	Lehr Road, widen to collector stds. plus sidewalks	34th Street	UGA Boundary	2026-2030	No	0%	0%	20%	0%	80%	100%	$ 3,591,507	$ -	$ -	$ 718,301	$ -	$ 2,873,206
V	Low	Miscellaneous west city collectors			2026-2030	No	0%	0%	0%	0%	100%	100%	$ 5,317,375	$ -	$ -	$ -	$ -	$ 5,317,375
I	Low	Crown Road/283rd Ave, widen to 3 lane arterial plus bike lanes and sidewalks (coordinate with Camas to extend improvements further north)	NE 7th	Camas UGA	2026-2030	Yes	20%	0%	21%	9%	50%	100%	$ 6,168,155	$ 1,233,631	$ -	$ 1,295,313	$ 555,134	$ 3,084,078
Y	Low	Evergreen Way & Sunset View Road Intersection Improvements	Intersection	Intersection	2026-2030	Yes	30%	0%	40%	10%	20%	100%	$ 2,600,956	$ 780,287	$ -	$ 1,040,382	$ 260,096	$ 520,191
Z	Low	Addy Street, widen for turn lanes, bike lanes, sidewalks	27th Street	45th Street	2026-2030	No	25%	0%	50%	0%	25%	100%	$ 7,810,160	$ 1,952,540	$ -	$ 3,905,080	$ -	$ 1,952,540
AA	High	A Street/Addy Street Connection/Town Center Connector	20th Street	27th Street	2026-2030	Yes	30%	0%	25%	5%	40%	100%	$ 7,000,000	$ 2,100,000	$ -	$ 1,750,000	$ 350,000	$ 2,800,000
H	Medium	49th Street/J Street, traffic calming	W Street	32nd Street	2031-2040	No	25%	0%	50%	0%	25%	100%	$ 2,574,059	$ 643,515	$ -	$ 1,287,030	$ -	$ 643,515
S	Medium	Ford Street Extension	27th Street	32nd Street	2031-2040	No	75%	0%	25%	0%	0%	100%	$ 7,470,047	$ 5,602,535	$ -	$ 1,867,512	$ -	$ -
L	Medium	C & Main Street bike lanes and sidewalks	Washougal River Road	34th Street	2031-2040	No	25%	0%	50%	0%	25%	100%	$ 3,094,408	$ 773,602	$ -	$ 1,547,204	$ -	$ 773,602
M	Medium	C Street bike lanes and sidewalks	6th Street	Washougal River Road	2031-2040	No	25%	0%	50%	0%	25%	100%	$ 2,474,554	$ 618,639	$ -	$ 1,237,277	$ -	$ 618,639
N	Medium	39th Street bike/ped facilities	W Street	Evergreen Way	2031-2040	No	25%	0%	50%	0%	25%	100%	$ 2,474,701	$ 618,675	$ -	$ 1,237,350	$ -	$ 618,675
R	Low	Evergreen @ 39th Street, minor Intersection Improvements	Intersection	Intersection	2031-2040	Yes	0%	0%	85%	15%	0%	100%	$ 104,780	$ -	$ -	$ 89,063	$ 15,717	$ -
AC	Low	N T Street (previously 40th Street) bike/pedestrian facilities	Crown Rd/283rd Ave.	Woodburn Hill	2031-2040	No	25%	0%	50%	0%	25%	100%	$ 4,950,324	$ 1,237,581	$ -	$ 2,475,162	$ -	$ 1,237,581
AB	Low	Washougal River Bike/ped trail and crossing @ 9th Street	Shepherd Road	K Street	2031-2040	No	25%	0%	50%	0%	25%	100%	$ 1,855,916	$ 463,979	$ -	$ 927,958	$ -	$ 463,979
K	Medium	39th Street, traffic calming	Evergreen Way	M Street	2031-2040	No	50%	0%	25%	0%	25%	100%	$ 1,006,351	$ 503,176	$ -	$ 251,588	$ -	$ 251,588
X	Low	Washougal River Bike/ped trail and crossing @ 28th Street	28th Street	L Street	2031-2040	No	50%	0%	25%	0%	25%	100%	$ 1,855,916	$ 927,958	$ -	$ 463,979	$ -	$ 463,979
C	High	SR14 Access Improvements at 27th	Ramp Improvements	Ramp Improvements	2021-2025	No	35%	35%	20%	0%	10%	100%	$ 15,000,000	$ 5,250,000	$ 5,250,000	$ 3,000,000	$ -	$ 1,500,000
E	High	27th/Index Port Access Improvements Project	27th at Addy Street	Private Driveway on Index west of 27th	2021-2025	Yes	25%	0%	45%	5%	25%	100%	$ 8,000,000	$ 2,000,000	$ -	$ 3,600,000	$ 400,000	$ 2,000,000
AD	High	S. 2nd Street/A Street Realignment	S. 2nd Street RB	S. 4th Street	2021-2025	Yes	0%	0%	86%	14%	0%	100%	$ 1,900,000	$ -	$ -	$ 1,632,499	$ 267,501	$ -
AE	High	S. 4th Street	S. 2nd Street	S. Marina Way/ A Street	2021-2025	Yes	0%	0%	86%	14%	0%	100%	$ 770,000	$ -	$ -	$ 661,592	$ 108,408	$ -
AG	High	Marina Way/A Street Improvements	S. 2nd Street RB	S. 7th Street	2021-2025	No	0%	0%	86%	14%	0%	100%	$ 400,000	$ -	$ -	$ 343,684	$ 56,316	$ -

Private Percent = 15% generally assumed for frontage improvements paid by adjacent development (sidewalks, etc)
Public Share based on percentage of trips that are using the facility today compared to in the future (2040)

2021	*Grant Share*	*WSDOT Share*	*Public Share*	*TIF Share*	*Private Share*
$ 213,071,789	$ 70,319,444	$ 5,250,000	$ 60,156,531	$ 15,769,044	$ 61,597,473
	33.0%	2.5%	28.2%	7.4%	28.9%

TRIP DATA BASED ON 2010 SUBAREA MODELING EXTRAPOLATED TO 2040 — *Blended TIF (single zone)* $ 689 per daily trip
22,894 new daily trips (estimated)

	2021 Maximum Daily TIF Rate/Trip	*Trips*	*Revenue*
Blended TIF (single zone) ALL TRIPS	$ 689	22,894	$ 15,769,044

Private	$ 77,366,518
Public	$ 135,725,975
Total	$ *213,092,493*

Recommended TIF Projects
Major Roadway Project
Neighborhood Project
Bike/Ped Project

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APPENDIX C: GLOSSARY OF TERMS USED IN THE TRANSPORTATION ELEMENT

Access/Accessibility	The opportunity to reach a given destination within a certain time frame or without being impeded by physical or economic barriers.
Alignment	The horizontal and vertical path followed by a rail line, busway, transitway, roadway, or other public work.
Alternative	A reasonable option for addressing corridor transportation concerns.
Assignment	Process by which trips described by mode, origin, destination, and time of day are distributed among the various available paths or routes in a network according to one of a number of flow distribution rules. (1)
Arterial	A major thoroughfare used mainly for through traffic rather than access to nearby property. Arterials generally have greater traffic carrying capacity than collector or local streets and are designed for continuously moving traffic. The principal and minor arterial road systems provide the high speed, high volume network for travel between major points in both rural and urban areas. (2) (3)
Average Daily Traffic (ADT)	The average number of vehicles passing a point during a 24-hour period. (1)
Calibration	The procedure used to adjust travel models to simulate base year travel. (1)
Collector	Roads that collect traffic from local access streets and convey it onto the arterial system. Collectors emphasize access to the surrounding area and de-emphasize mobility. (1)
Concurrent with Development	Transportation improvements or strategies either: (a) in place at the time of development or (b) with a secured financing commitment to complete improvements or strategies within six years.
Concurrency Requirement	A program to ensure that those public facilities and services necessary to support development are adequate to serve such development at the time the development activity is available for occupancy or use without decreasing current service levels below locally established minimum standards.
Distribution	Process by which trips defined by origin are distributed among the various available destinations. Common trip

	distribution models are the gravity model and the opportunity model. (1)
Functional Classification	A technique for assigning categories to transportation facilities based on a facility's role in the overall transportation system, recognizing that roads do not function independently, but as a system. (3)
Growth Management Act (GMA)	Legislation passed in 1990 requiring counties of a certain size to develop, among other items, urban growth boundaries, comprehensive plans, and concurrent funding plans.
Infrastructure	A term connoting the physical underpinnings of society at large including, but not limited to, roads, bridges, transit, waste system, public buildings, and communications networks. (1)
Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)	Legislative initiative by the U.S. Congress restructuring funding for highway and transit programs. ISTEA authorized increased levels of highway and transportation funding and an enlarged role for regional planning commissions/MPOs in funding decisions. The Act also required comprehensive regional long-range transportation plans. The Act was subsequently reauthorized and is known as the Transportation Equity Act for the 21st Century (TEA-21). TEA-21 reauthorized many of the provisions contained in ISTEA.
Link	In traffic assignment, a section of the highway network defined by a node at each end. A link may be one-way or two-way. (1)
Methodology	The system of principals, practices, and procedures applied to a specific branch of knowledge. (1)
Model	A mathematical or conceptual analysis tool that uses data on past and present conditions to make a projection about the future.
Park-and-Ride	A system in which commuters individually drive to a common location, park their vehicles, and continue travel to their final destination via public transit.
Parkway	A broad landscaped highway, often divided by planted median strips. A parkway is not a boulevard. (3)
Peak Direction	The direction of major traffic flow on a highway or transit facility during rush hours.

Peak Hour	The hour during which the maximum amount of travel takes place.
Peak Period	The period during which the maximum amount of travel occurs. Usually about 7 to 9 a.m. and 4 to 6 p.m.
Project Improvements	Project improvements are site improvements and facilities which are planned and designed to provide service for a particular development project and which are necessary for the use and convenience of the occupants or users of the project. Project improvements are normally paid for by the developer and are made a condition of development approval.
Safety Improvements	Facility improvements designed to enhance safety for vehicular, pedestrian, and bicycle traffic. Typical urban street standards use vertical curbs to protect the boulevard area where sidewalks, trails, street trees, utilities, and signs are located. Potential bicycle lanes are normally along paved shoulders that are designated by signs and/or pavement markings for preferential bicycle use. Safety can also refer to specific improvements to be based on more detailed engineering study to address existing accident problems. Actions could include (but not limited to) vegetation clearance, installation of improved signing/ pavement marking, illumination, removal of roadside obstacles, and minor widening or even roadway reconstruction to reduce curves and eliminate deep ditches.
System Improvements	System improvements, such as the principal and secondary arterial systems, are public facilities designed to serve areas within the community at large.
Transportation Analysis Zone	A small area within a transportation model with similar land-use and trip generating characteristics. The areas are used to define the total study area travel demand.
Transit	Refers to a multiple-occupant vehicle operated on a for-hire, shared-ride basis, including bus, ferry, taxi, shuttle bus, carpool, or vanpool.
Transportation Demand Management (TDM)	Managing the amount of transportation wanted. Development of policies and programs to motivate people to use public transportation, such as bus pass subsidies, flextime programs, and limiting free parking.
Transportation System Management (TSM)	An array of strategies intended to lead to a reduction in the number of vehicles using the road

	system while simultaneously serving the same number of travelers. (3) (4)
Trip	A one-way movement of a person or vehicle between two points for a specific purpose, sometimes called a one-way trip to distinguish it from a round trip.
Trip Assignment	The process of determining route or routes of travel and allocating the zone-to-zone trips to these routes. (1)
Trip Distribution	The process by which the movement of trips between zones is estimated. The data for each distribution may be measured or be estimated by a growth factor process or by synthetic model. (1)
Trip Generation	A general term describing the analysis and application of the relationships that exists between the trip makers, the urban area, and the trip making. It relates to the number of trip ends in any part of the urban area. (1)
Urban Growth Area (UGA)	The GMA requires designation of urban growth areas. A UGA is "the intensive use of land" which is incompatible with agricultural products or mineral extraction.
Urban Growth Boundary (UGB)	The point beyond which urban growth is prohibited and only growth not urban in nature is allowed.

1. University of Washington, Transportation Modeling Course, Glossary, Professor Cy Ulberg
2. *A Policy of Geometric Design of Highways and Streets,* 1984. American Association of State Highway and Transportation Officials, Page 553.
3. East-West Coordinating Council, "Talking the Talk, A Pocket Guide to the Language of Transportation Planning", September 2000.
4. *The American Heritage Dictionary, Second College Addition.* Houghton Mifflin, Boston, 1985.