Transportation System Plan Update

February ~~2013~~ 2014

CH2M HILL • DKS
Angelo Planning Group • JLA Public Involvement

Revised Tualatin Transportation System Plan Update

Prepared for

City of Tualatin

~~February 2013~~

Updated February 2014

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With

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Acronyms and Abbreviations

CIO	Citizen Involvement Organization
ESL	English as a Second Language
HDM	ODOT's *Highway Design Manual*
HOV	High-Occupancy Vehicle
LID	Local Improvement District
MBP	Minor Betterment Program
MSTIP	Major Streets Transportation Improvement Program (Washington County funding source)
NHS	National Highway System
ODOT	Oregon Department of Transportation
OHP	*Oregon Highway Plan*
OR 99W	Oregon Highway 99W
PNWR	Portland and Western Railroad
RTFP	Metro's *Regional Transportation Functional Plan*
RTP	Metro's *Regional Transportation Plan*
SDC	System Development Charges
SMART	South Metro Area Regional Transit
SOV	Single-Occupancy Vehicle
SRTS	Safe Routes to School
STIP	Statewide Transportation Improvement Program
TDC	Tualatin Development Code
TDM	Transportation Demand Management
TDT	Transportation Development Tax
TE	Transportation Enhancement
TMA	Transportation Management Association
TPC	Tualatin Planning Commission
TPARK	Tualatin Parks Advisory Committee
TPR	Transportation Planning Rule
TSM	Transportation System Management
TSMO Plan	Metro's 2035 *Transportation System Management and Operations Plan*
TSP	*Transportation System Plan*

TTF	Transportation Task Force
UGB	Urban Growth Boundary
WES	Westside Express Service

Acknowledgements

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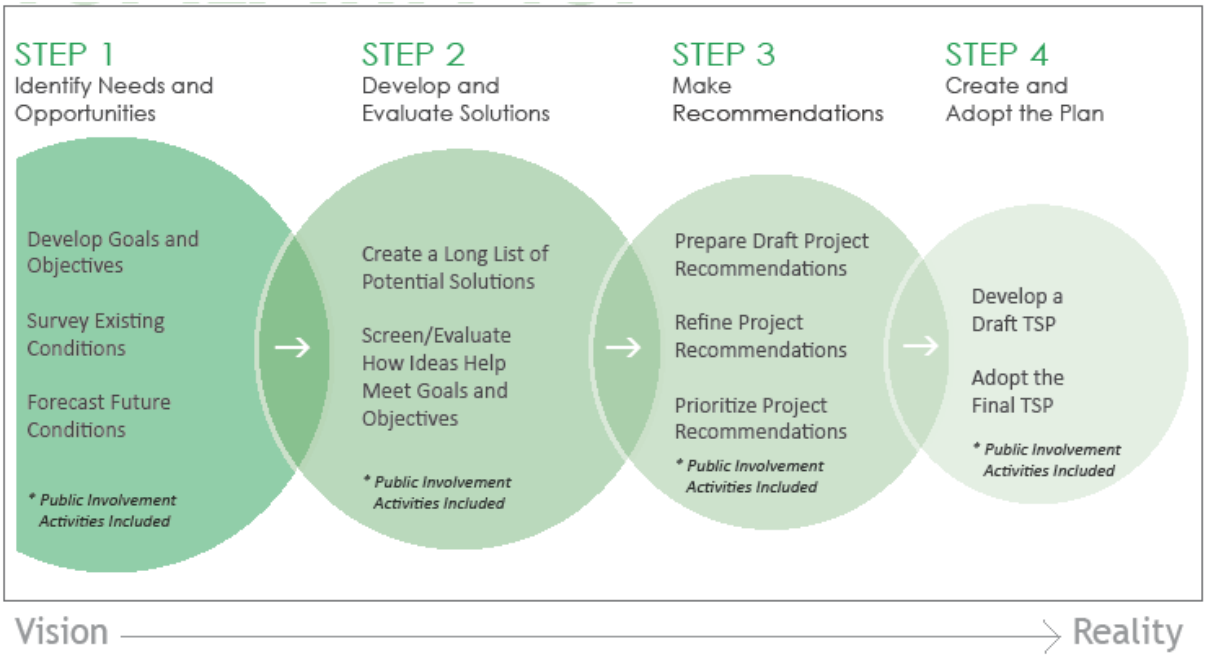
Chapter 1. Introduction

The Tualatin Transportation System Plan (TSP) establishes a long-range vision for the combination of projects, programs, and policies that will achieve Tualatin's transportation goals. To do this, the TSP looks at the needs of its residents, businesses, employees, and visitors – now (year 2012), and what is expected for the future (Year 2035). TSPs are required by the state of Oregon for all cities with populations greater than 2,500 people, and this is not Tualatin's first TSP. However, it serves as a major update. The previous TSP was adopted in 2001, with analyses completed in 2000, necessitating a new evaluation of transportation conditions in Tualatin and an updated vision for its future. The TSP considers the diverse needs of all users of the City's transportation network, and sets out recommendations that will serve the needs of transit riders, bicyclists, pedestrians, freight traffic, and drivers.

This plan has been prepared in compliance with state, regional, and local plans and policies, including the *Oregon Highway Plan* (OHP), the state *Transportation Planning Rule* (TPR), Metro's *Regional Transportation Plan* (RTP), Metro's *Regional Transportation Functional Plan* (RTFP), Washington and Clackamas Counties Transportation System Plans, and Tualatin's Comprehensive Plan. The TSP presents a vision specific to the City's transportation future, while remaining consistent with these state, regional, and local plans. Plan elements will be implemented by the City, private developers, and regional, or state agencies.

Plan Process

Tualatin began the process to update their TSP in 2011. Staff organized their work into four basic steps, as described here and illustrated in the graphic below. Step 1 identified existing and future needs, opportunities, project goals, and objectives. City staff and the consultant project team assembled existing and collected new data, analyzed the data to identify deficiencies and opportunities, and attended a number of community events to



The Adopted Tualatin Transportation System Plan (TSP):

- Creates a vision for Tualatin's future as it relates to transportation
- Establishes our community's priorities so we know what should be done first
- Helps the City of Tualatin get funding and build projects

ask about issues with the transportation system to form an understanding of transportation problems to be addressed in the TSP. Additionally, the project website included an issues map where visitors to the website could identify transportation problems within the City.

Step 2 of the process included creating a long list of potential solutions, then screening and evaluating the potential solutions to see how ideas help meet project goals and objectives. An open house, several Transportation Task Force meetings, and the working group meetings helped create and/or evaluate potential solutions (working groups are described in the next section). Throughout each of these steps, the project team engaged the community to ensure that each element was appropriate for Tualatin. The Public Involvement section presents more information about the public involvement activities.

Step 3 included preparing the draft recommendations for projects to be included into the TSP, refining a number of recommendations for the more complex transportation needs, and prioritizing the project recommendations to help both the City and the community define which projects and programs should be implemented first.

Step 4 included developing the draft and final TSPs for City adoption. This process focused on compiling all recommendations into the TSP document, and coordinating with relevant stakeholders in reviewing the TSP for completeness and consistency. These stakeholders included the community, City Council, Tualatin Planning Commission (TPC), Tualatin Parks Advisory Committee (TPARK), Washington County, Metro, Oregon Department of Transportation (ODOT), Clackamas County, adjacent cities, and the state's Department of Land Conservation and Development (DLCD).

Study Area

The study area for the Tualatin TSP is comprised of the Tualatin Planning Area Boundary, with two additions - the Basalt Creek planning area between Tualatin and Wilsonville, and the SW Concept Plan area between the Cities of Sherwood and Tualatin. Those areas outside of the City limits, but within the study area, were included because of the transportation impact that they could have on the City's transportation network associated with the potential development of residential and employment areas. The Tualatin River serves as the northerly boundary of the City west of I-5, with SW Cipole Road and SW 124th Avenue as the boundary to the west, and SW Helenius Street and SW Norwood Road to the south. There is a section of the city north and east of the Tualatin River south of SW Peters Road and west of SW Upper Boones Ferry Road. Additionally, the Horizon Christian High School south of SW Norwood Road is within City limits. The eastern study area boundary from the south follows the west side of I-5 until north of I-205. The City then extends east into Clackamas County east of SW 65th Avenue to Halcyon Road. The City also includes a section of the Bridgeport Village shopping center on the west side of I-5. The northern part of the City also extends to the east side of I-5 to the rail line, and north of the Tualatin River to approximately SW Rosewood Street. In addition to the City limits, there are a handful of areas that are surrounded by the City but not officially incorporated. The study area is shown on several of the TSP's figures, including Figure 1 in the following section.

Public Involvement for the Transportation System Plan

The TSP planning process actively engaged the citizens of Tualatin in the production of its TSP. Residents, business owners, employees, and agency partners were encouraged to participate and were provided with multiple ways to share their thoughts - from initial goal development and issue identification to evaluation and screening. The public involvement plan outlined a thorough outreach process, making it easy and fun for the public to share ideas. The process provided meaningful ways to influence outcomes and took advantage of existing communication networks to reach more people.

Transportation Task Force

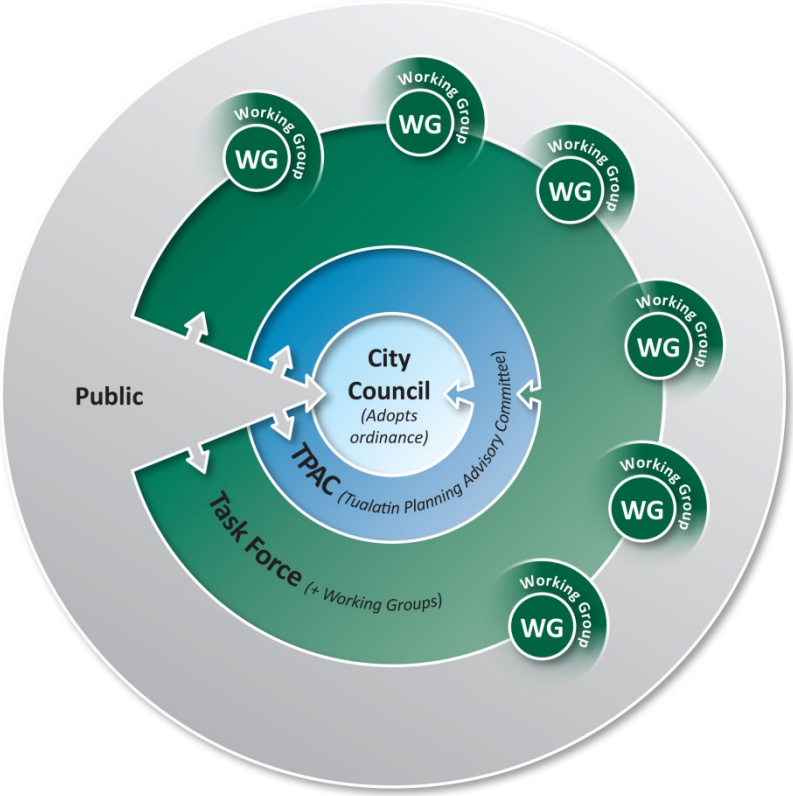
The public involvement plan established a clear decision-making framework for the TSP. The Transportation Task Force (TTF), with input from the Working Groups (described below), advised the TPC. TPC then made a recommendation to the City Council, which will then adopt the final TSP and any changes to the City's Code. In addition, TPARK made recommendations on the bicycle and pedestrian elements to the City Council. Each of these organizations received regular project updates from City staff throughout the process and each had representative members on the TTF. These groups were given the opportunity to provide their recommendation before the TTF decisions were forwarded to TPC and the City Council.

The TTF was formed in November 2011 for the purpose of advising TPC and the City Council about the needs and concerns of the community with regard to transportation. The City Council Citizen Involvement Committee selected TTF members carefully to be representative of neighborhoods, the business community, and the interests of Tualatin's advisory committees. Members and alternates were selected from a pool of applications. Neighboring communities, counties, Tualatin Valley Fire & Rescue, ODOT, Metro, and TriMet also had representatives on the TTF.

The TTF met 16 times between November 2011 and November 2012. The TSP was discussed at most meetings, though the TTF also helped to prepare Tualatin's companion land use plan for high capacity transit, known as *Linking Tualatin* during the same timeframe. TTF meetings were advertised by the City and open to the public. The TTF agenda included time for public comment at the beginning and end of every meeting.

Public Open Houses

The TSP process featured two in-person public involvement opportunities as well as a two-month long online open house. The City of Tualatin held the "Tualatin Year of Transportation" kick-off meeting on February 16, 2012, to provide information and an opportunity to comment on various transportation projects in the Tualatin area. The City also sponsored a Transportation Summit on September 20, 2012, to allow the public an opportunity to understand the full picture of how proposed projects work together. The Summit included a presentation by technical staff and provided a "town hall" style forum for comment and discussion of final recommendations before the draft TSP was developed.



Working Groups

Working Groups were another forum for public engagement in the project. The groups were open to the public and generated ideas and transportation solutions to be considered by the TTF. Six groups were established: Neighborhood Livability, Transit, Downtown, Bike and Pedestrian, Industrial and Freight, and Major Corridors and Intersections. Each working group met at least three times between February and July 2012, and anyone with an interest was encouraged to attend. Between six and thirty-five participants attended each working group meeting.

Because community members are much more likely to get involved if invited by a trusted source, the project made use of established lines of communication within the community. Notifications for events and opportunities to participate were sent through the City's list of interested citizens, the Tualatin Mayor's email list, the Chamber of Commerce email list, and members of City advisory committees. Emails were also sent to major employers and the Portland Hispanic Professionals Network. The City posted fliers and meeting notices in English and Spanish at City offices and the library. Event information was presented in school newsletters. The project produced press releases and submitted articles for the City's sponsored newsletter and the local newspaper, *Tualatin Life.*

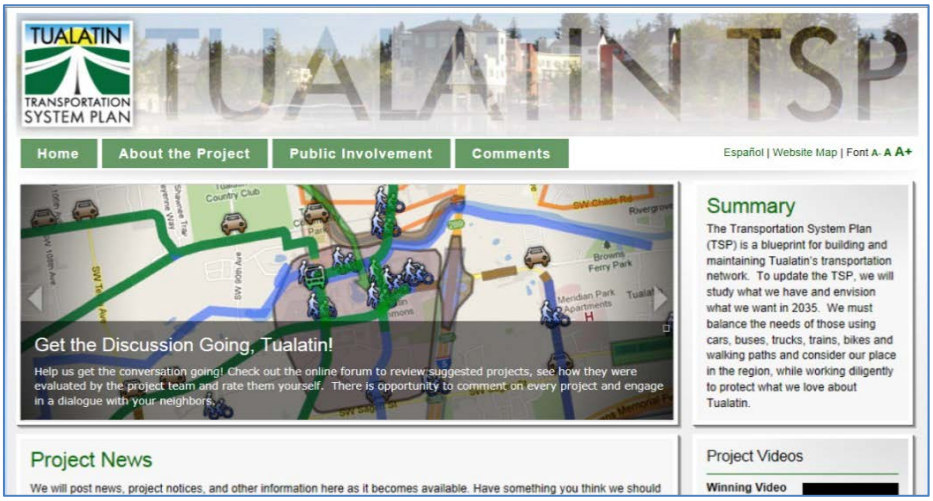
Spanish Language Outreach

According to the 2005–2009 American Community Survey, 17 percent of Tualatin's population speaks Spanish at home. For that reason, attention was placed on reaching out to this important part of the population. Interviews with leaders in the Latino community held early in the process suggested several ways to engage the Spanish-speaking population of Tualatin. Following these suggestions, the project team:

- Created English and Spanish language materials
- Visited the bilingual Parent-Teacher Organization at Bridgeport Elementary School
- Provided materials at the library and especially at Spanish-language events attended by families
- Shared information at local English as a Second Language (ESL) classes
- Contacted local churches (Tualatin Spanish Seventh-Day Adventist Church and Esperanza Iglesia)
- Left materials at local businesses

Making Involvement Easy and Fun

In addition to the more traditional meetings and events, this TSP process employed many unique tools for making involvement easy and fun.



All project information was shared on the website, www.tualatintsp.org, with information available in both English and Spanish. The website was updated weekly throughout the project with new deliverables, upcoming meetings, ways to get involved, questions for the community, and updates on what the team was doing. Project videos were produced that appeared on the project website that provided fun and unique updates from community members throughout the process. More than 2,240 people accessed the website during the project and more than 460 people submitted comments online on the Comment Map, the TSP Ideas Map, and the general comments section.

All TSP information was posted to the website to maintain an open and transparent process. TTF materials—including agendas, technical material, and meeting summaries—were posted on the City of Tualatin's website at http://www.tualatinoregon.gov/meetings and linked through the TSP project site.

Through the summers of 2011 and 2012, City staff attended public events to educate people about the TSP update and seek input on transportation system needs and recommendations. During this time staff attended the Tualatin Farmers Market, Concerts on the Commons, ArtSplash Arts Festival, and the annual Crawfish Festival.

Staff also attended each of the city Advisory Committee meetings, made contact with the Juanita Pohl Senior Center attendees, and made presentations to the Tualatin Chamber and the Tualatin Rotary.

In the summer of 2011 the project team developed an iPhone application and a map-based web tool for the public to suggest project ideas and identify system needs. About 250 people participated, providing more than 360 suggestions. The project also sponsored a video contest and honored two winners in October 2011. The City used its Facebook account to share TSP updates with its 392 followers and the project ran a Facebook ad in August 2012. Finally, the team prepared a short video to encourage input on the TSP's preliminary recommendations in summer 2012; this video was featured in several prominent spots and helped drive traffic to the project website. These non-traditional methods expanded the reach of the outreach program and engaged more Tualatin residents in development of the TSP.

Project Goals

Over a span of three meetings the TTF prepared a vision for the TSP, conveyed as a set of goals and objectives. In early 2012 they adopted seven principal goals organized into the following goal categories:

1. Access and Mobility
2. Safety
3. Vibrant Community
4. Equity
5. Economy
6. Health and the Environment
7. Ability to be Implemented

These goals and objectives were also discussed by the community at the first open house in February 2012 and by TPC, TPARK, and City Council. The full description of goals and objectives, included as Table 1, served as the basis for the TSP's evaluation framework. This means that all TSP recommendations were tied back to the underlying vision as established by these groups.

Regulatory Requirements

The TPR, developed by the state DLCD in accordance with state law, requires that local TSPs contain the following elements:

- A road plan for a network of arterial and collector roads
- A public transit plan
- A bicycle and pedestrian plan
- An air, rail, water, and pipeline plan
- A transportation financing plan
- Policies and ordinances for implementing the TSP

The TPR requires that alternate travel modes including cycling, walking, and transit, be given equal consideration with automobile travel and states that reasonable effort must be applied in the development and enhancement of alternate modes in Tualatin's future transportation system. Local jurisdictions must also coordinate their plans with relevant state, regional, and county plans and amend their own ordinances to implement the TSP.

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TABLE 1
Goals and Objectives of the Tualatin Transportation System Plan

Goal Category	Goal	Objective
Access and Mobility	Maintain and enhance the transportation system to reduce travel times, provide travel-time reliability, provide a functional and smooth transportation system, and promote access for all users.	Improve travel time reliability/provide travel information for all modes including freight and transit.
		Provide efficient and quick travel between points A and B.
		Provide connectivity within the City between popular destinations and residential areas.
		Accommodate future traffic, bicycle, pedestrian, and transit demand.
		Reduce trip length and potential travel times for motor vehicles, freight, transit, bicycles, and walkers.
		Improve comfort and convenience of travel for all modes including bicycles, pedestrians, and transit users.
		Increase access to key destinations for all modes.
Safety	Improve safety for all users, all modes, all ages, and all abilities within the City of Tualatin.	Address known safety locations, including high-crash locations for motor vehicles, bicycles, and pedestrians.
		Address geometric deficiencies that could affect safety including intersection design, location and existence of facilities, and street design.
		Ensure that emergency vehicles are able to provide services throughout the City to support a safe community.
		Provide a secure transportation system for all modes.
Vibrant Community	Allow for a variety of alternative transportation choices for citizens of and visitors to Tualatin to support a high quality of life and community livability. Produce a plan that respects and preserves neighborhood values and identity.	Create a variety of safe options for transportation needs including bicycles, pedestrians, transit, freight, and motor vehicles.
		Provide complete streets that include universal access through pedestrian facilities, bicycle facilities, and transit on some streets.
		Support a livable community with family-friendly neighborhoods.
		Maintain a small-town feel.
Equity	Consider the distribution of benefits and impacts from potential transportation options, and work towards fair access to transportation facilities for all users, all ages, and all abilities.	Promote a fair distribution of benefits to and burdens on different populations within the City (that is, low-income, transit-dependent, minority, age groups) and different neighborhoods and employment areas within the City.
		Consider access to transit for all users.

Goal Category	Goal	Objective
Economy	Support local employment, local businesses, and a prosperous community while recognizing Tualatin's role in the regional economy.	Support a vibrant city center and community, accessible to all modes of transportation.
		Support employment centers by providing transportation options to major employers.
		Increase access to employment and commercial centers on foot, bike, or transit.
		Consider positive and negative effects of alternatives on adjacent residential and business areas.
		Accommodate freight movement.
		Facilitate efficient access for goods, employees, and customers to and from commercial and industrial lands, including access to the regional transportation network.
Health/Environment	Provide active transportation options to improve the health of citizens in Tualatin. Ensure that transportation does not adversely affect public health or the environment.	Provide active transportation options to area schools to reduce childhood obesity.
		Promote active transportation modes to support a healthy public and children of all ages.
		Provide interconnected networks for bicyclists and pedestrians throughout the City for all age groups.
		Consider air quality effects of potential transportation solutions.
		Protect park land and create an environmentally sustainable community.
		Consider positive and negative effects of potential solutions on the natural environment (including wetlands and habitat areas).
Ability to Be Implemented	Promote potential options that are able to be implemented because they have community and political support and are likely to be funded.	Promote fiscal responsibility and ensure that potential transportation system options are able to be funded given existing and anticipated future funding sources.
		Evaluate potential options for consistency with existing community, regional, and state goals and policies.
		Strive for broad community and political support.
		Optimize benefits over the life cycle of the potential option.
		Consider transportation options that make the best use of the existing network.
		Conduct the planning process with adequate input and feedback from citizens in each affected neighborhood.

Metro also requires that TSPs meet certain requirements that have been adopted in the RTP and RTFP. Local TSPs must:

- Establish an arterial street network, considering Metro's street design concepts and include a conceptual map of new streets
- Implement access management standards
- Include policies, standards, and projects that connect to transit stops
- Develop a transit plan consistent with the regional transit functional plan
- Develop pedestrian, bicycle, freight, parking, and transportation system management plans
- Ensure that regional transportation needs are incorporated into the TSP
- Include regional transportation goals for mode share and vehicles miles traveled

Organization of the TSP

The TSP document is organized into three chapters and seven appendixes, as follows.

Chapter 1. Introduction

This chapter explained the purpose, goals, and benefits of the TSP, regulatory requirements guiding plan development, and organization of the TSP.

Chapter 2. Modal Plans

This chapter discusses the preferred transportation system for the City of Tualatin, including the required plan elements discussed earlier. It includes the following sections:

1. **Functional Classification Plan** describes the methods of classifying streets based on the service they are intended to provide for travel in Tualatin
   - Street Design Standards: updates and expands on existing street design standards
2. **Street System Plan** describes the changes to the street system including the functional classification, street design standards, streets to upgrade, and new streets. Projects to improve City roadways are included in the street system plan.
   - Street Urban Upgrades: contains improvements needed to bring certain roadway segments and intersections up to standards
   - New Streets: details new streets and street extensions designed to improve local connectivity
   - Additional Roadway Projects: contains street signals, intersection modifications, additional lanes, and other projects that will enhance the road network.
   - Access Management: discusses road access control measures designed to improve safety, maintain traffic flow, and preserve roadway capacity.
   - Traffic Operations Standards: compares the TSP to adopted State, County, and local standards.
3. **Transit Modal Plan** details transit enhancements and new transit projects, including expanded bus routes, park-and-rides, expansion of the Tualatin Chamber of Commerce Shuttle service, and Tualatin's role in regional transit planning.

4. **Pedestrian and Bicycle Modal Plan** lists recommended bicycle and pedestrian improvement projects, featuring a robust network of multi-modal paths.
5. **Freight Plan** lists projects needed to improve freight movement reliability, reduce freight delay, and address other freight system deficiencies.
6. **Rail Plan** evaluates the current and future rail system and sets forth improvements to serve both freight and passenger rail travel.
7. **Water, Pipeline, and Air Plan** describes existing and future pipeline and air service needs in Tualatin.
8. **Transportation Demand Management Plan** discusses projects designed to manage travel demand in Tualatin, preserving transportation system capacity.
9. **Transportation System Management Plan** discusses how best to use existing infrastructure to optimize travel on the current network.
10. **Parking Plan** determines a parking plan for the downtown core and Tualatin High School.

Implementation

This section includes information on potential funding sources and prioritization of TSP projects.

Chapter 3. Policy Language

This chapter contains recommended policy language to be considered for adoption by the City.

Appendixes

The appendixes contain technical information and documentation supporting the TSP and are organized largely by technical memoranda produced as part of the TSP process. They are as follows:

- **Appendix A, Plan and Policy Review** details the policy framework that guided development of the TSP and serves as a basis for updating out-of-date or inconsistent City policies.
- **Appendix B, Existing Conditions and Deficiencies** documents the current (2011) transportation conditions in Tualatin, current land use, and identifies existing deficiencies. Existing conditions are evaluated based on relevant mobility and operations standards.
- **Appendix C, Future Transportation Conditions** describes transportation system conditions for the future study year 2035 based on population growth, anticipated employment growth, and future traffic analysis.
- **Appendix D, Alternatives Analysis** describes the evaluation framework uses to select or reject different alternatives, the project brainstorming process, the narrowing process, and how TSP recommendations were moved forward to be included in the TSP.
- **Appendix E, Transportation Funding and Improvement Costs** summarizes existing transportation funding sources and potential future funding sources that could be considered to fund projects in the TSP. Included are high-level planning cost estimates for the recommended TSP projects.
- **Appendix F, Implementing Ordinances** recommends changes to the Tualatin Development Code that will enable plan implementation, encourage alternate modes, and protect facility and corridor function consistent with regulatory requirements.
- **Appendix G, Public Involvement Process** details the public process used in developing the plan, including outreach activities, community workshops, open houses, and the Transportation Task Force and Working Group meetings.

Chapter 2. Modal Plans

This chapter outlines the preferred transportation system for the City of Tualatin. It is organized by modal element, though it should be noted that many TSP programs and projects benefit more than one mode of transportation. All attempts have been made to describe multi-modal TSP recommendations under the mode primarily served, with cross references made to other modes benefited by the project.

This chapter consists of a street system plan, a transit plan, a bicycle, pedestrian, and trail plan, a rail plan, a freight plan, a water and pipeline plan, and an air plan. As per TPR requirements this chapter also specifically includes plans for TDM, TSM, and parking.

Definitions: TDM and TSM

TDM

Projects designed to manage travel demand, preserving transportation system capacity. Examples include teleworking, carpooling, and a Transportation Management Association.

TSM

Projects designed to optimize travel on the current network. Examples include traffic calming techniques, signal timing, and signal coordination.

1 Functional Classification Plan

A city's functional classification plan defines the intended operations and character of roadways within the overall transportation system including standards for roadway and right-of-way width, access spacing, and pedestrian and bicycle facilities. The City of Tualatin's functional classification system applies to roadways owned by the City, the County, and the State, and includes principal arterials, major arterials, minor arterials, major collectors, minor collectors, connector, and local roads. Figure 1 presents the updated functional classification plan for the City of Tualatin. Table 2 describes the functional classifications and the purpose they are intended to serve.

Tualatin's street system has a well-established network of arterials and collectors serving a variety of land uses throughout the City. The arterial roadways carry a high number of vehicles including transit and freight vehicles, and provide mobility with few opportunities for local access. Collectors assemble traffic from a neighborhood or district and deliver it to the closest arterial street. Collectors serve shorter trip lengths than arterials and have more local access opportunities. Both arterials and collectors within Tualatin are owned by a variety of agencies including the City, ODOT, and Clackamas and Washington Counties. The roadway owners are responsible for maintenance and upkeep on the roadways and they make decisions on upgrades to their facilities. Appendix A, Plan and Policy Review, provides a detailed description of the various policies associated with roadway ownership.

There are a number of existing freight and truck routes through the City designated by the City, the State, and the Federal government. These routes have specific design criteria and mobility standards to ensure that these roadways serve freight traffic.

Functional Classification Policies

Policies support the City's transportation goals and objectives included in the previous section. Policies help provide direction for roadways and roadway classifications.

- **Functional Classification Policy 1:** Major and minor arterials will comprise the main backbone of the freight system, ensuring that freight trucks are able to easily move within, in, and out of the City
- **Functional Classification Policy 2:** Continue to construct existing and future roadways to standard when possible for the applicable functional classification to serve transportation needs within the City

Functional Classification Changes

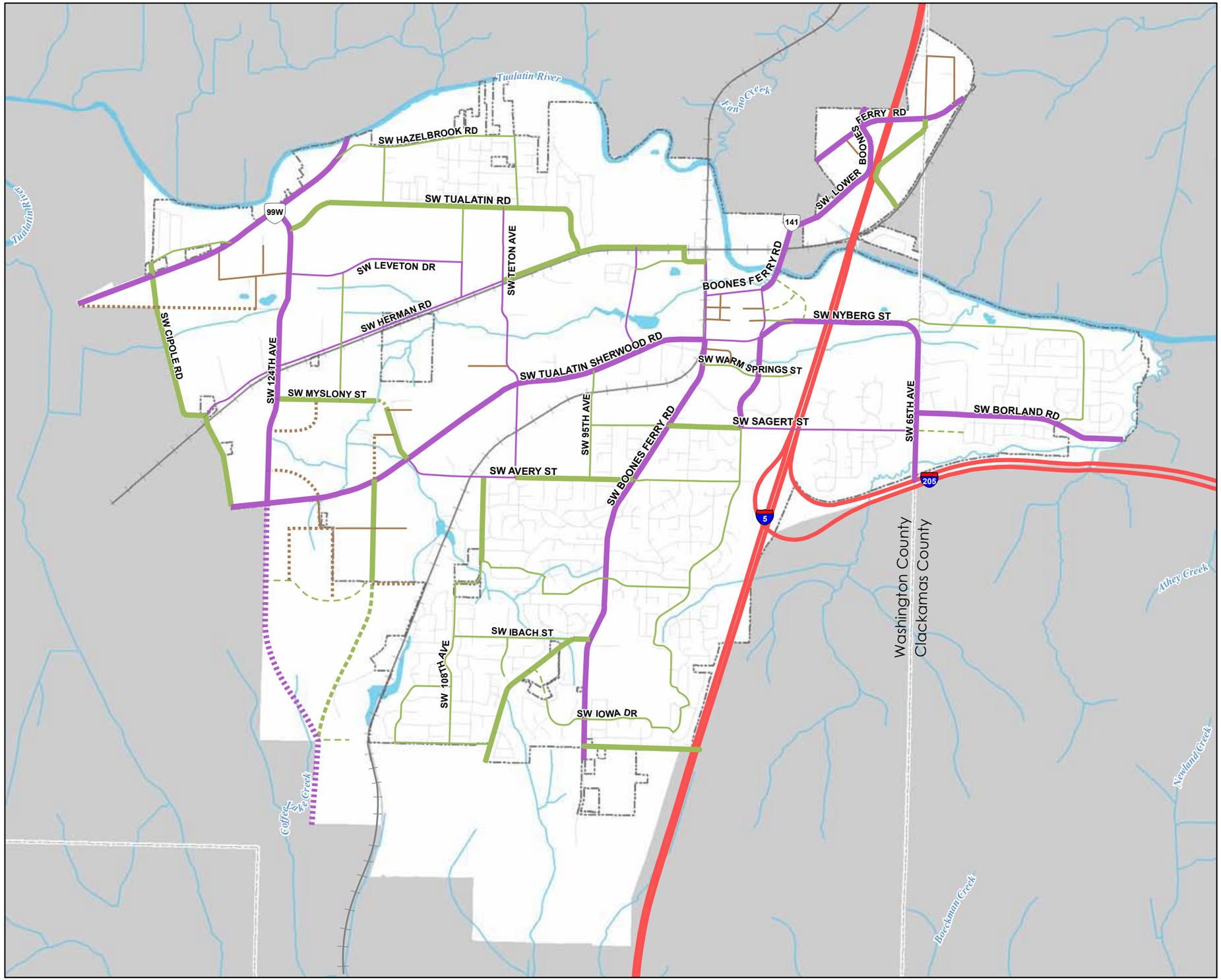
Several changes were made to the City's functional classification system in this TSP update, including a simplification of the classifications themselves (from nine to seven classifications), updates to the descriptions and design standards, and several modifications within the City. Table 2 includes the description of the functional classifications, and Figure 1 includes a map of the updated Functional Classifications in Tualatin.

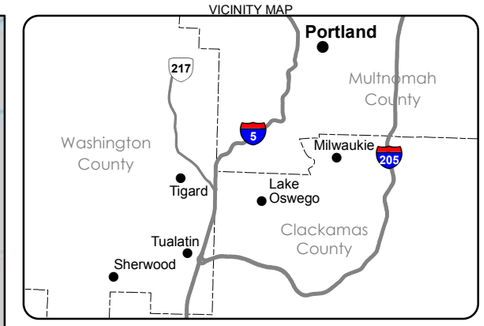
TABLE 2
City of Tualatin Functional Classification Description

Functional Classification	Description
Principal Arterial	Primary function is to serve through, intra-city, regional, and interstate travel; connects major cities and states; connects to the major arterial system; serves through and regional freight movements; facilities are fully and partially access controlled; access control through medians, interchanges; no on-street parking, few sidewalks and bicycle facilities; may be used by public transit.
Major Arterial	Primary function is to serve both local and through traffic as it enters and leaves the urban area; connects the minor arterial and collector street system to principal arterials and other major arterials; serves freight movements between Tualatin and the regional system; provides access to other cities and communities; serves major traffic movements; access control through medians and/or channelization; restricted on-street parking; sidewalks and bicycle facilities required; may allow a right-turn pocket if warranted; will be used by public transit.
Minor Arterial	Primary function is to serve local and through traffic between community and regional facilities; distributes traffic from major arterials to collectors and local streets; serves freight movements between Tualatin and the regional system; higher degree of access than major arterials; trip lengths, traffic volumes, and speeds are lower than on major arterials; sidewalks and bicycle lanes required; may allow a right turn pocket if warranted; likely to be used by public transit.
Major Collector	Primary function is to serve local traffic between neighborhoods and community facilities; principal carrier between arterials and local streets; provides some degree of access to adjacent properties, while maintaining circulation and mobility for all users; carries lower traffic volumes at slower speeds than arterials; typically has two to three lanes; typically does not include on-street parking; pedestrian and bicycle facilities are required; may be used by public transit.
Minor Collector	Primary function is to connect neighborhoods with major collector streets to facilitate movement of local traffic; serves as primary routes into residential neighborhoods; has slower speeds to ensure community livability and safety for pedestrians and bicyclists; on-street pedestrian and bicycle facilities are required; bicycle facilities may be exclusive or where street parking is prevalent, shared roadways depending on traffic volumes, speeds, and extent of bicycle travel; may be used by public transit.
Connector	Primary function is to provide direct access to adjacent land uses, specifically in the downtown core* and industrial, commercial, and manufacturing areas; characterized by short roadway distances, slow speeds, and low volumes; offers a high level of accessibility; provides on-street parking, serves passenger cars, pedestrians, bicycles, and trucks for industrial areas. May be used by public transit; pedestrian facilities are required. Does not serve through traffic.
Local Street**	Primary function is to provide direct access to adjacent land uses; characterized by short roadway distances, slow speeds, and low volumes; offers a high level of accessibility; serves passenger cars, pedestrians, and bicycles, but not trucks; pedestrian facilities are required.

* The downtown core is consistent with the Town Center Plan study area, centered on the Lake of the Commons and includes land south of the Tualatin River and west of I-5, including the Tualatin Community Park. The western Boundary is SW 95th Avenue south to SW Tualatin-Sherwood Road, and then east near SW Warm Springs Street.

** Local streets are not address in the TSP as per the TPR Section 660-012-0020(2)(b)





LEGEND

- Study Area
- Principal Arterial
- Major Arterial
- Future Major Arterial
- Minor Arterial
- Major Collector
- Future Major Collector
- Minor Collector
- Future Minor Collector
- Connector
- Future Connector
- City Boundaries
- County Boundaries
- Railroad

Note:
Future roadway alignments are approximate and subject to additional engineering and design.

N

0 0.5 1
Miles

FIGURE 1
Functional Classification
Functional Classification Plan
City of Tualatin Transportation System Plan

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Major Arterials

The following roadways are either reclassified as major arterials or are future major arterials:

- **SW Lower Boones Ferry Road** between SW Boones Ferry Road and SW Bridgeport Road changed from a minor arterial. This section of SW Lower Boones Ferry Road provides the only non-highway north-south connection within the City and carries a large amount of regional traffic from I-5 into Tualatin.
- **SW 124th Avenue** south of SW Tualatin-Sherwood Road (future road). This connection will allow industrial and manufacturing properties on the west side of Tualatin to access the regional highway system south of the City.
- **SW 65th Avenue** south of SW Sagert Street to the city limits changed from a minor collector. This designation recognizes that south of SW Sagert Street, SW 65th Avenue provides connections to the Stafford area, and changing this designation makes it consistent with the rest of SW 65th Avenue within the City.

Minor Arterials

The following roadways are reclassified as minor arterials:

- **SW 108th Avenue** between SW Leveton Drive to SW Herman Road changed from a major arterial. Downgrading this section of roadway recognizes that freight and regional traffic will access SW Leveton Drive due to the existing land uses, but it is not a major freight throughway. A minor arterial will serve the industrial and manufacturing area without attracting additional through traffic to SW Tualatin Road.
- **SW Leveton Drive** between SW 118th and SW 124th Avenues changed from a minor collector, and SW Leveton Drive between SW 118th and SW 108th Avenues changed from a major arterial. These changes address the freight traffic anticipated on SW Leveton Drive and recognize the importance of connecting to the regional transportation system via SW 124th Avenue and OR 99W.
- **SW Herman Road** west of SW Teton Avenue to SW 108th Avenue changed from a major arterial, and SW Herman Road between SW 108th Avenue and SW Cipole Road changed from a major collector. These changes make the roadway a consistent minor arterial between SW Cipole Road and SW Teton Avenue, and help support the community's desire to remove some through traffic off of SW Tualatin Road to SW Herman Road.
- **SW Teton Avenue** between SW Tualatin Road and SW Avery Street changed from a major collector. SW Teton Avenue is recommended as a freight route to reduce pressure on SW Tualatin Road, upgrading to a minor arterial indicates the anticipated traffic.
- **SW Avery Street** between SW Teton Avenue and SW Tualatin-Sherwood Road changed from a major collector. Upgrading this section of SW Avery Street provides a connection to the minor arterial on SW Teton Avenue and SW Tualatin-Sherwood Road, a major arterial to allow freight and other regional traffic access to I-5 and OR 99W.
- **SW Sagert Street** from SW Martinazzi Avenue to SW 65th Avenue changed from a major arterial. This change acknowledges that SW Sagert Street is an important connection between SW 65th Avenue and SW Martinazzi Avenue, but recognizes that the road carries local trips and serves residential land uses. SW Sagert Street carries a mix of through and local traffic.
- **SW 90th Avenue** from SW Tualatin Road to SW Tualatin-Sherwood Road changed from a major arterial. This change is in response to removing the Hall Street north-south extension over the Tualatin River from the City's TSP. Reducing the classification from a major to a minor collector reflects the reduced importance of SW 90th Avenue without that connection.

Major Collectors

The following roadways are reclassified as major collectors or are future major collectors:

- **SW Grahams Ferry Road** between SW Ibach Street and the southern City limits changed from a minor collector. This change anticipates planned development along SW Graham's Ferry Road both in Tualatin and to the south, recognizing that it is the only route from the neighborhoods to arterial connections and the regional network.
- **SW Myslony Street Extension** (Future road) to SW 112th Avenue as a future major collector. This is consistent with roadway designations on either side of the future connection.
- **SW Tualatin Road** between SW 90th Avenue and the curve south at SW Chinook Street changed from a major arterial. This change creates consistency between the segments east and west, which are already major collectors. Originally this was a major arterial because along with SW 90th Avenue, it was to connect to a future Hall Boulevard extension over the river. Since the Hall Boulevard extension was removed from the City's TSP, this roadway was downgraded.
- **SW Norwood Road** between SW Boones Ferry Road and the eastern City limits changed from a local road. SW Norwood Road is one of the only east-west connections in the south part of the City, and provides a connection over I-5. There are very few local accesses along SW Norwood Road, and the connectivity makes it consistent with a major collector designation.

Minor Collectors

The following roadways are future minor collectors:

- **New Roads in Urban Renewal Block 2**[1] will be classified as minor collectors since they connect two major arterials, SW Boones Ferry Road and SW Nyberg Street.
- **New Road** east of SW 65th Avenue and SW Borland Road.

Regional Coordination

Several roadways within the City of Tualatin are owned by Washington County, Clackamas County, or ODOT. Coordination with these regional partners is key to implement a functional roadway network. Many of the County- and State-owned roadways are major and principal arterials respectively, and serve regional traffic needs. The City of Tualatin will continue to work with regional partners to implement projects on County and State-owned roadways in Tualatin. Within the following modal plans, the projects that require regional coordination are called out separately than the projects under the City's sole jurisdiction.

Street Design Standards

Street functional classification guides the design standards including the number of travel lanes, presence of bicycle lanes, the width of sidewalks, and other design elements. Table 3 shows the design standards by functional classification, and Figure 2 has the minimum and preferred street cross sections.

[1] Urban Renewal Block 2 is the site of the former Kmart. It is located north of SW Nyberg Road west of I-5 in the northwest quadrant of the interchange. More information on Urban Renewal in downtown Tualatin is located here: www.tualatinoregon.gov/sites/default/files/fileattachments/economicdevelopment/webpage/12237/curp-curr_oct_2009.pdf

TABLE 3
Street Design Standards

Functional Classification	Cross-section width	Travel lanes	Center lane or landscaped median[¥]	Bike lanes	Sidewalks*	Multi-use path[†]	On-street Parking	Planter Strip[£]
Major Arterial	70-98’	Two to four lanes at 12’ each	14’	5-6’ on both sides	5-6’ on both sides	12’ multi-use path could replace bike lanes and sidewalks on one or both sides	None	6’ on both sides
Minor Arterial	56-74’	Two lanes at 12’ each	Optional 14’	5-6’ on both sides	5-6’ on both sides	12’ multi-use path could replace bike lanes and sidewalks on one or both sides	None	6’ on both sides
Major Collector	54-74’	Two lanes, 11’ minimum, 12’ maximum	Optional 14’	5-6’ on both sides	5-6’ on both sides	12’ multi-use path could replace bike lanes and sidewalks on one or both sides	None	6’ on both sides
Minor Collector	62-76’	Two lanes, 11’ minimum, 12’ maximum	None	5-6’ on both sides	5-6’ on both sides	12’ multi-use path could replace bike lanes and sidewalks on one or both sides	8’ parking strip on one or both sides	6’ on both sides
Connector	60’	Two lanes at 12’ each	None	None	6’ on both sides	None	8’ parking strip on both sides	4’ on both sides, 5’ x 5’ tree well for downtown connector streets
Local Street	46-50’	Two lanes, 14’ minimum, 16’ maximum	None	None	5’ on both sides	None	Allowed	4’ on both sides

*All sidewalks shall have a clear zone - minimum unobstructed width of five feet for all City streets, and assume a 6” curb
[†] The City of Tualatin may allow a 12’ multi-use path to be substituted for the sidewalk and bicycle lane on either or both sides. If allowed, the planter strip must be installed between the travel lane and the multi-use path.
[¥] Landscaped medians may include pedestrian refuges where appropriate, and where they can be installed by meeting appropriate design standards.
[£] Low Impact Development Approaches (LIDA) are allowed, where appropriate as determined by the City Engineer

For roadways all efforts are made to achieve the preferred cross sections described in Table 3 and illustrated in Figure 2. However it is acknowledged that this preferred width is not always achievable, due to environmental constraints or existing development.

The City Engineer may reduce the requirements of the preferred standard based on specific site conditions, but in no event will the requirement be less than the minimum cross-section. The City Engineer shall take into consideration the following factors when decision whether the site conditions warrant a reduction of the preferred standard:

Arterials

1. Whether adequate right-of-way exists
2. Impacts to properties adjacent to right-of-way
3. Current and future vehicle traffic at the location
4. Amount of heavy vehicles (buses and trucks)

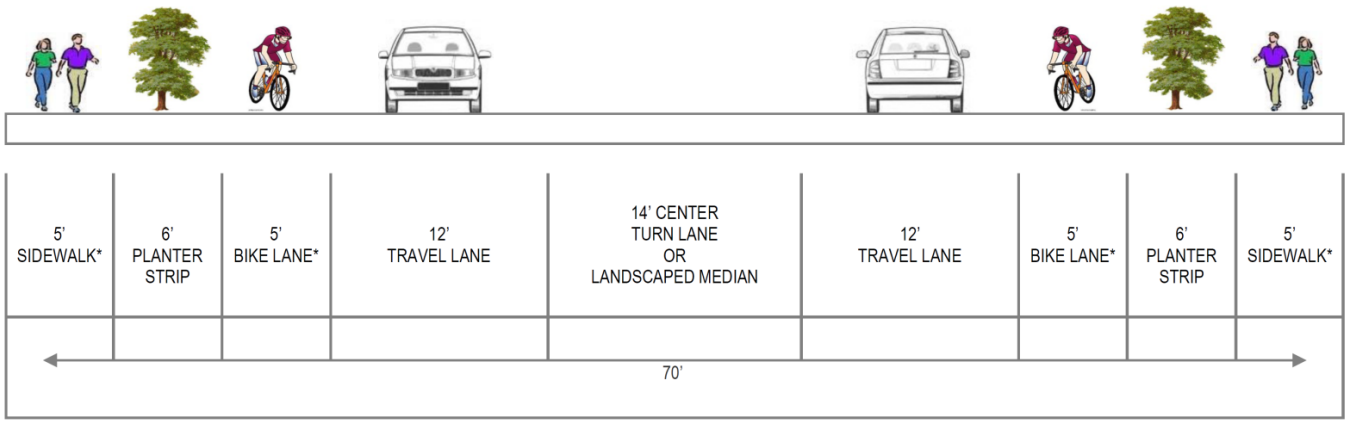
Collectors

1. Whether adequate right-of-way exists
2. Impacts to properties adjacent to right-of-way
3. Amount of heavy vehicles (buses and trucks)
4. Proximity to property zoned manufacturing or industrial

Figure 2. Street Design Standards

Major Arterial

Minimum



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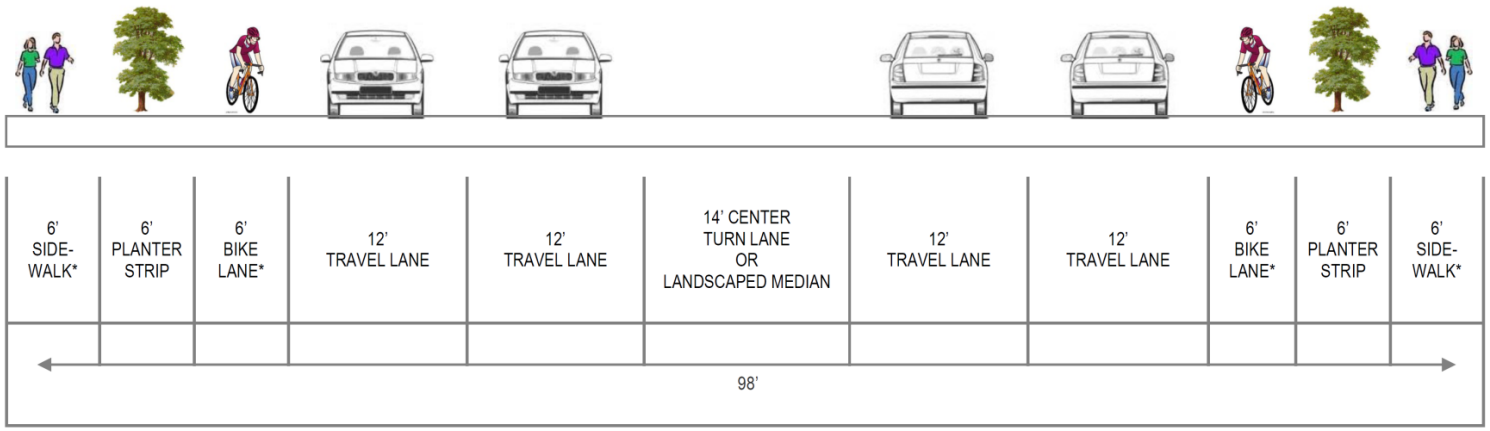
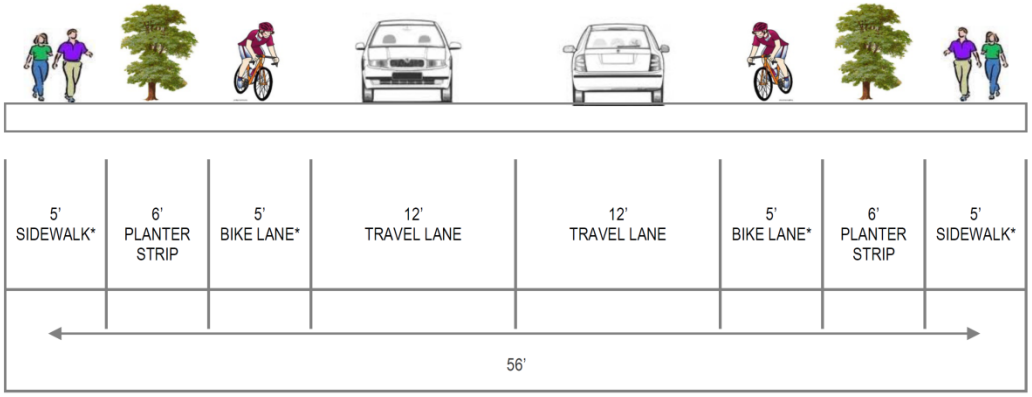


*The City of Tualatin may allow a 12' multi-use path to be substituted for the sidewalk and bicycle lane on either or both sides. If allowed, the planter strip must be installed between the travel lane and the multi-use path.

Figure 2. Street Design Standards, cont.

Minor Arterial

Minimum



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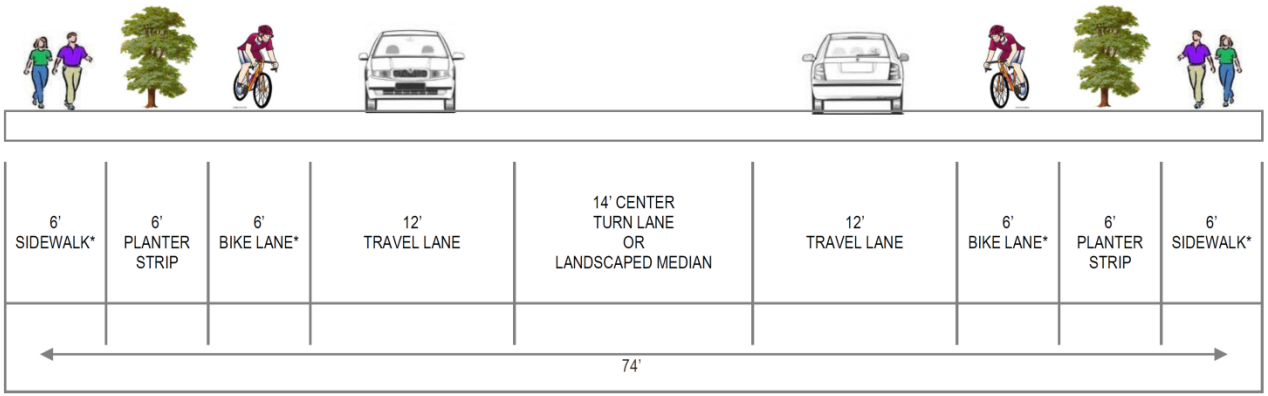
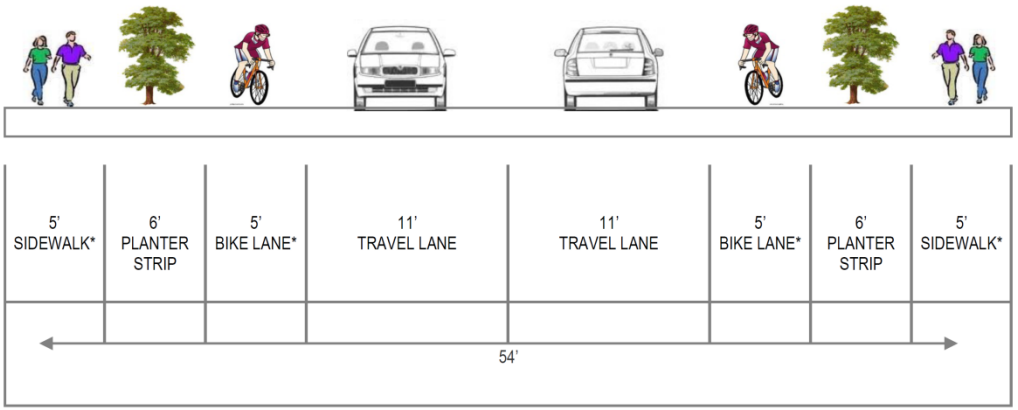


*The City of Tualatin may allow a 12' multi-use path to be substituted for the sidewalk and bicycle lane on either or both sides. If allowed, the planter strip must be installed between the travel lane and the multi-use path.

Figure 2. Street Design Standards, cont.

Major Collector

Minimum



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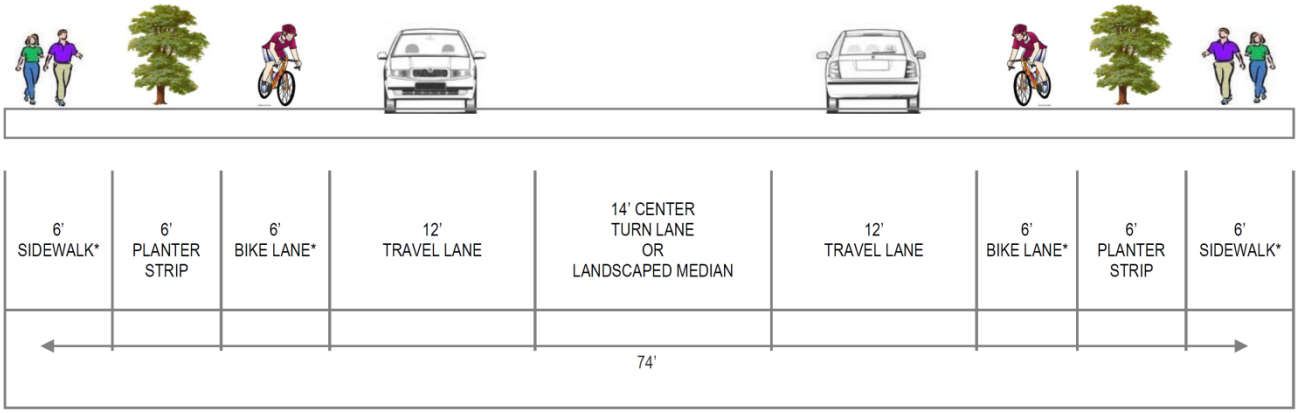
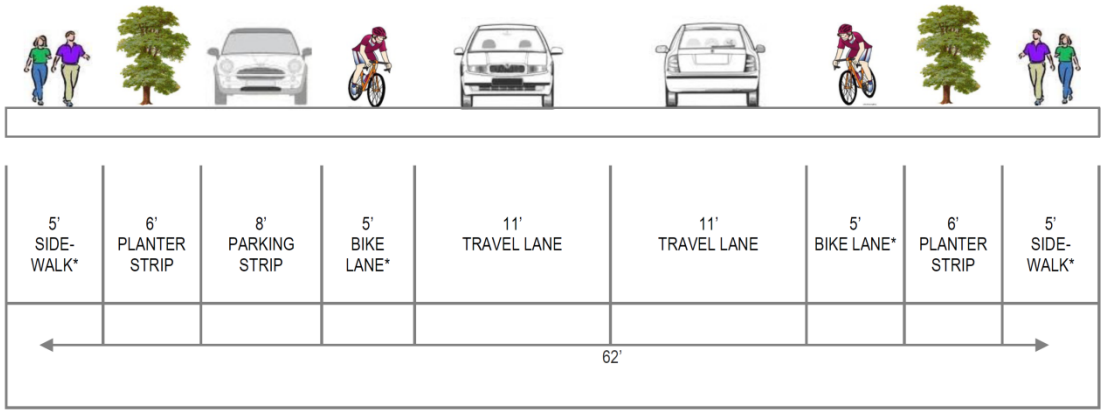


*The City of Tualatin may allow a 12' multi-use path to be substituted for the sidewalk and bicycle lane on either or both sides. If allowed, the planter strip must be installed between the travel lane and the multi-use path.

Figure 2. Street Design Standards, cont.

Minor Collector

Minimum



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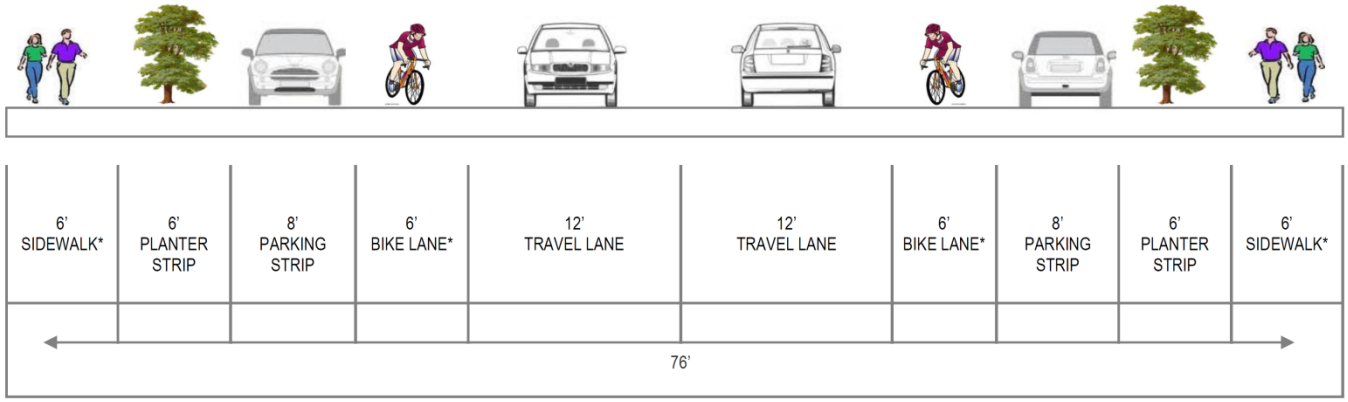
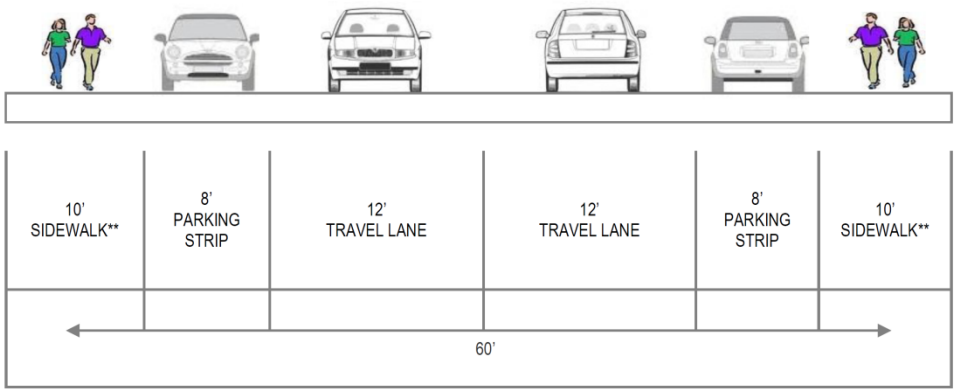


*The City of Tualatin may allow a 12' multi-use path to be substituted for the sidewalk and bicycle lane on either or both sides. If allowed, the planter strip must be installed between the travel lane and the multi-use path.

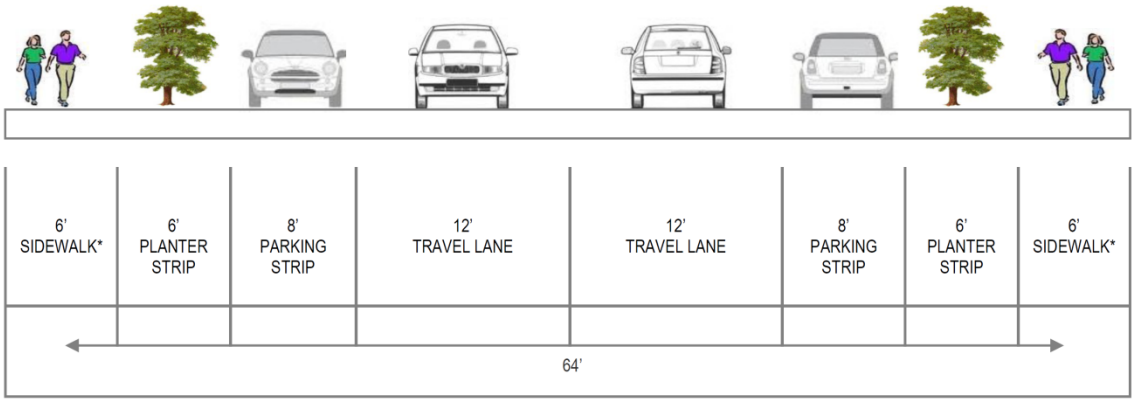
Figure 2. Street Design Standards, cont.

Connector

Downtown Core



Commercial/Industrial

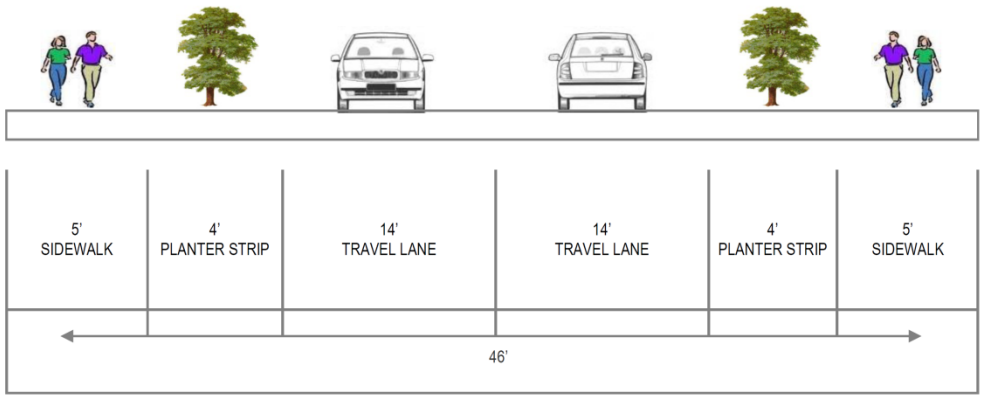


*The City of Tualatin may allow a 12' multi-use path to be substituted for the sidewalk and bicycle lane on either or both sides. If allowed, the planter strip must be installed between the travel lane and the multi-use path.
**Sidewalks on the downtown connector roads have 4' x 4' tree grates instead of planter strips.

Figure 2. Street Design Standards, cont.

Local

Minimum*



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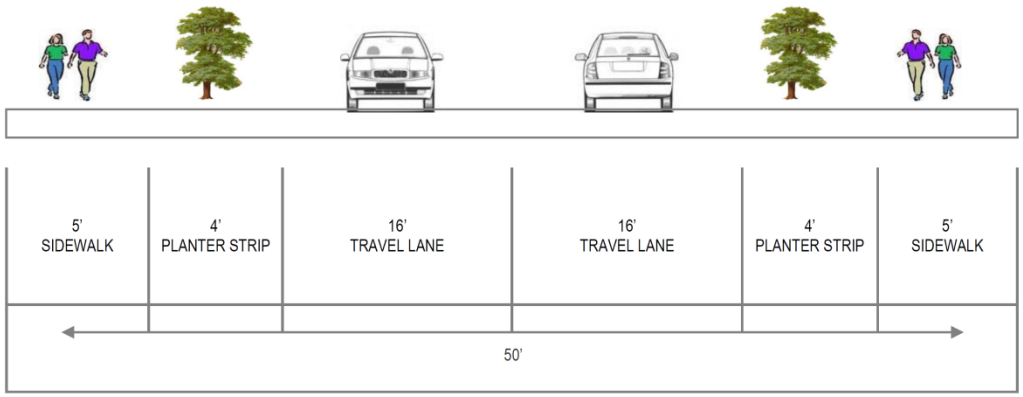


* The City of Tualatin may consider as low as 28' curb-to-curb pavement widths and as low as 46' right-of-way when needed to address constraints.

2 Street System Modal Plan

The street system modal plan consists of several sections: a listing of street urban upgrades and new streets, other intersection-specific or non-capacity streets projects, access management policies, and traffic operation standards.

Existing and Future Roadway Conditions

Some of the existing roadways do not meet City, County, or State design standards. Further, there are a number of major roadways intersect with other roadways at a skew. This creates sight distance limitations and, thus, safety concerns.

The two most highly-traveled roadways are SW Tualatin-Sherwood Road and SW Nyberg Road with over 20,000 vehicles per day. SW Tualatin Road and SW Boones Ferry Road corridors have 10,000 vehicles daily at multiple locations. Additionally, SW Tualatin-Sherwood Road carries a large amount of heavy vehicles, around 11.5 percent, with SW Boones Ferry Road carrying 8.4 percent heavy vehicles.[2] Appendix B provides a full description of existing (2011) roadway conditions, while Appendix C provides a description of future (2035) forecasted roadway conditions.

In the existing conditions analysis only two intersections - SW Martinazzi Avenue and SW Sagert Street as well as SW Teton Avenue and SW Tualatin Road were found to have greater congestion than mobility standards allow. In the future (2035) the number of intersections not meeting operations standards grew to twelve, as listed below:

- SW Teton Avenue and SW Tualatin-Sherwood Road
- SW Boones Ferry Road and SW Tualatin-Sherwood Road
- SW Martinazzi Avenue and SW Tualatin-Sherwood Road
- SW 65th Avenue and SW Borland Road
- SW Martinazzi Avenue and SW Boones Ferry Road
- SW Boones Ferry Road and SW Lower Boones Ferry Road
- SW Boones Ferry Road and SW Avery Street
- SW Boones Ferry Road and SW Sagert Street
- SW Teton Avenue and SW Avery Street
- SW 65th Avenue and SW Sagert Street
- SW Teton Avenue and SW Tualatin Road
- SW Nyberg Street and SW 65th Avenue

The key needs identified in the existing conditions report include:

- **Improved Roadway connectivity** - new roadway connections should be explored to improve east-west connectivity south of SW Tualatin-Sherwood Road and north-south regional connectivity. Metro RTP policies related to a complete street system identify one-mile spacing between major arterial streets with collector streets or minor arterials spaced a half-mile apart.

[2] The average road in the Portland Metro area typically carries 2-4 percent heavy vehicles.

- **Improved travel time along congested corridors** – Focus on reducing vehicle delay on key corridors.
- **Intersection improvements** - address intersection delay and intersection issues in congested areas.
- **Upgrading roadway geometries** - City design standards for roadway width, sidewalks, and bicycle facilities should be followed where specific deficiencies have been identified.

Additionally, safety is a concern for the community. Safety issues were identified at the following intersections:

- SW Tualatin-Sherwood Road and SW Boones Ferry Road
- SW Nyberg Street and I-5 southbound off ramps.

Roadway Policies

The following establish the City's policies on roadways.

- **Roadway Policy 1:** Implement design standards that provide clarity to developers while maintaining flexibility for environmental constraints.
- **Roadway Policy 2:** Ensure that street designs accommodate all anticipated users including transit, freight, bicyclists and pedestrians, and those with limited mobility.
- **Roadway Policy 3:** Work with Metro and adjacent jurisdictions when extending roads or multi-use paths from Tualatin to a neighboring City.

Roadway Projects

City Street Urban Upgrades

Tualatin's TSP strives to put forward a set of complete streets that minimize delay for trucks and drivers while maintaining Tualatin's community character. The TSP's ultimate goal with its street upgrade program is to provide a safe system for those walking, driving, riding transit, operating a wheelchair, or riding a bicycle.

Several streets in Tualatin do not meet design standards outlined in the previous section, and create a safety risk. These streets are identified here for upgrades as development occurs. Many of these upgrades include adding travel lanes to address congestion, adding a center turn lane or median to help mobility and safety, widening travel lanes, and upgrading the cross section to improve a roadway from a rural two-lane facility to an urban feel with curb, gutters, and bicycle and pedestrian facilities or just adding bicycle and pedestrian facilities. For cost estimating purposes, the project team used the street standards in Figure 2 to estimate the lane and right-of-way width.

Bicycle and pedestrian upgrades are projects where only a sidewalk, bicycle lane, or multi-use path would be added to make the street more attractive to all modes. Table 4 describes a suite of local urban upgrade projects, presenting cost estimates, potential funding sources, and implementation timeframe for these upgrades. Table 5 includes the regional urban upgrades that require coordination with other agencies, including Washington and Clackamas Counties and ODOT. Figure 3 shows the projects geographically, and bicycle and pedestrian urban upgrades are also shown on the bicycle and pedestrian figure (Figure 7). The evaluation process which led to these TSP recommendations is described in Appendix D.

Projects included in the City tables over $5 million will require the City to find additional funding sources (i.e. potential transportation bonds, regional flex funds, and transportation enhancements) beyond funding currently available to the City. Most of these projects are long-term priorities.

TABLE 4

City Urban Upgrade Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate (in 2012 dollars)*	Champion	Funding Source	Priority**
R1	Widen SW Herman Road to a three-lane cross-section between SW 124th Avenue and SW Cipole Road	$2,574,000	City	TDT, LID, gas tax, Bike/Ped funds	As development occurs
R2	Upgrade SW Hazelbrook Road to roadway standards between 99W and just east of SW Jurgens Avenue	$3,543,000	City	TDT, LID, gas tax, Bike/Ped funds	As development occurs
R3	Upgrade SW Herman Road as an urban two-lane cross-section between SW Tualatin Road and SW Teton Road	$2,390,000	City	TDT, LID, gas tax, Bike/Ped funds	As development occurs
R4	Widen SW Teton Avenue between SW Herman Road and SW Tualatin-Sherwood Road to a complete three-lane cross-section including bike lanes for its entire length	$2,464,000	City	TDT, LID, gas tax, Bike/Ped funds	As development occurs
R5	Upgrade SW Myslony Street to roadway standards for its entire length	$11,437,000[3]	City	TDT, LID, gas tax, Bike/Ped funds, Regional flex funds, bonds, TE	Short-term
R6	Widen SW Avery Street to a three lane cross-section between SW Teton Avenue and SW Tualatin-Sherwood Road	$3,600,000	City	TDT, gas tax, Bike/Ped funds	Long-term
R7	Upgrade SW 105th Avenue/SW Blake Street/SW 108th Avenue to roadway standards between SW Avery Street and SW Willow Street	$5,086,000	City	TDT, gas tax, Bike/Ped funds	Short-term
R8	Upgrade SW Boones Ferry Road to roadway standards between SW Ibach Road and SW Norwood Road	$660,000	City	TDT, gas tax, Bike/Ped funds	Long-term
R9	Upgrade SW Helenius Road to roadway standards between SW 109th Terrace and SW Grahams Ferry Road	$1,403,000	City	TDT, gas tax, Bike/Ped funds	Long-term
R10	Upgrade SW Norwood Road to roadway standards between SW Boones Ferry Road and the eastern City limits.	$2,824,000	City	TDT, gas tax, Bike/Ped funds	Long-term
R11	Add sidewalks or a multi-use path on SW Sagert Street bridge over I-5 – assume widening on either side of the bridge	$3,282,000	City, ODOT	TDT, Bike/Ped funds, Travel Options	Long-term
R12	Fill sidewalk gaps on SW Boones Ferry Road between Tualatin High School and the southern City limits	$315,000	City	TDT, Bike/Ped funds, Travel Options	Short-term

[3] From Metro's *Regional Transportation Plan (RTP)* 2007. Estimate grown to 2012 dollars.

TABLE 4

City Urban Upgrade Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate (in 2012 dollars)*	Champion	Funding Source	Priority**
R13	Fill sidewalk gaps on SW Herman Road between SW Tualatin Road and the western City limits	Included in cost estimates for Projects R1 and R3	City	TDT, Bike/Ped funds, Travel Options	As development occurs
R14	Add bicycle lane on SW Martinazzi Avenue between SW Warm Springs Road and SW Boones Ferry Road	$2,403,000[4]	City	TDT, Bike/Ped funds, Travel Options, LID	Medium-term
R15	Add bicycle facilities on SW 95th Avenue between SW Avery Street and SW Tualatin-Sherwood Road	$2,920,000[5]	City, school	TDT, Bike/Ped funds	Medium-term
R16	Add a multi-use path along SW 65th Avenue from the Tualatin River to I-205	$9,734,000[6]	City	TDT, Bike/Ped funds, Travel Options	Long-term
R17	Add sidewalks and bicycle lanes (or a multi-use path) on SW Norwood Road from SW Boones Ferry Road to the eastern City limits	$305,000	City	TDT, Bike/Ped funds, Travel Options	Medium-term

* Costs are rounded to the nearest $1,000
** Short term = within 5 years, medium term = 5–10 years, long-term = 10 years or more
LID – Local Improvement District
TDT – Transportation Development Tax
TE – Transportation Enhancement

[4] From the *East Commons Enhancement Plan* 2010. Estimate grown to 2012 dollars.

[5] From Metro's *Regional Transportation Plan (RTP)* 2007. Estimate grown to 2012 dollars.

[6] From Metro's *Regional Transportation Plan (RTP)* 2007. Estimate grown to 2012 dollars.

Regional Street Urban Upgrades

Regional street upgrades serve regional travel needs, and are more expensive than what the City is anticipated to be able to fund by itself. These projects will rely on regional and State funding sources for implementation.

TABLE 5

Regional Urban Upgrade Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate (in 2012 dollars)	Champion	Funding Source	Priority*
R18	Upgrade SW Cipole Road to roadway standards between 99W and SW Tualatin-Sherwood Road, include a multi-use path on one side	$20,030,000[7]	Washington County, City	Washington County MSTIP, TDT, LID, Bike/Ped funds	As development occurs
R19	Widen SW Boones Ferry Road to 5-lanes north of SW Martinazzi Avenue	$17,818,000	City, ODOT, Washington County	Washington County MSTIP, TDT, gas tax, STIP	Long-term
R20	Widen SW Tualatin-Sherwood Road to five lanes between SW Teton Avenue and SW Cipole Road†	$10,883,000	Washington County, City	TDT, Washington County MSTIP, gas tax	Medium-term
R21	Upgrade SW Borland Road to roadway standards between SW 65th Ave. and the eastern City limits	$9,646,000	Clackamas County, City	TDT, gas tax, Clackamas County	Medium-term
R22	Upgrade SW Grahams Ferry Road to roadway standards between SW Ibach Road and SW Helenius Road	$3,300,000	Washington County	TDT, gas tax, Washington County MSTIP,	Long-term
R23	Upgrade SW Tonquin Road to roadway standards between SW Waldo Way and SW Grahams Ferry Road	$11,193,000[8]	Washington County	TDT, gas tax, Washington County MSTIP	Medium-term
R24	Fill sidewalk gap and add a colored bicycle lane at SW Boones Ferry Road and SW Lower Boones Ferry Road Intersection	$10,000	City, ODOT, Washington County, City of Durham	Bike/Ped funds, Travel Options	Short-term
R25	Fill sidewalk gaps on SW Grahams Ferry Road between SW Ibach Road and southern City limits	$1,680,000[9]	Washington County	TDT, Bike/Ped funds, Travel Options, MBP	Short-term
R26	Fill sidewalk gaps on SW Borland Road from SW 65th Avenue to the eastern City limits	$2,603,000	Clackamas County, City	TDT, Bike/Ped funds, Travel Options	Short-term

[7] From Metro's *Regional Transportation Plan (RTP)* 2007. Estimate grown to 2012 dollars.

[8] From the *SW Tualatin Concept Plan* 2010. Estimate grown to 2012 dollars.

[9] From the *Tualatin Bikeway Plan* 1993. Estimate grown to 2012 dollars.

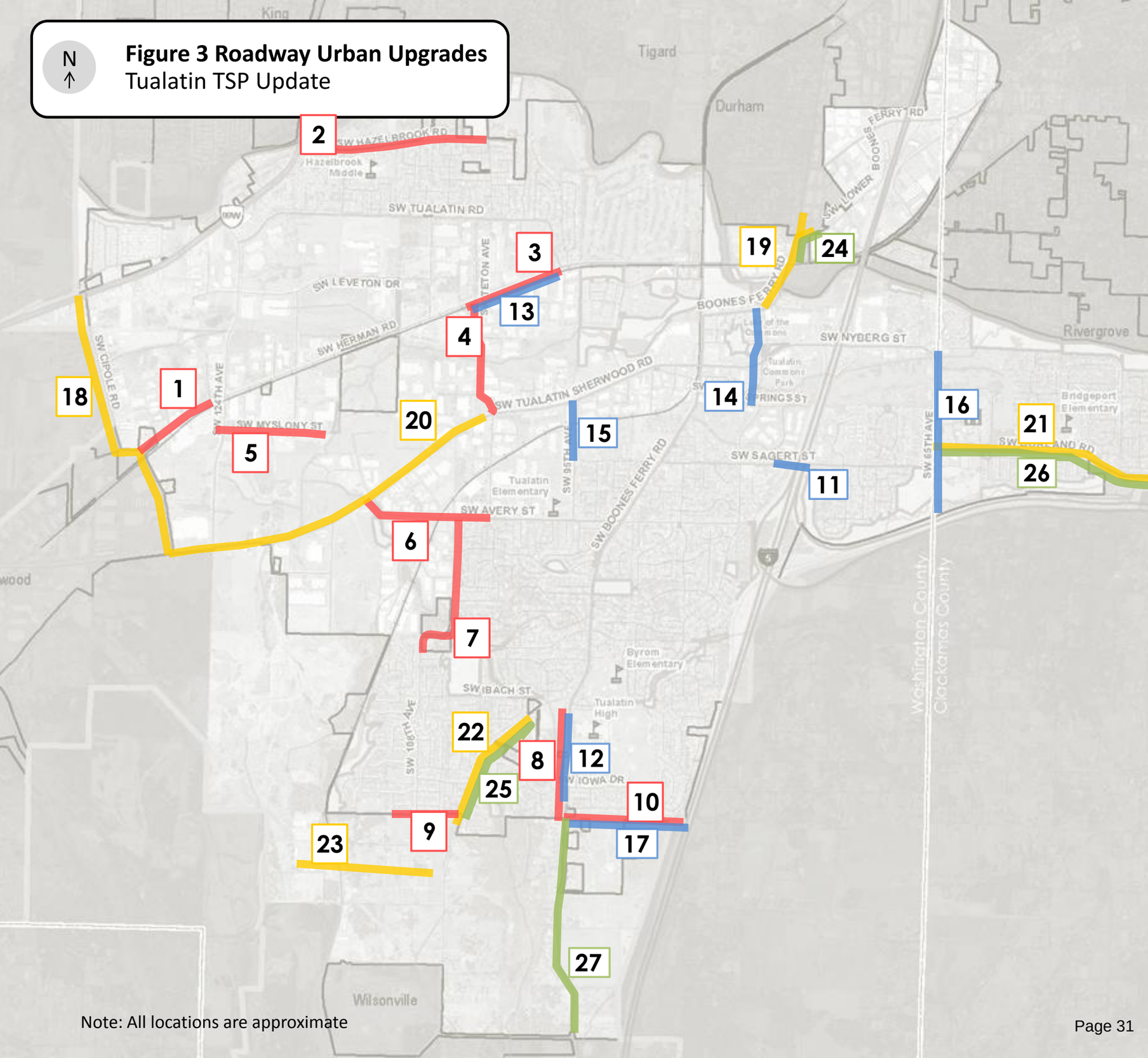
TABLE 5

Regional Urban Upgrade Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate (in 2012 dollars)	Champion	Funding Source	Priority*
R27	Add bicycle lanes on SW Boones Ferry Road from SW Norwood Road south to SW Day Road. Project will realign horizontal curves, add an intermittent center turn lane, pedestrian facilities on the west side of the road.	$10,000,000[10]	Washington County	Washington County MSTIP	Short-term (underway)

* Short term = within 5 years, medium term = 5–10 years, long-term = 10 years or more
† Metro's *Regional Transportation Plan (RTP)* includes SW Tualatin-Sherwood Road as a 5 lane cross section west of the City limits to 99W
LID – Local Improvement District
MBP – Minor Betterment Program (Washington County)
MSTIP – Major Streets Transportation Improvement Program
STIP – Statewide Transportation Improvement Program
TDT – Transportation Development Tax

[10] From Washington County's ongoing Boones Ferry Road improvement project.



Note: All locations are approximate

City Street Urban Upgrades

1 Upgrade SW Herman Road to a 3-lane cross section between SW 124th Avenue and SW Cipole Road
2 Upgrade SW Hazelbrook Road to roadway standards
3 Upgrade SW Herman Road to a 2-lane urban cross section between SW Tualatin Road and SW Teton Avenue
4 Widen SW Teton Avenue to a 3-lane cross section
5 Upgrade SW Myslony Street to roadway standards
6 Add a center turn lane or median on SW Avery Street between SW Teton Avenue and SW Tualatin-Sherwood Road
7 Upgrade SW 105th/Blake Street/108th Avenues to roadway standards
8 Upgrade SW Boones Ferry Road to a 3 lane cross section throughout
9 Upgrade SW Helenius Road to roadway standards
10 Upgrade SW Norwood Road to roadway standards

Bicycle and Pedestrian-Specific Urban Upgrades

These projects are bicycle and pedestrian specific, and are also included on the Bicycle and Pedestrian Plan Figure:

11 Add sidewalks to the SW Sagert Street bridge
12 Fill sidewalk gaps on SW Boones Ferry Road
13 Fill sidewalk gaps on SW Herman Road
14 Add bicycle lanes on Martinazzi Avenue
15 Add bicycle lanes on SW 95th Avenue
16 Add a multi-use path along SW 65th Avenue between Atfalati Park and Nyberg Street
17 Add a multi-use path (or sidewalks and bicycle lanes) on SW Norwood Road

Regional Urban Upgrades

18 Upgrade SW Cipole Road to roadway standards
19 Widen SW Boones Ferry Road to 5 lanes north of SW Martinazzi Avenue
20 Widen SW Tualatin-Sherwood Rd to 5 lanes between SW Teton Avenue and SW Cipole Road
21 Upgrade SW Borland Road to roadway standards
22 Upgrade Grahams Ferry Road to roadway standards
23 Upgrade SW Tonquin Road between SW Waldo Way and SW Grahams Ferry Road

Regional Bicycle and Pedestrian-Specific Urban Upgrades

These projects are bicycle and pedestrian specific, and are also included on the Bicycle and Pedestrian Plan Figure:

24 Fill sidewalk gaps and add colored bicycle lanes at SW Boones Ferry and SW Lower Boones Ferry Roads
25 Fill sidewalk gaps on SW Grahams Ferry Road,
26 Fill sidewalk gaps on SW Borland Road,
27 Add bicycle lanes on Boones Ferry Rd from Norwood to Day Rd

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New City Street Extensions

Tualatin's residential areas are largely established; most of the recommended new streets occur as extensions in the industrial and manufacturing areas and in conjunction with other planning processes. The extension of SW 124th Avenue and the east-west connection south of the City addresses the need for additional access to the regional transportation network including the OR 99W and I-5 corridors. The Basalt Creek planning area anticipates additional residential and commercial development, creating more demand, and future industrial and manufacturing development in the western part of the City will need additional access. Table 6 presents cost estimates and priorities for the City street extensions, and Table 7 presents cost estimates for the regional street extensions.

TABLE 6
City Street Extension Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate	Champion	Funding Source	Priority*
R28	Build a bridge over Hedges Creek and extend SW Myslony Street to connect with SW 112th Avenue	$2,593,000	City	TDT, LID, bonds, gas tax	Medium-term
R29	Build the Roadways from the SW Concept Plan: Extend SW 115th Avenue south to connect with the SW 124th Avenue, create an east-west connection between SW 115th and SW 124th Avenues.	$31,446,000[11]	City	TDT, LID, gas tax, Oregon Immediate Opportunity Fund	Long-term

* Short term = within 5 years, medium term = 5–10 years, long-term = 10 years or more
LID – local improvement district
TDT – Transportation Development Tax

[11] From the *SW Tualatin Concept Plan* 2010. Estimate grown to 2012 dollars.

Regional Street Extensions

TABLE 7
Regional Street Extension Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate	Champion	Funding Source	Priority*
R30	Extend SW 124th Avenue south – include a multi-use path on one or both sides per street standards	$15,000,000[12]	City, City of Wilsonville, Washington County	Washington County MSTIP, TDT, LID	Short-term

* Short term = within 5 years, medium term = 5–10 years, long-term = 10 years or more
LID – local improvement district
MSTIP – Major Streets Transportation Improvement Program
TDT – Transportation Development Tax

Please note: the City considered possible north-south crossings of the Tualatin River both east and west of I-5 in its TSP development. In the end, the City decided that the impacts of these crossings to Tualatin and/or to its neighboring communities outweighed the forecasted benefits and therefore no new river crossings are recommended in this TSP.

Additional City Roadway Projects

Table 8 presents cost estimates and priorities for City roadway projects designed to address transportation deficiencies. Table 9 presents cost estimates for Regional roadway projects. These deficiencies include safety, congestion, and other community concerns. These projects are focused on improving localized issues, and intersection-specific upgrades to address safety and congestion concerns. Where traffic signals are recommended, traffic signal warrants would be conducted and the intersection would need to meet warrants before a signal is installed. Traffic warrant requirements are based on traffic volumes, pedestrian volumes, safety, and operation analyses. Figure 4 shows the projects geographically.

TABLE 8
City Roadway Project Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate	Champion	Funding Source	Priority*
R31	Add a traffic signal at SW Tualatin Road and SW 115th Avenue	$609,000[13]	City	TDT, LID, gas tax	Medium-term
R32	Remove some trees in the southwest corner of the intersection of SW Tualatin Road and SW 108th Avenue to improve sight distance	$8,000	City	TDT, LID, gas tax	Short-term
R33	Add a traffic signal at SW Tualatin Road and SW Teton Avenue	$609,000[14]	City	TDT, LID, gas tax	Short-term
R34	Eliminate the free right turn at SW Tualatin Road at the intersection with SW Herman Road, and consider a roundabout at this location. (cost estimate is for roundabout as assumed to	$1,631,000	City	TDT, LID, gas tax	Long-term

[12] From Washington County's ongoing 124th Avenue extension project.

[13] See Project R33 for the cost estimate to a similar project.

[14] See Project R33 for the cost estimate to a similar project.

TABLE 8
City Roadway Project Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate	Champion	Funding Source	Priority*
	be higher cost of the two options)				
R35	Add a traffic signal or roundabout at SW Sagert Street and SW Martinazzi Avenue	$2,069,000[15]	City	TDT, LID, gas tax	Medium-term
R36	Add a southbound turn pocket from SW Teton Avenue to Avery Street	$274,000	City	TDT, LID, gas tax	Medium-term
R37	Add a traffic signal at SW Avery Street and SW Teton Avenue	$609,000	City	TDT, LID, gas tax	Medium-term
R38	Add signage to indicate that SW Tualatin Road is for local traffic, both along SW Tualatin Road and at either end (SW 124th Avenue and SW Boones Ferry Road)	$20,000	City	TDT, LID, gas tax	Short-term
R39	Add truck information signs along SW 105th and 108th Avenues. Install signs for no through trucks on SW 105th and SW 108th Avenues. Also places signs on SW Avery Street east and west of SW 105th.	$12,000	City	TDT, gas tax	Short-term
R40	Create a local street grid system on Urban Renewal Block 2 upon redevelopment with a connection opposite SW Seneca Street	$2,307,000	City	TDT, gas tax, LID	Short-term
R41	Add bus pullouts on SW Boones Ferry Road at existing bus stops– 10 assumed at $20,000 each	$20,000 each	City	TDT, LID, gas tax, Travel Options	Medium-term

* Short term = within 5 years, medium term = 5–10 years, long-term = 10 years or more
LID – local improvement district
TDT – Transportation Development Tax

[15] From Metro's *Regional Transportation Plan (RTP)* 2007. Estimate grown to 2012 dollars.

Regional Roadway Projects

TABLE 9

Regional Roadway Project Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate	Champion	Funding Source	Priority*
R42	Add an eastbound right-turn lane on SW Tualatin-Sherwood Road at SW Boones Ferry Road	$792,000	City	TDT, gas tax	Medium-term
R43	Restripe the turn lanes to extend the southbound left turn pocket on SW Boones Ferry Road at SW Tualatin-Sherwood Road to accommodate more vehicles	$8,000	City	TDT, LID, gas tax	Short-term
R44	Move the guardrail directly east of the I-5 southbound off-ramp to the north to improve sight distance for vehicles turning west off of I-5.	$32,000	City, ODOT	TDT, gas tax	Short-term
R45	Add an additional on-ramp lane for vehicles traveling westbound on SW Nyberg Street to I-5 northbound (northeast quadrant of the Nyberg Interchange). Reduce the pedestrian island and improve illumination to enhance safety	$1,071,000	City, ODOT	STIP: TE, TDT	Medium-term
R46	Add signage on the northbound off-ramp at Nyberg Interchange to discourage traffic getting off and then right back onto I-5	$2,000	City, ODOT	STIP: TE, TDT	Medium-term
R47	Redesign SW Nyberg Street and Fred Meyer intersection and improve pedestrian crossing. Add pedestrian warning signs, and a concrete z-crossing on SW Nyberg Street with a pedestrian island. Optimize signal timing so it allows adequate time for pedestrian crossing while minimizing impacts on auto traffic.	$156,000	City, ODOT, Washington County	TDT, LID, STIP: TE, Bicycle and Pedestrian Program	Medium-term
R48	Add a dedicated right-turn lane on SW Teton Avenue southbound onto SW Tualatin-Sherwood Road westbound	$890,000	City, Washington County	TDT, LID, gas tax	Medium-term
R49	Add a right turn lane from westbound SW Tualatin-Sherwood Road to northbound SW 124th Avenue	$320,000	City, Washington County	Washington County MSTIP, TDT, LID	Medium-term
R50	Improve lane signage on SW Tualatin Sherwood Road west of the Nyberg interchange to help vehicles be in the correct lane before entering the interchange area	$345,000	City, Washington County, ODOT	TDT, gas tax, STIP: TE	Short-term
R51	Add a signal at SW 65th Avenue and SW Sagert Street	$681,000	City, Washington County	TDT, LID, gas tax	Medium-term

* Short term = within 5 years, medium term = 5–10 years, long-term = 10 years or more
LID – local improvement district
MSTIP – Major Streets Transportation Improvement Program
STIP – Statewide Transportation Improvement Program
TDT – Transportation Development Tax
TE – Transportation Enhancement

Tualatin/I-5 Nyberg Interchange: I-5 Northbound Off-ramp At the Tualatin/I-5 Nyberg Interchange Northbound off-ramp, future traffic growth (2035) indicates a potential for backups into the deceleration portion of the ramp due to lack of storage space. The existing off-ramp structure has a horizontal curve which limits the ability to modify striping on the ramp in an effort to extend the deceleration section, especially in light of exiting freight vehicles. In addition, the off-ramp is adjacent to the I-205 interchange which limits the ability to extend the off-ramp length for additional storage. It is likely that a solution to this issue would require widening of the existing structure to provide safe and sufficient vehicle storage. This project is not included in the TSP at this time, However, ODOT will coordinate with the City of Tualatin to explore this project and the City will consider adding it to the TSP at a future date.

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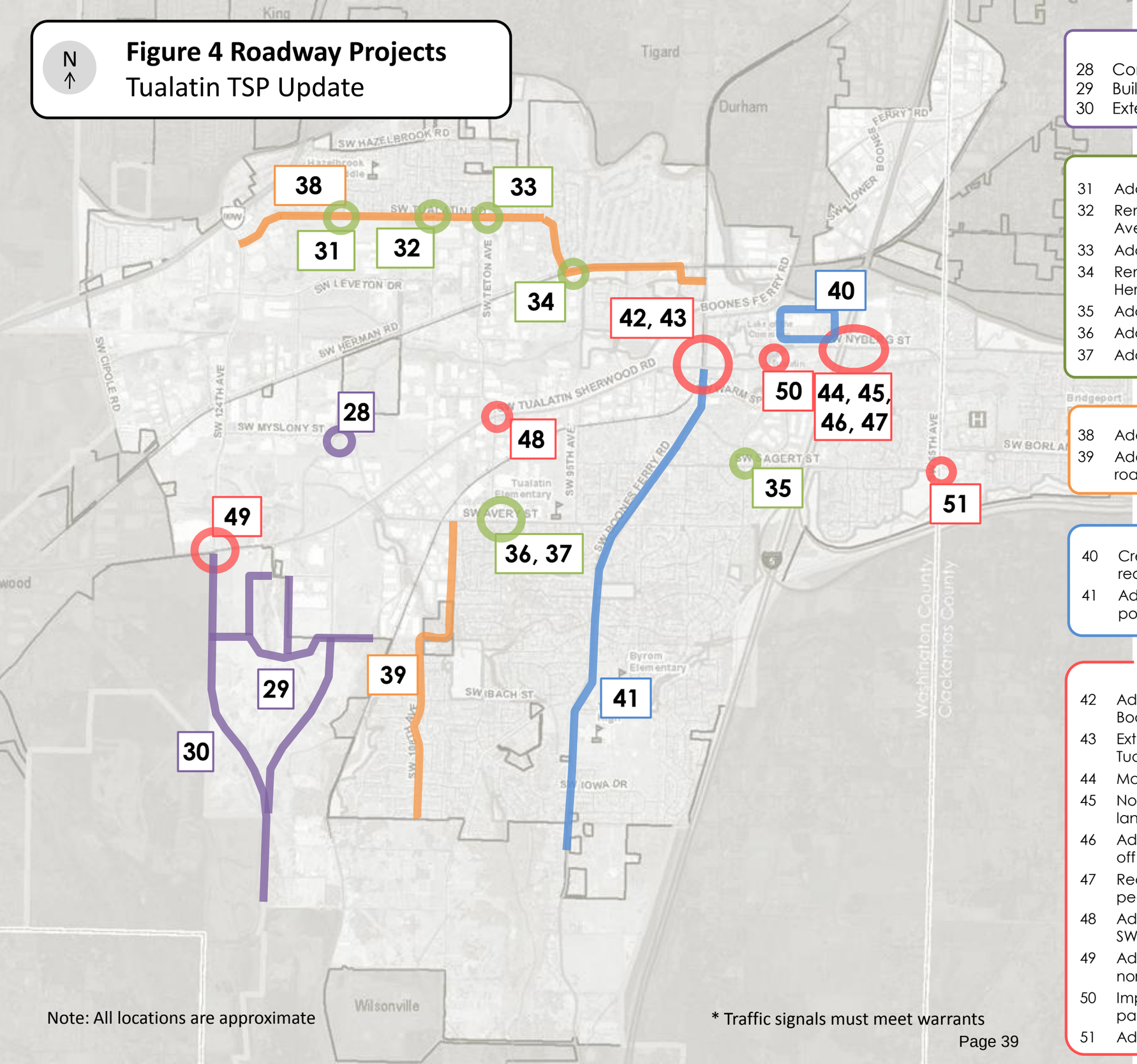
Figure 4 Roadway Projects
Tualatin TSP Update



New Streets and Street Extensions

28 Connect SW Myslony Street to SW 112th Avenue
29 Build the roadways from the SW Concept Plan
30 Extend SW 124th Avenue south (Regional Project)

City Intersection Improvements

31 Add signal* at SW Tualatin Road and SW 115th Avenue
32 Remove some trees at intersection of SW Tualatin Road and SW 108th Avenue to improve sight distance
33 Add signal* at SW Tualatin Road and SW Teton Avenue
34 Remove the free right turn at SW Tualatin Road at the intersection of SW Herman Road, consider a roundabout
35 Add a signal* or roundabout at SW Sagert St and SW Martinazzi Ave
36 Add a southbound turn pocket from SW Teton Avenue to Avery Street
37 Add a signal* at SW Avery Street and SW Teton Avenue

City Roadway Signs

38 Add signage indicating that Tualatin Road is for local traffic
39 Add truck info signs along 108th/105th Avenues to indicate that these roads are for local traffic

City Roadway Changes

40 Create a local street grid system on Urban Renewal Block 2 upon redevelopment with a connection to SW Seneca Street
41 Add bus pullouts on SW Boones Ferry Road at existing bus stops where possible (this project is also shown on the transit figure)

Regional Intersection Improvements

42 Add an eastbound right turn lane on SW Tualatin-Sherwood Road at SW Boones Ferry Road
43 Extend the southbound left turn pocket on SW Boones Ferry Road at SW Tualatin-Sherwood Road
44 Move guardrail on southbound off ramp to improve sight distance
45 Northbound I-5 on- ramp: reduce pedestrian island, add an additional lane
46 Add signage at the northbound off ramp to discourage traffic getting off and then back onto I-5
47 Redesign SW Nyberg Street and Fred Meyer intersection and improve pedestrian crossing, add striping and a pedestrian island
48 Add a dedicated right turn lane on southbound SW Teton Avenue and SW Tualatin-Sherwood Road
49 Add a right turn lane from westbound SW Tualatin-Sherwood Road to northbound SW 124th Avenue
50 Improve lane signage west of the Nyberg interchange to indicate lanes passing through the interchange area
51 Add signal* at SW 65th Avenue and SW Sagert Street

Note: All locations are approximate

* Traffic signals must meet warrants

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Access Management

Access management is important to maintain traffic flow and ensure safety on the City's arterial street network, including SW Tualatin-Sherwood Road, Oregon Highway 99W (OR 99W), and other high-traffic routes. Limiting the number of points where traffic can enter and exit reduces potential conflict points, improves roadway performance, and reduces the need for capacity expansion. The City manages access through Chapter 75 of the Tualatin Development Code (TDC); that chapter details where access is permitted on arterial and collector roads within the City. Tualatin must coordinate with Washington and Clackamas Counties and ODOT to manage access on roads the City does not own, including SW Tualatin-Sherwood Road, SW Cipole Road, SW 65th Avenue, SW Borland Road, and sections of SW Boones Ferry Road.

Access management policies are:

- **Access Management Policy 1:** No new driveways or streets on arterial roadways within the City, except where noted in the TDC, Chapter 75, usually when no alternative access is available
- **Access Management Policy 2:** Where a property abuts an arterial and another roadway, the access for the property shall be located on the other roadway, not the arterial
- **Access Management Policy 3:** Adhere to intersection spacing included in Chapter 75 of the TDC
- **Access Management Policy 4:** Limit driveways to right-in, right-out (where appropriate) through raised medians or other barriers to restrict left turns
- **Access Management Policy 5:** Look for opportunities to create joint accesses for multiple properties, where possible, to reduce the number of driveways on arterials
- **Access Management Policy 6:** No new single-family home, duplex or triplex driveways on major collector roadways within the City, unless no alternative access is available
- **Access Management Policy 7:** On collector roadways, residential, commercial and industrial driveways where the frontage is greater or equal to 70 feet are permitted. Minimum spacing at 100 feet. Uses with less than 50 feet of frontage shall use a common (joint) access where available

Chapter 75 of the TDC, most recently updated in 2012, has specific access standards for each arterial road within Tualatin. It provides recommendations for future changes on specific roads, as well as potential solutions for access issues. Generally, all new intersections with arterials must have a minimum spacing of 0.5 mile. On Washington County roads, the access spacing on arterials is 600 feet from any intersection or other access. The City Engineer is responsible for reviewing all requests for access to arterial streets, and will be consistent with County and ODOT standards on facilities owned by those agencies. Exceptions to these standards may be allowed, but only under special circumstances and with conditions.

Traffic Operations Standards

This section includes a discussion of standards included in the OHP, ODOT's *Highway Design Manual* (HDM), and the TPR and City documents for local roadways. Based on the preferred system for operational analysis, there are four intersections that do not meet jurisdictional standards after mitigation strategies are included. These intersections that experience operational constraints are in the SW Lower Boones Ferry Road/I-5 interchange area, and are due to the additional motor vehicle trips associated with the widening of SW Boones Ferry Road from SW Martinazzi Avenue to SW Lower Boones Ferry Road. The results of the traffic operations for the 2035 PM peak with the preferred system are shown in Table 10.

The first mitigation strategies explored transportation system management techniques (maximizing operations at intersections through signal timing adjustments and/or phasing adjustments). If system management techniques did not achieve acceptable jurisdictional operations, localized capacity improvements were explored (for example, a new turn pocket). Generally these improvements allowed for adequate signal operations under a mitigated scenario.

TABLE 10
2035 PM Peak Hour Preferred System Intersection Operations

Intersection	Jurisdiction	Minimum Standard	Preferred System	
Signalized Intersections				
SW 124th Ave/Hwy 99W	ODOT	0.99	D	0.97
SW 124th Ave/SW Tualatin Rd	Tualatin	D	C	0.88
SW 124th Ave/SW Herman Rd	Tualatin	D	C	0.77
SW 124th Ave/SW Tualatin-Sherwood Rd	Washington County	0.99	C	0.92
SW Avery St/SW Tualatin-Sherwood Rd	Washington County	0.99	D	0.98
SW Teton Ave/SW Tualatin-Sherwood Rd	Washington County	0.99	E	0.92
SW 90th Ave/SW Tualatin-Sherwood Rd	Washington County	0.99	C	0.80
SW Boones Ferry Rd/SW Tualatin-Sherwood Rd	Washington County	0.99	E	**1.00**
SW Martinazzi Ave/SW Tualatin-Sherwood Rd	Washington County	0.99	F	**1.08**
I-5 SB Ramps/SW Nyberg Rd	ODOT	0.99	D	0.86
I-5 NB Ramps/SW Nyberg Rd	ODOT	0.99	C	0.85
SW 65th Ave/SW Borland Rd	Washington County	0.99	D	0.99
SW Teton Ave/SW Herman Rd	Tualatin	D	C	0.67
SW Tualatin Rd/SW Herman Rd	Tualatin	D	B	0.77
SW 90th Ave/SW Tualatin Rd	Tualatin	D	C	0.94
SW Tualatin Rd/SW Boones Ferry Rd	Washington County	0.99	C	0.89
SW Martinazzi Ave/SW Boones Ferry Rd	Tualatin	D	E	**1.08**
SW Boones Ferry Rd/SW Lower Boones Ferry Rd	ODOT	0.99	D	**1.02**
SW 72nd Ave/SW Lower Boones Ferry Rd/SW Bridgeport Rd	Washington County	0.99	D	0.89
I-5 SB Ramps/SW Lower Boones Ferry Rd	ODOT	0.99	D	0.98
I-5 NB Ramps/SW Lower Boones Ferry Rd	ODOT	0.99	D	0.96
SW Boones Ferry Rd/SW Avery St	Washington County	0.99	D	0.94
SW Boones Ferry Rd/SW Sagert St	Washington County	0.99	D	0.93
SW Boones Ferry Rd/SW Ibach St	Washington County	0.99	D	0.98
SW 105th Ave/SW Avery St[16]	Tualatin	E	C	0.94
SW Martinazzi Ave/SW Sagert St[17]	Tualatin	E	D	0.92

[16] Operations evaluated with minor street stop control.

TABLE 10
2035 PM Peak Hour Preferred System Intersection Operations

Intersection	Jurisdiction	Minimum Standard	Preferred System	
SW 65th Ave & SW Nyberg Rd	Washington County	0.99	C	0.92
Unsignalized Intersections				
SW Martinazzi Ave & SW Avery St*	Tualatin	E	D	0.83
SW Teton Ave & SW Avery St*	Tualatin	E	B**	0.62**
SW 65th Ave & SW Sagert St*[18]	Washington County	0.99	D**	0.97**
SW Teton Ave & SW Tualatin Rd	Tualatin	E	B**	0.70**

* LOS and V/C reported for the highest delay movement
** Evaluated as a traffic signal. Assumes construction of traffic signal

There were some intersections located in the downtown core area that were not able to meet jurisdictional standards without the implementation of significant capacity and/or roadway widening improvements. These types of major infrastructure improvements were deemed to be too impactful to the downtown core and were not included in the final preferred system improvements. The downtown Tualatin area is designated a Town Center by Metro, and using that designation, Town Centers are allowed to not meet jurisdictional standards. Alternate standards for Town Centers in the RTP are based on a two-hour peak hour. The standard v/c for the first peak hour is 1.1, and for the second peak hour is 0.99. These intersections meet the RTP standards, and there is no need for additional alternate mobility standards.

[17] Operations evaluated with minor street stop control. HCM Methodology does not account for a three-lane approach for an all way stop (as exists for the southbound approach.) To estimate LOS and V/C for the intersection the three lanes (one dedicated to each movement) are combined into two: through-right and through-left lanes. Because of this approximation, actual performance may be slightly better than reported above.

[18] HCM Methodology does not account for a three-lane approach for an all way stop (as exists for the southbound approach.) To estimate LOS and V/C for the intersection the dedicated southbound left turn lane and through lane are combined, due to the relatively small volume on the left turn movement. Because of this approximation, actual performance may be slightly better than reported above.

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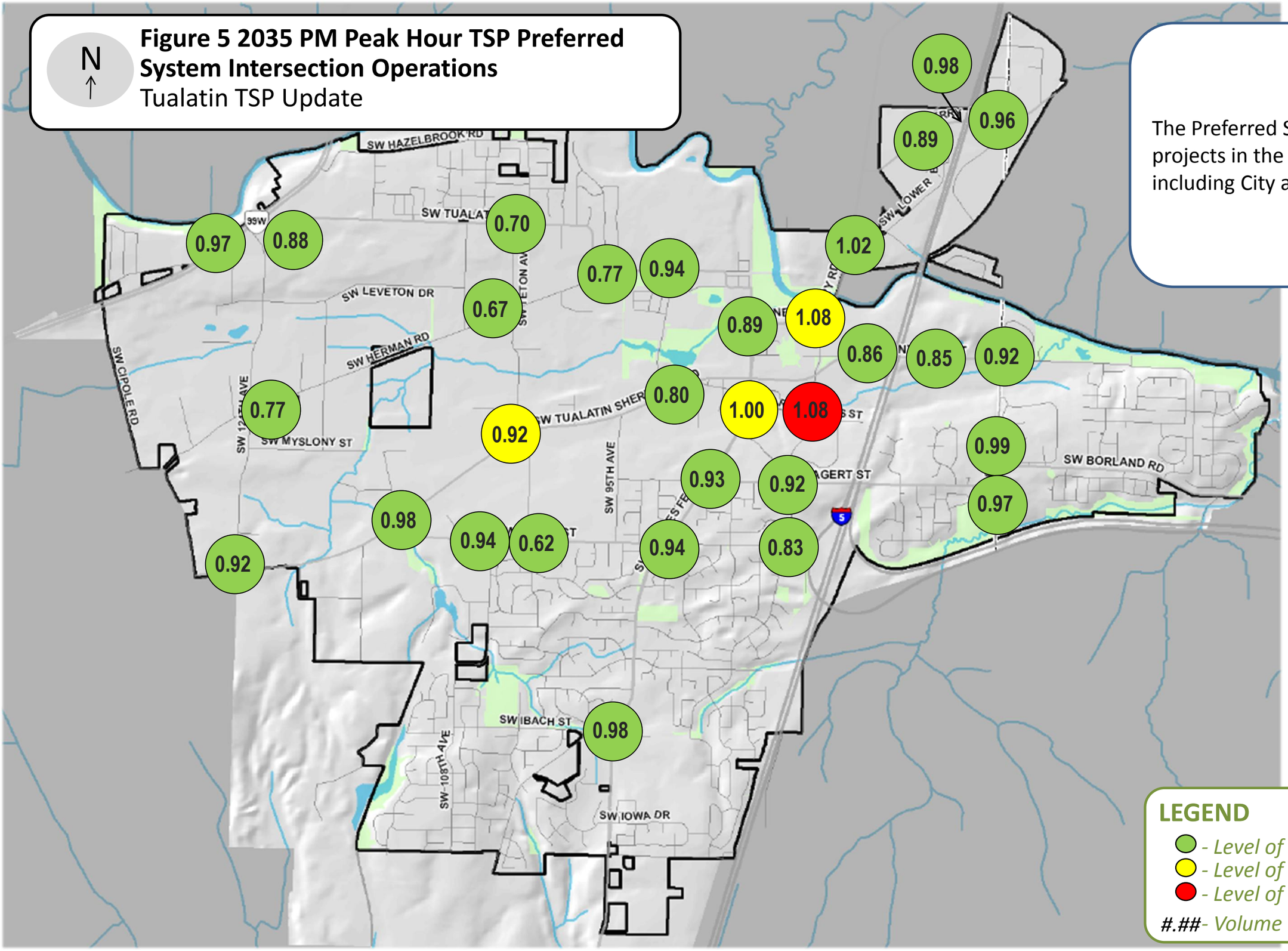

Figure 5 2035 PM Peak Hour TSP Preferred System Intersection Operations
Tualatin TSP Update

The Preferred System includes all projects in the Street Modal Plan including City and regional projects.

LEGEND

- *Level of Service A through D*
- *Level of Service E*
- *Level of Service F*

#.##- Volume to Capacity Ratio

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3 Transit Modal Plan

This chapter describes the City of Tualatin's public transit modal plan. Public transit in Tualatin is envisioned to be multi-faceted by including local and express bus service, commuter rail, potential high capacity transit, and local transit shuttle services. In addition, the community's vision for public transit includes improvements in the quality of transit service, as well as land uses that better complement and encourage use of transit in downtown Tualatin. This section provides a brief overview of existing conditions and needs for public transit, provides a list of policies relating to transit that will guide the City's implementation of this plan, and provides a list of key projects identified by the community that would improve public transit. This chapter concludes by providing cost estimates for each project and a description of each project's relative priority.

Tualatin WES Station

Existing Conditions for Public Transit

Transit Service

Public transit in Tualatin currently consists of TriMet bus lines, one South Metro Area Regional Transit district (SMART) bus line, Westside Express Service (WES) commuter rail, LIFT paratransit service, and the Tualatin Shuttle.

Five TriMet bus lines currently serve Tualatin:

- Line 36 (South Shore) connecting Lake Oswego to Tualatin and downtown Portland
- Line 37 (Lake Grove) connecting Lake Oswego to Tualatin
- Line 38 (Boones Ferry Road) connecting Tualatin to Portland City center
- Line 76 (Beaverton/Tualatin) connecting Beaverton and Tualatin
- Line 96 (Tualatin/I-5) express route from Tualatin to downtown Portland via I-5

WES commuter rail service connects Beaverton to Wilsonville via Tualatin. LIFT paratransit service is available for qualified persons with disabilities within Tualatin and the greater Portland metropolitan region. SMART serves Tualatin with its bus line No. 2X service, connecting Wilsonville to the Barbur Transit Center. The Tualatin Shuttle operates on weekdays in the morning and afternoon rush hours, connecting passengers from TriMet bus stops, WES, and downtown Portland to businesses in Tualatin.

Park-and-Rides

There are four park-and-ride lots within the City of Tualatin, all of which are served by TriMet:

- The Tualatin Park-and-Ride is the largest park-and-ride lot within the City of Tualatin. It is located at SW 72nd Avenue and SW Bridgeport Road in the northern part of the City, north of the Tualatin River and downtown. It has 466 total vehicle spaces and is open all days. It is a major transfer station with five separate bus lines stopping at this location.

- The Mohawk Park-and-Ride is located at SW Mohawk Street and SW Martinazzi Avenue about 0.5 miles south of the Tualatin Commons and downtown Tualatin. It has 232 total vehicle spaces and is open all days. Two bus lines stop at this park and ride, providing an opportunity to transfer.
- The Tualatin South Park-and-Ride is the newest park-and-ride in the City. It is located at 18955 SW Boones Ferry Road just west of the Tualatin Commons and downtown. It is open all days and provides bike parking with lockers and covered racks. It has 147 total vehicle spaces. This park and ride is the only transfer station between the WES commuter rail and a bus line.
- The Boones Ferry Community Church Park-and-Ride is the smallest park-and-ride in the City of Tualatin and is located at 20500 SW Boones Ferry Road. It is open Monday through Friday only, and provides 20 vehicle spaces. This park and ride only serves one bus line, and is not a transfer station.

Bus stop for TriMet line Nos. 76 and 96

More information on existing transit service, transit amenities, fares, and ridership is provided in Appendix B, Existing Conditions and Deficiencies.

Summary of Limitations and Needs for Transit

It is likely that most residents of Tualatin do not currently rely solely on transit service to meet their transportation needs. One reason may be because most residents do not live within walking distance (0.25 mile) of a transit stop, and because transit is not provided at frequent intervals during all hours of the day. In addition, only 8 percent of households in the city of Tualatin do not have access to a vehicle.[19] According to the *Conceptual Linking Tualatin Plan*, over 11,000 workers and over 5,000 households (over half of the people living and working in the city) lack regular transit service within a quarter mile of where they live or work.[20]

TriMet does not provide transit service within all areas of the City or on all major corridors. No transit service is provided on SW Tualatin-Sherwood Road or SW Tualatin Road, and many residents in the western portion of the City live more than a mile from the nearest transit line. Many residents who do live near a bus line are not served by transit at regular intervals during the day. Because of the limitations of service during off-peak hours, noncommuting trips may be more difficult to complete using transit in Tualatin. Community feedback indicated the following specific needs for transit:

- Service connecting the west side of Tualatin to the downtown core
- Park-and-rides in the west and south areas of Tualatin
- Extended service hours, including weekend service
- More direct connections to places other than downtown Portland

Additional needs for transit stops include direct and safe access to transit stops and bicyclist and pedestrian amenities at stops, especially where transit riders are able to transfer lines or modes.

[19] U.S. Census Bureau, 2009-2011 American Community Survey, Table B08201

[20] *Conceptual Linking Tualatin Plan Draft,* 2012.

Transit Policies

The City of Tualatin's policies on public transit are as follows:

- **Transit Policy 1:** Partner with TriMet to jointly develop and implement a strategy to improve existing transit service in Tualatin.
- **Transit Policy 2:** Partner with the Tualatin Chamber of Commerce to support grant requests that would expand the Tualatin Shuttle services.
- **Transit Policy 3:** Partner with TriMet, Metro, and neighboring communities to plan the development of high-capacity transit in the Southwest Corridor, as adopted in the Metro High Capacity Transit System Plan.
- **Transit Policy 4:** Partner with TriMet, Metro, and neighboring communities to plan development of high-capacity transit connecting Tualatin and Oregon City, as adopted in the Metro High Capacity Transit System Plan.
- **Transit Policy 5:** Coordinate with ODOT and neighboring communities on conversations related to Oregon Passenger Rail between Portland and Eugene.
- **Transit Policy 6:** Develop and improve pedestrian and bicycle connections and access to transit stops.
- **Transit Policy 7:** Encourage higher-density development near high-capacity transit service.
- **Transit Policy 8:** Metro in the RTP calls for increased WES service frequency. The City will coordinate with TriMet, Metro, and ODOT to explore service frequency improvements and the possible inclusion of a second WES station in south Tualatin.

In addition to the transit policies included here, there is also a bicycle and pedestrian policy applicable to transit:

- **Bicycle and Pedestrian Policy 7:** Implement bicycle and pedestrian projects to provide pedestrian and bicycle access to transit and essential destinations for all mobility levels, including direct, comfortable, and safe pedestrian and bicycle routes
- **Bicycle and Pedestrian Policy 8:** Ensure that there are bicycle and pedestrian facilities at transit stations

Regional Coordination

The City of Tualatin will participate fully in the development of regional transit projects through partnering with other agencies. Regional projects currently under development include the following:

- **Southwest Corridor Project**. The purpose of the Southwest Corridor project is to extend high-capacity transit from downtown Portland into the southwest part of the region. Doing so will help to fulfill the vision of the Metro *High Capacity Transit System Plan*. The City of Tualatin is partnering with Metro and TriMet to bring regional high-capacity transit to Tualatin and neighboring communities.
- **Linking Tualatin Project.** The purpose of the Linking Tualatin project is to better link people to the places they need to go via transit, particularly linking employees to their jobs, and creating linkages between Tualatin and the rest of the region. It addresses one of the community's biggest concerns, which is the lack of east-west transit connections. The Linking Tualatin Plan presents the community's vision, developed through working groups and an intensive workshop, of land use and transportation options for the city's major employment areas intended to improve local and regional transit service. These options include suggested changes to future land uses, bicycle and pedestrian connections, road connections, and transit facilities to make Tualatin more "transit ready." It is a work in progress, and will continue to be reviewed by the community and refined through early 2013 to incorporate property owner and employer input and address future high capacity transit options being studied in the Southwest Corridor Project. The project goal is to complete the planning process by June 2013.

The community's vision for "transit ready places" in the Linking Tualatin Plan includes potential transit and other transportation improvements to increase access to and use of transit. Public and private projects focus on improved bicycle and pedestrian connections and road crossings, new local street connections, and new transit services or facilities. Some public projects are unique to the Linking Tualatin Plan and will be studied further through that planning process. These projects include:

1. Bridgeport Village Area: **Provide a new pedestrian crossing** on SW Lower Boones Ferry Road at entrance to the south lot of the Tualatin Park-and-Ride.
2. Bridgeport Village Area: **Provide new local street connections** north of the proposed Bridgeport Apartments development, west, and north of the Grand Hotel.
3. Downtown Area: **Improve pedestrian crossing** on SW Boones Ferry Road at SW Nyberg Street near the WES station.
4. Meridian Park/Nyberg Woods Area: **Provide a new pedestrian crossing** on SW 65th Avenue near the north entrance to Meridian Park Hospital.
5. Leveton Area: **Provide a new pedestrian crossing** on SW Herman Road west of SW 108th Avenue to access a future bus stop and improve bicycle/pedestrian connectivity.
6. Teton Area: **Provide a new WES stop** near SW Tualatin-Sherwood Road, west of the intersection of SW Avery Street and SW 105th Avenue.
7. Teton Area: **Improve pedestrian crossing** at the SW Teton Avenue and SW Tualatin-Sherwood Road intersection.
8. Southwest Industrial Area: **Consider providing parkway treatment** along SW Tualatin-Sherwood Road between SW 124th Avenue and SW Avery Street.
9. Pacific Financial/SW 124th Avenue Area: **Provide new trails** parallel to OR 99W between SW Hazelbrook Road and the north side of the Tualatin River to connect with the Tualatin River Greenway Trail.
10. Pacific Financial/SW 124th Avenue Area: **Connect the Tualatin River Greenway trail** under the OR 99W bridge on both side of the river.

Other public projects in the Linking Tualatin Plan are included in the Transit Modal Plan of this Transportation System Plan. The focus of these projects is on providing east-west connectivity between OR 99W and downtown Tualatin via local bus transit, anchored by park-and-ride facilities in west, east and south Tualatin, and a transit hub at the downtown Tualatin WES station. These projects are shown in Figure 4 and more detail is provided later in this section.

- **Oregon Passenger Rail**. The purpose of the Oregon Passenger Rail project is to improve passenger rail service between Portland and Eugene. Along the way, the rail service is expected to serve the south Metro area via an alignment either east or west of the Willamette River. The City of Tualatin intends to coordinate with ODOT to help determine an appropriate corridor that would improve intercity passenger rail service in Oregon.
- **WES Extension**. TriMet and ODOT may consider the feasibility of extending WES commuter rail from Wilsonville to Salem. The City of Tualatin is supportive of the WES extension and intends to partner with ODOT and TriMet in facilitating this project.

Transit Projects

The following proposed projects represent the community's desires for future improvements to transit service. Figure 4 depicts the projects geographically. These projects can be grouped into the following categories: fixed-route bus service, shuttle service, WES, and park-and-rides.

Expansions of Fixed-route Bus Transit Service

1. **Provide transit service on SW Herman Road.** SW Herman Road connects to several centers of employment. Bus transit service along SW Herman Road would allow workers to travel more easily from the center of Tualatin to their work sites.
2. **Provide transit service on SW 124th Avenue.** SW 124th Avenue is a key north-south connection on the west side of Tualatin, connecting OR 99W with SW Tualatin-Sherwood Road. Adding transit service on SW 124th Avenue would improve access to the frequent transit service already provided on OR 99W.
3. **Provide transit service on SW Avery Street.** SW Avery Street connects SW Tualatin-Sherwood Road to the City's central residential areas. Providing bus transit service along SW Avery Street would provide an important connection to residential areas in the central part of Tualatin and provide an opportunity to connect with the existing transit service on SW Boones Ferry Road.
4. **Provide transit service on SW Tualatin Road between downtown and OR 99W**. SW Tualatin Road is an important connection to both residential areas in northwest Tualatin and to employment between SW Tualatin Road and SW Herman Road.
5. **Provide transit service on Tualatin-Sherwood Road.** . Tualatin-Sherwood Road is Tualatin's major east-west roadway, connecting it to 99W and Sherwood to the west and to Boones Ferry Road and I-5 on the east. It serves the greatest number of people in Tualatin and major activity centers including the WES station, retail shopping, and businesses are located along it. Transit service along Tualatin-Sherwood Road would provide an alternative to driving for Tualatin's residents as well as its employees and visitors.
6. **Extend transit service to the east in Tualatin.** The area of Tualatin east of I-5 is served only by TriMet's No. 76 bus line, which extends to Meridian Park Hospital at SW 65th Avenue and SW Borland Road. East of the hospital are several residential developments, as well as the Rolling Hills Community Church, which houses the Tualatin Food Pantry, and two schools.
7. **Extend service hours for transit.** Most of the bus service provided in Tualatin operates primarily during commuting hours on weekdays. WES also operates only on weekdays during peak hours. TriMet's line No. 76 operates with limited frequency on Saturday and Sunday. Extending service hours for transit lines would allow citizens to use transit as a viable transportation option for more of their needs.
8. **Explore a shuttle or trolley service between Bridgeport Village and the Tualatin Commons area, especially on weekends**. Both Bridgeport Village and the Tualatin commons near the City-owned parking lots are destinations for local and regional residents. Providing a shuttle service between the two areas would potentially reduce traffic in central Tualatin and would help foster activity in downtown Tualatin. Residents would be able to park at the Commons and take the Shuttle into Bridgeport Village.
9. **Expand the Tualatin Shuttle and Consider a Deviated Fixed Route**. The Tualatin Shuttle currently operates during a.m. and p.m. peak hours only. There are two vehicles, a larger van and a smaller van. Both currently operate on a demand-responsive basis and do not have fixed routes. The City should partner with the Chamber of Commerce to explore a deviated fixed route for the larger van that would serve as a city-wide transit circulator serving existing and future major employment markets in Tualatin. The route would connect to the Tualatin Park and Ride and travel south via SW Lower Boones Ferry Road and SW Boones Ferry Road. It would then connect three major employment districts in the city in this order:
   - ✓ **Southwest and near west of downtown Tualatin** via SW Boones Ferry Road, SW Avery Street, and SW Teton Ave
   - ✓ **West Tualatin** via SW Tualatin-Sherwood Road, SW 124th Ave, and SW Herman Road

- ✓ **Northwest Tualatin** via SW Cipole Road, OR 99W, and SW 115th and SW 118th Aves
  - o The route would complete by returning east on SW Herman Road and SW Tualatin Road.
  - o In the future, the route could be extended to include a fourth major employment district as demand is created with future development:
- ✓ **East Tualatin** via SW Nyberg Street, SW 65th Ave, and SW Sagert Street

The smaller van that currently operates as the Tualatin Chamber of Commerce Shuttle would continue to be run on a demand-responsive basis and would serve key residential areas throughout the city. In addition, expanding the service hours of the Tualatin Chamber of Commerce Shuttle would allow more employees to use it. Funding for these service expansions should be sought, and used for the following purposes, in order of priority:

- ✓ Additional van for the afternoon peak
- ✓ Broader service hours (still within an AM and PM peak period)
- ✓ Provision of mid-day service

WES

10. **Make the WES station a central focus of downtown and the main transit center**. The WES station is located in central Tualatin and three actions would make it more of a central focus of downtown: (1) Transit-oriented development that over time would refocus activity towards the train station; (2) Improving pedestrian activity and connectivity to both these future transit-oriented uses but also to existing uses, including Haggen's and development east of Boones Ferry Road and south of Tualatin-Sherwood Road; and (3) Add local transit connections to the WES station over time, including the Routes 96 and the 38, as well as potential future fixed-route service.

Expansions of the Park-and-Ride System

11. **Improve transit service on OR 99W and look for potential shared use park-and-ride locations in west Tualatin**. There are few park-and-ride options on or near OR 99W for Tualatin residents. The closest are in Sherwood (shared use with Regal cinemas) to the south or Tigard to the north (shared use with Christ the King Lutheran Church). Further, the Route 12 discontinued service in 2012 to Sherwood, terminating at the Tigard Transit Center to the north. The one route along OR 99W through Tualatin is the Route 94 which does not stop between Sherwood and Tigard. This limits the ability of Tualatin residents to access transit along OR 99W. Add a transit stop in the vicinity of Tualatin Road for the 94 and future fixed route transit, and look for potential shared use park-and-ride locations in this vicinity that would serve Tualatin residents.

Mohawk Park-and-Ride

12. **Look for potential, shared use park-and-ride locations in south Tualatin**. Bus line No. 96 travels through south Tualatin via SW Boones Ferry Road. However, there is no park-and-ride currently serving this area south of the Boones Ferry Community Church Park-and-Ride. Adding a park-and-ride in the south part of Tualatin or south of Tualatin near the terminus of bus No. 96 would improve access to transit for residents of that area.

13. **Add bus pullouts on SW Boones Ferry Road at existing bus stops where possible**. The streets modal plan describes a preferred cross section on SW Boones Ferry Road that retains one travel lane in each direction with a center-turn lane, bicycle lanes and sidewalks throughout. This cross section was selected over a wider, five-lane cross section for reasons of neighborhood livability, however it means that buses traveling on SW Boones Ferry Road can create congestion by blocking the travel lane when stopping to pick up or drop off passengers. This project constructs bus pullouts where buses could pull out of the travel lane at existing stops.

Cost Estimates and Prioritization

Table 11 provides cost estimates and priorities for each of these proposed transit projects.

TABLE 11
Transit Project Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate		Champion	Funding Source	Priority*
		Capital	Operating			
T1	Provide transit service on SW Herman Road	$466,000	$168,000	TriMet, City	TriMet	Medium-term
T2	Provide transit service on SW 124th Avenue	$462,000	$114,000	TriMet, City	TriMet	Medium-term
T3	Provide transit service on SW Avery Street	$460,000	$97,000	TriMet, City	TriMet	Medium-term
T4	Provide transit service on SW Tualatin Road between downtown and OR 99W	$471,000	$184,000	TriMet, City	TriMet	Short-term
T5	Provide transit service on SW Tualatin-Sherwood Road	$473,000	$218,000	TriMet, City	TriMet	Medium-term
T6	Extend transit service to east Tualatin	$466,000	$97,000	TriMet, City	TriMet	Medium-term
T7	Extend service hours for all transit, with a focus on the No. 96 bus line	N/A	$1,083,000	TriMet, City	TriMet	Medium-term
T8	Trolley service between Bridgeport Village and the Tualatin Commons	$50,000	$308,000	Chamber of Commerce, City, Metro	Fares, Chamber of Commerce	Medium-term
T9	Expand the Tualatin Shuttle for industrial and manufacturing workers during the day	N/A	$58,000	Chamber of Commerce, City, Metro	Chamber of Commerce, Metro (JARC)	Short-term
T10	Make the WES station a central focus of downtown and the main transit center; improve pedestrian connectivity, transit-oriented development opportunities, and local transit connections	N/A	N/A	City	TriMet, City	Long-term
T11	Look for potential shared use park-and-ride locations in west Tualatin	N/A	$51,000	City, TriMet	TriMet, City	Medium-term
T12	Look for potential shared use park-and-ride locations in south Tualatin	N/A	$51,000	City, TriMet	TriMet, City	Medium-term

* Short term = within 5 years, medium term = 5–10 years, long-term = 10 years or more
JARC – Jobs Access Reverse Commute

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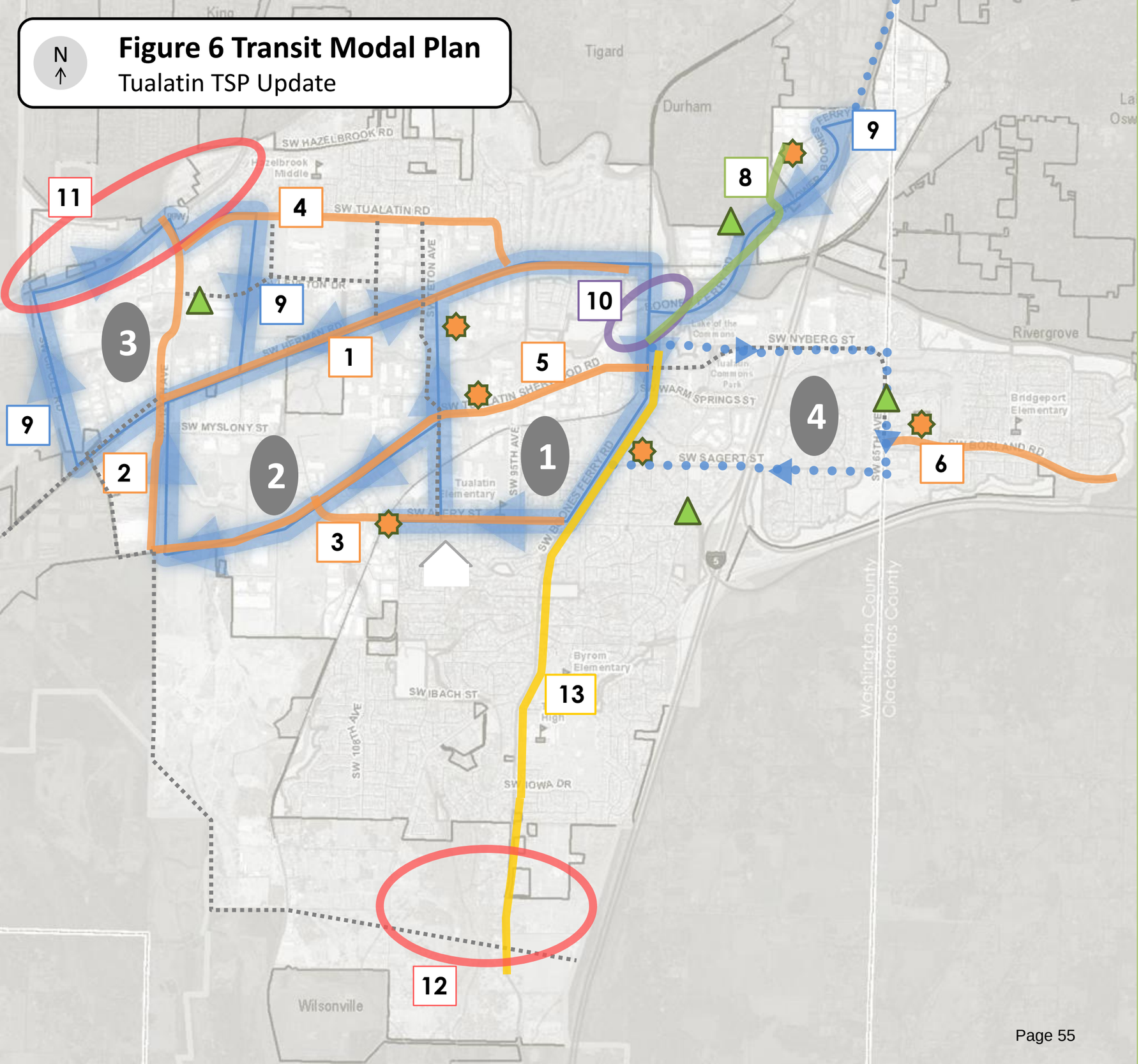
Figure 6 Transit Modal Plan

Tualatin TSP Update



Expansions of Fixed-Route Bus Transit Service

1 Provide bus transit service on Herman Rd
2 Provide bus transit service on 124th St
3 Provide bus transit service on Avery St
4 Provide bus transit service on Tualatin Rd between downtown Tualatin and 99W
5 Provide transit service on Tualatin-Sherwood Rd
6 Extend bus service further east in Tualatin
7 Throughout – quality of service improvements (not shown on map)

Expansions of the Shuttle Service

8 Provide a trolley service between Bridgeport Village and Commons area
9 Create an on-call shuttle for industrial & manufacturing workers during the day:

- Partial fixed route for Van 1
- Potential future route as demand grows
- Employment centers served by shuttle (existing, potential)
- Residential centers served by shuttle
- 1 Directional for partial fixed routes

Note: Shuttle Van 2 would retain a flexible, on-call route connecting residential areas with employment

WES

10 Make the WES station a central focus of downtown and the main transit center. Improve pedestrian connectivity, transit-oriented development opportunities, and local transit connections

Park-and-ride System Expansion

11 Look for potential park-and-ride locations in west Tualatin
12 Look for potential park-and-ride locations south of Bridgeport Village (Wilsonville area)

Bus Pull-outs

Note: this project is also included on the Roadway improvements figure

13 Add bus pullouts on SW Boones Ferry Road at existing bus stops where possible

Additional Transit Route Recommendations from Linking Tualatin

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4 Pedestrian, Bicycle, and Multi-Use Path Modal Plan

This chapter describes the pedestrian and bicycle improvement projects to comfortably and safely accommodate bicyclists and pedestrians within the City. These projects include multi-use paths, specific bicycle and pedestrian improvements, and street upgrades. There is a stand-alone bicycle and pedestrian plan in Appendix H.

Example of a bike lane on SW Martinazzi Avenue

Existing Conditions for Bicyclists and Pedestrians

Existing On-Street Bicycle Facilities

Tualatin streets provide a variety of bicycle facilities, including bike lanes, shared roadways, and multi-use paths. There are a few facility gaps for both bicyclists and pedestrians throughout the City, generally on roadways that are planned for urban upgrades.

The bicycle network in Tualatin consists of on-street bike lanes ranging in width from 4 to 6 feet. There are buffered bike lanes[21] along SW Tualatin-Sherwood Road between Sherwood and SW Teton Avenue. Additionally, there are a number of shared roadway facilities, usually on lower volume streets within and around residential neighborhoods.

Traffic counts collected in October 2011 did not reflect a high degree of bicycle usage. The intersections with the most bicyclists were located along SW Tualatin-Sherwood Road in the core of downtown Tualatin, near SW Martinazzi Avenue and SW Boones Ferry Road.

There appears to be adequate bicycle parking at transit centers and park-and-rides to accommodate the bicycle demand. The TDC includes language requiring developments that are zoned multi-family, commercial, or industrial to provide for bicycle parking when developing land.

Existing Pedestrian Facilities

Pedestrian facilities include sidewalks, multi-use paths, crosswalks, and pedestrian signals. The most prevalent pedestrian facility in the City is the sidewalk. All City street standards include a sidewalk requirement, with a minimum width of 5 feet. Most of the collector and arterial streets in Tualatin have sidewalks, and many neighborhoods and local streets include pedestrian sidewalks. A few locations throughout the City lack sidewalks— mainly areas with narrow roadways, some older neighborhoods, and sections on larger roads, especially towards the City limits where the roadway character transitions from urban to rural.

Concrete path in Tualatin Community Park

[21] Buffered bike lanes are bike lanes with extra striping allowing for a buffer between the travel lane and the bike lane. The striping provides extra separation between vehicles and bicyclists.

There are a number of high-pedestrian-use areas, including near Tualatin High School at SW Boones Ferry Road and SW Ibach Street, and at two intersections near the Tualatin Commons: (1) SW Martinazzi Avenue and SW Boones Ferry Road and (2) SW Martinazzi Avenue and SW Tualatin-Sherwood Road.

Existing Multi-use Paths

The City has a number of multi-use paths[22], including paths that run through City-owned parks and identified greenways and extend into residential areas. Multi-use paths in Tualatin are built from a variety of materials, including pavement, concrete, gravel, or—in the case of the Tualatin River greenway boardwalk—wood. Most multi-use path users walk or bicycle along the paths for recreation or exercise[23]; some use them for commuting or running errands. The City has a comprehensive planned multi-use path network, though about only half of the multi-use path system has been built.

Summary of Limitations and Needs for Bicycle and Pedestrian Facilities

Bicycle Facility Needs

Existing bicycle facilities in Tualatin have a few gaps and challenging connections:

- Difficult left-turn maneuvers
- Constrained environment
- Difficult areas with low bike visibility
- Bike lanes outside of turn lanes
- Obstacles within the bike lanes
- Gaps in the network

Unsignalized crosswalk on SW 108th Avenue

In addition to these needs, there are a number of high-crash locations. Most crashes result in an injury to the bicyclist, and most occur on a dry roadway surface in daylight conditions. High-crash locations include SW Boones Ferry Road and SW Tualatin-Sherwood Road, as well as the SW Nyberg Road interchange ramps at I-5.

Pedestrian Facility Needs

The community and the existing conditions report identified a number of pedestrian facility needs:

- Fill sidewalk gaps on arterials and collector streets
  - Sections of SW Herman Road
  - Sections of SW Grahams Ferry Road
  - Sections of SW Boones Ferry Road
  - SW Blake Street between SW 105th and SW 108th Avenues

[22] A multi-use path is a shared-use trail or other path, physically separated from motorized vehicular traffic by an open space or barrier, either within a roadway right-of-way or within an independent right-of-way, and usable for transportation purposes. Shared use paths may be used by pedestrians, bicyclists, skaters, equestrians, and other nonmotorized users. Definition from FHWA: www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design_guidance/freeways.cfm

[23] According to the Intertwine Trail Use Snapshot: An Analysis of National Bicycle and Pedestrian Documentation Data from 2008 to 2010 (available at http://library.oregonmetro.gov/files/intertwine_trail_use_snapshot_2008-2010.pdf, last accessed December 26, 2012), page 181, only 20 percent of bicyclists use the Tualatin River Greenway multi-use path to commute to work or school. This was the only multi-use trail in Tualatin for which these usage numbers were available.

  - SW Sagert Street overpass over I-5
  - SW 105th Avenue between SW Paulina Drive and SW Blake Street
- Narrow or obstructed sidewalks
- Wide or angled crosswalks at intersections
- Difficult crossing on major roadways (SW Boones Ferry Road, SW Tualatin-Sherwood Road, and roadways in the downtown core)

Most of the pedestrian crashes reported in the 5-year crash study timeframe occurred on SW Boones Ferry Road, generally when a vehicle failed to yield for pedestrians. Most crashes occurred when a vehicle was turning.

Multi-use Path Needs

Additional bicycle and pedestrian connections over the Tualatin River are needed to connect with existing regional paths, as well as to provide alternate routes to the one existing Ki-a-Kuts bridge that is exclusively for bicycles and pedestrians (from Tualatin Community Park to Durham City Park in Durham). Additionally, many of the existing multi-use paths are fragmented and do not connect; signs and other wayfinding guides are needed to inform bicyclists or pedestrians how to move among the various pathways, and from the pathways to on-street facilities. The planned multi-use path network is only half constructed, once the system is complete, the multi-use path network will be more comprehensive.

A full description of existing conditions and deficiencies for the bicycle, pedestrian, and pathway system can be found in Appendix B.

Bicycle and Pedestrian Policies

The City of Tualatin's policies on bicycle and pedestrian facilities are as follows:

- **Bicycle and Pedestrian Policy 1:** Support Safe Routes to Schools (SRTS) for all Tualatin schools
- **Bicycle and Pedestrian Policy 2:** Work with partner agencies to support and build trails
- **Bicycle and Pedestrian Policy 3:** Allow wider sidewalks downtown for strolling and outdoor cafes
- **Bicycle and Pedestrian Policy 4:** Add benches along multi-use paths for walkers throughout the City (especially in the downtown core)
- **Bicycle and Pedestrian Policy 5:** Develop and implement a toolbox, consistent with Washington County, for mid-block pedestrian crossings
- **Bicycle and Pedestrian Policy 6:** Implement bicycle and pedestrian projects to help the City achieve the regional non-single-occupancy vehicle modal targets in Table 16 (later in this chapter; its source is the RTFP)
- **Bicycle and Pedestrian Policy 7:** Implement bicycle and pedestrian projects to provide pedestrian and bicycle access to transit and essential destinations for all mobility levels, including direct, comfortable, and safe pedestrian and bicycle routes
- **Bicycle and Pedestrian Policy 8:** Ensure that there are bicycle and pedestrian facilities at transit stations
- **Bicycle and Pedestrian Policy 9:** Create on- and off-street bicycle and pedestrian facilities connecting residential, commercial, industrial, and public facilities such as parks, the library, and schools
- **Bicycle and Pedestrian Policy 10:** Create obvious and easy to use connections between on- and off-street bicycle and pedestrian facilities, and integrate off-street paths with on-street facilities

Bicycle and Pedestrian Projects

The following projects were developed by the project team in concert with the community, Working Groups, TPARK, and Transportation Task Force to improve the facilities and networks for bicyclists and pedestrians. These projects can be grouped into the following categories: bicycle and pedestrian projects, multi-use path projects, urban upgrades. Figure 5 shows the projects geographically, and Table 12 lists the projects, cost estimates, champion, potential funding source, and priority for each project. Figure 5 shows all bicycle and pedestrian projects geographically.

Bicycle and pedestrian specific urban upgrades (sidewalk gaps, adding bicycle lanes and sidewalks) are included in section 2 Street System Modal Plan (Tables 4 and 5). They are shown on the bicycle and pedestrian modal plan map but the tables are not in this section.

TABLE 12
Bicycle and Pedestrian Project Cost Estimate and Prioritization

Project ID	Project Description	Cost Estimate	Champion	Funding Source	Priority*
BP1	Provide wayfinding signs for Safe Routes to School	$73,000	City, School District	Bike/Ped Funds	Short-term
BP2	Add a colored bicycle lane on SW Bridgeport Road and SW 72nd Avenue near Bridgeport Village to make the bicycle lane more visible	$10,000	City, Washington County	TDT, Bike/Ped funds, Washington County MSTIP	Medium/Long-term
BP3	Add a crosswalk at Tualatin View Apartments on SW Boones Ferry Road north of the Tualatin River	$59,000†	City, ODOT	Bike/Ped Funds	Medium-term
BP4	Add new signs and re-stripe crosswalk at SW Siletz Drive and SW Boones Ferry Road	$24,000	City	Bike/Ped Funds	Short-term
BP5	Add dedicated bike lane through the intersection of SW Avery Street and SW Boones Ferry Road	$117,000	City	Bike/Ped funds, Travel Options	Short-term

* Short term = within 5 years, medium term = 5–10 years, long-term = 10 years or more
† This cost estimate is based on the conceptual layout from a 2008 study and does not include railroad crossing or signal upgrades. Estimate may increase based on ODOT rail requirements for additional study.
MSTIP – Major Streets Transportation Improvement Program
TDT – Transportation Development Tax

Multi-Use Path Projects

Multi-use paths are paths set back from a roadway that are reserved exclusively for bicyclists and pedestrians. The majority of TSP recommendations are multi-use paths, as they provide the greatest potential for safe and enjoyable travel to and from homes, businesses, and services throughout the community.

City standards for multi-use paths are 12 feet with a minimum of 1 foot shoulders. All cost assumptions include this width.

Table 13 presents cost estimates and priorities for these projects.

TABLE 13
Multi-Use Path Project Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate	Champion	Funding Source	Priority*
BP6	Upgrade bridge surface along the path behind the Haggens shopping center to make it less slippery for pedestrians	$100,000	City	Parks SDC, Bike/Ped funds	Short-term
BP7	Build multi-use paths from the previously adopted Tualatin Pedestrian, Bikeway, and Greenway Plans	$24,445,000[24]	City	Parks SDC or bond, Bike/Ped funds, Travel Options, ODOT Bike/Ped grants	Long-term
	Tualatin River Greenway from west UGB to east UGB	$6,641,000			
	Connections to the Tualatin River Greenway	$1,810,000			
	I-5 Path: Bridgeport Village to SW Nyberg Street to SW Sagert Street to SW Avery Street, and SW 80th Avenue to SW Blake Street to SW Norwood Road	$3,245,000			
	Connections to the I-5 Path: SW Martinazzi Avenue to I-5 path	$209,000			
	Saum Creek Greenway: SW Sagert Street to SW Delaware Circle to SW 65th Avenue to Tualatin River	$2,135,000			
	Norwood Road Path: SW Boones Ferry Road to I-5	$3,757,000			
	Connections to the Saum Creek Greenway: SW Sagert Street to Saum Creek Greenway	$30,000			
	Hedges Creek Greenway Connections: SW Myslony to SW Tualatin-Sherwood Road to SW 105th Avenue	$199,000			
	Helenius Greenway Trail Porous Concrete Trail Aggregate (Gravel) Surface Trail	$236,000 $179,000			
BP8	Build the section of the Tualatin River Greenway from SW Boones Ferry Road along the Tualatin River, extend to existing Tualatin River Greenway east of I-5	$2,135,000[25]	City	Parks SDC or bond, Bike/Ped funds, Travel Options	Short-term
BP9	Fill gaps in the multi-use path as part of the Tualatin River Greenway on the east side of the City	$123,000[26]	City	Parks SDC or bond, Bike/Ped funds, Travel Options	Long-term

[24] Cost estimates for all BP7 projects are from the *Tualatin Bikeway Plan* 1993. Estimates grown to 2012 dollars.

[25] From the *Tualatin Bikeway Plan* 1993. Estimate grown to 2012 dollars.

[26] From the *Tualatin Bikeway Plan* 1993. Estimate grown to 2012 dollars.

TABLE 13
Multi-Use Path Project Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate	Champion	Funding Source	Priority*
BP10	Add trail on the east side of SW 105th Avenue, SW Blake Street, and SW 108th Avenue through Ibach Park to accommodate bicyclists and pedestrians	$810,000	City, Ibach CIO	Parks SDC or bond, Bike/Ped funds, Travel Options	Medium-term
BP11	Add a multi-use path undercrossing of I-5 near Fred Meyer as part of the Nyberg Creek Greenway—connect to planned and existing multi-use paths	$1,947,000[27]	City	Bike/Ped funds, Travel Options, ODOT Bike/Ped grants	Medium-term
BP12	Not Used				

* Short term = within 5 years, medium term = 5–10 years, long-term = 10 years or more
CIO – Citizen Involvement Organization
ODOT – Oregon Department of Transportation
SDC – System Development Charges

Regional Coordination

A number of bicycle and pedestrian projects will require coordination with regional agencies such as Washington and Clackamas Counties, Metro, or ODOT. The City of Tualatin will participate fully in the development of regional multi-use trail projects through partnering with neighboring cities and lead agencies. Regional projects currently under development include intersection and bike lane projects on facilities owned by Washington or Clackamas Counties, or ODOT these projects are included in Tables 14 and 15.

[27] From Metro's *Regional Transportation Plan (RTP)* 2007. Estimate grown to 2012 dollars.

Regional Bicycle and Pedestrian Projects

TABLE 14

Regional Bicycle and Pedestrian Project Cost Estimates and Prioritization

Project ID	Project Description	Cost Estimate	Champion	Funding Source	Priority*
BP13	Add a colored bike lane through Nyberg Interchange to make the bicycle lane more visible and distinct from travel lanes	$24,000	City, ODOT	Bike/Ped funds, Travel Options	Short-term
BP14	Add skip striping for the bicycle lane across the I-5 southbound off-ramp on the west end of the interchange	$2,000	City, ODOT	Bike/Ped funds, Travel Options	Short-term
BP15	Redesign bike lane on the east side of the Nyberg interchange by modifying where bicyclists cross the northbound on ramps and creating a 90 degree angle	$62,000	City, ODOT	Bike/Ped funds, Travel Options	Medium-term
BP16	Improve the condition of bicycle and pedestrian railroad crossing panels on SW Boones Ferry Road and SW Lower Boones Ferry Road by adding new panels	$310,000	City, ODOT Rail, Portland and Western Railroad	STIP: TE, Bike/Ped funds	Medium-term

* Short term = within 5 years, medium term = 5–10 years, long-term = 10 years or more
STIP – Statewide Transportation Improvement Program
TE – Transportation Enhancement

Regional Multi-Use Path Projects

TABLE 15
Regional Multi-Use Path Project Cost Estimate and Prioritization

Project ID	Project Description	Cost Estimate	Champion	Funding Source	Priority*
BP17	Build pedestrian and bicycle bridges over the Tualatin River: North of SW Cipole Road in conjunction with the Westside Trail Near SW 108th Avenue	 $2,434,000[28] $2,434,000[29]	City, Metro	Parks SDC or bond, Bike/Ped funds, Travel Options	Long-term
BP18	Not Used				

* Short term = within 5 years, medium term = 5–10 years, long-term = 10 years or more
SDC – System Development Charges

[28] From Metro's *Regional Transportation Plan (RTP)* 2007. Estimate grown to 2012 dollars.

[29] From Metro's *Regional Transportation Plan (RTP)* 2007. Estimate grown to 2012 dollars.

[30] Not used.

[31] Not used.

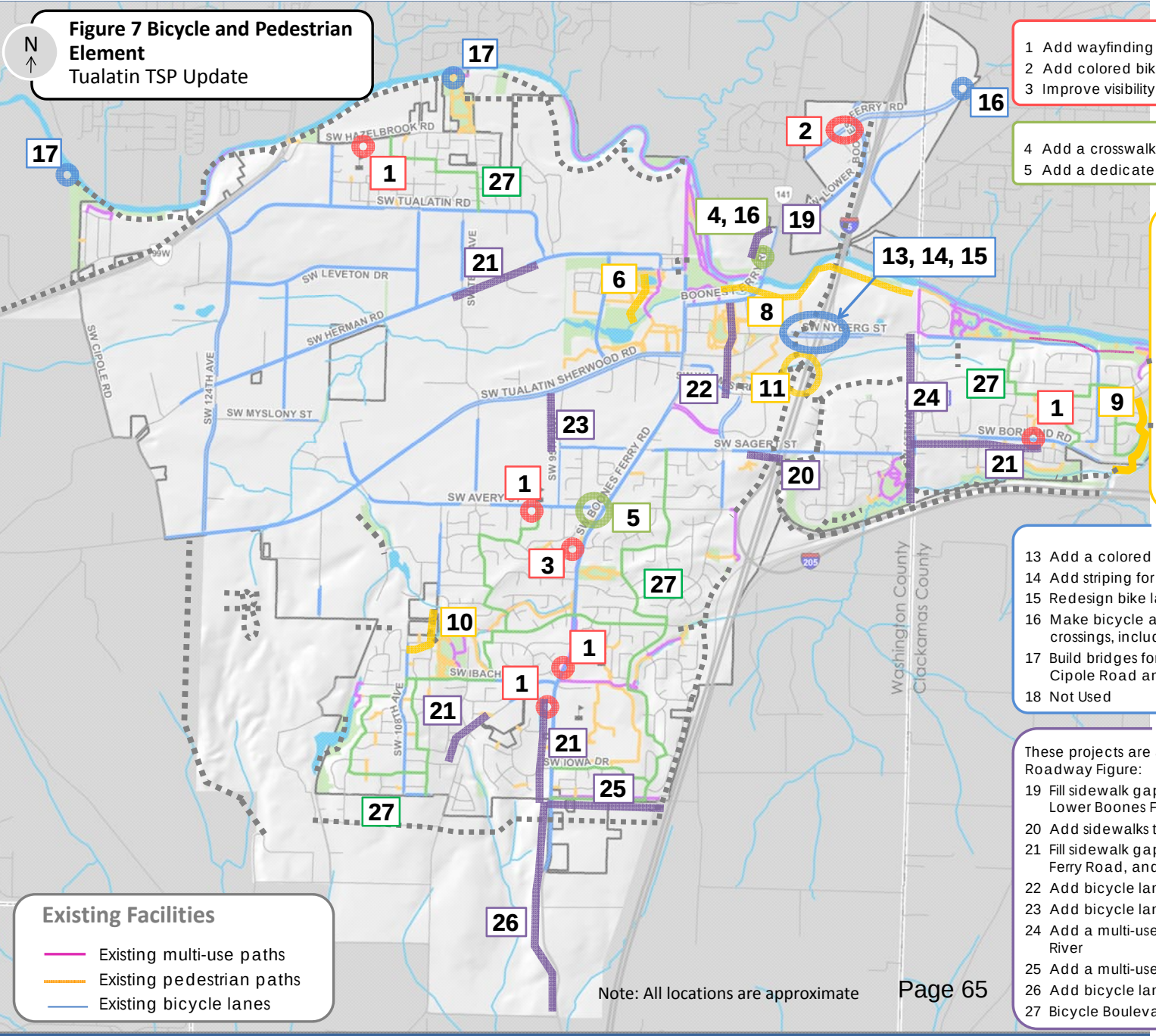

Figure 7 Bicycle and Pedestrian Element
Tualatin TSP Update

City Safety Improvements

1 Add wayfinding signs for Safe Routes to School at all public schools
2 Add colored bike lanes on Bridgeport Road near Bridgeport Village
3 Improve visibility and illumination at crosswalk at Siletz Dr & Boones Ferry Rd

Bicycle and Pedestrian Facilities

4 Add a crosswalk at Tualatin View Apartments on SW Boones Ferry Rd
5 Add a dedicated bike lane through intersection at Avery St & Boones Ferry Rd

Multi-Use Trails

6 Upgrade bridge surface along the path behind the Haggen shopping center
7 Build multi-use paths from the previously adopted Tualatin Pedestrian, Bikeway, and Greenway Plans (indicated by ▪▪▪▪)
8 Build trail along Tualatin River from the Community Park, extend to Tualatin River Greenway
9 Fill gaps in the multi-use path as part of the Tualatin River Greenway
10 Add a trail on the east side of SW 105th Avenue, SW Blake Street, and SW 108th Avenue through Ibach Park to accommodate bicyclists and pedestrians
11 Add I-5 multi-use undercrossing – connect to existing multi-use paths
12 Not Used

Regional Bicycle & Pedestrian Projects

13 Add a colored bike lane through the ramps at Nyberg Interchange
14 Add striping for the bicycle lane across the I-5 southbound off-ramp
15 Redesign bike lane on the east side of the Nyberg Interchange
16 Make bicycle and pedestrian crossing facility improvements at railroad crossings, including SW Boones Ferry Rd and SW Lower Boones Ferry Rd
17 Build bridges for pedestrian and bicycle access over the Tualatin River near Cipole Road and 108th Avenue
18 Not Used

Bicycle & Pedestrian Urban Upgrades

These projects are also included on the Urban Upgrades and Street Extensions Roadway Figure:

19 Fill sidewalk gaps and add colored bicycle lanes at SW Boones Ferry and SW Lower Boones Ferry Roads
20 Add sidewalks to the SW Sagert Street bridge
21 Fill sidewalk gaps on SW Boones Ferry Road, SW Borland Road, SW Grahams Ferry Road, and SW Herman Road
22 Add bicycle lanes on Martinazzi Avenue
23 Add bicycle lanes on SW 95th Avenue
24 Add a multi-use path along SW 65th Ave between Atfalati Park& the Tualatin River
25 Add a multi-use path (or sidewalks and bicycle lanes) on SW Norwood Road
26 Add bicycle lanes on Boones Ferry Rd from Norwood to Day Rd
27 Bicycle Boulevards (indicated by ▬)

Existing Facilities

Existing multi-use paths
Existing pedestrian paths
Existing bicycle lanes

Note: All locations are approximate

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Bicycle Boulevards

Currently, there are no existing bicycle boulevards in the City, though the city of Portland[32], the City of Tigard, and Washington County have bicycle boulevard policies and design standards.

Bicycle boulevards are roadways that use a variety of design treatments to reduce vehicle speeds so that motorists and bicyclists generally travel at the same speed, to create a safer and more-comfortable environment for all users. Bicycle boulevards may include a variety of applications ranging from minor street signing enhancements (such as shared lane markings) to larger scale projects (for example, bike-only access at intersections, traffic diverters). Boulevards also incorporate treatments to facilitate safe and convenient crossings where bicyclists must traverse major streets. Traffic controls along a boulevard may assign priority to through cyclists while encouraging through vehicle traffic to use alternate parallel routes.

There are five different types of treatments for bicycle boulevards; the lowest cost and least impactful are wayfinding and warning signs, and shared lane markings and directional markings. Other types of treatments with higher capital investment include adding medians/islands and bicycle signals, curb extensions, and mini traffic circles, and restricting and diverting traffic at intersections. The basic bicycle boulevard uses the lower cost elements such as signage and lane markings, and is recommended as the first step to creating and maintaining bicycle boulevards in the City.

Bicycle boulevards work best in well-connected street grids, where riders can follow intuitive and reasonably direct routes. Boulevards also work best when higher-order parallel streets exist to serve through vehicle traffic. Hilly areas and twisting locations where speed or visibility can create safety issues should be avoided. Bicycle boulevards are generally located on streets with lower traffic volumes and vehicle speeds, such as Minor Collectors or Local Streets passing through residential neighborhoods. Typically a bicycle boulevard would be located on a street where vehicles travel less than 30 miles per hour and average daily traffic volume is less than 3,000 vehicles (in both directions). Additionally, the recommended bicycle boulevards for the City include consideration of topography—where possible, areas with steep hills were not recommended for bicycle boulevards.

Proposed bicycle boulevards in Tualatin are shown on Figure 7. These are all low volume, low speed streets that connect neighborhoods with roadways and trails where bicycle infrastructure investments have been made. As a short-term action, the City should consider signing these roadways as bicycle routes, and monitor usage on an annual basis. As bicycle usage increases, and bicyclists and drivers become more used to sharing travel lanes, further investments could be considered as described in the paragraphs above to enhance safety for bicyclists.

[32] The City of Portland refers to its bicycle boulevards as “Neighborhood Greenways”

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5 Freight Plan

Efficient truck movement plays a critical role in the economic well-being and development of Tualatin. Trucks must be able to access commercial, industrial, manufacturing, distribution, and other employment areas both in Tualatin and connecting to the regional system. Future commercial/industrial uses are expected to be located consistent with the land uses identified in the Comprehensive Plan, which matches the current zoning designations, as codified in the TDC.

The freight network described in this plan and illustrated in Figure 6 is largely consistent with the functional classification plan, which strives to connect industrial and manufacturing uses to the regional and state transportation network via a series of major and minor arterial roadways. The movement of raw materials and finished products via designated truck routes provides for efficient movement of goods while maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. Federally and state designated truck routes, part of the National Highway System (NHS), have been identified on I-5 and OR 99W. Metro identifies "road connectors" in the RTP freight network on SW 124th Avenue, SW Tualatin-Sherwood Road, SW Lower Boones Ferry Road, and SW Boones Ferry Road. The City of Tualatin designates additional truck routes on roadway facilities that connect commercial/industrial districts within the City to major arterials and, ultimately, to OR 99W, I-5, and I-205. The following facilities are currently identified as City of Tualatin truck routes:

- I-5 (north to south City limits)
- I-205 (east to west City Limits)
- OR 99W (west to north City limits)
- SW Tualatin-Sherwood Road (west City limits to the Nyberg Street Interchange)
- SW 124th Avenue (OR 99W to SW Tualatin-Sherwood Road)
- SW Boones Ferry Road (south City Limits to SW Lower Boones Ferry Road)
- SW Lower Boones Ferry Road (SW Boones Ferry Road to the northeast City limits)
- SW Herman Road (SW 90th Avenue to SW Cipole Road)
- SW 108th Avenue (SW Tualatin Road to SW Herman Road)
- SW Teton Avenue (SW Tualatin Road to SW Avery Street)
- SW Cipole Road (OR 99W to SW Tualatin-Sherwood Road)
- SW Avery Street (SW Tualatin-Sherwood Road to SW 95th Avenue)
- SW Leveton Drive (SW 124th Avenue to SW 108th Avenue)
- SW 105th Avenue (SW Avery Street to SW Moratoc Drive)

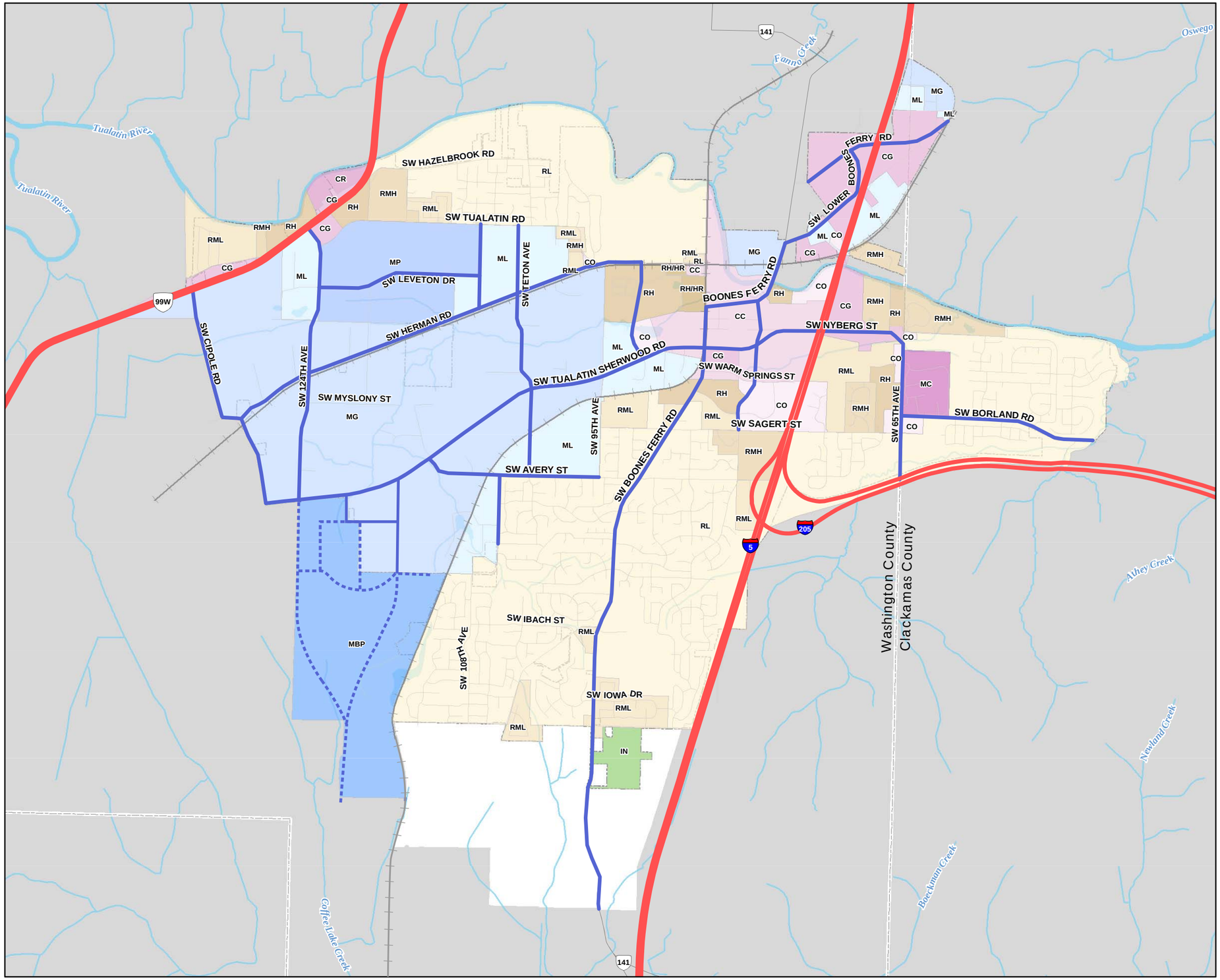
One existing truck route (SW Tualatin Road – SW 124th Avenue to SW Teton Avenue) was removed as a recommendation from the truck network based on discussions with the team, City Staff, the TTF and policy makers feedback. This change is consistent with the low volume of trucks currently using the road.

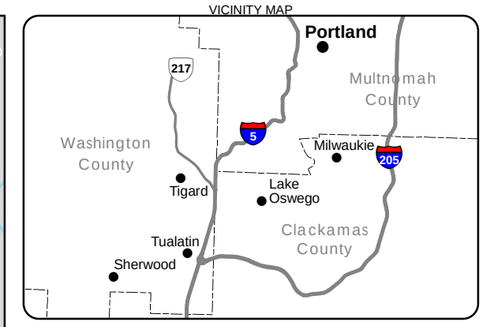
Updated truck route designations have been identified for existing roadways to match major arterial and minor arterial functional classifications. In addition, new roadway (or roadway extension) projects are recognized as truck routes when they provide connections to future commercial/industrial land uses. New truck route designations will include the following:

- SW 124th Avenue Extension (SW Tualatin-Sherwood Road to south City limits)
- SW 65th Avenue
- SW Bridgeport Road
- SW Borland Road

- SW Martinazzi Avenue (SW Sagert Street to SW Boones Ferry Road)
- SW 90th Avenue
- SW Nyberg Street (SW 65th Avenue to SW Martinazzi Avenue)

The needs of the freight system are consistent with those identified in the Street System Plan for the truck routes listed above. Projects that address needs related to truck routes, either directly or by providing alternate routes that improve traffic operations along truck routes, serve the needs of the freight system. All new roadways should be built to current City design standards to meet the operational needs of trucks on designated truck routes. Existing geometric deficiencies are identified in Appendix B.





LEGEND

Study Area

0 0.5 1 Miles

Regional Transportation System State and Federal Truck Routes

Local Freight Routes
- Existing Roadways
- Future Roadways
- City Boundaries
- County Boundaries
- Railroad

Institutional
- IN - Institutional

Commercial
- CO - Office
- CC - Central
- CG - General
- CR - Recreational
- MC - Medical

Manufacturing
- ML - Light
- MG - General
- MP - Park
- MBP - Business Park

Residential
- RL - Low Density
- RML - Medium Low Density
- RMH - Medium High Density
- RH - High Density
- RH/HR - High Density High Rise

FIGURE 8
Freight Routes
Street Element
City of Tualatin Transportation System Plan

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6 Rail Plan

Portland and Western Railroad (PNWR) owns and operates two freight rail lines within the City. One track (running north-south) accommodates both freight and the WES commuter rail, and an east-west line runs along the south side of SW Herman Road. As of November 2012 the east-west line carries one train daily in each direction, and the north south has two freight trains daily in addition to the WES trains described in the Transit section.

There are 13 gated public railroad crossings in Tualatin and a number of additional driveways or private roads that cross the railroad. The private crossings are stop controlled, but not signalized. Freight trains have the right of way at all intersections. The low number of trains does not present a large safety concern in the City, and recent Quiet Zone work done in conjunction with the north-south WES rail line opening added gates at all public crossings.

PNWR has no current plans to increase freight service through Tualatin. Although the east-west track runs adjacent to manufacturing areas, no rail sidings or other access to businesses are planned.

Freight Rail Policies

- **Freight Policy 1:** Continue to coordinate with PNWR and TriMet to ensure that railroad crossings are safe and have few noise impacts on adjacent neighborhoods
- **Freight Policy 2:** Look for opportunities to shift goods shipments to rail to help reduce the demand for freight on Tualatin's roads.
- **Freight Policy 3:** Look for opportunities to create multi-modal hubs to take advantage of the freight rail lines

Freight Rail Projects

Only one freight rail project was identified for the Tualatin TSP to support freight traffic within the City. The project would add a rail station with easy offload and access for industrial and manufacturing businesses in the west part of town. This project would need a high degree of coordination between PNWR and the City to ensure it is located appropriately for both the railroad and potential facility users.

Passenger Rail Policies

The City of Tualatin's policies on public transit are described more fully in the Transit Modal Plan, but some policies apply to rail and are pulled from that section here. Policies that may relate to the existing heavy rail lines in Tualatin include:

- **Transit Policy 3**: Partner with TriMet, Metro, and neighboring communities to plan the development of high-capacity transit in the Southwest Corridor, as adopted in the Metro High Capacity Transit System Plan.
- **Transit Policy 4:** Partner with TriMet, Metro, and neighboring communities to plan development of high-capacity transit connecting Tualatin and Oregon City, as adopted in the Metro High Capacity Transit System Plan.
- **Transit Policy 5:** Coordinate with ODOT and neighboring communities on conversations related to Oregon Passenger Rail between Portland and Eugene.
- **Transit Policy 8:** Metro in the RTP calls for increased WES service frequency. The City will coordinate with TriMet, Metro, and ODOT to explore service frequency improvements and the possible inclusion of a second WES station in south Tualatin.

Regional Coordination

The City of Tualatin will participate fully in the development of regional transit projects through partnering with lead agencies. Regional projects currently under development include the following:

- **The Southwest Corridor Project**. The purpose of the Southwest Corridor Project is to extend high-capacity transit from downtown Portland into the southwest part of the region. Doing so will help to fulfill the vision of the Metro *High Capacity Transit System Plan*. The City of Tualatin is partnering with Metro and TriMet to bring high-capacity regional transit to Tualatin and neighboring communities.
- **Oregon Passenger Rail**. The purpose of the Oregon Passenger Rail project is to improve intercity passenger rail service along the Oregon section of the Pacific Northwest high speed rail corridor between Portland and Eugene. Along the way, the rail service is expected to serve the south Metro area via an alignment either east or west of the Willamette River. The City of Tualatin intends to coordinate with ODOT and to explore an appropriate corridor that would best improve intercity passenger rail service in the Willamette Valley.
- **WES Extension**. TriMet and ODOT will study the feasibility of extending WES commuter rail from Wilsonville to Salem. The City of Tualatin is supportive of the WES extension and intends to partner with ODOT and TriMet in facilitating this project.
- **WES Service Enhancements.** Metro in the RTP calls for increased WES service frequency. The conceptual Linking Tualatin study recommended adding an additional WES station in the south part of Tualatin. The City will coordinate with TriMet, Metro, and ODOT to explore service frequency improvements and the possible inclusion of a second WES station in south Tualatin.

7 Water, Pipeline, and Air Plan

Water

The Tualatin River is the only large waterway within the City of Tualatin. The river is not navigable from the Willamette River due to impassable areas and a diversion dam downstream. The river is used primarily for recreation and is open for canoeing and kayaking. Therefore, the TSP does not include any specific policies, programs, or projects for the Tualatin River as part of the transportation network. However, several projects are proposed in other sections of this chapter to increase access to the river for recreation purposes.

Pipeline

A natural gas transmission pipeline and a gasoline pipeline cross through the City. There is no anticipated need to increase pipeline capacity or construct new pipelines through the City, and therefore no such improvements are proposed in the TSP.

Air

There are no airports within the City of Tualatin, although several airports are located within 30 miles of the City: the Aurora State Airport, Hillsboro Municipal Airport, and Portland International Airport. These airports meet the commercial, freight, and business aviation needs of Tualatin residents. No plans are proposed to construct airport facilities within the City of Tualatin; existing airports are anticipated to continue serving the citizens of Tualatin adequately.

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8 Transportation Demand Management

The TPR requires all cities with populations greater than 25,000 people to develop a TDM Plan. The RTP also requires that TDM strategies be used to encourage alternative transportation modes and achieve higher vehicle occupancy targets. TDM measures are designed to change travel behavior in order to reduce the need for more road capacity and improve performance of the road system. Typical TDM projects include encouraging use of travel modes other than the auto, ride sharing, and measures to reduce the need for travel—such as telecommuting policies.

TDM policies and projects can be cost-effective ways to reduce congestion by encouraging the use of other modes, reducing the need for travel or reducing the number of vehicle-miles driven. The City of Tualatin can implement a range of TDM measures to manage travel demand, in conjunction with partner organizations in many cases. Providing bicycle, pedestrian, and transit infrastructure can be effective means to encourage drivers to switch to other modes. Many of the pedestrian, bicycle, and transit improvements proposed in other sections of the TSP can be considered TDM measures as they encourage use of travel modes other than the auto. In addition to these infrastructure projects, a number of strategies are applicable to Tualatin, as discussed in the following subsections.

Transportation Demand Management Policies

The following policies support other modal plans in the TSP and help Tualatin meet its mode-share targets, as required by the RTP and presented in Table 16:

- **TDM Policy 1:** Support demand reduction strategies, such as ride sharing, preferential parking, and flextime programs[33]
- **TDM Policy 2:** Partner with the Tualatin Chamber of Commerce, the Westside Transportation Alliance, major employers, and business groups to implement TDM programs
- **TDM Policy 3:** Explore the use of new TDM strategies to realize more efficient use of the City's transportation system
- **TDM Policy 4:** Support Washington County's regional TDM programs and policies to reduce the number of single-occupancy vehicle (SOV) trips
- **TDM Policy 5:** Promote the use and expansion of the Tualatin Shuttle program

Metro in its RTP established modal targets for how residents in the region will make trips in 2040. These are separated out by regional designations. Tualatin has a number of designations within the City limits:

- Town Center – this designation is consistent with the Town Center Plan study area, centered on the Lake of the Commons and includes land south of the Tualatin River and west of I-5, including the Tualatin Community Park. The western Boundary is SW 95th Avenue south to SW Tualatin-Sherwood Road, and then east near SW Warm Springs Street.
- Corridors – there are a number of corridors in Tualatin: SW Tualatin-Sherwood Road is a regional street, along with 99W, SW 124th Avenue, and SW Tualatin Road. SW Boones Ferry Road is a community street, and SW Tualatin-Sherwood Road/SW Nyberg Street in downtown are community boulevards. Regional arterials

[33] Ride sharing is defined as carpools and vanpools that increase the number of occupants in a vehicle. Preferential parking is for carpools and vanpools, and is closer than regular parking to a building or office. It provides an incentive to carpool by providing designated parking closer to destinations. Flextime programs allow employees to work hours other than a typical 8 am- 5 pm workday, and can include four 10-hour days with Fridays off, a two-week rotation of nine 9-hour days with every other Friday off, etc.

include 99W, SW 124th Avenue, SW Boones Ferry Road, SW Tualatin-Sherwood Road, SW Herman Road, SW Nyberg Street, SW Sagert Street, SW Borland Road, and SW 65th Avenue.

- Employment Land – most of western Tualatin is employment land south of SW Tualatin Road and west of the railroad tracks.
- Parks and Natural Areas – Hedges Creek is designated a park and natural area, along with many of the other greenway areas including Nyberg Creek Greenway, Saum Creek, and other City parks.
- Neighborhoods – neighborhood areas include southern Tualatin near SW Boones Ferry Road, northern Tualatin north of SW Tualatin Road, and eastern Tualatin excluding the hospital area and the greenways and parks.

These designations have modal targets associated with them, as seen in Table 16 below, and the non-drive-alone modal target for Tualatin is 45-55 percent in the Town Center and Station Community, and 40-45 percent for the employment land, parks and natural areas, and neighborhoods.

TABLE 16
Metro Modal Targets

2040 Regional Designation	Non-drive-alone Modal Target
Regional Centers Town Centers Main Streets Station Communities Corridors Passenger Intermodal Facilities	**45–55%**
Industrial Areas Freight Intermodal Facilities Employment Areas Inner Neighborhoods Outer Neighborhoods	**40–45%**

Source: Metro's RTP

TDM Programs

Constructing bicycle lanes, sidewalks, and other facilities greatly increases the ability of people to get around by walking and biking. These efforts are made even more effective when education and encouragement programs are developed. These programs help address barriers to walking and biking, such as where and how to ride safely.

Individualized Marketing

Individualized marketing programs offer customized packets of information about transit, car/vanpool, bicycling, and walking options to target populations at events and through various venues. Such a program in Tualatin would build on and support both new and existing TDM strategies by providing a tailored framework that consisted of the following: (1) information about resources, such as transit maps and schedules, local walking and bicycling maps, safety information, discounts at local shops, and other locally available material; (2) encouragement events, such as employment fairs, guided walks and rides, guided transit trips, personalized trip planning assistance, and trainings; and (3) encouraging communications through social media, virtual or physical bulletin boards, and newsletters. Individualized marketing programs could be implemented by the City directly, or by a Transportation Management Association (TMA). A TMA is an independent entity dedicated to solving transportation problems in a particular geographic area through actively managing transportation demand and encouraging alternate travel modes. Currently, the Westside

Transportation Alliance provides TMA services to the Tualatin Chamber of Commerce, and the Cities of Hillsboro, Beaverton, and Tigard.

Bicycle and Pedestrian Education and Encouragement Programs

Constructing bicycle lanes, sidewalks, and other facilities greatly increases the ability of people to get around by walking and biking. These efforts are made even more effective when education and encouragement programs are developed. These programs help address barriers to walking and biking, such as where and how to ride safely. It should be noted that all programs listed below can be implemented in coordination with an individualized marketing program, as described above.

Employer Bicycle and Pedestrian Programs

Employers, especially larger employers, should implement a number of low-cost measures to encourage walking and biking to and from work. Example incentives include giving gift cards or discounts at local restaurants to those who choose to walk or bike. Parking "cash outs" are another incentive: If workers have free or subsidized parking, employers offer employees a choice to keep a parking space at work, or to accept a cash payment and give up the parking space.

Improve "End of Trip" Facilities

Workers often cite a lack of secure bike storage areas and showering and changing facilities as reasons they do not bike to work. If providing these amenities is cost prohibitive, employers could direct employees to nearby gyms or community centers where these facilities already exist and subsidize membership to them.

Safe Routes to School Programs (SRTS)

Nationally, the number of children walking and biking to school has declined greatly over the last several decades. SRTS programs currently existing in Tualatin. They are designed to educate parents and schoolchildren about safe walking and biking and encourage students to walk or bike to school. Typical measures include distributing safety information to parents and kids, prizes for kids who walk and bike to school, month-long walk-and-bike challenges, and bicycle rodeos. Bicycle and pedestrian infrastructure improvements, such as improving crosswalks or striping bike lanes, are usually done in conjunction with these efforts.

Community Bicycle Education, Encouragement, and Commuter Challenges

Many cities in Oregon participate in sponsored commuter challenge events, such as the national bike to work day in May and the month-long bike commute challenge in September. The month-long event is a friendly competition among employers. Awards and local bike shop discounts are offered throughout the month. Participants log their daily travel by bike on a website, track others' progress, and access free commuting resources.

Bicycle Route Maps

One of the major reasons many people do not bike to their destinations is a lack of knowledge about where to safely ride. The Washington County Visitors Association currently produces a countywide cycling map that includes major routes in Tualatin. A link to this map should be placed prominently on the City of Tualatin's webpage, and paper copies of the map made available at City Hall and other civic locations. However, the

Visitors Association's map does not include the portions of Tualatin that are north of the Tualatin River or east of I-5. The City should consider developing a comprehensive bicycle map for Tualatin that includes current and planned bicycle facilities. A locally produced map can be updated more frequently as bicycle infrastructure projects in the Pedestrian and Bicycle Plan are constructed.

Transit Strategies

Transit projects in the Transit Plan can be supplemented with other programs that make using transit easier for residents and provide incentives for its use. It should be noted that all programs listed below are most effectively implemented in coordination with a TMA and individualized marketing programs as described above.

Employee Shuttle Service

The Tualatin Chamber of Commerce operates a free shuttle service from TriMet bus stops, the WES station, and downtown Portland to employers within Tualatin. This free service enhances transit by bridging the final distance between transit stops and the work site, which can often be too far to walk or bike.

Employer-Subsidized Transit Pass Programs

Transit passes increase ridership because they are simple and easier to use than single ticket purchases. However, annual transit passes can be prohibitively expensive (as of September 2012 the annual TriMet pass is $1,100) and out of line with driving costs such as gasoline and parking where purchases are made on a more incremental basis (weekly, monthly). To encourage more transit ridership, and in coordination with implementation of transit service recommendations outlined in the Transit Modal Plan, employers could subsidize the cost of transit passes either: (a) directly through bearing some of the cost of the pass as an employer-provided benefit; (b) indirectly through being a pass-through purchasing the annual passes from TriMet and allowing employees to pay on a monthly basis; or (c) indirectly through taking advantage of pre-tax transportation fringe benefits under Title 26 section 132(f) of the US tax code. This program allows employers to offer a tax-free benefit to employees that commute to work by transit and allow employees to purchase transit passes on a pre-tax basis through payroll deduction.

Other Strategies

Rental or Car-share Services

The ability to make midday trips with personal vehicles is cited as an important reason that employees drive to work. By providing car-sharing or rental service, such as Zipcar (www.zipcar.com) and Car2Go (www.car2go.com), workers can make short trips at low cost during the workday and leave their personal vehicles at home. Zipcar and Car2Go are not currently available in Tualatin. The City could partner with Metro to discuss expanding these services to the suburbs and for major employers to explore maintaining a small fleet of bicycles and/or vehicles for midday trips.

Ride Sharing

Carpooling and vanpooling can be very cost effective by filling empty seats in vehicles that would otherwise be unoccupied. Ride-sharing strategies are most effective for trips with predictable schedules, like commuting or special events. Ride sharing is accomplished through ride matching, or matching commuters with carpools and vanpools that meet their travel needs. Matching is accomplished through websites like Oregon's "Drive Less. Connect" program (www.drivelessconnect.com/) or through bulletin boards and employer-organized services.

Telecommuting and Flexible Work Schedules

Telecommuting (working from home instead of traveling to the workplace every day) reduces the need for travel and can have beneficial effects on traffic congestion. Many employers in Tualatin have employees who travel to work from outside the City, and many Tualatin residents travel outside the City to go to work. Supporting telecommuting could reduce peak-hour congestion on roadways in Tualatin. Support for telecommuting includes providing information to employers within the City and providing resources for citizens who commute out of Tualatin.

Employers can also allow employees to adopt work schedules different from the typical 8 to 5 schedule, or allow employees to compress regularly scheduled hours into fewer workdays per week (four 10-hour shifts, for instance). Allowing work schedule flexibility shifts travel out of the peak morning and evening travel hours, reducing congestion.

Location-specific TDM Programs

Throughout the TSP development a few programmatic ideas arose that were specific to locations within Tualatin. These programs are listed here, separate from the city-wide ideas, though implementation could be accomplished through many of the programs listed above.

Encourage Off-peak Use of SW Herman and SW Tualatin-Sherwood Roads

SW Tualatin-Sherwood Road is congested during peak hours, and freight vehicles use both SW Herman and SW Tualatin-Sherwood Roads to access regional transportation facilities (OR 99W and I-5). Policies encouraging drivers and freight haulers to use these routes outside of peak hours would help alleviate peak-hour congestion.

Reduce Congestion near Tualatin High School

Tualatin High School generates a significant number of trips just before the school day starts and when classes let out in the afternoon. Projects and policies that discourage the use of personal automobiles to get to and from the high school could be effective at reducing congestion in the vicinity of the school. SRTS projects, such as adding wayfinding signage for pedestrians and bicycles, encouraging cycling and walking, and improving the walking and cycling environment in the vicinity of the school can be very effective at encouraging students to use alternative modes of travel. A number of pedestrian and bicycle improvement projects are proposed near the high school; refer to the Pedestrian and Bicycle Plan earlier in this chapter for a complete list of projects.

Provide Wayfinding Signs to Encourage Walking and Bicycling

Providing wayfinding signage near popular destinations such as schools, commercial areas, parks, and city services allows residents to use non-motorized modes. Wayfinding signs will also allow users on multi-use paths to determine their location and how to get to various destinations. Providing wayfinding signs can improve user comfort with different modes and may encourage travelers to switch transportation modes as they become as comfortable with these modes as with driving.

Metro Transportation Demand Management Projects

Metro's 2035 Regional Transportation System Management and Operations Plan (TSMO Plan) also includes TDM projects and policies within Tualatin. These relatively low-cost projects (Table 17) will be implemented by a variety of local and regional organizations and with a variety of funding sources.

TABLE 17
Planned Metro TDM Projects in Tualatin

Project or Policy	Description
Individualized Marketing for Tualatin Transit Center and adjacent neighborhoods	Implement outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents
Location-efficient Living	Support programs and strategies that promote location-efficient living strategies in industrial employment and residential areas west of I-5. The goal of location efficient living is to provide affordable housing near employment centers to reduce travel distances for employees. Location-efficient living strategies also market employment opportunities to nearby residents.
Transportation Management Associations	Support the activities of organizations, such as the Tualatin Chamber of Commerce, that help employees and/or residents increase use of non-single-occupant vehicle travel options

Source: Metro's TSMO Plan

9 Transportation System Management

Transportation System Management (TSM) measures are designed to increase the efficiency, safety, capacity, and level of service of the transportation system without physically increasing roadway capacity. Typical TSM projects include traffic light synchronization, traffic calming, travel information systems, access management, and parking management strategies. Many of the projects listed in the other modal plans—including the Transit, Pedestrian and Bicycle, and Access Management plans—qualify as TSM measures.

Many TSM tools can be implemented inexpensively to help make the existing system work more efficiently. A wide range of TSM strategies are applicable to Tualatin.

Signal Timing and Optimization

Traffic congestion is caused in part by poorly timed traffic signals, especially on longer arterial corridors with many signalized intersections. The City will continue to review and update signal timing on streets in order to maximize signal efficiency. Many strategies can be implemented to improve coordination of signals and optimize signal timing. Advanced signal systems can detect vehicles approaching intersections, reducing the number of stops vehicles make and reducing delay. With good traffic data, signal timing can be adjusted throughout the day to reflect traffic patterns. Adaptive signal controls actively change signal timing based on real-time traffic information, further optimizing traffic flow.

Example of a Bicycle Detector Loop

Adding bicycle detector loops or sensor cameras are effective methods for optimizing signal timing for cyclists, who often must wait long periods before crossing an intersection if they are not detected by the signal system. Adding bike detection loops or sensor cameras would eliminate this problem, ensuring cyclists can get through major intersections without delay and without having to activate pedestrian crossing signals. ODOT recently put in a bike detection loop at the SW 72nd Avenue, SW Bridgeport Road, and SW Lower Boones Ferry Road intersection for the northbound bike lane.

Real-time Traveler Information Systems

Real-time travel information on traffic congestion, roadway incidents, road hazards, weather conditions and construction delays can help drivers make better travel decisions. This information can be provided through electronic signs, or websites and applications available on computers and mobile devices, to help travelers avoid delay by changing their route, starting their trip at another time, or changing which mode they use to get to their destinations.

Traffic Calming

Traffic-calming measures can improve neighborhood livability, slow traffic, and reduce undesirable cut-through traffic on local streets. Typical traffic-calming measures include speed humps, medians, street trees, narrower streets, traffic circles, and speed reader boards that display vehicle speeds to drivers. These strategies are effective at encouraging vehicle traffic to make their through trips on more appropriate collector and arterial

streets, and help calm traffic in neighborhoods where slow speeds and low traffic volumes are desirable. Table 18 summarizes common traffic-calming strategies.

TABLE 18
Potential Traffic-Calming Strategies

Traffic-calming Strategy	Goal	Description
Speed Tables	Speed reduction	Speed tables are flat-topped speed humps constructed from asphalt, brick, or other materials. They allow higher speed travel then speed bumps. Speed tables are effective at reducing vehicle speeds, and are most applicable on residential streets or other streets where a smooth ride is needed for larger vehicles.
Roundabouts and Traffic Circles	Speed reduction, reduce through traffic	These force drivers to slow at intersections and may encourage through traffic to use other routes. They are typically constructed of concrete, brick or other materials and often have center landscaping that additionally improves street aesthetics.
Chicanes, Curb Extensions	Speed reduction, improve walking environment	Chicanes are bulb-outs that physically narrow the roadway. Chicanes create S-shaped curves that force drivers to slow and can also be designed so that drivers have to yield to oncoming traffic. Curb extensions at intersections physically narrow the roadway and reduce vehicle speed, but they also reduce intersection crossing distance for pedestrians.
Median Barriers	Reduce through traffic	Median barriers prevent vehicle traffic from turning into or out of streets in a certain direction, reducing through traffic.
Road Diets	Speed reduction, reduce through traffic, improve walking & biking environment	Road diets reduce the number of automobile travel lanes, freeing road space for bicycle lanes, sidewalks, paths, or landscaping. A typical road diet may reduce a four-lane road to three lanes (two travel lanes and a center turn lane) and add bicycle lanes or parking.
Street Trees	Speed reduction, improve walking & biking environment	Street trees visually narrow streets, forcing drivers to slow down. Trees placed between sidewalks and the street improves street aesthetics and provides a buffer between pedestrians and traffic.
Pavement Treatments	Speed reduction	Pavement treatments include colored and textured paving materials, rumble strips and other pavement markings. These treatments provide visual and auditory cues to drivers that they should be more alert, causing drivers to slow. Typical application includes paving a residential intersection with bricks, or adding rumble strips to an intersection approach.
Tighten Corner Radii	Improve walking and biking environment, speed reduction	Large intersection corner radii allow vehicles to make higher speed turns, increasing risk for pedestrians. Reducing curb radii forces traffic to slow when making turns and reduces crossing distance for pedestrians.
Roadway Striping	Speed reduction	Adding roadway striping, especially on unstriped residential streets, can visually narrow the street and causes drivers to slow down. Roadway edge lines, striped medians, etc., can all help achieve speed reductions at relatively low cost.

Source: Metro's *Transportation System Management and Operations (TSMO) Plan*

Metro's *Transportation System Management and Operations (TSMO) Plan* includes projects on regionally significant routes within Tualatin. It also includes arterial corridor management strategies and other improvements to facilities within Tualatin (Table 19). Most of these projects are currently underway or are planned to start within the next 5 to 10 years and will be funded through a combination of regional and local sources.

TABLE 19
Planned Metro TSMO Projects in Tualatin

Facility Name	TSM Strategy	Description
SW Boones Ferry Road, SW Upper Boones Ferry Road, SW 65th Avenue, and SW Borland Road	Arterial Corridor Management	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate), and routinely update signal timings. Provide real-time and forecasted traveler information, including current roadway conditions and weather conditions, on arterial roadways.
OR 99W, from SW 124th Avenue to SW Tualatin-Sherwood Road	Real-time Traveler Information	Provide real-time and forecasted traveler information on arterial roadways, including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions, and other events that may affect traffic conditions.
SW Tualatin-Sherwood Road	Arterial Corridor Management with Adaptive Signal Timing	Signal systems that automatically adapt to current roadway conditions, in addition to arterial corridor management strategies listed above.

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10 Parking Plan

The City owns several public parking lots in downtown Tualatin to support denser development in the City's core area. A separate taxing district has been created to support ongoing maintenance and operations of these parking lots. The city completed a study in 2011 which identified that the existing parking supply is sufficient to meet the parking demand in downtown Tualatin.

The RTFP requires parking policies and a parking plan in a TSP or other planning document. The current TDC includes parking minimums and is compliant with this requirement.

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Chapter 3. Implementation

Implementation of TSP projects will depend on funding and community priorities. There are a variety of funding sources available at the City, County, Region, and State level, and each project table includes recommendations for applicable funding sources. Additionally, the relative importance of TSP projects are identified in the project tables, based on community goals, the magnitude of the deficiency or issue that the project addresses, and the ability to secure funding, conduct engineering, and build a project. Appendix E provides a detailed description of transportation funding and improvement costs for all of the TSP's recommendations.

Funding Sources

Established Funding Sources for Future Projects

A variety of established federal, state and local funding sources are available to fund future transportation projects in the Tualatin TSP, depending on the eligibility requirements.

Federal Funding Sources

Federal funding currently accounts for approximately 20 percent of total funding for transportation projects in Oregon. Allocation of federal funds is managed through Metro, Tualatin's Metropolitan Planning Organization (MPO). Metro generally programs federal funding for regional and local projects that affect the state transportation system, though some funds are made available directly for local projects. All projects utilizing federal funds must be programmed through Metro's 20-year RTP and the Metropolitan Transportation Improvement Program (MTIP), as well as the STIP.

Most federal funding is available through the federal surface transportation program, supported by tax revenue to the Highway Trust Fund.

Federal Highway Trust Fund (HTF)

Revenues to the HTF are comprised of motor vehicle fuel taxes, sales taxes on heavy trucks and trailers, tire taxes, and annual heavy truck use fees. The fund is split into two accounts – the highway account and transit account. Funds are appropriated to individual states on an annual basis. The 2005 legislation for the federal surface transportation program (Safe, Accountable, Flexible and Efficient Transportation Equity Act – A Legacy for Users, referred to as SAFETEA-LU) was replaced with Moving Ahead for Progress in the 21st Century (MAP-21), effective October 1st, 2012. This new 2-year program keeps total federal funding at the SAFETEA-LU rate, consolidates the 90 current programs under SAFETEA-LU into 30, eliminates transportation earmarks, and increases funding for the Transportation Infrastructure Finance and Innovation Program (TIFIA). The TIFIA program provides loans to finance transportation projects of regional or national significance, and seeks to leverage federal transportation dollars with local funds and private investment. Tualatin may be eligible to receive funding under the expanded TIFIA program.

Most federal funds must be matched with state or local funds; the current matching ratio for most projects is 10.27 percent.

Federal Transit Administration grants

The Federal Transit Administration (FTA) manages a number of grants available to transit agencies nationwide. The city of Tualatin could work with TriMet to fund transit projects serving the City.

Transit Expansion and Livable Communities Grants

Approximately $2.4 billion in funds was appropriated for this program in the current budget year (2012). The goal of this initiative from the FTA is to advocate for and support projects and programs that improve the link between public transit and communities. Several formula and competitive grant programs are available through this initiative. Policy goals include better integrating transportation and land use planning, fostering multimodal systems, providing transportation options and improving access, reducing emissions, and increasing public participation in transportation decision-making. Tualatin and TriMet may be eligible for grant funding under this program.

Transportation for Elderly Persons and Persons with Disabilities (MAP-21 §20009, former SAFETEA-LU §5310)

This formula grant program is managed by the state, with funds provided for capital projects that enhance the accessibility of older adults and those with disabilities.

Job Access Reserve Commute (JARC) program (MAP-21 §20010, former SAFETEA-LU §5316)

Activities funded by the JARC program (formerly Section 5316 of SAFETEA-LU) have been preserved in MAP-21. The JARC program was established to address the transportation needs of welfare recipients and other low-income persons seeking to obtain or maintain employment. This program helps provide mobility to those whose work hours may fall outside traditional transit service hours and service areas. Under MAP-21, JARC activities have been integrated into the urban and rural formula grant programs. Financial assistance will be available for capital, planning and operations projects. In addition to local government and transit operators, private non-profits are eligible to receive funds. In 2012, as in past years, the Chamber of Commerce received JARC monies that funded the Tualatin Shuttle service. The Chamber of Commerce is an ongoing recipient of JARC funds, and annually recompletes for funds.

TriMet is the current recipient of all JARC funds which are distributed to regional agencies through a competitive application process. Under MAP-21, the competitive application requirement has been removed. TriMet is currently developing its new JARC program in response to MAP-21; it is presently unclear how much funding will be available, or how agencies will apply for funding from the program. Approximately $600,000 has been available regionally under the program in recent funding cycles.

Other Federal Sources

Section 319 Non-Point Source Implementation Grants

Transportation projects that integrate stormwater treatment may be eligible to receive federal funding through Section 319 grants. This program, administered by the Oregon Department of Environmental Quality (DEQ), provides federal funds to address non-point pollution, including stormwater improvement projects. Funding is very competitive, with less than $500,000 available statewide in the most recent grant cycle. Projects that could be eligible for funding include applications of pervious pavements, stormwater detention and retention, and other low impact stormwater development tactics. Funds can be used for all or a portion of a project, but require a minimum 40 percent match. The Tualatin River and several of its tributaries are on the Clean Water Act 303(d) list for a number of pollutants, and projects within the river basin may be attractive for funding.

State Funding Sources

State funds are distributed via the Oregon Transportation Commission (OTC). The State Highway Fund is the most significant source of funding for the programs described below. To be eligible for funding, projects must be programmed through the STIP.

State Highway Fund

State Highway Fund Revenues are received from a combination of fuel taxes, vehicle registration and title fees, driver's license fees, the truck weight-mile tax and federal monies. Fund revenues may only be used for construction and maintenance of state and local highways, bridges, and roadside rest areas. State law (ORS 366.514) specifies that a reasonable amount of highway funds must be spent on walkways and bikeways, and that in any given fiscal year, a minimum of 1 percent of State Highway Funds must be spent on these projects by funding recipients. However, cities and counties receiving may allocate these funds to a reserve fund, which they must expend within a period not to exceed 10 years. All funds must be expended on projects within road, street, or highway rights-of-way.

State Highway Funds are appropriated by the OTC on an annual basis. Sixty percent of fund revenues are kept at the state level, 24 percent is distributed to counties based on the number of vehicles registered in each county, and 16 percent is distributed to cities based on population.

Statewide Transportation Improvement Program (STIP)

The STIP is the 4-year capital improvement program for the state of Oregon. It provides a schedule and identifies funding for projects throughout the state. Projects included in the STIP are generally "regionally significant" and have been given a high priority through planning efforts and by the relevant area commission on transportation (ACT) or MPO. For Tualatin, the relevant MPO is Metro.

All regionally significant state and local projects, as well as all federally-funded projects and programs, must be included in the STIP. The 2010-2013 STIP includes projects totaling $1.25 billion and covers the period from October 2009 to the end of September 2013. The 2012-2015 STIP was recently approved. About 80 percent of projects are expected to use federal funds. Federal funding levels projected for the 2010-2013 and draft 2012-2015 STIP are assumed to be at the same annual level distributed under SAFETEA-LU from 2005 to 2009.

ODOT has started the planning process for the 2015-2018 STIP. The STIP will be reorganized into two broad categories: "Fix-it" and "Enhance" that encompass the previous funding categories detailed in the 2012-2015 STIP. "Fix-it" projects are those that fix or preserve the current transportation system; "Enhance" projects are those that enhance, expand or improve the transportation system. The main purpose of this reorganization is to allow maximum flexibility to fund projects that reflect community and state values, rather than those that fit best into prescriptive programs.

"Fix-it" activities will include:

- Bicycle and pedestrian facilities on state routes only
- Bridges (state owned)
- Culverts
- High Risk Rural Roads
- Illumination, signs and signals
- Landslides and Rockfalls
- Operations (includes ITS)
- Pavement Preservation
- Rail-Highway Crossings
- Safety

- Salmon (Fish Passage)
- Site Mitigation and Repair
- Stormwater Retrofit
- Transportation Demand Management (part of Operations)
- Work zone Safety (Project specific)

"Enhance" activities will include:

- Bicycle and/or Pedestrian facilities on or off the highway right-of-way
- Development STIP (D-STIP) projects (development work for projects that will not be ready for construction or implementation within the four years of the STIP)
- Modernization (projects that add capacity to the system, in accordance with ORS 366.507)
- Most projects previously eligible for Transportation Enhancement funds
- Projects eligible for Flex Funds (the Flexible Funds program funded Bicycle, Pedestrian, Transit and Transportation Demand Management (TDM) projects, plans, programs, and services)
- Protective Right-of-Way purchases
- Public Transportation (capital projects only, not operations)
- Safe Routes to School (infrastructure projects)
- Scenic Byways (construction projects)
- Transportation Alternatives (new with MAP-21, the federal transportation authorization)
- Transportation Demand Management

Under this new STIP organization, there will be one application for all projects eligible under the "Enhance" program. Communities will apply for the "Enhance" projects that best serve their community and ODOT will determine the appropriate funding mechanism. "Fix-it" projects will be selected through a collaborative process between ODOT and MPOs. This new organization is primarily intended to increase funding flexibility and does not represent a fundamental change in the type of projects that will be funded through the STIP. The current "Enhance" application process for the 2015-2018 STIP will close at the end of November, 2012.

  - ***Connect*Oregon**: *Connect*Oregon funds are lottery-backed bonds distributed to air, marine, rail, transit and other multimodal projects statewide. No less than 10 percent of *Connect*Oregon IV funds must be distributed to each of the five regions of the state, provided that there are qualified projects in the region. The objective is to improve the connections between the highway system and other modes of transportation.

Oregon Parks and Recreation Local Government Grants

The Oregon Parks and Recreation Department (OPRD) administers this program using Oregon Lottery revenues. These grants can fund acquisition, development and major rehabilitation of public outdoor parks and recreation facilities. OPRD has distributed $4 million annually under this program through a competitive grant process. A match of at least 20 percent is required.

Oregon Transportation Infrastructure Bank (OTIB)

The OTIB is a statewide revolving loan fund available to local governments for many transportation infrastructure improvements, including highway, transit and non-motorized projects. Most funds made available through this program are federal, and roads must be functionally classified as a major collector or higher to be eligible for loan funding.

Oregon Parks and Recreation Department: Recreational Trails Grant[34]

These grants from the Oregon Parks and Recreation Department provide funding for recreational trail projects to build new recreation trails, including trail bridges and installing wayfinding signs, restoring existing trails, developing and rehabilitating trailhead facilities, and acquiring land and permanent easements for trails. Cities are eligible to apply, and must provide at least a 20 percent match of total project cost. Recent grants (2011) ranged from $10,000 to $130,000.

Oregon Immediate Opportunity Fund

The Oregon immediate opportunity fund supports primary economic development in Oregon through construction and improvements of streets and roads. Funds are discretionary and may only be used when other sources of financial support are unavailable or insufficient. The objectives of the Opportunity Fund are providing street or road improvements to influence the location, relocation, or retention of a firm in Oregon, providing procedures and funds for the OTC to respond quickly to economic development opportunities, and providing criteria and procedures for the Oregon Economic and Community Development Department (OECDD), other agencies, local government and the private sector to work with ODOT in providing road improvements needed to ensure specific job development opportunities for Oregon, or to revitalize business or industrial centers.

Regional Funding Sources

Metro coordinates two transportation grant programs relevant to Tualatin. As the regional government and MPO, Metro is responsible for distributing federal monies in a variety of programs.

Flexible Funds

Metro manages the allocation of regional federal flexible funds. These funds come from two federal funding sources: the Surface Transportation program (STP) and the Congestion Mitigation/Air Quality program (CMAQ). These funds can be spent on a wide variety of projects. In the most recent funding round, $24 million was made available to Metro jurisdictions for various projects, including transit oriented development, high capacity transit, transportation system management, and regional planning projects. Funding is allocated through a competitive process.

Regional Travel Options grants

Metro also manages this federal grant source, distributing over $500,000 to several projects in the Metro region in the most recent round of funding. Projects are selected through a competitive process. Projects that improve air quality, address community health, reduce auto traffic or create more opportunities for walking and biking are all eligible for funding.

Nature in Neighborhoods Grants

Metro provides funds to communities to add vegetation and natural features in neighborhoods. Funds for Nature in Neighborhoods come from the voter-approved 2007 natural areas bond measure. Projects awarded grants

[34] From www.oregon.gov/oprd/GRANTS/Pages/index.aspx

involve the community, foster diverse partnerships and innovate, leading to bigger social and economic benefits, from jobs and economic development to livable neighborhoods and clean air. Metro has awarded $6.6 million to 23 projects. Up to $2.25 million is available annually, with $15 million available through the life of the program.

County Funding Sources

Washington County Gas Tax

Tualatin receives approximately $90,000 per year currently in county gas tax revenue. These funds can be spent on a wide variety of transportation projects, though are currently only spent on construction and maintenance of City streets.

Washington County Major Streets Transportation Improvement Program (MSTIP)

Washington County's MSTIP program provides funding for major transportation improvements on roads throughout the county. The program is funded through property taxes with approximately $35 million available each year. MSTIP has funded a wide variety of projects, including expansion of Highway 26, Intelligent Transportation System (ITS) and signal upgrades to Tualatin-Sherwood Road and numerous bicycle and pedestrian improvements. Only roads classified in the Washington County Functional Classification system are eligible for funding from MSTIP. Roads that would be eligible under this program include Tualatin-Sherwood Road, Boones Ferry Road, Nyberg Road, 65th Avenue, Sagert Street, and several others. Tualatin does not have any projects identified for funding in the current 5 year MSTIP program (MSTIP 3d), but several projects just outside the city, including the extension of 124th Avenue south to Tonquin Road, are funded. The city can continue to pursue funding for major improvements on these streets through this dedicated funding source.

Washington County Minor Betterment Program

Washington County administers the Minor Betterment Program (MBP), funded by an allocation from the County Road Fund (County Gas Tax). The Program funds small-scale interim improvements beyond routine maintenance but not large enough to be programmed as capital improvements. MBP projects are site-specific enhancements to the county's transportation system, projects are typically interim and intended to supplement routine maintenance and capital improvements. Eligible projects need to be on a county road, improve or resolve a specific situation, and address safety, capacity, environmental and/or connectivity issues. In fiscal year 2013/14 the County is funding sidewalk completing along SW Grahams Ferry Road with this funding source.

Local Funding Sources

Major local funding sources include general fund revenues, road utility fees, system development charges, and the City's share of State Highway Fund revenue.

Road Utility Fees

This fee is assessed to all residential and non-residential properties in the city of Tualatin to fund upkeep of the City's road system. Approximately $650,000 in fee revenue was forecast for FY 2011. These revenues are made available exclusively for road maintenance. These fees represent a significant source of funding for maintenance of existing roads. Per city code (TMC 3-4), these funds may be spent on pavement rehabilitation, sidewalk maintenance, landscaping enhancements, replacing street trees and street lighting.

Transportation Development Taxes (TDT)

Transportation Development Taxes (TDT) are one-time fees on new development that compensate for the increased traffic associated with new development, and are system development charges or impact fees for transportation. The City has authorized the collection of transportation system development charges since 1991. The former county-managed Transportation Impact Fee (TIF) program has been replaced with the Transportation Development Tax (TDT), approved by voters in 2008. TDTs cannot be expended on transportation operations or maintenance projects, and may be used exclusively for capital improvement projects. These taxes are payable to the City when a building or other development permit is issued. The outlook for TDT revenue is very uncertain, given limited development during the current economic downturn.

Potential Other Funding Sources for Future Projects

The following funding sources and strategies may be available to the City in addition to the established programs listed above.

Department of Energy: Energy Efficiency and Conservation Block Grants (EECBG)

This program was initially funded through the American Recovery and Reinvestment Act of 2009. The current funding authorization expired in April 2012. Future funding for this program is currently uncertain. The program provided formula grants to states and competitive grants for projects that reduce fossil fuel emissions, reduce total energy use of eligible grantees, and improve energy efficiency of transportation and other sectors. Tualatin may be eligible for competitive grants if this program is funded in future federal budgets.

Local Improvement Districts (LID)

LIDs are created by property owners within a district of a city to raise revenues for constructing improvements within the district boundaries. LIDs may be used to assess property owners for improvements that benefit properties and are secured by property liens. Property owners typically enter into LIDs because of the economic or personal advantages of the improvements. The City would work with property owners to acquire financing at lower interest rates than under typical financing methods. The formation of LIDs is governed by state law and local jurisdictional development codes. LID revenues can only be used on capital projects. LID revenues can be combined with other revenue sources to fully fund projects.

Transit Utility Fee

A number of jurisdictions in Oregon have implemented transportation utility fees that fund road system maintenance, transportation improvements, and transit service. The city of Corvallis, Oregon recently enacted a Transit Utility Fee in 2011 to support transit operations. These fees are typically collected on monthly residential and business utility bills and assessed on a per-housing unit basis, with businesses and industry charged rates based on the type of business or number of employees. A modest monthly transit utility fee could fund capital improvements and transit operations in Tualatin. Fee revenue can also be used to support or improve existing transit services in Tualatin, like the Tualatin Chamber of Commerce Shuttle service. A transit utility fee would provide dedicated and reliable funding for transit projects identified in the Transit Plan.

Urban Renewal Areas

The City of Tualatin has successfully implemented two urban renewal areas over the past 25 years in the central area and Leveton. Both Urban renewal areas have expired and are no longer collecting revenue. Urban Renewal Areas (URA) remain an option for the City in the future whereby tax increment financing (TIF) can be used for a variety of improvements within the URA. With TIF, the county assessor "freezes" the assessed value of properties within the URA and the property taxes collected above those that were collected when the property values were frozen are used to pay for improvements within the URA. This financing method assumes that property values within the urban renewal area will increase over time. URA designations are primarily used as an economic development tool, but may be useful for targeting areas in the City with serious improvement needs.

Revenue and General Obligation Bonds

Bonding allows municipal and county government to finance construction projects by borrowing money and paying it back over time, with interest. Financing requires smaller regular payments over time compared to paying the full cost at once, but financing increases the total cost of the project by adding interest. General Obligation Bonds are often used to pay for construction of large capital improvements and must be approved by a vote of the public. These bonds add the cost of the improvement to property taxes over a period of time. Tualatin could consider issuing a General Obligation Bond to pay for significant transportation improvement projects identified within the City.

Parking Fees

The City does not currently charge for parking, but does charge an annual fee to business owners in the "core area parking district" that funds parking maintenance in the immediate core area. Income generated by charging parking fees could be used to implement a variety of transportation projects. The collection system would require purchase of parking meter infrastructure, careful study of where to install meters, and analysis of the appropriate fee amount to charge drivers.

Prioritization

Prioritization of projects within this TSP is separated into three categories: short-term, medium-term, and long-term. Short term projects are expected to be built within 0-5 years, while medium-term are 5-10 years, and long-term projects are expected to be built in the 10-20 year time frame. Prioritization is determined based on a combination of the most important projects to implement first, the ease of implementation, and the potential cost – some projects will take a number of years to identify and secure funding. Some projects will also need regional coordination and support, which may take time to secure an agreement. Prioritization is an estimate: long-term projects may be implemented sooner than 10-20 years due to funding becoming available, a high degree of community support or other factors. The suggested priority for projects in this TSP is a general guide, and not a required timeframe.

Fiscally Constrained TSP Project List

Based on an analysis of existing and likely future funding sources, the Project Team assumed the City of Tualatin will have around $16 million in funds for transportation over the next 20 years. All projects currently labeled short and medium-term projects fall within this constrained list, with the exception of upgrading SW Myslony Street (R5). The fiscally constrained list represents the likely projects that the City will be able to fund before the next TSP update. The long-term priorities (and the project on SW Myslony Street) that are more expensive and complex are the preferred transportation system in Tualatin, and the City will need to look for additional funding such as grants and potential borrowing strategies to implement these projects. These projects will also likely require a suite of funding strategies to implement.

Policy and Code Language

In preparing implementation measures for the TSP, the project team evaluated the City's TSP and development code for compliance with the TPR and the RTFP. These state and regional regulations are intended to increase the amount of coordination between public agencies, protect transportation investments, support efficient urban development, and promote the use of modes other than single-occupancy vehicles . The project team found that the TSP and development code were largely in compliance with the TPR and RTFP, but that some updates to policy and code would be needed for full compliance. The evaluation findings are included in the TSP as Appendix F.

There were limited compliance issues and needed amendments identified through the process of evaluating the City's development code against TPR and RTFP requirements. The proposed code amendments represent refinements to the code, and in most cases they are minor or administrative. The following represent the types of amendments proposed to implement the TSP and comply with state and regional regulations:

- Supporting more communication between the City and transportation-related agencies on applications for architectural review and proposed plan amendments
- Extending requirements for short and direct pedestrian and bicycle routes to general multi-family housing, commercial, industrial, public, and semi-public development
- Treating long and wide driveways more like streets in terms of lining up and connecting with other streets
- Setting up conditions when crossings on transit streets need to be provided
- Allowing on-street parking to count toward off-street parking requirements
- Differentiating existing bicycle parking requirements into long-term and short-term bicycle parking
- Permitting on-street freight loading under certain conditions

These proposed amendments will be carried through the hearings and adoption process concurrently with the TSP document itself. Language for proposed code changes can be requested from City Staff.

Tualatin TSP Policies

The following TSP policies were included in each of the modal plans, and repeated here for quick reference.

Functional Classification

- **Functional Classification Policy 1:** Major and minor arterials will comprise the main backbone of the freight system, ensuring that freight trucks are able to easily move within, in, and out of the City
- **Functional Classification Policy 2:** Continue to construct existing and future roadways to standard when possible for the applicable functional classification to serve transportation needs within the City

Roadway

- **Roadway Policy 1:** Implement design standards that provide clarity to developers while maintaining flexibility for environmental constraints.
- **Roadway Policy 2:** Ensure that street designs accommodate all anticipated users including transit, freight, bicyclists and pedestrians, and those with limited mobility.
- **Roadway Policy 3:** Work with Metro and adjacent jurisdictions when extending roads or multi-use paths from Tualatin to a neighboring City.

Access Management

- **Access Management Policy 1:** No new driveways or streets on arterial roadways within the City, except where noted in the TDC, Chapter 75, usually when no alternative access is available
- **Access Management Policy 2:** Where a property abuts an arterial and another roadway, the access for the property shall be located on the other roadway, not the arterial
- **Access Management Policy 3:** Adhere to intersection spacing included in Chapter 75 of the TDC
- **Access Management Policy 4:** Limit driveways to right-in, right-out (where appropriate) through raised medians or other barriers to restrict left turns
- **Access Management Policy 5:** Look for opportunities to create joint accesses for multiple properties, where possible, to reduce the number of driveways on arterials
- **Access Management Policy 6:** No new single-family home, duplex or triplex driveways on major collector roadways within the City, unless no alternative access is available
- **Access Management Policy 7:** On collector roadways, residential, commercial and industrial driveways where the frontage is greater or equal to 70 feet are permitted. Minimum spacing at 100 feet. Uses with less than 50 feet of frontage shall use a common (joint) access where available

Transit

- **Transit Policy 1:** Partner with TriMet to jointly develop and implement a strategy to improve existing transit service in Tualatin.
- **Transit Policy 2:** Partner with the Tualatin Chamber of Commerce to support grant requests that would expand the Tualatin Shuttle services.
- **Transit Policy 3:** Partner with TriMet, Metro, and neighboring communities to plan the development of high-capacity transit in the Southwest Corridor, as adopted in the Metro High Capacity Transit System Plan.
- **Transit Policy 4:** Partner with TriMet, Metro, and neighboring communities to plan development of high-capacity transit connecting Tualatin and Oregon City, as adopted in the Metro High Capacity Transit System Plan.
- **Transit Policy 5:** Coordinate with ODOT and neighboring communities on conversations related to Oregon Passenger Rail between Portland and Eugene.

- **Transit Policy 6:** Develop and improve pedestrian and bicycle connections and access to transit stops.
- **Transit Policy 7:** Encourage higher-densities near high-capacity transit service.
- **Transit Policy 8:** Metro in the RTP calls for increased WES service frequency. The City will coordinate with TriMet, Metro, and ODOT to explore service frequency improvements and the possible inclusion of a second WES station in south Tualatin.

Bicycle and Pedestrian

- **Bicycle and Pedestrian Policy 1:** Support Safe Routes to Schools (SRTS) for all Tualatin schools
- **Bicycle and Pedestrian Policy 2:** Work with partner agencies to support and build trails
- **Bicycle and Pedestrian Policy 3:** Allow wider sidewalks downtown for strolling and outdoor cafes
- **Bicycle and Pedestrian Policy 4:** Add benches along multi-use paths for walkers throughout the City (especially in the downtown core)
- **Bicycle and Pedestrian Policy 5:** Develop and implement a toolbox, consistent with Washington County, for mid-block pedestrian crossings
- **Bicycle and Pedestrian Policy 6:** Implement bicycle and pedestrian projects to help the City achieve the regional non-single-occupancy vehicle modal targets in Table 16 (earlier in this chapter; its source is the RTFP)
- **Bicycle and Pedestrian Policy 7:** Implement bicycle and pedestrian projects to provide pedestrian and bicycle access to transit and essential destinations for all mobility levels, including direct, comfortable, and safe pedestrian and bicycle routes
- **Bicycle and Pedestrian Policy 8:** Ensure that there are bicycle and pedestrian facilities at transit stations
- **Bicycle and Pedestrian Policy 9:** Create on- and off-street bicycle and pedestrian facilities connecting residential, commercial, industrial, and public facilities such as parks, the library, and school
- **Bicycle and Pedestrian Policy 10:** Create obvious and easy to use connections between on- and off-street bicycle and pedestrian facilities, and integrate off-street paths with on-street facilities

Freight

- **Freight Policy 1:** Continue to coordinate with PNWR and TriMet to ensure that railroad crossings are safe and have few noise impacts on adjacent neighborhoods
- **Freight Policy 2:** Look for opportunities to shift goods shipments to rail to help reduce the demand for freight on Tualatin's roads.
- **Freight Policy 3:** Look for opportunities to create multi-modal hubs to take advantage of the freight rail lines

Transportation Demand Management

- **TDM Policy 1:** Support demand reduction strategies, such as ride sharing, preferential parking, and flextime programs
- **TDM Policy 2:** Partner with the Chamber of Commerce, the Westside Transportation Alliance, major employers, and business groups to implement TDM programs
- **TDM Policy 3:** Explore the use of new TDM strategies to realize more efficient use of the City's transportation system

- **TDM Policy 4:** Support Washington County's regional TDM programs and policies to reduce the number of single-occupancy vehicle (SOV) trips
- **TDM Policy 5:** Promote the use and expansion of the Tualatin Shuttle program

Performance Measures

Metro's *Regional Transportation Plan* requires the following performance measures in a City's TSP: safety, vehicle miles traveled per capita, freight reliability, congestion, and walking, bicycling and transit mode shares to evaluate and monitor performance of the TSP. The Table below includes the measure categories, the specific performance measures for the Tualatin TSP, the applicable system deficiencies, and the associated TSP projects that help address the deficiencies, and thus, help meet the performance measures.

Category	Metro's 2035 Performance Metrics	Tualatin TSP Performance Measure	Tualatin System Deficiencies	Tualatin TSP projects that address the deficiencies
Safety	By 2035, reduce the number of pedestrian, bicyclist, and motor vehicle occupant fatalities plus serious injuries each by 50% compared to 2005.	Reduce fatalities for drivers, walkers, and bikers from existing conditions Address known deficiencies and high-accident areas as high-priority projects Reduce the number of County and State SPIS sites within the City.	The three high crash locations in Tualatin are Tualatin-Sherwood Road/ Boones Ferry, Tualatin-Sherwood Road/ Martinazzi, and SW Nyberg Street/I-5 Southbound ramps. The first two of these roads are also on the Washington County's SPIS list along with the Lower Boones Ferry and Bridgeport intersection. ODOT's nearby SPIS locations are limited to I-5 and OR 99W.	Projects at the Nyberg interchange and I-5 will improve safety for bicyclists and pedestrians. The suite of intersection upgrades at Tualatin-Sherwood Road/ Boones Ferry and Tualatin-Sherwood Road/Martinazzi will address both congestion and safety. Completing the multi-use path network and bicycle improvements near Lower Boones Ferry and Bridgeport will reduce conflicts between vehicles and bicyclists and improve safety for all users.

Category	Metro's 2035 Performance Metrics	Tualatin TSP Performance Measure	Tualatin System Deficiencies	Tualatin TSP projects that address the deficiencies
Congestion	By 2035, reduce vehicle hours of delay (VHD) per person by 10 percent compared to 2005	On Washington County and ODOT owned roads the v/c is less than or equal to 0.99 On City roads, LOS D or E depending on the road In downtown Tualatin (a Metro designated Town Center) – 2-hour peak hour standards: • First peak hour the v/c is less than or equal to 1.1 • Second peak hour the v/c is less than or equal to 0.99	Analysis shows two intersections not meeting standards (SW Teton Ave/SW Tualatin Road, and SW Martinazzi Ave/SW Sagert) which increased to 11 intersections in the future conditions analysis	Roadway capacity and intersection optimization projects improve traffic flow and help maintain future congestion within the existing standards. Additionally, the TDM/TSM programs, increased transit, and more complete bicycle and pedestrian network will help reduce vehicle demand on roads within Tualatin. The preferred system of transportation improvements meets the relevant requirements for Town Centers.

Category	Metro's 2035 Performance Metrics	Tualatin TSP Performance Measure	Tualatin System Deficiencies	Tualatin TSP projects that address the deficiencies
Freight Reliability	By 2035, reduce vehicle hours of delay truck trip by 10 percent compared to 2005	Reduce vehicle delay for truck trips on identified truck routes Improve reliability for truck trips on identified truck routes	A number of freight routes within the City experience delay currently, including the roads around the downtown core (SW Tualatin-Sherwood Road, SW Boones Ferry Road, and SW Martinazzi Avenue). Travel times during the afternoon peak hour are not predictable, and delay can vary from day to day, increasing transportation costs for businesses that rely on shipping.	Optimizing signal timing on regional roadways, encouraging off-peak travel on both SW Herman Road, and SW Tualatin-Sherwood Road help reduce truck delay. Capacity projects on Tualatin-Sherwood Road, sections of Avery, Teton, Herman, Myslony, and others, as well as turn lane, intersection configurations, and coordinated signals at specific locations help reduce vehicle hours of delay.

Category	Metro's 2035 Performance Metrics	Tualatin TSP Performance Measure	Tualatin System Deficiencies	Tualatin TSP projects that address the deficiencies
Walking, Biking, Transit, and Non-SOV	By 2035, triple walking, biking, and transit mode share compared to 2005. Town Center mode share is 45-55% non-drive alone modal target for Downtown Tualatin and 40-45 percent for other areas of the City.	Implement policies and projects to move towards the regional non-SOV mode share for the appropriate areas in the City Work toward achieving the Metro non-SOV mode share targets of 45 to 55 percent for Downtown Tualatin and 40 to 45 percent for other areas of the City.	There are a number of gaps in the sidewalk, bike lane, and multi-use path network in Tualatin. There are also few wayfinding signs to direct pedestrians and bicyclists to the existing multi-use paths. Current mode share for those traveling to work who live in Tualatin is 77.6 percent drive to work alone, 7.4 percent carpool, 4.2 percent take transit, 2.9 percent walk, and 0.4 percent bicycle.	The TDM/TSM programs, increased transit, and more complete bicycle and pedestrian network will help increase the percentage of residents in Tualatin who walk, bicycle, take transit, and carpool in the downtown core and other areas of the City.
Climate Change	By 2035 reduce transportation related carbon dioxide emissions by 40 percent below 1990 levels	Strive to reduce VMT per capita by 10 percent compared to 2010	There are more jobs in Tualatin than there are workers to fill those jobs in the City, additionally, 75 percent of residents in Tualatin work outside of the City, which increases VMT per capita.	The TDM/TSM programs, increased transit, and more complete bicycle and pedestrian network will help decrease per capita VMT and the associated transportation-related emissions to meet this performance measure.

The projects and policies included in the Tualatin TSP meaningfully contribute towards Metro achieving its performance metrics by addressing safety concerns, reducing congestion, improving freight reliability, and providing non-driving options that help affect mode split and VMT per capita. Combined with other metropolitan area cities Tualatin's TSP will help Metro reach its 2035 Performance Targets.