

CITY OF FEDERAL WAY BICYCLE AND PEDESTRIAN MASTER PLAN

1. INTRODUCTION AND BACKGROUND

Introduction

Purpose

The overall goal of the Bicycle and Pedestrian Master Plan is to set the stage for the city's long-term vision of a safe, accessible, and connected bicycle and pedestrian network. Implementation of the plan will improve walking and biking conditions throughout the City of Federal Way with an emphasis on connecting neighborhoods, schools, transit, business districts, and recreational facilities. Another key objective of the plan is to increase opportunities for physical activity within the city. Currently, Federal Way has a higher percentage of residents who are overweight than the King County average. By making walking and bicycling safer and more convenient, there will be greater incentive to walk and ride bikes for health and recreation, as well as for transportation.

The Bicycle and Pedestrian Master Plan is a stand-alone document that will be incorporated into the Transportation Element of the City's Comprehensive Plan as part of the next annual update. The Master Plan provides an updated inventory of pedestrian and bicycle facilities, analyzes the functionality of the overall non-motorized network, and identifies potential for improvements to the network that address connectivity, comfort and safety.

Plan Development

The Bicycle and Pedestrian Master Plan was developed over a period of approximately 18 months with funding made available through the Communities Putting Prevention to Work (CPPW) grant program. Specifically, the City of Federal Way was awarded a HEAL (Healthy Eating Active Living) grant that provided funding for staff time to work on the project and also provided the resources of technical consultants, non-profit organizations, and university staff researchers. HEAL grants were specifically awarded to agencies and organizations who were working on projects that ultimately will result in improved health for King County's residents.

An advisory committee was established that met regularly between March and September, 2011. The advisory committee helped develop draft goals and objectives, (Section 2), and provided input on the proposed bicycle and pedestrian network facilities and prioritization criteria. In addition to the advisory committee input, an electronic survey was



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conducted early in the plan development process to learn more about the habits and preferences of those who are biking and walking in Federal Way. Two public workshops were conducted in June and November of 2011. The June workshop focused on gathering input on existing conditions, and the November workshop focused on the draft proposed facilities networks. The city also launched a social media website “Engage Federal Way” that provided an interactive online “Town Hall Meeting” environment where citizens could share ideas and opinions about walking and biking, as well as comment on the draft proposed bicycle and pedestrian networks.

Moving Forward

The master plan sets the stage for moving forward within the context of the overall Comprehensive Plan Transportation Element. It identifies strategies and resources that can be leveraged to realize the identified network improvements. Planning-level cost estimates are provided for the facility network improvements identified in the plan (Section 5). Prioritization criteria were developed that will be used to rank the identified facility network improvements as they are moved from this plan to line items in the city’s Capital Improvement Program (CIP) and Transportation Improvement Plan (TIP). Multi-modal level of service analysis (MMLOS) was prepared for representative roadway typologies. This analysis will help the city evaluate the relative level of improvement that might be expected from various facility modifications; for example - adding a sidewalk section or bike lane to a specific roadway segment.

Overall Goals

The overall goals of the Bicycle and Pedestrian Master Plan will guide the city as it moves forward with plan implementation. A summary of the goals is provided below:

Bicycle and Pedestrian Network and Support Facilities – Develop a network that allows for safe and convenient movement throughout the city and to the regional network.

Safety, Security, and Equity - Provide safe connections between neighborhoods, business centers, parks and recreation facilities and schools, and consider the needs of all residents, especially those who do not have access to private vehicles.

Transportation and Land Use – Consider adjacent land uses and their potential to generate walking and biking travel when determining where walking and cycling improvements are most needed.

Education and Awareness – Open the lines of communication so that all users of the transportation network have improved awareness of the need to share the roadways and trails, and recognize and observe traffic safety laws.

Maintenance and Operations – Ensure that biking and walking facilities are kept in good condition and work well for the intended users.

Background

Why Update the Plan?

The Bicycle and Pedestrian Master Plan will update the current *Non-motorized Modes* section of the Transportation Element of the Federal Way Comprehensive Plan during the next annual comprehensive plan update process. The Non-motorized Modes section was last revised in 2003. Since then, there have been notable shifts in Federal, State and regional transportation policy related to the importance of supporting walking and biking or “active transportation” in the transportation network. While the importance of walking and biking has always been recognized in the City’s Comprehensive Plan, transportation funding decisions are placing increased emphasis on inclusion of active transportation in proposed transportation improvement projects and programs. The Bicycle and Pedestrian Master Plan sets an important foundation to continue the city’s success in securing transportation project and program funding.

The Bicycle and Pedestrian Master Plan establishes an overview of the current status of walking and biking facilities, including barriers and opportunities, and gauges citizen opinion about walking and biking preferences.

The City of Federal Way will be commencing work on a major comprehensive plan update beginning in 2012. The Bicycle and Pedestrian Master Plan will be further refined as part of this update process. It will be incorporated into the Transportation Element with greater emphasis on prioritization of the identified network improvements, and incorporation of network improvements into short-term and long-term capital improvement plans.

Federal Policy

On March 11, 2010, the Federal Department of Transportation (DOT) passed the *Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations*. The purpose of the policy statement is “...to reflect the Department’s support for the development of fully integrated active transportation networks. The establishment of well-connected walking and bicycling networks is an important component for livable communities, and their design should be a part of Federal-aid project developments.”

This policy not only recognizes the importance of walking and biking facilities, it encourages transportation agencies to “go beyond the minimum requirements and proactively provide facilities that foster increased use by bicyclists and pedestrians”. Further, the policy includes language to the effect that the DOT Secretary can withhold approval of projects that would negatively impact bicyclists and pedestrians. The policy also specifies that state and regional transportation agencies provide documentation of how specific transportation fund expenditures include investment in pedestrian walkways and bicycle transportation facilities.

As many of the major transportation facility improvements in Federal Way include Federal funding, the development of an up-to-date bicycle and pedestrian master plan is an important tool for the city to position itself favorably in the competitive transportation-funding arena.

Washington State Policy

The Growth Management Act

The Washington State Growth Management Act (GMA) governs most comprehensive planning activities in the state. The GMA requires that all cities and counties, within designated counties, develop and implement comprehensive plans. These plans are required to include two elements that are particularly relevant to bicycle and pedestrian planning; a Transportation Element and a Parks and Recreation Element. The Bicycle and Pedestrian Master Plan is consistent with both of these elements and overlaps with elements of the Parks and Recreation Element – specifically with regard to existing and proposed trail networks.

One key requirement of the GMA is to establish transportation levels of service (LOS) and concurrency standards. Despite the best intentions of the GMA to promote livable communities and encourage transportation alternatives, traditional LOS measures based solely on motorized traffic can often contradict these goals. An example of how this can occur is when maintaining established LOS requires the addition of vehicle lanes, leaving less right-of-way available for bicycle or pedestrian facilities. However, local jurisdictions have the ability to determine what the local LOS standards look like. This means that jurisdictions can adopt multi-modal levels of service (MMLOS) that consider modes other than just vehicular travel. Many communities planning under the GMA are implementing or considering a MMLOS approach to their transportation planning.

The Washington State Department of Transportation

The Washington State Department of Transportation (WSDOT) manages state transportation facilities. The WSDOT develops and implements a variety of plans ranging from statewide system plans to specific corridor plans. Any proposed bike and pedestrian facilities that use state rights-of-way need to be planned consistent with state plans. In Federal Way, Pacific Highway South (SR99), SW Dash Point Road (SR509) Highway 18 (South 348th Street), and Enchanted Parkway (SR161) are state transportation facilities.

In addition to the development of these specific corridors, the WSDOT also administers the Federal *Safe Routes to School* program.

Safe Routes to School

The Safe Routes to School (SRTS) program provides technical assistance and helps fund improvements that encourage walking and biking to school with an emphasis on safety. In Washington State, the program is funded with both state and federal monies. There are three elements to the Safe Routes to School program – engineering, education, and enforcement. The City of Federal Way coordinates with Federal Way Public Schools on applying for and implementing SRTS improvements for schools within the city limits.

The proposed pedestrian network improvements (Section 4) take into consideration the Federal Way School District’s recommended school access routes. The Bicycle and Pedestrian Master Plan will reinforce ongoing efforts to improve conditions for walking and biking to and from school.

Complete Streets Legislation

In July 2011, the Washington State Legislature passed the *Complete Streets Bill* (ESHB1071). The Complete Streets Bill recognizes the importance of planning for main streets that provide safe access for all users and also protect and preserve a community’s character. The bill specifies that a grant program be established to fund complete streets projects. Specific goals of the bill include: improving health by increasing walking and biking; improving safety with wider sidewalks, street trees and bicycle lanes; protecting the environment and reducing congestion by providing alternatives to single occupant vehicle driving; and preserving community character by involving citizens in the transportation improvement process.

Following passage of this bill, the WSDOT is developing a proposed grant program to fund projects that meet criteria consistent with the bill. The purpose of the proposed grant program is to encourage street designs that include all users including bicyclists, pedestrians, motorists and public transit users. The grant program also places emphasis on the importance of complete streets relative to economic development, the importance of connecting housing and employment, and the importance of supporting infill development. To be eligible for the grant, a project must be located in a community that has adopted local Complete Streets legislation. As part of its CPPW grant program participation and in concert with the development of this plan, Federal Way is currently considering a local Complete Streets ordinance.

Regional Policy

There are two regional agencies with which the City of Federal Way coordinates: the Puget Sound Regional Council (PSRC) and King County.

Puget Sound Regional Council

The Puget Sound Regional Council (PSRC) serves as the region’s Metropolitan Planning Organization (MPO) and Regional Transportation Planning Organization (RTPO). The PSRC has adopted VISION 2040 as the growth management, environmental, economic, and transportation vision for the central Puget Sound region. The Vision 2040 Transportation element’s overarching goal is that “The region will have a safe, cleaner, integrated, sustainable, and highly efficient multimodal transportation system that supports the regional growth strategy and promotes economic and environmental vitality, and better public health.”

Similar to Federal and State Policy, the regional transportation policy contained in Vision 2040 emphasizes the importance of increasing travel mode choice and context-sensitive design that supports and connects regional mixed use and business centers. The regional plan calls for increased investment in facilities and programs that support bicycle and pedestrian travel. Under the GMA, the PSRC must certify that city and county transportation elements are “consistent” with the regional plan. PSRC planning also guides the application of federal and state transportation funding for projects within the region.

The PSRC also has an active Regional Bicycle/Pedestrian Advisory Committee that focuses on implementing regional bicycle pedestrian implementation strategies contained in the Transportation element of Vision 2040.

King County

King County adopts countywide planning policies that Federal Way’s Comprehensive Plan must be consistent with. King County has also has adopted Countywide Level of Service Framework Guiding Principles that encourage King County jurisdictions to adopt a multi-modal LOS approach and specifically adopt a non-motorized component to their LOS standard.

City of Federal Way Comprehensive Plan

The Federal Way Comprehensive Plan (FWCP) defines Federal Way’s strategy for managing future growth and physical development. The plan is updated consistent with the requirements of the GMA and the regional and countywide planning policies.

Transportation Element

The Bicycle and Pedestrian Master Plan will update the existing non-motorized section of the Transportation Element at the time that the comprehensive plan is next updated. The proposed bicycle and pedestrian facilities networks will be considered as projects in the updated Transportation Element and its component of the updated Capital Facilities program.

Parks and Recreation Element

The Bicycle and Pedestrian Master Plan is consistent with the Parks and Recreation Element and includes the updated trail planning data as part of the overall bicycle and pedestrian network. Plan implementation considers the potential to address goals of both the recreation component and transportation component to the trail system.

CPPW Grant Program

Communities Putting Prevention to Work (CPPW) is a national initiative to prevent chronic disease and promote health through policy, systems and environment changes. Public Health Seattle/King County was one of 55 sites throughout the United States awarded grant funding through the Centers for Disease Control & Prevention (CDC).

The City of Federal Way was awarded a CPPW HEAL (Healthy Eating Active Living) grant from Public Health Seattle/King County to develop a Bicycle and Pedestrian Master Plan as part of a county-wide effort to increase physical activity in King County cities.

Along with the financial resources of the grant, the city had access to consultant assistance from the team of *SvR Design Company* and *Alta Planning + Design*. The consultant team analyzed Federal Way's existing bicycle and pedestrian facilities, prepared recommended goals and objectives, a citywide bicycle and pedestrian network, prioritization criteria for selecting facility improvement priority, and planning level cost estimates of identified network improvements.

In addition to the assistance of the SvR/Alta consultant team, the CPPW grant also brought to Federal Way the resources of the *Cascade Bicycle Club*. The Cascade Bicycle Club conducted two half-day workshops in Federal Way related to the development of the Bicycle and Pedestrian Master Plan. The first workshop (January 19, 2011) was on the topic of *Complete Streets*. The second workshop (June 29, 2011) was on the topic of *Multi-Modal Level of Service (MMLOS)*. Both of these workshops addressed the specific needs of pedestrians and bicyclists for safe and convenient access to the transportation network.

Complete Streets are defined as roadways that are designed for users of all ages and abilities. Complete streets consider the needs of pedestrians, bicycle riders, and transit as well as automobiles and freight. As part of the complete streets workshop, city staff, elected officials and citizens conducted a "walking audit" exercise to examine some existing rights-of-way and observe what was and wasn't working for pedestrians and cyclists.

Multi-Modal Level of Service - Related to the complete streets philosophy, is a relatively new approach to analyzing transportation level of service, (LOS), that addresses multiple modes or Multi-Modal Level of Service, (MMLOS). Traditional LOS analyses address how roadways function from the standpoint of motorized travel. Multi-Modal Level of Service analyses examine how roadways function from the standpoint of multiple users including bicycle and pedestrian travel. As part of the CPPW grant program a MMLOS
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analysis was prepared for a representative sample of Federal Way roadways and the findings are summarized in Chapter 3 “Existing Conditions and Analysis”.

2. GOALS AND OBJECTIVES

Overall goal

Goal: *Enhance community livability, health, and transportation by providing a connected system of pedestrian and bicycle ways that is integrated into a coordinated regional network (EXISTING TG4).*

Objective:

- *Increase the number of trips made by bicycling and walking in Federal Way*

Bicycle and Pedestrian Network and Support Facilities

Goal: *Develop a pedestrian and bicycle network that is accessible to all residents of Federal Way.*

Objectives:

- *Improve pedestrian and bicycle infrastructure connectivity and provide more places to walk and cycle.*
- *Build pedestrian and bicycle facilities on new roadways, and retrofit older roadways to complete the system when feasible.*
- *Complete missing links in pedestrian and bicycle infrastructure on existing street network as a priority measure.*
- *Improve connections to transit for pedestrians and bicyclists.*
- *Develop a bicycle network that supports a diversity of cycling abilities and interests.*
- *Encourage high-quality, flexible and secure bicycle parking at destinations.*
- *Provide wayfinding tools for pedestrians and bicyclists.*

Safety, Security, and Equity

Goal: *Ensure that the pedestrian and bicycle system is safe and functional for all users.*

Objectives:

- *Improve facility safety through design, operations, maintenance and education.*
- *Effectively enforce laws that affect bicyclist and pedestrian safety.*
- *Conduct outreach and education to increase safety and awareness for pedestrians, bicyclists and motorists.*
- *Ensure that pedestrian and bicycle facilities are accessible to everyone in the community.*

- *Apply traffic calming techniques to address safety issues associated with vehicle speeds and volumes.*

Transportation and Land Use

Goal: *Create efficient and convenient methods for pedestrians and bicyclists to travel to the places where they live, shop, work, and play.*

Objectives:

- *Connect the pedestrian and bicycle network to destinations such as City Center, commercial and business districts, parks, trails, schools, and recreation sites.*
- *Require implementation of pedestrian and bicycle facilities as part of required frontage improvements associated with development.*
- *Coordinate pathway projects with parks and open space agencies.*
- *Develop “connector trails” to link destinations and facilities not easily accessible on the existing street network.*
- *The form, density and design of new commercial and business centers should support pedestrian and bicycle trip-making.*

Education and Awareness

Goal: *Foster a community culture supportive of walking and biking as important modes of transportation and recreation.*

Objectives:

- *Support creative local walking and biking events*
- *Develop programs that encourage people to shift from driving to walking and biking for short trips within the City.*
- *Encourage walking and biking to community events.*
- *Strengthen local walking and biking organizations.*
- *Promote Federal Way as a walkable, bikeable, and accessible city.*
- *Provide easily accessible information about the pedestrian and bicycle system.*

Maintenance and Operations

Goal: Improve the bicycle and walking environment through enhanced traffic operations and maintenance

Objectives:

- *Monitor bicycle and pedestrian facilities to ensure that safety is not being degraded over time.*
- *Update pedestrian and bicycle facilities where appropriate to incorporate best practices.*
- *Manage traffic control systems to better facilitate bicycle and walking travel along strategic corridors.*

3. EXISTING CONDITIONS AND ANALYSIS

Federal Way's Current Bicycle and Pedestrian Network

The City of Federal Way incorporated in 1990. The existing built environment is largely characterized by conventional suburban style development that took place in the decades of the 1960s through 1980s prior to incorporation. The suburban development pattern features separated land uses connected by an arterial roadway network with high volume and high-speed traffic. Residential neighborhoods were developed with a predominance of curvilinear streets and cul-de-sacs and limited through-street connections. This development pattern results in cross-town trips, motorized and non-motorized, being funneled to the same high volume, high speed corridors. This lack of connectivity in the existing built roadway network is the key challenge in developing a safe and convenient network of bicycling and pedestrian facilities in Federal Way.



Example of typical residential suburban-style development

Public Health Statistics

According to King County public health data, adult residents of Federal Way are more likely to be overweight or obese than the King County average. The following are the most recent statistics on overweight. <http://www.kingcounty.gov/healthservices/partnerships/cppw/kcprofile.aspx>

Obesity Trends

King County: 19.8%

Federal Way: 28.1%

Overweight

King County: 54.4%

Federal Way: 63.1%

In examining health statistics related to the built environment on a national basis, there is a general correlation between the rates of overweight and obese population and the

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degree to which that population has safe and convenient access to pedestrian and bicycle facilities. In other words, people who live in areas where they can safely and conveniently walk and bike to schools, parks and retail centers tend to be less overweight than people who live in areas where they do not have safe and convenient pedestrian and bicycle access and therefore make more trips in private automobiles.

Improving conditions in Federal Way for biking and walking may have an overall benefit to residents' health as well as improving transportation choices, safety and mobility for citizens who do not have access to a car.

EXISTING FACILITIES

Existing Bicycle Facilities

There are currently approximately 27 miles of bicycle facilities in Federal Way. Existing facilities consist of the shared use Bonneville Power Administration (BPA) Trail that runs northeast to southwest through the center of the city, and a mixture of bike lanes and wide shoulders. Where bike lanes exist, they often begin and end abruptly as they have been constructed in conjunction with transportation improvements that are completed on a segment-by-segment basis as funding is available. While legally bicycles are allowed on all public rights-of-way, many if not most potential cyclists do not feel comfortable riding on high-volume, high-speed roadways.

Existing Pedestrian Facilities

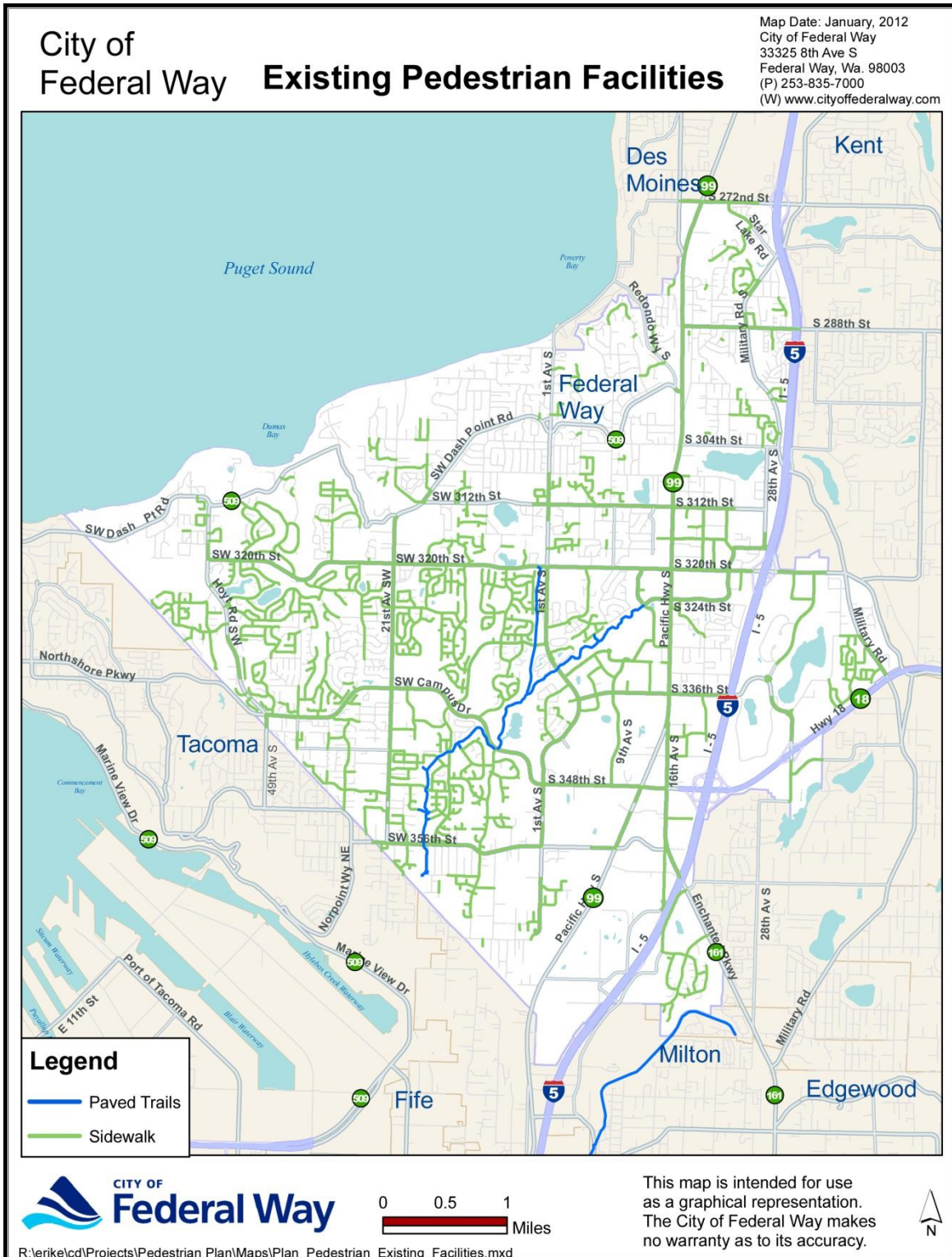
There are currently approximately 247 miles of pedestrian facilities in Federal Way. Existing facilities consist of sidewalks, the BPA Trail, and recreational trails through existing park facilities. Most of the arterial roadways have sidewalk facilities. The city has code language requiring sidewalk facilities in most new developments. Therefore, areas of the city where development has taken place from the 1990s to the present, have a fairly complete network of pedestrian facilities. However, pre-incorporation subdivisions have a general lack of sidewalk facilities.

In general, there has been more public and private investment in pedestrian facilities than bicycle facilities in Federal Way, and the pedestrian network provides a greater level of connectivity to retail centers than the bicycle network. It should be noted however, that even with sidewalk facilities, many Federal Way residents do not find walking to retail centers a pleasant experience due to the high volume and high speeds of traffic on arterial corridors.



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ANALYSIS OF EXISTING CONDITIONS

Analysis of existing walking and bicycling conditions in Federal Way included the following:

- Survey solicitation of Federal Way citizens' input on the experience of using existing pedestrian and bicycle facilities;
- A windshield survey of the roadway network conditions;
- An assessment of land use patterns and related indicators of potential for "active transportation" (walking and biking);
- Coordination with Federal Way School District to provide additional pedestrian facilities along Safe Routes to School routes;
- An evaluation of the available right-of-way on primary corridors to determine whether bicycle facility improvements can be accommodated; and
- An analysis of the existing multi-modal level of service (MMLOS) for a sampling of Federal Way road segments and intersections.

StreetPlan Analysis

Consultants (Alta) used the StreetPlan analysis method to identify corridors in Federal Way with the greatest potential for striping bike lanes and buffered bike lanes. StreetPlan analysis does not evaluate other potential bikeway treatments such as shared lane markings, bicycle boulevards, or signed bike routes. Factors used in the analysis include:

- Current roadway width
- Raised or painted median
- Number and width of travel lanes
- Presence and number of turn lanes and medians
- Location and utilization of on-street parking
- Presence of roadway shoulder

In some cases, a bike lane retrofit is simple and only requires the painting of a bike lane in readily available roadway space. Other corridors may be more challenging and require a tradeoff to stripe bike lanes. The analysis is useful for assessing where projects can be completed easily and where adding bike lanes may be more difficult. In cases where tradeoffs are necessary, for example - narrowing or eliminating a travel lane or removing existing on-street parking - more detailed engineering analysis, public outreach and traffic impact studies would be warranted.

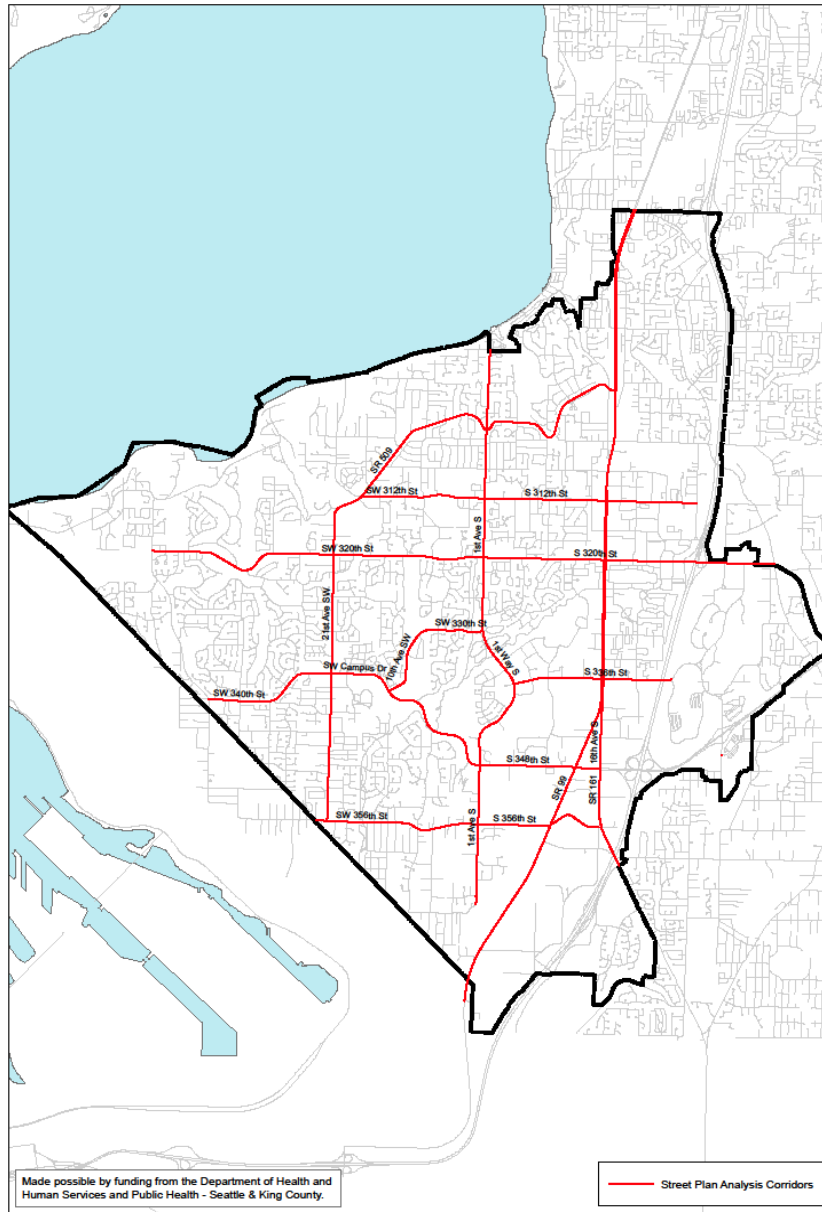
City staff worked with Alta to select the corridors to be analyzed and provided data to run the analysis. The roadways analyzed were typically in excess of 80-foot wide and characterized by multiple motor vehicle lanes, posted speeds of 35 miles per hour or greater, and average daily vehicle trips exceeding 8,000 vehicles per day. Riding on this

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type of roadway without a dedicated bicycle facility will not be comfortable for the majority of cyclists. Options for improving user comfort along these corridors include a standard bicycle lane of 5 feet, or the greater separation from motor vehicle traffic afforded by a buffered bicycle lane.

Figure 3.X Corridors Analyzed in StreetPlan Analysis



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The following minimum dimensions were used in the model and are based on existing City standards:

- Travel lane width: 11-12 Feet
- Right turn lane width: 11-12 Feet
- Left or Center turn lane width: 11-12 Feet
- Parking lane width: 7-8 Feet

Potential StreetPlan Outcomes

Analysis corridors were developed based on previously proposed facilities, public input, and staff input. In some instances, the StreetPlan model recommends multiple possible treatments for a given roadway segment. To determine the appropriate treatment, the model organizes its recommendations in order of the most preferred facility type. The following are the specific treatment recommendations considered:

Restripe Existing Outside Lanes – In this option, enough surplus road space exists to simply add the bike lane stripes and stencils without impacting the number of lanes or configuration of the roadway. This is the easiest option to implement.

Reconfigure Travel Lanes and/or Parking Lanes – In this option, bike lanes can be added by simply adjusting wide travel lanes or parking lanes within the established minimums presented above. No reduction in the number of travel lanes is needed.

Implement ‘4 to 3’ Road Diet – In this option, a reconfiguration of the existing travel lanes may be necessary. In areas with two travel lanes in either direction, it may make sense to remove two travel lanes and use this roadway width to stripe a center turn lane and two 5-foot bike lanes. This treatment may not be appropriate on roads with average daily trips (ADT) above 15,000.

Add Pavement Width and Stripe Bike Lanes – In this option, it is determined that additional right-of-way may be available along the corridor. Where no curbs exist along the segment, it may be possible to pave a new roadway shoulder and stripe bike lanes.

Bike Lanes Will Not Easily Fit – In this last case, the existing roadway geometry will not allow for the addition of bike lanes. Either the selection of an alternative bike route or major reconstruction of the roadway may be necessary to provide continuity in the bikeway network.

Analysis Outcomes

Four scenarios were analyzed as follows:

1. 12-foot motor vehicle travel lanes and 5-foot bicycle lanes;
2. 12-foot motor vehicle travel lanes and 7-foot buffered bike lanes;
3. 11-foot motor vehicle travel lanes and 5-foot bicycle lanes; and
4. 11-foot motor vehicle travel lanes and 7-foot buffered bicycle lanes.

The analysis indicates that there are few opportunities to retrofit bicycle lanes in any of the four scenarios analyzed. However, in all scenarios some opportunities to incorporate bike lanes into the existing roadway were identified and these are summarized below:

SR 509 – Sufficient undeveloped spaces exist within the SR 509 right-of-way to add additional pavement width to the shoulders. During public engagement this corridor, with connection to Dash Point State Park, was mentioned as a desirable connection. Wide shoulders already exist on portions of the corridor, which could be widened and then striped as bike lanes.

312th Street Corridor – Sufficient space exists along most of the 312th Street corridor to retrofit bicycle lanes. This corridor was also identified through public engagement as a desirable east-west connection. Within the corridor, analysis indicates that bike lanes may be difficult to retrofit in several areas. However, visual inspection of the roadway indicates that existing roadway width is likely sufficient in the area west of 1st Avenue to stripe bike lanes, though reconfiguration of the right turn pockets on the east and west legs of the intersection at 1st Avenue and 312th Street may be required. The portion of roadway bisected by SR 99 will need additional analysis to determine how bicycle lanes could be retrofitted.

SR 99 South of 340th Street – Sufficient space exists to retrofit bike facilities on SR 99 south of 340th Street. This roadway was not identified as a potential bikeway corridor during public engagement, but it serves as one of the few through routes in south Federal Way. In many areas bicycles can travel on existing roadway shoulders, though narrow widths in some areas may create uncomfortable travel conditions. If shoulders are widened, this facility may become more comfortable for use by more cyclists.

356th Street Corridor – Existing 2-foot shoulders on S. 356th Street provide a small amount of room for cyclists. It may be possible to obtain additional roadway width from the two-way center turn lane, though careful consideration of intersection treatments would be necessary to ensure that an adequate level of roadway function is maintained.

1st Avenue S – There is potential to retrofit bike lanes on 1st Avenue S. This roadway was identified through public engagement as a desirable bicycling corridor. Existing shoulders could be striped and marked as bike lanes between SR 509 and 312th Street and space could be made for bicyclists south of 312th, though a traffic analysis would be necessary to determine whether roadway function would be significantly impacted. Narrowing the raised median between 330th and 344th streets would be relatively simple, although not inexpensive.

Campus Drive Corridor and 320th Street – Bicycles can be accommodated within the road right-of-way via a separated, shared-use trail. This can be achieved by expanding the existing sidewalk, filling gaps, and improving crossings. It should be noted that solutions like this should not be considered as a substitute for on-street facilities and many cyclists will continue to use the roadway. However, a shared-use trail may provide travel facilities that feel safer and more comfortable for cyclists that would otherwise not

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bike along these roadways – even if a bike lane could be accommodated. Key considerations for a shared use trail option include:

- Providing a trail that is 12-14 feet wide for shared use
- Providing safe bicycle and pedestrian crossing opportunities at roadway intersections
- Providing adequate separation between the roadway and trail

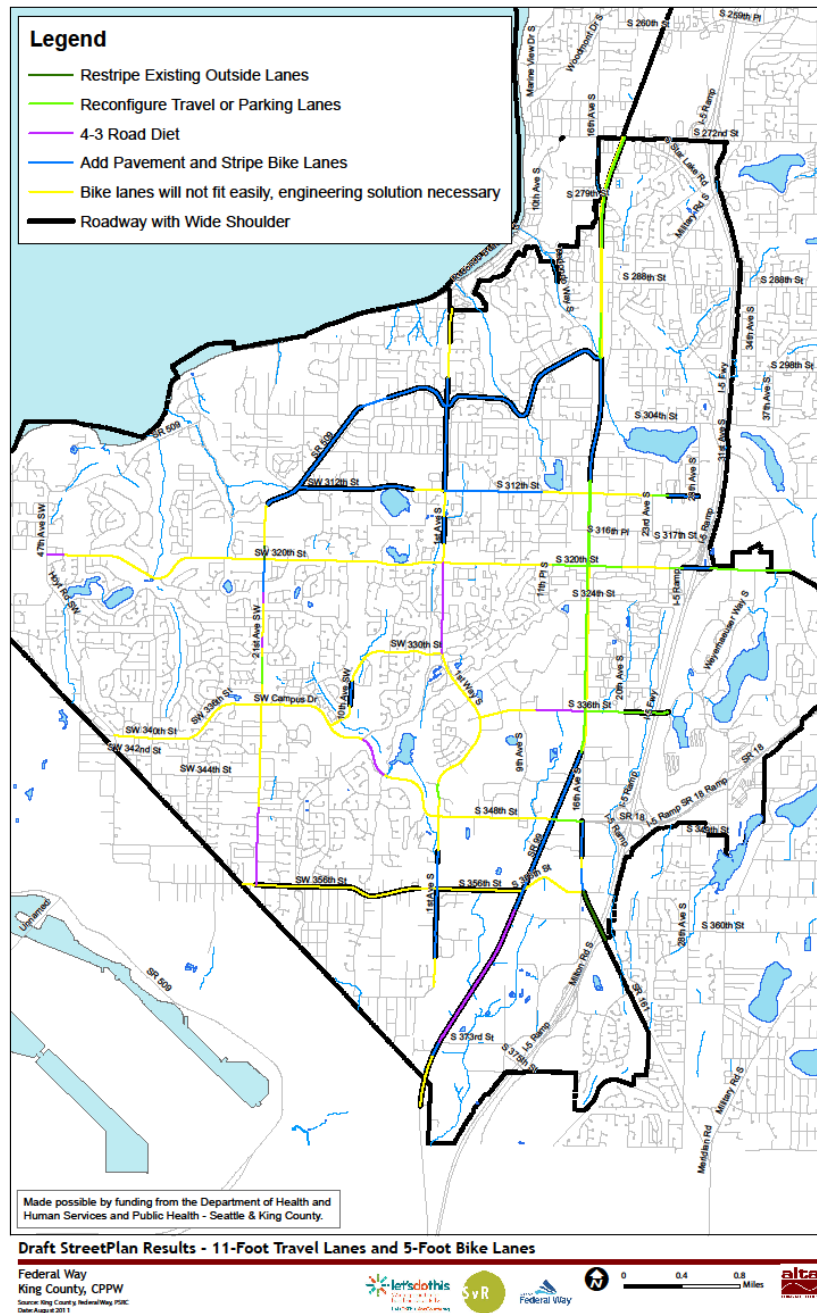


Figure 3.X – Example of StreetPlan Analysis Results Map

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Multi-Modal Level of Services (MMLOS) Analysis

Until recently, transportation engineering and planning in the United States has focused primarily on the movement of automobiles. Roadways are typically designed for and evaluated based on their performance from the perspective of automobile drivers. Level of Service (LOS) is the accepted methodology for measuring the performance of roadways. Often times the roadways with the higher level of service ratings for vehicle travel do not work well for other roadway users. For example, improving the functionality of a street to better serve bicyclists and pedestrians may result in a lower vehicle level of service. Adopting a multimodal LOS provides community benefits similar to adopting a Complete Streets policy. A Complete Streets policy recognizes the importance of considering all roadway users. Multimodal LOS provides for the analysis of the transportation network that helps communities make decisions based on how roadway configurations affect all users.

Resources were available to analyze only a selection of street segments and intersections. Staff coordinated with the consultants to identify representative street segments and intersections to get a basic assessment of how typical street segments and intersections configurations found in Federal Way function for bicycles and pedestrians.

Links

The street segments analyzed (exclusive of intersections) are listed below:

- 28th Av S from 304th to 317th
- 8th Av S from 312th to 321st
- 26th Av SW from 320th to 332nd
- SW 312th St from Dash Point Road (509) to 1st Av S
- S 312th St S from 1st Av to 14th Av
- S 320th St from 1st Ave S to Pac Hwy
- 21st Av SW from 320th to 336th

All segments were analyzed in both directions, with separate calculations made for links within the segment that vary in either demand, control or geometry.

Intersections

The intersections analyzed include:

- 312th Ave S at Pacific Hwy S
- S 320th Street at 1st Ave S
- 8th Ave SW at SW 320th Street
- SW 334th Street at 21st Ave SW

Methodology

Link and intersection Levels of Service calculations were made separately for each mode, using Dowling Associates' Complete Streets LOS, version 3.0. The methodology is described in detail in Appendix X, "Federal Way Multimodal Level of Service Data

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Needs Memo.”

Multimodal Level of Service uses an A-F nomenclature like traditional vehicle LOS. However, the analysis is different. In Federal Way’s adopted LOS, standard volume to capacity ratio is the primary factor, with free-flowing traffic being an A and severely congested being F. This approach isn’t valuable for active transportation. For example a sidewalk with one person walking might receive an A, under traditional LOS approach, but the experience of that pedestrian may be anything but an “A” experience. The current approach to MMLOS is more of a quality of service approach, focusing on the traveler’s perception of how well a facility operates. Factors evaluated for roadway segments include:

For Pedestrians:

- Outside travel lane width
- Bicycle lane/shoulder width
- Buffer presence (e.g. on-street parking, street trees)
- Sidewalk presence and width
- Volume and speed of motor vehicle traffic in outside lane
- Pedestrian density

For Bicyclists:

- Volume and speed of traffic in outside lane
- Heavy vehicle percentage
- Pavement condition
- Bicycle lane presence
- Bicycle lane, shoulder, and outside lane widths
- Number of driveways
- On-street parking presence and utilization
-

Results

Citywide summaries of pedestrian and bicycle Level of Service are described in Figures 3.X and 3.X, respectively. A detailed accounting of the link and intersection level of service findings is provided in **Appendix X**. It is important to note that the intersection LOS symbolized on the figures reflects the crossing with the worst level of service. The levels of service vary widely, but predictably throughout the City, where streets with high traffic volumes, higher traffic speeds and little separation score relatively poorly.

Streets that score more highly typically have one or more of the following features:

- lower traffic volumes,
- separated facilities, or
- physical barriers distancing auto traffic from non-motorized traffic.

Although the percentage of heavy vehicles was held constant throughout the analysis

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area, this factor influences bicycle level of service significantly as well.

Some specific observations about the methodology's application in Federal Way follow:

- The pedestrian link LOS methodology is highly dependent upon separation, and therefore the lack of on-street parking in Federal Way serves to diminish pedestrian LOS.
- The bicycle link LOS methodology is not sensitive to the benefit of on-street bike lanes versus shoulder lanes, when parking is limited, because the calculations assume this space is available to the bicyclist. In the situation where a de-facto shoulder bikeway exists, width and quality of pavement drive the level of service.
- Street segments with meaningful separation between the motor vehicles, bicyclists and pedestrians show the highest level of service on high volume streets.
- Pedestrian and bicycle intersection LOS is sensitive to the number of turning movements that occur simultaneous to the green or walk interval on signalized intersections, and to the distance of the crossing. Bicycle LOS is additionally sensitive to lane width.

Generally speaking, quality of service for both walking and bicycling modes at both links and intersections was positively correlated with separation, and inversely correlated with traffic speeds, traffic volumes, heavy vehicles, turning movements, street width, and pavement quality.

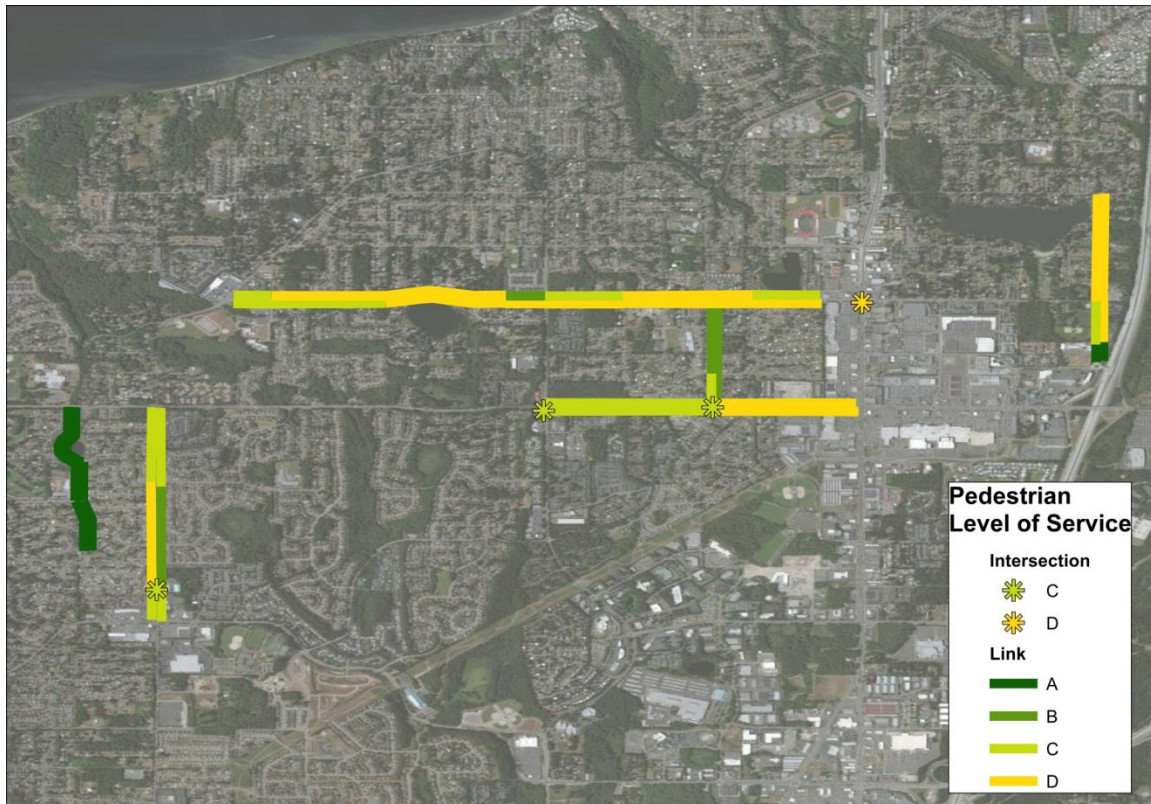


Figure 3.X – Pedestrian Level of Service for Representative Corridors



Figure 3.X – Bicycle Level of Service for Representative Corridors

Potential for Active Transportation

Active Transportation includes any method of travel that is human-powered, but most commonly refers to walking and bicycling. The potential for active transportation is typically measured by considering land use characteristics, density of development, and access to transit. A “heat map” was created by allocating points using the criteria: school, live, work, shop, play, equity and transit.

A summary of the variables used in the analysis is shown below:

School – measured by proximity to public school or university

Live – measured by population and age density per census block group. Density is defined by number of people in a census block group divided by the block’s acreage. Points were assigned based on natural break intervals in the density data.

Work – measured by employment density per census block. Density is defined by number of employees in a census block divided by the block’s acreage. Points were assigned to the ranges of employment density based on natural break intervals in the data.

Play – this category was divided into subcategories based on the type of data available: points of interest and areas (polygons) of interest. All features received points based on their perceived attractiveness and total acreage (polygons only). Once the features were identified and scored, concentric circles, referred to as “buffers”, were drawn around each

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feature at increasing distances. Each distance will be assigned a value and multiplied by the feature base score.

- Points, such as museums, libraries and various tourist attractions, receive a base score depending on their perceived attractiveness.
- Polygons, such as parks and commercial corridors, receive a score based on total acreage.

Equity – This category measured the number of households in a census block group that have a total income that is 50% of the median income or less for an average household in King County – based on 2011 HUD calculations.

Transit – given that ridership data was not available, the consultants assigned a base score to the following features with buffers to multiply that score, e.g.:

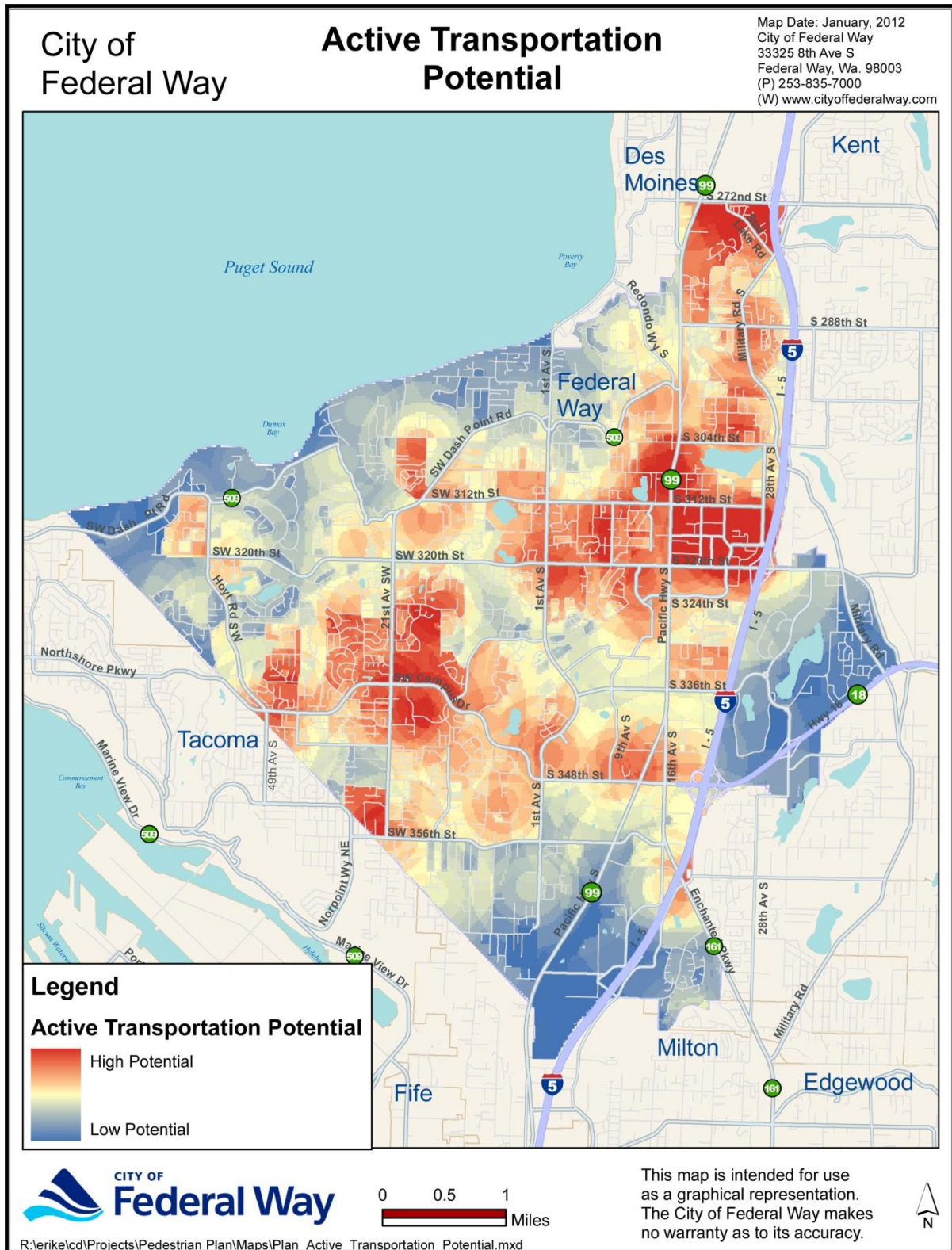
- Bus service, relative number of lines served by each stop
- Bus stops
- Transit station

Table: Buffer Distance Multipliers for transit and schools

Buffer Distance	Score
1/8 mile	1
1/4 mile	0.8
1/3 mile	0.6
1/2 mile	0.4
1 mile	0.2

"Enhance the downtown core, making it more pedestrian friendly - with the ability to walk from store to store rather than drive"
(workshop participant)

"I would like my neighborhood to have good access to the BPA trail"
(survey participant)



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The areas shown on the map on the previous page with the deepest and warmest color have the greatest potential for generating active transportation, while the areas with the deepest and coolest colors have the least potential. This map is useful in determining where investments in bicycling and pedestrian facilities will likely result in the greatest increase in active transportation in Federal Way. Areas that have the greatest potential for active transportation include the City Center and the Twin Lakes Commercial District Subarea and their surrounding areas. Additionally, investment in bicycle and pedestrian facilities in these areas can support economic development by making these areas more attractive to pedestrians and bicyclists and complementary to mixed use infill development.

Public Input and Preferences

Electronic Survey

Early in the plan development process, an electronic survey was posted via the city website that asked Federal Way citizens to provide input on their walking and biking habits and preferences. This information was considered in the development of the proposed bicycle and pedestrian facility networks and also informed the development of goals and objectives. The following is a summary of some of the survey results.

Distance of biking and walking trips: When trips are under one mile, Federal Way residents are much more likely to walk. Over 50 percent of survey respondents said they choose to walk if a trip is less than one mile, where the number goes down to about 5% if the trip is greater than one mile. People are more apt to bike than walk if a trip is between one and five miles. About 25 percent of respondents said they would elect to ride a bike for this length of trip, but when trips were less than one mile they would only choose to bike 25 percent of the time. However, once trips exceed one mile, most citizens will get in their car.

How often do people typically walk or bike: People who walk in Federal Way in general will do so more frequently than those who bike. Only about 2% of respondents said they “never” walk, while 15% indicated they “never” ride a bike. Walkers were pretty evenly split between daily (25%), few times a week (30%), and few times a month (30%). Those who rode bikes were most apt to ride them a few times a week (25%), few times a month (20%) or few times a year (22%).

Purpose of biking and walking: When asked why they walk and bike, most respondents indicated they did it for exercise (80% of walkers and 75% of cyclists). For walkers, the second highest response was for shopping or errands (35%). For cyclists, the second highest response was to get to work (35%). Ten percent of walkers said one reason they chose to walk was that it was cheaper than driving, while over 20% of cyclists said they chose their bike for this reason.

Impediments to biking and walking: Staff was curious to know if there were conditions or issues that kept people from walking and biking more often. For cyclists, the most

selected condition was “lack of bike lanes” (over 60%) followed closely by “lack of bike paths”, “lack of bike routes”, “vehicle volume and speed”, “behavior of motorists”, and “safety concerns” (each around 50%). For pedestrians, the number one detractor was “routes are unpleasant” (50%), followed by “lack of sidewalks” and “sidewalks in poor condition” (43% each), and “crossings feel unsafe” and “weather” (35% each). In general, it seems that lack of facilities and/or their condition are the primary detractors for people walking and biking more.



Bicycle and Pedestrian Advisory Committee

A Bicycle and Pedestrian Advisory Committee was formed to assist staff and the consultant team with the development of draft goals and objectives, draft bicycle and pedestrian networks, and criteria to be used to prioritize projects represented by the proposed networks. The Committee consisted of 20 members with

representatives from the City Council, Planning Commission, Federal Way Bicycle Patrol, School District, social service agencies, a local bicycle shop owner and interested citizens. The committee met 6 times during the plan development period. All meetings were open to the public and were often attended by additional interested citizens.



Public Workshop on Biking and Walking Preferences

In June 2011, two public workshops were held where attendees were encouraged to share preferences on where and how they would like to walk and bike in Federal Way. The workshop included the opportunity to participate in hands-on exercise where people drew on maps their preferred routes for walking and biking.



Public Workshop on Proposed Biking and Walking Facilities

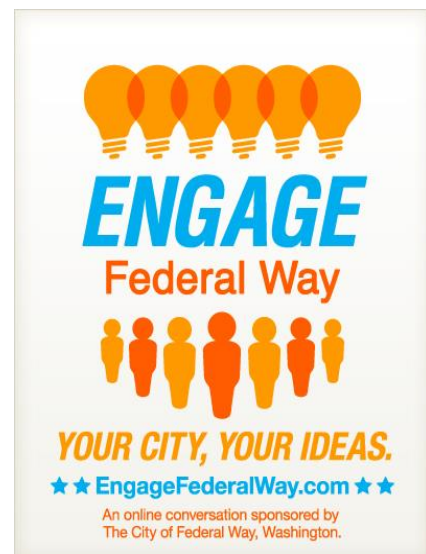
In October, 2011, a public workshop was held to solicit input on proposed bicycle and pedestrian networks and recommended facility types. In general, citizens were supportive of the proposed networks and liked the variety of facility types proposed. Some citizens expressed concern that the network improvements may be difficult to implement with limited capital resources. The importance of

prioritization criteria was discussed with workshop participants as the proposed networks are a long-term vision and improvements represented in the proposed facility networks will be implemented incrementally over the long term.

"If there were more bike trails that were longer in Federal Way, my family would ride them" (survey participant)

Engage Federal Way Electronic Town Hall

During the summer of 2011, the City of Federal Way launched a social media website "Engage Federal Way". The website functioned like a virtual town hall meeting where participants could log in from their personal computers and share opinions and ideas about walking and biking in Federal Way. The proposed facility network maps were uploaded to the website and additional comments were received. One distinct advantage of the Engage Federal Way site was that participants could comment on each other's ideas and create a dialogue. Over 1,300 people visited the site while it was activated.



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4. PROPOSED FACILITY NETWORKS

Federal Way's Proposed Bicycle and Pedestrian Networks

The proposed bicycle and pedestrian networks were developed based upon a number of information sources. The existing bicycle and pedestrian facility maps contained in the Non-motorized section of the Transportation Element were the starting point. Federal Way citizen and Advisory Committee member input was obtained to gauge general preference for specific routes and facility types. Then the technical analysis was conducted to evaluate the feasibility of adding new facilities to the identified network.

The results are two facility maps, one for bicycle, and one for pedestrian facilities. Overall, approximately 66 miles of new bicycle facilities are proposed and 72 miles of new pedestrian facilities. The maps are coded to identify the different types of facilities of which each network is comprised. Photos and drawings that illustrate each of the facility types are also provided in this section.

Future Improvements: Bicycle Facilities

The proposed bicycle facilities consist of a variety of facility types that are dependent on the existing configuration and function of the city's roadways. Where possible, bike lanes are proposed, but these popular solutions are limited in Federal Way where there are few cross-town connections and lots of competition for pavement width with virtually all motor vehicle traffic being necessarily funneled into these few corridors.

The proposed bicycle network includes some creative solutions to achieving an overall connected network. Two new-to-Federal Way facility types proposed in this plan are the "Bike Boulevard" and "Enhanced Shared Sidewalk". The bike boulevard concept is gaining interest in cities throughout the United States and has been used to great success in cities like Portland, OR; Berkeley, CA; and Tucson, AZ. Bike boulevards are essentially designated low-volume (usually residential) streets that have been identified and optimized for bicycle travel. Bike boulevards can work well for riders of all skill levels and particularly for young riders. The implementation of bike boulevards can often be done with relatively little expense through signage and pavement markings.

Enhanced shared sidewalks are proposed for two primary east-west corridors, the 320th Street, and Campus Drive/348th Street corridors. These corridors serve the city's largest commercial retail centers and are surrounded by higher density residential neighborhoods. The challenge for both corridors is high speed and high volume vehicle traffic. The proposed solution is the development of enhanced shared sidewalks, where sidewalks are widened and separated from vehicle traffic for use by both bicycles and pedestrians. This approach is a bit of a compromise as bicyclists and pedestrians sharing sidewalks can be tricky. Additionally, the facility must be designed with attention to vehicle crossings as they can pose a particular hazard to bicyclists.

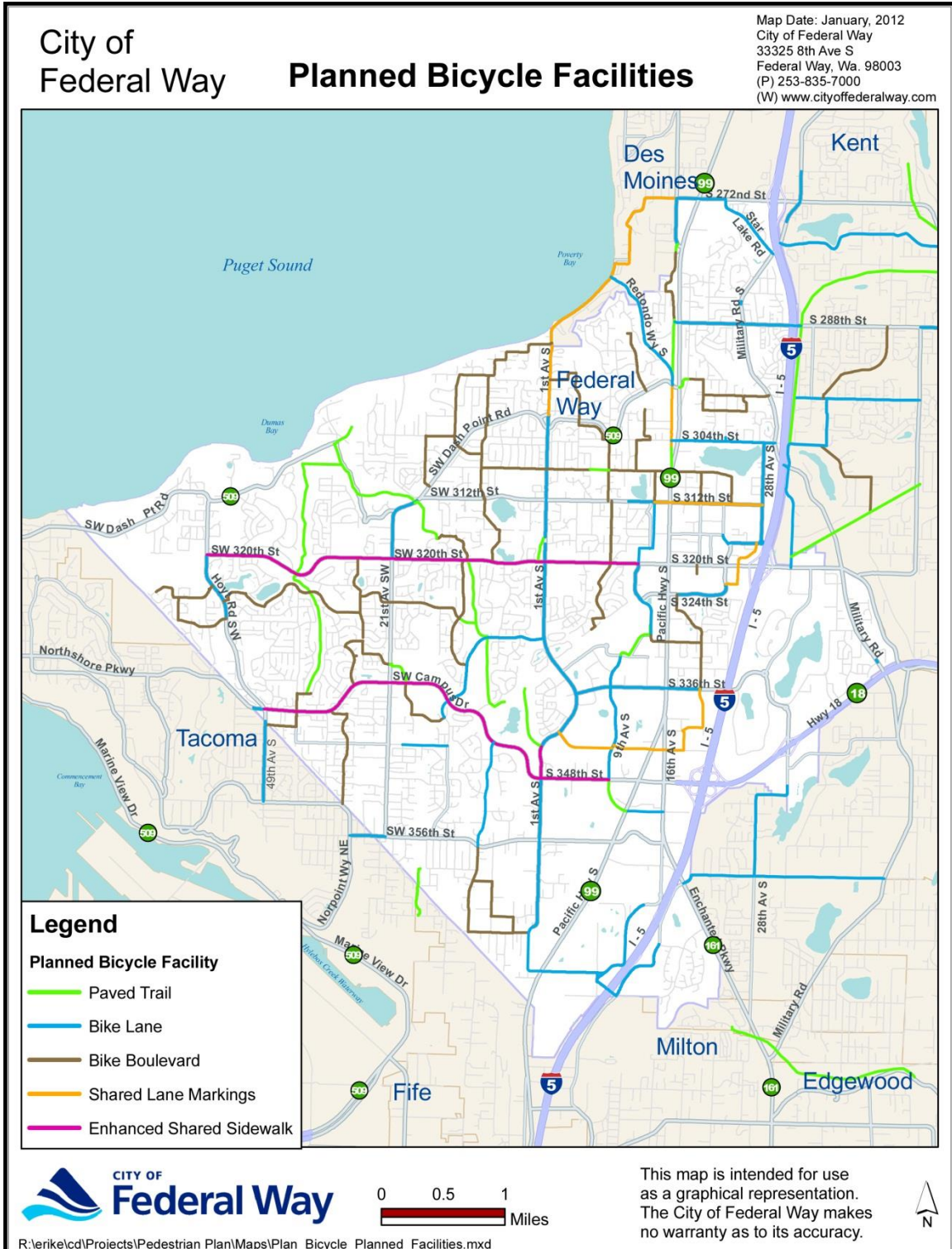
It should be noted that in developing the proposed bicycle facility network there are two key north-south corridors that do not have designated bicycle facility improvements. Those two corridors are the Pacific Highway (SR99), and 21st Avenue corridors. Both of these corridors were identified by citizens as desirable routes for bicycle facilities. Unfortunately, when these corridors were analyzed it became evident that there was not enough available right-of-way to accommodate bicycle facilities. In addition to the existing roadway geometry, both corridors carry high-volume, high-speed traffic. Major reconstruction of these corridors would be necessary to potentially accommodate bicycle facilities and this likelihood is well beyond the planning horizon of this plan. The proposed bicycle network identifies routes to the east and west of these corridors through residential neighborhoods that should provide opportunity for connectivity with safer, more accessible riding conditions as a tradeoff for more direct routing.

Future Improvements: Pedestrian Facilities

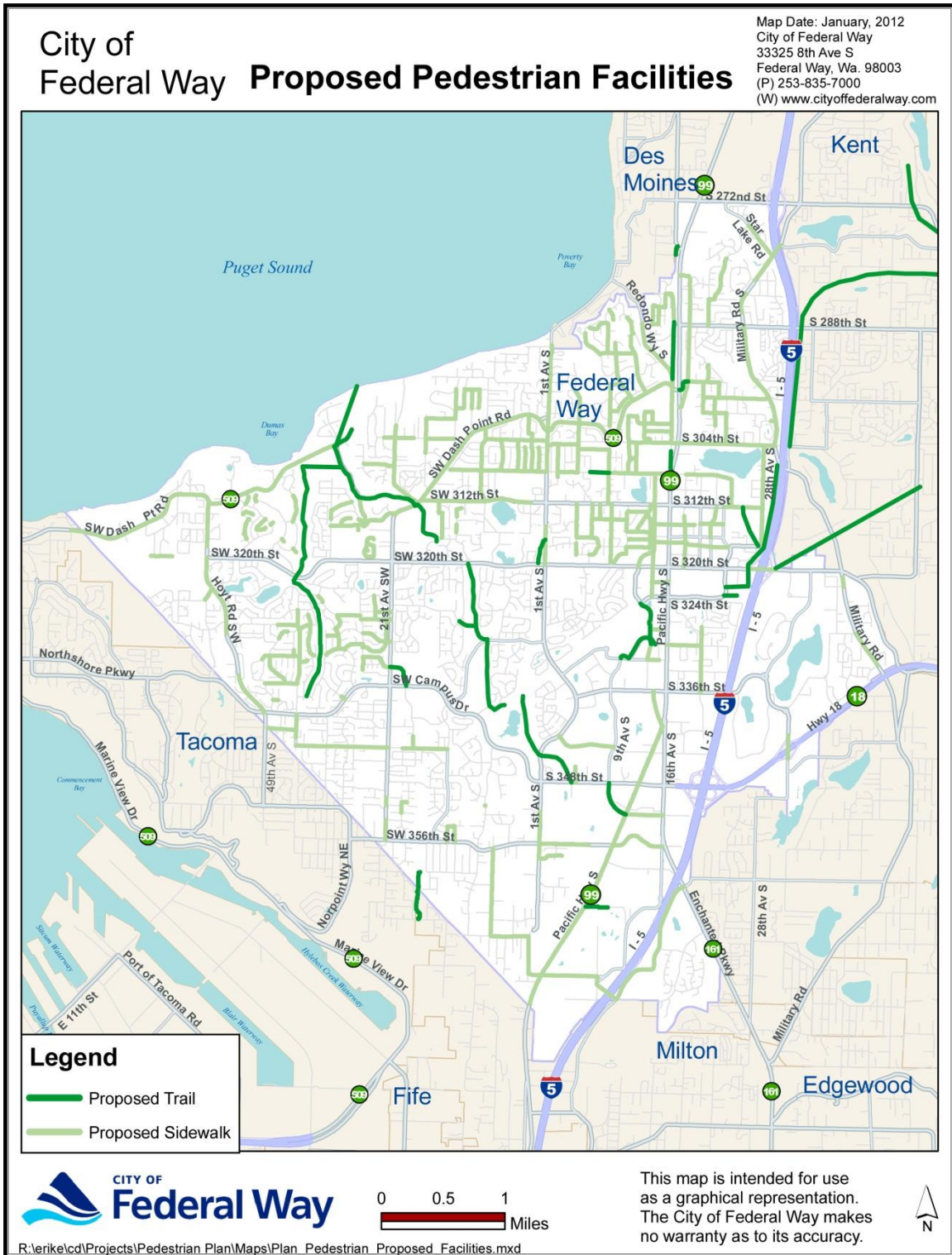
Pedestrian facilities proposed are largely new sidewalk sections. The location of the proposed new sidewalk sections was largely influenced by information the Federal Way School District maintains on recommended walking routes to elementary schools. During citizen engagement, many people commented on the desire to have more sidewalks in their neighborhood specifically related to access to neighborhood schools. Establishing safe and convenient walking routes enables more children to walk to school which improves student health and potentially saves the School District transportation costs where bus routes can sometimes be reduced when safety deficiencies are corrected.

A more complete pedestrian network also can support Federal Way's business centers. With better sidewalk connection, residents who live close to business centers may choose to make more trips by foot. Once a person gets in a car, it is easier to decide to drive far away for that cup of coffee or small errand. Making it easier and more pleasant to walk encourages more localized shopping decisions in a community and supports economic development.

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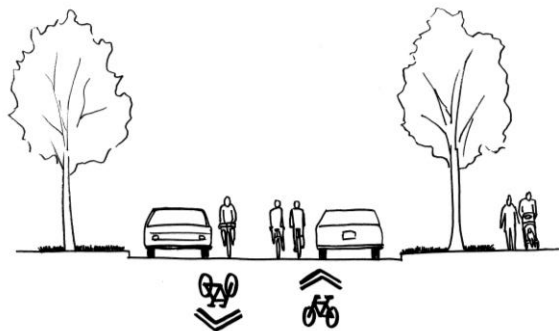
Proposed Facility Types

There are eight (8) different proposed pedestrian and bicycle facility types in this plan. Seven of the proposed facility types are indicated on the plan maps. The eighth, “Accessway” is not shown on the maps as this type of shared use facility is typically incorporated as part of a private land use development or through a cooperative neighborhood agreement for use of private property.

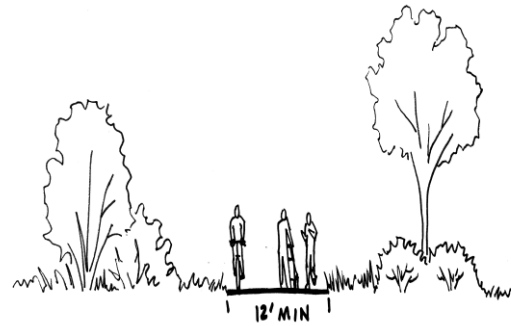
When presented to citizens during public workshops, greatest preference was indicated for the shared use facilities, and designated bicycle lanes. Less preference was indicated for the shared lane markings and bicycle boulevards. It would seem that Federal Way citizens would prefer facilities separate from vehicles or else clearly designated pavement area exclusively for bikes. However, since there are limited opportunities for designated bicycle lanes and separate shared use facilities, bicycle boulevards will likely prove to be a key element of a complete network in Federal Way. Bicycle boulevards are also not currently utilized in Federal Way, so citizens may be less familiar with and therefore indicated less preference for this facility type.

"I ride under almost any conditions, but there are plenty of places in Federal Way where I think less advanced riders would be reluctant."
(workshop participant)

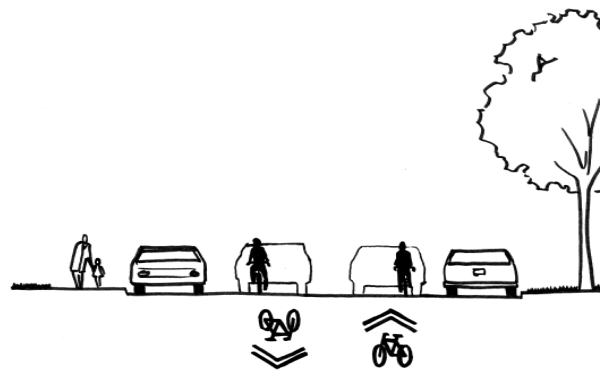
Examples of Proposed Pedestrian and Bicycle Facilities



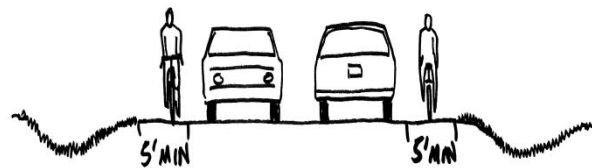
Bike Boulevard Low-volume and low-speed (typically residential) streets that have been optimized for bicycle travel. Bicycle Boulevard treatments can be applied at several different intensities.



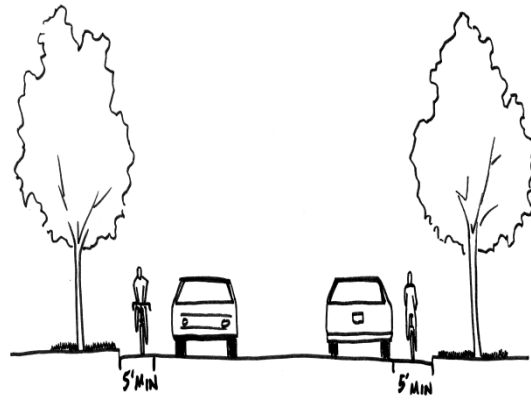
Shared Use Path/Trail Shared-use paths can provide a desirable facility, particularly for novice riders, recreational trips, and cyclists of all skill levels preferring separation from traffic. Shared-use paths should generally provide new travel opportunities.



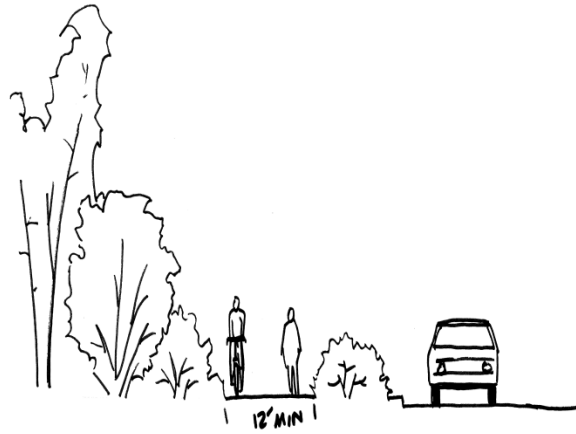
Shared Lane Marking Also called “sharrows,” shared lane markings are pavement markings used to indicate shared space for bicyclists and motorists on low volume streets that don’t have room for bike lanes.



Wide Shoulder Typically found in less-dense areas, shoulder zones are paved roadways with striped shoulders wide enough for pedestrian and bicycle travel.



Bike Lane Marked space along a length of roadway designated with paint for the exclusive use by bicyclists. If there is space available, some bike lanes can be buffered with a wider (a minimum 2ft) pavement marking.



Enhanced Shared Sidewalk Shared bicycle and pedestrian facility adjacent to, but separated from, the roadway. Designed to function similar to a shared use path.



Sidewalk Infill/Repair Completing sidewalk gaps greatly improves pedestrian connectivity by providing a continuous, barrier-free walkway easily accessible for all users.



Accessway Simple connectors provide direct routes between residential areas, retail and office areas

5. MOVING FORWARD – NEXT STEPS

Implementing the Proposed Bicycle and Pedestrian Plan Network

The Bicycle and Pedestrian Master Plan establishes an overall vision for a connected network of bicycle and pedestrian facilities throughout Federal Way. The resources necessary to implement this vision are well beyond what is immediately available to the city. Therefore, moving forward with development of the network will require further review and possibly some difficult decisions in establishing priorities for the near term.

This chapter contains information and analysis tools that will be utilized in the Comprehensive Plan, Transportation Element update to commence in 2012. One of the key outcomes of this update process will be an updated Transportation Improvement Program (TIP). The updated TIP will take into consideration the identified bicycle and pedestrian facility improvement recommendations in this plan and evaluate them within the context of overall transportation facility improvement needs and goals.

Planning Level Cost Estimates

Consultants (SvR) prepared planning level cost estimates for the bicycle and pedestrian facilities proposed in this plan. Planning level cost estimates are general in nature and are useful for determining the relative scale of investment that will be necessary to implement all of the identified facilities. The planning level cost estimates do not take into consideration all the unique physical characteristics of each roadway segment. The planning level cost estimates also do not account for possible economies of scale that may be achieved by combining a bicycle or pedestrian improvement with another required improvement - for example a roadway reconfiguration related to a development proposal or utility improvement.

The following 2011 planning level estimate of probable costs was developed:

- Planning Level Cost Estimate for Sidewalk Network
- Planning Level Cost Estimate for Proposed Trails
- Planning Level Cost Estimate for Bicycle Network
- Planning Level Cost Estimate for Pedestrian and Bicycle Crossing Improvements

GIS shapefiles developed for the proposed bicycle and pedestrian network maps were used to identify the length and location of the improvements. Unit costs were applied per linear foot (LF) of the corridor to be improved and per each for intersection signal improvements. A 30% design contingency was applied to each unit cost. Additionally, if a project was located within 50 feet of a wetland area (as identified by GIS) an additional 25% contingency was added to account for increased costs for potential permitting and mitigation required for work in or near a sensitive area. Please note that the cost estimates do not include soft costs or costs for rights-of-way (ROW) acquisition or easements. Project segment costs shown in Appendix X have been rounded to the nearest thousand dollars.

2011 Planning Level Cost Estimates Summary

Sidewalk Network:	\$62 Million for facilities on 61 miles roadway (approx 320,000 linear feet)
Trail Network:	\$21 Million for facilities on 16 miles (87,000 linear feet)
Bicycle Network:	\$57 Million for facilities on 71 miles of roadway (374,000 linear feet)
Crossing Modifications:	\$4 Million for modifications at 21 intersections along 320th and 348th/Campus Drive

Please see Figure 5.1, “Proposed Bicycle and Pedestrian Facilities Map” on the following page for locations of the proposed bicycle and pedestrian facilities.

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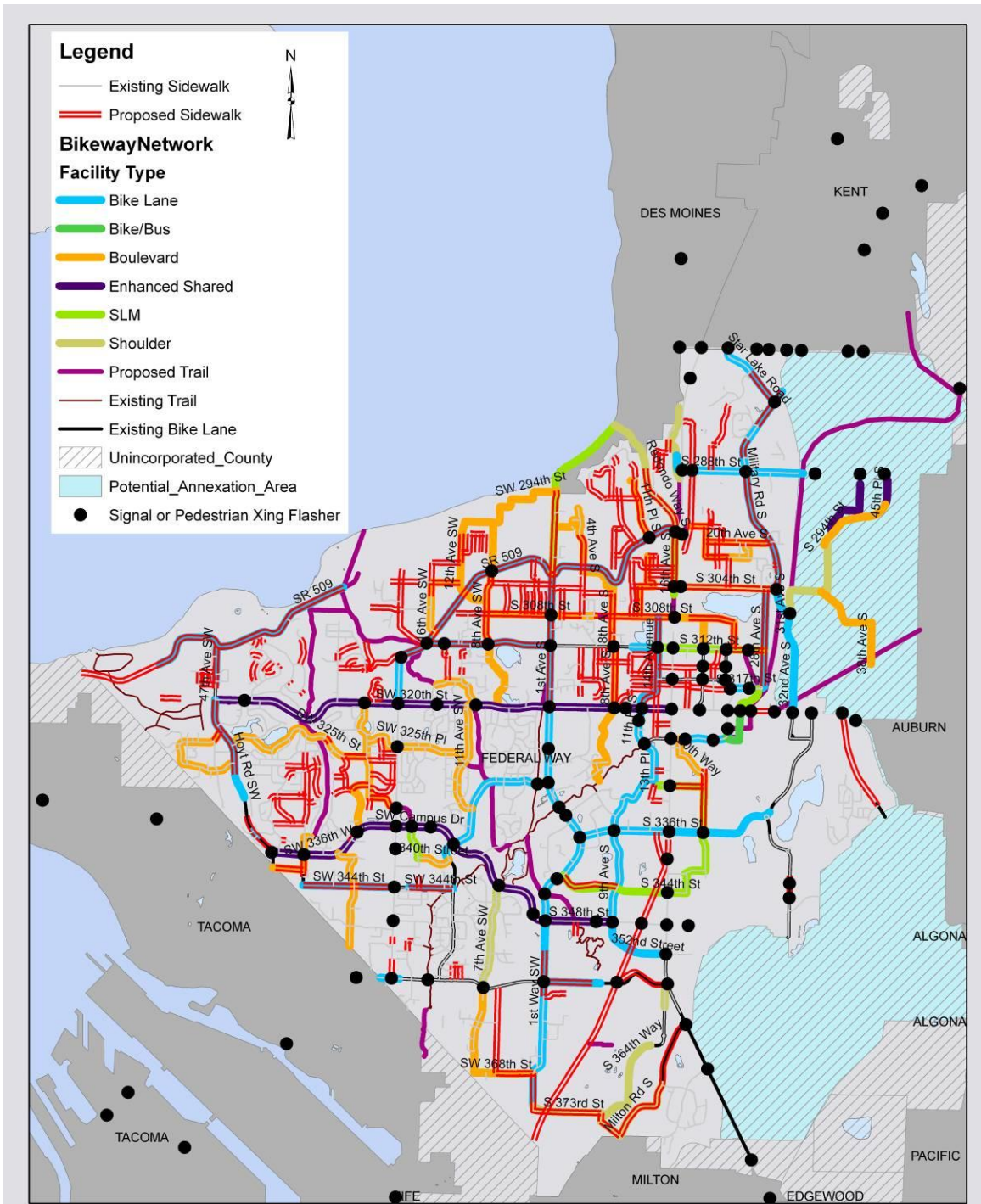


Figure 1. City of Federal Way - Proposed Bicycle and Pedestrian Facilities

This map is not to scale.

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Prioritization Criteria

As can be seen in the previous section, the total estimated cost of all identified network improvements is great. It would be unrealistic to expect that all of the improvements will be implemented in the near term. Therefore, it is important to establish a strategy for moving forward. How will we determine which projects to address in the near term? What if there are multiple projects that might meet grant funding criteria, but only one can be funded? How do we choose? To assist city staff, elected officials, and citizens in making potentially difficult near-term decisions, our consultant team of SvR and Alta proposed the development of prioritization criteria specific to bicycle and pedestrian facilities.

The following tables show the recommended prioritization criteria. These criteria have a lot in common with the “Potential for Active Transportation” map shown in Section 3. In implementing the prioritization criteria, the city can elect to weight certain criteria more heavily than others. These criteria will be applied to the proposed network facilities as part of the Transportation Element and TIP update.

The “Priority Route” selection criteria shown on the following page would be applied to both pedestrian and bicycle facilities to assist in determining the routes with the most need and/or potential benefit of facility improvement. On the following pages are criteria proposed to analyze pedestrian and bicycle routes specifically for their comparative benefit/need for improvement.

Priority Route Selection Criteria

Criteria	Measurement
Suitable for bicycling/ walking without improvements	Speed Limit and ADT
Closes critical gap	Connection to existing pedestrian or bicycle facility
Provides/enhances Safe Route to School connection	Proximity to schools
Serves immediate safety need	High exposure to freight and transit, poor record of crashes
Serves key origins and destinations	Proximity to origins and destinations
Geographic Distribution	Provides connection where few exist and/or in area with known income or health disparities
Right- of-Way Available and/or suitable	Public ownership and width
Interface with other transportation modes	Proximity to transit stops/stations

Example Pedestrian Prioritization Criteria

Criteria	Usual Data Source	Rationale
Proximity to Grocery Stores	Alta (from City GIS data)	Land use integration; synergy with Safe Routes to School; integration with food access
Proximity to Parks	Alta (from City GIS data)	Land use integration; synergy with Safe Routes to School work; integration with parks & open spaces investments
Proximity to Schools	Alta (from City GIS data)	Land use integration; synergy with Safe Routes to School work
Proximity to public facilities	Alta (from City GIS data)	Examples: City Hall, Community Center, Libraries. Land use integration, focus on facilities that generate high use
Number of Users (Employment Density)	Alta (from Census and City GIS data)	Increase mode share by serving more residents (cost-benefit)
Number of Users (Population Density)	Alta (from Census and City GIS data)	Increase mode share by serving more residents (cost-benefit)
Proximity to Transit	Alta (from City GIS data)	Nexus with multimodal transportation
Gap Identified in Existing Conditions	Alta (Gaps Analysis)	Fill in existing gaps; create safer and more usable network; remove barriers to use
Connection to Existing Shared-Use Path	Alta (GIS/manual review)	Fill in existing gaps; create safer and more usable network; remove barriers to use
Collision locations	GIS review of city compiled data	Improves safety
Community Input	City	Respond to community needs and concerns
Feasibility	City	Prioritize projects based on environmental, political, and design feasibility.

Example Bicycle Prioritization Criteria

Criteria	Usual Data Source	Rationale
Proximity to Grocery Stores	Alta (from City GIS data)	Land use integration; synergy with Safe Routes to School; integration with food access
Proximity to Parks	Alta (from City GIS data)	Land use integration; synergy with Safe Routes to School work; integration with parks & open spaces investments
Proximity to Schools	Alta (from City GIS data)	Land use integration; synergy with Safe Routes to School work
Proximity to Public Facilities	Alta (from City GIS data)	Examples: City Hall, Community Center, Libraries. Land use integration, focus on facilities that generate high use
Proximity to Transit	Alta (from City GIS data)	Nexus with multimodal transportation
Number of Users (Employment Density)	Alta (from Census and City GIS data)	Increase mode share by serving more residents (cost-benefit)
Number of Users (Population Density)	Alta (from Census and City GIS data)	Increase mode share by serving more residents (cost-benefit)
Range of User Types	Alta (coded by facility type - assumes detailed network development)	Increase mode share by attracting new users, gives extra points for separated family friendly facilities
Gap Identified in Existing Conditions	Alta (Gaps Analysis)	Fill in existing gaps; create safer and more usable network; remove barriers to use
Connection to Existing Shared-Use Path	Alta (GIS/manual review)	Fill in existing gaps; create safer and more usable network; remove barriers to use
Collison locations	GIS review of city compiled data	Improves safety
Community Input	City	Respond to community needs and concerns
Feasibility	City	Prioritize projects based on environmental, political, and design feasibility.

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It is important to recognize that in applying the prioritization criteria, there may be projects that could jump to the head of the line for implementation where circumstances warrant. For example, sometimes there are associated improvements to a roadway segment that result in an immediate opportunity to implement a bicycle or pedestrian improvement that must be acted on. There may also be unforeseen funding opportunities for a specific project that was not ranked high priority. These opportunities should not be turned away simply due to the application of prioritization criteria. The real benefit of applying the criteria is in ranking similar projects that all are competing for limited capital resources.

Potential Funding Mechanisms

The City of Federal Way's transportation funding needs for pedestrian and bicycle facilities can be met through a variety of funding mechanisms at the local, state and federal levels.

Existing City of Federal Way Funding Mechanisms

Transportation Improvement Program (TIP) - The City of Federal Way Transportation Improvement Program (TIP) is a list of projects considered for a six-year period. Updated and adopted by the City Council and submitted to the state each year, as required by law, the TIP includes both projects for which money has been allocated and are likely to be constructed within the six-year period, as well as unfunded projects that may not be constructed within the plan period.

The TIP serves as a draft work plan for the development of local transportation systems. It represents an important planning component under the state's Growth Management Act. In most instances, projects must be included in the city's TIP to be eligible for state and federal grants funding.

Information about the current TIP can be found on the City of Federal Way website at: <http://www.cityoffederalway.com/index.aspx?nid=180>

Traffic Impact Fees - Effective July 1, 2010, the City of Federal Way assesses a set fee on new development as part of a Traffic Impact Fee Program (TIF) (Ordinance 09-627). Traffic impact fees are designed to pay for capital improvements that are needed to serve new development. Traffic impact fees are collected to improve the transportation system to accommodate the higher travel demand created by new development within the City limits of Federal Way. This fee has replaced the existing SEPA pro-rata system.

The Revised Code of Washington (RCW 82.02.050) defines traffic impact fee programs as intended to: ensure that adequate facilities are available to serve new growth; establish standards by which new growth and development pay a proportionate share of the cost of new facilities needed to serve new growth and development; and ensure that impact fees are imposed through established procedures and criteria so that specific developments do not pay arbitrary fees or duplicative fees for the same impact.

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Transportation Improvement Board - The Washington State Legislature created the Transportation Improvement Board (TIB) to foster state investment in quality local transportation projects. TIB is an independent state agency that distributes and manages street construction and maintenance grants to 320 cities and urban counties throughout Washington State. The funding for TIB's grant programs come from revenue generated by three cents of the statewide gas tax. Federal Way has been very successful in receiving TIB grants in the past.

Potential New Funding Mechanisms

In addition to the City's possible funding mechanisms, State, non-profit and federal partners have a number of potential funding opportunities that may be used by the City of Federal Way to leverage other investments and make resources go further. These programs include such diverse sources as State and federal Safe Routes to School programs, federal Community Action Grants, and REI Bicycle Friendly Communities Grants. It should be noted that, typically, these grants are restricted to arterial streets.

Additionally, since the right-of-way also serves as a critical component of a city's stormwater management and conveyance infrastructure, utility grant programs also offer a cost offsetting opportunity. For example, the Washington State Department of Ecology Stormwater Grants can be used to implement low impact development features which can include streetside planting in bioretention areas and porous pavement applications for sidewalks

On August 21, 2007, the voters of King County approved Proposition 2, the Parks Expansion Levy, a new \$0.05, six-year, inflation-adjusted property tax lid lift to expand park and recreation opportunities. One cent of the five-cent levy proceeds is to be distributed to cities in King County for specific purposes. The city may be able to use a portion of these funds for park-related trail construction.

Proposed Measurement Tools

Measurement tools were proposed by our consultant team in conjunction with the development of draft Goals and Objectives (Section 2). For each goal, measurement tools are identified that the city can utilize to measure progress against the goals and objectives as well as the identified facility improvements. Measurement tools are valuable for both accountability and noting achievements along the way to plan implementation.

Some of the following measurement tools will be fairly easy for the city to implement. Examples of these are data gathering on physical conditions that the city already maintains. Some will be more difficult. Of the recommended measurement tools, those listed under "Education" are the most difficult given limited staff resources. However, this category is important to citizens of Federal Way, as the need for education about

FINAL City of Federal Way Bicycle and Pedestrian Master Plan

safety and sharing the roadways came up repeatedly in survey, public workshop, and advisory committee discussions.

Overall Goal Measured by:

- Increased mode share
- Increased numbers in pedestrian and/or bicycle counts

Network Facilities Development Measured by:

- Total percentage of roadways that have designated pedestrian facilities.
- Total number of miles of bike network designed using best practices that include bike lanes, off street paths, and family friendly bike ways on low traffic volume streets.
- Total miles of off street trails and paths.
- Total number of businesses, schools, public buildings, and parks that have bicycle parking.

Safety, Security and Equity Measured by:

- Reduction in the number and severity of reported crashes.
- Perception of safety among residents and system users.
- Percentage of accessible intersections with ADA compliant facilities.

Transportation and Land Use Measured by:

- Percentage of intersections with curb ramps and completed sidewalks within a half-mile of transit centers, schools, parks and downtown.
- Percentage of roadways with bikeways within one mile of transit centers, schools, parks and downtown.
- Number of projects that support pedestrians and bicyclists.

Education and Awareness Measured by:

- Number of education opportunities in Federal Way.
- Participation in education and encouragement programs.

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Maintenance and Operations Measured by:

- Percentage of bikeways and pedestrian facilities that are in good repair.
- Percentage of bikeways and pedestrian facilities that meet best practices.