

CHAPTER 5



Transportation Element

OF THE COMPREHENSIVE PLAN (2016 to 2036)

TRANSPORTATION ELEMENT VISION: *The City will develop and contribute to a well-designed transportation system through reasonable, planned, economically feasible transportation improvements for motorists, pedestrians, bicyclists, transit riders and commercial vehicles that support adopted land use plans, protect and improve business access, and protect and enhance the City's neighborhoods.*

Adopted September 14, 2016 with Ordinance 3690
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ACKNOWLEDGEMENTS

Thank you to the City Councils, Planning Commissions and Citizens from 1960 to the present that have contributed to comprehensive planning efforts of the City. This Transportation Element is built upon the foundation of these original plans.

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INTRODUCTION

The purpose of the Transportation Element is to ensure that the City's transportation infrastructure is managed to provide safe, efficient, and cost effective transportation routes within and through the City.

Roads for motorists can be the first thing that comes to mind when transportation facilities are mentioned. However, in addition to motorists the City has historically, and continues to, emphasize transportation facilities for pedestrians, bicyclists, and transit riders.

The City's projected growth, aging infrastructure, changes in certain demographics, and reductions in transportation funding from Federal and State sources present key challenges that the City will face in the coming years. The City recognizes that its approach to these challenges must be multi-modal and system-wide.

This document inventories the City's existing transportation networks, evaluates what improvements will be needed, and how these improvements will be paid for, as new homes and jobs are created in the City over the next 20 years

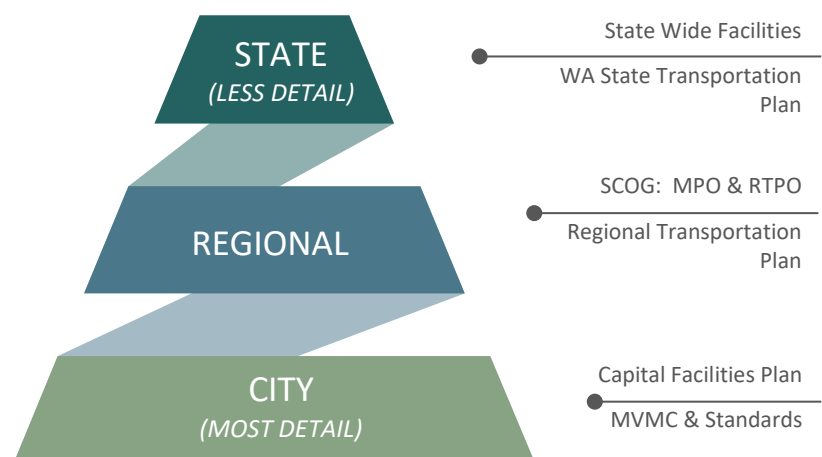
This Element of the Comprehensive Plan is just one part of the overall planning that the City engages in with regard to its transportation systems.

The City coordinates with the Washington State Department of Transportation (WSDOT) and is actively involved in regional planning with Skagit Council of Governments (SCOG) who is the Metropolitan Planning Organization (MPO) and the Regional Transportation Planning Organization (RTPO) in Skagit County.

At the local level, implementation of this Element is through the City's

Capital Improvement Plan (CIP) along with the City's development regulations found in the following Mount Vernon Municipal Code Chapters:

- Chapter 16.16 (Design Standards for Non-arterial Streets)
- Title 12 (Streets, Sidewalks and Public Works)
- Chapter 14.10 (Concurrency Management)
- Chapter 3.40 (Impact Fees for Public Streets, Roads, Parks, Open Space and Recreation Facilities and Fire Protection)
- Engineering Standards



Transportation Planning & Implementation at the State, Regional, and Local Levels

1.0

OVERVIEW OF TRANSPORTATION PLANNING

The purpose of the Transportation Element is to establish goals and policies that will guide the development of the transportation system in the City of Mount Vernon...

The transportation system is the backbone of Mount Vernon's economy and a key component to economic competitiveness.

The City's transportation system serves its residents and visitors traveling to their jobs, schools, social and recreational activities. The transportation system is the backbone of Mount Vernon's economy and a key component to economic competitiveness. The transportation system includes highways, arterials, local roads, sidewalks, bike routes, pathways, transit, and rail systems.

Transportation planning is the process of assessing and inventorying existing transportation networks and predicting the routes that future traffic will take through the City.

Existing condition traffic information combined with future travel routes provides the City with information to determine where new road, trail, transit, and other improvements are needed to make sure that all of these modes of transportation are safe, comfortable, convenient, economical, and reasonably quick.

The State Growth Management Act (GMA) requires that all Comprehensive Plans include a Transportation Element.

The Transportation Element is required to establish goals and policies that will guide the development of transportation systems.

In essence, this plan operates as a decision making tool, providing a framework for making decisions about Mount Vernon's transportation systems.



2.0

FUTURE GROWTH

Mount Vernon is the fastest growing city, and will accommodate more homes and jobs, than any other incorporated jurisdiction in Skagit County.



The City has been tasked to accommodate 12,434 new residents and 4,785 new jobs over the next 20 years (2016 to 2036).

The existing and forecasted residential and commercial growth has, and will continue to, place demands on the City's transportation systems.

The City's historic development patterns and zoning/land use decisions have resulted in the City having far more existing homes and land that will be developed for residential uses than the City has existing jobs and corresponding land to be developed for non-residential uses.

The City is the fastest growing, and will accommodate more homes and jobs, than any other incorporated jurisdiction in Skagit County. The Land Use (Chapter 2), Housing (Chapter 3) and Economic Development (Chapter 5) Elements of the Comprehensive Plan provide further details and analysis of this issue.

TABLE 2.0: EXISTING AND FUTURE GROWTH

	2015 EXISTING City + UGAs	EXPECTED GROWTH City + UGAs	2036 TOTALS City + UGAs
POPULATION:	34,969	12,434	47,400
JOB:	16,503	4,785	21,288

BERK Consulting Inc. *Skagit County Growth Projections*. July 2014. p. 4

3.0

TRANSPORTATION NETWORK



TRANSPORTATION ELEMENT:

Inventories and evaluates the City's arterial roadway system - not neighborhood or local streets.

The City of Mount Vernon is committed to providing a street network that contributes to a well-planned community that encourages non-motorized modes of travel, incorporates streetscapes that fit the planned character of where they are located, and fosters economic vitality.

This chapter provides an overview, inventory, and assessment of the City's *existing* transportation networks including roads, pedestrian facilities, bicycle facilities, and transit services.

The City's existing and proposed street network does the following:

- Grants people more route choices, with minimum travel through residential areas.
- Furnishes points of access.
- Creates shorter distances to travel.
- Facilitates an effective transit system, including school bus service.
- Lessens congestion on arterials.
- Reduces emergency vehicle response times.
- Improves movement between neighborhoods.
- Improves the efficiency of public service utilities by reducing travel time and creating more efficient routes.
- Reduces noise and air pollution.
- Creates non-motorized systems.

3.1 REGIONAL SETTING

Mount Vernon's regional location puts demands on its transportation systems. With the Seattle metropolitan area a short distance to the south, Vancouver B.C. to the north, and the San Juan Islands to the west the City is influenced by many regional travelers and trends. In addition, the City is bisected by several State Routes both north/south and east/west.

With this regional setting in mind it is important that the City coordinates its transportation planning in a regional way. To accomplish this, the City is part of, and plays an active role with Skagit Council of Governments (SCOG) who is the Metropolitan Planning Organization (MPO) and the Regional Transportation Planning Organization (RTPO) in Skagit County. RTPOs were authorized by the Growth Management Act in 1990 to make sure, in part, that local and regional coordination of transportation plans occurred.

Because SCOG is the RTPO for Skagit County they develop and maintain the Skagit County Metropolitan and Regional Transportation Plan (RTP) that the City contributes to. The RTP is required to be updated every five (5) years per Federal requirements. The most recent update to the RTP was adopted in March of 2016 which dovetails nicely with this update to the City's Transportation Element.

The City also coordinates with the Washington State Department of Transportation (WSDOT). WSDOT has jurisdiction and maintenance responsibilities on Interstate-5, State Route-536, State Route-538, and State

Route-9. The northern extent of I-5 in the City limits includes a four (4) lane bridge (that had a span replaced and trusses modified several years ago after a portion of this bridge fell into the Skagit River) and SR-536 in the City limits includes a two (2) lane bridge over the Skagit River.

Coordinating with a State agency (in this case WSDOT) that is tasked with State wide transportation facilities can be challenging due to the fact that they have to prioritize State-wide projects – not just Mount Vernon's. At the same time, being able to coordinate with WSDOT on projects within the City is also an opportunity because the City is able to rely on WSDOT's expertise in both maintaining existing transportation facilities and designing new facilities that benefit the City.

MAP 3.0: REGIONAL SETTING



3.2 ROADWAY CLASSIFICATIONS

All City streets have a functional classification based on the types of trips that occur, the basic purpose for which the street was designed, and the amount of traffic volume the street carries. The City classifies streets as: Principal Arterials, Minor Arterials, Urban Collectors, and Neighborhood Streets, with the following criteria applying to each category of street.

This functional classification system is a uniform method used by the State of Washington and the Federal Highway Administration to describe the street's function. **Table 3.0** shows the functional classification of the City's arterial transportation system.

The functional classification of streets does change over time as land is developed and new/different traffic patterns are created. **Maps 3.1** and **3.2** identify the location and functional classification of the City's streets at the end-of-year 2015 according to the criteria outlined in **Table 3.0**.

PRINCIPAL ARTERIALS:

Principal arterials' primary function is to carry traffic to and from major traffic generators within the community. Some local access is provided, but the primary function is for through trips.

MINOR ARTERIALS:

Minor arterials serve as connecting roads between neighborhoods, provide for some through trips, with additional provisions for local access. Minor arterials also provide access to major community-wide traffic generators, such as hospitals and high schools.

URBAN COLLECTOR:

Urban collectors are arterial streets that serve urban traffic and connect to a higher level (i.e., either principal or minor arterials) of the arterial street system.

NEIGHBORHOOD STREETS:

Neighborhood streets provide access to adjacent properties with limited provision for through traffic.

TABLE 3.0: FUNCTIONAL CLASSIFICATION OF ROADS

FUNCTIONAL CLASSIFICATION	ADT	RIGHT-OF-WAY (FEET)	NUMBER OF LANES	SPEED (MPH)
Principal Arterial	> 17,500	60 – 80	2 – 5	35 - 45
Minor Arterial	10,000 – 22,950	60 – 80	2 – 4	25 - 35
Urban Collector	2,500 – 15,870	60	2 - 3	25 - 35
Neighborhood Street	< 2,500	50 – 60	2	20 - 35

3.3 EXISTING ROADWAY INVENTORY

There are four (4) Washington state routes located within the City and its urban growth areas.

INTERSTATE-5 runs north/south through the western portion of the City including a bridge crossing over the Skagit River and is classified as a Highway of Statewide Significance.

STATE ROUTE-538 (College Way) runs east/west through the northern part of the City crossing under Interstate-5 and including on/off ramps to Interstate-5. SR-538 is classified as a Highway of Regional Significance.

STATE ROUTE-536 (Kincaid, South 3rd, and Division Streets and Memorial Highway) runs east/west from Interstate-5 to the western extent of the City including a bridge crossing over the Skagit River. SR-536 is classified as a Highway of Regional Significance.

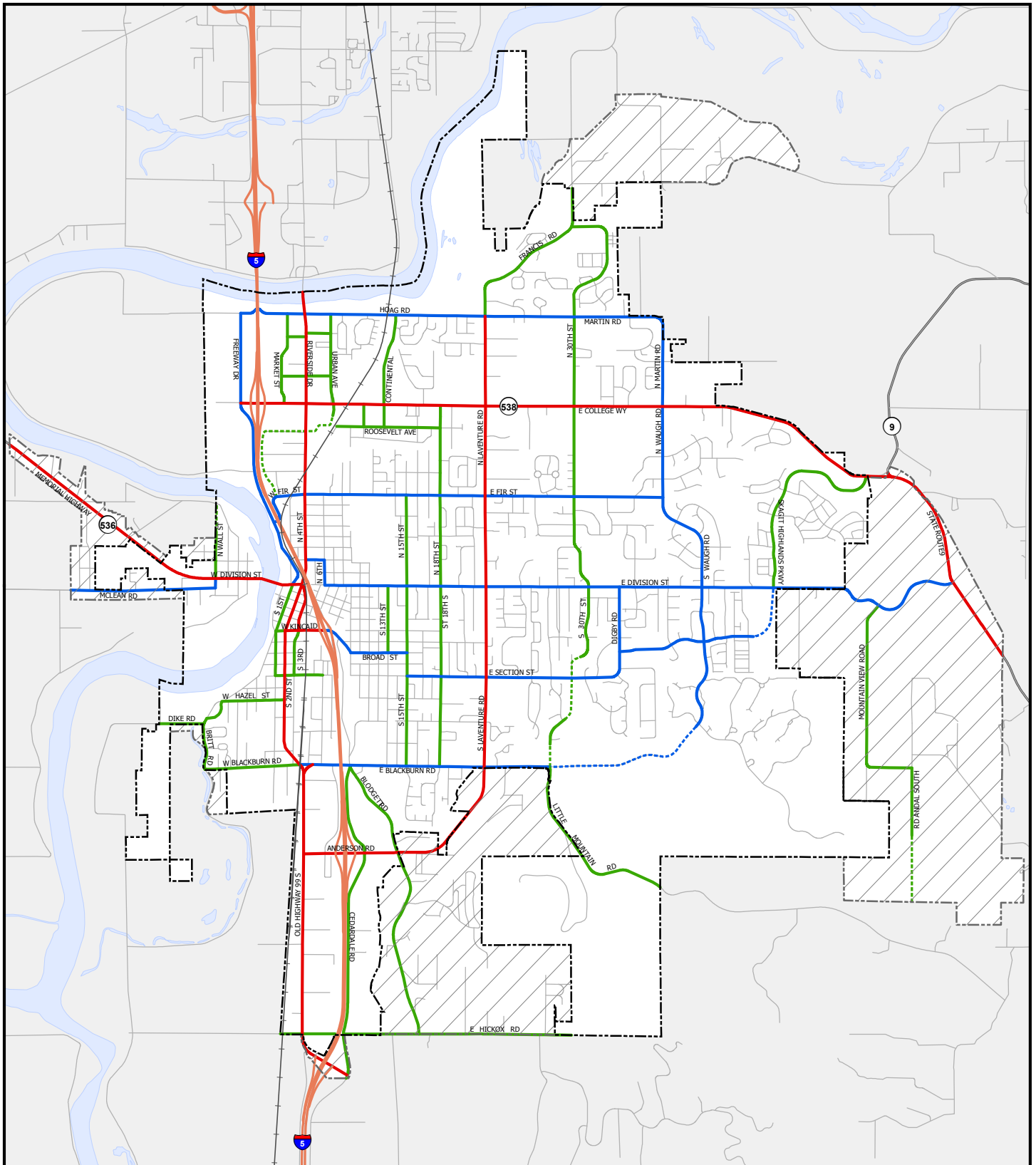
STATE ROUTE-9 extends to the north and south off of the eastern terminus of State Route-538 (College Way) and is located on the outside eastern edge of a portion of the City's east urban growth area. SR-9 is classified as a Highway of Regional Significance.

As discussed in Section 3.1, the City's street system is comprised of a grid of principal and minor arterials, urban collectors and neighborhood streets.

The overall existing centerline miles of each of the different roadway classifications is provided below in **Table 3.1**.

TABLE 3.1: CENTERLANE MILES

FUNCTIONAL CLASSIFICATION		EXISTING MILES	% OF TOTAL MILES
ARTERIALS	Interstate-5	12.9	7.9%
	SR 536 & 538	4.8	3%
	Principal Arterials	8.2	5%
	Minor Arterials	16.7	10.3%
	Urban Collectors	18.6	11.5%
	Neighborhood Streets	81.6	50.3%
	Alleys	10.1	6.2%
	Private Streets	9.4	5.8%
Total:		162.3	100%



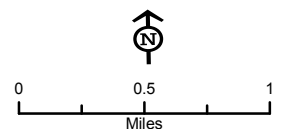
Transportation Element - Figure 3.1 Arterial Street Plan



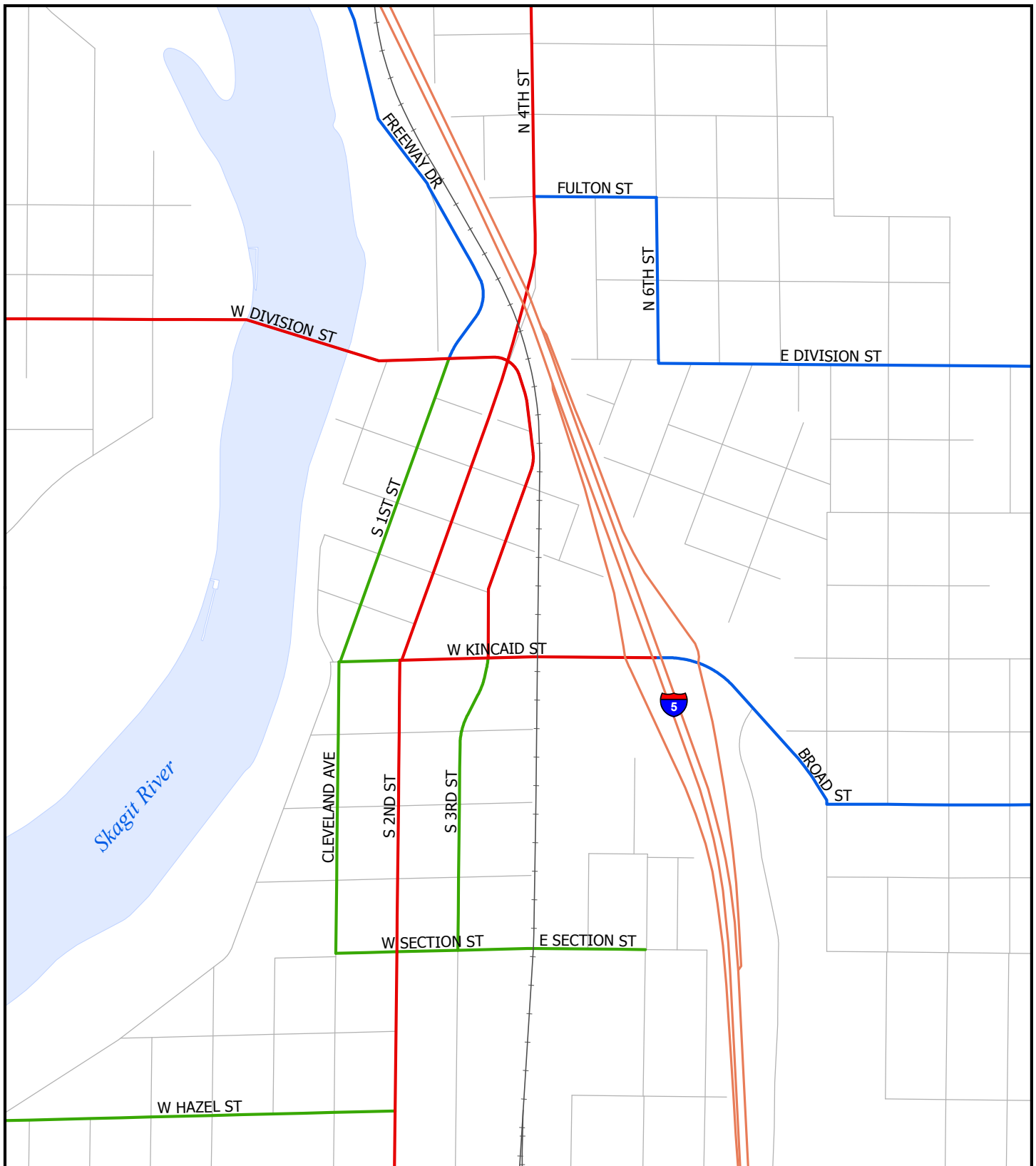
Street Classification, Status
 Principal Arterial, Existing
 Minor Arterial, Existing
 Urban Collector, Existing

Principal Arterial, Proposed
 Minor Arterial, Proposed
 Urban Collector, Proposed

Other Street
 Railroad
 City Boundary
 Urban Growth Area
 Water Body



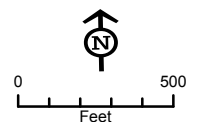
Map by MV GIS 3/3/2016



Transportation Element - Figure 3.2 Arterial Street Plan Downtown Area



- Principal Arterial, Existing
- Minor Arterial, Existing
- Urban Collector, Existing
- Other Street
- Railroad
- Water Body



Map by MV GIS 2/29/2016

3.4

TRAFFIC CONTROL & CALMING DEVICES

Traffic control and traffic calming devices share the same overriding goals of reducing vehicle speeds and improving safety.



TRAFFIC CONTROL

Traffic control at City intersections with higher traffic volumes is provided in large part with traffic signals and stop signs. In total, on arterial streets, the City has:

- 33 signalized intersections;
- Two (2) emergency signals;
- Eight (8) all-way stop controlled intersections; and,
- 55 two, and three-way stop controlled intersections.

In addition to traffic signals and stop signs the City has promoted the use of roundabouts in the recent past. One roundabout has been constructed at the intersection of Anderson and Cedardale Roads, and the City expects to see additional roundabouts designed and built in the coming years. **Map 3.3** identifies the location of traffic signals, all-way stops and the roundabout.

TRAFFIC CALMING

Traffic calming devices are intended to improve safety on neighborhood streets by reducing cut-through traffic and discouraging speeding with physical measures such as a change in street alignments, the installation of different types of features and others.

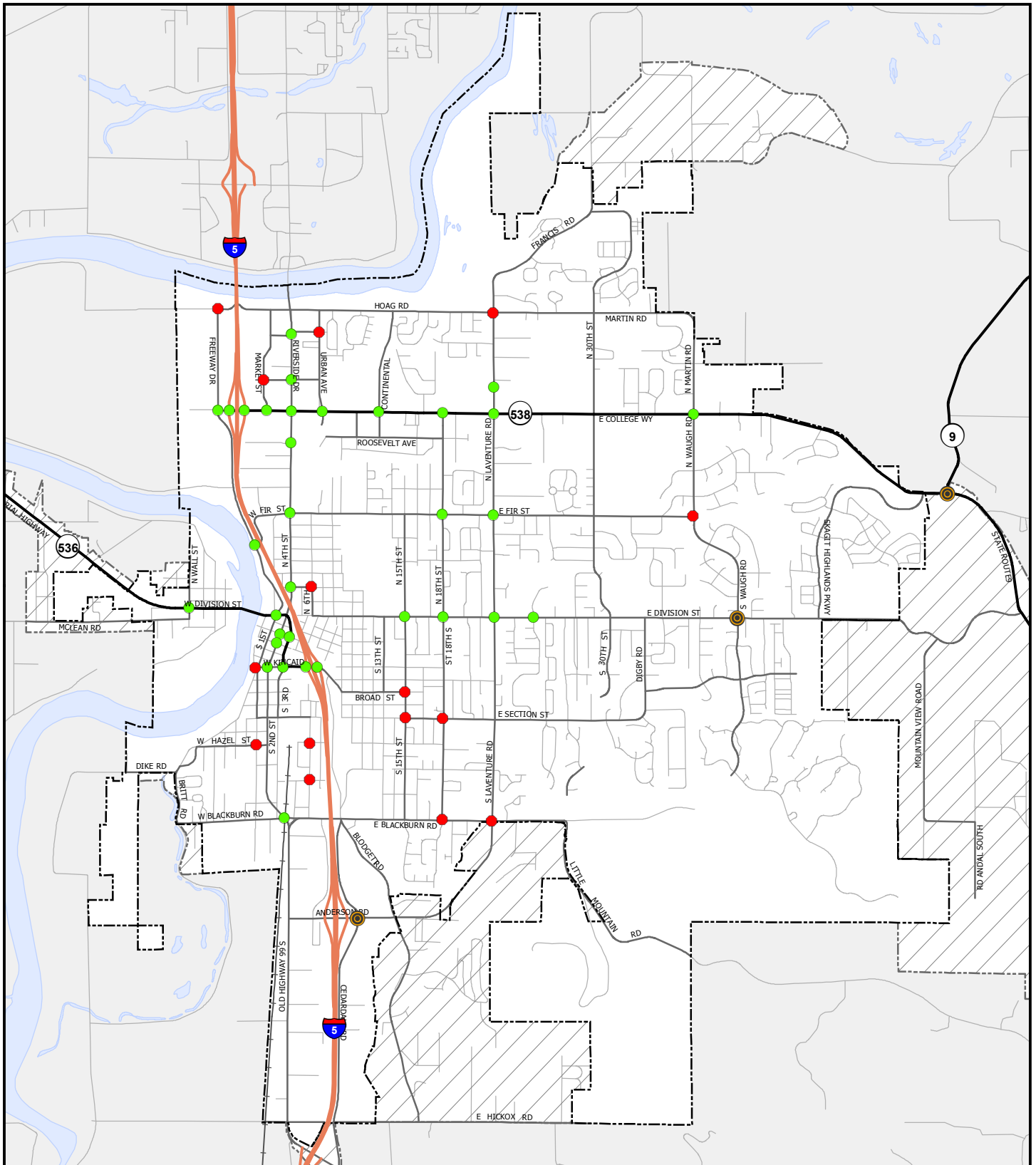
Appendix A contains additional information on existing and potential traffic calming measures/techniques that are, or could be, used in the City on neighborhood streets.

The following types of traffic calming devices can be found in use throughout different parts of the City.

The top right photo shows the use of street striping with raised pavement markers. Followed by a picture showing the use of bulb-outs. The bottom right picture is of a street that is using center island narrowing.



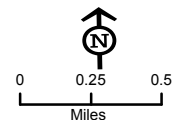
Source for middle photo: <https://mainstreetbeverly.wordpress.com/2017/03/22/roll-out-the-bulb-outs/>



Transportation Element - Figure 3.3 Traffic Signals, All-Way Stops, Roundabout Locations



- | | | |
|--------------------|---------------|--------------------|
| Interstate Highway | Railroad | Traffic Signal |
| State Highway | City Boundary | All-Way Stop |
| Arterial Street | UGA Boundary | Traffic Roundabout |
| Other Street | Water Body | |



Map by MV GIS 10/2017

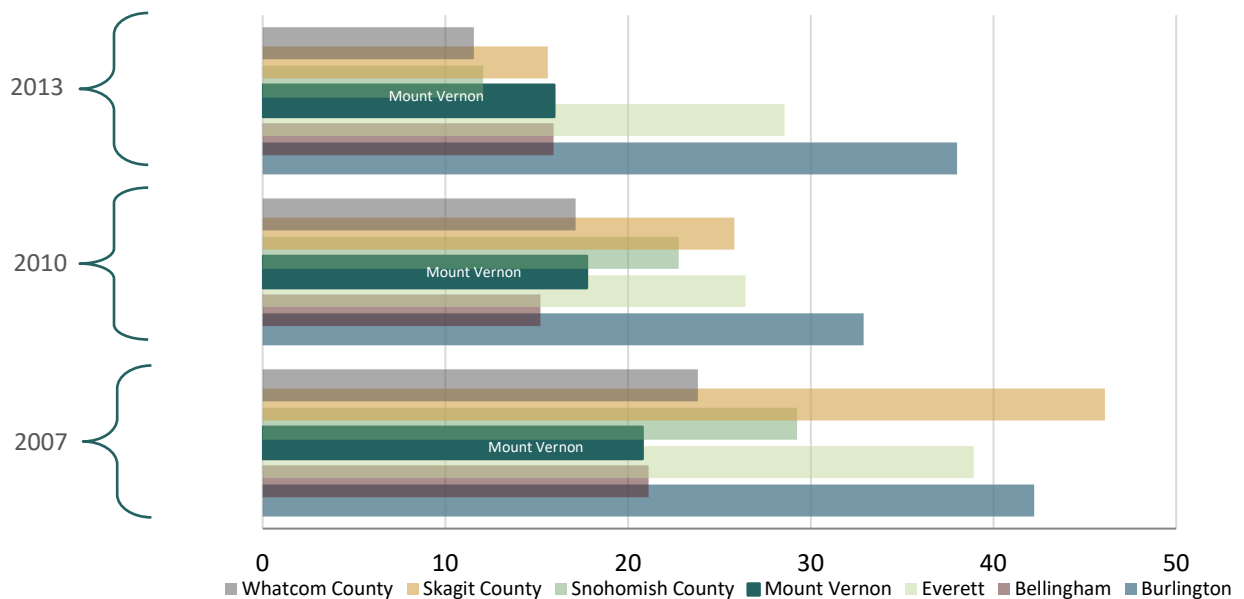
3.5 EXISTING TRAFFIC SAFETY

Compared to nearby jurisdictions, and in a regional context, Mount Vernon has a medium-to-low rate of total traffic-related injuries and a low rate of injuries that resulted in fatalities as shown below. The table and graph below identify the total number and type of collisions in Mount Vernon as compared to nearby cities and counties over three (3) different timeframes (i.e. 2007, 2010, and 2013). The overall accident numbers were converted from total numbers of collisions to a ratio of collisions per 1,000 people within the listed jurisdictions at the given time intervals. This conversion was necessary to allow comparisons between the different jurisdictions that all have very different populations.

The accident data below is from the Annual Collision Summary and covers police officer reported collisions on all public roadways. Continuing to emphasize and implement safety-related projects and programs is currently, and will continue to be, a City priority.

TABLE/GRAPH 3.2: COLLISION RATES

JURISDICTIONS:	2007		2010		2013	
	Total Collisions per 1,000 in population	Total Fatalities	Total Collisions per 1,000 in population	Total Fatalities	Total Collisions per 1,000 in population	Total Fatalities
Burlington	42.23	1	32.9	1	38.01	0
Bellingham	21.12	3	15.21	3	15.92	2
Everett	38.92	4	26.43	5	28.57	5
Mount Vernon	20.79	0	17.74	0	15.96	1
Snohomish County	29.25	30	22.77	25	12.06	15
Skagit County	46.1	9	25.81	8	15.6	8
Whatcom County	23.82	14	17.13	11	11.56	12



WA State. Annual Collision Summary. 2007, 2010, & 2013

3.6 STREET SECTIONS & STANDARDS

The backbone of the City's transportation system is its arterial streets. As such, standard street sections are established to provide continuity for the arterial system and assure that adequate facilities are constructed. This includes not only the roadway, but also pedestrian and bicycle facilities, landscaped areas, parking, and right-of-way width.

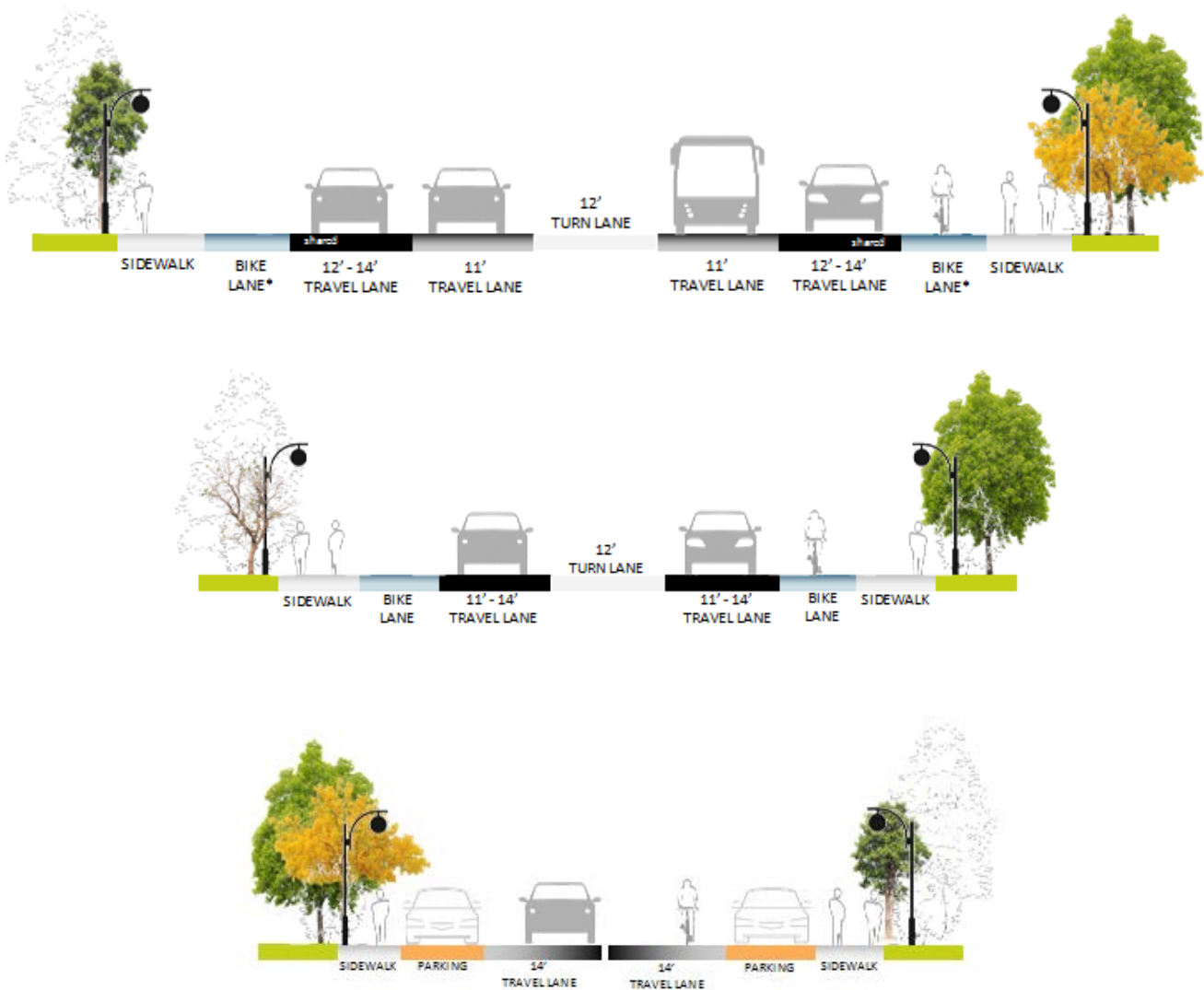
The City has adopted development regulations (Mount Vernon Municipal Code (MVMC) Chapter 16.16) and Engineering Standards to regulate the design and construction of new streets. Having standards for new development allows for consistent treatment of areas as they are developed or re-developed.

Typical sections for the City's different types of arterial roadways are provided on the pages that follow. Non-arterial street cross-sections are not provided because these types of roads are more prone to having their cross-sections modified on a case-by-case basis (due in large part to the fact that they have fewer traffic trips and more limited access than arterial roads do).

It is recognized that some special circumstances may occur that will require change from the street sections listed in **Tables 3.3 (a), (b), and (c)**. These deviations are handled on a case-by-case basis and are approved by the Public Works and Development Services Directors through a modification process that is outlined within MVMC Chapter 16.16.

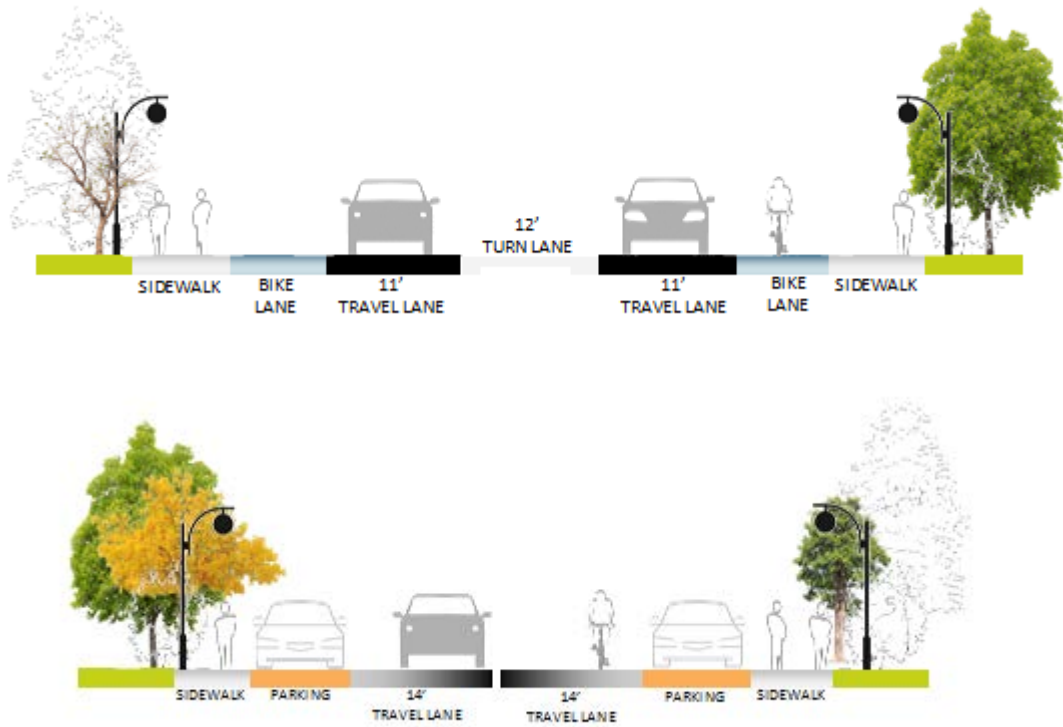


TABLE 3.3A: PRINCIPAL ARTERIAL STREET CROSS-SECTIONS/STANDARDS



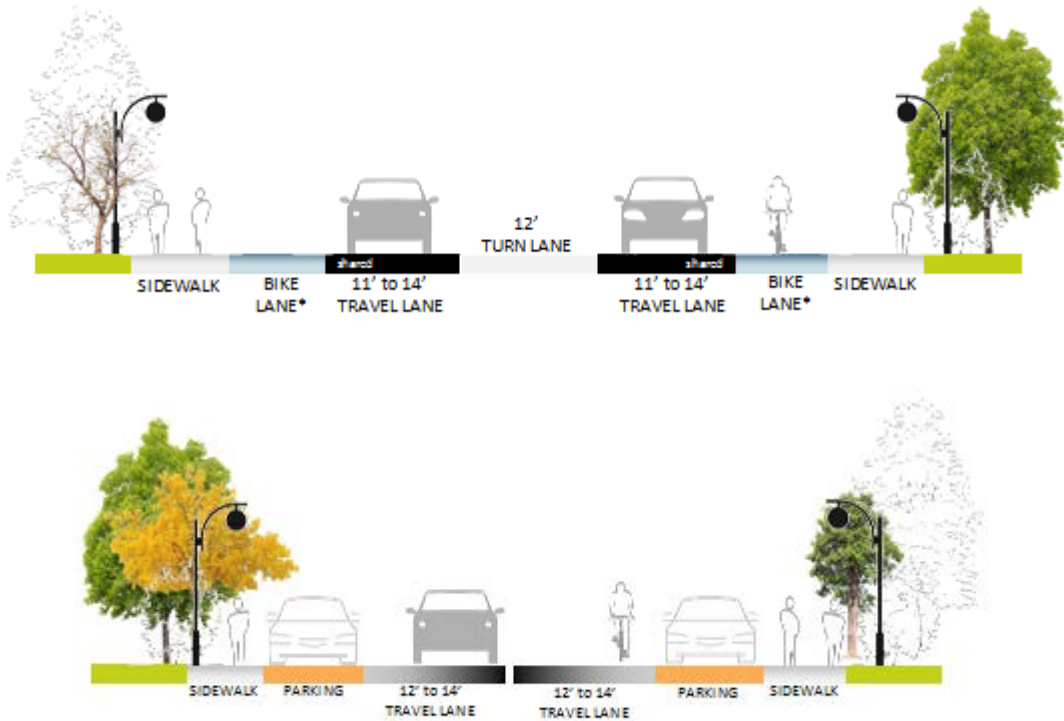
DESCRIPTION	CAPACITY ¹	TRAFFIC LANES	PARKING	BIKE LANE	STREET WIDTH	RIGHT OF WAY
5-Lane	ADT 43,530 Peak Hr 3,480	2-12', 2-11', 1-12'	N/A	5'	68'	80'
5-Lane	ADT 37,040 Peak Hr 2,960	2-14', 2-11', 1-12'	N/A	Shared	62'	80'
3-Lane w/ Bike Lane	ADT 28,050 Peak Hr 2,240	2-14', 1-12' or 2-11', 1-12'	N/A	5'	44' to 50'	60' to 80'
2-Lane w/ Parking	ADT 20,730 Peak Hr 1,660	2-14'	2-8'	Shared	44'	60'

TABLE 3.3B: MINOR ARTERIAL STREET CROSS-SECTIONS/STANDARDS



DESCRIPTION	CAPACITY ¹	TRAFFIC LANES	PARKING	BIKE LANE	STREET WIDTH	RIGHT OF WAY
3-Lane w/ Bike Lane	ADT 22,950 Peak Hr 1,810	1-12', 2-11'	N/A	5'	44'	60'
2-Lane w/ Parking	ADT 20,730 Peak Hr 1,660	2-14'	2-8'	Shared	44'	60'

TABLE 3.3C: URBAN COLLECTORS ARTERIAL STREET CROSS-SECTIONS/STANDARDS



DESCRIPTION	CAPACITY ¹	TRAFFIC LANES	PARKING	BIKE LANE	STREET WIDTH	RIGHT OF WAY
3-Lane w/ Bike Lane	ADT 15,870 Peak Hr 1,270	1-12', 2-11'	N/A	5'	44'	60'
3-Lane	ADT 14,540 Peak Hr 1,160	1-12', 2-14'	N/A	Shared	40'	60'
2-Lane w/ Parking	ADT 14,540 Peak Hr 1,160	2-14'	2-8'	Shared	44'	60'
2-Lane w/ Parking	ADT 12,900 Peak Hr 1,030	2-12'	2-8'	None	40'	60'

1. The capacities shown for each street section shall be used for calculating the volume capacity ratios for concurrency determinations.

3.7

EXISTING NON-MOTORIZED SYSTEM

Non-motorized facilities weave our community together with surrounding areas and provide safe spaces dedicated to people.

Whether bicycling on a regional trail or walking to the neighborhood store, non-motorized facilities enliven our neighborhoods and enrich our lives.



Private automobiles continue to comprise the majority of traffic trips in the City of Mount Vernon. Even so, Mount Vernon desires to evolve towards a community where its residents can easily get around by walking, bicycling and transit. Serving private automobile mobility needs and promoting other modes of transportation will be both an opportunity and challenge for the City over the next 20-years.

Non-motorized transportation systems are important for a number of reasons ranging from encouraging physical activity thereby contributing to the overall well-being of City residents to reducing travel times. The City has been, and continues to be, committed to implementing ways and strategies to reduce the demand for new road construction.

Transportation planners collectively term strategies to reduce the demand on existing roads and for new road construction Transportation Demand Management (TDM). TDM strategies are generally categorized as either: 1) employer-based strategies; or 2) area-wide strategies.

QUANTIFYING NON-MOTORIZED MODES

Every year since 2008 the Washington State Department of Transportation (WSDOT) has completed a statewide bicycle and pedestrian count. For the last two (2) years this count included Mount Vernon. This effort is completed by WSDOT in conjunction with the National Bicycle and Pedestrian Documentation Project.

There were seven (7) locations in Mount Vernon where this data was collected in 2014 and 2015. In 2016 an additional data collection spot along the City's downtown riverfront walk will likely be added.

The volunteers who complete these counts are trained in advance to ensure accurate data collection over time. The counts are completed during the same two hour window in the morning and then again in the evening.

Having just two (2) years of data so far makes it difficult to draw conclusions or identify trends regarding these non-motorized modes of transportation; however, the City will continue to track this information as it should become a useful metric over time.

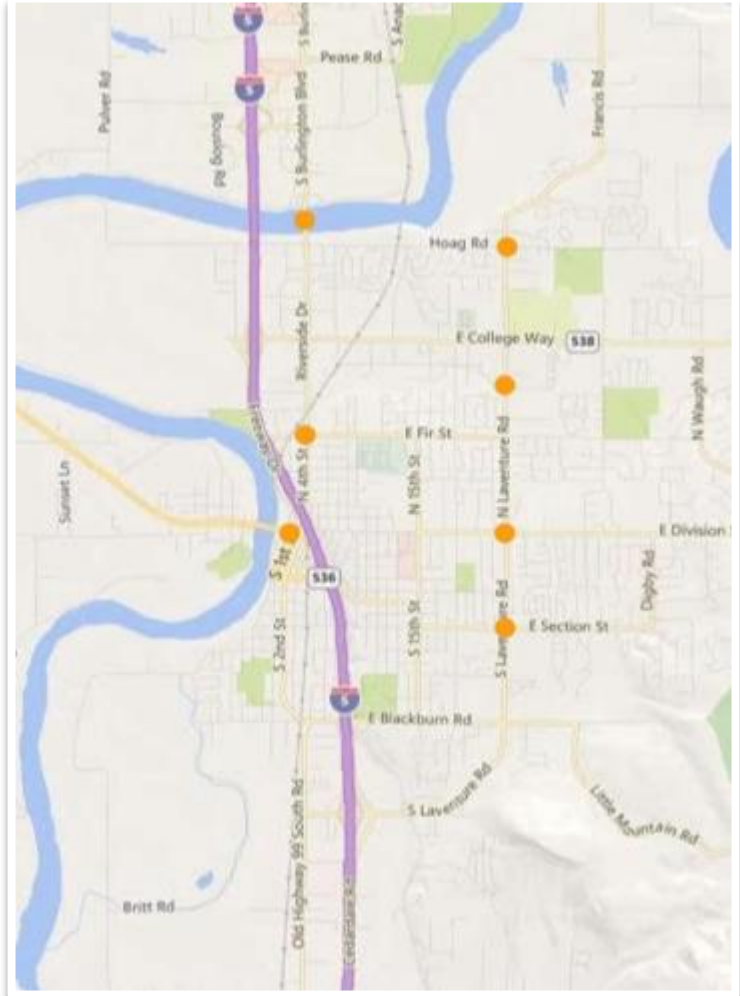
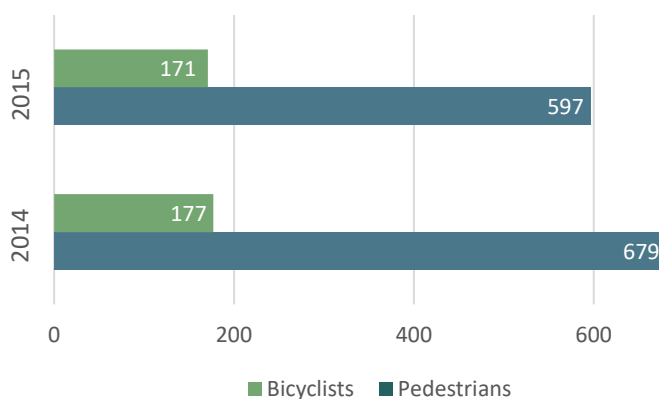


TABLE 3.4: WSDOT NON-MOTORIZED COUNTS



As shown in the map above, the seven (7) data collection points for the Mount Vernon bicycle and pedestrian count include: approximately the mid-point of the Skagit River bridge, the Hoag/LaVenture/Martin intersection, LaVenture Road where it intersects with the Kulshan trail, the LaVenture/Division intersection, the LaVenture/Section intersection, the Riverside Drive/Fir Street intersection, and the Freeway Drive/1st Street intersection.

WSDOT. Bicycle and Pedestrian Documentation Project. 2014 and 2015.
<http://www.wsdot.wa.gov/bike/Count.htm>



AREA WIDE TRANSPORTATION DEMAND MANAGEMENT (TDM) STRATEGIES

Directly or indirectly the City uses all of the area wide TDM strategies listed in Table 3.5.

The City takes the lead on bicycle and pedestrian facilities and TDM-friendly land use policies; and supports the agencies that provide transit, park-and-ride and passenger rail service within the City.

Area wide TDM strategies are explained in greater detail in the sections that follow.

TABLE 3.5: TYPES OF TDM STRATEGIES

AREA WIDE STRATEGIES		EMPLOYER BASED STRATEGIES	
DESCRIPTION	Area-wide TDM strategies have significant impact on overall traffic volume levels because they generally impact all travel markets such as commuting, school, shopping, etc.	Employer-based strategies are those that are primarily undertaken by the public and private sector.	
EXAMPLE TYPES OF STRATEGIES	Transit service	Vanpool program	
	Bicycle/pedestrian facilities	Telecommuting	
	TDM-friendly land use policies	Preferential parking for ride share programs	
	Park-and-ride	Varied/compressed work hours and weeks	
	Commuter rail	- Secure long term bicycle parking - Locker and shower facilities	



TRANSIT SERVICE

Skagit County's transit system was established under RCW 36.57A in 1993 by voter approval of 2/10 of 1% local sales tax to support transit service in the Mount Vernon/Burlington area. In November 2008, voters approved an additional 2/10 of 1% to support transit service in the Skagit Public Transit Benefit Area (PTBA). Skagit Transit currently receives a total of 4/10 of 1% local sales tax, and within the PTBA operates 16 fixed routes (includes 2 commuter routes), complimentary paratransit services, two demand response routes and has over 40 vanpool groups in operation.

In Mount Vernon Skagit Transit currently operates seven (7) bus routes, park and ride facilities/programs, and a transportation depot named Skagit Station where travelers can connect with services provided by Skagit, Whatcom and Island Transits along with Amtrak and Greyhound. Commuter service to Everett Station where connections to Sound Transit, Everett Transit and Community Transit are also available.

A map of the transit routes that Skagit Transit currently operates in Mount Vernon follows, labeled as Map 3.4.





PARK AND RIDE FACILITIES

Park-and-ride lots allow transit users beyond the normal 1/4 mile walking distance from a transit stop to drive and park in the lots. Currently there are two (2) park-and-ride facilities in the City.

Kincaid Street: this park-and-ride is located on the south side of Kincaid Street, adjacent to Interstate-5 and is operated by WSDOT south of Kincaid Street, adjacent to I-5.

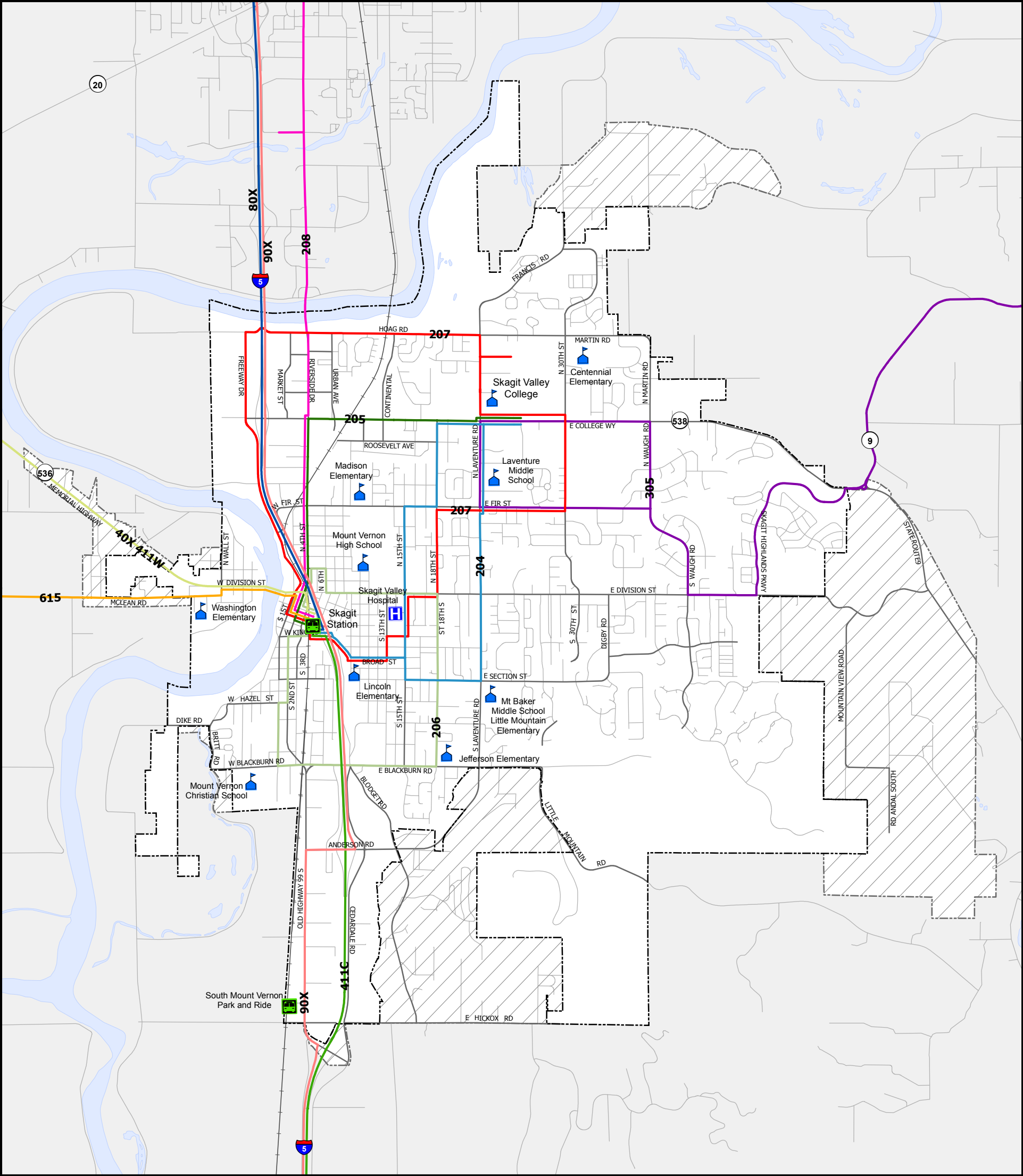
South Mount Vernon: this park-and-ride is located on the west side of Old Highway 99 South and immediately north of Hickox Road, and is operated by SKAT.



PASSENGER RAIL SYSTEM

Skagit Station is an Amtrak rail link between Mount Vernon and Seattle, Portland, and Vancouver, B.C. Four (4) trains a day currently stop at the station; two south bound trains and two north bound trains. Passenger trips to Seattle and Vancouver, B.C. average two (2) hours and Mount Vernon to Portland averages approximately six (6) hours.

Map 3.4 identifies the location of Skagit Station and the park-and-ride facilities in Mount Vernon.

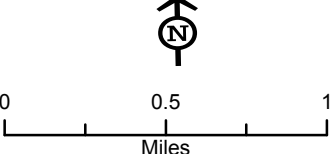


Transportation Element - Figure 3.4 Public Transit Routes, Park and Rides, Skagit Station



Skagit Transit Route Number

204	40X 411W	Railroad	Bus Station / Park and Ride
205	411C	City Boundary	School
206	615	Urban Growth Area	
207	80X	Water Body	
208	90X		
305			



0 0.5 1
Miles

Map by MV GIS 2/29/2016



PEDESTRIAN FACILITIES

Pedestrian facilities in Mount Vernon are grouped into three (3) general classifications:

- Sidewalks,
- Widened Shoulders, and
- Pathways/Trail Facilities.

There is an estimated 66 miles of sidewalks along arterial roads in Mount Vernon.

Widened shoulders in the City are generally present in commercial and industrial areas where pedestrian traffic is not anticipated to be high. There is an estimated 4.6 miles of widened shoulders in Mount Vernon.

Pathways in the City are shared by pedestrians, bicyclists and others. facilities that the City maintains, owns, or has easement rights for the public on. There is an estimated 26.8 miles of these facilities in Mount Vernon, including recreational trails such as those at Little Mountain Park.

Map 3.5 identifies the location of the pedestrian facilities in Mount Vernon.

BICYCLE FACILITIES

Bicycle facilities in Mount Vernon are grouped into four (4) general classifications:

- Marked;
- Striped;
- Shared Lanes; and,
- Pathways/Trails.



Bicycle Lanes are defined in WSDOT's Design Manual as lanes that are "a portion of a highway or street identified by signs and pavement markings as reserved for bicycle use". The comfort and safety of cyclists can be increased with bicycle lanes because: 1) they provide for more predictable movements of motorists and bicyclists and reduce motorist lane changes when passing bicyclists; 2) they discourage bicyclists using the sidewalk or gutter pan, and 3) they decrease the frequency of drivers encroaching into the adjoining travel lane when passing bicyclists.

For inventory purposes, the City has categorized its bicycle facilities that are most similar to what WSDOT defines as Bicycle Lanes into two categories that include: Marked and Striped.

The City defines **Marked Bicycle Lanes** as those with thermoplastic bicycle symbols, bike lane sign(s) or other similar features. The City has approximately 8 miles of marked bicycle lanes.



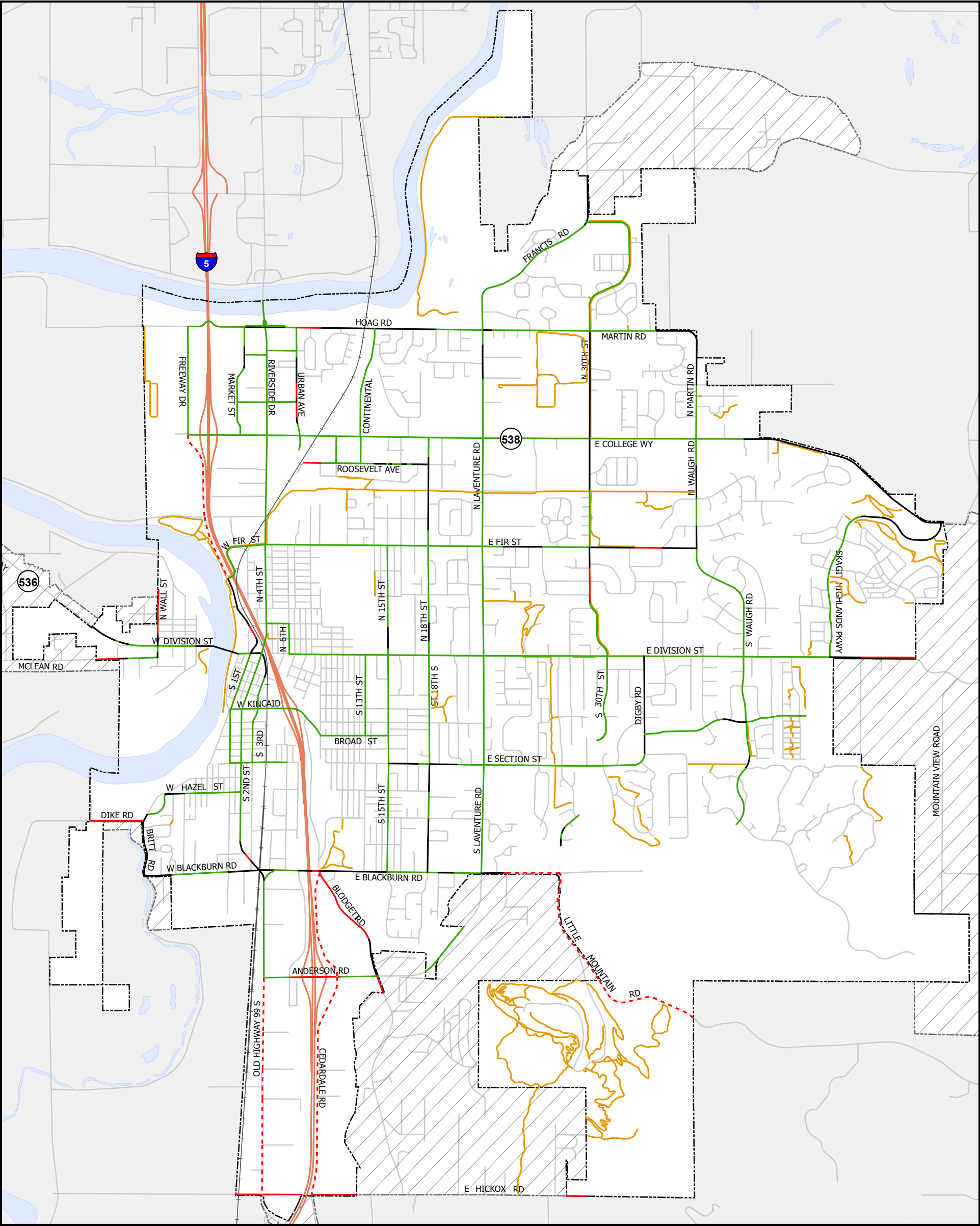
Striped Bicycle Lanes are defined by the City as those with a painted lane edge and at least 3 feet of space on the opposite side of the lane edge. There is no parking allowed on the outside edge of these facilities. There are approximately 19 miles of striped bicycle lanes in the City.

In addition to Marked and Striped Bicycle lanes, the City also has approximately 35.6 miles of what are classified as **Shared Bicycle Lanes**. These facilities are identified as roads with a minimum 14-foot travel surface and are distinguished from striped lanes because these shared lanes allow on-street parking.



Bicycle Trails in Mount Vernon are largely multi-use pathways that are planned to provide access for walkers, bicyclists, hikers, and other similar users. In Mount Vernon there is an estimated 19.7 miles of trail facilities that bicyclists are able to use.

Maps 3.6 (a) and (b) identify the location of the bicycle facilities in Mount Vernon.



Transportation Element - Figure 3.5 Pedestrian Facilities



- Pathway / Trail

Arterial Street, Sidewalk on Both Sides

Arterial Street, Sidewalk on One Side

Arterial Street, No Sidewalk

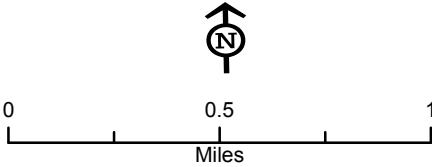
Arterial Street with Continuous Widened Shoulders

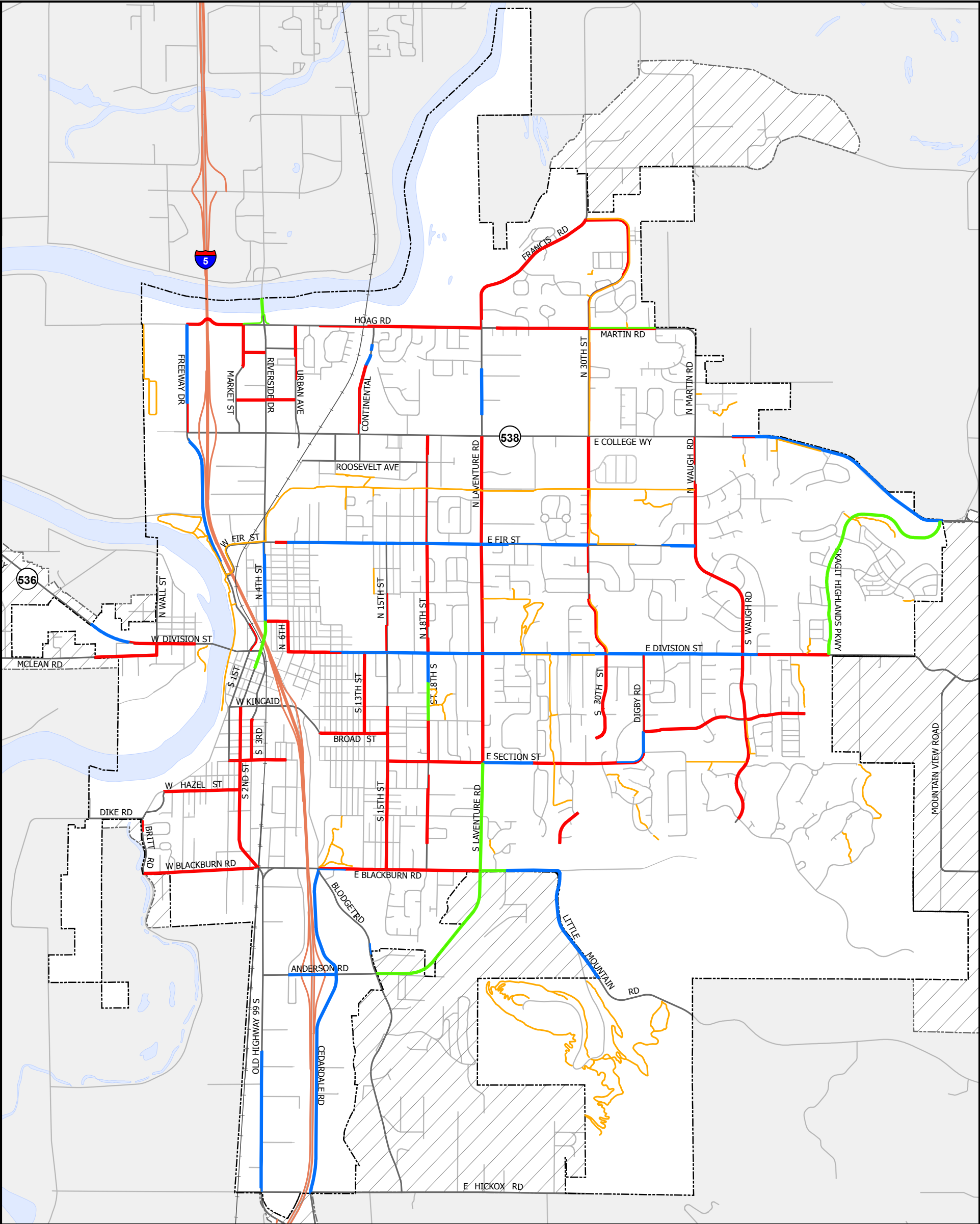
Other Street
- Railroad

City Boundary

Urban Growth Area

Water Body

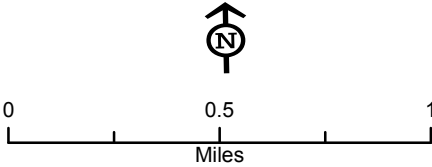


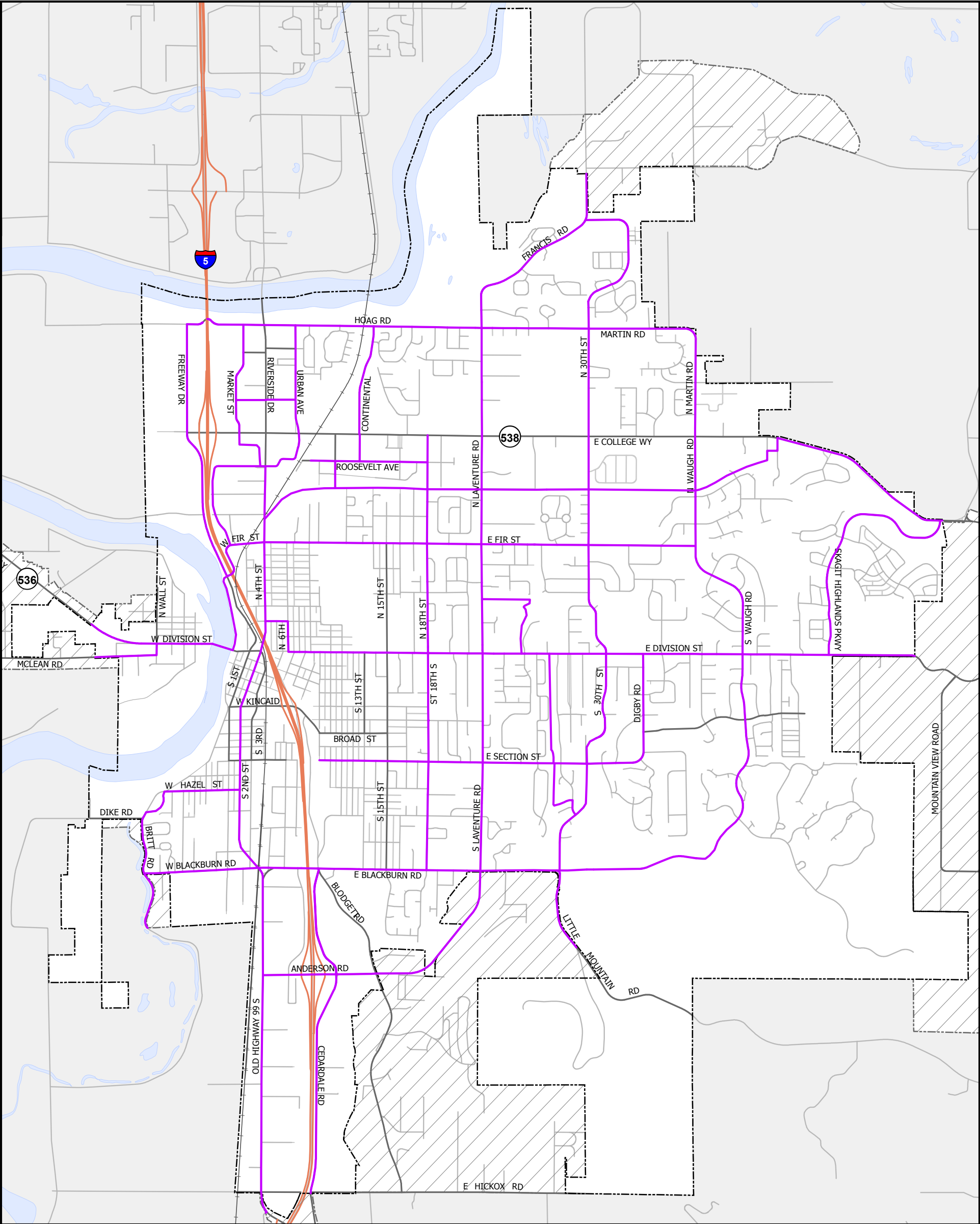


Transportation Element - Figure 3.6a Existing Bicycle Facilities



- Marked Bike Lane
- Striped Shoulder > 3' Wide, No Parking
- Shared Roadway > 14' Wide
- Multi-use Trail or Pathway
- Arterial Street
- Other Street
- Railroad
- City Boundary
- Urban Growth Area
- Water Body

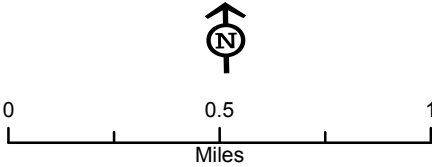




Transportation Element - Figure 3.6b Planned Bicycle Routes



- Planned Bicycle Route
- Arterial Street
- Other Street
- Railroad
- City Boundary
- Urban Growth Area
- Water Body

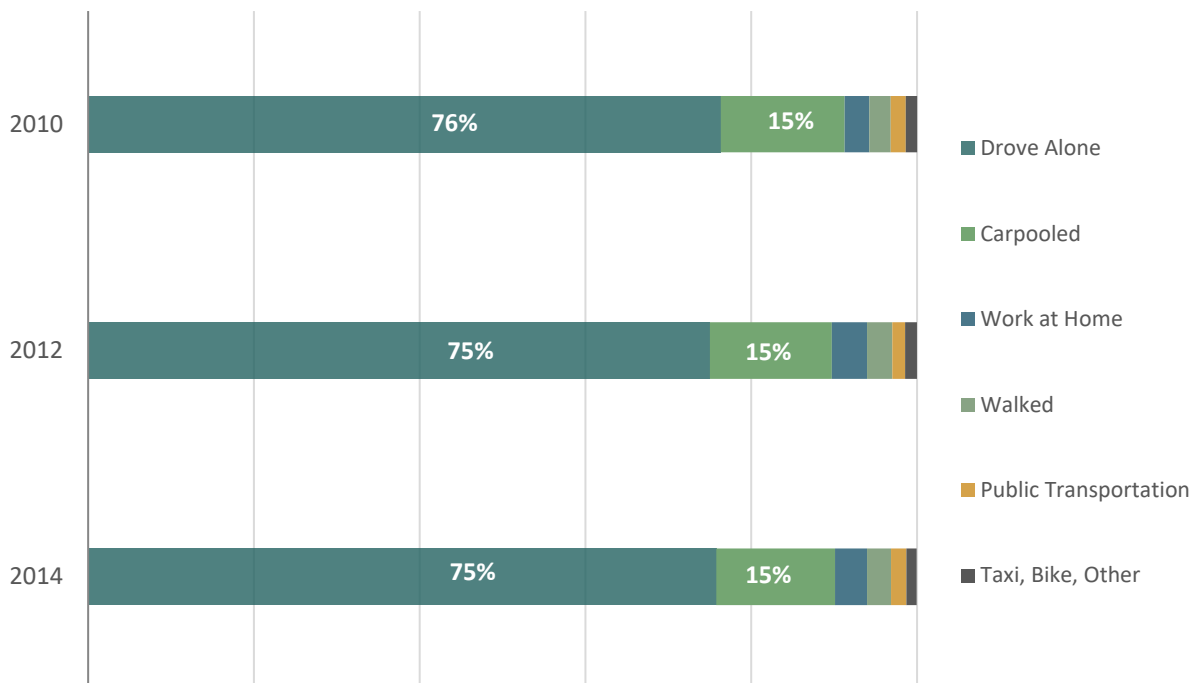


LAND USE POLICIES

Land use is the primary driver of travel. If land use policies allow or are designed to make travel to work, shopping, or other activities convenient with basic trips being short distances, the overall travel in the community will be reduced. As an example, if convenience shopping is close to residential areas, less driving will be required. The most effective TDM-friendly land use policies support bicycle/pedestrian facilities and transit service like Mount Vernon's plan does.

Measuring modes of transportation other than in vehicles is difficult due to data collection gaps and lack of consistent data to compare over time. The U.S. Census does, however, publish information determining how residents over the age of 16 get to work. Below is this data for Mount Vernon for 2010, 2012, and 2014. Evident is that most residents drive alone to work – 75%, close to 15% carpool, 2% use public transportation, 3% walk, with the remaining working at home or utilizing other means such as a bicycle to get to work.

TABLE 3.6: TRANSPORTATION MODES TO WORK



4.0

WHAT HAPPENS WITH 20-YEARS OF GROWTH?

Determining what happens to the City's transportation infrastructure over the next 20 years as the City grows, and what improvements need to be made to this system to mitigate this growth, is done with transportation modeling.

TRANSPORTATION GOAL 1:

Contribute to a well-designed transportation system through reasonable, planned, economically feasible transportation improvements that support adopted land use plans, protect or improve business access, and protect the City's neighborhoods.

As with any type of modeling, it is important to keep in mind that all transportation models are essentially an extrapolation of known and observed trends into the future. Several assumptions are built into these models including future land use, employment and transportation trends.

To make sure that the City's model is as accurate as possible, the City keeps its transportation model current by importing data into the model several times a year as permits are processed by the City. The City also regularly collects vehicle traffic counts within specified areas of the City.

The City's transportation model provides a systematic analytical tool that allows the City to evaluate different alternatives in an iterative and controlled way. There are three (3) major steps of the transportation model, including:

1. Future Traffic Trips, or Trip Generation;
2. Trip Distribution (where trips are going to/from); and,
3. Network Assignment (how trips find a route to/from their origin and destination) – where are trips going to/from.

Each of these steps is elaborated on in the following sections.

Once the transportation model is created the City then establishes criteria to evaluate how the transportation system is serving those traveling into, out of, or through the City. The tools used to determine the operating quality of roadways, intersections, and non-motorized facilities is a system of adopted Level of Service (LOS) designations.



4.1 DETERMINING FUTURE TRAFFIC TRIPS

Determining the number of trips that will occur over the 20-year planning horizon (2016 - 2036) is the first step in the transportation modeling process. Because the accuracy of a transportation planning model depends largely on the quality of the land use data used in the model, the City has invested heavily in terms of research and staff time in making sure the land use data in the model is as accurate as possible.

The land use data described below demonstrates internal consistency with the requirements and assumptions used throughout other chapters of the City's Comprehensive Plan. The growth projections discussed below are based on the City's 2036 growth targets for population and employment that were developed by Skagit Council of Governments (SCOG), BERK Consulting, the City of Mount Vernon, and the other jurisdictions within Skagit County.

Capturing regional growth patterns is an important component in determining future trip generation because travel does not stop at a jurisdiction's boundary. Modeling these regional growth patterns is accomplished with the City's coordination and planning efforts with the Washington State Department of Transportation (WSDOT) and Skagit Council of Governments (SCOG) who is Skagit County's MPO and RPTO.

Translating future land uses into traffic trips begins by categorizing land uses into two very general categories: households and employment.

Modeled employment was grouped into different employment categories consistent with those used in the SCOG regional transportation model. Detailed information on the employment sector, employment code associations and distributions can be found in **Appendix B**.

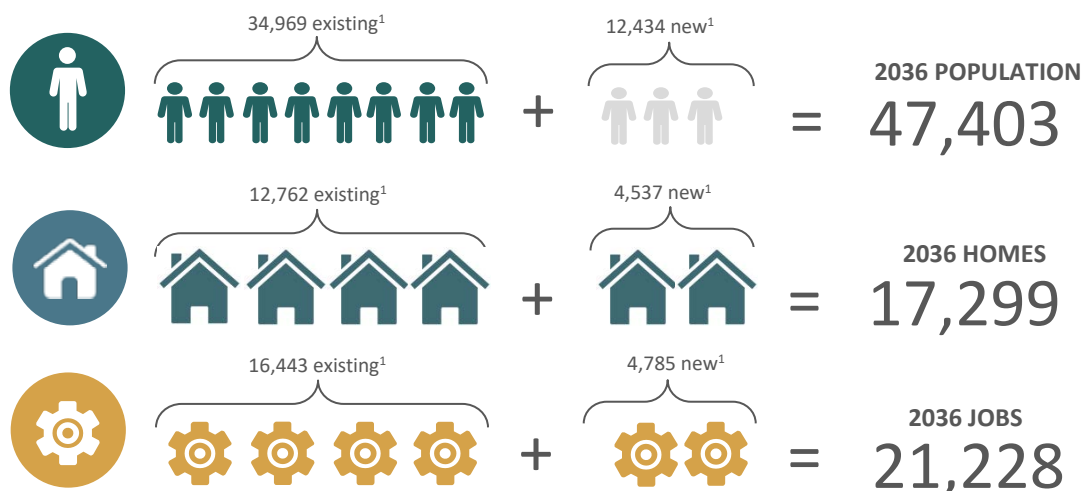
HOUSEHOLD (POPULATION)

GROWTH: Residential land use forecasts are often expressed in terms of population; however, for travel demand modeling population is converted into trip-generating households as shown in **Table 4.0**, below. The ratio of people per household is from the 2010 Census for the City.

EMPLOYMENT (JOB) GROWTH:

Existing employment estimates are based on data provided by the Washington State Employment Security Division (ESD). With the information from ESD the City was able to determine City specific employment averages for different job creating land uses within the City. These City specific employment averages, in conjunction with the City's Buildable Lands data, was used to determine how jobs would be distributed throughout the City over the next 20 years.

TABLE 4.0: EXISTING AND FUTURE POPULATION, HOUSING, AND JOBS



1 BERK Consulting Inc. *Skagit County Growth Projections*. July 2014. p. 4

4.2

TRIP DISTRIBUTION, MODES AND NETWORK ASSIGNMENTS

After the number of trips that will occur over the planning horizon (20 years) is determined, the next step in the model process is distributing those trips. Spatial units called Transportation Analysis Zones (TAZs) are used to geographically assign land uses in and around Mount Vernon.

The TAZs used in the City's traffic model are consistent with the structure developed by SCOG for the regional planning model and are shown on Map 4.0. A total of 91 internal TAZs are used to represent the City and its associated Urban Growth Areas (UGAs).

Each TAZ was assigned a 20-year growth estimate, expressed in (total) households and employment (by type). With this information the fundamental task a TAZ performs in the model is to generate vehicle trip ends to and from the TAZ. The land use data relevant to a TAZ determines the number of trips that a TAZ either produces or attracts from all other TAZ's in the model.

Assigning growth to each TAZ was done by City staff based on a City-specific Buildable Lands and Land Capacity Analysis, employment densities by sector calculated from Employment Security Data (ESD) data, adopted plans, local knowledge of pending development and thorough collaboration with the Traffic Engineers assisting the City with this element of the Comprehensive Plan.

In addition to the 91 TAZs that comprise the City and its UGAs, there are an additional 7 external zones surrounding the City-specific modeled areas. These external zones are designed to incorporate trips that are generated to and/or from points outside the network and help to ensure that the City's model takes into account regional traffic that impacts City's transportation networks. Although these are designated as zones, they actually represent links to regions outside the model and do not represent a defined area.

External zones do not reflect any land use assumptions, only vehicle trips. Trips to and from each external zone were determined from actual traffic counts and future trips were forecasted to be consistent with volume forecasts identified

in the SCOG regional travel demand model. These external zones play a two-part role in the model; 1) only a certain portion of the trips in an external zone interact with TAZ's within the model, and 2) the remainder of the trips in any external zone interact with other external zones outlying the study area. These trips are commonly called through trips since they have neither an origin nor destination within the study area yet they pass through the study area impacting the network.

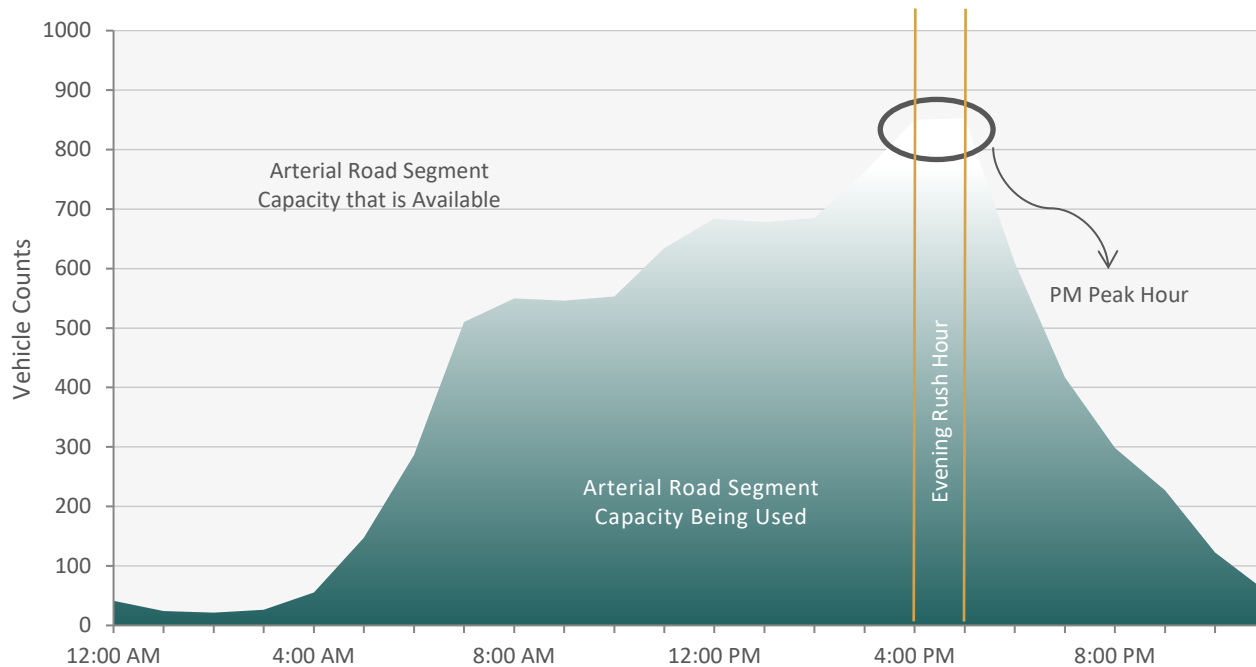
Using established relationships between different land use types and trip generation, the traffic model estimates trips generated from each TAZ. These trips are then assigned to the roadway network to estimate how much traffic would be on each street during the City's evening rush hour, which is generally between 4 p.m. and 6 p.m. This evening rush hour is called the 'PM peak hour'. Below is an illustration of average PM peak hour volumes for an average of several City arterials with heavier travel demand.

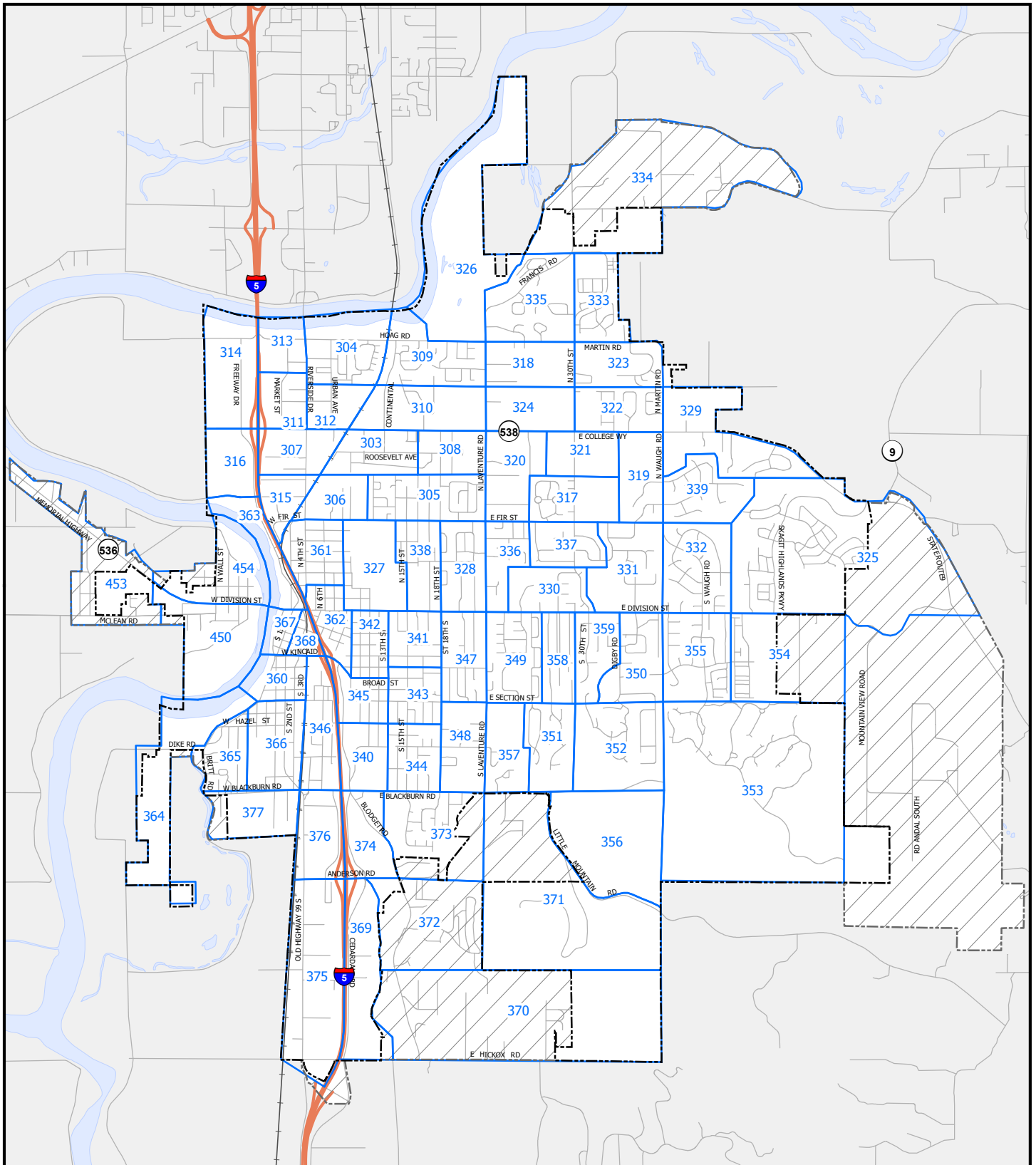
PM PEAK HOUR TRIPS

The PM peak hour discussed above and illustrated in Graph 4.1 represents the time in which the heaviest travel occurs on City streets and intersections and is the timeframe in which level-of-service (LOS) is most likely to deteriorate or fail.

When new development (residential, commercial, public, or other) proposes to locate in the City, a site-specific traffic report measuring, among other things, the new traffic in terms of new PM peak hour trips is generated.

GRAPH 4.1: HOW LOS IS MEASURED

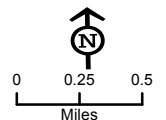




Transportation Element - Figure 4.0 Transportation Analysis Zones



- ▣ Transportation Analysis Zone (TAZ)
- City Boundary
- UGA Boundary
- Railroad
- Street
- Water Body



Map by MV GIS 2/29/2016

4.3 SETTING LEVELS OF SERVICE

The City has adopted three (3) different types of level of service (LOS) standards. In addition to street segment and intersection LOS – which have been used by decades by many jurisdictions, the City has also adopted a LOS aimed to reduce vehicle miles traveled.

Setting LOS standards for the City is an important policy issue. If the City's LOS standards are too high there would be budgetary implications, however setting them too low results in unacceptable service levels and reduced livability. The City's LOS standards strive to strike a balanced standard that is not too high or too low.

Level of service standards for state facilities that are not Highways of Statewide Significance are cooperatively set by the Washington State Department of Transportation (WSDOT) and Skagit Council of Governments (SCOG) and are not subject to the City's concurrency standards. Even so, the City does monitor these highways and coordinates with WSDOT to address deficiencies that are identified.

STREET SEGMENT LOS

Street segment LOS is a qualitative measure describing operational conditions within a traffic stream along a roadway, based on service measures such as capacity, speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. LOS standards allow the City to evaluate transportation impacts from growth over time.

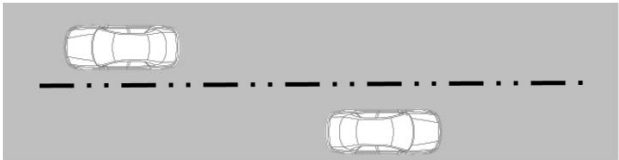
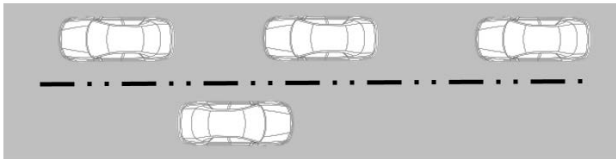
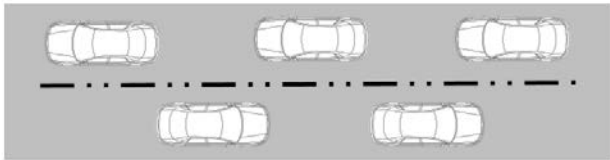
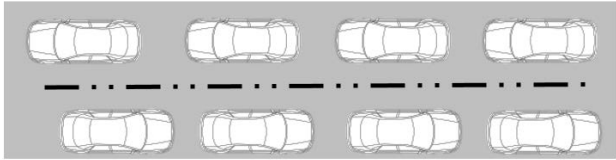
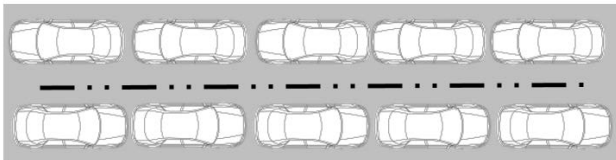
Street Segment LOS is categorized into six (6) different grades, A through F. LOS A represents free flow conditions with minimal delays and LOS F represents breakdown flow with high delays. The LOS thresholds that the City uses are consistent with Highway Capacity Manual 1994 (HCM 1994) and are used because they are best suited for the type of planning-level analysis necessary for Comprehensive Planning.

Setting LOS standards for the City is an important policy issue. If the City's LOS standards are too high there would be budgetary implications and setting them too low results in unacceptable service levels and reduced livability.

TABLE 4.2: ROAD SEGMENT LOS STANDARDS

	MOUNT VERNON STANDARD	WSDOT STANDARD
Principal Arterials	LOS D or better	NA
Minor Arterials	LOS D or better	NA
Urban Collectors	LOS C or better	NA
State Routes (Highways of Statewide or Regional Significance in Urban areas)	Not Subject to City LOS Standards	LOS D or better

TABLE 4.3: LEVEL OF SERVICE DESCRIPTIONS FOR STREET SEGMENTS

LEVEL OF SERVICE (LOS)	DESCRIPTION (CHARACTERISTICS OF TRAFFIC FLOW)
A – FREE FLOW 	LOS A is the highest quality of service a particular class of roadway can provide. It describes primarily free-flow operations at average travel speeds, usually about 90 percent of the free flow speed for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. The volume to capacity ratio (v/c) ranges from 0.00 to 0.60.
B – STABLE FLOW 	LOS B is a zone of stable flow: It describes reasonably unimpeded operations at average travel speeds, usually about 70 percent of the free flow speed for the street class. The ability to maneuver within the traffic stream is only slightly restricted. The v/c ranges from 0.61 to 0.70.
C – STABLE FLOW 	LOS C is a zone of stable flow but at this volume and density level most drivers are becoming restricted in their freedom to select speed, to maneuver and change lanes in mid-block locations, and heavier volumes, longer queues, and adverse signal coordination may contribute to lower average travel speeds for the street class. The v/c ranges from 0.71 to 0.80.
D – STABLE FLOW 	LOS D borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D approaches unstable flow. Tolerable average operating speeds are maintained but are subject to a considerable and sudden variation. The v/c ranges from 0.81 to 0.90.
E – UNSTABLE FLOW 	LOS E is characterized by unstable flow, high traffic volumes, significant delays and average travel speeds significantly less than the free flow speed. The v/c ranges from 0.91 to 1.00
F – FORCED FLOW 	LOS F is characterized by urban street flow at extremely low speeds. This LOS describes forced-flow operations. Speed and rate of flow are below the levels attained in LOS E and may for short time periods drop to zero. The v/c exceeds 1.0 (ie. the traffic volumes exceed the roadway capacity).

INTERSECTION LOS

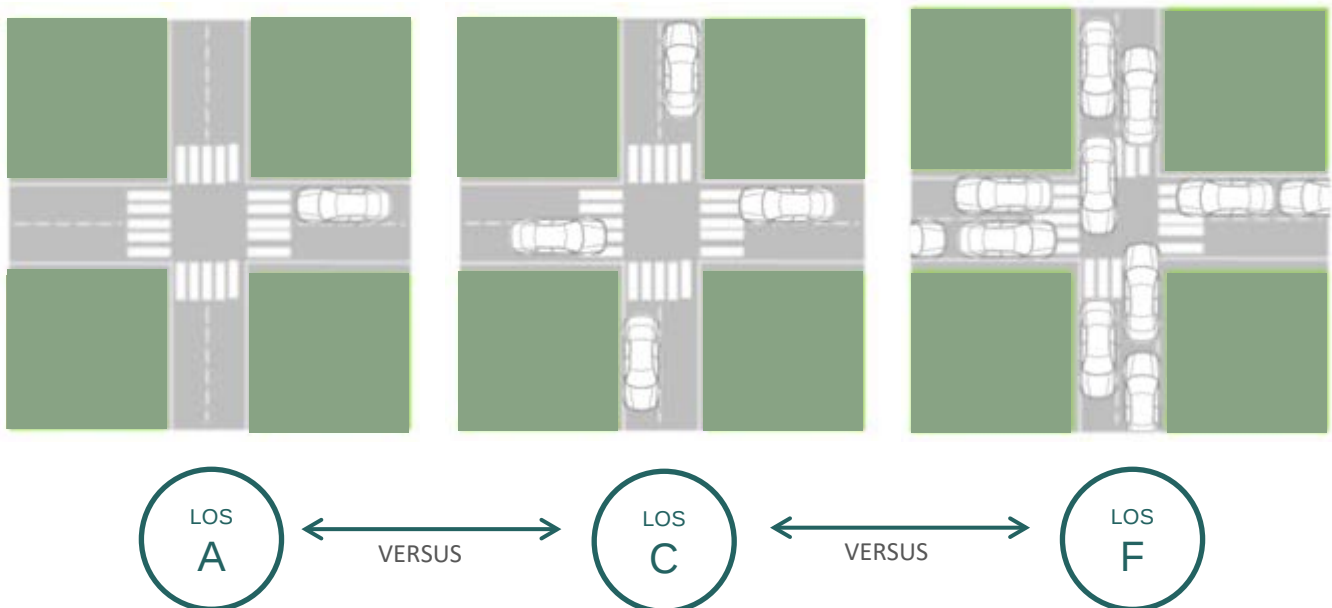
LOS for signalized and all-way stop stop-controlled intersections is determined by the average amount of delay that vehicles experience at the intersection, and on the worst approach for one- or two-way stop controlled intersections.

Table 4.2 lists the LOS standards for road segments that also apply to intersections. **Table 4.4** lists each LOS designation and its associated delay threshold.

TABLE 4.4: LOS DESCRIPTIONS FOR INTERSECTIONS

LOS DESIGNATIONS	SIGNALIZED INTERSECTIONS	STOP CONTROLLED INTERSECTIONS
A	≤ 10 seconds	≤ 10 seconds
B	> 10 to 20 seconds	> 10 to 15 seconds
C	> 20 to 35 seconds	> 15 to 25 seconds
D	> 35 to 55 seconds	> 25 to 35 seconds
E	> 55 to 80 seconds	> 35 to 50 seconds
F	> 80 seconds	> 50 seconds

CHARACTERIZATIONS OF INTERSECTION LOS



REDUCTION IN VEHICLE MILES TRAVELED LOS

Traffic planners and engineers have used LOS models to analyze motor vehicle travel on roads and through intersections for many decades. These traditional models – that the City also uses - are based on quantitative measures including variables such as average speed, travel time, and intersection delay. However, traditional LOS models don't capture reductions in vehicle miles traveled (VMT), or conversely increases in non-motorized travel.

New streets that complete the transportation network create a more efficient transportation system for both motorized and non-motorized travel by reducing travel distance and travel time. They often have the secondary benefit of reducing congestion on routes from which they divert travel demand, as well as reducing vehicle emissions which are associated with increased VMT.

While traditional congestion-based LOS standards can be effective tools for quantifying the operational characteristics of (and identifying necessary improvements to) existing streets and intersections in a transportation network, they are less effective in identifying areas in which a street network fails to serve travelers by nature of its incompleteness, i.e. its inability to connect people efficiently from their desired origin to destination. Put more simply, traditional HCM-based

methodologies are not designed to identify LOS failures on roads that do not exist. Vehicle Miles Traveled (VMT) offers one metric by which the benefit of a new element of a transportation network can be quantified. For example, if a segment of a street is missing and this missing link requires drivers to take a longer path, total travel distance is increased resulting in greater vehicle miles traveled.

Missing street segments create out-of-direction travel, that is, trips that must use routes that increase the length of a trip compared to the length of the trip if the missing street segment were in place. Development that results in out-of-direction travel should be conditioned to reduce out-of-direction travel.

The creation of this LOS criteria is supported by a 2005 amendment to the Growth Management statute (RCW 36.70A.070) that states that a new 'sub-element' of the transportation element with regard to pedestrian and bicycle travel must be created. This new sub-element is required to include, "collaborative efforts to identify and designate planned improvement for pedestrian and bicycle facilities and corridors that address and encourage enhanced community access and promote healthy lifestyles" (RCW 36.70A.070(6)(a)(vii).

TABLE 4.5: LOS DESCRIPTIONS FOR VEHICLE MILES TRAVELED

LOS DESIGNATIONS	VMT METRICS
PASS	Less than 25% of site generated travel is out-of-direction
FAIL	More than 25% of site generated travel is out-of-direction

4.4 MEASURING FUTURE LOS DEFICIENCIES

As described in section 4.3, there are three (3) LOS measures that the City uses to determine which road segments and intersections have acceptable or failing LOS. A summary of the point at which each of these LOS measures is not meeting the standards, and needs to be mitigated, is provided below.

City arterials and intersections and to model how this LOS will be affected with the next 20-years of growth. Once the existing and future LOS failures are known, appropriate mitigation measures can be proposed that will change the LOS such that a given road or intersection is in compliance with the adopted standard.

With the LOS standards that are summarized in **Table 4.6**, the City is able to determine the existing LOS for

TABLE 4.6 SUMMARY OF ADOPTED LOS STANDARDS

LOS PRINCIPAL ARTERIALS	LOS MINOR ARTERIALS	LOS URBAN COLLECTORS	LOS INTERSECTIONS	LOS VEHICLE MILES TRAVELED
D	D	C	C or D (dependent on road type at intersection)	PASS

4.5 MITIGATING CITY-WIDE TRANSPORTATION DEFICIENCIES

There are a number of metrics that the City uses to prioritize and fund transportation related projects – with LOS deficiencies being just part of the overall decision making process.

Other metrics include completing maintenance activities, non-motorized connections to create safe routes for children and others to schools and other types of land uses, installing safety related infrastructure, enhancing opportunities for new businesses to locate or expand, and others.

Table 4.7 and **Maps 4.1, 4.2** and **4.3** list and map projects that the City has identified up to year-end 2015 to mitigate identified transportation deficiencies. These projects comprise the City's Comprehensive Plan Transportation Improvement list.

Current Capital Improvements Plan (CIP) projects, projects that are part of SCOG's Regional Transportation Plan (RTP), and projects that are eligible for impact fees are all identified on **Table 4.7**.



4.6 ROAD MAINTENANCE

The maintenance and repair of the City's transportation network is a vital function of the Public Works Department. The City has 274 lane miles of streets (including non-arterial streets), 31 traffic signals, 12 bridges, 5,000 traffic signs, 2,500 pavement markings and 150 miles of sidewalks that are maintained.

The City's Public Works Department keeps an inventory of the condition of public streets and has expressed concerns with regard to the long-term effect of deferring maintenance. **Table 4.7**, the 20-year Transportation Project list, does account for the long term cost of needed road maintenance in the City.

TABLE 4.7 20-YEAR & BEYOND TRANSPORTATION IMPROVEMENTS

Comp. #	Improvement	Existing Condition or Facility or Project Limits	Details	CIP #	Estimated Cost	Impact Fee Eligible? **	Additional Information
1	Continental Pl & Hoag Rd	Two-Way Stop Controlled Intersection	Add TWLTL to Hoag	NA	\$750,000.00	NO	
2	N Laventure Rd & Hoag Rd	All-Way Stop Controlled Intersection	New Roundabout or Signal	T-06-05	\$700,000.00	YES	
3	S 13th St & Broad St	Two-Way Stop Controlled Intersection	Right-in right-out channelization	NA	\$300,000.00	NO	
4	Blodgett Rd & Broad St	Two-Way Stop Controlled Intersection	Add 2 lanes and rechannelize to add LTLs	NA	\$300,000.00	NO	
5	S 1st St & W Montgomery St	Two-Way Stop Controlled Intersection	New all-way stop	NA	\$100,000.00	YES	
6	30th St & E College Way	Two-Way Stop Controlled Intersection	New Signal	T-07-04	\$700,000.00	YES	
7	N 30th St & E Fir St	Two-Way Stop Controlled Intersection	Add TWLTL to Fir	NA	\$500,000.00	NO	
8	S Waugh Rd & E Broadway	Two-Way Stop Controlled Intersection	New roundabout or Signal	NA	\$700,000.00	YES	
9	S 2nd St & Broadway	Two-Way Stop Controlled Intersection	New all-way stop	NA	\$100,000.00	YES	
10	LaVenture & Section	All-Way Stop Controlled Intersection	New Roundabout or Signal	T-07-07	\$339,000.00	YES	
11	Signal Maintenance Program	Signals	Maintenance on Existing Signals	T-07-02	\$891,000.00	NO	6-year CIP \$270,000.00 x 3.3 for 20-year projection
12	18th and Blackburn	All-Way Stop Controlled Intersection	New Roundabout or Signal	T-07-06	\$700,000.00	NO	
13	LaVenture & Blackburn	All-Way Stop Controlled Intersection	New Roundabout or Signal	T-13-01	\$700,000.00	YES	
14	Hickox & I-5	No intersection controls existing	New Interchange	T-05-09	\$5,000,000.00	NO	
15	1st & Division & Freeway Drive	All-Way Stop Controlled Intersection	Intersection Realignment	T-09-01	\$3,000,000.00	YES	
16	Division Street	Freeway Drive to Ball	Capacity and Rechannilization	NA	\$5,000,000.00	NO	
17	College Way	Market to Freeway Drive	Add 2 lanes and rechannelize to add LTLs	T-06-10	\$6,233,000.00	YES	
18	Anderson Road	I-5 NB on/off ramp to Cedardale Road	Rechannelize and Add Sidewalks	NA	\$1,000,000.00	YES	
19	Hoag Road	Urban to Continental	Add lane width, rechannelize, and add sidewalks on north	NA	\$4,000,000.00	YES	
20	Broad Street	Blodgett to 15th	Access Management/right-in right-out	Part T-03-02	\$2,550,000.00	YES	
21	Francis Road	30th to Swan	Add lane width, rechannelize, and add sidewalks	NA	\$700,000.00	YES	
22	Fir Street	LaVenture to Waugh	Add lane width, rechannelize and add sidewalks	T-94-14	\$1,200,000.00	NO	
23	Blackburn Road	Cedar Hills to Little Mountain	Add lane width, rechannelize and add sidewalks	T-94-19	\$1,700,000.00	YES	
24	Blackburn Road	Little Mountain to Eaglemont	New Road Connection and lane width, rechannelization and sidewalks on portions	T-94-21	\$2,400,000.00	YES	
25	Freeway Drive	Cameron Way to College Way	Rechannelize	T-97-07	\$3,000,000.00	NO	
26	Roosevelt Ave	Riverside Drive west to I-5, then south to Fir Street	New Road Connection	T-02-04	\$11,100,000.00	NO	
27	30th Street	Blackburn to the plat of East Gate South	New Road Connection	T-02-06	\$1,300,000.00	YES	
28	30th Street	Between Fir and the vicinity of the Manito Plat	New Road Connection and lane width, rechannelization and sidewalks on portions	Part of T-02-24	\$3,800,000.00	YES	Changed this item to include approx. 1,900 l.f. of new road connection - stream/wetland issues
29	Kincaid & 3rd Street Intersection and Corridor Improvements	All-Way Signalized Intersection	Intersection improvements at Kincaid and S. 3rd including rechannelization and access management	TBD	\$3,000,000.00	YES	Needed to allow the Alf Christianson site to be redeveloped and meet concurrency requirements. Economic development benefits to the historic downtown and South Kincaid Sub-Area resilt with the ALFCO site redevelopment.
30	Martin Road	College to 34th Place	Rechannelization & Pedestrian Facilities	T-05-02	\$2,000,000.00	NO	
31	15th Street	Broad to Division	Capacity Improvements	T-06-04	\$1,500,000.00	YES	
32	LaVenture Road	Hoag to 1000' south of Hoag	Rechannelization & Pedestrian Facilities	T-06-07	\$550,000.00	NO	
33	Milwaukee	1st 300 feet east	Truck Route Improvements	T-07-03	\$50,000.00	NO	
34	Sidewalk Gaps	Citywide	Sidewalk Construciton	T-08-01	\$5,000,000.00	NO	Estimated \$250,000.00/year x 20
35	ADA Sidewalk Transitions	City wide	Sidewalk Transitions	T-16-01	\$5,000,000.00	NO	Estimated \$250,000.00/year x 20
36	Street Improvements & Maintenance	Citywide	Paid for by MVFT, Reet I and II, Property Taxes, & TBD	T-00-02	\$17,700,000.00	NO	\$500,000.00 for 2016 + \$1.2m for 10 years + \$650k for the remaining 8 years (increased due to TBD approved in 2017)
37	Anderson Road Bridge and Approaches	Henson Road and Approaches	Interchange improvements including the addition of sidewalks	NA	\$20,000,000.00	YES	
38	S 18th Street & East Broadway	Two-Way Stop Controlled Intersection	Add both east and west bound left-turn lanes	NA	\$500,000.00	YES	
39	S 15th Street & East Broadway	Two-Way Stop Controlled Intersection	Widen Broadway to a 3-lane section	NA	\$500,000.00	YES	
40	18th Street	Between Fir Street and Roosevelt Ave.	Complete bike lane	NA	\$250,000.00	YES	
41	Division Street Bridge Replacement Study	Division Street Bridge and Approaches	Study to evaluate the feasibility/cost of replacing the Division Street Bridge and mitigation required to the bridge approaches to imporove the LOS.	NA	\$500,000.00	NO	
42	Bike Lane on Old Highway 99 South	Blackburn to just south of East Hickox Road	New Bike Lane Added/Striped	NA	\$350,000.00	YES	

2016 to 2036 Projects:

\$115,663,000.00

** Projects that are necessary to maintain City and State concurrency standards are identified as eligible for transportation impact fee funding

Beyond 2036 Projects:

60	Hickox Road	Pamela Street NE to Little Mountain Road	New Road Connection	NA	\$14,800,000.00	NA	
61	Replacement of the Division Street Bridge	Division Street/SR 536 over the Skagit River	Replacement of WSDOT's existing bridge	NA	\$20,000,000.00	NA	
62	College Way Railroad Grade Separation	Urban to Leigh Way	Grade separated crossing over/under BNSF railroad line	NA	\$22,700,000.00	NA	
63	East College Way Widening	Waugh to Skagit Highlands Parkway	Widen SR 538 (College Way) from 2 to 4 travel lanes	NA	\$6,900,000.00	NA	
64	Kincaid & I-5 Intersections and Corridor Improvements	All-Way Signalized Intersections	Study of potential intersection improvements, rechannelization and access management along Kincaid street and its intersections with both on/off ramps on the east and west side of I-5	TBD	\$500,000.00	NA	
65	I-5/SR-536	SR-536 to the south	New Frontage Road & I-5 on-ramp Construction	T-06-11	\$20,000,000.00	NA	

Total Beyond 2036 Projects:

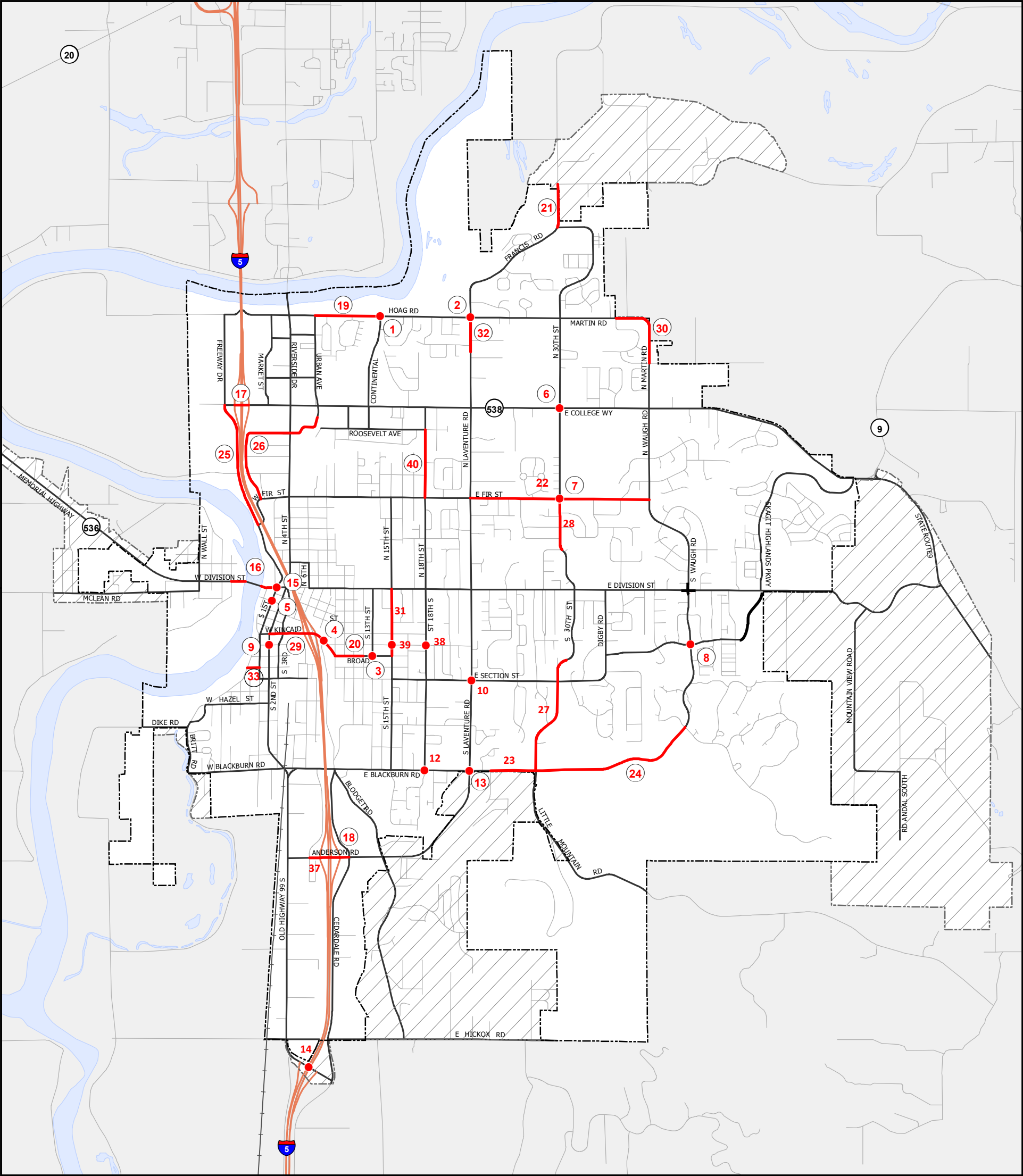
\$84,900,000.00

Trail Construction Projects within Parks/Rec Plan

80	Fowler Trail Connection	Blackburn north and west to LaVenture	New Trail Connection	T-02-10	\$200,000.00	NA	
81	30th Street Pathway South	Blackburn 750 feet north	New Trail Connection	T-02-13	\$150,000.00	NA	
82	River Dike Trail System	West side of the Skagit River	New Trail	T-02-17	\$500,000.00	NA	
83	Kulshan Trail Extension	Waugh Road NE to College Way along abandoned RR grade	New Trail Connection	NA	\$700,000.00	NA	

Total 2016 to 2036 Trail Projects:

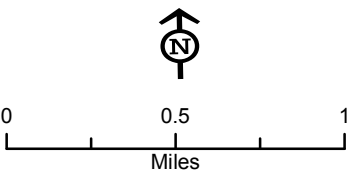
\$1,550,000.00

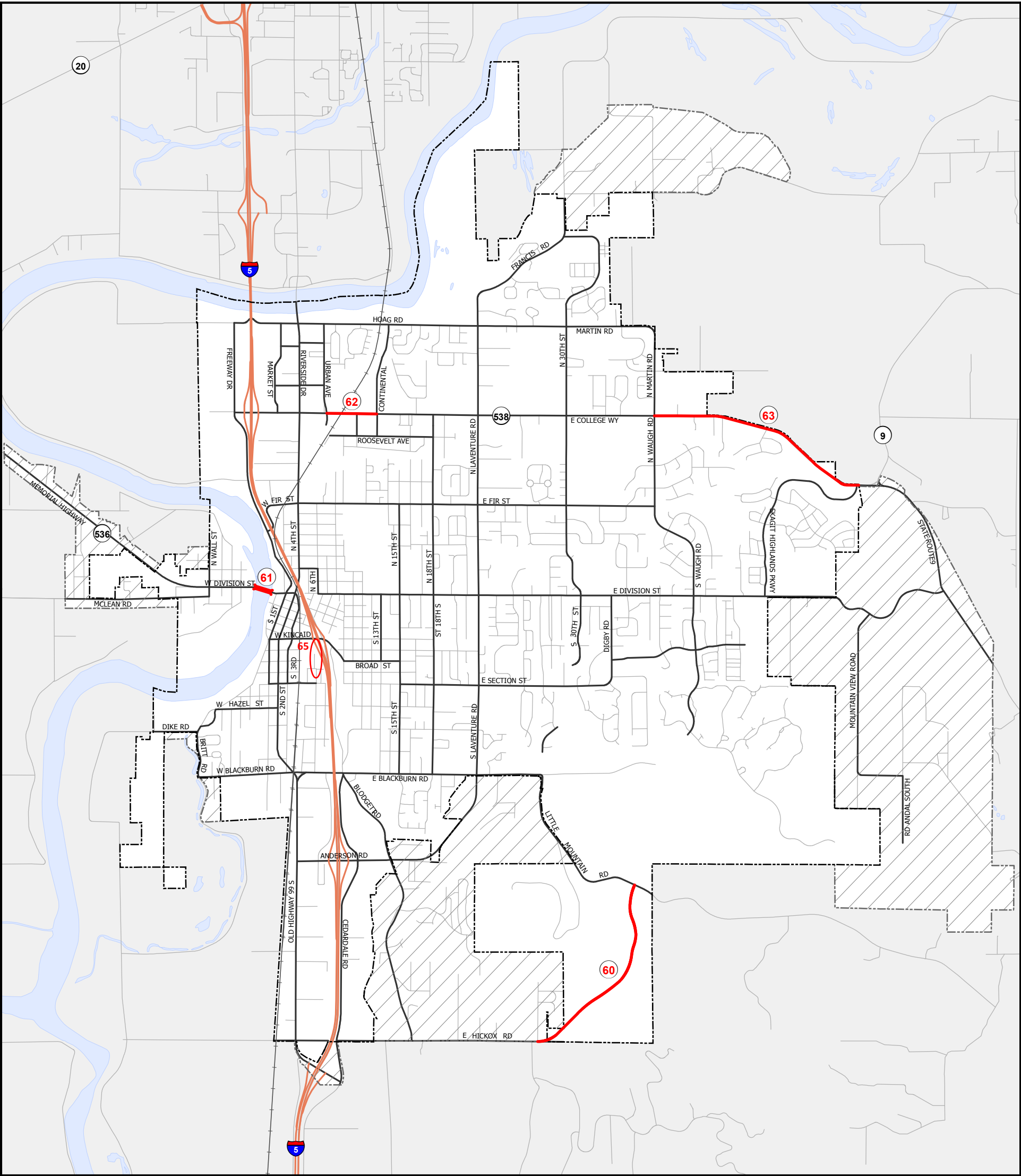


Transportation Element - Figure 4.1
Transportation Improvements to Mitigate Identified Deficiencies 2016-2036



- Project Location
- Project Location
- Arterial Street
- Other Street
- Railroad
- City Boundary
- Urban Growth Area
- Water Body

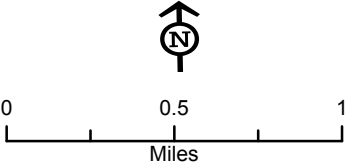


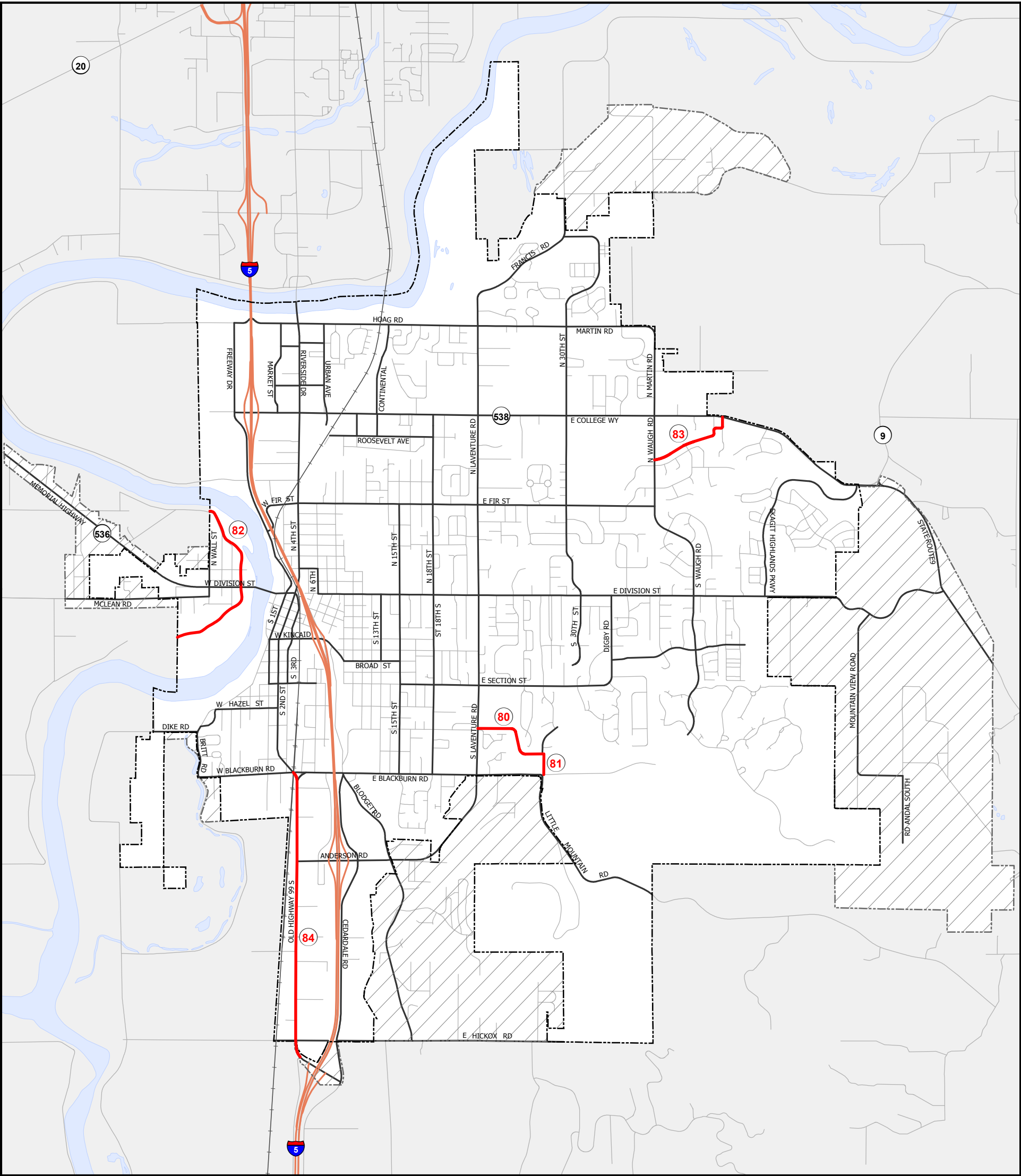


Transportation Element - Figure 4.2
Transportation Improvements to Mitigate Identified Deficiencies Beyond 2036



- Project Location
- Arterial Street
- Other Street
- Railroad
- City Boundary
- Urban Growth Area
- Water Body

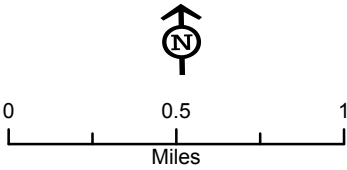




Transportation Element - Figure 4.3
Transportation Improvements to Mitigate Identified Deficiencies 2016-2036, Non-Motorized Improvements



- Project Location
- Arterial Street
- Other Street
- Railroad
- City Boundary
- Urban Growth Area
- Water Body



5.0

FINANCIAL PLAN: MITIGATING IMPACTS OF FUTURE GROWTH

Ensuring there are funding mechanisms in place to pay for the transportation infrastructure necessary to maintain the City's adopted levels-of-service over the 20-year planning horizon is a key aspect to this element of the Comprehensive Plan.

This financial plan provides the City with assurances that nearly all of the needed arterial roadway infrastructure can be paid for over the 20-year planning horizon.

However, this plan also alerts the City to the fact that contingency measures need to be in-place and vetted should a revenue shortfall become a reality over the next 20-years.

This financial plan includes four (4) main elements:

1. 20-year transportation expenses;
2. 20-year transportation revenues;
3. Comparison of transportation expenses and revenues; and,
4. Potential contingency measures.

5.1 TRANSPORTATION EXPENSES

Table 4.7 is a list of all the transportation projects that have been identified through the transportation modeling process detailed in previous sections of this element with existing or future LOS deficiencies; and through the City's existing 6-year Capital Improvements Plan (CIP).

In 2016 dollars the 45 projects identified as being needed over the 20-year planning horizon total approximately \$115.6 million.

Cost estimates for the transportation projects listed in **Table 4.7** were prepared (1) based on an engineer's estimate (when available); (2) by taking historic costs and projecting them forward; or (3) by taking average costs of both public and private transportation projects from nearby areas and applying these costs to future projects.



5.2 TRANSPORTATION REVENUE

Transportation expenses for this financial plan are limited to those that are anticipated within the next 20 years. However, there are several projects that are listed in Table 4.7 that the City expects to be constructed beyond the 20-year planning horizon. These projects, although not required to be listed, are because it is important that policy makers are aware of the significant, very expensive, projects that will be needed beyond 2036.

The forecast of anticipated revenues is based on the City's past history, ability to obtain state, federal, and local grants, and the amount of local revenue available from the gas tax, sales tax, and other sources; with the major revenue sources generally described below.

TRAFFIC IMPACT FEES – Impact fees are paid by developers to mitigate the impacts on the City's transportation system attributed to their specific project(s).

Of the 44 projects listed in Table 4.7 that are expected to be constructed over the next 20-years over one-half have level-of-service deficiencies directly correlated to trips from new growth expected over the planning horizon. As such, these projects will be the basis of the traffic impact fee calculation.

The City's traffic impact fee program is administered through the provisions of Mount Vernon Municipal Code Chapter 3.40. The City estimates that approximately \$37 to \$50 million in traffic impact fees will be collected by the City over the 20-year planning horizon.

GRANTS – Federal, State and local grants are obtained by the City through different competitive application processes. Various grant programs fund specific types of projects such as: capacity, congestion relief, safety, mobility, sidewalks and/or bicycle routes. Mount Vernon has been successful in the past in obtaining a variety of different types of grants.

For forecasting purposes, an analysis of transportation projects funded by Federal, State, local, and other sources between 1997 and 2014 was completed.

From this analysis the City estimates that approximately \$40 to \$56 million in Federal, State, and local grants are anticipated to be received by the City for transportation projects over the 20-year planning horizon.

CITY UTILITY FUNDS – Most transportation projects include underground utility installation and/or upgrades of sanitary and storm sewers. Since these utilities are, for the most part, owned and maintained by the City, funds from these utilities are, when feasible, used to fund this component of a transportation project.

Using the same methodology described above under the 'Grants' sub-section the City estimates that approximately \$3 million in utility funds are anticipated to be used for transportation projects over the 20-year planning horizon.

CITY FUNDS - Local taxes are allocated to transportation improvements by the City Council during their annual budget. The four (4) primary sources of these revenues include:

- Motor Vehicle Fuel Tax (MVFT)
- Real Estate Excise Tax (REET)
- City Property/Sales Tax Funds
- Transportation Benefit District (TBD)

RCW 82.46.010 and .035 allows cities to collect a 0.25% tax on the first quarter percent of real estate excise tax (REET I) and a second 0.25% on all sales of real estate (REET II). All REET funds are required to be used for capital projects.

At the discretion of the City Council, general tax income can be allocated for transportation improvements. The largest portion of general taxes is from property and sales taxes.

Mount Vernon voters approved a TBD that will generate funds starting in 2017 by imposing a 0.2% sales and use tax within the City limits.

The City estimates that approximately \$22 to \$30 million in MVFT, REET, TBD and other City funds will be available for transportation projects over the 20-year planning horizon.

5.3 EXPENSES & REVENUES

The 2016 to 2036 transportation project expenses and revenues are summarized in Table 4.8 below. There is a maximum shortfall of approximately \$16 million forecasted over the next 20 years comparing the estimated expenses to the minimum revenues. This maximum potential shortfall comprises approximately fourteen percent (14%) of the overall 20-year forecasted costs. Contingency measures to address this projected shortfall are outlined within Section 5.4.

TABLE 5.0: SUMMARY OF TRANSPORTATION EXPENSES AND REVENUES

EXPENSES		
FOR ADDITIONAL DETAILS SEE	DESCRIPTION	AMOUNT
Table 4.7	2016 to 2036 Transportation Project Costs	\$115.6 million ±
REVENUES		
FOR ADDITIONAL DETAILS SEE	DESCRIPTION	AMOUNT
Section 5.2:		
	Transportation Impact Fees:	\$37 to \$50 million
	Federal & State Grants, Utility Funds:	\$40 to \$56 million
	MVFT, REET, TBD	\$22 to \$30 million
	TOTAL:	\$99 to \$136 million
	Expenses – Minimum Revenues	\$115,663,000.00 - \$99,000,000.00
Maximum Unfunded Transportation Projects		\$16 million

The transportation expenses and revenues outlined within this financial plan are projections based on past projects and occurrences, historical trends, and current regulations.

These projections are intended to provide best possible predictions of likely expenses and revenues and are presented primarily to inform decision makers about policy issues – not to provide project specific cost or revenue estimates for any other purpose.

There are a variety of ways to estimate expenses and revenues over extended timeframes. Instead of inflating both the expenses and revenues by a factor, like the Consumer Price Index (CPI), over the 20-year planning horizon an assumption was made that both the expenses and revenues would inflate over time at a similar rate. To ensure that the Transportation Impact Fees keep pace with inflation, these fees are adjusted each January using The Engineering News Record Construction Cost Index.

5.4 CONTINGENCIES

The City's maximum projected funding shortfall is approximately fourteen percent (14%) of the overall estimated project costs; as such, following are several potential contingency measures the City could take to address this funding gap over time should it be necessary.

1. The City's level-of-service (LOS) standards could be modified so that some projects no longer have a failing LOS that requires mitigation in the form of capital project(s).
2. The City could allocate additional general fund dollars to pay for transportation projects.
3. The City could amend the land use assumptions found in the Land Use Element of the Comprehensive Plan to allow less growth thus minimizing LOS failures and the need for capital projects to correct the LOS failures.