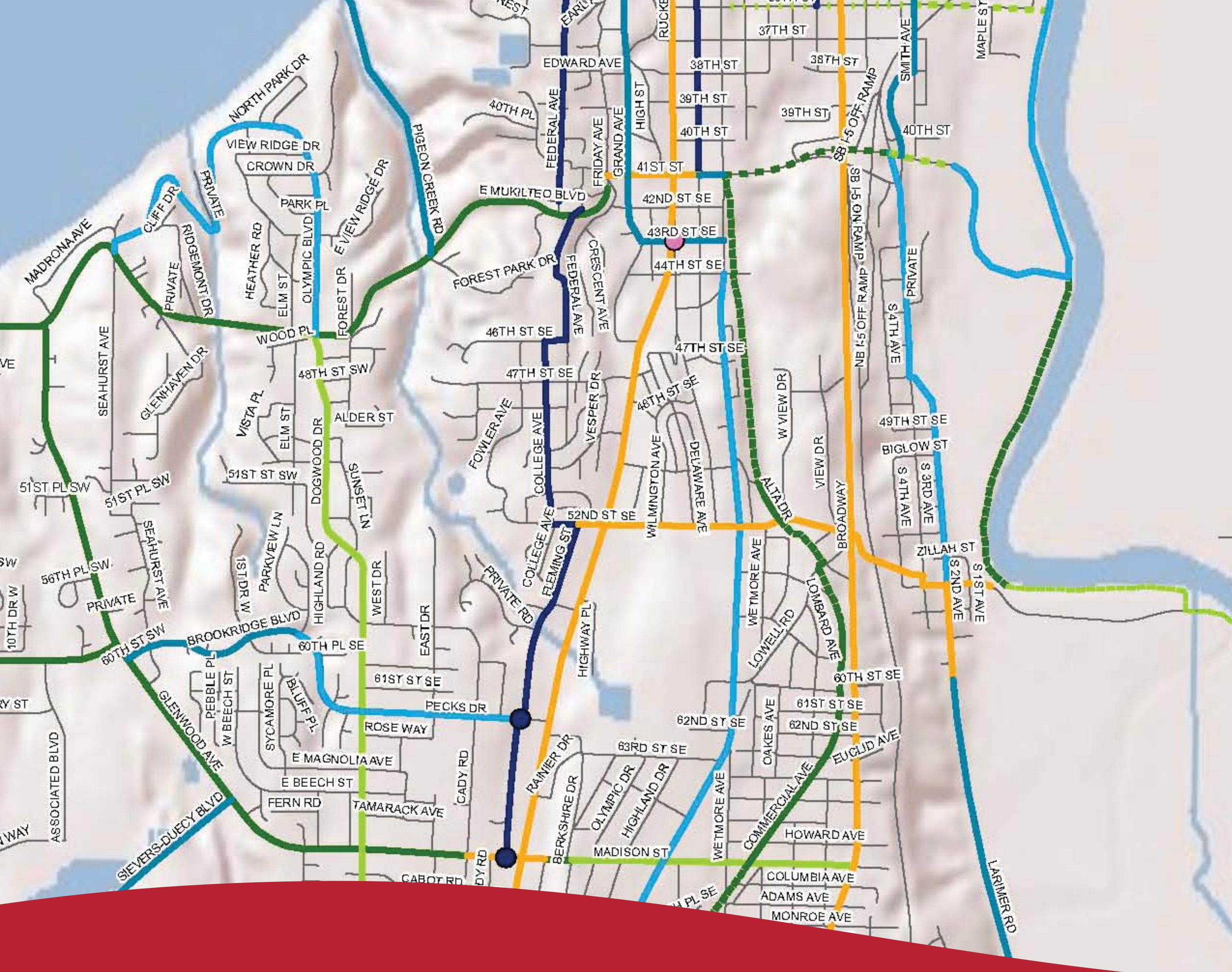

Everett Bicycle Master Plan

FINAL PLAN MARCH 2011

PREPARED BY:
Alta Planning + Design, City of Everett, and Everett Bicycle Community

PREPARED FOR:
City of Everett and Everett Bicycle Community

alta
PLANNING + DESIGN

Acknowledgments

The Bike Master Plan was a significant team effort involving the Cities Traffic Engineering, Planning, Civil Design, and Parks departments with the Assistance of Alta Planning and Design. This technical expertise was combined with a significant Citizen outreach program and extraordinary levels of participation by individual citizens.

B.I.K.E.S of Snohomish County and the Cascade Bicycle Club provided valuable feedback and material for the plan.

Bill Weber and Kristin Kinnamon of B.I.K.E.S and John Lindstrom and Bob Jackson provided detailed feedback on proposed routes.

Over 100 citizens at four public meetings and a stakeholder email list of approximately 200 individuals.

City of Everett Elected Officials

Mayor – Ray Stephanson

City Council Members:

Paul Roberts **(President)** - Position 1

Jeff Moore - Position 2

Arlan Hatloe **(Vice President)** - Position 3

Ron Gipson - Position 4

Drew Nielsen - Position 5

Brenda Stonecipher - Position 6

Shannon Affholter - Position 7

City of Everett Staff

Dave Davis, Director, Public Works

Ryan Sass, City Engineer

Dongho Chang, Traffic Engineer

Jim Ozanne, Public Works - Traffic Engineering provided day to day management, field verification and coordination between all the groups

Tom Hood, Public Works - Engineering helped develop the detailed cost estimating methods

Paul Crane, Public Works - Utilities provided international perspective and reviewed the draft plan

Brent Linder and Jim MacLauchlan, Public Works - GIS provided the aerial photos and cross sections

Steve Ingalsbe, Planning provided cycling expertise and route and plan review

Mark Harrison, Parks provided input on the various trail options

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Executive Summary

Setting

The Everett Bicycle System Master Plan is the product of a coordinated effort between Everett's residents, civil servants and elected officials. This plan lays out a roadmap for including bicycling as a convenient and ultimately viable transportation option. The goal is to increase bicycle mode share by developing facilities and programmatic support that encourage more people in Everett to use their bicycle for more practical trips (to travel to work, the store, restaurants, etc.). The foundation of a bike network is already in place in Everett. Previous investments in bicycle facilities include numerous bicycle lanes and trails that cross the City, and new facilities are being installed on a regular basis.

Recommendations

Figure 8 (page III-11) depicts the recommended bikeway network. This plan lays out a comprehensive system connecting key bicycling destinations and surrounding areas. The suggested system was developed based on input from City staff, stakeholder groups and Everett residents. The network also builds upon recommendations from previous and on-going planning efforts. The system includes a variety of facilities including; roadways, bike lanes, shoulder bikeways, signed bicycle routes including bicycle boulevards, multi-use trails and intersection improvements.

Table ES-1 lists currently funded non-motorized projects and shows the City of Everett's ongoing commitment to non-motorized travel. The table outlines projects funded and /or constructed from 2004 to 2010. Using this plan as a springboard for attracting grant funding, the City hopes to increase the funding of similar projects in the future. Table ES-2 summarizes the projects by category (see Chapters III and VI for further descriptions).

Past Funding

Table ES-1. Funded Non-Motorized Projects (2004 - 2010)

WORK ORDER	TITLE	COST	GRANT FEDERAL	GRANT STATE	LOCAL	TOTAL
3154	MCDOUGALL/SMITH SIDEWALKS	$ 54,104.71	$ -	$ -	$ 54,104.71	$ 54,104.71
3190	2004 PED PATHS/CURB RAMPS	$ 34,559.51	$ -	$ -	$ 34,559.51	$ 34,559.51
3194	7TH AVE, 93RD-100TH SIDEWALK	$ 584,486.00	$ -	$ 107,740.00	$ 476,746.00	$ 584,486.00
3221	52ND ST PED FLASHER	$ 5,172.72	$ -	$ -	$ 5,172.72	$ 5,172.72
3232	100TH ST SE PED IMP	$ 156,082.00	$ -	$ 75,320.00	$ 80,762.00	$ 156,082.00
3254	HOLLY DR NON-MOTORIZED IMP	$ 1,071,716.94	$ 889,445.00	$ -	$ 182,271.94	$ 1,071,716.94
3255	CORBIN DR PED PATH	$ 296,252.00	$ -	$ -	$ 296,252.00	$ 296,252.00
3268	WEST MARINE VIEW DR. PED IMP	$ 216,826.54	$ 103,000.00	$ 1,926.79	$ 111,899.75	$ 216,826.54
3289	7TH AVE PED & BICYCLE SAFETY	$ 155,231.77	$ -	$ 155,231.77	$ -	$ 155,231.77
3298	36TH ST/BNSF NON-MOTORIZED	$ 105,617.43	$ 100,095.00	$ -	$ 5,522.43	$ 105,617.43
3364	BICYCLE MASTER PLAN	$ 136,619.83	$ -	$ -	$ 136,619.83	$ 136,619.83
3382	PED SAFETY IMPS ON 112TH ST SE	$ 2,187.15	$ 2,187.15	$ -	$ -	$ 2,187.15
3404	HORIZON ELEMENTARY WALK ROUTE	$ 526.19	$ -	$ 526.19	$ -	$ 526.19
3405	CASINO RD & RUCKER AVE PED SIGNALS	$ 4,172.95	$ -	$ 4,172.95	$ -	$ 4,172.95
	TOTAL TO DATE	$ 2,823,555.74	$ 1,094,727.15	$ 344,917.70	$ 1,383,910.89	$ 2,823,555.74

Recommended Project Summary

Table ES-2. Recommended Bicycle Projects

Category (miles)	Category Description	Bike Lane	Bike Blvd	Bike/Sidewalk Path	Trail	Cost (2010 $)
Existing Facilities	Existing bicycle facilities in Everett that benefit from modifications and upgrades.	25.8	1.1	6.8	16.7	$12,585,000
Connections to Existing Facilities	Completes network gaps between existing bicycle facilities	4.5	0.9	0.7	1	$6,578,000
Tier 1	These facilities are identified as priorities in the next 1-10 years	1.7	11.1	0.17	1.8	$2,887,000
Tier 2	These facilities are identified as priorities in the next 10-20 years	4.3	7.8	1.2	6.5	$14,888,000
Tier 3	These facilities are identified as priorities, but will require grant funding to complete	10	1.2	0	2	$7,042,000

City of Everett Expenditures

Existing funding sources

- Public Works – Street Improvements Fund 119[1]
- Public Works – Streets Fund 120[2]

1 Everett, Washington 2009 Budget. (http://www.everettwa.org/default.aspx?ID=1431). Accessed January 26, 2009.
2 Everett, Washington 2009 Budget. (http://www.everettwa.org/default.aspx?ID=1431). Accessed January 26, 2009.

Community Support for Plan Development

The development of the plan would not have happened without the excellent involvement and support of the citizens of Everett, who have worked tirelessly to improve bicycling conditions in Everett. Residents (notably Bob Jackson, Bill Weber, John Lindstrom, and Kristin Kinnamon) rode many of the existing and proposed routes to provide specific notes and feedback, greatly improving the final plan.

The project team conducted stakeholder interviews to identify bicycle issues from the standpoint of various interest groups and organizations. Throughout the project, City of Everett Senior Engineer Jim Ozanne served as the point contact person to community members and the project team, fielding calls and emails from Everett residents adding their input to the project. Additional activities included:

- Project kick-off meeting
- Open house #1
- Final open house
- Draft plan distribution
- Periodic newsletter updates
- Stakeholder interviews

Relationship of Everett Bicycle Master Plan to Everett Planning Documents

This bicycle master plan will be adopted as an amendment to the Transportation Element of the City of Everett Comprehensive Plan. The Comprehensive Plan is the policy document which will guide the growth of the City until 2025. As required by State law, RCW 36.70A.130(4)(a), the Comprehensive Plan must be updated every seven years. The Comprehensive Plan guides city growth by defining the:

- Desired type, level and spatial distribution of population and job growth,
- Transportation, utilities and public facilities necessary to serve this population and employment,
- Methods of paying for this infrastructure,
- Housing requirements for the community, and
- Desired physical character of city growth.

Last Thoughts

The Everett Bicycle System Master Plan is a roadmap to creating a bicycling network for users of varying abilities in Everett. The goal of implementing the recommended connections and Tier 1 projects over the next ten years will move Everett significantly forward along that roadmap. It should be remembered that the Everett Bicycle System Master Plan is a living document, and should be revisited periodically to ensure that the system being developed continues to meet the needs of all residents of Everett.

I. Introduction

Setting

The Everett Bicycle System Master Plan is the product of a coordinated effort between Everett's residents, civil servants and elected officials. This plan lays out a roadmap for including bicycling as a safe, convenient and ultimately viable transportation option. The goal is to increase bicycle mode share by developing facilities and programmatic support that encourage more people in Everett to use their bicycle for utilitarian trips (to travel to work, the store, restaurants, etc.).

Everett residents ride their bicycles, both for recreation and utilitarian trips. The vast majority of the routes found in this plan were suggested by Everett residents as a part of this and previous planning efforts. These dedicated cyclists continue to discover and share the best ways to get around the City on two wheels.

The foundation of a bikeway network is already in place in Everett. The Downtown core offers a network of connected streets and frequent bikeable destinations. Surrounding neighborhoods have well-connected streets, many of which serve as bicycling routes. Previous investments in bicycle facilities include numerous bicycle lanes and trails that traverse the City. Everett residents and leaders now desire to make their community even more attractive for bicyclists. In some areas, bicycle system upgrades are needed including; intersection improvements, completing bikeway network gaps, and establishing new connections.

The Everett Bicycle System Master Plan will help to continue to develop a bicycle network built on the foundation of past development. This plan presents the vision of a fully-developed bicycle system as well as an implementation strategy and design suggestions to bring top priority routes to reality. A complete bikeway network will increase overall connections within the community, provide residents with greater travel choices, increase the number of utilitarian and recreational bicycle trips, and promote the overall health of Everett residents by including bicycling as a safe, comfortable and attractive travel mode.

Purpose of the Everett Bicycle System Master Plan

The transportation element of Everett's Comprehensive Plan, which was updated in 2006, contains a map of existing bicycle facilities and a map of a future bicycle network. These maps were created with the assistance of Everett citizens, who used their familiarity with bicycling conditions in Everett to identify existing facilities and offer suggestions for potential future improvements to Everett's bicycle network. The 2006 Plan proposes a comprehensive network of bicycle facilities, but lacks detail about route prioritization, physical design and programmatic support that are necessary for successful implementation. In 2008, with significant public support, the City decided to develop an implementation plan to direct long term planning and construction of this theoretical bikeway system.

The Everett Bicycle System Master Plan provides an updated inventory and assessment of Everett's bikeway network and updates the bicycle element of the City's 2006 Transportation System Plan Update. This plan lays out comprehensive strategies for system-wide improvements and specifies what needs to be done to achieve the City's goal of becoming a great bicycling community. These strategies will help Everett compete for the necessary funding and other resources needed to achieve this goal. Increasing bicycle mode share is the ultimate goal of the Everett Bicycle System Master Plan, which can be achieved by developing facilities that attract more recreational riders, and convert recreational riders to commuters, part-time commuters to more regular commuters and attract new bicycle commuters.

The Everett Bicycle System Master Plan provides more design detail than a typical master plan, and will serve as a good starting point for the development of preliminary designs of the recommended solutions. Cost estimates were calculated for the various elements of a given project, including the removal or addition of striping, signage, pavement, etc. The design details provided will help leverage grant funding to implement the bicycle improvement projects included in this plan.

Contents of the Plan

This master plan is intended to provide a resource for policy makers, planners, engineers, public officials and interested citizens.

This plan lays out a comprehensive system connecting key bicycling destinations and surrounding areas. The suggested system was developed based on input from City staff, stakeholder groups and Everett residents. The network also builds upon recommendations from previous and on-going planning efforts. The system includes a variety of facilities including; bike lanes, shoulder bikeways, signed bicycle routes including bicycle boulevards, multi-use trails and intersection improvements.

The plan contains an evaluation of Everett's current bicycle facilities and recommends improvements to make them more appealing for bicycling. Many of these improvements are low cost and can be completed in the short term while other recommendations may be implemented as roadways are re-paved or re-striped. Project descriptions are provided for all Existing Facilities, Connections to Existing Facilities, Tier 1 and Tier 2 routes. These routes complete gaps in the bicycle network and provide connections between key bicycling destinations including the north end of the Interurban Trail, downtown Everett, Everett Station and the entrance to the US 2 trestle.

Equally important to the bikeway network are support programs. Previous investments in bicycling have laid a solid foundation for a comprehensive bicycle network. A more coordinated effort would facilitate the integration of bicycles into transportation planning and engineering in Everett.

This plan includes several key resources that will help to guide successful implementation of this plan over time. The Everett Bicycle System Master Plan is organized as follows:

- *Chapter I. Introduction* provides an overview of the plan and its purpose
- *Chapter II. Existing Conditions* describes Everett's past planning efforts, existing climate and topography, and the data collection effort involved in this planning process.
- *Chapter III. Recommended Bikeway Facilities* identifies the recommended bikeway network through an analysis of the existing facilities and identification of the proposed facilities.

- *Chapter IV. Recommended Programs* highlights existing and proposed education and outreach effort, as well as recommended maintenance strategies and a wayfinding signage plan.
- *Chapter V. Design Standards* provides design standards for new bikeway facilities.
- *Chapter VI. Project Descriptions* provides descriptions of many of the recommended projects.
- *Chapter VII. Funding Strategies* identifies federal, state, regional, and local funding sources for bikeway projects.
- *Appendices* includes among other sections project guidelines, cost estimating, relationship to other planning documents, and end-of-trip facilities analysis.

II. Existing Conditions

Past Planning Efforts

Bicycle planning in Everett benefits from previous investments that lay a strong foundation for the projects recommended in this plan.

The planning and implementation of bicycle facilities in Everett dates back to 1973, when the City completed projects along West Marine View Drive and Mukilteo Boulevard. Many of Everett's core bicycle routes were put into place in the early 1990s. Initial work on the Interurban Trail took place between 1995 and 1997, with a second phase of work completed in 2004-05. Bike lanes were installed on Holly Drive in 2001 and 2006.

Planning efforts include an informal stakeholder process which ultimately resulted in the existing and future bicycle system maps found in the 2006 update to the transportation element of Everett's Comprehensive Plan. The routes found on these maps served as a starting point for this master plan.

To the extent feasible, this plan has incorporated existing local plans and priorities as part of its recommendations. Appendix B provides a more detailed summary of the plans reviewed, which include:

- Everett Comprehensive Plan
- Land Use Element
- Transportation Element Update
- Everett Development Code
- Everett Downtown Plan
- Puget Sound Regional Council Transportation 2040
- A Pedestrian and Bicycle Access Plan for Everett’s Snohomish Riverfront (1987)
- Everett Shoreline Public Access Plan (2003)

Climate & Topography

Summers in Everett are ideal for riding a bicycle, with mild temperatures and extremely dry weather. Everett experiences the mild but rainy winter weather typical of the Pacific Northwest. While rain can be an obstacle to bicycle riding, similarly rainy Portland, Oregon reports winter bicycling rates that are approximately half of summer ridership levels. Experience from well-known international bicycling cities, such as Copenhagen, Denmark, indicate that investment in bicycling facilities can result in impressively high rates of bicycling, despite rainy weather conditions. Bicycle mode share in

Copenhagen is in excess of 20% of all trips; an even higher 36% of work commute trips are made by bike[3].

Everett's hilly topography presents challenges for cyclists in certain parts of the city. In some areas outside the central city, this difficulty is compounded because there are few parallel facilities and many streets have narrow lanes. As the network currently exists, in these areas cyclists are forced to choose between either a long detour or being uncomfortably close to passing motor vehicle traffic. Figures 1 and 2 illustrate the significant elevation change along east-west and north-south routes. Hills can be a deterrent for new cyclists, so it is important to provide alternate routes that minimize hills to the extent feasible. A further issue is that hills can significantly slow bicycle speeds, presenting conflicts between cars and bicycles where a bicycle facility is not provided. One alternative for cyclists is to put their bike on transit for the uphill portion of a trip. Many of Everett's transit providers, including the new BRT line, accommodate bikes on board. In areas with limited amounts of right-of-way, bicycles can be accommodated with a bike lane in the uphill direction only.

Figure 1 - Elevation profile of proposed bicycle climbing lane along 52nd St SE and Lowell Road

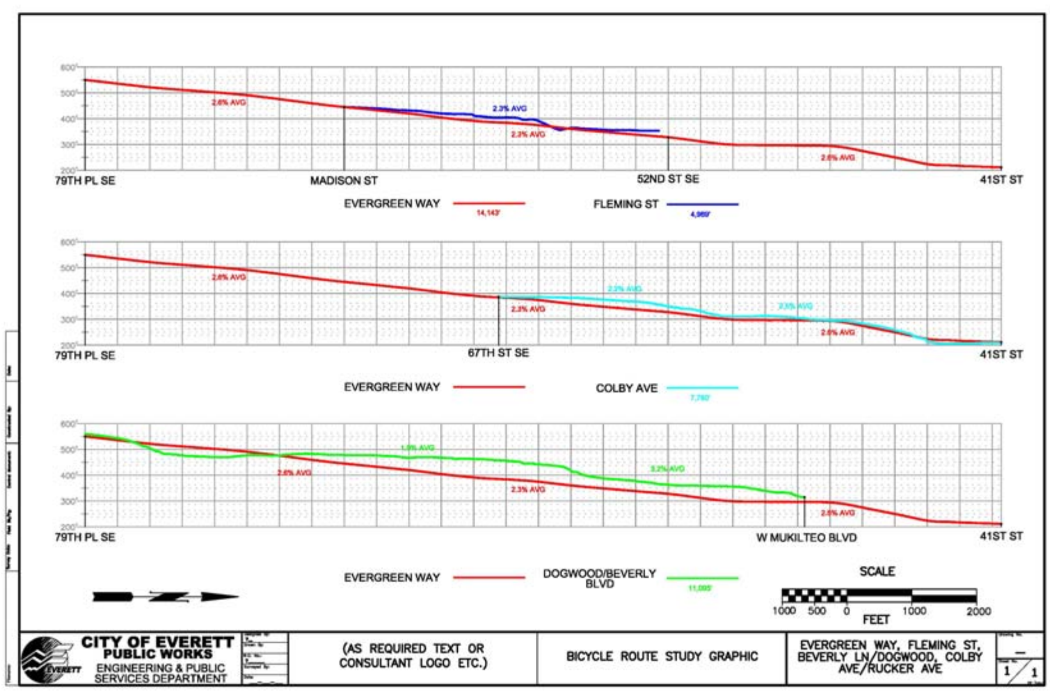


Figure 2 - Elevation profile of Evergreen Way and parallel routes

3 World Transport Policy & Practice, Volume 13. Number 3. December 2007

Transportation Infrastructure

Roadway Network

Everett is characterized by two roadway network patterns. The northern part of Everett is characterized by a well-connected grid-based streets system typical of older urban development patterns. The southern part of Everett, by contrast, has a curvilinear roadway network with less street connectivity more typical of newer suburban style developments. A well-connected grid is highly supportive of bicycling, providing cyclists with greater route choice, including low-volume alternatives to high volume arterial streets and direct routes between destinations. It is for this reason that cyclists recognize north Everett as being more favorable for bicycling.

A lack of street connectivity, by contrast, results in fewer route choices for cyclists and generally results in longer trip distances to get from one point to another. While such a roadway pattern keeps traffic volumes down on particular streets, it presents many challenges to providing good cycling routes. This plan recommends that street connectivity be a priority in new developments in Everett, with vehicle traffic volumes managed by the use of traffic calming features rather than through a curvilinear roadway design or non-connecting streets.

The city and the county should work together to plat roads that provide connectivity for all modes, rather than creating super-blocks. City design standards for these new growth areas should also be developed cooperatively and encourage a mix of land uses to make non-motorized transportation modes more convenient and attractive.

Transit Service

Everett is served by municipal and regional bus services, as well as commuter rail and ferries which provide important opportunities for fostering symbiosis between bicycle transportation and mass transit. In 2009, Washington's first bus rapid transit system, known as Swift, began operations along a 17 mile route from Everett Station to the Aurora Village Transit Center. Three interior bike racks are available on each bus, accessed through the third door at the rear of the bus. Key transit stations in Everett include Everett Station, College Station at Everett Community College and Mall Station at Everett Mall. Everett Station is serviced by Sounder Commuter Rail, which provides space for up to four bicycles per train car. Bicycle lockers and short-term bicycle parking are also available at Everett Station. Transit options in Everett include Everett Transit, Community Transit, Sound Transit (including Sounder train service), Skagit Transit, Island Transit, Amtrak, Greyhound, and Northwestern Trailways. If there is insufficient bike storage at a particular transit stop or station, contact bike coordinator Jim Ozanne with locations and he can work with the particular agency to address the issue.

Bicycling Conditions

Bike lanes, multi-use trails, roadway shoulders, widened sidewalks, and shared roadways on low-volume streets comprise Everett's current bikeway network (Figure 3: Existing Routes by Type). The quantity and quality of existing facilities varies by location, ultimately appealing to different types of bicyclists - recreational vs. commuter (Figure 4: Existing Routes – Recreational and

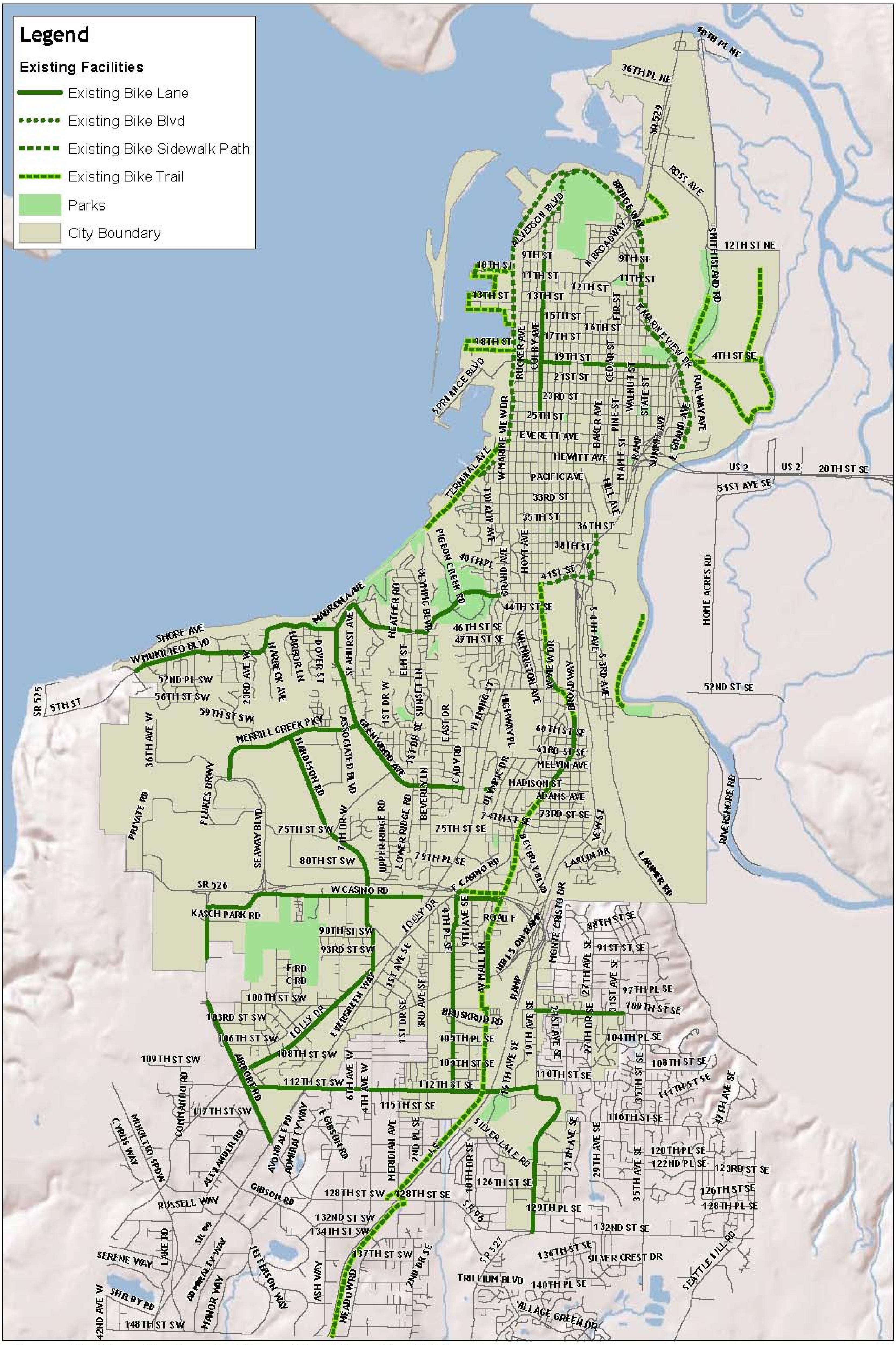
Commuter; It should be noted that these designations may change or evolve in the future as the bicycle system develops.)

Elements contributing to a positive bicycling environment include:

- A core set of bicycle routes
- Presence of a multi-use trail (Interurban Trail) through much of the city
- Good street system connectivity
- Warning signage advising motorists of bicycle traffic
- Presence of available right-of-way for future bikeways

System weaknesses include:

- Major roads serving as barriers to bicycling (e.g., roads that are difficult to bicycle along or cross)
- High volume arterials that lack parallel low volume streets
- Existing routes that do not connect to each other due to gaps in facilities
- Limited street connectivity, particularly in south Everett
- Hilly topography along key connections – elevation varies from 6' to 650'
- Constrained right-of-way in some locations
- Lack of wayfinding tools to orient bicyclists
- Maintenance issues (e.g., debris in bike lanes and on the Interurban Trail)
- Lack of bike parking facilities in many areas

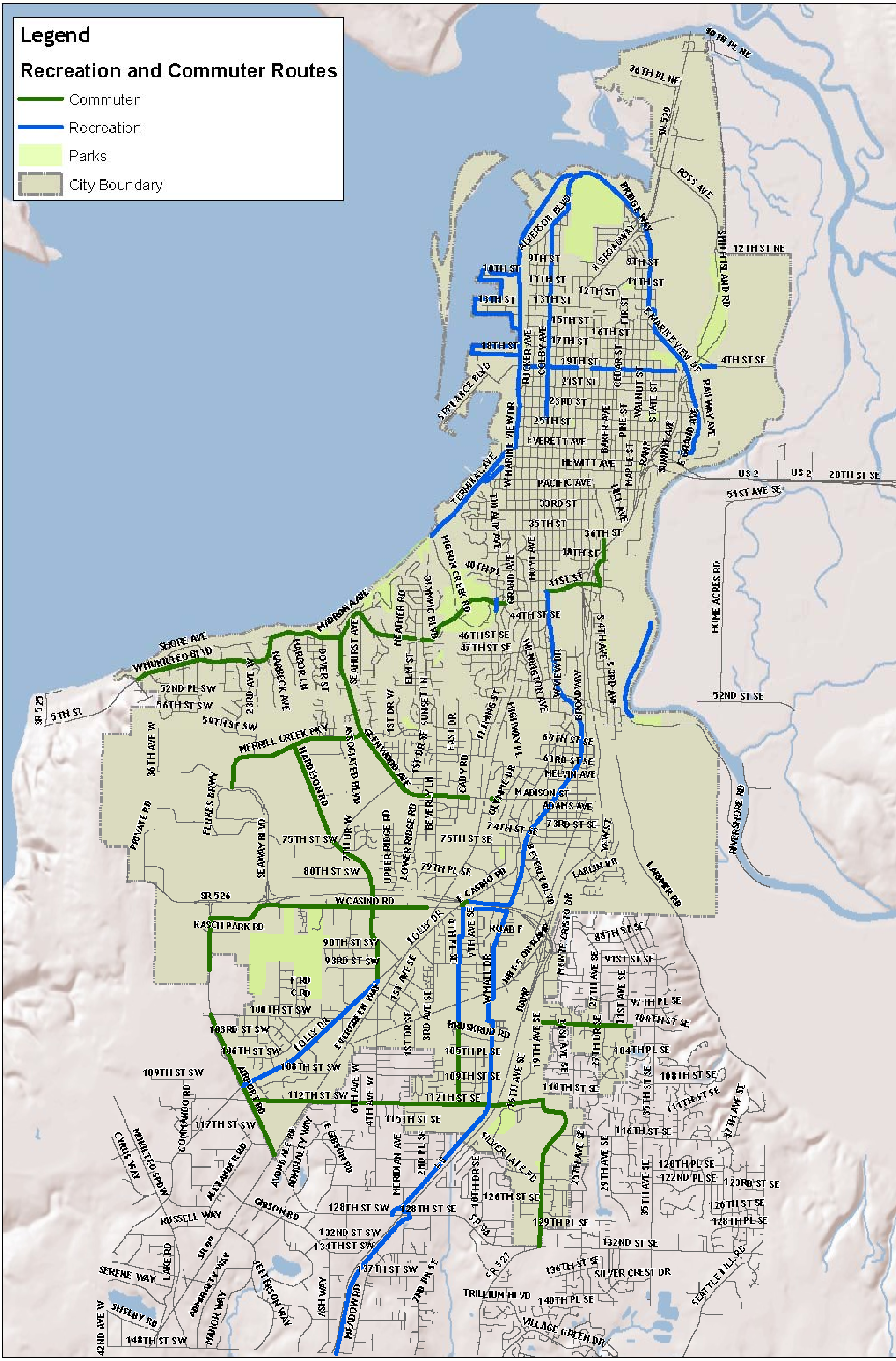


Everett Bicycle Route Map: Existing Facilities

City of Everett
Everett Bicycle Master Plan
Source: Data obtained from City of Everett
Author: DM
Date: December 2010

0 0.5 1 Miles

Figure 3. Existing Routes by Type



Everett Bicycle Route Map: Existing Bike Routes

City of Everett
Everett Bicycle Master Plan
Source: Data obtained from City of Everett
Author: DM
Date: December 2010

0 0.5 1 Miles

alta

Figure 4. Existing Routes - Recreational and Commuter

Bicycling Events

Everett hosted the 100 mile long Everett Classic Bike Race on May 23rd, 1992. The race was won by 20-year old Bobby Julich, who had recently placed 10th overall in the prestigious Tour DuPont stage race. Julich commented, "This is a great course. From the minute I got here, I felt perfectly at home. If the sponsors stay with it, this could be a national-championship race sometime down the road." More recently, the second annual Tour de Muk bicycle ride took place in Everett in 2008. Riders had the choice of a 3.2 mile family route down Mukilteo Boulevard, a 23 mile ride though Everett and Mukilteo, or a challenging 16 mile ride through the hillier parts of town. More than 120 riders participated, a significant increase over the 47 riders in 2007. A map of the 2008 Tour route is displayed in Figure 5.

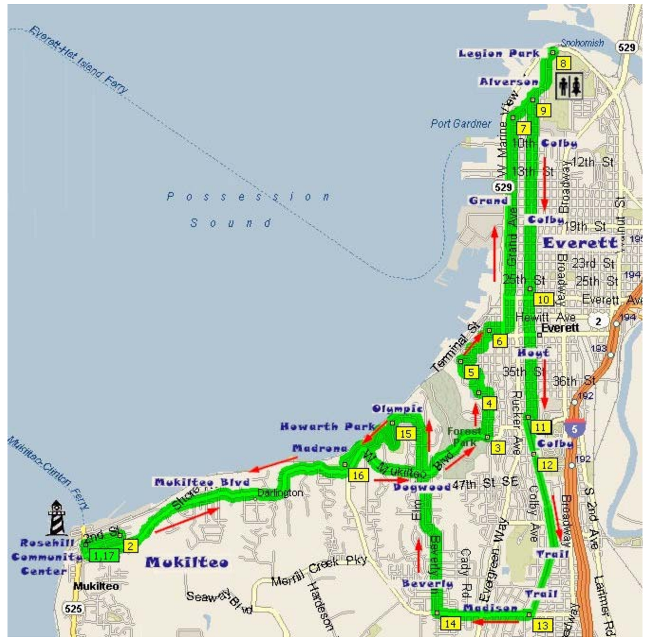


Figure 5 – Tour de Muk 2008 Route

Data Collection Effort Summary

Public Involvement

The Project Team conducted stakeholder interviews to identify bicycle issues from the standpoint of various interest groups and organizations. Community workshops were held throughout the project's duration, enabling residents and other interested individuals to express concerns and ideas for improvements. Throughout the project, City of Everett Senior Engineer Jim Ozanne served as the point contact person to community members and the project team, fielding calls and emails from Everett residents adding their input to the project.

Project kick-off meeting

An initial project kick-off meeting was held between the Project Team and City staff. The project schedule, data needs and previous plans were all discussed. After the meeting, the Project Team received a tour of various parts of the city before meeting with City staff and interested citizens that evening. The following day, the Project Team enjoyed a sunny cool morning ride around Everett with several of the citizens and visited Sharing Wheels, Everett's community bike co-op.

Open house

There was an excellent turnout at the first open house, which took place on Tuesday March 10^{th}, 2009. According to the sign-in sheet, there were 69 people in attendance. This was a great show of enthusiasm for the work the City is doing to improve its implementation of bicycle facilities. The open house began with a 20 minute introduction, which was followed by several activities designed to obtain citizen input and feedback on preliminary maps and facility recommendations. The meeting ended with a short question and answer session. The event also received excellent media coverage, with an article appearing in both the Herald and the Tribune. See Email Update #3 in Appendix F for a detailed description of the meeting activities and results.

Final Open house

A final open house took place on January 24, 2011. This open house provided a forum to discuss the comments received on the draft plan. A large portion of the final open house was dedicated to discussing outstanding items from the public comment period, including the resolution of conflicting comments. After a discussion of these items, such as selecting between alternate routes or potential new bicycle treatments, the meeting concluded with a review of the final bicycle routes map, non-motorized spending, and next steps.

Draft Distribution

The draft was made available to over 200 stakeholders and copies of both CD's and printed copies were distributed to staff for review. The review/comment period was one month long and comments were compiled and were addressed at the final public meeting.

Periodic newsletter updates

The Project Team developed email newsletter updates every few months to keep the public and other interested parties aware of the status of the planning effort. The email list was comprised of people who had signed up at the public meetings or who had emailed either the City or the Project Team requesting to be added to the list. Newsletters were also an effective means of soliciting feedback on the accuracy of the existing bicycle facilities map, difficult areas in the City for bicycling, etc. See Appendix F for all of the newsletter updates.

Stakeholder interviews

Prior to the open house, seven stakeholder interviews were conducted with 10 residents and representatives of organizations selected to represent a diverse cross-section of Everett's population. The results of the stakeholder interviews are found in Appendix E. The purpose of the interviews was to discuss conditions for bicyclists in Everett. This effort provided important information regarding:

- Destinations needing bicycle access (Everett Station, the waterfront, Boeing, Downtown, etc.)
- Major barriers to bicycle travel (Evergreen Way, Everett Mall Way, Broadway, I-5, terrain)
- Major gaps in the network (such as the end of the Interurban to Downtown)
- Specific locations in need of improvements (including at specific intersections)

The following organizations participated in the interviews:

- Sharing Wheels Community Bike Shop - works with low-income, homeless and youth populations.
- B.I.K.E.S. Club of Snohomish County - has approximately 130 members and is organized mostly around road/recreational riding. B.I.K.E.S. also supported the Everett Bicycle System Implementation Plan by conducting outreach at Bike to Work Day on May 15, 2009, where they distributed project information and provided a sign-up sheet for plan updates.
- Cascade Bicycle Club - headquartered in Seattle, it is more focused on promoting utilitarian bicycle trips, and reached out to approximately 100 of its members in the Everett area in anticipation of the interview.
- Community Transit - an employee spoke to the needs of people who make bike-transit connections.
- Snohomish Health District - an employee added the perspective of Healthy Communities, a community-based effort to improve health through active living and healthy eating.
- Individuals interviewed included those who travel exclusively by bicycle, occasional commuters and recreational riders.
- Everett Parks and Recreation – added information and made suggestions for linking the bicycle network with existing parks and open spaces.

Summary of fieldwork

The goal of this planning effort was to evaluate the adequacy of Everett's existing bicycle infrastructure, assess the feasibility of the proposed routes found in the transportation element of the Comprehensive Plan and recommend additional facilities. Recommended new facilities fall into several different categories, including connections between existing facilities and new routes that connect to important local and regional destinations. Connections are especially important, as cyclists have been shown to highly prefer continuous facilities to discontinuous ones.

The adequacy of all existing and proposed facilities was evaluated during an initial field visit. During this step, deficient points were noted along existing routes and a list of spot improvements was assembled. A second field visit was completed after the proposed network was refined based on public input during the open house process. Information gathered during this field visit was used to develop the project sheets and summary tables found in Chapters III and VI.

Collision data

Collision data was analyzed for collisions involving bicycles from 2005-2007. There were 93 collisions over the three year period, although five of the 93 collisions did not involve a motor vehicle. Though it provides an important sample, the data does not fully represent bicycle collisions in Everett as many bicycle collisions, especially those not involving a motor vehicle, go unreported. Furthermore, as is explained in Appendix C, the number of bicycle collisions at a given location is an incomplete measure of safety without knowing an approximate number of bicycles that travel in that area. Keeping this caveat in mind, the analysis highlights the prevalence of collisions on particular streets and at particular intersections. It also highlights common turning movements and offers possible causes of bicycle collisions. The complete collision analysis is found in Appendix C.

Employer survey

The Project Team developed an online survey that was sent to employers that participate in Everett's Commute Trip Reduction Program. The purpose of the survey was to assess the types of facilities and programs being offered by employers to support employees bicycling to work. Of the forty-one employers currently enrolled in the program, sixteen employers representing more than 8,000 employees responded to the online survey. Most employers that responded to the survey provide their employees with showers and lockers. Outdoor parking is generally provided, with about half of the employers reporting the availability of covered parking. A few employers offer controlled access bicycle parking rooms. A full analysis of the survey results is presented in Appendix D.

Distribution of Draft Report

The draft report was distributed electronically to the email list for review and comment in anticipation of the final open house. Submission of these comments formed the basis of the final meeting to resolve important issues for creating the final report. The comments were divided into three categories – project team agrees, project team disagrees and optional treatments to be discussed at the final meeting. Any comments excluded were distributed at the final plan meeting. Important comments that were contradictory or conflicted with the plan formed the basis of the discussion for the final meeting.

III. Recommended Bikeway Facilities

Everett has developed a foundation to build on and transform itself into one of the region's most bikeable communities. Although challenges lie ahead, the foundation of the system already exists. This chapter lays out a long-term plan for improving this system. The recommended network builds upon previous and on-going local and regional planning efforts, and reflects the extensive input offered by City staff, stakeholder groups and Everett residents.

The recommended bikeway network includes a comprehensive and diverse set of bicycle facilities connecting key destinations in and around Everett. System improvements include bicycle lanes, signed routes on low-volume streets, multi-use trails and upgrading intersections for bicycle crossings. Chapter IV describes programmatic strategies to enhance Everett's bicycling environment.

This chapter evaluates both existing and proposed facilities.

Existing facilities have been separated into three categories:

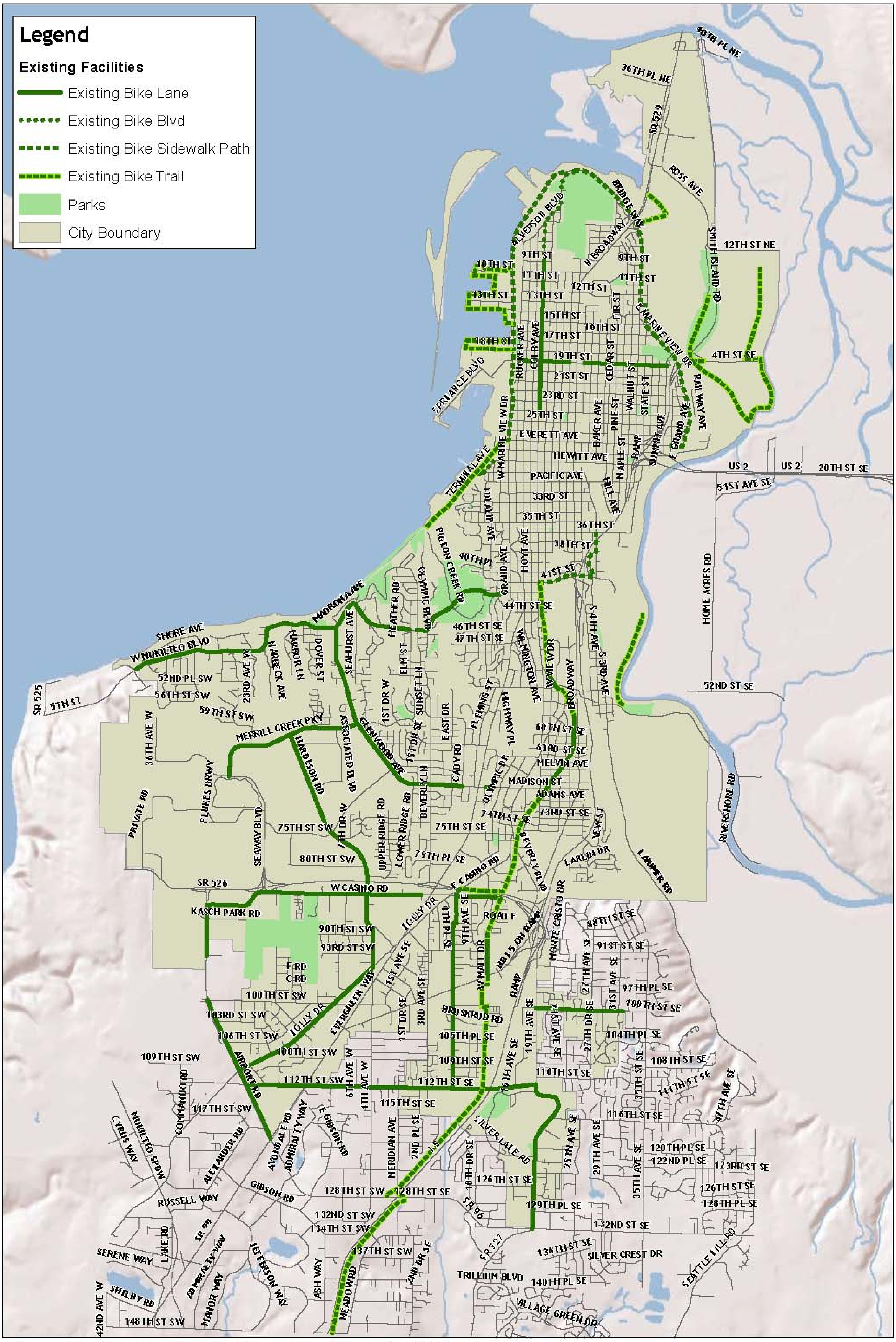
1. **Fair** – these routes are usually deemed uncomfortable to recreational riders and more suitable for experienced riders.
2. **Good –** these routes are facilities that meet the recommended width for Everett bicycle facilities, but in many cases, minor improvements would greatly enhance the quality of the current facility.
3. **Better –** these routes exceed the recommended guidelines for Everett bicycle facilities and are what the City of Everett is striving to provide throughout the city.

Proposed facilities fall into two categories:

1. **Connections between existing facilities** complete network gaps between existing facilities.
2. **Proposed facility additions** are located in areas not currently served by the bicycle network. These facility additions are further categorized into the following:
    - Tier 1 (1-10 years out)
    - Tier 2 (10-20 years out)
    - Tier 3 Facilities (Grant Funding required)
    - Corridor Replacement Project Required
    - Other Agency Projects

Existing Facilities Analysis

This section provides an analysis of existing on-street bicycle routes in Everett. General comments are also provided on Everett's multi-use trails (See Appendix A. Project Concept Guidelines for further guidance on multi-use trail design). While it is a priority to add new facilities to complete the bicycle network in Everett, it is also important to ensure that the existing facilities are usable and promote recreational use that may later convert to commuter or other regular trips resulting in a change in mode share. Just over half of the facilities in Everett are rated "Good" or "Better", though many could use minor improvements, such as more frequent stenciling in the bike lane.



Everett Bicycle Route Map: Existing Facilities

City of Everett
Everett Bicycle Master Plan
Source: Data obtained from City of Everett
Author: DM
Date: December 2010

0 0.5 1 Miles

Figure 6 - Existing Facilities

“Fair” Rated Bicycle Facilities Analysis

The following table identifies existing bicycle facilities in Everett that have been categorized as “Fair”. The bike lanes on these facilities are generally considered too narrow for the traffic volumes on the particular street to be convenient for bicycle travel. Project description sheets are provided in Chapter VI.

Table 1. Fair Rated Bicycle Facilities Analysis

Facility ID	Facility Type	Facility Location	From	To
EF-A	Lane	100Th St SE	19Th Ave SE	31St Ave SE
EF-F	Lane	4Th Ave W	Corbin Dr	Holly Dr
EF-G	Lane	5Th Ave W	W Casino Rd	Corbin Dr
EF-H3	Lane	7Th Ave SE	100Th St SE	112Th St SE
EF-I1	SW	Airport Rd	W Casino Rd	Kasch Park Rd
EF-I2	Lane	Airport Rd	Kasch Park Rd	94Th St Sw
EF-L1	Sidewalk	E Marine View Dr	Skyline Dr	16Th St
EF-L2	Sidewalk	E Marine View Dr	16Th St	Summit Ave
EF-L3		Grand	Marine View	Everett
EF-M1	Lane	Glenwood Ave	Mukilteo Blvd	5700 Block
EF-M3	Lane	Glenwood Ave	6300 Block	Sievers-Duecy Blvd
EF-M4	Lane	Madison St	Sievers-Duecy Blvd	E Cady Rd
EF-M5	Lane	Madison St	Rainier Dr	Berkshire Dr
EF-O	Lane	Hardeson Rd	Merrill Creek Pky	W Casino Rd
EF-Q11	Lane	Interurban Trail	W Mall Dr	Se Everett Mall Way
EF-Q12	Trail	Interurban Trail	Se Everett Mall Way	128Th St SE
EF-Q8	Sidewalk	Interurban Trail	E Casino Rd	84Th St SE
EF-R	Trail	Lowell Riverfront Trail	4300 Block	Rotary Park
EF-S	Lane	Merrill Creek Pky	Glenwood Ave	Seaway Blvd
EF-T1	Lane	Mukilteo Blvd	Grandview Ave	Dogwood Dr
EF-W2	Sidewalk	W Marine View Dr	Alverson Bridge	North View Park
EF-W3	Sidewalk	W Marine View Dr	North View Park	18Th St
EF-W4	Sidewalk	W Marine View Dr	18Th St	Everett Ave

"Good" Rated Bicycle Facilities Analysis

The following table identifies existing bicycle facilities in Everett that are good, but would benefit from additional treatments including spot improvements at particular locations. Note that all existing and recommended bike lane widths are inclusive of the gutter pan.

The primary recommended improvements are:

Widen bike lanes by allocating space from travel lanes or the center turn lane. For many of these facilities, the bike lanes are not so narrow to be deemed fair, but there is available curb-to-curb width in the roadway that could be utilized to enhance and create a more comfortable facility. These improvements could be completed the next time the roadway is re-paved or restriped.

Paint more frequent bicycle stencils in the bike lanes. Infrequent stencils in the bike lane are a common shortcoming of bike lanes, resulting in bike lanes that can be mistaken for shoulders or parking lanes. Bicycle stencils remind drivers of bicyclists' right to the roadway. This low-cost improvement can be completed at any time and would help to identify the place used by bicycles on Everett roads. Appendix A. Project Concept Guidelines provides recommendations on the use of bicycle stencils.

Table 2. Good Rated Bicycle Facilities Analysis

Facility ID	Facility Type	Facility Location	From	To
EF-AA	Sidewalk	Smith Ave	41st St	3600 Block
EF-B1	Lane	112Th St Sw	Airport Rd	Evergreen Way
EF-B2	Lane	112Th St Sw	Evergreen Way	Silver Lake Rd
EF-C	Lane	19Th Ave SE	112Th St SE	132Nd St SE
EF-E	Sidewalk	41St St	Colby Ave	S 3Rd Ave
EF-I3	Lane	Airport Rd	100Th St Sw	Evergreen Way
EF-K1	Signed Route	Colby Ave	5Th St	9Th St
EF-K2	Lane	Colby Ave	9Th St	19Th St
EF-K3	Lane	Colby Ave	19Th St	24Th St
EF-N	Lane	Everett Ave	E Grand Ave	Harrison Ave
EF-P2	Lane	Holly Dr	100Th St Sw	Airport Rd
EF-Q10	Trail	Interurban Trail	1400 Block	W Mall Dr
EF-Q13	Trail	Interurban Trail	128th St	148th St
EF-Q3	Lane	Interurban Trail	Alta Dr	52Nd St SE
EF-Q6	Trail	Interurban Trail	Madison St	Adams Ave
EF-T2	Lane	Mukilteo Blvd	Elm St	Mukilteo Ln
EF-V2	Lane	W Casino Rd	5Th Ave W	Casino Square W Drwy
EF-W1	Sidewalk	W Marine View Dr	Skyline Dr	Alverson Bridge
EF-X	Trail	Port Waterside Trail (along the sound)	Everett Ave	Pigon Creek 1
EF-Y	Signed Route	Bond St	Hewitt Ave	Port Waterside Trail (along the sound)
EF-Z1	Trail	10th St/14th St	W Marine Dr	W Marine Dr
EF-Z2	Trail	18th St	W Marine Dr	W Marine Dr
EF-Z3	Trail	Federal Ave	42nd St SW	Federal Ave

"Better" Rated Bicycle Facilities Analysis

The following table lists facilities that are considered better. No improvements are recommended.

Table 3. Better Rated Bicycle Facilities Analysis

Facility ID	Facility Type	Facility Location	From	To
EF-B3	lane	112th	Silver Lake	19th
EF-D1	Lane	19Th St	Summit Ave	Mcdougall Ave
EF-D1	Lane	19Th St	Summit Ave	Mcdougall Ave
EF-H1	Lane	7Th Ave SE	84Th St SE	92Nd St SE
EF-H2	Lane	7Th Ave SE	92Nd St SE	95Th Ct SE
EF-H4	Lane	7Th Ave SE	95Th Ct SE	100Th St SE
EF-J	Signed Route	Alverson Blvd	W Marine View Dr	Colby Ave
EF-M2	Lane	Glenwood Ave	5700 Block	6300 Block
EF-P1	Lane	Holly Dr	4Th Ave W	100Th St Sw
EF-Q2	Trail	Interurban Trail	41st St SE	Alta Dr
EF-Q4	Trail	Interurban Trail	52Nd St SE	Commercial Ave
EF-Q5	Lane	Interurban Trail	Commercial Ave	Madison St
EF-Q7	Trail	Interurban Trail	Adams Ave	W Casino Rd
EF-Q9	Lane	Interurban Trail	84Th St SE	1400 Block
EF-U	Trail	Smith Island Trail	Langus Park	4Th St SE
EF-V1	Lane	W Casino Rd	Airport Rd	5Th Ave W

Trails

Appendix A contains project concept guidelines for the construction of multi-use trails. Everett design guidelines in the past developed the current foundation for trails, used improving designs but, the implementation of these trail projects has been inconsistent.

Sidewalks as Trails

Construction of facilities for bicycles on sidewalks is generally not recommended, particularly where there are frequent driveway or roadway crossings. However, wider sidewalks can adequately serve bicycle traffic in areas where a connection is missing (and cannot be filled by an on-street facility) or where expected bicycle volumes are low. In general, multi-use trails should offer a cycling experience that is truly separate from vehicular traffic.

Interurban Trail

The Interurban Trail offers a comfortable cycling experience separate from vehicular traffic. The following recommendations are made for enhancing conditions on the Interurban trail:

- Develop a standard, highly visible treatment for application at all entrances and access points to the Interurban Trail
- Improve crossings of major roadways (e.g., the crossing of 112th St SE, terminus @ Colby).
- Add signage in the proximity of trail entrances to alert cyclists to their location.
- Improve connections from the end of the trail at 43rd and Colby to downtown, Everett Station, the US 2 trestle and neighborhoods east of Evergreen Way/Rucker Avenue
- Improve shoulder treatments in some areas where asphalt is crumbled, or gravel is soft. Add edge of trail improvements such as plantings.
- Continue to maintain vegetation and trim growth regularly.

Figure 7. Examples of potential signage for the Interurban Trail in Everett.

Proposed Facilities

Guiding principles were developed to lay out the best possible future bicycle network by identifying the features of a network most important to the residents of Everett. The goal was to identify project priorities so that the City may focus funding and funding applications for projects. Specific principles driving the development of the recommended network include:

- **Overcomes Obstacles:** The project provides a way to cross a barrier such as a freeway or waterway.
- **Connectivity:** To what degree does the project fill a missing gap in the bicycle system?
- **Activity Intensity:** The improvement increase accessibility for employees that work for employers that participate in the Commute Trip Reduction program, or increases accessibility to stores, restaurants, employment, etc.
- **Connects Residents to the Bicycle Network:** The improvement connects existing or future housing to the bicycle network.
- **Lack of Alternative Routes:** The improvement is especially important because alternative routes do not exist.
- **Recreational Value:** The improvement will provide enhanced recreational riding opportunities.
- **Community Stated Need:** The project addresses a deficiency in the network voiced by the community.
- **Topography Requires Facility:** The project provides facilities on a road where steep slopes, and the resulting slower bicycling speeds, necessitate a bicycle facility.
- **Suitable:** The project is on a street with traffic volume, speeds, etc. where the presence of bicycles would be appropriate.
- **Provides Access to Transit:** The project improves the ability of cyclists to connect with transit routes.

Using the guiding principles above, the Project Team ranked each project based on information obtained from site visits, field work, City officials, and the public; and grouped the projects into the following categories:

- Connections to Existing Facilities
- Tier 1 (0-10 years out)
- Tier 2 (10-20 years out) and;
- Tier 3 (long-term, grant funding required) priorities.

Additionally, other important projects to the overall Everett bicycle system were identified as being part of a potential corridor replacement project or as belonging to outside agencies. The priorities may change according to available funds, changing priorities, new roadway projects that coincide, new development and redevelopment opportunities, or other factors.

It should be noted that the purpose of the groupings is to understand the relative priority of the projects so that the City may apportion available funding to the appropriate projects. Tier 2 and Tier 3 projects are also important, and may be implemented at any point in time as part of a development or public works project. The ranked lists should be considered a "living document" and should be reviewed to reflect current Everett priorities. The following tables contain streets and multi-use paths in the future Everett bicycle network, shown in Figure 8 – Recommended Bicycle Facilities.

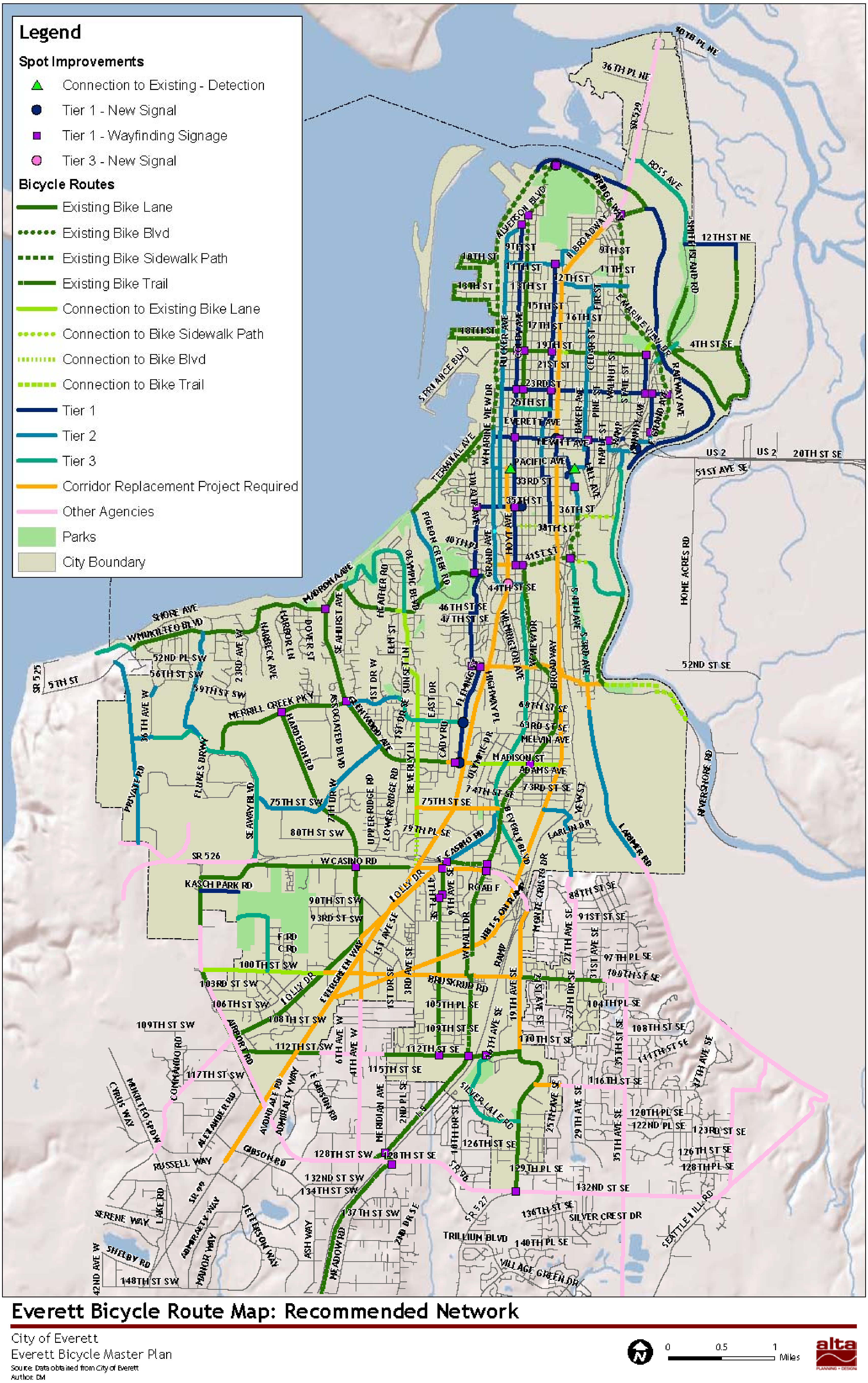


Figure 8 - Recommended Bicycle Facilities

Connections between Existing Facilities

The following proposed facilities complete gaps between Everett's existing bicycle facilities, helping to create a complete network by connecting existing facilities to each other.

Table 4. Connections between Existing Facilities

Facililty ID	Planned Facility Type	Facility Location	From	To
CEF-A1	Lane	100Th St SW	Airport Rd	Dakota Way
CEF-A2	Lane	100Th St SW	Dakota Way	Evergreen Way
CEF-D	Sidewalk	36Th St	Smith Ave	Lowell Riverfront Trail
CEF-E	Signed Route	36Th St	Hoyt Ave	Smith Ave
CEF-F	Sidewalk	41St St	S 3Rd Ave	Lowell Riverfront Trail
CEF-H1	Lane	Dogwood Dr/Beverly Lane	Mukilteo Blvd	79Th Pl SE
CEF-H2	Signed Route	Beverly Ln	79Th Pl SE	W Casino Rd
CEF-J	Trail	Lowell Riverfront Trail	Rotary Park	City Limits
CEF-K	Lane	Madison St	Berkshire Dr	Broadway
CEF-L	Lane	Mukilteo Blvd	Dogwood Dr	Elm St
CEF-P	Lane	Summit Ave	E Marine View Dr	19Th St

Proposed Facility Additions

The following additional facilities, located in areas not currently served by existing facilities, serve to create a comprehensive bicycle network in Everett.

Tier 1

Table 5. Tier 1

Facility ID	Planned Facility Type	Facility Location	From	To
T1-A1	Bike Blvd	35Th St	Federal Ave	Hoyt Ave
T1-C1	Lane	California St	W Marine View Dr	I-5
T1-F1	Bike Blvd	Federal Ave	35Th St	42Nd St SE
T1-F10	Bike Blvd	Fleming St	52Nd St SE	56Th St SE
T1-F11	Bike Blvd	Fleming St	56Th St SE	Madison St
T1-F2	Trail	Trail And Overcrossing	42Nd St SE	Elk Hill Dr
T1-F3	Bike Blvd	Elk Hill Dr	E Mukilteo Blvd	Federal Ave
T1-F4	Bike Blvd	Federal Ave	Elk Hill Dr	4400 Block
T1-F5	Bike Blvd	Federal Ave	4400 Block	Alger Ave
T1-F6	Bike Blvd	46th St SE	Federal Ave	College Ave
T1-F7	Bike Blvd	College Ave	46th St SE	Alpine Dr
T1-F8	Bike Blvd	College Ave	Alpine Dr	52Nd St SE
T1-F9	Bike Blvd	52Nd St SE	College Ave	Fleming St
T1-G1	Bike Blvd	Hoyt Ave	Alverson Blvd	41st St
T1-H2	Bike Blvd	Lombard Ave	10Th St	26Th St
T1-H3	Lane	26th St	Lombard Ave	Oakes Ave
T1-H4	Bike Blvd	Oakes Ave	26Th St	Everett Ave
T1-H6	Bike Blvd	Oakes Ave	Pacific Ave	32Nd St
T1-H7	Lane	32Nd St	Oakes Ave	Lombard Ave
T1-H8	Bike Blvd	Lombard Ave	32nd St	36Th St
T1-J3	Bike Blvd	Fulton St	Pacific Ave	Hewitt Ave
T1-J4	Bike Blvd	Fulton St	Hewitt Ave	California St
T1-Q	Bike Blvd	23Rd St	Grand Ave	E Grand Ave
T1-R	Bike Blvd	Summit Ave	23rd	19Th St
T1-S	Bike Blvd	Harrison Ave	Everett Ave	23rd St
T1-T	Bike Blvd	Wall St	Broadway	Smith Ave
T1-U	Bike Blvd	Smith Ave	Wall St	32Nd St
T1-V	Sidewalk Path	Broadway	Wall St	California St
T1-W	Lane	Kasch Park Rd	Airport Rd	Kasch Park
T1-Z	Trail	Riverside Business Park	SR529	Pacific Ave

Tier 2

Table 6. Tier 2

Facility ID	Planned Facility Type	Facility Location	From	To
T2-A	Trail	75Th St SE	Seaway Blvd	Hardeson Rd
T2-B	Lane	12Th St	Broadway	Chestnut St
T2-BB	Sidewalk	Pacific Ave	Smith Ave	Fulton St
T2-C	Trail	Trail And Overcrossing	42Nd St SE	Elk Hill Dr
T2-CC	Sidewalk	Tower St	Broadway	N Broadway
T2-D	Sidewalk	41St St	Hoyt Ave	Interurban Trail/Colby Ave
T2-DD	Bike Blvd	Harrison Ave	Everett Ave	Pacific Ave
T2-E	Bike Blvd	Baker Ave/ Poplar St	12Th St	Hewitt Ave
T2-F	Lane	Brookridge Blvd	Beverly Lane	Glenwood Ave
T2-G	Lane	10Th St	Grand Ave	Tower St
T2-H	Trail	Japanese Gulch	W Mukilteo Blvd	Sr 526
T2-I	Trail	Japanese Gulch Connector	Seaway Blvd	Sr 526
T2-J	Lane	Larimer Rd	S 2Nd Ave	City Limits
T2-K	Bike Blvd	Grand Ave	Alverson Blvd	35Th St
T2-L	Bike Blvd	Pigeon Creek Rd	Mukilteo Blvd	Puget Sound
T2-N	Lane	Sievers-Duecy Blvd	Hardeson Rd	Glenwood Ave
T2-O	Sidewalk	W Marine View Dr	Everett Ave	California St
T2-P	Sidewalk	W Marine View Dr	California St	Pacific Ave
T2-Q	Lane	Norton Ave	Pacific Ave	Grand Ave
T2-R	Bike Blvd	Grand Ave	Norton Ave	43rd St SE
T2-S	Bike Blvd	43rd St SE	Grand Ave	Colby Ave
T2-T	Lane	E Casino Rd	Beverly Blvd	7th Ave SE
T2-V	Bike Blvd	75th St/Hamlet Ln	Broadway	81st Pl
T2-W	Trail	Japanese Gulch Connector	Seaway Blvd	Japanese Gulch Trail
T2-X	Trail	Hamlet Ln	81st Pl	Gold Way
T2-Y	Bike Blvd	Oakes Ave	Everett Ave	Pacific Ave
T2-Z	Sidewalk	Smith Ave	Pacific Ave	3600 Block

Tier 3

Table 7. Tier 3

Facility ID	Planned Facility Type	Facility Location	From	To
T3-A	Lane	S 2Nd Ave	47Th St SE	Lenora St
T3-B	Lane	S 3Rd Ave	41St St	47Th St SE
T3-C	Lane	Ross Ave/Smith Island Rd	Langus Park	SR 529
T3-D	Lane	Seaway Blvd	36Th Ave W	SR 526
T3-E	Lane	Silver Lake Rd	19Th Ave SE	112Th St SE
T3-F	Lane	Colby Ave	44th St SE	Beverly Blvd
T3-G	Lane	25Th St	Hoyt Ave	Lombard
T3-H	Lane	Mukilteo Ln	Mukilteo Blvd	1St St
T3-I	Lane	Olympic Blvd	Mukilteo Blvd	Mukilteo Blvd
T3-J	Lane	Beverly Blvd	Colby Ave	Broadway
T3-K	Overcrossing	Evergreen Way	Holly Dr	Holly Dr
T3-L	Trail	Lowell Riverfront Trail Extension	Pacific Ave	Lowell Riverfront Trail
T3-M	Trail	Kasch Park Trail	Kasch Park	18th Ave W
T3-N	Shared Route	18th Ave W	end	100th St SW
T3-O	Shared Route	Pecks Drive	Fleming St	Brookridge Blvd
T3-P	Trail	41st St	W of Smith Ave	Lowell Riverfront Trail

Corridor Replacement Project Needed

Providing bicycle improvements in these corridors would be difficult as significant corridor reconstruction is required. In addition, significant right-of-way needs to be acquired to provide the appropriate facilities.

Table 8. Corridor Replacement

Facility ID	Planned Facility Type	Facility Location	From	To
CRPR-A	Lane	116Th St SE	19Th St SE	25Th St SE
CRPR-B	Lane	19Th Ave SE	112Th St SE	100Th St SE
CRPR-C	Lane	19th Ave SE	El Capitan Way	100th St SE
CRPR-D	Lane	41St St	Crescent Ave	Colby Ave
CRPR-E	Lane	100th St SE	Holly Dr	SW Everett Mall Way
CRPR-F	Lane	100th St SE	7th Ave SE	19th Ave SE
CRPR-G	Lane	4Th Ave W	Holly Dr	104Th St SE
CRPR-H	Lane	52Nd St	Fleming St	Larimer Rd
CRPR-I	Lane	100th St SE	SE Everett Way	7th Ave SE
CRPR-J	Lane	75Th St	Beverly Ln	Beverly Blvd
CRPR-K	Lane	Broadway	Sr 526	41St St
CRPR-L	Lane	Broadway	California St	West of SR 529
CRPR-L	Lane	Broadway	Wall St	West of SR 529
CRPR-N	Lane	E Casino Rd	Evergreen Way	Interurban Trail
CRPR-O	Lane	Evergreen Way	Pacific Ave	128Th St SE
CRPR-P	Lane	Se Everett Mall Way	SR 526	Evergreen Wy
CRPR-Q	Lane	Holly Dr	4Th Ave W	E Casino Rd
CRPR-R	Lane	Lenora St	2Nd Ave SE	Lowell-Snohomish River Rd
CRPR-S	Lane	Madison St	Cady Rd	Rainier Dr

Other Agency Projects

Other agency projects are those projects that have been identified through this master planning process as projects that provide key connections to areas outside of the City of Everett. The City will encourage the development of these corridors by adjacent government agencies.

Table 9. Other Agency Projects

Facility ID	Planned Facility Type	Facility Location	From	To
OAP-A	NA	100Th St SE	31St Ave SE	35Th Ave SE
OAP-B	NA	112Th St SW	9Th Pl W	Meridian Ave S
OAP-C	NA	116Th St SE	25Th Dr SE	35Th Ave SE
OAP-D	NA	128Th Pl SE	4Th Ave SE	19Th Ave SE
OAP-E	NA	132Nd St SE	19Th Ave SE	Seattle Hill Rd
OAP-F	NA	35Th Ave SE	100Th St SE	148Th St SE
OAP-G	NA	4Th Ave W	104Th St SW	128Th St SW
OAP-H	NA	51St St SE	Seattle Hill Rd	Larimer Rd
OAP-I	NA	Airport Rd	City Limits	City Limits
OAP-J	NA	Beverly Park Rd	Mukilteo Spdw	Airport Rd
OAP-K	NA	Larimer Rd	City Limits	Seattle Hill Rd
OAP-L	NA	Snohomish River	Broadway	42nd Pl NE
OAP-M	NA	Airport Rd	94th St	100th St SW
OAP-N	NA	129th St	Evergreen Way	4th Dr SE
OAP-O	NA	Seattle Hill Rd	132Nd St SE	Larimer Rd
OAP-P	NA	SR 526	Airport Rd	Seaway Blvd
OAP-Q	NA	84th ST SE/19th Ave SE	Interurban Trail	El Capitan Wy
OAP-R	NA	27th Ave SE	Gold Wy	100th St SE

IV. Recommended Programs: Education, Enforcement, Encouragement, & Evaluation

The recommended bicycle network should be complemented by programs and activities designed to promote bicycling. There are many existing efforts to promote bicycling in Everett, including efforts by local agencies, individual residents and active community groups such as the B.I.K.E.S. Club of Snohomish County. The Everett Bicycle System Master Plan recognizes these efforts and encourages the City of Everett to support, promote and build upon these efforts.

There are a number of programmatic elements that can help advance Everett to the next level of bicycle planning and implementation. A critical issue in Everett is the lack of a centralized location for bicycle planning. Bicycle facilities are planned as a part of a variety of projects, often without uniform standards. The project concept guidelines in this plan will help address this issue.

Bicycle planning commonly talks about the five "Es": engineering, education, encouragement, enforcement and evaluation. While Chapter III identifies facility improvements for enhancing the bikeway network, this chapter addresses education, encouragement, enforcement, and evaluation measures. Bike sharing is one particular strategy that was analyzed in detail (see Appendix H). Bike sharing is not recommended at this time due to a number of factors, including Everett's population size, density and lack of a comprehensive bicycle network.

Existing Education and Outreach Efforts

The City of Everett, in conjunction with various teaming partners, has produced a number of valuable educational materials aimed at bicyclists and motorists alike. Several clubs have activities aimed at encouraging people to ride bicycles, both recreationally and for transportation.

Existing Materials

- Washington State Bicycle Commute Guide: http://data.memberclicks.com/site/pt/Bicycle%20Commute%20Guide.pdf
- Sound Transit Bicycle Page: http://www.soundtransit.org/x117.xml
- Community Transit – Snohomish County Area Bicycling & Trail Map: http://www.commtrans.org/FAQs/BikeMaps.cfm
- Community Transit – Commuter Tips: http://www.communitytransit.org/Programs/BikeToWork_Tips.cfm
- Community Transit – Riding Safety: http://www.communitytransit.org/Programs/BikeToWork_RideSafely.cfm
- Community Transit - Bikes on Buses: http://www.commtrans.org/FAQs/Bikes.cfm

Clubs and Organizations

- Cascade Bicycle Club: http://www.cascade.org/
- Sharing Wheels Community Bike Shop: http://mysite.verizon.net/res1liz9/index.html
- Bicycle Alliance of Washington: http://www.bicyclealliance.org/

B.I.K.E.S. Club of Snohomish County has approximately 130 members and is organized mostly around road/recreational riding. B.I.K.E.S has contributed to improving bicycling in Everett in various ways, including sponsoring Bike to Work Day and the Snohomish County bicycle map (published by Community Transit), supporting city bike counts, and has granted money for a bike rack and supported bike education and safety through other local grants.

www.bikesclub.org

Sharing Wheels Community Bike Shop is a small community bike shop that operates as a co-op ($50/year membership). Their aim is to serve people just getting into biking and people just getting back onto their feet. Sharing Wheels accepts donated bikes which they refurbish and get back onto the street. Their 'Work for Wheels' program helps homeless people and kids earn a bike for transportation while learning to repair and maintain a bicycle. They also provide Christmas House with 200+ bikes during the winter holidays.

The League of American Bicyclists (LAB) offers a Smart Cycling course that teaches adults and children to ride their bicycles safely and confidently. The Smart Cycling courses are taught by League Certified Instructors (LCIs). There are currently seventeen League-Certified Instructors within twenty-five miles of Everett. For more information:

http://www.bikeleague.org/programs/education/index.php

Recommended Education and Outreach Efforts

Group Health Basics of Bicycling (A Cascade Bicycle Club program)	
Target audience	Current and potential cyclists aged 10-14
Primary agency	City of Everett
Potential Partners	Cascade Bicycle Club, Everett School District, Group Health, Everett Fire Department
Key elements	Classroom and on-bike sessions
Time frame	On-going
Cost	$ - $$
Potential funding sources	Low cost; may not require outside funding
Sample programs	http://www.cbcef.org/youth-bike-basics.html

With the 10 - 14 age group suffering from the highest number of bicycle collisions - nearly twice that of any other age group, the goal of Basics of Bicycling is to help kids beat this statistic and develop skills and habits that will continue with them into adulthood.

The curriculum includes two classroom and five on-bike lessons. Students learns basic traffic concepts such as stopping at stop signs and how to avoid the most common accident types such as riding out of a driveway without looking. Kids are also taught the importance of wearing a helmet. More information can be found here: http://www.cbcef.org/youth-bike-basics.html

Students in a classroom session learning basic traffic concepts before participating in an on-bike lesson.

Cascade Bicycle Club Programs

Target audience	Current and potential cyclists
Primary agency	City of Everett
Potential Partners	Cascade Bicycle Club, Bicycle Advisory Committee, Everett School District, Everett Fire Department
Key elements	Lectures, maps, in-class and on-bike instructions
Time frame	On-going
Cost	$ - $$ (depending on design and scope)
Potential funding sources	Low cost; may not require outside funding
Sample programs	http://www.cbcef.org/youth-bike-rodeos.html, http://www.cbcef.org/classes-bike.html

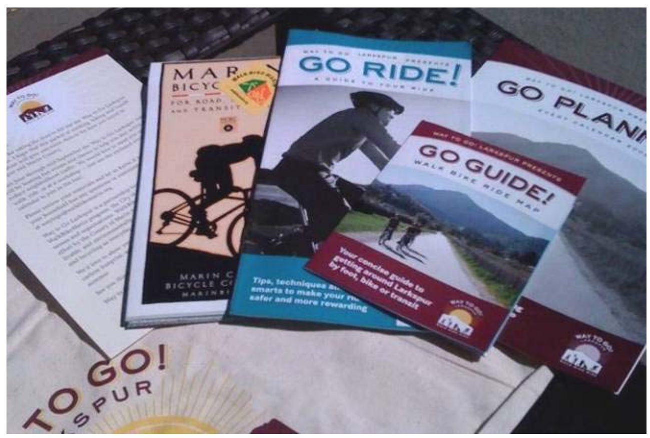
The Cascade Bicycle Club offers extensive student and adult/non-school based programming. These programs include:

- Riding with Confidence
- Urban Cycling Techniques - learn tips for riding effectively on city streets and on group rides
- Back to Basics of Bicycling (for Seniors)
- Intro to Bike Commuting
- GeaRS (Group Riding Skills)
- Paceline and Group Riding Clinics
- Clinics for Cascade Training Series
- Urban Riders (for Teens)
- Adult Beginners' Learn-2-Ride
-

A beginners' bicycling class getting mid-class instructions.

Smart Trips	
Target audience	Potential cyclists and pedestrians
Primary agency	City of Everett
Potential Partners	Bicycle Alliance of Washington, B.I.K.E.S. Club of Snohomish County, Cascade Bicycle Club, Bicycle Advisory Committee, Transit agencies, Everett Transit CRT
Key elements	Resources, maps and map orders, safety, events, groups
Time frame	On-going
Cost	$ - $$$ (depending on design and scope)
Potential funding sources	Low cost; may not require outside funding
Sample programs	http://www.walkbikemarin.org/waytogo/, http://www.portlandonline.com/transportation/index.cfm?c=43801

SmartTrips programs are proven to reduce drive-alone trips by approximately 10% and increase bicycling, walking and transit use within a target area. The program invites residents or employees of the target areas to order a customized information packet containing travel information (e.g. an event calendar, walking and bicycling maps, a bicycling guide, transit maps and schedules, etc.). Customized packets are assembled and delivered (by foot or by bicycle where possible) to residents at their homes or employees at their workplaces, along with an incentive gift of their choice.



Residents often do not know where to find walking and cycling resources; a SmartTrips program delivers brochures, maps and incentives directly

In addition to the customized information packet, the program also hosts numerous encouragement activities such as group walks, guided bicycle rides and classes and workshops. Trained staff appear at community or employer events to answer questions about walking, bicycling and transit use.

This approach is based on the annual award-winning City of Portland SmartTrips program, which has consistently shown a 9-13% reduction in drive-alone trips in the selected target area since 2004 at a cost of approximately 20 USD per household. More information on Portland SmartTrips: http://www.portlandonline.com/transportation/index.cfm?c=43801

This evidence-based program should be a key aspect of Everett's efforts to increase cycling. A thoughtful rollout strategy will select appropriate target areas based on factors known to indicate that a SmartTrips program can be successful (moderate to high residential density, availability of walking/bicycling infrastructure and transit service, commercial and community destinations within reasonable distance of homes, etc.) and work closely with municipalities and Everett regional transit to implement a program.

City of Everett Bicycle Website

Target audience	Current and potential cyclists
Primary agency	City of Everett
Potential Partners	Bicycle Alliance of Washington, B.I.K.E.S. Club of Snohomish County, Cascade Bicycle Club, Bicycle Advisory Committee
Key elements	Resources, maps and map orders, safety, events, groups
Time frame	On-going
Cost	$ - $$ (depending on design and scope)
Potential funding sources	Low cost; may not require outside funding
Sample programs	Boulder:http://ci.boulder.co.us/index.php?option=com_content&task=view&id=8839&Itemid=3278 Portland: http://www.portlandonline.com/TRANSPORTATION/index.cfm?c=34772

Many cyclists or potential cyclists do not know where to turn to find out about laws, events, maps, tips, and biking groups. The City of Everett should develop a "one-stop shop" website aimed at bicyclists. (The URL "http://www.bikeeverett.org" is available at time of writing.)

The Everett bicycle website should contain:

- A list of all **walking and bicycling groups**, including clubs, racing teams, and advocacy groups
- Information about specific Everett Boards and Commissions that discuss bicycle and pedestrian issues (how to get involved, meeting times and dates, agendas and minutes)
- Information about **current projects and how to get involved** (e.g., public meetings, comment periods)
- **Maps and brochures** (e.g., links to online maps and brochures, where to find in person, and how to request mailed materials)
- Links to **laws and statutes** relating to walking and bicycling
- Links to all relevant **local jurisdictions and their bicycle and pedestrian contacts** (City of Seattle, Snohomish County, etc.)
- Information about **cycling events** (e.g., rides, classes, volunteer opportunities)
- A list of **local bike shops**, including phone number and address
- Relevant **phone numbers** or an **online request form** (e.g., to request pothole repair, parking enforcement, bike rack installation request, trail maintenance, etc.)

The website may also feature:

- Events calendar
- Request form for route planning assistance
- Message boards

- Blog featuring stories and news
- Photo galleries from events and submitted by readers
- Popular riding routes

Note that these additional features may increase the cost to set up and maintain the website.

A one-stop bike website will not be difficult to set up, but it will only be successful if the site is both easy to use and updated regularly. Corners should not be cut in either design or in maintenance of the site and its information. All website content should be reviewed annually for accuracy.

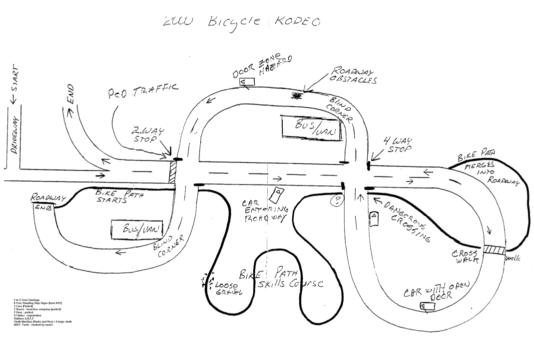
The bicycle community can assist in keeping the site up to date. The City of Everett will add bike issues to the agenda for the Transportation Advisory Committee and discuss bicycle website concerns as needed.

Bike Parking Installation Program	
Target audience	Everett cyclists
Primary agency	City of Everett
Potential Partners	Interested citizens, B.I.K.E.S. Club of Snohomish County
Key elements	Bike rack request system that allows citizens and businesses to request bike racks at locations around Everett.
Time frame	Anytime
Cost	$$ (for database upkeep and installation coordination)
Potential funding sources	CMAQ (Congestion Mitigation/Air Quality) funds; federal flexible transportation; public transportation funds
Sample programs	City of Chicago Bike Program http://www.chicagobikes.org/bikeparking/

It is recommended that the City of Everett develop and implement a bike parking installation program that distributes racks across the city through a request system. The request system will allow for citizens and businesses to assist in the distribution of racks to locations that are in need of bicycle parking. Such distribution method can include a hotline, website, and mail-in form. The City of Everett will then need to determine the feasibility of the request and then coordinate the installation while following the bike parking guidelines that are laid out in Appendices A and G. The B.I.K.E.S. club currently has a program that provides mini-grants to businesses that wish to install bike racks.

Bike Rodeos

Target	Children and youth
Primary agency	City of Everett
Potential Partners	Bicycle Alliance of Washington, B.I.K.E.S. Club of Snohomish County, Cascade Bicycle Club, Mukilteo School District, Everett School District, Everett Fire Department
Key elements	Drop-in event aimed at teaching kids basic skills and safety rules. Often organized by Police or Fire Departments. Can include free or low-cost helmet distribution.
Time frame	Fall and spring, annually
Cost	$
Potential funding sources	Bike shops (in-kind donations); transit agencies and local news outlets; traffic safety foundations and grant programs; hospitals and insurance companies
Sample programs	http://www.cbcef.org/youth-bike-rodeos.html#rodeos http://www.bicyclinglife.com/SafetySkills/BicycleRodeo.htm http://www.saferoutestoschools.org/pdfs/lessonplans/RodeoManualJune2006.pdf Burden/Williams Bike Rodeo Guide (http://stores.kepubs.com/-strse-76/0184/Detail.bok)



A sample diagram for a bike rodeo

Safe Moves set up their bike rodeo and we got to see over 100 kids walk or bike through the city learning about traffic safety at the SR2S booth at Santa Clarita's Earth Day/Arbor Day Festival

Bicycle rodeos are a safe cycling event that includes bicycle safety checks, safety talk that includes rules of the road and the importance of wearing a helmet, and the interactive learning experience of riding through a "chalk street" course. Bicycle rodeos usually focus on ages 5 through 14. The rodeos allow young bicyclists to learn and practice skills needed for competent bicycling in a protected environment. It is also recommended that the City of Everett coordinate with local school districts to create painted "safety cities" on school playgrounds to enable students to practice safe road behavior skills year-round.

Cycling Skills Courses and Curriculum	
Target	Children, youth, and adults
Primary agency	City of Everett
Potential Partners	Everett School District, Everett Fire Department, Bicycle Alliance of Washington, B.I.K.E.S. Club of Snohomish County, Cascade Cycling Club
Key elements	Organized classes for cyclists taught by trained instructors on handling skills, rules of the road, and on-bike training.
Time frame	Fall and spring, annually
Cost	$
Potential funding sources	Bike shops (in-kind donations); transit agencies and local news outlets; traffic safety foundations and grant programs; hospitals and insurance companies
Sample programs	http://www.toronto.ca/cycling/canbike/canbike.htm http://bikeleague.org/programs/education/courses.php http://www.wordspacepress.com/instructor.php

CAN-bike and League of American Bicyclists teach on-bicycle skill lessons for children and adults.

Trained instructors teach adult and teenage cyclists about the rules of the road and bicycle handling techniques. The most common program is the League of American Bicyclists courses (including Road I, Road II, and Commuting), taught by League Certified Instructors. Course cover bicycle safety checks, fixing a flat, on-bike skills, crash avoidance techniques, and traffic negotiation.

Technical Training for Transportation Professionals	
Target	Government agency planners and engineers
Primary agency	City of Everett
Potential Partners	Washington State Department of Transportation
Key elements	Bike/ped facilities & policy training for agency planners & engineers
Time frame	One time with refresher courses offered bi-annually
Cost	$$
Potential funding sources	Federal Highway Administration, National Highway Safety Administration
Sample programs	http://www.ibpi.usp.pdx.edu/summerworkshop2009.php http://www.ibpi.usp.pdx.edu/professional.php

Bicycle related education should be targeted to City of Everett staff with a focus on planners, engineers and safety officers. Outside experts can be brought in to conduct trainings for City staff.

Create Bicycle Maps

Target	Current and potential cyclists
Primary agency	City of Everett
Potential Partners	Snohomish County, Washington Department of Transportation, Community Transit, B.I.K.E.S. Club of Snohomish County
Key elements	Clear symbology, destinations, and services attractive for cyclists, good selection of routes
Time frame	One-time, with regular updates; can happen at any time
Cost	$$$
Potential funding sources	Bicycle program or general city outreach budget. Local businesses may be interested in sponsorship.
Sample programs	http://www.sfbike.org/download/map.pdf http://www.cityofchicago.org/Transportation/bikemap/keymap.html http://www.nycbikemaps.com/

One of the most effective ways of encouraging people to bicycle is through the use of maps and guides showing that the infrastructure exists, to demonstrate how easy it is to access different parts of the city by bike, and to highlight unique areas, shopping districts or recreational areas. Bicycling maps can be used to promote tourism, encourage residents to walk, or promote local business districts. Maps can be citywide, district-specific, or neighborhood/family-friendly maps. As the on- and off-street bikeway system is further developed, the City of Everett should update the bike map. This map will be produced as part of this study, and updated periodically as new routes are developed.

Conduct Annual Bicycle Counts	
Target	Current cyclists
Primary agency	City of Everett
Potential Partners	Washington State Department of Transportation, Bicycle Alliance of Washington, B.I.K.E.S. Club of Snohomish County, Cascade Cycling Club
Key elements	Follow significant locations annually and use standard count methodology to accurately track bicycling patterns over time
Time frame	Annually during June - September
Cost	$-$$
Potential funding sources	Bicycle program or general city outreach budget. Program may be supplemented by recruiting advocacy organizations and interested citizens to assist by donating volunteer time.
Sample programs	http://www.portlandonline.com/transportation/index.cfm?c=44671& http://bikepeddocumentation.org/ http://www.wsdot.wa.gov/bike/count.htm

Annual bicycle counts are an important tool cities can use to monitor where cyclists are riding and where there may be gaps in the bicycle network. In addition to providing information that helps prioritize facility improvements, quality bicycle counts can help cities obtain funding for new projects. Most grant programs require awardees to monitor the results of funded projects, which cannot be done without first establishing a baseline count. Thus, cities with established bicycle count programs may have an advantage when pursuing outside funding assistance for bicycle facilities.

The National Bicycle and Pedestrian Documentation (NBPD) project provides assistance to help cities begin taking bicycle counts in line with standard methodology, and also collects count information from cities to help monitor cycling on a national level. Count programs should begin by monitoring bicycling patterns in peak season during fair weather conditions in late summer (September), and can expand when funding allows. Counts should be taken during morning and evening peak hours on weekdays for bicycle facilities with primarily utilitarian users, and during midday peak hours on weekend days for facilities with primarily recreational users.

In 2008, WSDOT launched the Washington Bicycle and Pedestrian Documentation Project building on the NBPD methodology. WSDOT has coordinated annual counts around the state, including in Everett. In 2010, counts were performed at eight locations in Everett. The 2010 results showed an increase in non-motorized travel over 2009, with an increase in AM and PM count volumes of 12.6% and 37.3%, respectively. The full results of this annual count effort can be found on the WSDOT website at http://www.wsdot.wa.gov/bike/count.htm.

City staff may perform counts themselves, or assist partner agencies or volunteers in performing the counts. The City of Everett should also handle tracking, analysis, and reporting. If desired, further bicycle and pedestrian data collection opportunities may be pursued, including:

- Include before-and-after bicycle/pedestrian/vehicle data collection on priority roadway projects
- Require counting of bicyclists/pedestrians in all traffic studies

Bicycle Legal Guide	
Target	Current and potential cyclists, motorists, law enforcement
Primary agency	City of Everett
Potential Partners	Bicycle Alliance of Washington, B.I.K.E.S. Club of Snohomish County, Cascade Cycling Club, Washington State Department of Transportation, WTSC
Key elements	Digested state and city laws regarding bicycles rights and responsibilities
Time frame	One-time, with regular updates; can happen at any time
Cost	$-$$
Potential funding sources	Bicycle program or general city outreach budget. Advocacy organizations may be interested in funding.
Sample programs	http://www.stc-law.com/pdf/PP6thEdition.pdf http://www.sfbike.org/?bikelaw_guide http://www.biketraffic.org/content.php?id=30_0_6_0

A bicycle legal guide is a useful and important tool for bicyclists, motorists, and law enforcement agencies. Bicyclists have rights to and responsibilities on the roadway. Often times the laws regarding bicyclists' rights can change from one jurisdiction to another. Therefore, a legal guide can assist in helping bicyclists, motorists, and law enforcement agents understand the laws for bicyclists in Everett. Tips are located on the bicycling map.

Bike to Work Month	
Target	Current and potential cyclists
Primary agency	City of Everett
Potential Partners	Bicycle Alliance of Washington, B.I.K.E.S. Club of Snohomish County, Cascade Cycling Club, local businesses
Key elements	Publicize Bike to Work Month in May. Offer classes, rides and events.
Time frame	May, annually
Cost	$$ - $$$ (depending on scope and length of program)
Potential funding sources	Local businesses and bike shops (in-kind or cash support); hospitals and insurance companies; City of Everett
Sample programs	Bay Area Bike to Work Day: http://www.bayareabikes.org/btwd/index.php Bike Commute Challenge (Oregon): http://www.bikecommutechallenge.com/

The City of Everett participates annually in both Bike to Work day and the month-long Group Health Bike Commute Challenge in May. Community Transit is the primary coordinator of Snohomish County Bike to Work Day. Everett Transit and the City of Everett have been major partners in that effort for the past 10 years, as has Snohomish County Public Works, B.I.K.E.S. Club of Snohomish County, Boeing and other sponsors. These events are important tools in raising awareness and promoting bicycling, especially for recruiting new bicyclists. The City should continue and expand its involvement with the promotion in ways like sponsoring events, assisting with publicity, tabling, and providing materials (maps, brochures, and resource stickers). The City of Everett should take the lead in further expanding Bike to Work activities during the month of May, offering additional commute classes, weekly rides, presentations on bicycling for employees, and raffles or other incentives.

Helmet Giveaways	
Target audience	Parents, schoolchildren
Primary agency	City of Everett
Potential Partners	Local hospital or rehabilitation clinic, Everett Fire Department, SAFE Kids
Key elements	Low-cost or free helmets provided to children at special events or at schools.
Time frame	Beginning of school year or spring, annually
Cost	$
Potential funding sources	Insurance companies, local hospitals
Sample programs	Trauma Nurses Talk Tough and Legacy Health System http://www.legacyhealth.org/body.cfm?id=1015

Helmet giveaway programs and low-cost helmet distribution programs are a great encouragement tool for helmet use among children and youth. Helmets can be purchased at a low cost and can be distributed at schools and bicycle events such as bike rodeos. The distribution of the helmets can be coupled with information on how to wear a helmet properly and bicycle safety checks. Fall and spring at the beginning and end of the school year, as well as other special events such as International Bike and Walk to School Day in October, are good candidates for new helmet giveaway events.

Media Safety Campaign

Target audience	General public
Primary agency	City of Everett
Potential Partners	Snohomish County, Washington State Department of Transportation, WTSC
Key elements	Bicycling and Safety campaign with billboard, radio and/or TV spots
Time frame	Late spring or early summer, in conjunction with Bike to Work Month or back to school
Cost	$ - $$$ (depending on whether ad space is purchased or donated)
Potential funding sources	Local transit agencies (for donated airtime), traffic safety foundations and grant programs; hospitals and insurance companies
Sample programs	New York City Department of Transportation "Look" Safety Campaign: www.looknyc.org

A marketing campaign that highlights cyclists' safety is an important part of creating awareness of bicycling. They are an effective way to reach the general public and reinforce other education and outreach messages.

A well-produced safety campaign will be memorable and effective. One stellar example is the "LOOK" campaign produced by the New York City Department of Transportation; it combines compelling ads with an easy-to-use website focused at motorists and cyclists.


Example of NYC's LOOK Bicycle Safety Campaign

It is recommended that the City of Everett create a safety campaign similar to the "LOOK" campaign that places safety messages near high-traffic corridors (e.g., on billboards, in bus shelters, and in print publications). It is also suggested that this campaign be kicked off in conjunction with Bike to Work Month (May) or back to school in the fall.

Collision Data Review Procedure

Since we can never escape the fact that human beings will make mistakes or be inattentive (both motorists and cyclists), it is important to enhance the roadway environment design to minimize the likelihood of mistakes resulting in collisions between bicycles and motorists.

This plan includes a detailed collision analysis which should be repeated every few years to identify collision locations and recommended solutions for these locations. This could be done as a part of a periodic 'bicycling report card' that documents relevant cycling metrics, including new bikeway miles, major completed projects, number of riders, collision analysis, user satisfaction, public perception of safety, etc. This periodic review should be used to create updates to the Bicycle System Master Plan that can tune the plan's implementation strategies to respond to changing safety and ridership patterns.

Maintenance

Maintenance includes street sweeping of bicycle lanes and shoulders, repainting/replacing bicycle lane striping lines, and replacing missing or damaged signage. Guidance on maintenance activities are found in Appendix A. Project Concept Guidelines. This plan recommends the following maintenance related actions:

- **Street sweeping.** As motor vehicles travel along the roadway, debris is pushed to the outside lanes and shoulder. Debris also collects at the center of intersections. Roads striped with bike lanes or designated as bicycle routes should be swept more frequently than roads without designated bikeways because these have higher volumes of bicyclists. Street sweeping on these roadways should include removing debris on the shoulder and at intersections.
- **Proactively sweep streets after collisions.** In addition to regular street sweeping, the City should work closely with the local law enforcement to ensure that streets are swept after automobile collisions.
- **Minor repairs and improvements.** Potholes and cracks along the shoulder of roadways primarily affect bicyclists and should be completed within a timely manner. All repairs should be flush to the existing pavement surface.
- **Drainage grates.** When repaving or maintaining roadways, drainage grates should be inspected to ensure that grate patterns are perpendicular to the road. For grates with drainage slots aligned parallel to the direction of travel, longitudinal gaps longer than four inches are potentially hazardous. If immediate replacement is not an option, the AASHTO Guide recommends the temporary treatment of welding metal straps across the grate, perpendicular to the direction of travel, at four inch center-to-center spacing. Replacement of bicycle-unfriendly drainage grates should be standard practice.
- **Street resurfacing.** When streets are resurfaced, utility covers, grates and other in-street items should be brought up to the new level of pavement. Similarly, the new asphalt should be tapered to meet the gutter edge and provide a smooth transition between the roadway

and the gutter pan. Where streets have shoulders, the full extent of the shoulder should be uniformly overlaid.

- **Proactive identification of and response to maintenance needs.** The City should consider a 24-hour phone hotline and online request service to identify needed repairs to roadways. The City can promote this service as a way of identifying maintenance needs for on-street bikeways. The City's 24-hour dispatch service can be used for this purpose.

- **Regular maintenance of multi-use paths.** Shared-use paths require regular maintenance, including trimming adjacent vegetation, sweeping, plowing, and removing trash and debris. Paths should be monitored, checking paving surfaces, debris and litter, signage, and vandalism and schedule maintenance repairs. Pathway maintenance is the responsibility of the parks department.

Table 10. Recommended Bikeway Maintenance Activities

Maintenance Activity	Frequency
Pavement sweeping/blowing	As needed, once every 8 weeks
Pavement sealing, potholes	5 - 15 years
Culvert and drainage grate inspection	1- 5 years
Pavement markings replacement	1 – 3 years
Signage replacement	7 years
Shoulder plant trimming (weeds, trees, brambles)	As needed by owner
Tree and shrub plantings, trimming	As needed by owner
Major damage response (washouts, fallen trees, flooding)	As quickly as possible

Bicycle Wayfinding Signage Plan

The ability to navigate through a town or city is informed by landmarks, natural features, and other visual cues. Placing signs throughout the town indicating to bicyclists their direction of travel, location of destinations, and the riding time/distance to those destinations will increase users' comfort and accessibility to the bicycle system. Wayfinding signs also visually cue motorists that they are driving along a bicycle route and should use caution.

Figure 9. Model MUTCD-Approved Wayfinding Signage

Signs are typically placed at key locations leading to and along bicycle routes, including the intersection of multiple routes. Too many road signs tend to clutter the right-of-way, and it is recommended that these signs be posted at a level most visible to bicyclists and pedestrians, rather than per vehicle signage standards. For signs along bikeways located in the roadway, refer to MUTCD Section 2A.18 Mounting Height and Section 2A.19 Lateral Offset. Signage must also meet sight triangle clearance guidelines.

Signage can serve both wayfinding and safety purposes including:

- Helping to familiarize users with the bikeway system
- Helping users identify the best routes to destinations
- Helping to address misperceptions about time and distance
- Helping overcome a "barrier to entry" for people who do not bicycle often (e.g., "interested but concerned" cyclists)

Figure 10. Wayfinding Signage Concept)

Costing about $125 each, wayfinding signs are a relatively cost-effective means for improving the walking and bicycling environment.

A community-wide Bicycle Wayfinding Signage Plan would identify:

- Sign locations along existing and planned bicycle routes
- Sign type – what information should be included and design features
- Destinations to be highlighted on each sign – key destinations for bicyclists
- Approximate distance and riding time to each destination

V. Design Standards

Design Standards

The following pages contain design standards that are recommended. To utilize the design standards, use one travel lane cross-section and one or two side treatment cross-section, based on conditions of the site or corridor.

For example, if a bike lane is desired next to a curb and gutter and sidewalk, the design would be Travel Lane Cross Section A + Side Treatment Dimension 1.

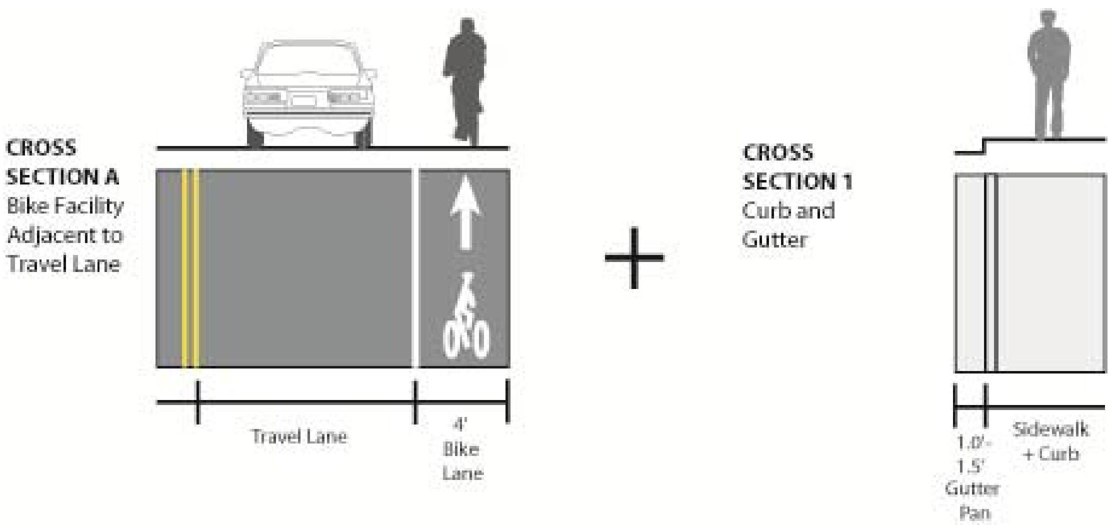


Figure 11. Applications of Design Standards

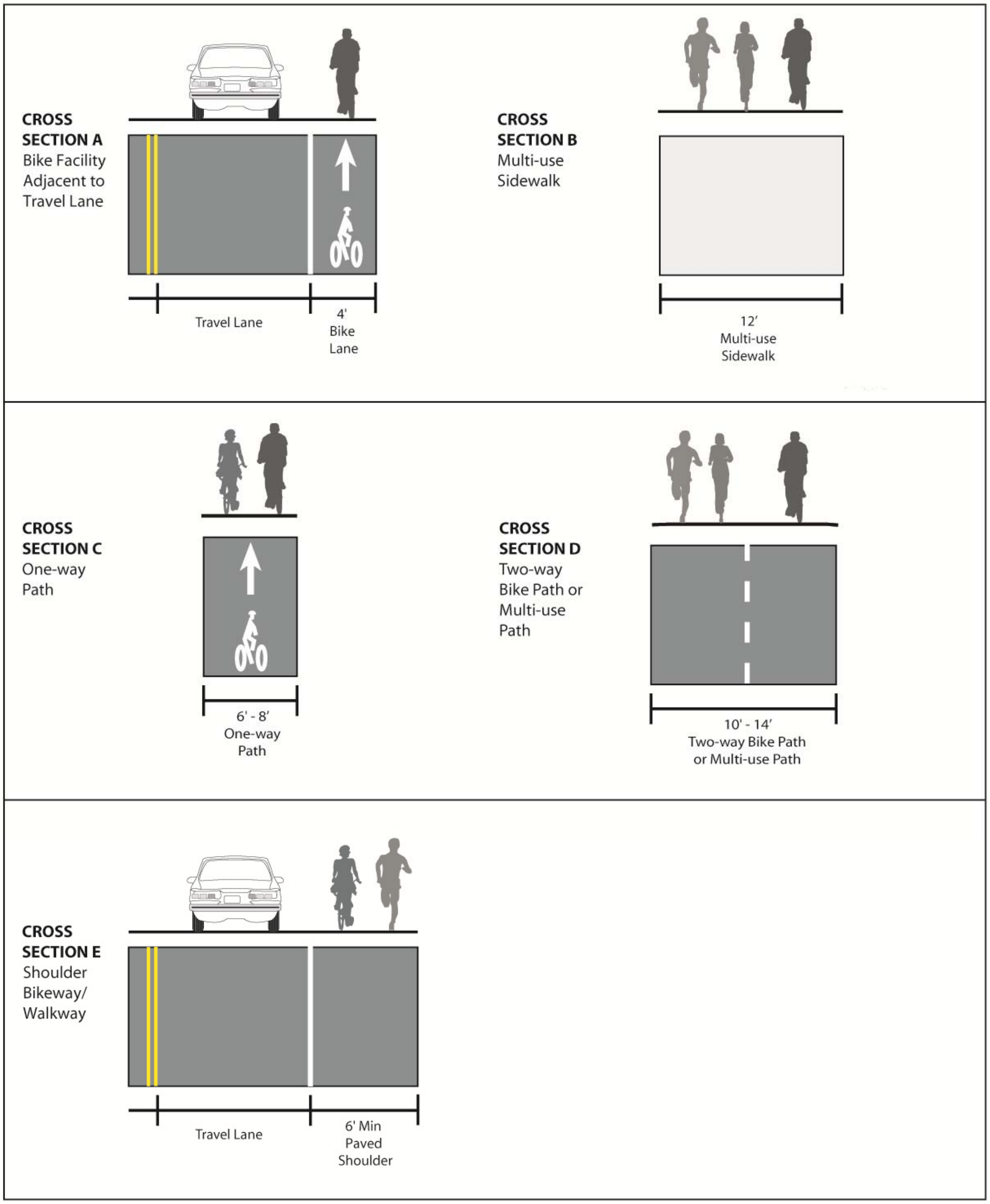


Figure 12. Nonmotorized Transportation Facility Design Standards: Travel Lane Cross Sections

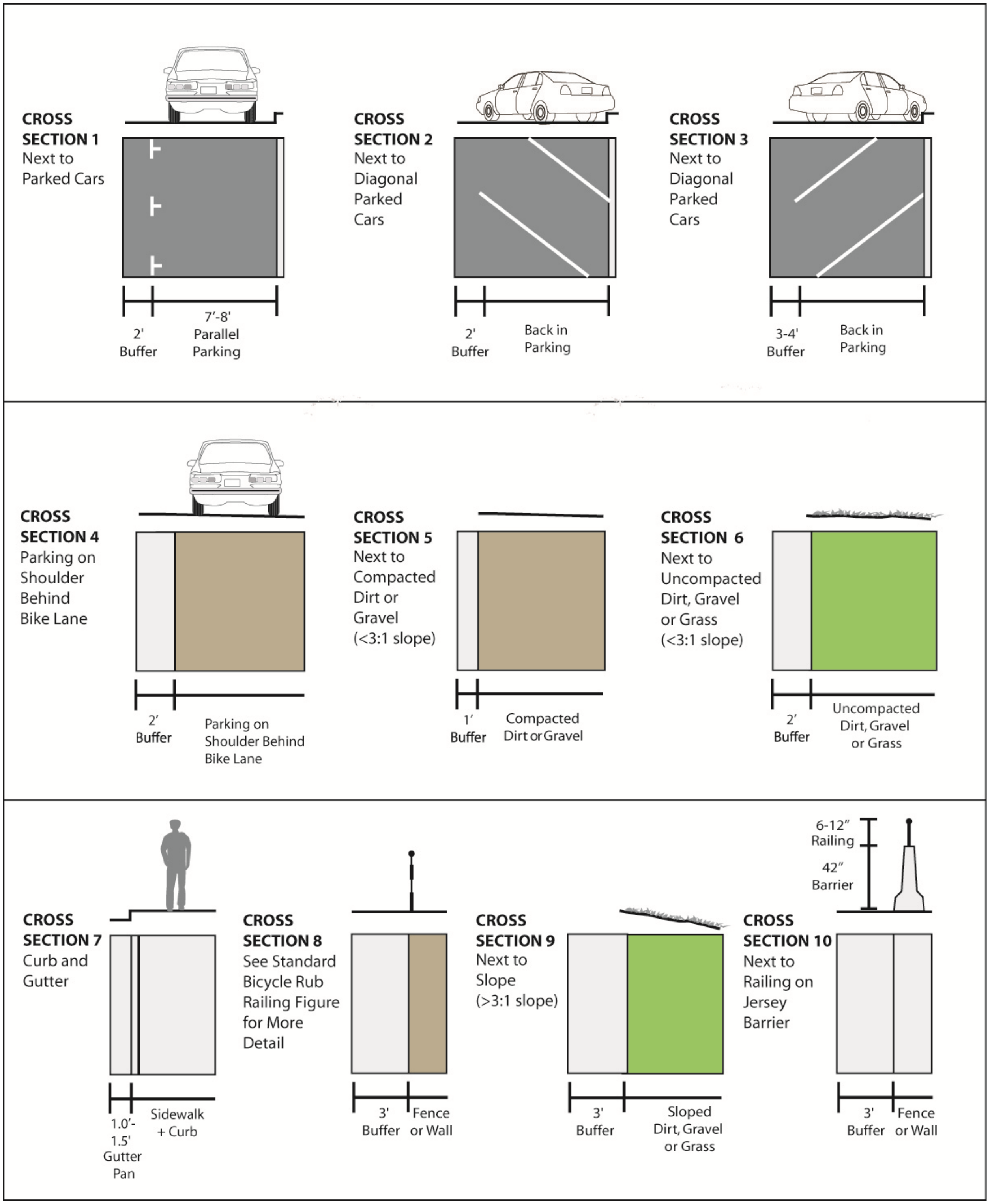


Figure 13. Nonmotorized Transportation Facility Design Standards: Side Treatment Dimensions

Standard Bicycle Lane Signage and Pavement Marking

MUTCD GUIDELINES

Part 3 of the MUTCD covers roadway markings, while Part 9 of the MUTCD covers signs, pavement markings, and highway traffic signals specifically related to bicycle operation on both roadways and shared-use paths.

SECTION 9C. 04 Markings for Bike Lanes

It is recommended that placing stencils after most intersections to alert motorists and cyclists of the exclusive nature of bicycle lanes. For long street segments with few intersections, the appropriate frequency of stencils is calculated by multiplying the street's design speed by 40. For instance, stencils should be placed every 1,400 feet on streets with a 35 MPH designated speed.

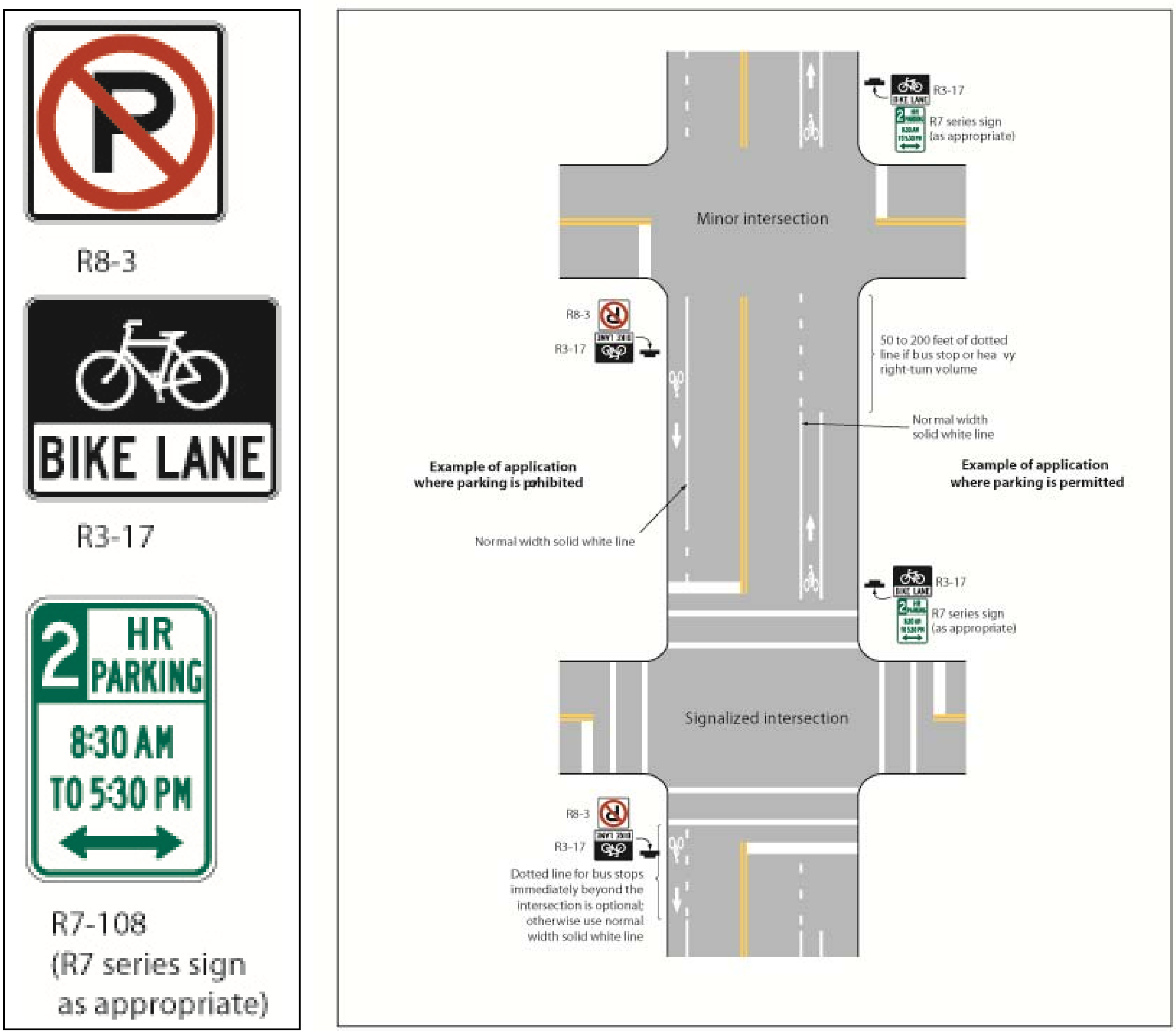


Figure 14. Sign and Legend Spacing: Bicycle Lanes on a Two-Way Street

Standard Shared Lane Signage and Pavement Marking

Section 9C.07 Shared Lane Marking

The Shared Lane Marking may be used to:
A. Assist bicyclists with lateral positioning in a shared lane with on-street parallel parking in order to reduce the chance of a bicyclist's impacting the open door of a parked vehicle,
B. Assist bicyclists with lateral positioning in lanes that are too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane,
C. Alert road users of the lateral location bicyclists are likely to occupy within the traveled way,
D. Encourage safe passing of bicyclists by motorists, and
E. Reduce the incidence of wrong-way bicycling.
Guidance:

- *The Shared Lane Marking should not be placed on roadways that have a speed limit above 35 mph.*
- *If used in a shared lane with on-street parallel parking, Shared Lane Markings should be placed so that the centers of the markings are at least 11 feet from the face of the curb, or from the edge of the pavement where there is no curb.*
- *If used on a street without on-street parking that has an outside travel lane that is less than 14 feet wide, the centers of the Shared Lane Markings should be at least 4 feet from the face of the curb, or from the edge of the pavement where there is no curb.*
- *If used, the Shared Lane Marking should be placed immediately after an intersection and spaced at intervals not greater than 250 feet thereafter.*

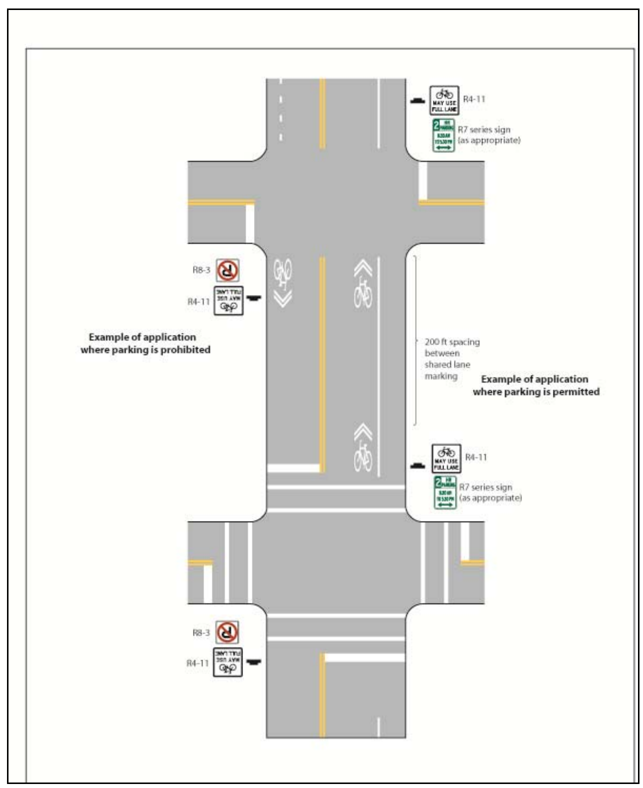


Figure 15. Sign and Legend Spacing: Sharrows on a Two-Way Street

Transitions from street to sidewalk facility

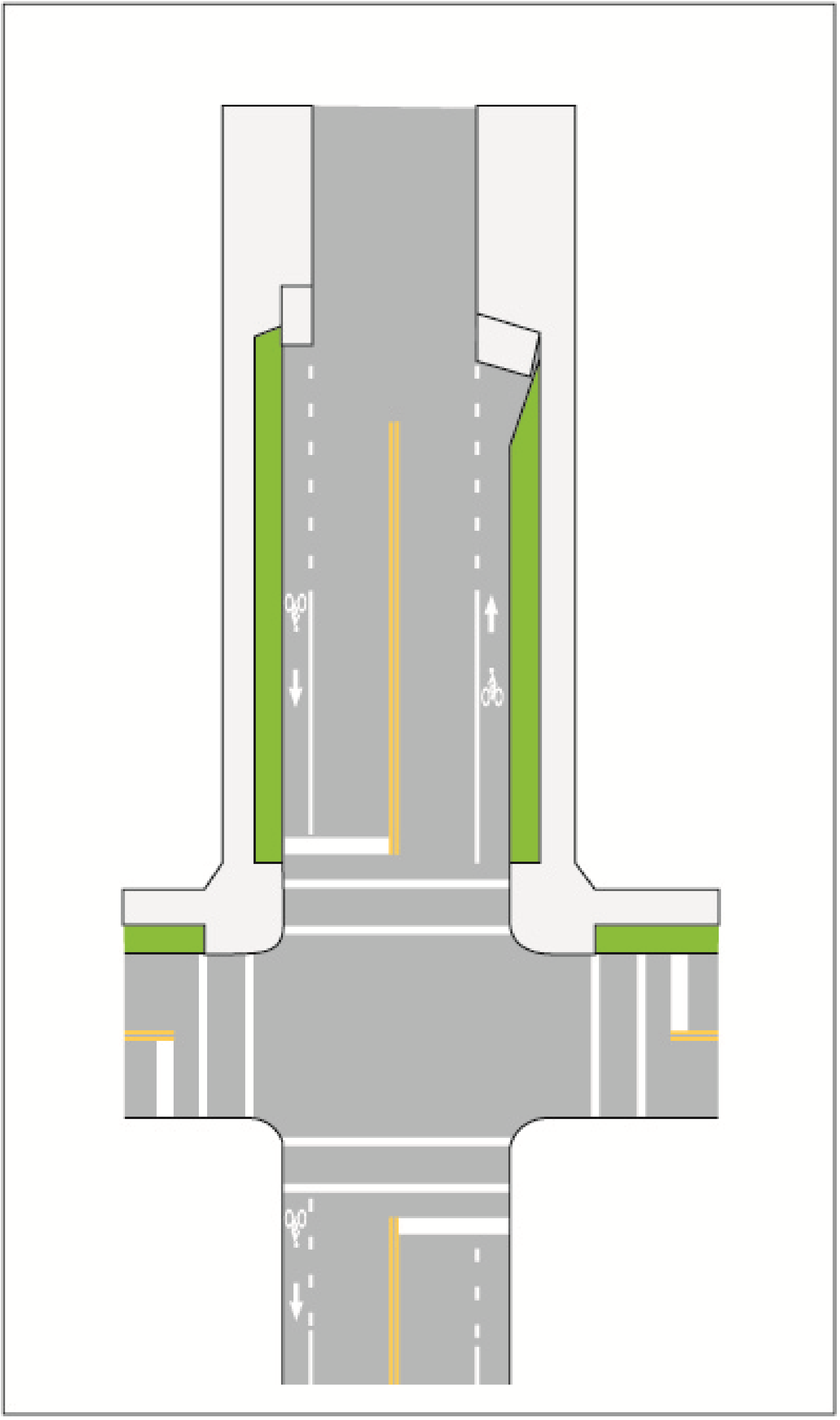


Figure 16. Transition from Street to Sidewalk Facility

Bike Lanes at Intersections

Loop Detectors

Guideline Summary

- Facilitate bicycle movement at intersections

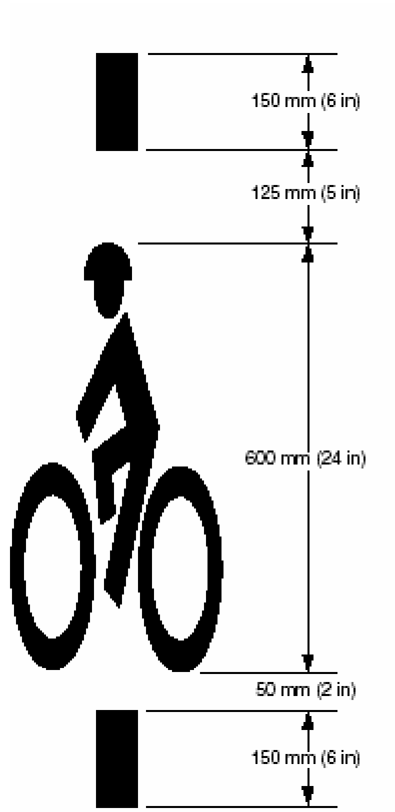
Discussion

Intersections operate also can help make them more "friendly" to bicyclists. Improved signal timings for bicyclists, bicycle-activated loop detectors, and camera detection can make it easier for cyclists to cross intersections. Bicycle-activated loop detectors may be installed within the roadway to allow the presence of a bicycle to trigger a change in the traffic signal. This allows the cyclist to stay within the lane of travel and avoid maneuvering to the side of the road to trigger a push button.

Loops are recommended to detect bicycles in a bike lane, where bicycle placement is generally predictable. Loop detection of bicycles in unpredictable locations or in wide lanes should be supplemented with a stencil that indicates proper placement that will maximize the chances of detection. The City of Everett intends to begin installing markings (as shown in Figure 4).

Some types of loop detectors are more likely to detect vehicles when they are placed over a certain portion of the loop. The City of Portland, Oregon operates a program within their Bureau of Transportation that installs markings (as shown in Figure 4) to identify the optimal placement. Traffic crews can bring a bicycle to identify detection problems and to determine the correct settings for the loop detector and if a bicycle detection pavement marking needs to be placed. . If feasible, markings should be installed to indicate the appropriate location for a bicycle to activate the signal at all intersections with loop detection.

In the City of Everett, the detector works best if you find center of lane, put front tire approximately 2' from center of lane with front tire on the intersection edge of the stop bar and tilt bicycle 15° from vertical, as shown in the diagram to the right.



Recommended Design

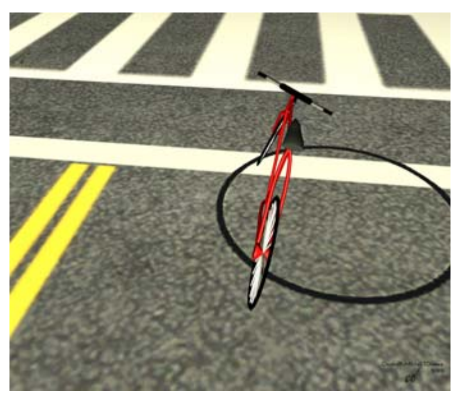


Figure 17. Loop Detectors

Bike Lanes at Intersections

Bike Lanes With Right Turn Pockets

Guideline Summary

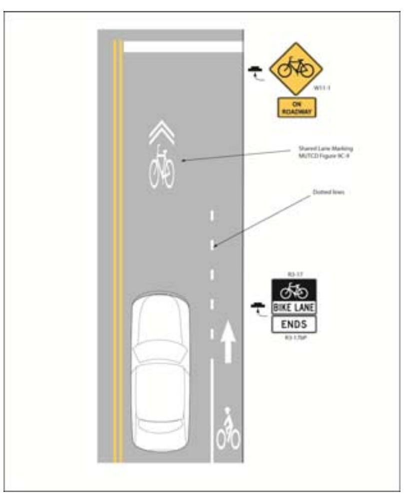
Bike Lane Width:

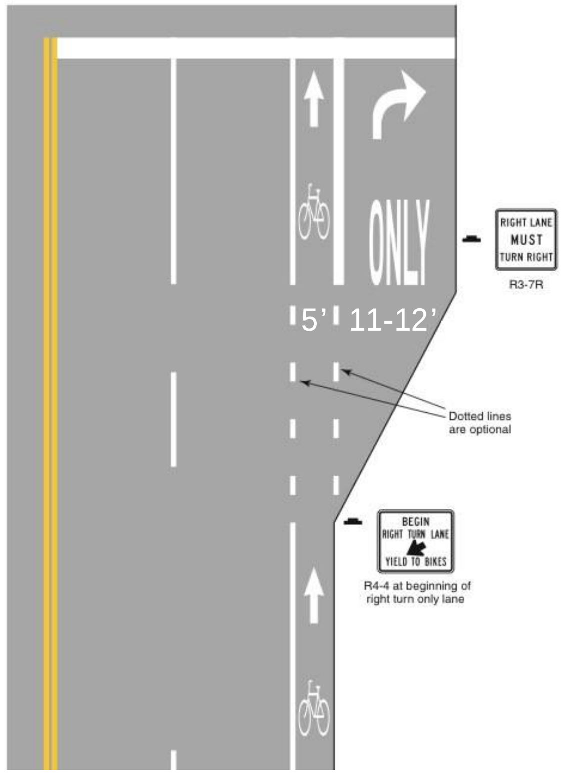
- Bike lane should be at least 4' wide (5' preferred)

Discussion

The appropriate treatment at right-turn lanes is to place the bike lane between the right-turn lane and the right-most through lane or, where right-of-way is insufficient, to drop the bike lane entirely approaching the right-turn lane. The design (right) illustrates a bike lane pocket, with signage indicating that motorists should yield to bicyclists through the conflict area. The dashed lines in this area are currently an optional treatment.

Dropping the bike lane should only be done when a bike lane cannot be accommodated at the intersection.





Recommended Design

Continuing a bike lane straight while providing a right-turn pocket reduces bicycle/motor vehicle conflicts

Figure 18. Bike Lanes with Right Turn Pockets

Bike Lanes at Intersections

Shared Bicycle/Right Turn Lane

Guideline Summary

Width:

- Shared turn lane – min. 12' width
- Bike Lane pocket – min. 4'-5' preferred

Discussion

This treatment is recommended at intersections lacking sufficient space to accommodate a standard bike lane and right turn lane.

The shared bicycle/right turn lane places a standard-width bike lane on the left side of a dedicated right turn lane. A dashed strip delineates the space for bicyclists and motorists within the shared lane. This treatment includes signage advising motorists and bicyclists of proper positing within the lane.

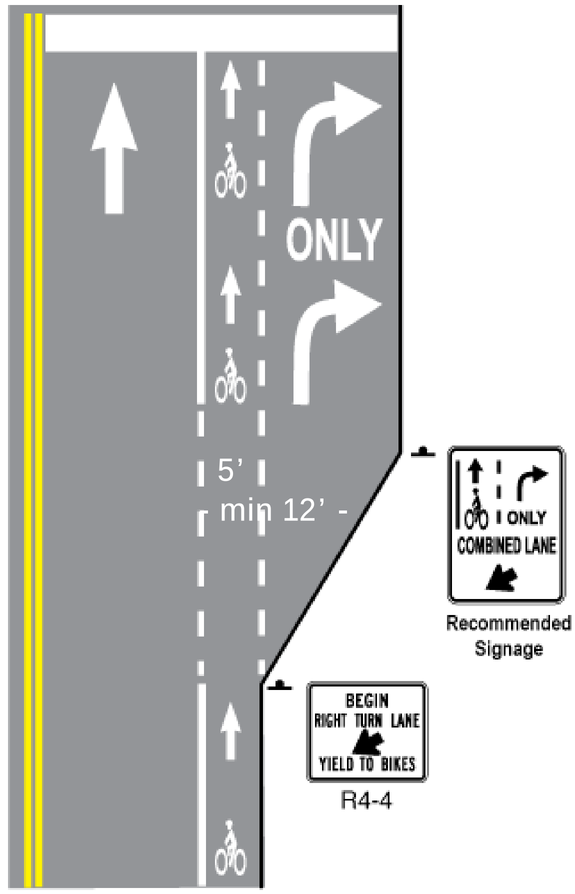
This treatment works best on streets with lower posted speeds (30 MPH or less) and with lower traffic volumes (10,000 ADT or less).

Advantages of the shared bicycle/right turn lane:

- Aids in positioning of cyclists at intersections with a dedicated right turn lane without adequate space for a dedicated bike lane.
- Encourages motorists to yield to bicyclists when using the right turn lane.
- Reduces motor vehicle speed within the right turn lane.

Disadvantages/potential hazards:

- May not be appropriate for high-speed arterials or intersections with long right turn lanes.
- May not be appropriate for intersections with large percentages of right-turning heavy vehicles.



Recommended Design

Shared bike-right turn lanes use warning signage as well as pavement markings

Figure 19. Shared Bicycle/Right Turn Lane

Bike Lanes at Intersections

Bike Boxes

Guideline Summary

Bike Box Dimensions:

- 14' deep to allow for bicycle positioning within the travel lane.

Signage:

- Appropriate signage as recommended by the MUTCD applies. Signage should be present to prohibit 'right turn on red' and to indicate where the motorist must stop.

Discussion

A bike box is generally a right angle extension of a bike lane at the head of a signalized intersection. The bike box allows bicyclists to move to the front of the traffic queue on a red light and proceed first when that signal turns green. Motor vehicles must stop behind the white stop line at the rear of the bike box.

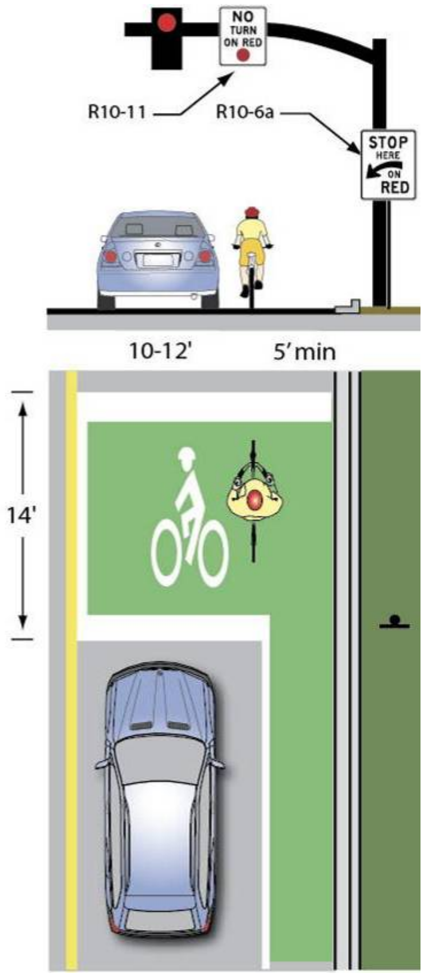
Bike boxes can be combined with dashed lines through the intersection for green light situations to remind right-turning motorists to be aware of bicyclists traveling straight, similar to the colored bike lane treatment described earlier. Bike Boxes can be installed with striping only or with colored treatments to increase visibility.

Bike Boxes should be located at signalized intersections only, and right turns on red should be prohibited. On roadways with one travel lane in each direction, the bike box also facilitates left turning movements for cyclists.

Bike boxes are not appropriate for all intersections, as prohibiting right turn movements on red by motor vehicles may significantly affect roadway capacity.

Bike boxes are most appropriate at intersections with a high incidence of right hook crashes, where motor vehicles have a tendency to turn across the bike lane without noticing people traveling by bicycle.

Bike volumes need to be greater than 250 bicyclists per day to consider a bike box.



Recommended Design

Bike boxes can be installed at intersections where right-turning motorists conflict with through bicyclists

Figure 20. Bike Boxes at Intersections

Standard MUTCD signs (part 1)

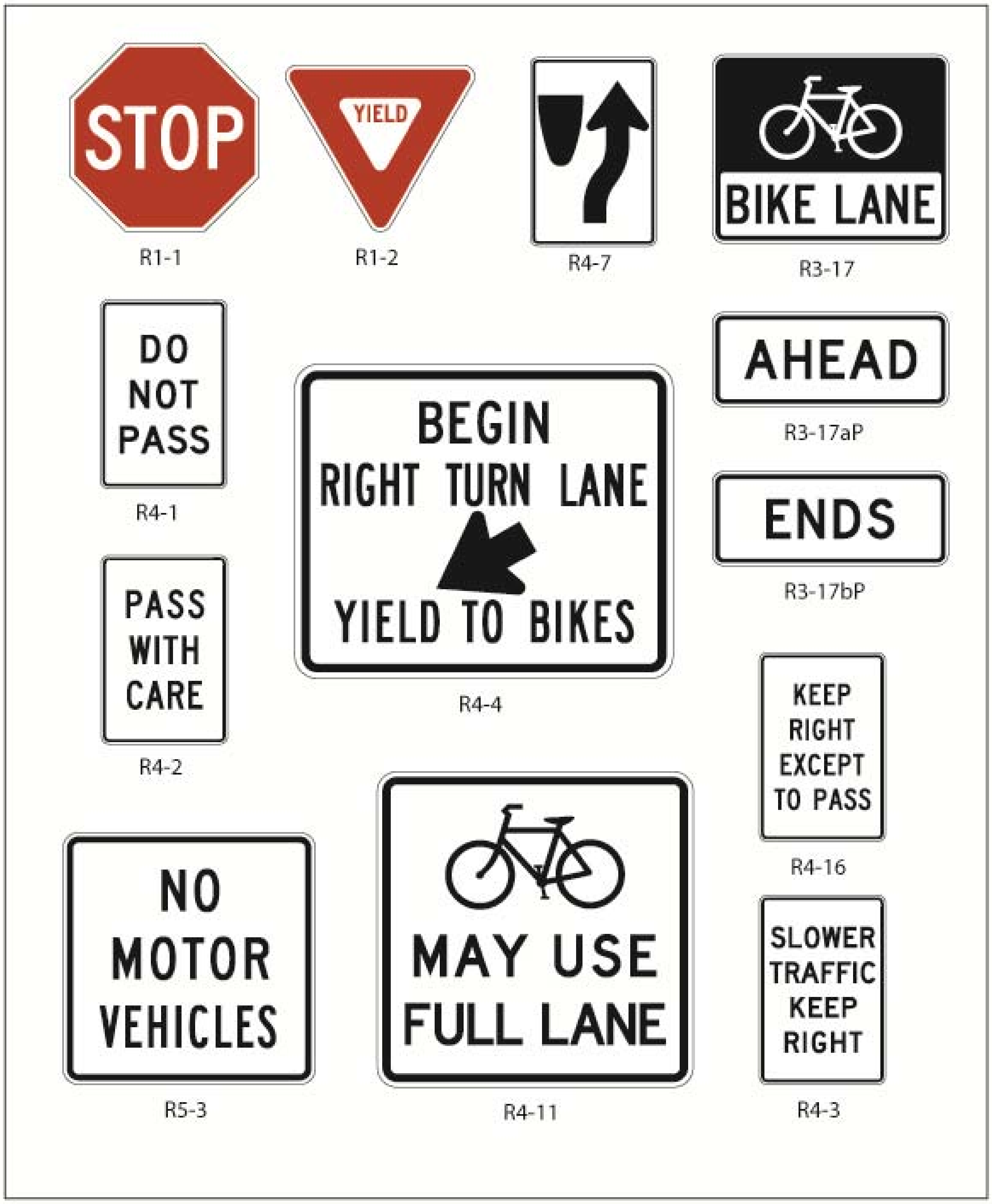


Figure 21. MUTCD Signs and Plaques for Bicycle Facilities, Part 1

Standard MUTCD Signs (part 2)

Figure 22. MUTCD Signs and Plaques for Bicycle Facilities, Part 2

Standard Drainage Grate

Drainage grates are typically located in the gutter area near the curb of a roadway and typically have slots through which water drains into the municipal sewer system. Bicycle-friendly design of drainage grates from the City of Everett are shown below.

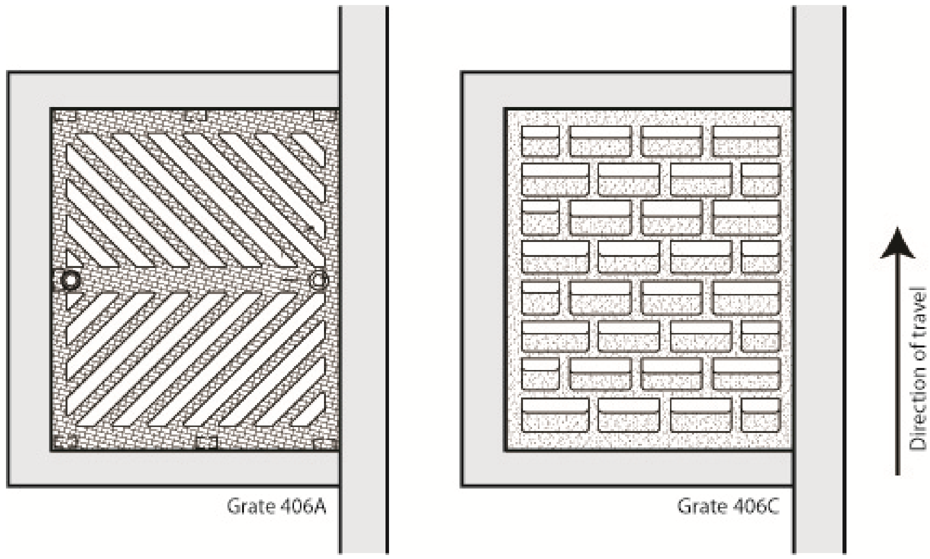


Figure 23. Standard Drainage Grate

Standard Bicycle Rub Railing

Wherever a bicycle facility is built next to fence, a rub railing should be provided for bicyclists to prevent handlebars from getting caught within the fence, resulting in a crash.

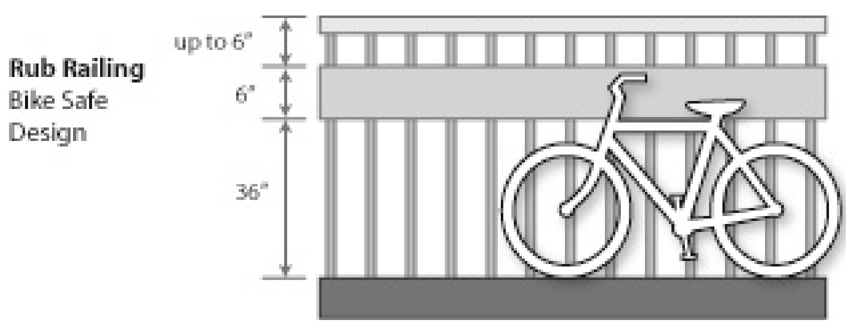
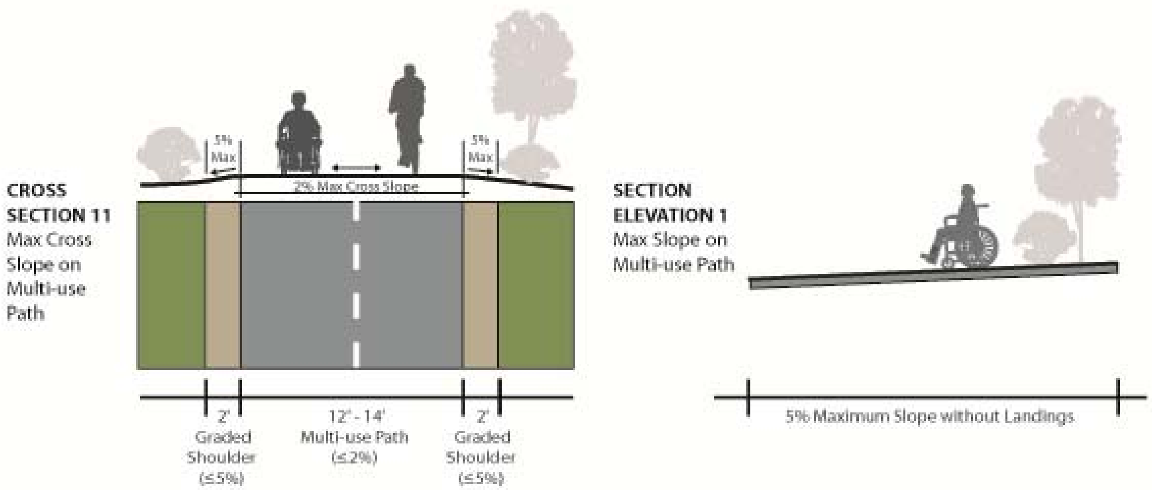


Figure 24. Standard Bicycle Rub Railing

ADA Path Development Guidelines: Typical Cross Sections



ADA Path Development Guidelines

Item	Recommended Treatment	Purpose
Path Surface	Hard surface such as, asphalt, concrete, wood, compacted gravel	Provide a smooth surface that accommodates wheelchairs
Path Gradient	Maximum of 5% without landings Maximum of 8.33% with landings	Greater than 5% is too strenuous
Path Cross Slope	2% maximum	Provide positive path drainage, but avoid excessive gravitational to side of path
Path Width	5' Minimum	Accommodate a wide variety of users
Path Amenities, phones, drinking fountains, ped. actuated buttons	Place no higher than 4' off ground	Provide access within reach of wheelchair users
Detectable pavement changes at curb ramp approaches	Place at top of ramp before entering roadways	Provide visual cues for visually impaired
Trailhead Signage	Accessibility information such as path gradient/profile, distances, tread conditions, location of drinking fountains and rest stops	User convenience and safety
Parking	Provide at least one accessible parking area at each trailhead	User convenience and safety
Rest Areas	On trails specifically designated as accessible, provide rest areas/widened areas on the path optimally at every 300 feet	User convenience and safety
Curb cuts	Less than 2% slope	User convenience and safety

Figure 25. ADA Path Development

Off-Street Trail: Sight Distances

The importance of sight distances along a trail cannot be overstated. Bicyclists generally travel at higher speeds than other path users and thus require larger sight distances to give them time to react to terrain, curves, or other situations ahead. On average, bicyclists have a reaction time of 2.5 seconds with an assumed eye height of 4.5 feet. Combined with travel speed and poor or wet braking conditions this delay requires adequate sight distances that will allow the bicyclist to come to a complete stop. The *AASHTO Guide for the Development of Bicycle Facilities (1999)* provides specific details and formulas for calculating bicycle stop distances under various conditions.

The formula below demonstrates how to calculate the minimum clearance that should be used for line of sight obstructions and horizontal curves.

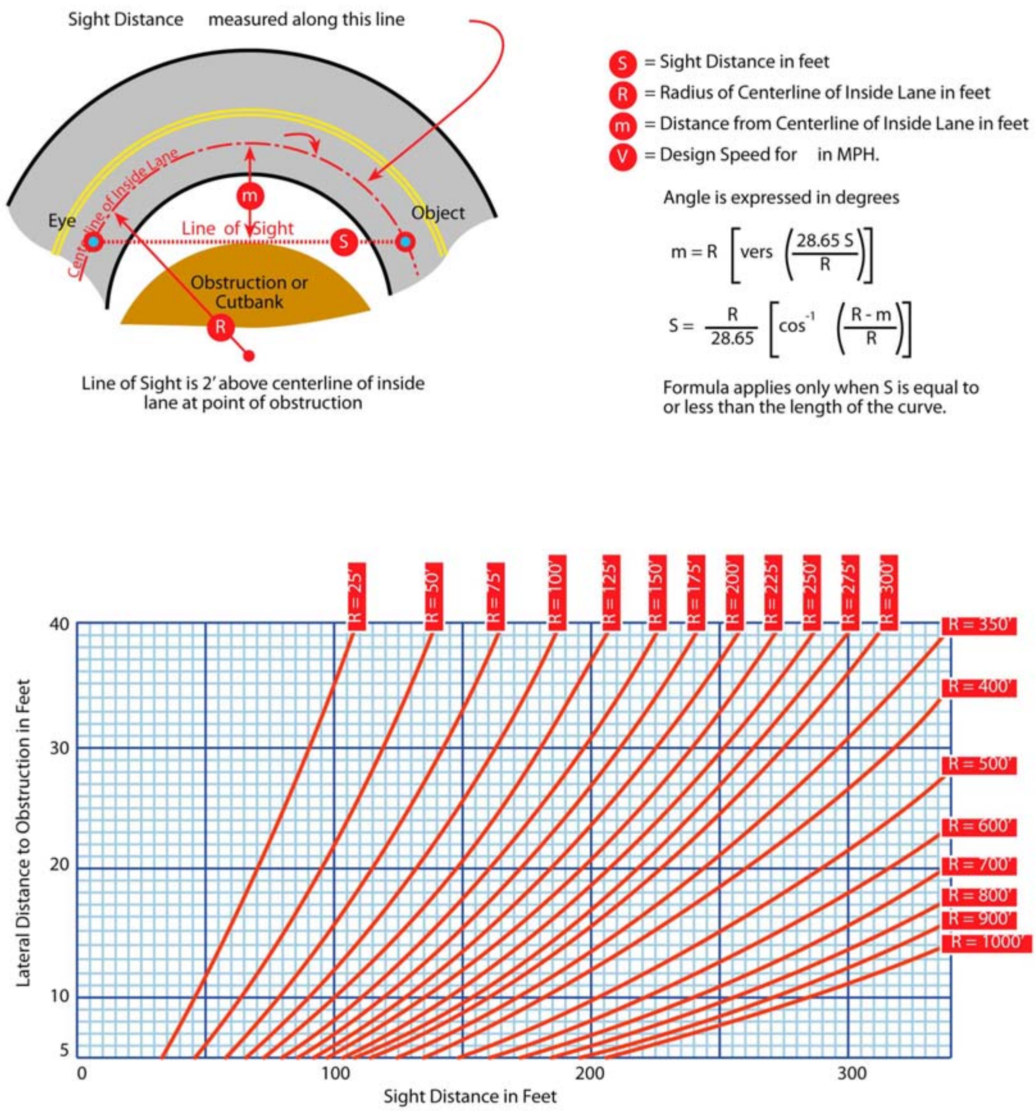


Figure 26. Off-Street Trails: Sight Distances

Off-Street Trail: Design Speed

On shared-use paths, the AASHTO recommendation is to assume a design speed that is at least as high as the preferred speed of the faster bicyclists, which will typically be 20 mph. The Bikeway may be used by bicyclists that could be categorized as "serious enthusiasts" that would require a higher design speed; however, as indicated below, the necessary horizontal and vertical alignments to accommodate this group could create a disproportionate disturbance to the landscape.

- A 20 mph design speed should be utilized in most instances. To successfully implement this design speed it may be necessary to include design and traffic controls to decrease the speed of the fastest bicyclists.
- Situations requiring a greater design speed, including long downhill sections or areas with a consistent tailwind, should be accommodated where necessary, but otherwise minimized.

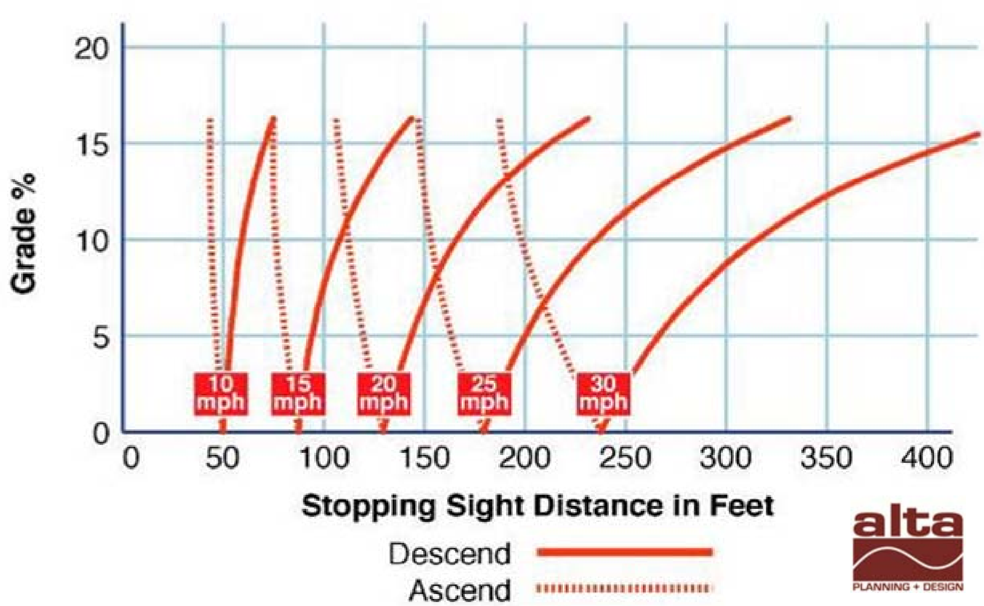


Figure 27. Off-Street Trail: Design Speed

Bike Lane Design with Diagonal Parking

In certain areas with high parking demand such as urban commercial areas, diagonal parking can be used to increase parking supply. When conventional diagonal parking is utilized, additional space between the parking area and the bike facility should be provided to improve sight distances for both drivers and bicyclists.

The minimum width for a bike lane adjacent to diagonal parking bays is 5 feet. In addition, the bike lane should be separated from the parking lane by a 4" stripe. Parking bays should be sufficiently long to accommodate most vehicles—this minimizes the risk of parked vehicles encroaching into the bike lane.

Where diagonal parking is going to be used, it is recommended that the parking be back-in diagonal parking, for the following reasons:

- Greater visibility for and of both drivers and bicyclists
- Easier for drivers to exit the parking space in a safe manner
- Safer for drivers loading and unloading cargo

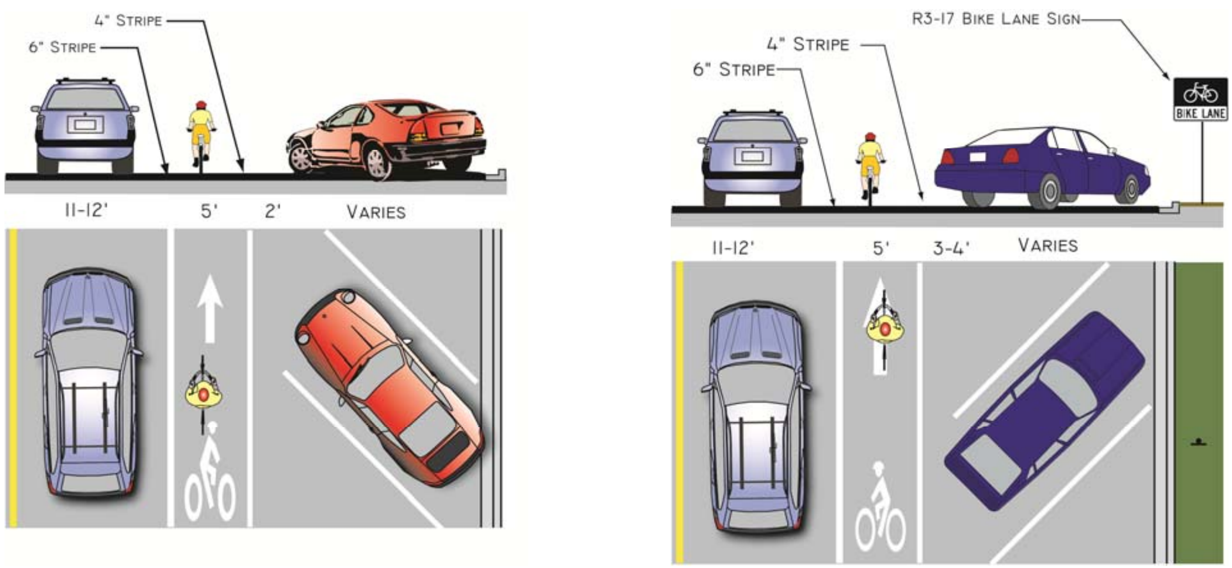


Figure 28. Bike Lane Design with Diagonal Parking

VI. Project Descriptions

Project descriptions are provided for all Existing Facilities, Connections to Existing Facilities, Tier 1 and Tier 2 routes. These routes complete gaps in the bicycle network and provide connections between key bicycling destinations including the north end of the Interurban Trail, downtown Everett, Everett Station and the entrance to the US 2 trestle. The existing facility project sheets were developed for all projects that were categorized as either Fair or Good with the improvements noted to increase their comfort level.

All of the costs identified are planning-level cost estimates and have been rounded to the nearest thousand. They should be considered a ballpark figure to allow for some comparative analysis between projects. In finding additional width for bike lanes, opportunities for re-striping were identified as the preferred option, but in many cases widening the roadway was the only feasible option.

The following table of design treatments (Table 11) is intended to serve as a key for the on-street facility treatments recommended in the project sheets that follow. Appendix A contains a comprehensive discussion of project concepts.

	Name	Description	Installation Notes	Usage Notes
Traffic Side Treatments				
A	Standard	6 inch stripe		Use except traffic side treatment B.
B	Intersection approach/ merge area	6 inch dashed stripe	Stripe 2 foot long dashes with 6 foot center break between dashes.	Use in areas where vehicle traffic may merge across the bike lane. May be used in conjunction with facility treatment D, or independently.
Facility Treatments				
	Name	**Description**	**Installation Notes**	**Usage Notes**
C	Standard	Standard bike lane marking	Refer to **Project Concept Guidelines Section 2.4** for information on bike lane pavement markings.	Use except facility treatment D.
D	High conflict/ merge area	Colored bike lane treatment	Green thermoplastic resin. Refer to **Project Concept Guidelines Section 2.5** for information on colored pavement markings.	Use near intersections with right turn lanes and locations with a history of "right hook" crashes.
E	Shared lane	Shared lane marking ("sharrows")	Refer to **Project Concept Guidelines Section 3** for information on shared lane markings.	Use instead of bike lane in constrained areas where a bike lane is not feasible. Indicates designated bicycle route, and encourages proper lane placement.
Edge Treatments				
	Name	**Description**	**Installation Notes**	**Usage Notes**
F	Standard	6 inch stripe		Use when outer edge of bike lane is adjacent to a travel lane
G	Intersection approach/ merge area	6 inch dashed stripe	Stripe 2 foot long dashes with 6 foot center break between dashes.	Use in areas where vehicle traffic may merge across the bike lane. Use in conjunction with traffic side treatment B. May be used in conjunction with facility treatment D, or independently.
H	Curb	Curb edge	No striping.	Use in areas where the bike lane is curb tight.
I	Shoulder	Shoulder edge	Hard shoulder: bike lane width should not include soft shoulder. No striping.	Use in areas where the bike lane is on the outside of the roadway and roadway is not curbed.
J	Parking	4 inch stripe		Use when bike lane is adjacent to a parking lane
K	High-turnover parking	4 inch stripe, parking stall T markings	Outside stripe of bike lane should be 1.5 feet from parking stall T markings.	Use in urban areas where neither bike lane nor parking lane is constrained.

Table 11. Recommended Design Treatments

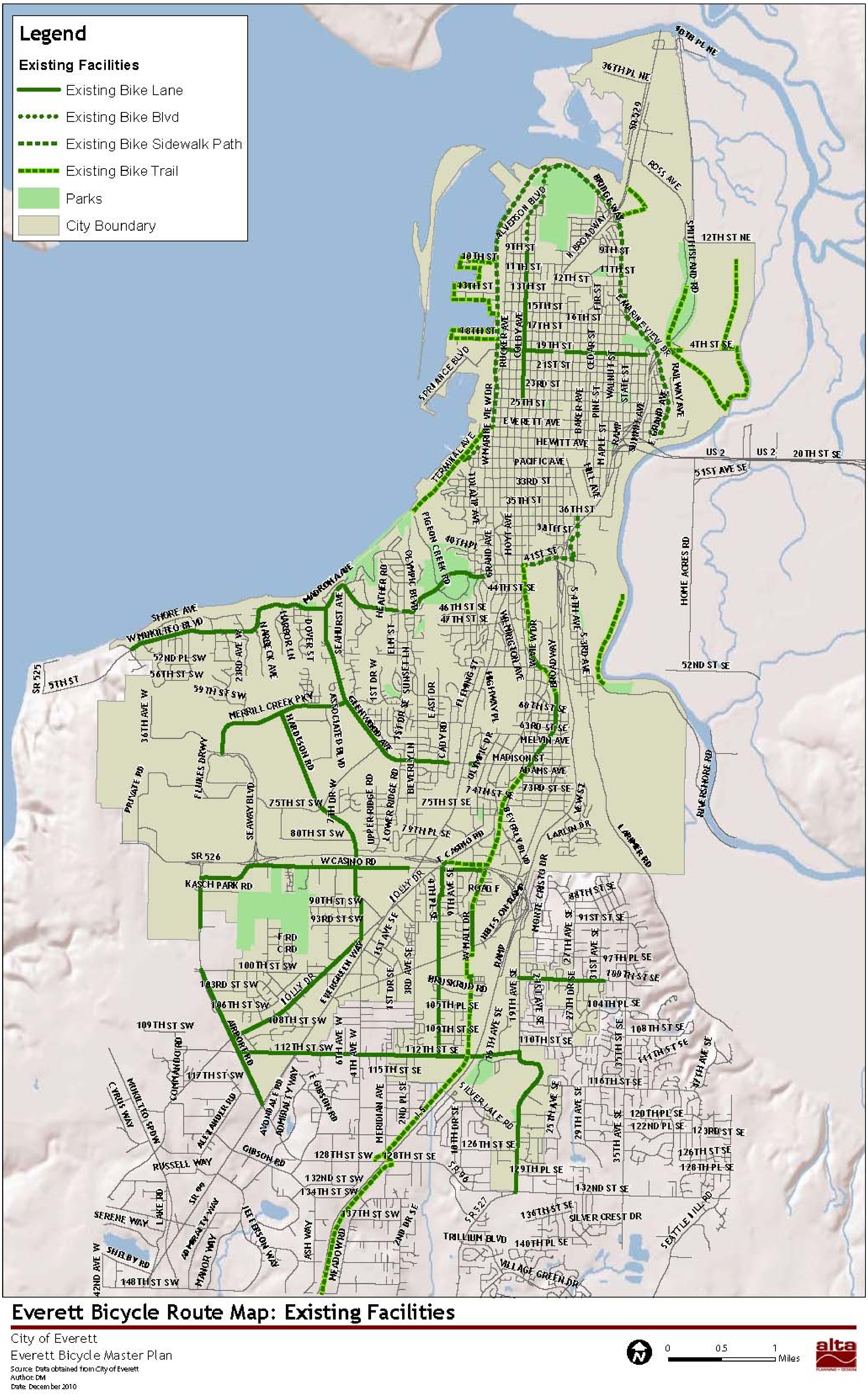
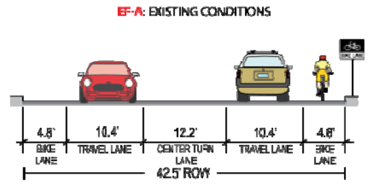
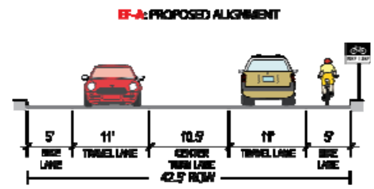
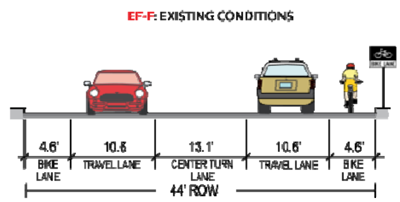
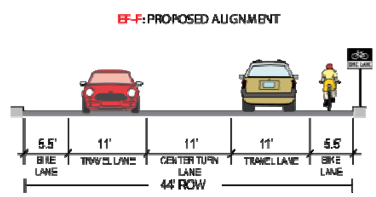
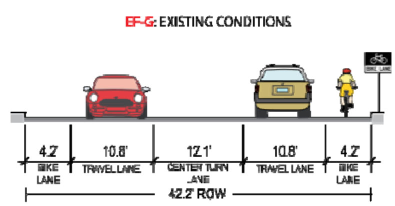
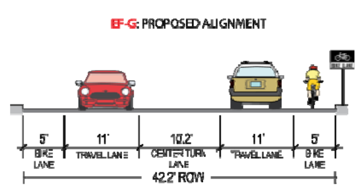


Figure 29. Existing Facilities

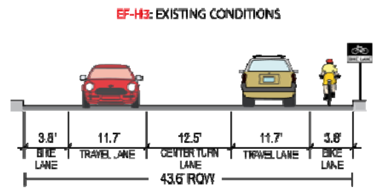
“Fair” Existing Facilities

EF-A	100th St SE	19th Ave SE – 31st Ave SE	Cost: $57,000
Existing 2-lane local roadway with a center turn lane and no parking. Existing bike lanes are less than 5 ft wide. Total ROW is 42.5 ft.			
Proposed Restriping the roadway to two 11' wide travel lanes and a 10' center turn lane allows for the striping of two 5'+ wide bike lanes.			
EF-F	**4th Ave W**	**Corbin Dr. – Holly Dr.**	**Cost: $34,000**
Existing 2-lane collector roadway with a center turn lane and no on-street parking. Existing bike lanes are less than 5 ft wide. Total ROW is 44 ft.			
Proposed Restriping the roadway to widen the travel lanes from 10'6" to 11' while narrowing the center turn lane to 11' provides sufficient room to stripe two bike lanes 5'5" in width.			
EF-G	**5th Ave W**	**W Casino Rd. – Corbin Dr.**	**Cost: $298,000**
Existing 2-lane local roadway with a center turn lane and no parking. Existing bike lanes are less than 5 ft wide. Total ROW is 42.2 ft.			
Proposed Restriping the roadway to two 11' wide travel lanes and a 10' center turn lane allows for the striping of two 5'+ wide bike lanes.			

EF-H3 | **7th Ave SE** | **100th St. SE – 112th St SE** | **Cost: $57,000**

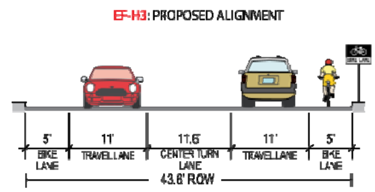
Existing

2-lane local roadway with a center turn lane and no parking. Existing bike lanes are less than 5 ft wide. Total ROW is 42.2 ft.



Proposed

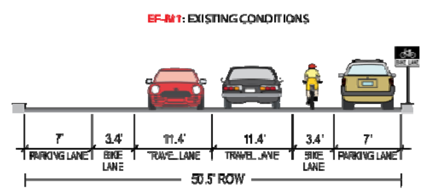
Restriping the roadway to two 10'5" wide travel lanes and an 11' center turn lane allows for the striping of two 5'8" wide bike lanes.



EF-M1 | **Glenwood Ave** | **Mukilteo Blvd – 5700 Block** | **Cost: $61,000**

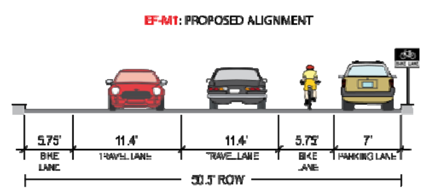
Existing

2-lane arterial roadway with on-street parking. Existing bike lanes are less than 5 ft wide. Total ROW is 50.5 ft.



Proposed

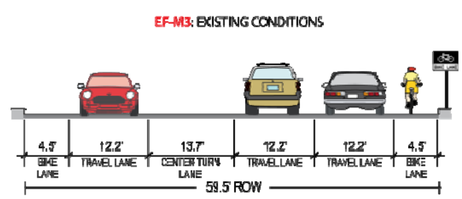
The bike lanes can be widened from 3.4' to 5.75' with the removal of on-street parking from one side.



EF-M3 | **Glenwood Ave** | **6300 Block – Sievers-Duecy Blvd.** | **Cost: $25,000**

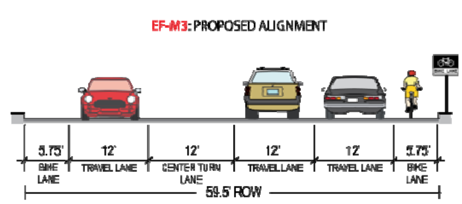
Existing

3-lane arterial roadway with a center turn lane and no on-street parking. Existing bike lanes are less than 5 ft wide. Total ROW is 50.5 ft.



Proposed

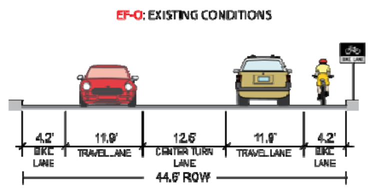
The bike lanes can be widened from 4.5' to 5.75' by restriping all vehicle travel lanes to 12' wide.



EF-O	Hardeson Rd	Merrill Creek Parkway – W Casino Rd	Cost: $133,000

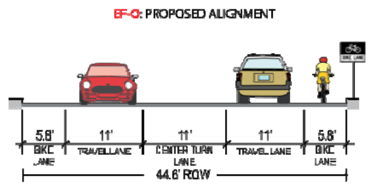
Existing

2-lane arterial roadway with a center turn lane and no on-street parking. Existing bike lanes are less than 5 ft wide. Total ROW is 44.6 ft.



Proposed

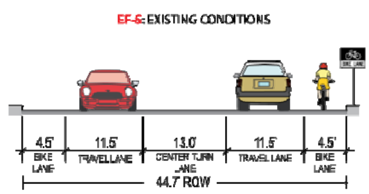
Restriping the roadway to two 11' wide travel lanes and an 11' center turn lane allows for the striping of two 5'8" wide bike lanes.



EF-S	Merrill Creek Parkway	Glenwood Ave – Seaway Blvd.	Cost: $112,000

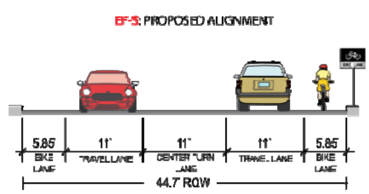
Existing

2-lane local roadway with a center turn lane and no on-street parking. Existing bike lanes are less than 5 ft wide. Total ROW is 44.7 ft.



Proposed

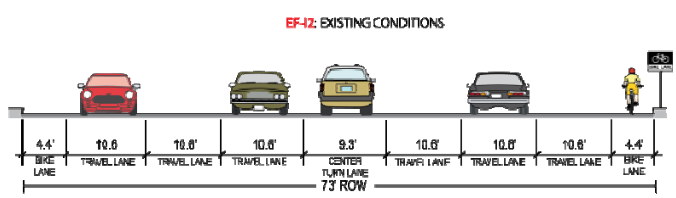
Restriping the road to have 11 foot travel lane widths and an 11 foot wide center turn lane provides sufficent room to stripe two bike lanes just under 6' in width.



EF-I2	Airport Rd.	Kasch Park Rd. – 94th St. SW	Cost: $751,000

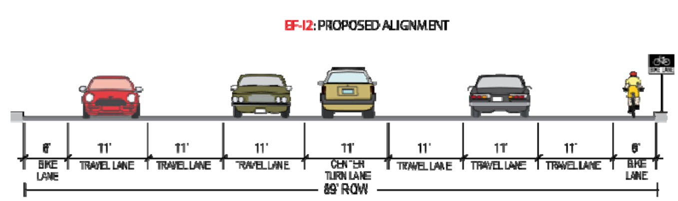
Existing

6-lane arterial roadway with a center turn lane and no on-street parking. Existing bike lanes are less than 5 ft wide. Total ROW is 72.7 ft.



Proposed

To gain additional room for adding bike lanes, the roadway will require widening by 16 feet. This will result in travel lanes 11' wide, plus an 11' wide center turn lane and two 6' wide bike lanes.



EF-L1 / EF-L2	E Marine View Dr.	Skyline Dr. – Summit Ave	Cost: $1,100,000

Existing

2-lane arterial roadway with a center median and no on-street parking. Existing sidewalk is 10.4 ft wide. Total ROW varies from 37.0 feet to 48 feet.

Existing sidewalk bike path.

Proposed

Widening the sidewalk to 12' wide requires an additional 1.6 feet of width.

EF-Q8	Interurban Trail	E. Casino Rd. – 84th St. SE	Cost: $109,000

Existing

2-lane roadway with a center turn lane and no on-street parking. Existing sidewalk is 9.2 ft wide. Total ROW is 49.0 ft.

Existing conditions north of 7th Ave.

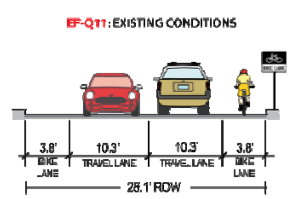
Proposed

Widening the sidewalk to 12' wide requires an additional 2.8 feet of width.

EF-Q11	Interurban Trail	W.Mall Dr. – SE Everett Mall Way	Cost: $222,000

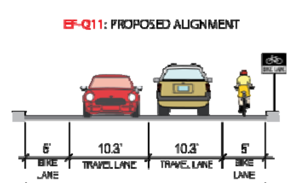
Existing

2-lane roadway with no on-street parking. Existing bike lanes are less than 4 ft wide. Total ROW is 28.1 ft.



Proposed

To gain additional room for providing bike lanes, the roadway will require widening the roadway by 2.9 feet.



EF-Q12	Interurban Trail	SE Everett Mall Way – 128th St SE	Cost: $74,000

Existing

The current trail is 10.9 ft wide.

Existing conditions at 112th St. SE

Proposed

An additional 1.1 feet in width will need to acquired to widen the trail from 10'9" to 12'.

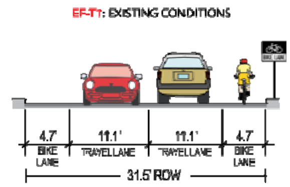
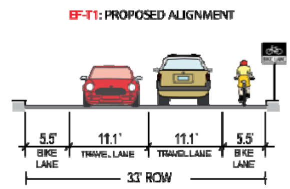
EF-R	Lowell Riverfront Trail	4300 Block – Rotary Park	Cost: $92,000

Existing

The existing trail is 9.6 ft wide.

Proposed

An additional 2.4 feet in width will need to acquired to widen the trail from 9'6" to 12'.

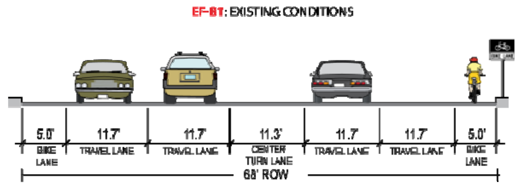
<table>
<tr><th>EF-T1</th><th>Mukilteo Blvd.</th><th>Grandview Ave – Dogwood Dr</th><th>Cost: $628,000</th></tr>
<tr><td colspan="2">Existing
2-lane arterial roadway with no on-street parking. Existing bike lanes are less than 5 ft wide. Total ROW is 31.5 ft.</td><td colspan="2"></td></tr>
<tr><td colspan="2">Proposed
To gain additional room for widening bike lanes, the roadway will require widening by 1.5 feet. This will result in two travel lanes 11' wide and two 5'5" wide bike lanes.</td><td colspan="2"></td></tr>
<tr><th>EF-W2/EF-W3/EF-W4</th><th>W Marine View Dr.</th><th>Alverson Bridge – Everett Ave.</th><th>Cost: $2,100,000</th></tr>
<tr><td colspan="2">Existing
4 and 5-lane arterial roadway with center turn lane in some locations with no on-street parking. Existing sidewalk varies in width from 8.4 feet-10.8 feet. Total ROW varies from 57 feet to 77 feet.</td><td colspan="2"></td></tr>
<tr><td colspan="2">Proposed
Widening the sidewalk to 12' wide requires up to an additional 3.6 feet of width. The City of Everett Shoreline Public Access Plan recommends also installing physical separation (a jersey-barrier or equivalent) to provide greater protection to path users.</td><td colspan="2">Existing trail conditions below pedestrian bridge.</td></tr>
</table>

"Good" Existing Facilities

EF-B1	112th St. SW	Airport Rd. – Evergreen Way	Cost: $46,000

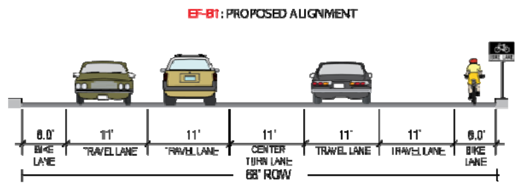
Existing

4-lane local roadway with a center turn lane and no on-street parking. The existing bike lanes are 5 ft wide. Total ROW is 68.0 ft.



Proposed

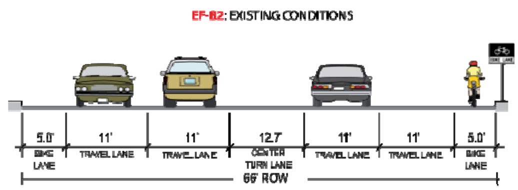
Restriping the roadway to two 11' wide travel lanes and an 11' center turn lane allows for the striping of two 6'5" wide bike lanes.



EF-B2	112th St. SW	Evergreen Way – Silver Lake Rd.	Cost: $149,000

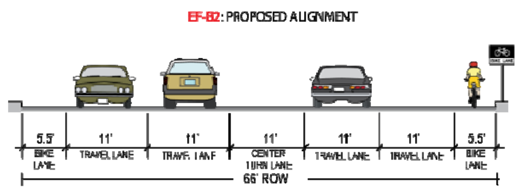
Existing

4-lane arterial roadway with a center turn lane and no on-street parking. The existing bike lanes are 5 ft wide. Total ROW is 66.0 ft.



Proposed

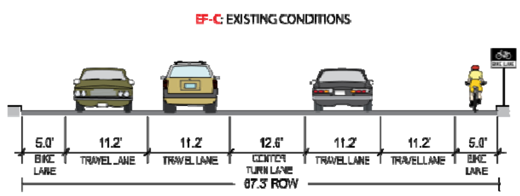
Narrowing the center turn lane to 11' provides additional width to widen the bike lanes to 5'5" wide.



EF-C	19th Ave. SE	112th St. SE – 132nd St. SE	Cost: $135,000

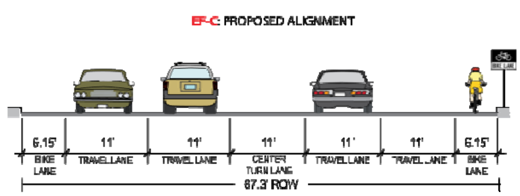
Existing

4-lane arterial with a center turn alne and no on-street parking. Existing bike lanes are 5.0 feet wide. Total ROW is 67.3 ft.



Proposed

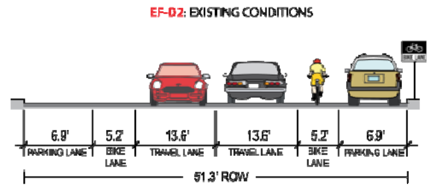
Restriping the roadway to two 11' wide travel lanes and an 11' center turn lane allows for the striping of two 6'+ wide bike lanes.



EF-D2	19th St.	Lombard Ave. – Grand Ave.	Cost: $38,000

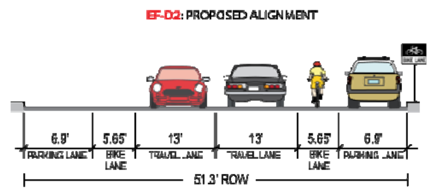
Existing

2-lane arterial roadway with on-street parking. The existing bike lanes are 5'2" wide. Total ROW is 51.3 ft.



Proposed

Restriping the travel lanes to narrow from 13'6" to 13' allows for widening the bike lanes to 5'6".



EF-K1	Colby Ave.	5th St. – 9th St.	Cost: $17,000

Existing

2-lane arterial roadway with on-street parking. Street is a signed bicycle route.

Existing conditions at 6th St.

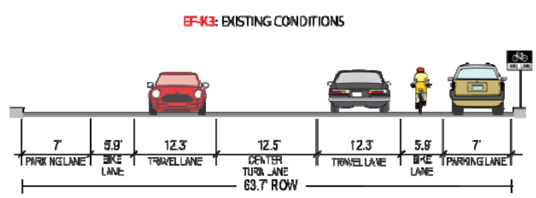
Proposed

Adding additional/appropriate signage.

EF-K3	Colby Ave.	19th St. – 24th St.	Cost: $40,000

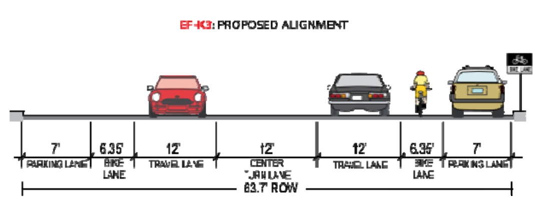
Existing

2-lane arterial roadway with a center turn lane and on-street parking. The existing bike lanes are 5'9" wide. Total ROW is 63.7 ft.



Proposed

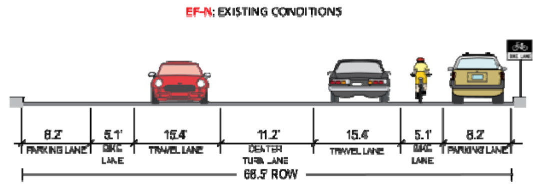
Restriping all vehicle lanes (travel and center turn lane) to 12' wide allows for striping bike lanes just over 6' wide.



EF-N	Everett Ave.	E. Grand Ave. – Harrison Ave.	Cost: $21,000

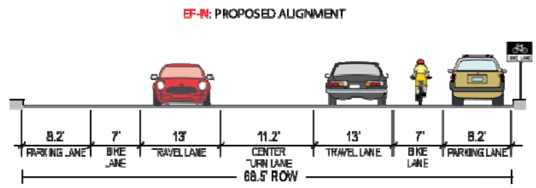
Existing

2-lane arterial roadway with a center turn lane and on-street parking. The existing bike lanes are 5’1” wide. Total ROW is 68.5 ft.



Proposed

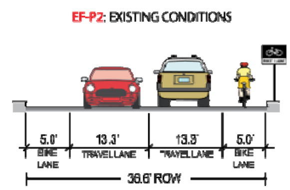
Restriping the travel lanes from over 15' in width to 13' wide allows for striping 7' wide bike lanes.



EF-P2	Holly Dr.	100th St. SW – Airport Rd.	Cost: $78,000

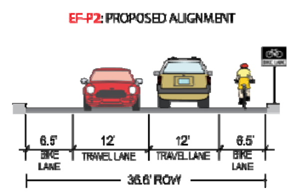
Existing

2-lane arterial roadway no on-street parking. The existing bike lanes are 5.0 ft wide. Total ROW is 36.6 ft.



Proposed

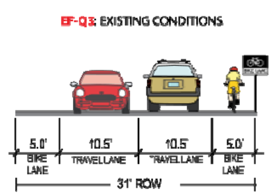
Restriping the travel lanes from just over 13' in width to 12' in width allows for the striping of 6'+ wide bike lanes.



EF-Q3	Interurban Trail	Alta Dr. – 52nd St. SE	Cost: $21,000

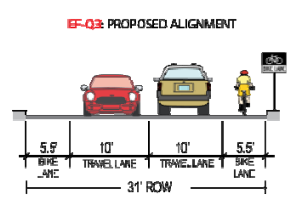
Existing

2-lane local roadway no on-street parking. The existing bike lanes are 5.0 ft wide. Total ROW is 31.0 ft.



Proposed

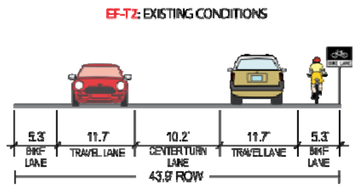
Restriping the travel lanes to create two 10' travel lanes provides an additional 1' of width that can be allocated to the bike lanes.



EF-T2	Mukilteo Blvd.	Elm St. – Mukilteo Ln.	Cost: $222,000

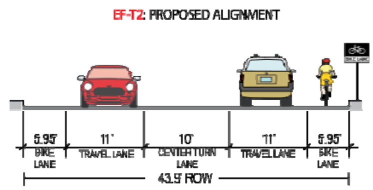
Existing

2-lane arterial roadway with a center turn lane and no on-street parking. The existing bike lanes are 5’3” wide. Total ROW is 43.9 ft.



Proposed

Restriping the roadway to slightly narrow the travel lanes (11') and center turn lane (10') allows for widening the bike lanes to just under 6'.



EF-I1	Airport Rd.	W. Casino Rd. – Kasch Park Rd.	Cost: $114,000

Existing

7-lane arterial roadway with a center turn lane and no on-street parking. The existing sidewalk facility is 11’8” wide. Total ROW is 90.6 ft.

Existing conditions at the intersection with Kasch Park Rd.

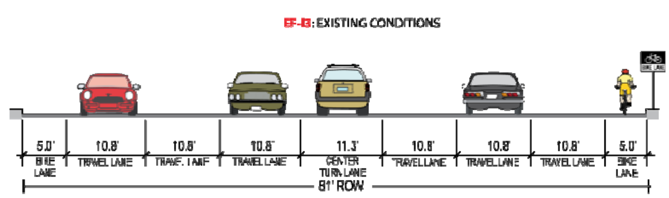
Proposed

Widening the sidewalk to 14' wide requires an additional 2’2” of width.

EF-I3	Airport Rd.	100th St. SW – Evergreen Way	Cost: $1,937,000

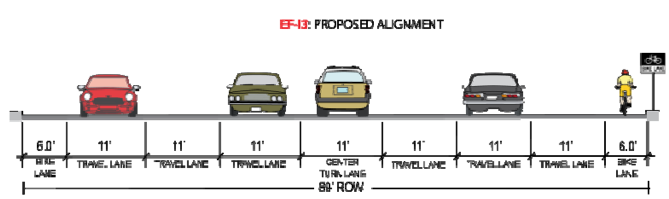
Existing

6-lane arterial roadway with a center turn lane and no on-street parking. Existing bike lanes are 5.0 ft wide. Total ROW is 81.0 ft.



Proposed

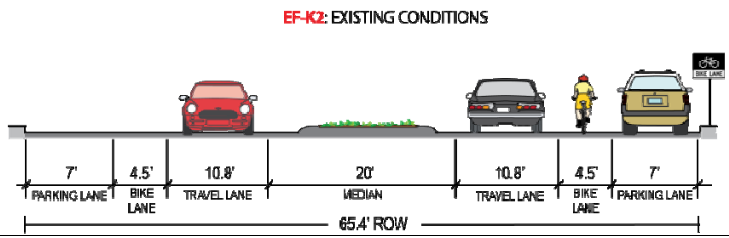
To gain additional room for widening bike lanes, the roadway will require widening by 8 feet. This will result in travel lanes 11' wide, plus an 11' wide center turn lane and two 6' wide bike lanes.



EF-K2	Colby Ave.	9th St. – 19th St.	

Existing

2-lane arterial roadway with a center median and on-street parking. Bike lane width varies from 4'5" feet to 4'9" in width. Total ROW is 65.4 ft.



Proposed

No action possible at this time.

EF-Q6	Interurban Trail	Madison St. – Adams Ave.	Cost: $4,000

Existing

The existing trail is 10.9 ft wide.

Proposed

Widening the trail to 12' wide requires an additional 1.1 feet of width.

Existing conditions at the intersection with Madison St.

EF-Q10	Interurban Trail	1400 Block – W. Mall Dr.	Cost: $26,000

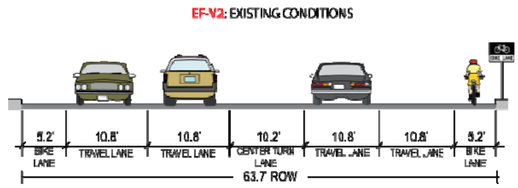
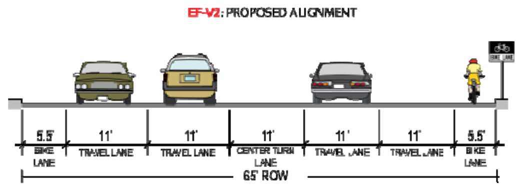
Existing

The existing trail is 11.8 ft wide.

Proposed

Widening the trail to 14' wide requires an additional 2.2 feet of width.

Existing conditions at 100th St. SE

<table>
<tr><th>EF-V2</th><th>W. Casino Rd.</th><th>5th Ave. W – Casino Square W Driveway</th><th>Cost: $433,000</th></tr>
<tr><td colspan="2">Existing
4-lane arterial roadway with a center turn lane and no on-street parking. Existing bike lanes are 5’2” wide. Total ROW is 63.7 ft.</td><td colspan="2">
</td></tr>
<tr><td colspan="2">Proposed
To gain additional room for adding bike lanes, the roadway will require widening by 2’3”. This will result in travel lanes 11' wide, plus an 11' wide center turn lane and two 5'5" wide bike lanes.</td><td colspan="2">
</td></tr>
<tr><th>EF-W1</th><th>W Marine View Dr.</th><th>Skyline Dr. – Alverson Bridge</th><th>Cost: $588,000</th></tr>
<tr><td colspan="2">Existing
4-lane arterial roadway with a center median and no on-street parking. The existing sidewalk facility is 11.0 ft wide. Total ROW is 66.8 ft.</td><td colspan="2"></td></tr>
<tr><td colspan="2">Proposed
Widening the trail to 14' wide requires an additional 3 feet of width.</td><td colspan="2">Existing conditions south of Skyline Dr.</td></tr>
</table>

EF-M4:M5/CEF-K Madison Street – Sievers-Duecy Blvd to Broadway

The existing bike lanes on Madison Street are less than 4 feet in width. The transportation element of the Comprehensive Plan map shows this existing facility extending to Broadway. However, the bike lane striping currently ends one block east of Evergreen Way. The bike lane should be striped to Broadway at the same time that the existing bike lanes are widened.

Project Length: 1.7 miles

Implementation

Madison Street: Sievers-Duecy Blvd to E. Cady Road

Bike lanes on this section of Madison range from 3.5 to 4 feet wide. A center turn lane runs the length of this segment, although there are few large driveways. Bike lanes should be widened to 6 feet by widening and restriping the roadway.

- Traffic Side Treatment: A
- Facility Treatment: C ,6 feet
- Edge Treatment: J (WB), H (EB)

Madison Street: E. Cady Road to Rainier Drive

This is identified as a corridor replacement project.

Madison Street: Rainier Drive to Berkshire Drive

Bike lanes on this section of Madison range from 3.5 to 4 feet wide. A center turn lane runs the length of this segment, although there are few large driveways. Bike lanes should be widened to 6 feet by removing the center turn lane.

Madison Street: Berkshire Drive to Broadway

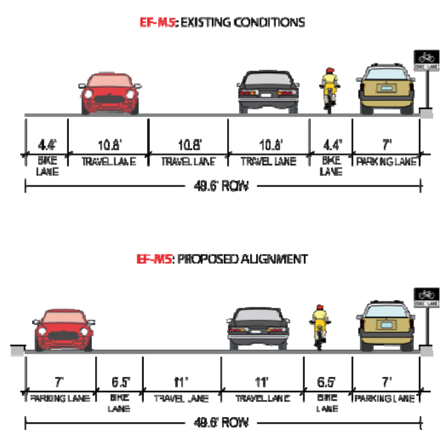
Madison is 48 feet wide from curb to curb in this area, and can accommodate 5 foot bike lanes in each direction while maintaining the existing two travel lanes and on-street parking.

Intersection at Beverly Boulevard

The bike lane should not be dropped, and should be striped up to the intersection.

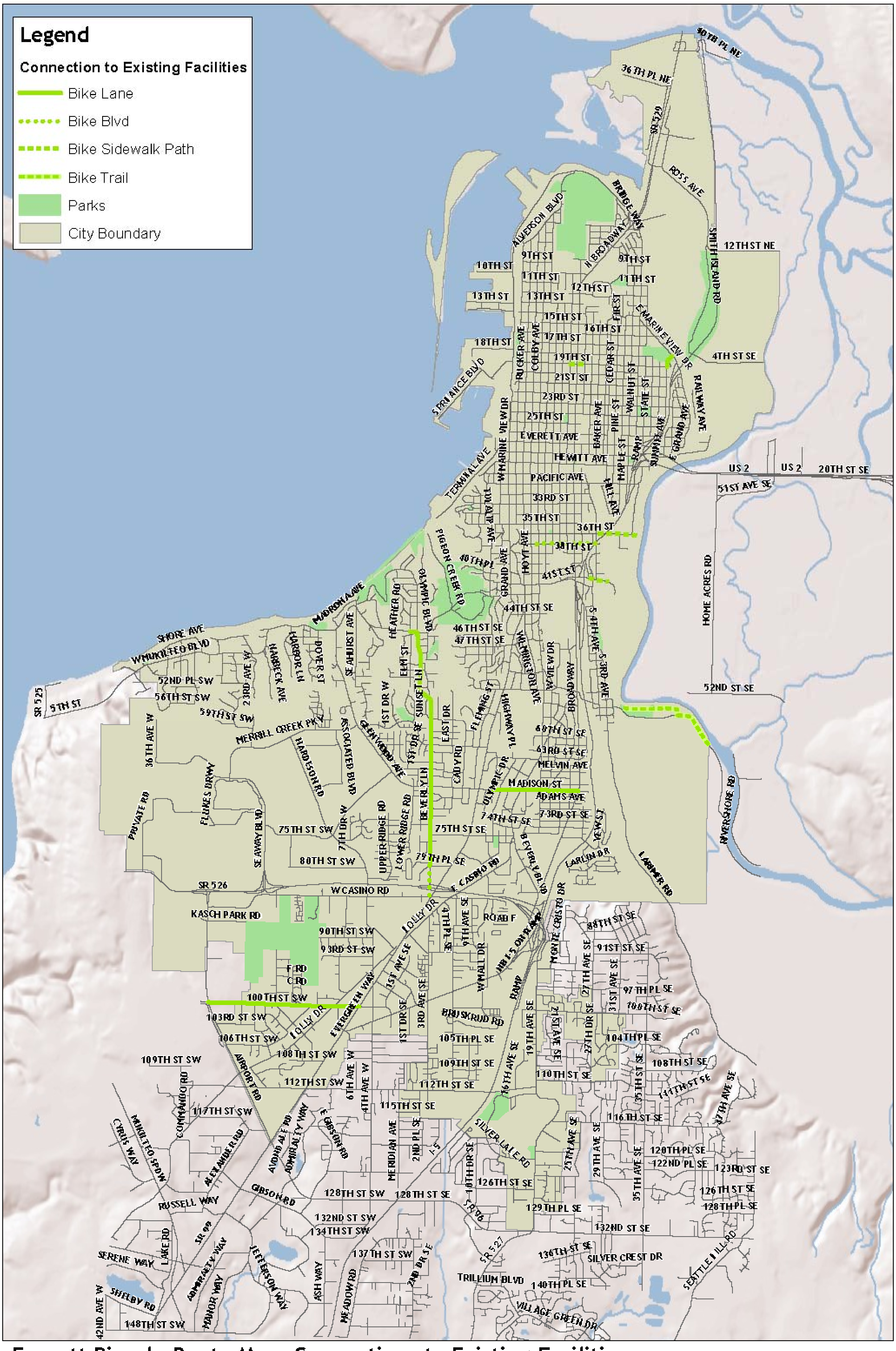
- Intersection Treatment: Continue bike lane to intersection.

Constrained conditions west of Evergreen Way place bicycles into conflict with parked vehicles.



Madison Street: Rainier Drive to Berkshire Drive

Planning Level Cost Opinion
$ 1,300,000



Everett Bicycle Route Map: Connections to Existing Facilities

City of Everett
Everett Bicycle Master Plan
Source: Data obtained from City of Everett
Author: DM
Date: January 2011

0 0.5 1 Miles

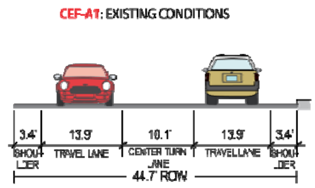
Figure 30. Connections to Existing Facilities

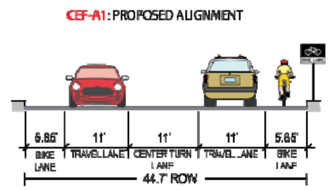
Connections to Existing Facilities

CEF-A1	100th St SW	Airport Rd. – Dakota Way	Cost: $46,000

Description

Re-allocating the roadway width through re-striping provides for the striping of two bike lanes just under 6' wide.





CEF-E	36th St.	Hoyt Ave. – Smith Ave.	Cost: $17,000

Description

A new low-traffic bike route with new signage that connects the proposed north-south bike route on Hoyt Ave with the transit center.

Existing conditions at 36th St. and Broadway

CEF-H2	Beverly Ln.	79th Pl. SE – W. Casino Rd.	Cost: $16,200

Description

A low-traffic bike route with new signage connecting from the SR 526 overcrossing to W/ Casino Rd to proposed bike lanes on Beverly Lane.

Existing conditions south of 75th St.

CEF-M | Pacific Ave. & Rucker Ave. | Cost: $239,000

Description

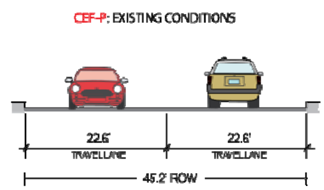
Installing new detection at this intersection will improve the ability of bicyclists to be recognized by the signal.

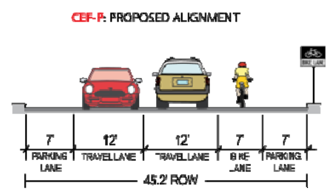
Intersection at Pacific Ave. and Rucker Ave.

CEF-P | Summit Ave. | E. Marine View Dr. – 19th St. | Cost: $21,000

Description

Re-striping the roadway to narrow the travel lanes provides additional width to stripe an uphill bike lane connecting E. Marine View Dr. with 19th Street.

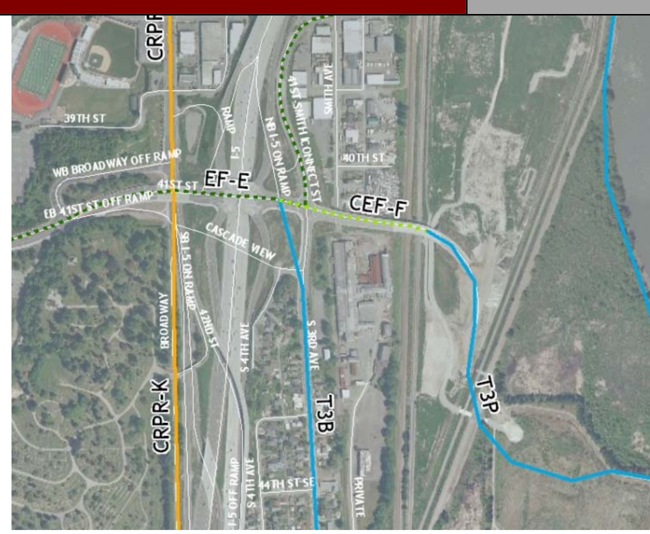




CEF-F | 41st St. | S 3rd Ave. – Lowell Riverfront Trail | Cost: $1,200,000

Description

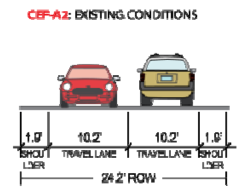
Developing a bike sidewalk path at 41st St. provides a vital connection to the existing Lowell Riverfront Trail

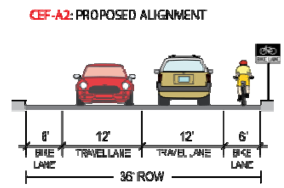


CEF-A2	100th St SW	Dakota Way – Evergreen Way	Cost: $915,000

Description

The existing roadway is a narrow two-lane road with no additional space for the installation of bike lanes. The roadway will require widening by about 12 feet to provide for two 6-foot wide bike lanes.

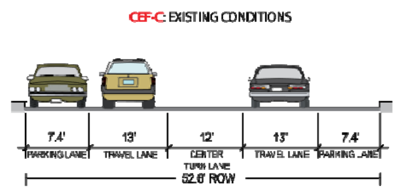


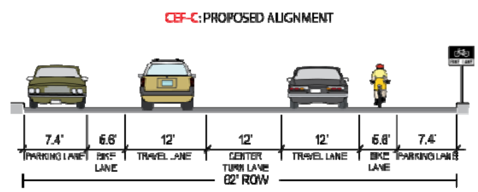


CEF-C	19th St.	Lombard Ave. – McDougall Ave.	Cost: $217,000

Description

To maintain the existing vehicle cross-section while providing bike lanes, the roadway will require about 10 feet of widening, resulting in two travel lanes, a center turn lane, and two 5'6" wide bike lanes.

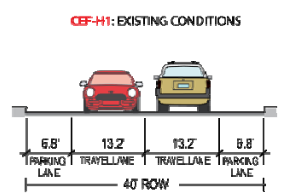


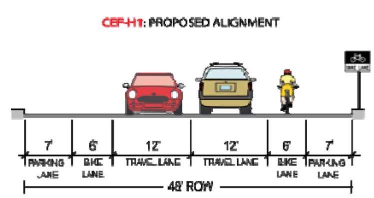


CEF-H1	Dogwood Dr./Beverly Ln.	Mukilteo Blvd. – 79th Pl. SE	Cost: $3,042,000

Description

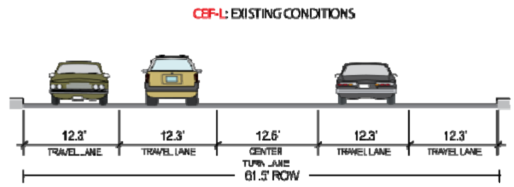
Two 6-foot wide bike lanes are provided for enhanced bicycling conditions through a roadway widening project that maintains the existing vehicle capacity.

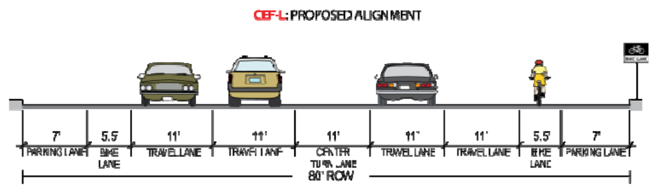




CEF-J	Lowell Riverfront Trail	Rotary Park – City Limits	Cost: $200,000
Description This trail project extends the existing Lowell Riverfront Trail to the city limits and connects the path to a planned county pathway.		 	

CEF-D	36th St.	Smith Ave. – Lowell Riverfront Trail	Cost: $732,000
Description In conjunction with the roadway project, a new bike route that continues the proposed 36th St. bike route, connecting Smith Ave. and the transit center with the waterfront trail.		 The eastbound bike lane ends before Paine but should continue to Smith Ave.	

<table>
<tr><th>CEF-L</th><th>Mukilteo Blvd.</th><th>Dogwood Dr. – Olympic Blvd.</th><th>Cost: $162,000</th></tr>
<tr><td colspan="2">Description
Widening the existing roadway by 18.5 ft. provides the necessary space to accommodate 5+ ft. bike lanes and designated on-street parking.</td><td colspan="2">




</td></tr>
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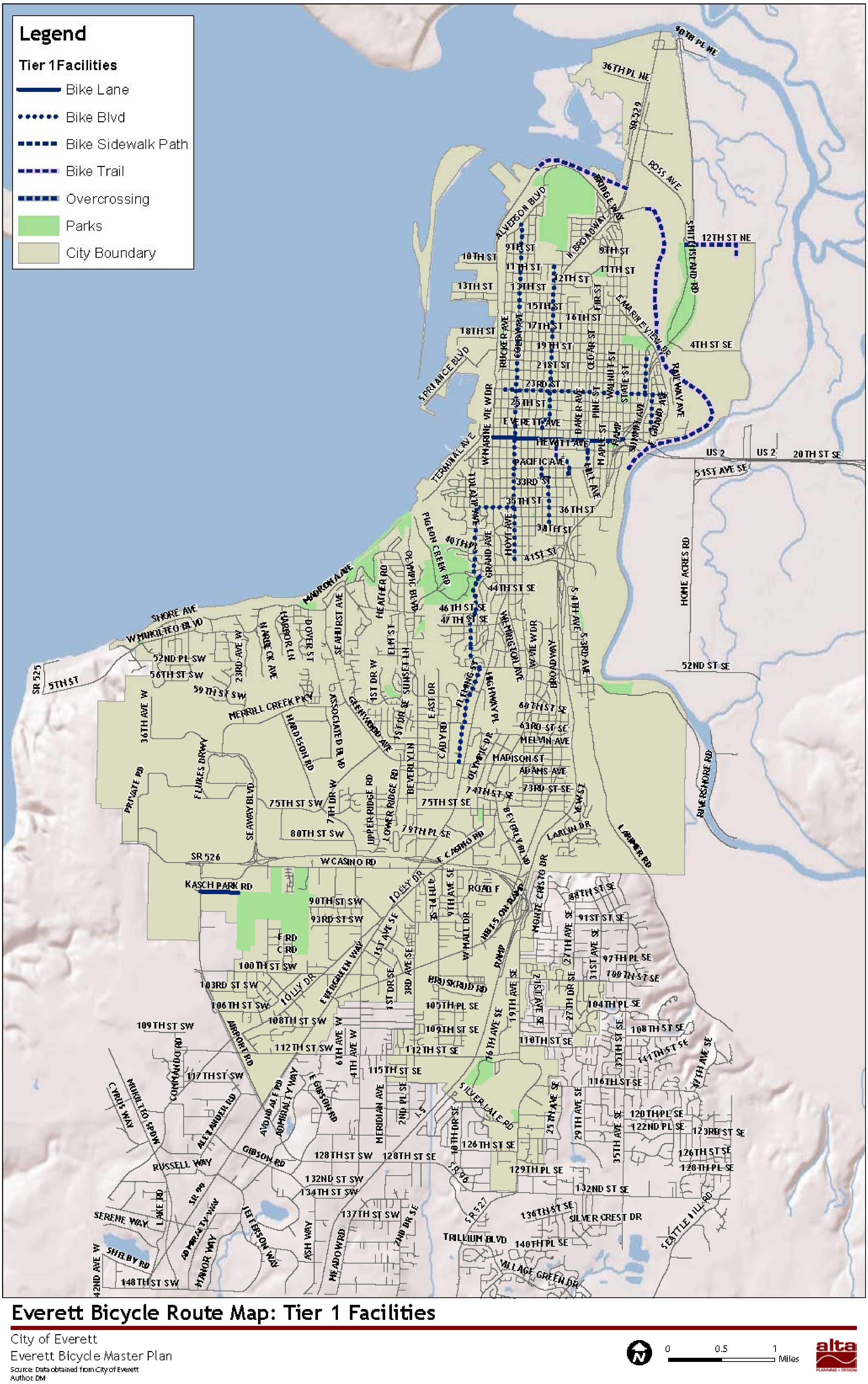


Figure 31. Tier 1 Facilities

Tier 1 Facilities

T1-A1	35th St.	Federal Ave. – Hoyt Ave.	Cost: $30,000

Description

This is a 2-lane roadway with no on-street parking and no existing bicycle facilities. Adding signage and optional pavement sharrow stencils provides a desirable bicycle connection between proposed bicycle facilities on Federal and Hoyt.

Existing conditions at Colby Ave.

T1-G1	Hoyt Ave.	Alverson Blvd. – 41st St.	Cost: $32,000

Description

Creating a parallel bike route to the bike lanes on Colby Ave provides an alternate bicycle connection through northwest Everett, connecting residences in the north with downtown and the Interurban Trail. Implementation will involve signage and optional sharrow stencils.

Existing conditions south of Alverson Blvd.

T1-J3 / T1-J4	Fulton St.	Pacific Ave – California St.	Cost: $32,000

Description

This signed bike route provides a connection from the transit center to proposed facilities along California Street.

Existing conditions at Everett Ave

T1-R / T1-S	Summit Ave Harrison Ave	23^{rd} St. – 19^{th} St. California St. – 23^{rd} St	Cost: $33,000

Description

This signed bike route identifies a connection between the existing facilities on 19^{th} Street and destinations on the east side of the freeway via a short connection on the proposed facilities on 23^{rd} Street.

Existing conditions at 22^{nd} St.

T1-T / T1-U	Wall St. Smith Ave	Broadway – Smith Ave Smith Ave – 32nd	Cost: $32,000

Description

This signed route provides a connection from the bike lanes on California to the Everett transit center.

Existing conditions looking toward 33^{rd} St.

T1-Q	23rd St.	Grand Ave. – E Grand Ave.	Cost: $29,000

Description

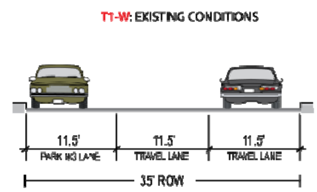
A new low traffic bicycle route with signage providing a vital east-west connection between Grand Ave and the sidewalk path at E Grand Ave.

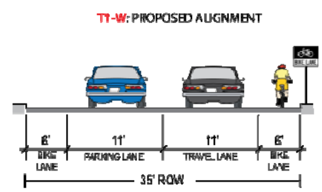
23rd St. approaching Pine St.

T1-W	Kasch Park Rd.	Airport Rd. – Kasch Park	Cost: $25,000

Description

Re-striping the roadway provides the necessary width to accommodate 6 ft. bike lanes.

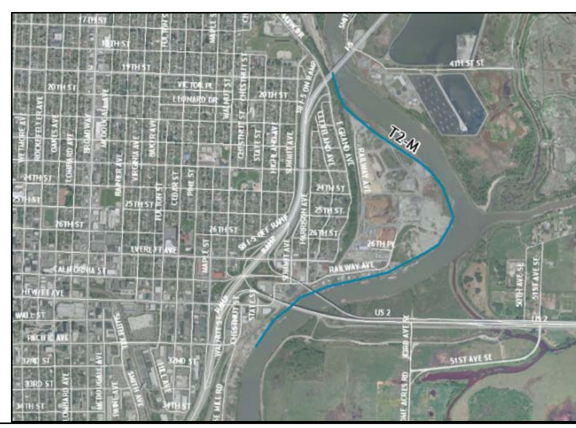




T1-Z	Riverside Trail	SR 529 – Pacific Ave	Cost: $125,000

Description

On the Port's Riverside Business Park, if the site develops with water-dependent uses, the path will follow the existing north-south road where the existing paths can be widened to 12 feet. If the site develops with non-water dependent uses, the path will be aligned along the shoreline.



T1-C1 California Street – West Marine View Drive to I-5

California Street is an east-west route through downtown Everett that connects the US 2 trail to Marine View Drive.

Project Length: 1.1 miles

Implementation

California Street: Pine Street to Virginia Avenue

Cyclists traveling westbound from the US 2 trail connect to California via Hewitt and Pine. From Pine Street to Fulton Street, California Street is 62 feet wide curb to curb and 52 feet from Fulton Street to Virginia Avenue. Traffic volumes are low and on-street parking is lightly used. These conditions provide ample room for bike lanes, even at intersections such as Cedar where curb extensions reduce the curb to curb width to 36 feet.

- Traffic Side Treatment: A
- Facility Treatment: C, 6 feet
- Edge Treatment: F or G

California Street near the PUD building looking east from McDougall Avenue.

California Street: Virginia Avenue to Broadway

Near the PUD building at Virginia, parking along California is heavily used, with head-in angle parking the south side of the street and parallel parking on the north side of the street. Angle parking should be replaced with parallel parking, gaining the space to add six foot bike lanes.

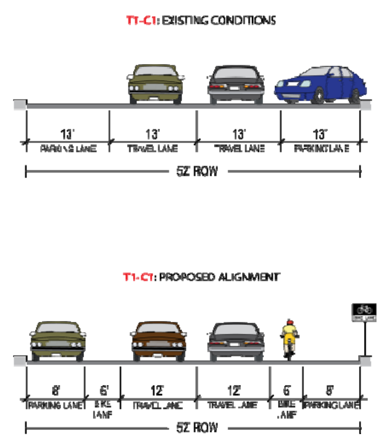
- Traffic Side Treatment: A
- Facility Treatment: C, 6 feet
- Edge Treatment: F

Changing angle parking to parallel parking will provide room for bike lanes on California Street.

California Street: Broadway to Marine View Drive

This section of California is 52 feet wide from curb to curb. Some blocks in this area feature angle parking with a minimal clear zone, where parked cars partially block the travel lane. This should be replaced with parallel parking.

- Traffic Side Treatment: A
- Facility Treatment: C, 6 feet
- Edge Treatment: F or G



Existing and Proposed configuration for California Street

Intersection at Broadway

Broadway is the most difficult crossing for cyclists traveling on California Street. It is currently

T1-C1 California Street – West Marine View Drive to I-5

unsignalized, and prohibits through traffic, forcing a right turn on Broadway. Broadway has high peak traffic volumes and stopped cars often block the intersection. This intersection should be treated with an actuated traffic signal and median diverter that allows bicycle through traffic while continuing to prohibit vehicle through movements. Refer to **Project Concept Guideline Section 4.3 Intersection Treatments** for more information on this treatment and other crossing treatment options.

Planning Level Cost Opinion
$149,100

T1-F1:F11 Fleming Street/College Avenue/Federal Avenue – Madison Street to 35th Street

Fleming Street, College Avenue and Federal Avenue are all low speed, low traffic streets that parallel Evergreen Way/Rucker Avenue. This signed route will provide a new bicycle connection from Madison Street to Mukilteo Boulevard where bicycles do not have to ride next to high volumes of vehicle traffic. It connects to the proposed signed route on Grand Avenue as well as to Everett Station via 36th Street.

Project Length: 2.6 miles

Implementation

All segments of this project should be treated with wayfinding signage and traffic calming treatments as described in the **Project Concept Guidelines Section 4** on bicycle boulevards.

Cyclists will use the existing pedestrian bridge to Forest Park to complete an otherwise difficult crossing of Mukilteo Boulevard.

Fleming Street/College Avenue: Madison Street to 46th Street

Fleming Street and College Avenue are residential streets with parking and no centerline. They require minimal treatment to become a bicycle facility, but will benefit from traffic calming and other treatments described in **Project Concept Guidelines Section 4**.

46th Street to Charles Avenue

North of 46th Street, Federal Avenue is a two lane road with a centerline and no parking. Federal has a constrained width for bike lanes. Shared lane markings and increased signage in this area will improve cyclist comfort. The route utilizes the existing pedestrian bridge in Forest Park to cross Mukilteo Boulevard. North of Mukilteo Boulevard, Federal features traffic calming speed bumps.

Looking south on Federal Avenue from 35th Street, southbound cyclists will benefit from the addition of a climbing lane uphill to Charles Avenue.

- Traffic Side Treatment: None
- Facility Treatment: C
- Edge Treatment: None

Charles Avenue to 35th Street

Federal has a steep grade between Charles Avenue and 35th Street. In this area, travel lanes should be reduced to 10 feet to accommodate a five foot southbound bike lane for cyclists climbing the hill to Charles Avenue.

- Traffic Side Treatment (SB only): A
- Facility Treatment (SB only): C, 6 feet
- Edge Treatment (SB only): H

Intersections

Attention should be paid to wayfinding and route signage at several intersections where the route turns or jogs. Confirmational signage after directional

T1-F1:F11 Fleming Street/College Avenue/Federal Avenue – Madison Street to 35th Street

changes and controlled intersections will help cyclists navigate and stay on the route. These intersections include:

- Fleming Street and Pecks Drive
- Fleming Street and 57th Street
- Fleming Street and 56th Street
- 56th Street and College Avenue

Additional Treatments

The gates and bollards near the Forest Park pedestrian bridge over Mukilteo Boulevard should be replaced with a different design that novice cyclists can pass without dismounting, and that accommodates two-way bicycle and pedestrian traffic.

Planning Level Cost Opinion

$190,200

T1-H2:H3:H6:H8

Lombard Avenue/Oakes Avenue - 10th Street to 37th Street

This signed route will connect northwest Everett to downtown, Everett Station, and the Fleming/College/Federal signed route to southern Everett.

Project Length: 2.4 miles

Implementation

All segments of this project should be treated with wayfinding signage and traffic calming as described in **Project Concept Guidelines Section 4 Bicycle Boulevards**.

Lombard Avenue: 10th Street to 26th Street

Lombard is a residential street with a posted speed of 25 mph, little through traffic and parking on both sides. Few stop signs make the route convenient for bicyclists traveling parallel to Broadway. Traffic calming will improve the comfort of non-motorized users on the street while discouraging cut-through traffic during peak hours.

Intersections at 13th Street and 14th Street

These intersections will need to be all way stops as they are access routes to the hospital from Broadway.

Oakes Avenue: 26th Street to 37th Street

The route turns west on 26th Street from Lombard, to use the signalized crossing of Pacific Avenue on Oakes Avenue. Oakes benefits from existing traffic calming with traffic circles at 33rd Street and 35th Street. Confirmational signage after turns and controlled intersections help cyclists navigate the route. Intersections to note include:

- Lombard Avenue and California Street
- California Street and Oakes Avenue
- Oakes Avenue and Pacific Avenue

Intersection at Everett Avenue

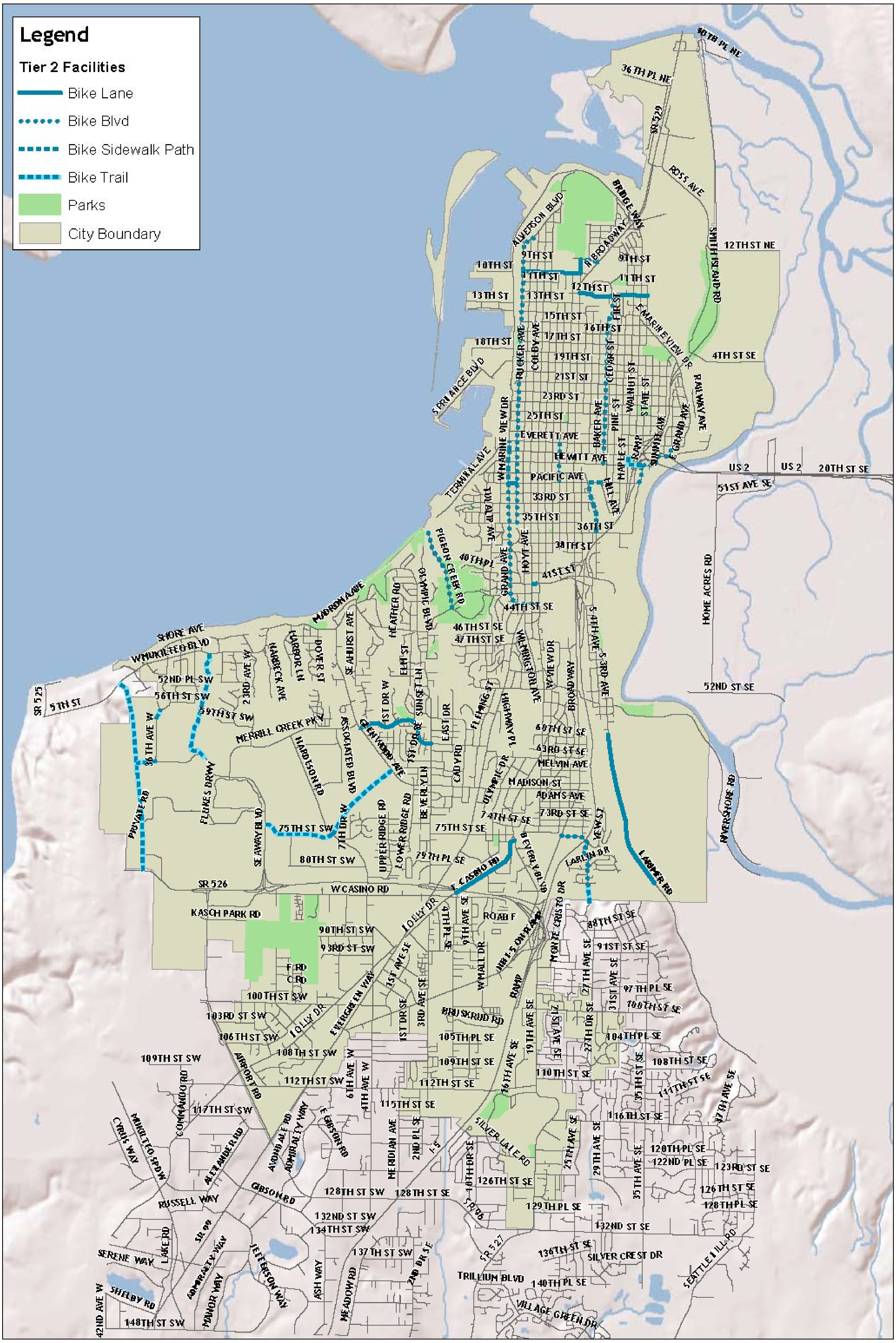
At five lanes wide, Everett Avenue is the only potentially problematic crossing on this portion of the route. Treatments that could improve this crossing include high visibility crosswalks, curb extensions to reduce crossing distance or a median refuge island so bicyclists can complete the crossing in two stages. See **Project Concept Guidelines Section 4.3 Intersection Treatments** for more information.

Planning Level Cost Opinion
$224,000

Lombard is a residential street, appealing to both new and experienced cyclists.

Everett Avenue is the only difficult crossing for cyclists traveling on Lombard.

The route uses the existing signal on Oakes to cross Pacific Avenue, which is five lanes wide with high traffic volumes .to Charles Avenue.



Everett Bicycle Route Map: Tier 2 Facilities

City of Everett
Everett Bicycle Master Plan
Source: Data obtained from City of Everett
Author: DM
Date: December 2010

0 0.5 1 Miles

Figure 32. Tier 2 Facilities

Tier 2 Facilities

T2-E	Baker Ave/Poplar St	12th St. – Hewitt Ave.	Cost: $22,000

Description

An existing two lane north-south road that will serve as a bicycle connection between downtown and destinations in North Everett, including Hawthorne Elementary School and the Boys and Girls Club. This will be signed as a bicycle route, with the use of sharrows as an optional treatment.

Baker Avenue at 19th Street, facing south

T2-K	Grand Ave	Alverson Blvd. – 35th St.	Cost: $26,000

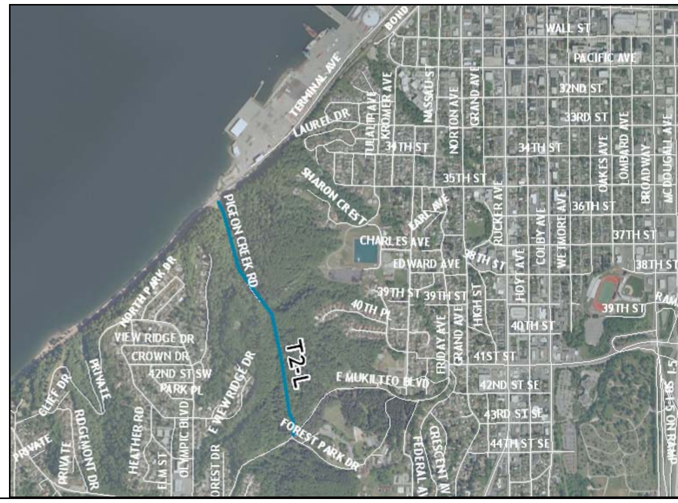
Description

Grand Avenue is a low speed, two lane road that travels along the ridge in northwest Everett. Providing lovely views of the sound, this bicycle route will provide a north-south connection in northwest Everett while providing an alternate route to Hoyt and Colby.

T2-L	Pigeon Creek Rd.	Mukilteo Blvd – Port Waterside Trail	Cost: $4.5 million

Description

This bicycle route with new signage connects the Port Waterside Trail on the waterfront up through to Forest Park and the existing bike lanes on Mukilteo Blvd. A grade separated railroad crossing will be required.



T2-Q / T2-R / T2-S	Norton Ave / Grand Ave / 43rd St SE	Pacific Ave – Grand Ave Norton Ave – 43rd St SE Grand Ave – Colby Ave	Cost: $61,000

Description

This proposed bike route provides a connection between the existing sidewalk facilities on W Marine View Drive south through west central Everett while providing a connection to the Interurban Trail.

Intersection of Norton Avenue and Grand Avenue, facing north

T2-Z	Smith Ave	Pacific Ave – 3600 Block	Cost: $438,000

Description

This project connects the transit center to the existing facilities further south on Smith that connect via Paine up to 41st, providing connections to the Interurban Trail and other facilities. This will be signed with sharrows as a shared route.

Smith Avenue at the 3600 block, facing north

T2-DD	Harrison Ave./California St. / Highland Ave. /Hewitt Ave./ Chestnut St.	Everett Ave. – Pacific Ave.	Cost: $91,000

Description

An existing two lane collector that will serve as a bicycle connection between Everett And Pacific Ave. This will be signed as a bicycle route, with the use of sharrows as an optional treatment.

Hewitt Avenue east of State Street

T2-V	75th St SE/Hamlet Ln	Broadway – 81st Pl.	Cost: 29,000

Description

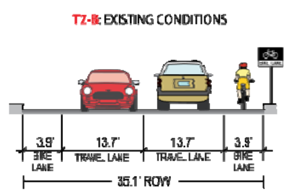
A signed bike route along this network of local streets provides a connection between neighborhoods and nearby business establishments along Broadway.

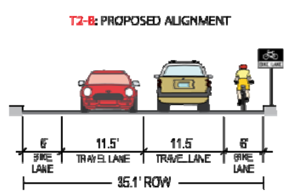
75th Street SE at McDougal Avenue, facing SE

T2-B	12th St	Broadway – Chestnut St.	Cost: $40,000

Description

New 6’ bike lanes provides an east-west connection in north Everett while connecting to the proposed bike route along Poplar St./Baker Ave.

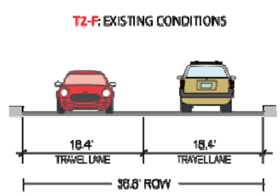


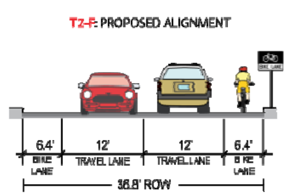


T2-F	Brookridge Blvd	Beverly Ln. – Glenwood Ave.	Cost: $19,000

Description

A proposed 6’4” east-west bike lane that continues the existing bike facilities from Merrill Creek Parkway, connecting to proposed facilities on Dogwood Dr./Beverly Ln. and Pecks Drive.

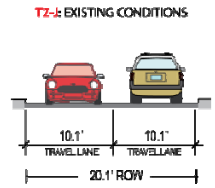


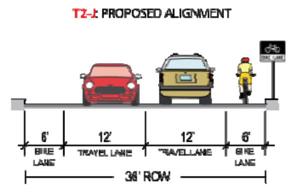


T2-J	Larimer Rd.	S 2nd Ave – City Limits	Cost: $4,382,000

Description

A proposed 6-foot bike lane on Larimer Rd up to the city limits and a proposed other agency project. This project will require widening the roadway.





T2-Y	Oakes Ave	Everett Ave. – Pacific Ave	Cost: $242,000

Description

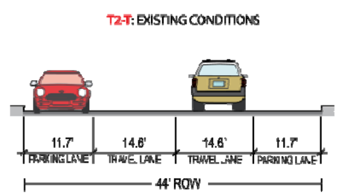
5'6" wide bike lanes are added on Oakes Avenue between Everett Ave and Pacific Ave as the downtown portion of the Lombard Ave bicycle boulevard.

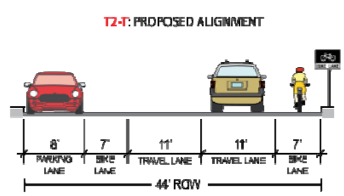
Oakes Avenue south of Hewitt Avenue facing south

T2-T	E. Casino Rd	Beverly Blvd. – 7th Ave SE	Cost: $27,000

Description

New 7' bike lanes on E. Casino Rd. provides connections to the Interurban Trail and the commercial businesses along E. Casino Rd. This will require removing parking from one side of the street.

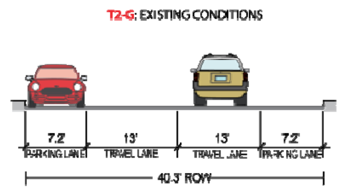


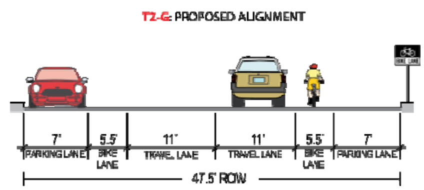


T2-G	10th St.	Grand Ave. - Broadway	Cost: $491,000

Description

New 5'6" wide bike lanes on the east-west running 10th Street connect several existing and proposed north-south routes in north Everett while connecting into Everett Community College. This will require widening the road by just over seven feet.





T2-O / T2-P	W Marine View Dr	Everett Ave. – California St. / California St. – Pacific Ave (Norton Ave)	Cost: $865,000

Description

These two projects continue the existing sidewalk path that is found on the west side of W Marine View Drive. This will require the widening of an existing sidewalk from approximately 8 feet wide to 12 feet wide to provide a comfortable cycling facility.

West Marine View Drive, south of California Street

T2-BB	Pacific Ave	Smith Ave. – Fulton St.	Cost: $171,000

Description

This is a short project that widens the sidewalk on the south side by a little over 4 feet to provide a connection between the Smith Ave bicycle facilities and the Fulton Street bicycle route.

T2-CC	Tower St	Broadway – N. Broadway	Cost: $236,000

Description

This is a short project that widens the north sidewalk by 6 feet to 12 feet, providing a connection into Everett Community College and the Western Washington Everett campus.

Towner Street facing SE towards the intersection of N Broadway

T2-D	41st St.	Colby Ave.(Interurban Trail) – Hoyt Ave	Cost: $15,000

Description

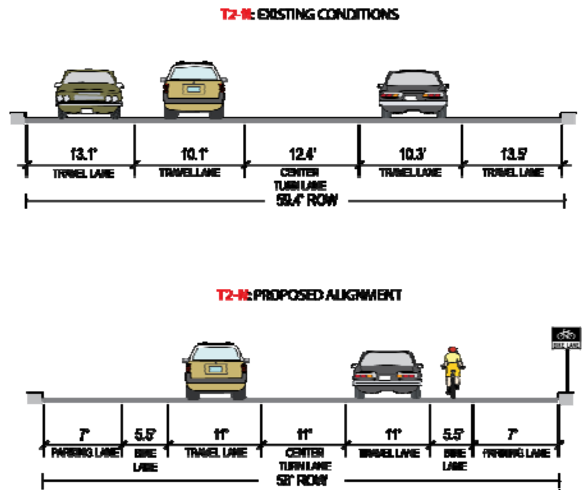
This short, one-block project is a widened sidewalk on the north side of 41st St. that provides a connection between the Interurban Trail and the proposed bike route on Hoyt Ave.

Existing conditions at 41st and Colby Ave.

T2-N	Sievers-Duecy Blvd	Hardeson Rd. – Glenwood Ave.	Cost: $17,000

Description

Given right-of-way constraints within the existing curb-to-curb width, a widened sidewalk (to 12-feet wide) on the north side of the roadway, connecting existing facilities on Hardeson Road and Glenwood Avenue.



T2-A	75th St SE	Seaway Blvd – Hardeson Rd.	Cost: $94,000

Description

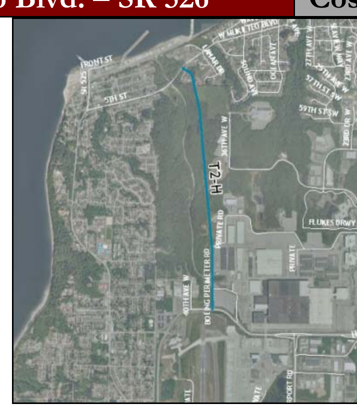
Given right-of-way constraints within the existing curb-to-curb width, a new 12' trail (in the form of a widened sidewalk) along the north side of the roadway provides a connection to business and industrial locations. Shared lane markings in the downhill direction will alert motorists to the presence of cyclists that prefer to cycle in the road rather than on the widened sidewalk.

75th street at Seaway Blvd, facing NE

T2-H	Japanese Gulch Trail	W. Mukilteo Blvd. – SR 526	Cost: $1,800,000

Description

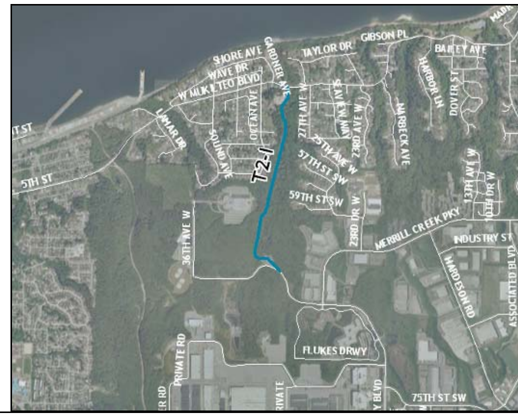
A proposed 12-foot trail that connects from W Mukilteo Blvd to SR 526.



T2-I	Japanese Gulch Connector 1	Seaway Blvd. – Mukilteo Blvd	Cost: 1,000,000

Description

A proposed 12-foot trail that connects from Seaway Blvd to SR 526.



T2-W	Japanese Gulch Connector 2	Seaway Blvd. – Japanese Gulch Trail	Cost: 500,000

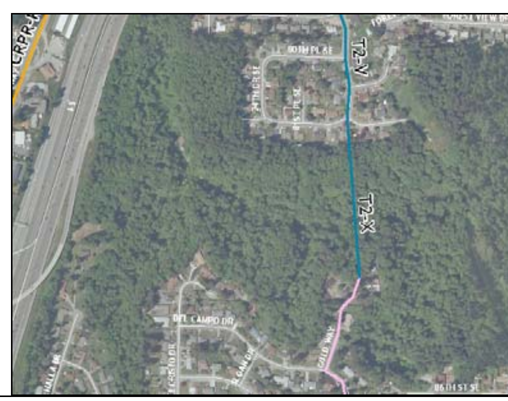
Description

A proposed 12-foot trail that connects from Seaway Blvd to the Japanese Gulch Trail

T2-X	Gold Way Trail	Seaway Blvd. – Japanese Gulch Trail @ 75th St SE	Cost: 900,000

Description

A proposed trail that connects two neighborhoods to Broadway at the north and 19th Ave SE at the south end, bypassing the current difficult crossing of I-5 and SR526.

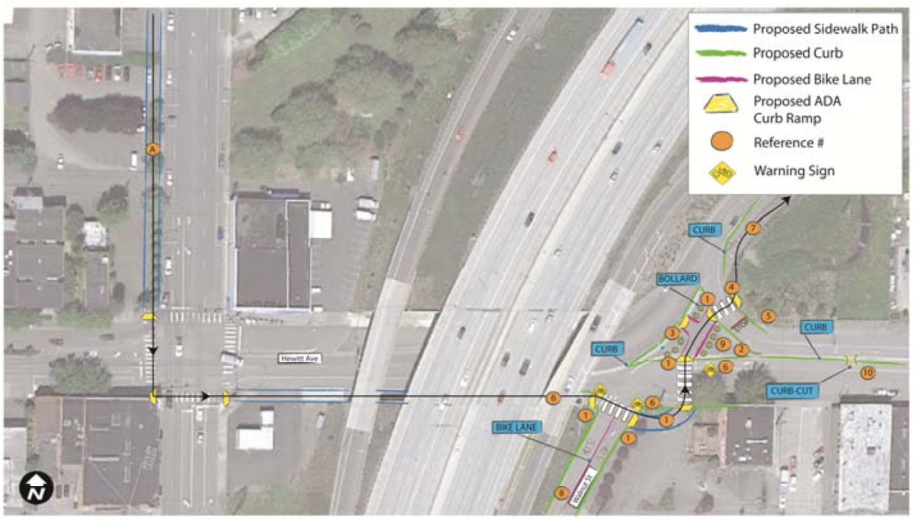


T2-C US 2 Trestle Access Improvements @ Hewitt Ave and Walnut Street

Trail users leaving and entering the US 2 trail at Hewitt and Walnut must currently navigate an undercontrolled intersection with a slip lane highway entrance, missing sidewalks and crosswalks. Cyclists must choose between several blocks of out of direction travel on busy roads or illegal movements to get to downtown. As a result, the movements of cyclists in the area are often unpredictable. The trail entrance and intersection should undergo a redesign process and ultimately be signalized, and a new trail connection should be developed to connect to recommended bicycle facilities on California. The following treatments are interim measures only. Project requires the cooperation of WSDOT for improvements at the US 2 access.

Project Length: n/a

Implementation



A. Widen sidewalk along west side of Maple from California to Hewitt Ave to trail width to serve as bicycle/pedestrian connection into downtown

1. Check ramps for ADA specifications. Update or add new ramps as necessary. Preferably install wide ramps that can better accommodate bicycles turning or entering the ramp at an angle.
2. Close or move ramp.
3. Stripe path through median. Leave ample width for two-way traffic. Enhance visibility.
4. Add new crosswalk and change yield sign to stop sign.
5. Extend sidewalk approximately 75 feet from existing terminus. Consider expanding to 8 feet.
6. Enhance crosswalk and add crossing signage at Walnut and Hewitt.
7. Paint bollards at trail entrance a bright color.
8. Add new bike lanes on Walnut St.
9. Add wayfinding signage.
10. Cut gap in median curb to allow access for cyclists coming from Chestnut Street.

Planning Level Cost Opinion

$185,000

State Highway Access

SR 529 to Marysville

Improving access to SR 529 to Marysville was one of the most popular routes during the prioritization activities at the open house. A decommissioned vehicle onramp currently functions as an access point for bicycle and pedestrians on the E Marine View Drive sidewalk to connect to SR 529 northbound to Marysville. This access could be improved in the short term.

Although SR 529 is not equipped with any bicycle facilities, many bicycles use the route for lack of any other feasible connection between Everett and Marysville. Some sections along the corridor have a shoulder where bicycles may travel without mixing with 55 mph vehicle traffic, but other areas are more constrained, and the shoulder width is inadequate for a bicycle facility. Highway entrances and exits on SR 529 between Everett and Marysville also present potential conflict points where bicycles traveling on the shoulder must merge across the exit or entrance lane, where high speed motorists may not expect them.

The four bridges over the Snohomish River, Union Slough, Steamboat Slough and Ebey Slough are the most difficult choke points for creating an adequate bicycle facility on SR 529 connecting the two cities. Although each bridge does have a sidewalk, all of them are narrow and under the recommended minimum width for a bicycle facility. For instance, the sidewalk over the Snohomish River on SR 529 northbound is only 3.5 feet wide, with a barrier on either side including the rail along the outside of the bridge and a crash barrier between vehicle lanes and the sidewalk. This leaves inadequate "shy" distance for bicycles to maintain a safe buffer distance from the rail to avoid catching their handlebars, which could cause a crash. Another example is the bridge over the Steamboat Slough southbound on SR 529. Although the bridge has a sidewalk, the sidewalk is located on the east side of the bridge, which is the left side of the road for southbound traffic. This means that bicycles traveling on the right side shoulder must merge across two lanes of 55mph vehicle traffic to the left side shoulder, and then merge back to the right side after crossing the bridge.

To construct an improved facility on SR 529, improvements to each bridge will be necessary to add width or to move the sidewalk to the correct side, as with the bridge southbound over the Steamboat Slough. Several cities have had success in adding cantilevered sidewalks to bridges in order to accommodate an improved bicycle and pedestrian facility. However, a thorough engineering review of each bridge will be required to develop the appropriate solution, and to discover possible constraints. Because of the conflicts with highway entrances and exits that would exist for a shoulder bikeway along SR 529, it may be preferable to develop a separate bicycle and pedestrian path, detached from the highway. This could also have the benefit of providing accommodation to pedestrians, for whom a facility on a highway shoulder without a sidewalk may not be appropriate.

Marysville has funding in place to build a new bridge at their end of this corridor, while the City of Everett has not at present identified funding for bridge improvements/replacement. The City of Everett strongly encourages WSDOT to upgrade the bridges on this corridor to provide bicycle access.

Because of the complexity of this project, its potential expense and the coordination it will require between the City of Everett, Marysville, Snohomish County and the Washington Department of Transportation, it is ranked as a Tier 2 project. It should be emphasized, though, that this is a high priority project for the local bicycling community and an essential component the regional bicycle network. The City of Everett should organize a coordinated effort with the other jurisdictions mentioned to plan an improved bicycle facility along this route.

SR 526

SR 526 is managed by the Washington Department of Transportation (WSDOT). The City of Mukilteo has a grant to extend bike lanes to the north perimeter road. The City of Everett encourages WSDOT to provide bike lanes through the 526 corridor to tie into bike system at the overcrossing west of Evergreen Way and to connect to 20th street for access to the Boeing main parking lot (see more about bicycle access to Boeing below).

Access to Boeing

Bicycle access to Boeing, one of the largest employers in Everett, is complicated by the existence of the Boeing Freeway (SR 526) and Seaway Boulevard, both of which are high-capacity high-speed roads.

Implementation of the Tier 1 route on 75th St SE will facilitate access to Boeing from the east. This facility ends at Seaway Boulevard, a Tier 3 route. Designing convenient bicycle facilities along Seaway requires either a major street redesign, additional signalization or the construction of a separated facility in order to accommodate bicycle turn movements to access different parts of the Boeing campus.

Access to Boeing is also potentially possible from the west via Mukilteo Boulevard and a multi-use trail along 44th Avenue W (accessed from 92nd St SW off of Mukilteo). The trail on 44th Avenue W ends at 84th St SW near the beginning of SR 526. The shoulder from Casino to the Boeing receiving entrance is narrow, creating a difficult approach for bicycles on SR 526 to the entrance of Boeing.

An alternate route from the end of the 44th Ave W trail continues straight on 44th Avenue W, turns right onto 78th Ave W and right again on 40th Ave W. This slightly circuitous route leaves cyclists closer to the Boeing entrance, though a multi-use trail would still be required to allow cyclists to safely complete their trip along SR 526 to Boeing.

It may also be possible to implement a connection to Boeing by way of Airport Road.

It is recommended that the City work with WSDOT, Snohomish County, Mukilteo and Boeing to identify, plan and implement the optimal route or routes to access the various Boeing facilities. A survey of Boeing employees can help identify where Boeing employees travel from and where on the campus they are trying to reach by bicycle. A private trail on the Boeing facility might be an effective means to facilitate bicycle travel around the campus for cyclists who enter the campus far from their final destination.

VII. Funding Strategies

Grant funding sources are identified on Federal, State and Local levels, as well as anticipated City budget for improvements from existing revenue sources. An implementation strategy follows, which presents a targeted methodology for how Everett can implement recommended projects and programs under different funding availability scenarios.

Federal, State, and Regional Funding Sources

Federal Funding Sources

Federal funding is primarily distributed through a number of different programs established by the Federal Transportation Act. The latest federal transportation act, The Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU) was enacted August 2005, as Public Law 109-59. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009.

Federal funding is administered through the state (Washington State Department of Transportation) and regional planning agencies. Most, but not all, of these funding programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. Federal funding is intended for capital improvements and safety and education programs and projects must relate to the surface transportation system.

SAFETEA-LU

There are a number of programs identified within SAFETEA-LU that provide for the funding of bicycle projects. The specific types of eligible projects and required funding match by the local jurisdiction are discussed further below.

National Highway System (NHS)

This program funds improvements to rural and urban roads that are part of the National Highway System (NHS), including the interstate system. Bicycle facilities within NHS corridors are eligible activities for NHS funds. This includes US2, SR 525, SR 526, SR 527, SR 529, and SR 99 through Everett.

Surface Transportation Program (STP)

The Surface Transportation Program (STP) provides states with flexible funds which may be used for a wide variety of projects on any Federal-aid Highway including the National Highway System, bridges on any public road, and transit facilities.

Eligible bicycle improvements include on-street facilities, off-road trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. SAFETEALU also specifically clarifies that the modification of sidewalks to comply with the requirements of the Americans with Disabilities Act is an eligible activity. As an exception to the general rule described above, STP-funded bicycle facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. In addition, bicycle-related non-construction projects, such as maps, coordinator positions, and encouragement programs, are eligible for STP funds.

Highway Safety Improvement Program

This program funds projects designed to achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways and walkways. This program includes the Railway-Highway Crossings Program and the High Risk Rural Roads Program. This program replaces the Hazard Elimination Program from TEA-21.

Railway-Highway Crossing Program (RHC)

Administered by the Washington Department of Transportation (WSDOT), this program is funded by a set-aside of STP funds and is designated for improvements to highway-rail grade crossings to eliminate safety hazards. Funding for this program comes out of Highway Safety Improvement Program funds.

Transportation Enhancements (TE)

Administered the Puget Sound Regional Council (PSRC), this program is funded by a set-aside of STP funds. Projects must serve a transportation need. These funds can be used to build a variety of pedestrian, bicycle, streetscape and other improvements that enhance the cultural, aesthetic, or environmental value of transportation systems.

Recreational Trails Program (RTP)

The Recreational Trails Program of the Federal Transportation Bill provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized and motorized uses. These funds are available for both paved and unpaved trails, but may not be used to improve roads for general passenger vehicle use or to provide shoulders or sidewalks along roads.

Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails
- Purchase and lease of trail construction and maintenance equipment
- Construction of new trails, including unpaved trails
- Acquisition or easements of property for trails
- State administrative costs related to this program (limited to seven percent of a State's funds)
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds)

In Washington, The National Recreational Trails Program is administered by the Recreation and Conservation Office. The timeline for funding application is as follows:

- February: Application workshops
- Early March: Letter of Intent due
- May 1: Application due
- August 1: Evaluation Packets due
- October: Awards announced

Information about the program, and links to information about the application process can be found online at: http://www.rco.wa.gov/rcfb/grants/nrtp.htm

Safe Routes to School (SR2S)

The purpose of the Safe Routes to Schools program is to provide children a safe, healthy alternative to riding the bus or being driven to school. The SR2S Grants were established to address pedestrian and bicycle mobility and safety near schools. The Washington State Department of Transportation (WSDOT) Federal Highways and Local Programs is responsible for administration of SR2S funding. Application for these funds is open to any public agency. Agencies providing a funding match will be given preference.

Eligible projects may include three elements:

1. **Engineering Improvements.** These physical improvements are designed to reduce potential bicycle and pedestrian conflicts with motor vehicles. Physical improvements may also reduce motor vehicle traffic volumes around schools, establish safer and more accessible crossings, or construct walkways, trails or bikeways. Eligible improvements include sidewalk improvements, traffic calming/speed reduction, pedestrian and bicycle crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, and secure bicycle parking facilities.
2. **Education and Encouragement Efforts**. These programs are designed to teach children safe bicycling and walking skills while educating them about the health benefits, and environmental impacts. Projects and programs may include creation, distribution and implementation of educational materials; safety based field trips; interactive bicycle/pedestrian safety video games; and promotional events and activities (e.g., assemblies, bicycle rodeos, walking school buses).
3. **Enforcement Efforts.** These programs aim to ensure that traffic laws near schools are obeyed. Law enforcement activities apply to cyclists, pedestrians and motor vehicles alike. Projects may include development of a crossing guard program, enforcement equipment, photo enforcement, and pedestrian sting operations.

All projects must be within two-miles of primary or middle schools (K-8). More information about the Safe Routes to School Program may be found online at:
http://www.wsdot.wa.gov/bike/funding.htm and
http://www.wsdot.wa.gov/LocalPrograms/SafeRoutes/funding.htm

New Freedom Initiative

SAFETEA-LU creates a new formula grant program that provides capital and operating costs to provide transportation services and facility improvements that exceed those required by the Americans with Disabilities Act.

Rivers, Trails and Conservation Assistance program

The Rivers, Trails and Conservation Assistance Program is a National Parks Service program which provides technical assistance via direct staff involvement, to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance—there are no implementation monies available. Projects are prioritized for assistance based upon criteria that include conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation and focusing on lasting accomplishments.

Land and Water Conservation Fund (LWCF)

Land and Water Conservation Fund is a federally funded program that provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for ROW acquisition and construction. These funds are administered by the Washington State Recreation and Conservation Office.

Transportation, Community and System Preservation Program

The Transportation, Community and System Preservation Program provides federal funding for transit oriented development, traffic calming and other projects that improve the efficiency of the transportation system, reduce the impact on the environment, and provide efficient access to jobs, services and trade centers. The program is intended to provide communities with the resources to explore the integration of their transportation system with community preservation and environmental activities. The Transportation, Community and System Preservation Program funds require a 20 % match.

Congestion Mitigation/Air Quality Improvement Program

The Congestion Mitigation/Air Quality Improvement Program (CMAQ) provides funding for projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter which reduce transportation related emissions. These federal funds can be used to build bicycle and pedestrian facilities that reduce travel by automobile.

Eligible bicycle and pedestrian facilities and programs include:

- Constructing bicycle and pedestrian facilities (paths, bike racks, support facilities, etc.) that are not exclusively recreational and reduce vehicle trips
- Non-construction outreach related to safe bicycle use
- Establishing and funding State bicycle/pedestrian coordinator positions for promoting and facilitating nonmotorized transportation modes through public education, safety programs, etc. (Limited to one full-time position per State)

States may choose to transfer a limited portion of their CMAQ apportionment to the following Federal-aid highway programs: Surface Transportation Program (STP), National Highway System (NHS), Highway Bridge Program (HBP), Interstate Maintenance (IM), Recreational Trails Program (RTP), and the Highway Safety Improvement Program (HSIP).

State Funding Sources

Pedestrian and Bicycle Safety Grants

The Washington State Legislature included $74 million to support pedestrian and bicycle safety projects such as pedestrian and bicycle paths, sidewalks, safe routes to school and transit. The Pedestrian and Bicycle Safety Grants were established to address the nearly 400 statewide fatal and injury collisions involving pedestrians and bicycles each year. More information is may be found at www.wsdot.wa.gov/bike/Ped_Bike_Program.htm, concerning the Pedestrian and Bicycle Safety Grants. Project proposals are due in early May.

Transportation Improvement Board Sidewalk Program

The Transportation Improvement Board (TIB) was created by the Washington State Legislature to encourage state investment in high quality local transportation projects. The board distributes grant funding generated by statewide gas tax. To date more than 320 cities and counties throughout the state have been recipients of TIB funding. Eligible grant recipients are cities and counties. Typically, state applications are accepted in the summer of each year, with submission closing in late August.

The Sidewalk Program is intended to provide safe sidewalks for transportation on federally classified routes (principal, minor or collector). Projects should aim to improve safety, access, connectivity and continuity while conforming to standards created by the Americans with Disabilities Act (ADA). A minimum 20% match is required on all urban Sidewalk Program projects. While this project does not directly fund bicycle facilities, a successful application would allow a greater allocation of existing city funds to be applied to the construction of bicycle facilities. More information on the Sidewalk Program is available at http://www.tib.wa.gov/grants/urban/SP.cfm.

Washington Wildlife and Recreation Program

The Interagency Committee for Outdoor Recreation provides state funds for acquisition and development of local and state parks, water access sites, trails, critical wildlife habitat, natural areas, and urban wildlife habitat.

Traffic Safety Grants

Washington Traffic Safety Commission provides state funding for programs, projects, services and strategies to reduce the number of deaths and serious injuries that result from traffic crashes. Funds may be used for pedestrian and bicycle improvements. The funding cycle begins April each year

Intersection and Corridor Safety Program

WSDOT provides federal funding to safety improvement projects that eliminate or reduce fatal or injury accidents by identifying and correcting hazardous locations, sections and/or elements. The goal of the Corridor Safety Program is to "reduce fatal and disabling collisions on roadways using low-cost, near-term solutions through partnerships with community groups, business, engineering, enforcement, education, and emergency service organizations."[4] These include activities for resolving safety problems at hazardous locations and sections, and roadway elements that constitute a danger to motorists, pedestrians, and/or bicyclists. Corridors are selected for designation based on statistical evidence of a significant crash problem in one or more locations. The problems identified must have the potential low-cost, near term solutions. Selected projects must have significant local level support to undertake a corridor project. More information on this program is available at http://www.corridorsafetyprogram.com. The US 2 corridor running from Everett to Steven's pass has been a part of this program since 2008.

Regional and non-traditional funding sources

American Greenways Program

Administered by The Conservation Fund, the American Greenways Program provides funding for the planning and design of greenways. Applications for funds can be made by local regional or state-wide non-profit organizations and public agencies. The maximum award is $2,500, but most range from $500 to $1,500. American Greenways Program monies may be used to fund unpaved trail development.

Bikes Belong Grant Program

The Bikes Belong Coalition of bicycle suppliers and retailers has awarded $1.2 million and leveraged an additional $470 million since its inception in 1999. The program funds corridor improvements, mountain bike trails, BMX parks, trails, and park access. It is funded by the Bikes Belong Employee Pro Purchase Program.

City of Everett Funding Sources

Existing Funding Sources

Public Works - Street Improvements Fund 119[5]

The Street Improvement Fund was established to fund "overall systematic transportation CIP's and associated infrastructure improvements." Funding is provided through a General Fund property tax allocation and an allocated share of the Motor Vehicle Fuel Tax administered by WSDOT. It is estimated that this fund will provide about $2.5 million dollars of funding in 2009.

Public Works - Streets Fund 120[6]

This fund is dedicated to the maintenance and preservation of the City's "sidewalks, streets, and right-of-way structures." Funding for this program is provided by the Motor Vehicle Gas Tax estimated to be $1.6 million and a General Fund property tax contribution. It is estimated that this fund will provide about $2.3 million dollars of funding in 2009.

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[4] http://www.corridorsafetyprogram.com/aboutprogram.html
[5] Everett, Washington 2009 Budget. (http://www.everettwa.org/default.aspx?ID=1431). Accessed January 26, 2009.
[6] Everett, Washington 2009 Budget. (http://www.everettwa.org/default.aspx?ID=1431). Accessed January 26, 2009.

Potential Funding Sources

Transportation User Fees

Transportation user fees are any group of additional fees that could be used to fund maintenance and improvement projects for non-motorized uses. Properties would be assessed fees based on the traffic generation by land use or business activity as published in the Institute of Transportation Engineers (ITE) Trip Generation Manual.

The fee could be a Street Maintenance Fee, to fund maintenance of the existing roadway system to free up dollars from the state gasoline tax for capital projects.

Transportation Benefit District (TBD)

A TBD can fund any transportation improvement contained in any existing state or regional transportation plan that is necessitated by existing or reasonably foreseeable congestion levels. This can include maintenance and improvements to city streets, county roads, state highways, investments in high capacity transportation, public transportation, transportation demand management and other transportation projects identified in a regional transportation planning organization plan or state plan. TBD's have several revenue options subject to voter approval:

1. Property taxes – a 1-year excess levy or an excess levy for capital purposes;

2. Up to 0.2% sales and use tax;

3. Up to $100 annual vehicle fee per vehicle registered in the district; and

4. Vehicle tolls.

Local Bond Measures

The City could issue bonds to fund bicycle improvements. This would spread the cost of the improvements over the life of the bonds. Certain types of bonds would require voter approval. The debt would have to be retired, so funding for repayment on the bond and the interest would be required.

Tax Increment Financing/Urban Renewal Funds

Tax Increment Financing (TIF) is a tool to use future gains in taxes to finance the current improvements that will create those gains. When a public project (e.g., shared-use path) is constructed, surrounding property values generally increase and encourage surrounding development or redevelopment. The increased tax revenues are then dedicated to finance the debt created by the original public improvement project. Tax Increment Financing typically occurs within designated Urban Renewal Areas (URA) that meet certain economic criteria and approved by a local governing body. To be eligible for this financing, a project (or a portion of it) must be located within the URA.

Street User Fees

The revenue generated by the street user fee is used for operations and maintenance of the street system, and priorities are established by the Public Works Department. This type of fee may free up more general fund money for off-street projects. Implementation of street user fees would require a public vote.

Local Gas Tax

Everett could use revenues from a local gasoline tax to provide for on-street bikeways and shared-use path improvements. Such a tax would likely require voter approval, which is an uncertainty, especially with the ever increasing costs of gas. However, once established the tax would be a relatively stable funding source for improvements.

Local Improvement Districts (LIDs)

Local Improvement Districts (LIDs) are most often used by cities to construct localized projects such as streets, sidewalks or bikeways. Through the LID process, the costs of local improvements are generally spread out among a group of property owners within a specified area. The cost can be allocated based on property frontage or other methods such as traffic trip generation.

TOPS-style Sales Tax

TOPS (Trails, Open Space and Parks), is the process used by the City of Colorado Springs to administer the Trails, Open Space and Parks ordinance passed by voters in April of 1997. The sales tax, 1/10 of one percent, generates about $6 million annually for trails, open space and parks.

The process, administered by the Parks and Recreation Department of Colorado Springs, provides for the prudent acquisition, development and preservation of Trails, Open Space and Parks (TOPS) in the Pikes Peak region. More information on the TOPS program, including maps of trails, open space and parks, as well as funding of projects is available at the TOPS web site. To fund a project, an application is submitted to the City of Colorado Springs. Implementation of a TOPS-style Sales Tax would require a public vote.

Bike Tax

The City of Colorado Springs has a $4.00 per bike tax to provide funding for bikeway improvements. The tax generates nearly $100,000 annually and has been used for both on- and off-street projects. It is used primarily to provide a local match for other grants such as the Colorado State Trails Program or SAFETEA-LU grants. A bike tax is an annual fee; implementation would require a pubic vote.

RCW Chapter 35.75 of Washington State law clarifies legal interpretation and uses of such funds: RCW 35.75.030 - Every city and town by ordinance may establish and collect reasonable license fees from all persons riding a bicycle or other similar vehicle within its respective corporate limits, and may enforce the payment thereof by reasonable fines and penalties.

Other

Local taxes, fees, and permits may be implemented, requiring a local election. A challenge grant program with local businesses may be a good source of local funding, where corporations 'adopt' a bikeway way and help maintain the facility. Foundation grants, volunteer work, and donations of in-kind services, equipment, labor or materials are other sources of support that can play a supporting role in gathering resources to design and build new bicycle facilities.

Appendix A. Project Concept Guidelines

Everett has been working for the past decade to implement bikeway projects in order to encourage cycling and improve the quality of bicycling so that it becomes an integral part of daily life. In many locations within Everett, the urban infrastructure has already been constructed; so many future projects will involve retrofitting existing streets and intersections. The city has significant changes in topography, a high demand for on-street parking, a roadway system heavily reliant on arterial roadways, and many other complex situations. When looking to implement bike lanes or other improvements, most standard design manuals offer limited solutions.

These project concepts are based on bikeway guidelines for bikeway situations provided in the Design Manual, Chapter 1020 published by the Washington State Department of Transportation, the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, and the Manual of Uniform Traffic Control Devices (MUTCD), Part 9 Traffic Controls for Bicycle Facilities as amended by Washington State law. These guidelines use these documents as a set of minimum conditions, and are intended to recommend creative solutions to a wide range of bicycle facility types. The guidelines will allow Everett to improve the quality of the bicycle network.

The guidelines use the *Manual on Uniform Traffic Control Devices* (MUTCD) to provide the transportation professional with the information to make informed decisions using engineering judgment as the preferred approach, with options identified that the City can implement at their discretion. The following terms are defined by the MUTCD:

- **Standard:** A statement of required, mandatory, or specifically prohibitive practice regarding a traffic control device.
- **Guidance:** A statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate.
- **Option**: A statement of practice that is a permissive condition and carries no requirement or recommendation. Options may contain allowable modifications to a Standard or Guidance.
- **Support:** An informational statement that does not convey any degree of mandate, recommendation, authorization, prohibition or enforceable condition.

Relevant signs from the MUTCD are included in this document, while examples of signing in specific situations can be found in the MUTCD. The inclusion of project concepts and options not included in the MUTCD does not constitute tacit approval of the recommendations by the City or State.

The following are key principles for these guidelines:

- Roads in Everett are legal for the use of bicyclists, (except those roads designated as limited access facilities which prohibit bicyclists). This means that most streets are bicycle facilities, and will be designed and maintained accordingly.
- Bicyclists have a range of skill levels, from inexperienced / recreational bicyclists (especially children and seniors) to experienced cyclists (adults who are capable of sharing the road with

motor vehicles). These groups are not always exclusive – some elite level athletes still like to ride on shared-use paths with their families, and some recreational bicyclists will sometimes use their bicycles for utilitarian travel.

- Facilities will be designed for the use by inexperienced cyclists, with a goal of providing for recreational cyclists to the greatest extent possible. In areas where specific needs have been identified (for example, near schools) the needs of appropriate types of bicyclists will be accommodated. All roads are legal and preferred by experienced cyclists.
- Everett is working on a complete network of on-street bicycling facilities to connect to the existing and proposed off-street pathways.

1. Shoulder Bikeways

Guideline Summary

Typically found in on streets without sidewalks, shoulder bikeways are paved roadways with striped shoulders (4'+) wide enough for bicycle travel and shared pedestrian use. Shoulder bikeways often, but not always, include signage alerting motorists to expect bicycle travel along the roadway.

Shoulder bikeways are appropriate along wide rural roads where vehicles can avoid passing close to bicyclists

Discussion

In some cases it may not be possible to develop a bike lane at full standard width until many years in the future. Rather than waiting – for example – for a roadway widening project scheduled ten years in the future, It is possible to stripe the shoulder in lieu of bike lanes under certain conditions. If the area is 50 percent of the desirable bike lane width, and the outside lane width can be reduced to the AASHTO minimum, bike lanes may be installed in anticipation of the future expansion that would bring the bike lane up to standard width. If the available bike lane width is 2/3 of the desirable bike lane width, the full bike lane treatment of signs, legends, and an 8" bike lane line should be provided. Where feasible, extra width may be provided with pavement resurfacing jobs, but not exceeding desirable bike lane widths.

Older neighborhoods in Everett sometimes lack sufficient off-street parking, causing people to park on the street.

<u>Wide Outside Lanes</u>

A wide outside lane may be sufficient accommodation for bicyclists on streets with insufficient width for bike lanes but which do have space available to provide a wider (14'-16') outside travel lane. Wide outside lanes may encourage drivers to create 2 lanes where only 1 is intended.

2. Bike Lanes

Guideline Summary

Designated exclusively for bicycle travel, bike lanes are separated from vehicle travel lanes with striping and also include pavement stencils. Bike lanes are most appropriate on arterial and collector streets where higher traffic volumes and speeds warrant greater separation.

Discussion

Most commuter bicyclists would argue that on-street facilities are the safest and most functional facilities for bicycle transportation. Bicyclists have stated their preference for marked on-street bike lanes in numerous national surveys. Many bicyclists – particularly less experienced riders – are far more comfortable riding on a busy street if it has a striped and signed bike lane. Part of the goal of this Plan is to encourage new riders, and providing marked facilities such as bike lanes as one way of helping to persuade residents to give bicycling a try.

Bike lanes can promote bicycle riding. Bike lanes are desirable for bicycle commute routes along major roadways. Bike lanes help to define the road space for bicyclists and motorists, reduce the chance that motorists will stray into the cyclists' path, discourage bicyclists from riding on the sidewalk, and remind motorists that cyclists have a right to the road. One consideration in designing bike lanes in urban settings is to ensure bike lanes and adjacent parking lanes have sufficient width so that cyclists have enough room to avoid a suddenly opened vehicle door.

Stripes delineating bike lanes should be striped at a width of 6 inches on the side of bike lanes adjacent a travel lane, and 4 inches on the side of bike lanes adjacent to parking. These figures are minimum stripe widths; several cities use an 8 inch stripe adjacent to travel lanes for enhanced visibility and distinction. Where a bike lane is adjacent to a curb, no striping is necessary on that side. Bike lane striping should have no profile. In the past, some jurisdictions have provided textured bike lane striping, under the belief that a textured warning strip would reduce or prevent drivers from drifting into the bike lane. However, this treatment is highly discouraged as any bumps may cause cyclists to lose control of their bicycle while crossing the line. Bike lane striping is included in the width of the bicycle facility.

Bike lanes with signage on a popular commuting and recreational route in California


Bike lane pavement markings

Additional Guidance

The AASHTO Guide for the Development of Bicycle Facilities guidance notes that “longitudinal pavement markings should be used to define bicycle lanes.” The guideline states that “if used, the bicycle lane symbol marking shall be placed immediately after an intersection and other locations as needed. The bicycle lane symbol marking shall be white. If the word or symbol pavement markings are used, Bicycle Lane signs shall also be used, but the signs need not be adjacent to every symbol to avoid overuse of the signs.”

The following pages describe guidelines for implementing bike lanes on streets with on-street parking (both parallel and diagonal) and without parking. Additional sheets highlight particular considerations for bike lanes, including conflicts with right-turning motorists, left-turning bicycle movements, bike lanes at intersections, and techniques for adding to bike lane visibility (including colored bike lanes and bike boxes). The following sections discuss a variety of methodologies for retrofitting bike lanes to existing roadways.

Preformed thermoplastic bicycle lane pavement markings are commercially available from traffic safety product suppliers (see the Bibliography for examples[1]).

2.1. Bike Lane Configurations

2.1.1. Bike Lane Adjacent to On-Street Parallel Parking

Guideline Summary

<u>Bike Lane Width:</u>

- 5’ recommended when parking stalls are marked

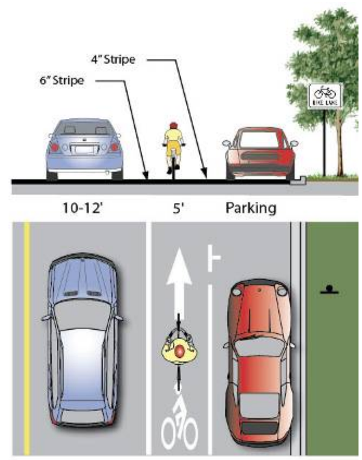
<u>Travel Lane Width</u>

- 12’ for a shared lane adjacent to a curb, or 11’ minimum for a shared bike/parking lane where parking is permitted but not marked on streets without curbs

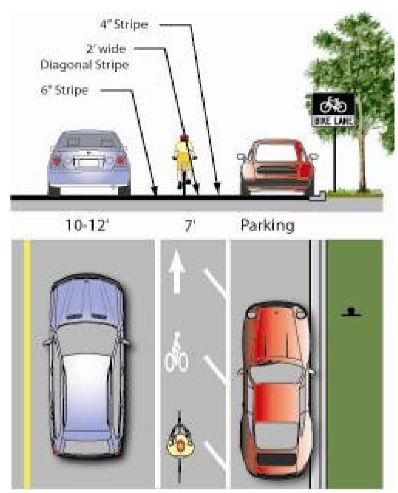
Discussion

Bike lanes adjacent to on-street parallel parking are common in the United States. Collisions caused by a suddenly opened vehicle door are a common hazard for bicyclists using this type of facility. Wide bike lanes may encourage the cyclist to ride farther to the right (door zone) to maximize distance from passing traffic. Wide bike lanes may also cause confusion with unloading vehicles in busy areas where parking is typically full. Some alternatives include:

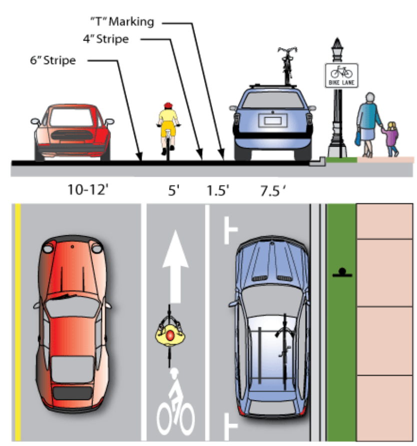
- Installing parking “T’s” and smaller bike lane stencils placed to the left (see graphic at top right of the following page).
- Provide a buffer zone (preferred design; shown lower right) Bicyclists traveling in the center of the bike lane will be less likely to encounter open car doors. Motorists have space to stand outside the bike lane when loading and unloading



Minimum Design



Maximum Width



Preferred Design (if space is available)

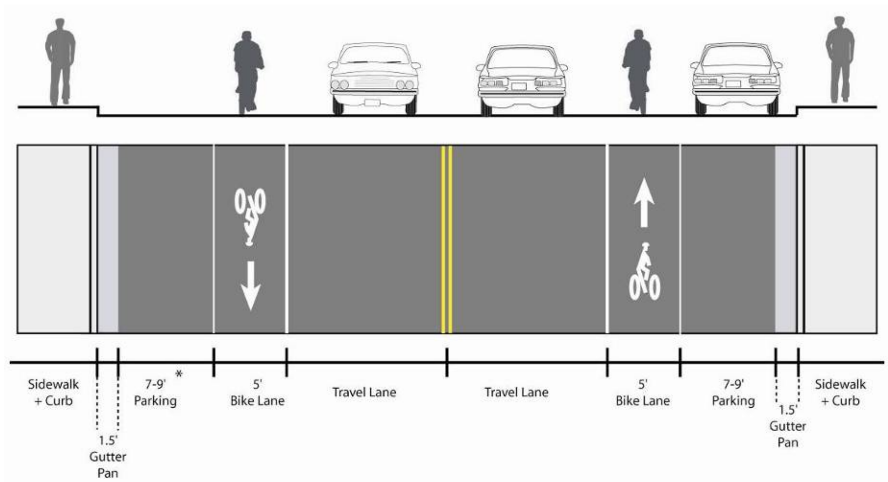
Additional Discussion - Bike Lane Adjacent to On-Street Parallel Parking

From AASHTO *Guide for the Development of Bicycle Facilities*:

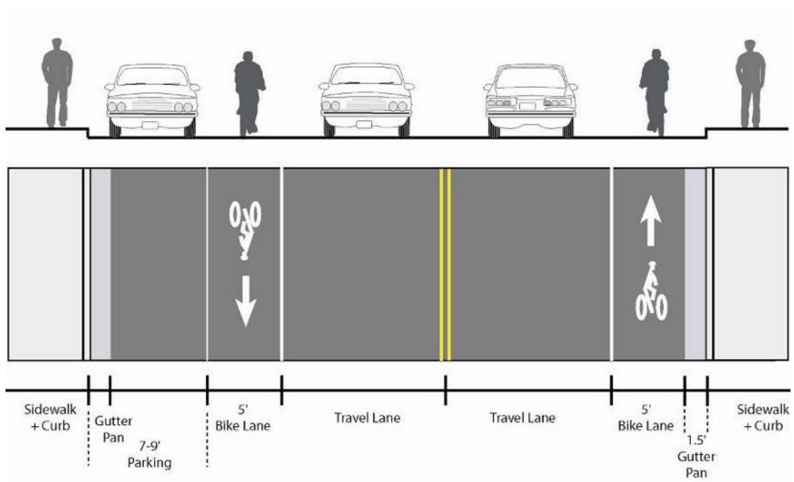
- *"If parking is permitted, the bike lane should be placed between the parking area and the travel lane and have a minimum width of 5'. Where parking is permitted but a parking stripe or stalls are not utilized, the shared area should be a minimum of 11' without a curb face and adjacent to a curb face. If the parking volume is substantial or turnover is high, an additional 1'- 2' of width is desirable*."

This bike lane provides parking "T's" to minimize the danger of 'dooring'

Recommended Designs



Two Lane Cross-Section with Parking Both Sides
*Inclusive of gutter pan



*Two Lane Cross-Section with Parking One Side**
*Bike lane on non-parking side can be 4' in constrained locations

2.1.2. Bike Lane Adjacent to On-Street Diagonal Parking

Guideline Summary

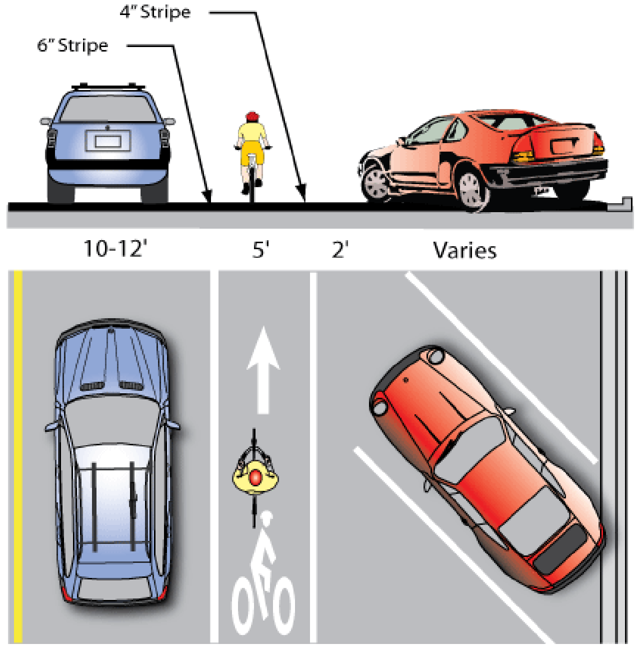
Bike Lane Width:

- 5' minimum
- White 4" stripe separates bike lane from parking bays
- Parking bays are sufficiently long to accommodate most vehicles (vehicles do not block bike lane)

Discussion

In areas with high parking demand such as urban commercial areas, diagonal parking can be used to increase parking supply. Conventional "head-in" diagonal parking is not compatible or recommended in conjunction with high levels of bicycle traffic or with the provision of bike lanes as drivers backing out of conventional diagonal parking spaces have poor visibility of approaching bicyclists.

The use of 'back-in diagonal parking' or 'reverse angled parking' is recommended over head-in diagonal parking. This design addresses issues with diagonal parking and bicycle travel by improving sight distance between drivers and bicyclists and has other benefits to vehicles including: loading and unloading of the trunk occurs at the curb rather than in the street, passengers (including children) are directed by open doors towards the curb, no door conflict with bicyclists. While there may be a learning curve for some drivers, using back-in diagonal parking is typically an easier maneuver than conventional parallel parking.



Recommended Design


'Back-in' diagonal parking is safer for cyclists than 'head-in' diagonal parking due to visibility

2.1.3. Bike Lane Without On-Street Parking

Guideline Summary

Bike Lane Width:

- 4’ minimum when no gutter is present (rural road sections)
- 5’ minimum when adjacent to curb and gutter not including gutter

Recommended Width:

- 6’ where right-of-way allows

Maximum Width:

- 8’ Adjacent to arterials with high travel speeds (45 mph+)

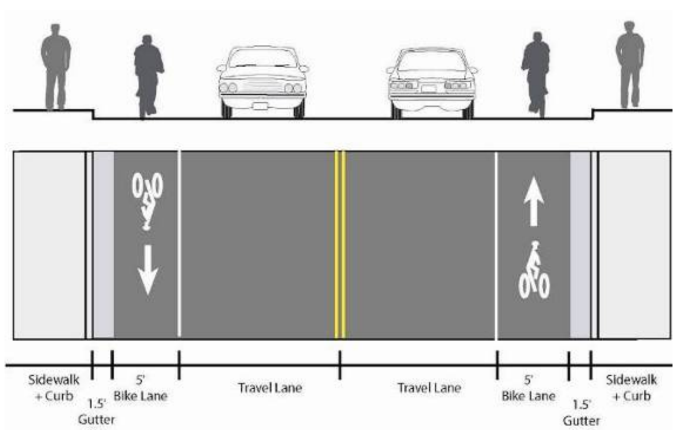
Recommended Design

Discussion

Wider bike lanes are desirable in certain circumstances such as on higher speed arterials (45 mph+) where a wider bike lane can increase separation between passing vehicles and cyclists. Wide bike lanes are also appropriate in areas with high bicycle use. A bike lane width of 6 to 8 feet makes it possible for bicyclists to ride side-by-side or pass each other without leaving the bike lane, increasing the capacity of the lane. Appropriate signing and stenciling is important with wide bike lanes to ensure motorists do not mistake the lane for a vehicle lane or parking lane.

The draft 2009 AASHTO *Guide For the Development of Bicycle Facilities* includes language on the importance of a smooth transition between pavement and the gutter pan when planning the width of a bike lane. The draft is expected to specify a ¼” lip as the maximum allowed tolerance for longitudinal transitions. Other state guidelines[2] set tolerances of 10 mm (0.4 inches) for pavement lips aligned parallel to the direction of travel, and 20 mm (0.8 inches) for transitions perpendicular to the direction of travel.

Recommended Design



Two Lane Cross-Section with No Parking (Bike lanes may be 4’ in width under constrained circumstances)

2.2. Bike Lanes at Intersections

2.2.1. Loop Detectors

Guideline Summary

- Facilitate bicycle movement at intersections

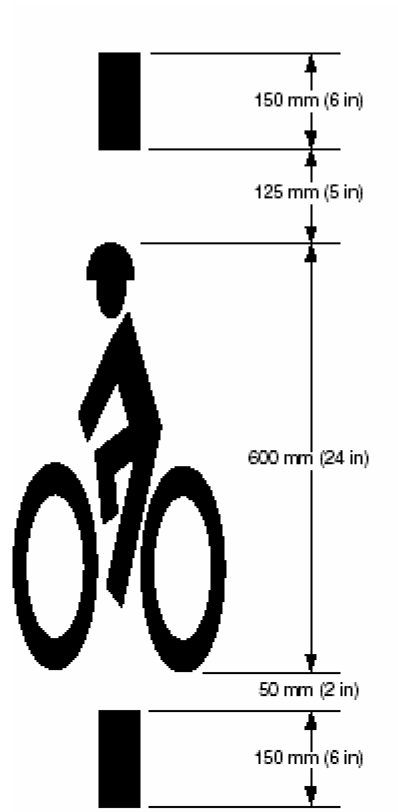
Discussion

Intersections operate also can help make them more "friendly" to bicyclists. Improved signal timings for bicyclists, bicycle-activated loop detectors, and camera detection can make it easier for cyclists to cross intersections. Bicycle-activated loop detectors may be installed within the roadway to allow the presence of a bicycle to trigger a change in the traffic signal. This allows the cyclist to stay within the lane of travel and avoid maneuvering to the side of the road to trigger a push button. Other considerations of bicycle loops is to give cyclists extra green time before the light turns yellow to make it through the light.

Circular loops are recommended to detect bicycles in a bike lane, where bicycle placement is generally predictable. Loop detection of bicycles should be supplemented with a stencil that indicates proper placement that will maximize the chances of detection. Diagonal quadrapole loops are recommended to most reliably detect bicycles riding in a travel lane, where lane placement of the bicycle may vary over a larger area.

Some types of loop detectors are more likely to detect vehicles when they are placed over a certain portion of the loop. The City of Portland, Oregon operates a program within their Bureau of Transportation that installs markings (as shown in Figure 4) to identify the optimal placement. Traffic engineering crews can bring a bicycle to identify a reliable detection area and then install a marking at the optimal location. If feasible, markings should be installed to indicate the appropriate location for a bicycle to activate the signal at all intersections with loop detection.

Find center of lane, put front tire approximately 2' from center of lane with front tire on the intersection edge of the stop bar and tilt bicycle 15° from vertical.



Recommended Design

2.2. Bike Lanes at Intersections

2.2.2. Bike Lanes With Right Turn Pockets

Guideline Summary

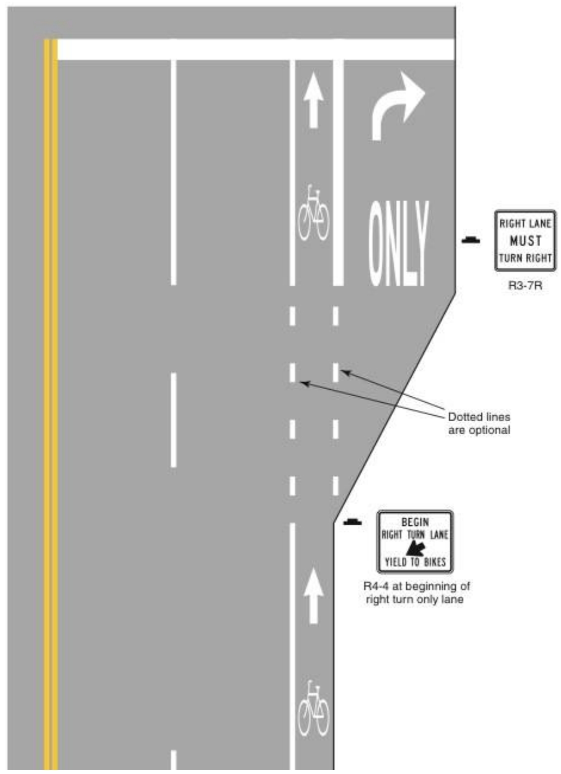
Bike Lane Width:

- Bike lane should be at least 4' wide (5' preferred)

Discussion

The appropriate treatment at right-turn lanes is to place the bike lane between the right-turn lane and the right-most through lane or, where right-of-way is insufficient, to drop the bike lane entirely approaching the right-turn lane. The design (right) illustrates a bike lane pocket, with signage indicating that motorists should yield to bicyclists through the conflict area. The dashed lines in this area are currently an optional treatment.

Dropping the bike lane should only be done when a bike lane cannot be accommodated at the intersection.



Recommended Design

Continuing a bike lane straight while providing a right-turn pocket reduces bicycle/motor vehicle conflicts

2.2. Bike Lanes at Intersections

2.2.3. Shared Bicycle/Right Turn Lane

Guideline Summary

Width:

- Shared turn lane – min. 12’width
- Bike Lane pocket – min. 4’-5’ preferred

Discussion

This treatment is recommended at intersections lacking sufficient space to accommodate a standard bike lane and right turn lane.

The shared bicycle/right turn lane places a standard-width bike lane on the left side of a dedicated right turn lane. A dashed strip delineates the space for bicyclists and motorists within the shared lane. This treatment includes signage advising motorists and bicyclists of proper positing within the lane.

This treatment works best on streets with lower posted speeds (30 MPH or less) and with lower traffic volumes (10,000 ADT or less).

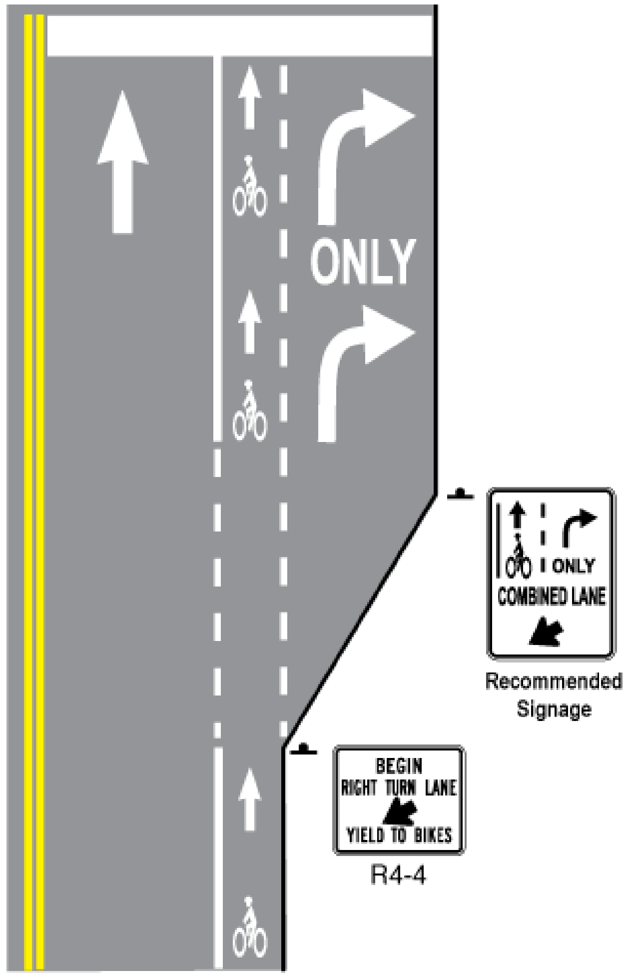
Advantages of the shared bicycle/right turn lane:

- Aids in positioning of cyclists at intersections with a dedicated right turn lane without adequate space for a dedicated bike lane.
- Encourages motorists to yield to bicyclists when using the right turn lane.
- Reduces motor vehicle speed within the right turn lane.

Disadvantages/potential hazards:

- May not be appropriate for high-speed arterials or intersections with long right turn lanes.
- May not be appropriate for intersections with large percentages of right-turning heavy vehicles.

This treatment has coverage in the draft 2009 AASHTO *Guide For the Development of Bicycle Facilities.* It has been previously implemented in the Cities of San Francisco, CA and Eugene, OR.



Recommended Design

Shared bike-right turn lanes use warning signage as well as pavement markings

2.2. Bike Lanes at Intersections

2.2.4. Bike Box

Guideline Summary

Bike Box Dimensions:

- 14' deep to allow for bicycle positioning within the travel lane.

Signage:

- Appropriate signage as recommended by the MUTCD applies. Signage should be present to prohibit 'right turn on red' and to indicate where the motorist must stop.

Discussion

A bike box is generally a right angle extension of a bike lane at the head of a signalized intersection. The bike box allows bicyclists to move to the front of the traffic queue on a red light and proceed first when that signal turns green. Motor vehicles must stop behind the white stop line at the rear of the bike box.

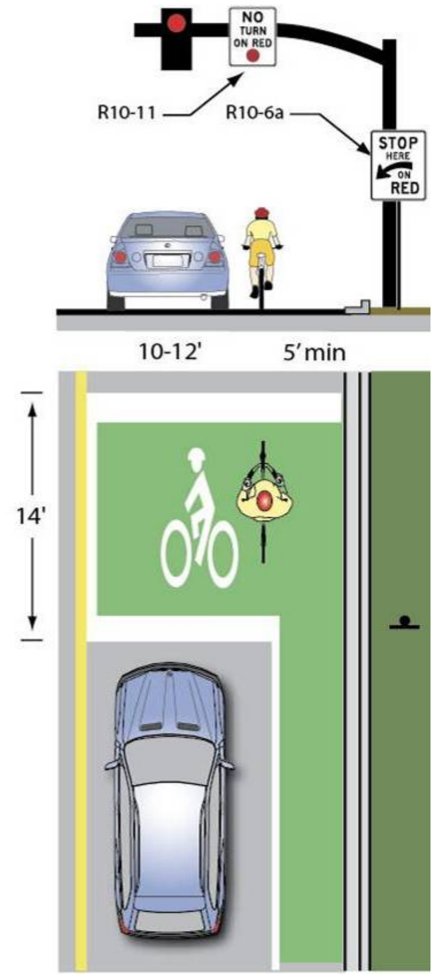
Bike boxes can be combined with dashed lines through the intersection for green light situations to remind right-turning motorists to be aware of bicyclists traveling straight.

Bike Boxes can be installed with striping only or with colored treatments to increase visibility.

Bike Boxes should be located at signalized intersections only, and right turns on red should be prohibited. On roadways with one travel lane in each direction, the bike box also facilitates left turning movements for cyclists.

Bike boxes are not appropriate for all intersections, as prohibiting right turn movements on red by motor vehicles may significantly affect roadway capacity.

Bike boxes are most appropriate at intersections with a high incidence of right hook crashes, where motor vehicles have a tendency to turn across the bike lane without noticing people traveling by bicycle.



Recommended Design

Bike boxes can be installed at intersections where right-turning motorists conflict with through bicyclists

2.3. Shared Bicycle/Bus Lane

Guideline Summary

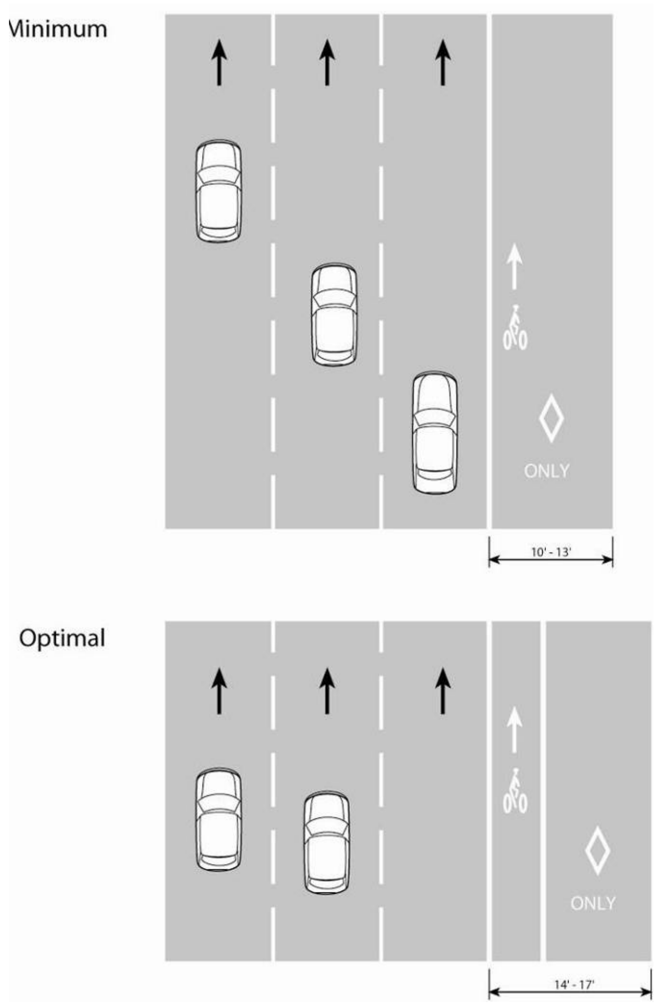
The shared bus/bicycle lane should be used where width is available for a bus lane, but not a bus and bike lane. The dedicated lane attempts to reduce conflicts between bicyclists, buses, and automobiles. Use of this treatment should be coordinated with the Transit Agency.

Discussion

Shared bike/bus lanes can be appropriate in the following applications:

- On auto-congested streets, moderate or long bus headways
- Moderate bus headways during peak hour
- No reasonable alternative route

This treatment requires coordination with local transit agencies.



2.4. Bike Lane Pavement Markings

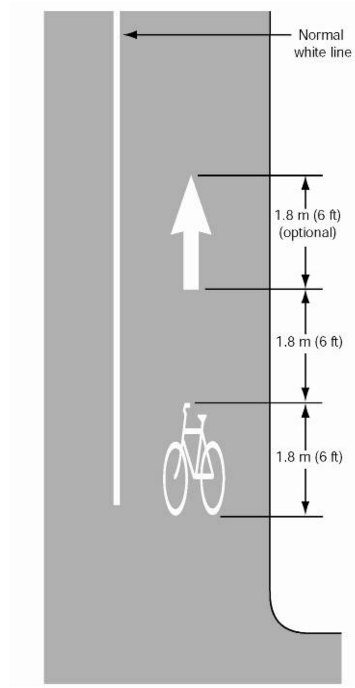
Discussion

Visible lane markings are components of bike lanes, both for bicyclist navigation and for motorist awareness. They can be especially important for wider bike lanes or for bike lanes without an adjacent curb, where motorists may mistake an under-marked bike lane for a shoulder or parking lane.

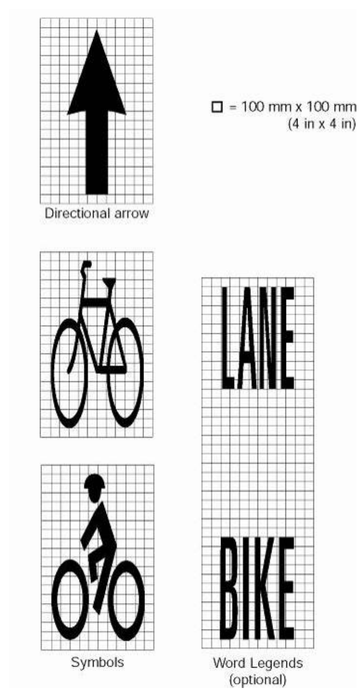
Guidance

Section 9C. 04 Markings for Bike Lanes of the 2009 MUTCD specifies that "Longitudinal pavement markings should be used to define bicycle lanes." "If used, the bicycle lane symbol marking shall be placed immediately after an intersection and at other locations as needed. The bicycle lane symbol marking shall be white. If the word or symbol pavement markings are used, Bicycle Lane signs shall also be used, but the signs need not be adjacent to every symbol to avoid overuse of the signs."

It is recommended to place stencils after intersections to alert motorists and cyclists of the exclusive nature of bicycle lanes. For long street segments with few intersections, the appropriate frequency of stencils is calculated by multiplying the street's design speed by 40. For instance, stencils should be placed every 1,400 feet on streets with a 35 MPH designated speed.



Recommended Design



Recommended Design

2.5. Retrofitting Existing Streets with Bike Lanes

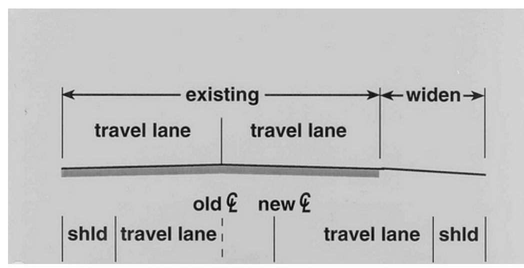
Guideline Summary	Discussion
This section describes strategies for retrofitting bike lanes to existing streets. Treatments include: • Roadway widening • Lane narrowing • Lane reconfiguration • Parking reduction Although largely intended for major streets, these measures may be appropriate on some lower-order streets where bike lanes would best accommodate cyclists.	Most major streets in Everett are characterized by conditions (e.g., high vehicle speeds and/or volumes) for which dedicated bike lanes are appropriate to accommodate comfortable riding. Although opportunities to add bike lanes through roadway widening may exist in some locations, most major streets in Everett pose physical and other constraints requiring street retrofit measures within existing curb-to-curb widths. As a result, many of the recommended measures effectively reallocate existing street width through striping modifications to accommodate dedicated bike lanes. In some cases, this may require removing on-street parking on one or both sides of the street.

2.5.1. Roadway Widening

Design Summary

Bike Lane Width:

- 5'-6' preferred
- 4' minimum (see bike lane guidance)



Discussion

2.5. Retrofitting Existing Streets with Bike Lanes

Bike lanes could be accommodated on several streets with excess right-of-way through shoulder widening. Although street widening incurs higher expenses compared with re-striping projects, bike lanes could be added to streets currently lacking curbs, gutters and sidewalks without the high costs of major infrastructure reconstruction.`

As a long-term measure, the City of Everett should find opportunities to add bike lanes to other major streets where they are needed. Opportunities include adding bike lanes as streets and bridges are widened for additional auto capacity or as property development necessitates street reconstruction. Widening of streets can also benefit the pedestrian environment.

Guidance for this treatment comes from the AASHTO *Guide for the Development of Bicycle Facilities.*

Design guidance for widening roadway shoulders to accommodate bicycles

Roadway widening is preferred on roads lacking curbs, gutters and sidewalks

2.5.2. Lane Narrowing (Road Diet 1)

Guideline Summary

Vehicle Lane Widths:

- Before: 12 to 15 feet; after: 10 to 11 feet

Bike Lane Width:

- See bike lane design guidance

Discussion

Also called a ‘Road Diet’, lane narrowing utilizes roadway space that exceeds minimum standards to create the needed space to provide bike lanes. Many Everett roadways have existing lanes that are wider than those prescribed in local and national roadway design standards. Most standards allow for the use of 11-foot wide travel lanes to create space for bike lanes. Narrower travel lanes tend to slow vehicular speeds.

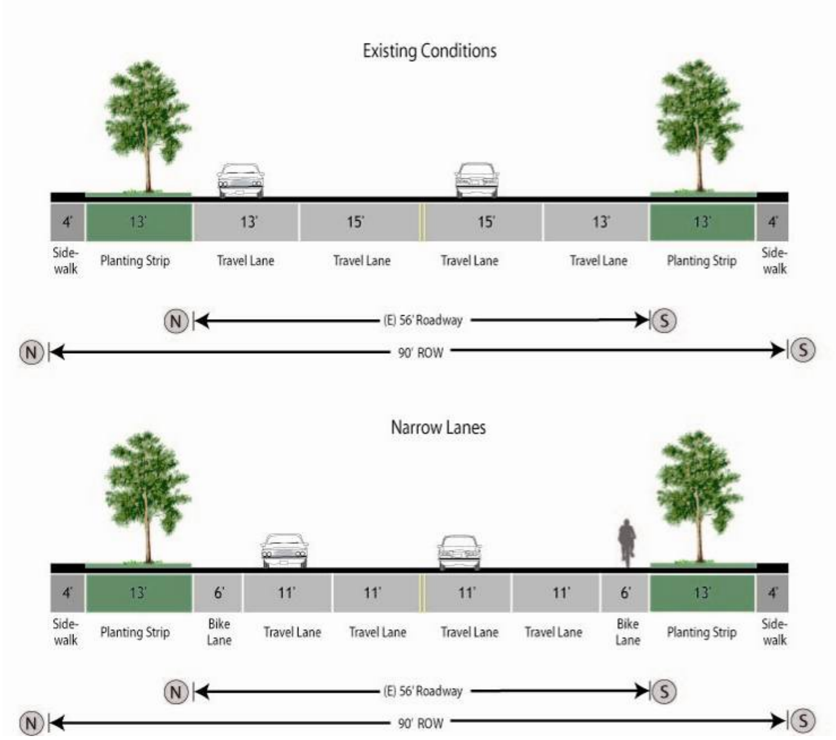
Special consideration should be given to the amount of heavy vehicle traffic (including transit vehicles), transit usage and horizontal curvature before the decision is made to narrow travel lanes. Center turn lanes can also be narrowed in some situations to free up pavement space for bike lanes.

Design Example

This street previously had 13’ lanes, which were narrowed to accommodate bike lanes without removing a lane

Recommended Design

2.5. Retrofitting Existing Streets with Bike Lanes



Example of vehicle travel lane narrowing to accommodate bike lanes

2.5.3. Lane Reconfiguration (Road Diet 2)

Guideline Summary

Vehicle Lane Widths:

- Width depends on project. No narrowing may be needed if a lane is removed.

Bike Lane Width:

- See bike lane design guidance

Discussion

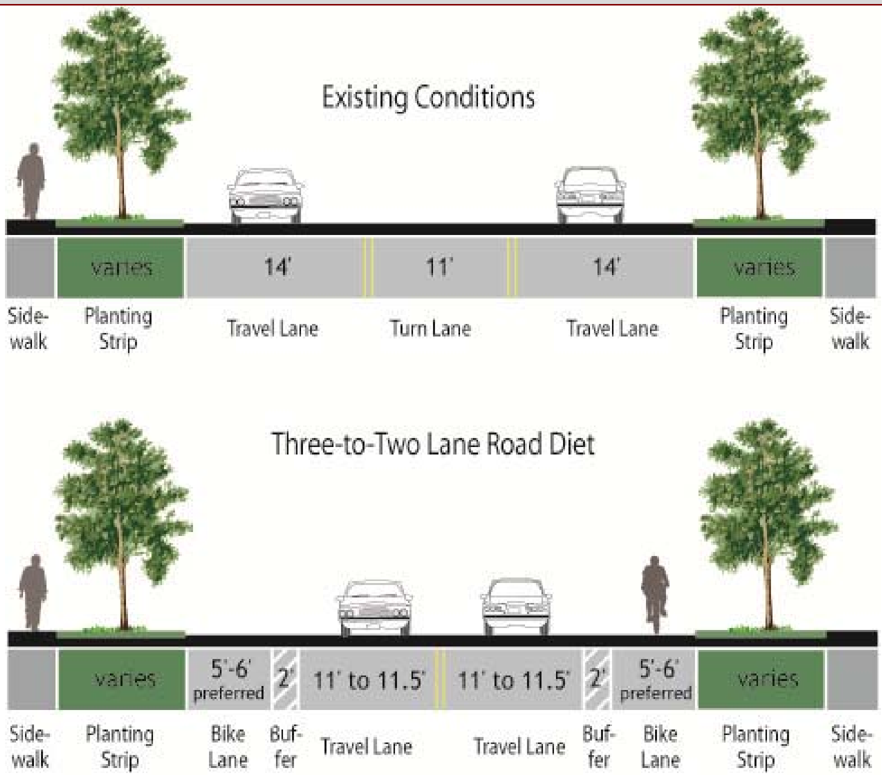
The removal of a single travel lane will generally provide sufficient space for bike lanes on both sides of a street. Streets with excess vehicle capacity provide opportunities for bike lane retrofit projects. Depending on a street's existing configuration, traffic operations, and user needs, various lane reduction configurations exist. For instance, a four-lane street (with two travel lanes in each direction) could be modified to include one travel lane in each direction, a center turn lane, and bike lanes. Prior to implementing this measure, a traffic analysis should identify impacts including capacity, potential diversion, and signal operation.

This treatment is currently slated for inclusion in the 2009 AASHTO *Guide for the Development of Bicycle Facilities.*

Design Example

This road was re-striped to convert four vehicle travel lanes into three travel lanes with bike lanes

Recommended Design



Example of vehicle travel lane reconfiguration to accommodate bike lanes

2.5.4. Parking Reduction (Road Diet 3)

Guideline Summary

Vehicle Lane Widths:

Width depends on project. No narrowing may be needed depending on the width of the parking lane to be removed.

Bike Lane Width:

See bike lane design guidance

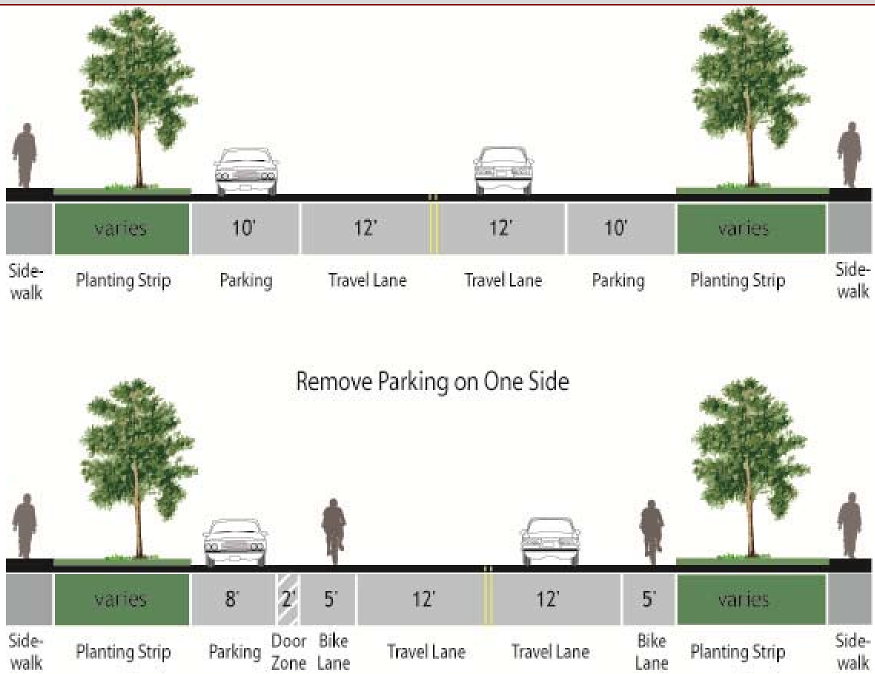
Discussion

Bike lanes could replace one or more on-street parking lanes on streets where excess parking exists and/or the importance of bike lanes outweighs parking needs. For instance, parking may be needed on only one side of a street (as shown below and at right). Eliminating or reducing on-street parking also improves sight distance for cyclists in bike lanes and for motorists on approaching side streets and driveways.

Prior to reallocating on-street parking for other uses, a parking study should be performed to gauge demand. Planners should also coordinate with local businesses and neighborhood organizations to address concerns about parking capacity prior to installation.

Some streets may not require parking on both sides

Recommended Design



Example of parking removal to accommodate bike lanes

3. Shared Lane Markings

Guideline Summary

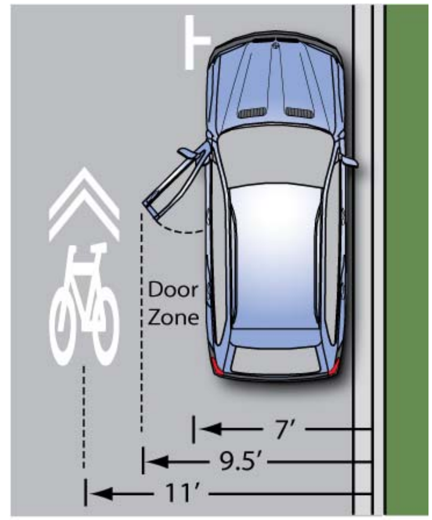
Shared lane markings (also known as "sharrows") are high-visibility pavement markings that help position bicyclists within the travel lane. These markings are often used on streets where dedicated bike lanes are desirable but are not possible due to physical or other constraints. Sharrows are placed strategically in the travel lane to alert motorists of bicycle traffic, while also encouraging cyclists to ride at an appropriate distance from the "door zone" of adjacent parked cars. Placed in a linear pattern along a corridor (typically every 100-200 feet), sharrows also encourage cyclists to ride in a straight line so their movements are predictable to motorists. These pavement markings have been successfully used in many small and large communities throughout the U.S. Shared lane markings made of thermoplastic tend to last longer than traditional paint. Figure 9.C9 of the 2009 MUTCD shows a standard shared lane marking design to be 3'4" wide and 9'3" tall.

Door Zone Width:

The width of the door zone is generally assumed to be 2 feet from the edge of the parking lane.

Recommended Placement:

- At least 11' from face of curb (or shoulder edge) on streets with on-street parking
- At least 4' from face of gutter (or shoulder edge) on streets without on-street parking



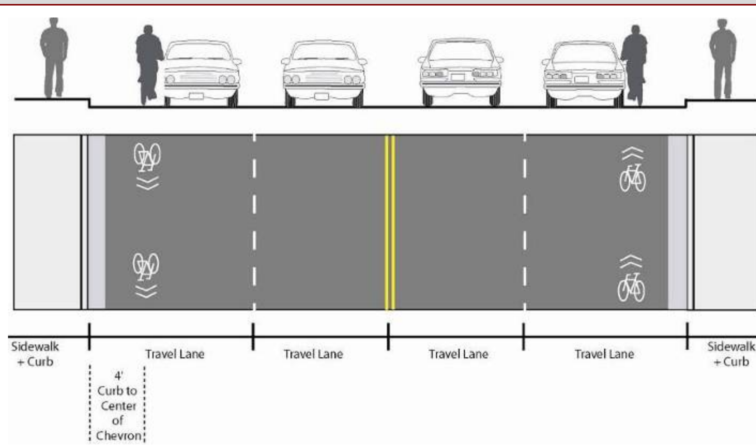
Shared lane marking placement guidance for streets with on-street parking

Shared lane markings can be used minor and major roadways

Discussion

The 2009 MUTCD language notes that sharrows should not be placed on roadways with a speed limit over 35 MPH, and that when used the marking should be placed immediately after an intersection and spaced at intervals no greater than 250 feet thereafter. Placing shared lane markings between vehicle tire tracks (if possible) will increase the life of the markings.

Recommended Design



Recommended Shared Lane Markings

4. Bicycle Boulevards

Guideline Summary

Bicycle Boulevards are low-volume streets where motorists and bicyclists share the same space. Treatments for Bicycle Boulevards fall within five main “application levels” based on their level of physical intensity, with Level 1 representing the least physically-intensive treatments that could be implemented at relatively low cost. Identifying appropriate application levels for individual Bicycle Boulevard corridors provides a starting point for selecting appropriate site-specific improvements.

Bicycle boulevards are low-speed streets that provide a comfortable and pleasant experience for cyclists

Discussion

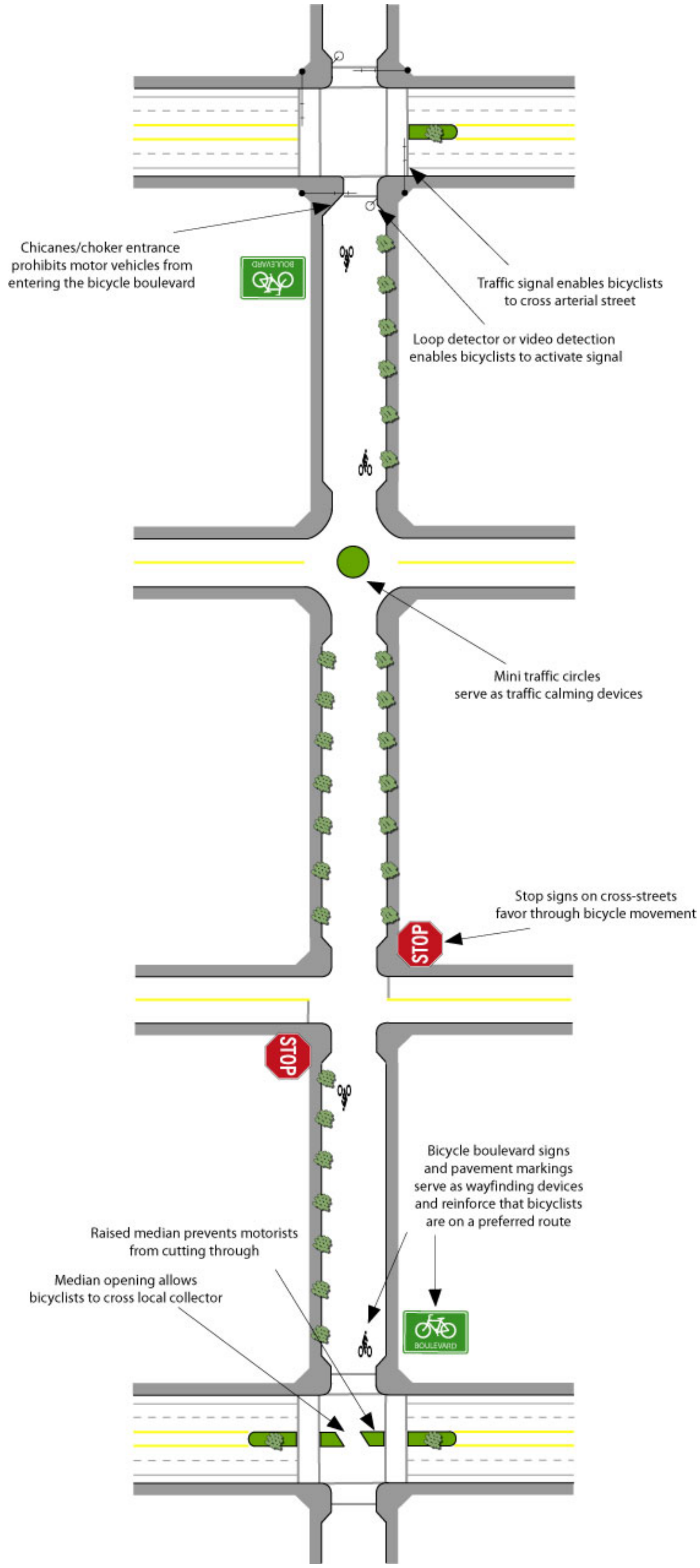
Traffic calming and other treatments along the corridor may reduce vehicle speeds so that motorists and bicyclists generally travel at the reduced speed, creating a more comfortable environment for all users. Bicycle Boulevards incorporate treatments to facilitate convenient crossings where bicyclists must traverse major streets. They work best in well-connected street grids where riders can follow reasonably direct and logical routes and when higher-order parallel streets exist to serve thru vehicle traffic.

Additional Discussion

Bicycle Boulevards serve a variety of purposes:

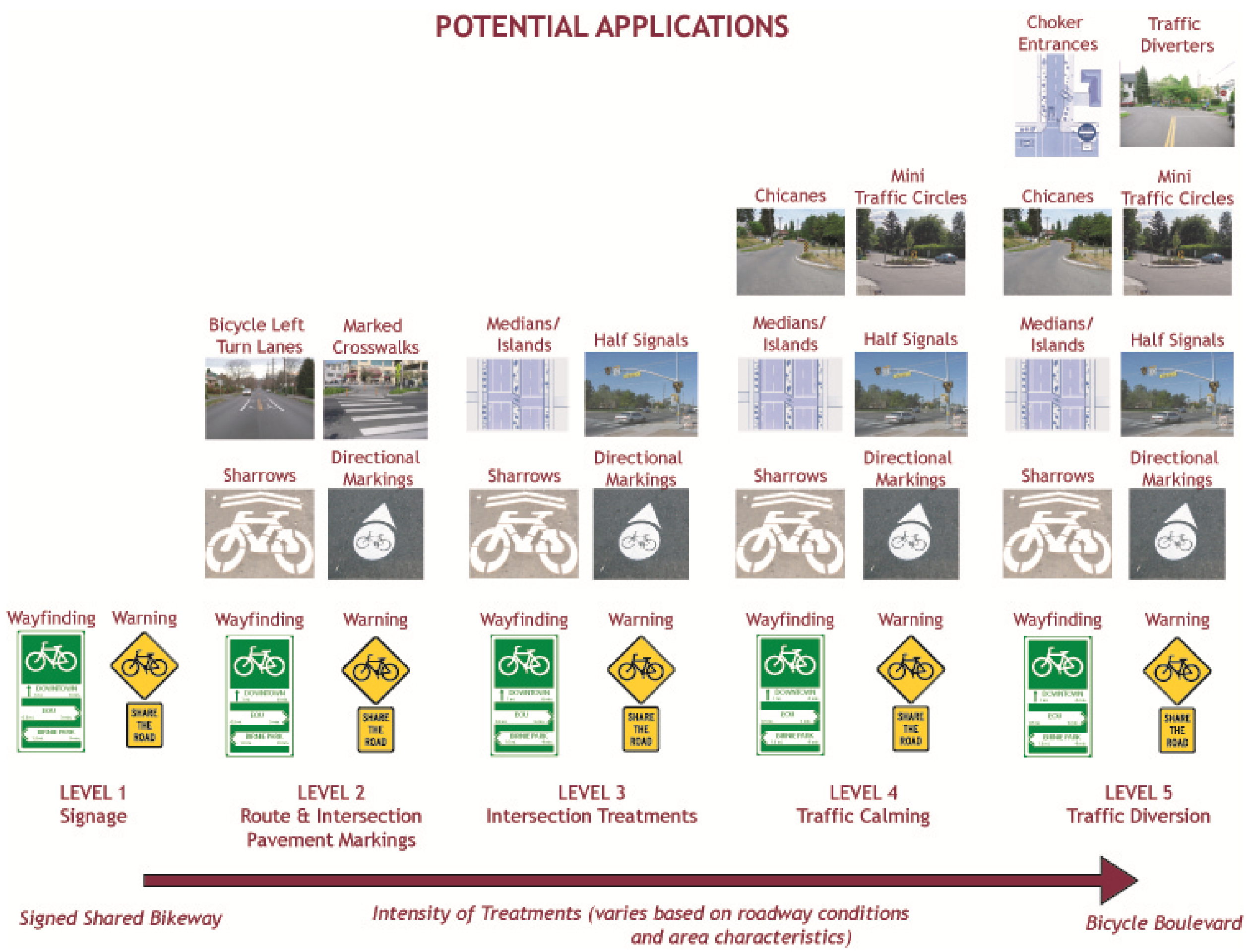
- Parallel major streets lacking dedicated bicycle facilities: Higher-order streets such as arterials and major collectors typically include major bicyclist destinations (e.g., commercial and employment areas, and other activity centers). However, these corridors often lack bike lanes or other dedicated facilities. Bicycle Boulevards serve as alternate parallel facilities allowing cyclists to avoid major streets for longer trip segments.
- Parallel major streets with bicycle facilities where the major street may be uncomfortable for some users: Some users may not feel comfortable using bike lanes on major streets for various reasons, including high traffic volumes and vehicle speeds, conflicts with motorists entering and leaving driveways, and/or conflicts with buses occupying the bike lane while loading and unloading passengers. Children and less-experienced riders might find these environments especially challenging. Utilizing lower-order streets, Bicycle Boulevards provide alternate route choices for bicyclists uncomfortable using the major street network. It should be noted however that bike lanes on major streets provide important access to key land uses, and the major street network often provides the most direct routes between major destinations. For these reasons, Bicycle Boulevards could complement a bike lane network and not serve as a substitute.
- Bicycle Boulevards incorporate cost-effective and less physically-intrusive treatments than bike lanes and cycle tracks. Most streets could be provided relatively inexpensive treatments like new signage, pavement markings, striping and signal improvements to facilitate bicyclists’ mobility and safety. Other potential treatments include curb extensions, medians, and other features that can be implemented at reasonable cost and are compatible with emergency vehicle accessibility.

Bicycle Boulevards can employ a variety of treatments from simple signage to traffic calming and/or pavement stenciling. The level of treatment to be provided for a specific location or corridor depends on several factors, discussed on the following pages.



Sample Bicycle Boulevard Treatments

Additional Discussion (continued)



It should be noted that corridors targeted for higher-level applications would also receive relevant lower-level treatments. For instance, a street targeted for Level 3 applications should also include Level 1 and 2 applications as necessary. It should also be noted that some applications may be appropriate on some streets while inappropriate on others. In other words, it may not be appropriate or necessary to implement all “Level 2” applications on a Level 2 street. Furthermore, several treatments could fall within multiple categories as they achieve multiple goals. To identify and develop specific treatments for each Bicycle Boulevard, the City of Everett should involve the bicycling community and neighborhood groups. Further analysis and engineering work may also be necessary to determine the feasibility of some applications.

4.1. Level 1: Bicycle Boulevard Signing

Guideline Summary

Signage is a cost-effective yet highly-visible treatment that can improve the riding environment on a Bicycle Boulevard network.

4.1.1. Wayfinding Signs

Wayfinding signs are typically placed at key locations leading to and along Bicycle Boulevards, including where multiple routes intersect and at key bicyclist "decision points." Wayfinding signs displaying destinations, distances and "riding time" can dispel common misperceptions about time and distance while increasing users' comfort and accessibility to the Boulevard network.

Wayfinding signs also visually cue motorists that they are driving along a bicycle route and should correspondingly use caution.

Wayfinding signs help bicyclists stay on designated bicycle routes

4.1.2. Warning signs

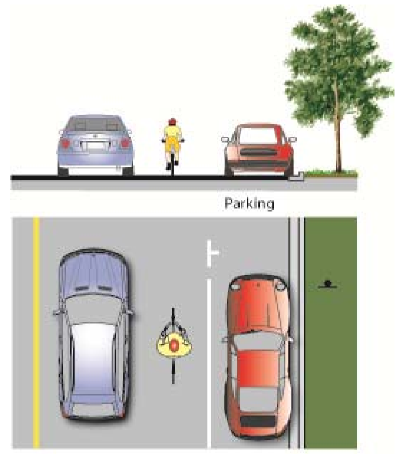
Warning signs advising motorists to "share the road" and "watch for bicyclists" may also improve bicycling conditions on a Bicycle Boulevard network. These signs are especially useful near major bicycle trip generators such as schools, parks and other activity centers. Warning signs should also be placed on major streets approaching Bicycle Boulevards to alert motorists of bicyclist crossings.

'Share the Road' signage can remind both bicyclists and motorists to watch for other vehicles

4.2. Level 2: Bicycle Boulevard Pavement Markings

4.2.1. On-Street Parking Delineation

Delineating on-street parking spaces with paint or other materials clearly indicates where a vehicle should be parked, and can discourage motorists from parking their vehicles too far into the adjacent travel lane. This helps cyclists by maintaining a wide enough space to safely share a travel lane with moving vehicles while minimizing the need to swerve farther into the travel lane to maneuver around parked cars. In addition to benefiting cyclists, delineated parking spaces also promote the efficient use of on-street parking by maximizing the number of spaces in high-demand areas. Striping the parking can also visually narrow the roadway width and reduce vehicle speeds.

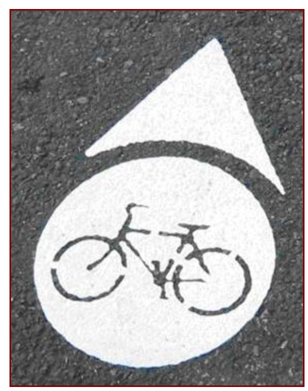


Example of On-Street Parking Delineation

4.2.2. Bicycle Boulevard/Directional Pavement Markings

Directional pavement markings (also known as “Bicycle Boulevard markings”) lead cyclists along a Boulevard and reinforce that they are on a designated route. Markings can take a variety of forms, such as small bicycle symbols placed every 600-800 feet along a linear corridor, as currently used on Portland, Oregon’s Boulevard network.

When a Bicycle Boulevard follows several streets (with multiple turns at intersections), additional markings accompanied by directional arrows are provided to guide cyclists through turns and other complex routing areas. Directional pavement markings also visually cue motorists that they are traveling along a bicycle route and should exercise caution.



Bicycle Boulevard directional marker

4.2.3. Shared Lane Markings

Shared lane markings are often used on streets where dedicated bike lanes are desirable but not possible due to physical or other constraints. Such markings delineate specifically where bicyclists should operate within a shared vehicle/bicycle travel lane.

Shared Lane Markings could be used as Bicycle Boulevard markings. See the Shared Lane Marking Design Guidelines for additional information on this treatment.

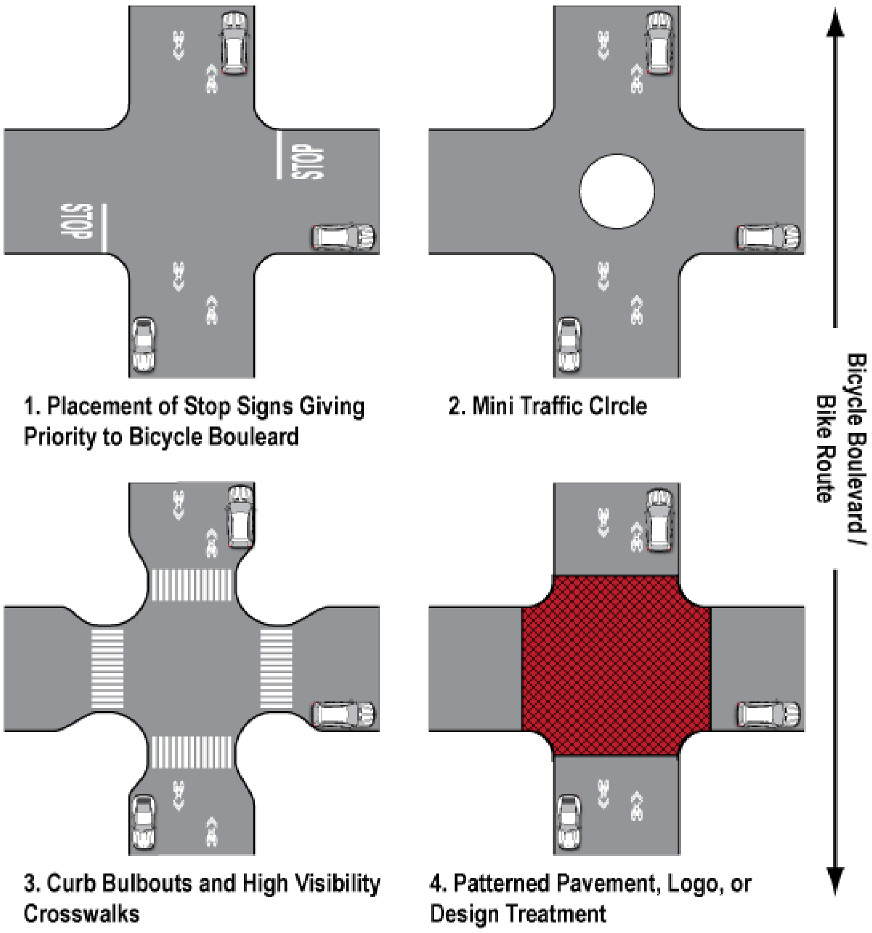
Shared lane marking

4.3. Level 3: Bicycle Boulevard Intersection Treatments

Design Summary

Intersection treatments represent a critical component of Bicycle Boulevards. Intersection traffic controls favoring through bicycle movement on the boulevard facilitate continuous and convenient bicycle travel. Intersection treatments also provide convenient crossings where boulevards intersect major roads. The following sections discuss various intersection improvement tools.

Intersection treatments are critical to bicyclists on Bicycle Boulevards



Levels of Bicycle Boulevard intersection treatments

4.3. Level 3: Bicycle Boulevard Intersection Treatments

4.3.1. Stop Sign on Cross-Street

The installation of a stop sign on cross streets along the Bicycle Boulevard maximizes thru bicycle connectivity and momentum and forces motorists crossing the facility to stop and proceed when safe.

This treatment should be used judiciously. It can be combined with traffic-calming efforts to reduce excessive vehicle speeds on the Bicycle Boulevard.

Stop signs are a relatively inexpensive treatment that is quite effective at minimizing bicycle and cross-vehicle conflicts. However, placing stop signs at all intersections along Bicycle Boulevards may be unwarranted as a traffic control device, and the placement of stop signs will depend upon traffic volumes and the effect on intersection safety.

Stop signs effectively minimize conflicts

4.3.2. Mini Traffic Circle

Typically mini traffic circles are implemented where the Bicycle Boulevard intersects a local street or even a Collector if ADT is less than 2,000. Stop signs may be added on the cross streets if necessary, otherwise all traffic yields. Signage and striping treatments should be implemented based on expected traffic volumes.

For example, the circle itself may be appropriate for local intersections with very low ADT, while increased signage and splitter striping may be appropriate experiencing higher traffic volumes. Mini traffic circles can be landscaped for added visual impact and traffic calming effect. This treatment should be designed with adequate curb radii for emergency vehicle access.

Mini traffic circles are very effective at reducing through bicycle and cross vehicle conflicts and add overall traffic calming in all directions. Mini traffic circles have a moderate cost (approx $20,000 per intersection).

Landscaping on traffic circles should be less than 30" high and must be 7' to the bottom branch of any tree, for visibility.

Mini traffic circles require that both bicyclists and motorists slow down and watch for conflicts

4.3. Level 3: Bicycle Boulevard Intersection Treatments

4.3.3. Curb Bulb-Outs and High-Visibility Crosswalks

This treatment is appropriate for Bicycle Boulevards near activity centers that may generate large amounts of pedestrian activity such as schools or commercial areas. The bulb-outs should only extend across the parking lane and should not obstruct bicyclists' path of travel or the travel lane. This treatment may be combined with a stop sign on the cross street if necessary.

Curb bulb-outs and high-visibility crosswalks both calm traffic and also increase the visibility of pedestrians waiting to cross the street. Visibility should be maintained by trimming low vegetation to heights less than 30 inches and by removing tree limbs that project at a height less than 7 feet. However, they may impact on-street parking.

Curb bulb-outs can be a good location for pedestrian amenities, including street trees

4.3.4. Patterned Pavement, Logo, or Design Treatment

Intersections that also serve as gateways to neighborhoods, schools, or commercial centers may be treated with a special design consisting of colored concrete or asphalt, imprinted asphalt, or other adhesive patterns to provide added emphasis. This treatment adds special attention to an intersection and acts as a traffic calming device.

Patterned pavement acts as a traffic calming device and also enhances the look and feel of an intersection. These treatments can be community-building activities and provide a sense of place. Any use of patterned pavement must take into profile of the pattern and the effect on bicyclists.

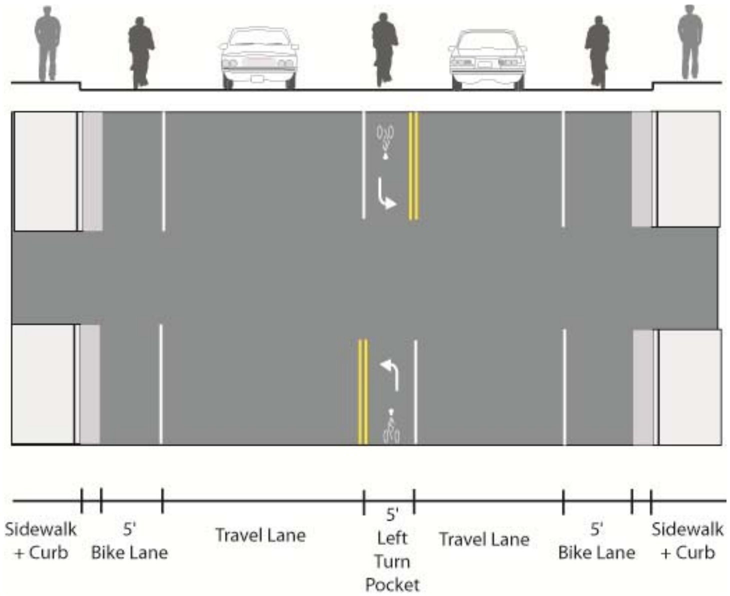
Example of patterned pavement used for traffic calming purposes

4.3.5. Bicycle Left-Turn Lane

Bicycle Boulevards crossing major streets at offset intersections can incorporate "bicycle left-turn lanes" to facilitate easier bicyclist crossings. Similar to medians/refuge islands, bicycle left-turn lanes allow the crossing to be completed in two phases. A bicyclist on the Bicycle Boulevard could execute a right-hand turn onto the cross-street, and then wait in a delineated left-turn lane (if necessary to wait for a gap in oncoming traffic). The bike turn pockets should be at least 5 feet wide.

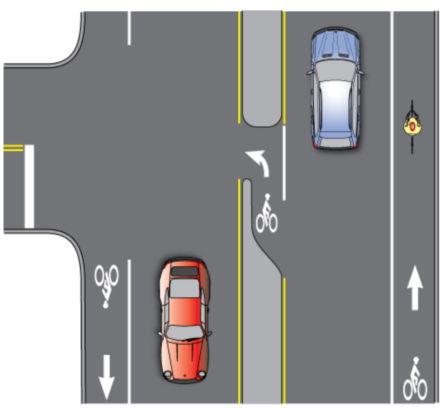
Example of a bicycle left-turn pocket

4.3. Level 3: Bicycle Boulevard Intersection Treatments



4.3.6. Bicycle Left Turn Pocket

A bike-only left-turn pocket permits bicycle left turn movements while restricting vehicle left turn movements. If the intersection is signal-controlled the left turn pocket may have a left arrow signal, depending on bicycle and vehicle volumes. Signs should be provided that prohibit motorists from turning, while allowing access to bicyclists. Bicycle signal heads may also be used at busy or complex intersections. Ideally, the left turn pocket should be protected by a raised curb, but the pocket may also be defined by striping if necessary. Because of the restriction on vehicle left-turning movements, this treatment also acts as traffic diversion.



This bike-only left-turn pocket guides cyclists along a popular bike route

4.3. Level 3: Bicycle Boulevard Intersection Treatments

4.3.7. Bicycle Signal Warrant

A bicycle signal may be considered for use only when the volume and collision or volume and geometric warrants have been met:

- 1. VOLUME. When W = B x V and W > 50,000 and B > 50. Where W is the volume warrant, B is the number of bicycles at the peak hour entering the intersection, and V is the number of vehicles at the peak hour entering the intersection. (same peak hour)
- 2. COLLISION. When 2 or more bicycle/vehicle collisions of types susceptible to correction by a bicycle signal have occurred over a 12-month period and the responsible official determines that a bicycle signal will reduce the number of collisions.
- 3. GEOMETRIC. (a) Where a separate bicycle/multi use path intersects a roadway. (b) At other locations to facilitate a bicycle movement that is not permitted for a motor vehicle

4.3.8. Medians/Refuge Islands

At uncontrolled intersections of Bicycle Boulevards and major streets, a bicycle crossing island can be provided to allow cyclists to cross one direction of traffic at a time when gaps in traffic allow. The bicycle crossing island should be at least 8' wide (measured perpendicular to the centerline of the major road) to be used as the bike refuge area. Narrower medians can accommodate bikes if the holding area is at an acute angle to the major roadway, which allows stopped cyclists to face oncoming motorists. Railings can also be provided so bicyclists do not have to put their feet down, thus making it quicker to start again. Crossing islands can be placed in the middle of the intersection, thus prohibiting left and thru vehicle movements.

4.4. Level 4: Bicycle Boulevard Traffic Calming

Traffic calming treatments on Bicycle Boulevards improve the bicycling environment by reducing vehicle speeds to the point where they generally match cyclists' operating speeds, enabling motorists and cyclists to safely co-exist on the same facility. Specific traffic calming treatments are described below.

4.4.1. Chicanes

Chicanes are a series of raised or delineated curb extensions on alternating sides of a street forming an S-shaped curb, which reduce vehicle speeds through narrowed travel lanes (see right). Chicanes can also be achieved by establishing on-street parking on alternate sides of the street. These treatments are most effective on streets with narrower cross-sections.

4.4.2. Mini Traffic Circles

Mini traffic circles are raised or delineated islands placed at intersections, reducing vehicle speeds through tighter turning radii and narrowed vehicle travel lanes (see right). These devices can effectively slow vehicle traffic while facilitating all turning movements at an intersection. Mini traffic circles can also include a paved apron to accommodate the turning radii of larger vehicles like fire trucks or school buses.

4.5. Level 5: Bicycle Boulevard Traffic Diversion

Traffic diversion treatments maintain thru bicycle travel on a street while physically restricting thru vehicle traffic. These treatments direct thru vehicle traffic onto parallel higher-order streets while accommodating bicyclists and local vehicle traffic on the Bicycle Boulevard. Traffic diversion is most effective when higher-order streets can sufficiently accommodate the diverted traffic associated with these treatments.

4.5.1. Choker Entrances

Choker entrances are intersection curb extensions or raised islands allowing full bicycle passage while restricting vehicle access to and from a Bicycle Boulevard. When they approach a choker entrance at a cross-street, motorists on the Bicycle Boulevard must turn onto the cross-street while cyclists may continue forward. These devices can be designed to permit some vehicle turning movements from a cross-street onto the Bicycle Boulevard while restricting other movements.

4.5.2. Traffic Diverters

Similar to choker entrances, traffic diverters are raised features directing vehicle traffic off the Bicycle Boulevard while permitting bicycle through travel.

Advantages:

- Provides refuge in the median of the major street so that bicyclists only have to cross one direction of traffic at a time
- works well with signal-controlled traffic platoons coming from opposite directions, preventing the need to wait for a gap in traffic coming from both directions
- Provides traffic calming benefits by preventing left turns and/or thru traffic from using the intersection

Disadvantages:

- Potential motor vehicle impacts to major roadways, including lane narrowing, loss of some on-street parking and restricted turning movements
- Crossing island may be difficult to maintain and may collect debris

5. Cycle Tracks

Guideline Summary

A cycle track is an exclusive bicycle facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. Recommended Cycle Track width:

- 7 foot minimum to allow passing and obstacle avoidance
- 12 foot minimum for two-way facility

Discussion

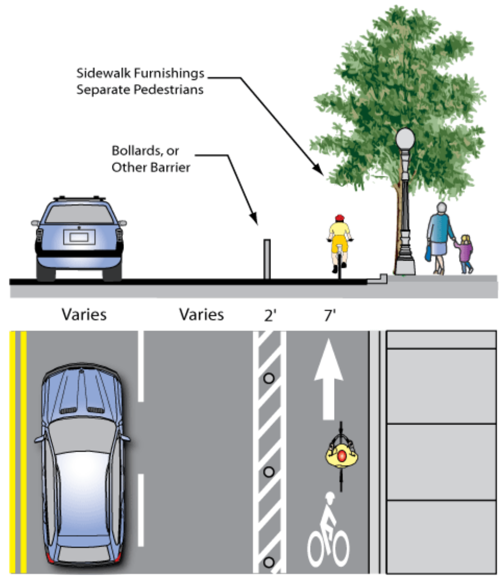
Cycle tracks can be either one-way or two-way, on one or both sides of a street, and are separated from vehicles and pedestrians by pavement markings or coloring, bollards, curbs/medians or a combination of these elements.

Cycle tracks provide:

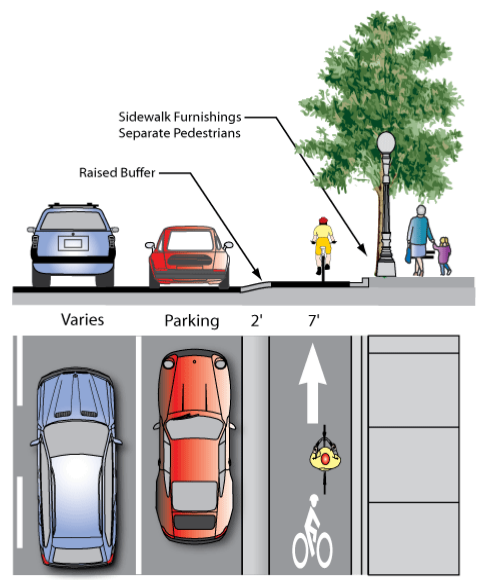
- increased comfort for bicyclists
- greater clarity about expected behavior
- fewer conflicts between bicycles and parked cars by placing the cycle track on the inside of the parking lane
- adequate space to remove the danger of "car dooring."

Disadvantages of cycle tracks include:

- increased vulnerability at intersections due to separation
- regular street sweeping trucks cannot maintain the cycle track; smaller street sweepers are required.
- conflicts with pedestrians and boarding or deboarding bus passengers can occur, particularly on cycle tracks that are un-differentiated from the sidewalk or that are between the sidewalk and a transit stop



Recommended Design – No Parking



Recommended Design– On-Street Parking


Medians, driveway consolidation, or restricted movements reduce the potential for conflict.

5. Cycle Tracks

Separation

Cycle tracks can be separated from vehicle traffic by a barrier or through grade-separation. Physical barriers can include bollards, parking, a planter strip, an extruded curb, or parking.

Openings in the barrier or curb are needed at driveways or other access points. The barrier should be dropped at intersections to allow vehicle crossing. Grade-separated cycle tracks should incorporate a rolled curb (right), which allows cyclists to enter or leave the cycle track at will, and enables motorists to drive over it at intersections and crossings.

When on-street parking is present, it should separate the cycle track from the roadway. The cycle track should be placed with a 2-foot buffer between parking and the cycle track to minimize the hazard of opening car doors to passing cyclists.

This cycle track in Cambridge, MA is separated from traffic by parking, light poles and grade

Placement

Cycle tracks should be placed along slower speed urban/suburban streets with long blocks and few driveways or mid-block access points for vehicles. Cycle tracks located on one-way streets will have fewer potential conflicts than those on two-way streets. A two-way cycle track is desirable when there are more destinations on one side of a street or if the cycle track will connect to a shared use path or bicycle facility on one side of the street.

Cycle tracks should only be constructed along corridors with adequate right-of-way. Sidewalks or other pedestrian facilities should not be narrowed to accommodate the cycle track as pedestrians will likely walk on the cycle track if sidewalk capacity is reduced. Visual and physical cues (e.g., pavement markings) should be present that make it easy to understand where bicyclists and pedestrians should be moving.

Intersections

Cycle tracks separate cyclists and motor vehicles to a greater degree than bike lanes. This produces added comfort for cyclists on the cycle track, but it creates additional considerations at intersections that must be addressed. A right-turning motorist conflicting with cycle track users represents the most common conflict. To address this issue, several treatments can be applied at intersections:

- **Protected Phases at Signals**: This treatment requires additional signal phases and could potentially increase vehicle delays. With this treatment, left- and right-turning movements are separated from conflicting thru movements. The use of a bicycle signal head may be used in this treatment to ensure all users know which signals to follow. Demand-only bicycle signals can be implemented to reduce vehicle delay and prevent an empty signal phase from regularly occurring. With this scenario, a push button or imbedded loop within the cycle track should be available to actuate the signal. If many cyclist left turns are expected, this movement should be given its own signal phase and push button.
- **Advanced Signal Phases**: Signalization can also be set to provide cycle track users a green phase in advance of vehicle phases. As existing traffic controllers currently in use by the City of Everett do not have this capability, this treatment would require the acquisition of new traffic control equipment.
- **Access Management:** Cycle tracks should be clearly marked where cars will cross them
- **Unsignalized Treatments**: Warning signs, special markings and the removal of on-street parking (if present) in advance of the intersection can all raise visibility of cyclists.

6. Shared Use Paths

Guideline Summary

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 directional travel opportunities not provided by existing roadways.

Discussion

Shared use paths serve both bicyclists and pedestrians and provide additional width over a standard sidewalk. These facilities may be constructed adjacent to roads, through parks or open space areas, along creeks, or along linear corridors such as abandoned railroad lines. In rural areas, shared use paths can serve as an alternative to formal curb, gutter and sidewalks. If an asphalt or concrete surface is not desired, paths can be constructed with decomposed granite or another aggregate material to better fit in with the rural environment.

Shared use paths (also referred to as "trails" and "multi-use paths") are often viewed as recreational facilities, but they are also important corridors for utilitarian trips

Additional Guidance

Elements that enhance shared use path design include:

- Providing frequent access points from the local road network; if access points are spaced too far apart, users will have to travel out of direction to enter or exit the path, which will discourage use
- Placing directional signs to direct users to and from the path
- Building to a standard high enough to allow heavy maintenance equipment to use the path without causing it to deteriorate
- Limiting the number of at-grade crossings with streets or driveways
- Terminating the path where it is easily accessible to and from the street system, preferably at a controlled intersection or at the beginning of a dead-end street. If poorly designed, the point where the path joins the street system can put pedestrians and cyclists in a position where motor vehicle drivers do not expect them
- Whenever possible, and especially where heavy use can be expected, separate bicycle and pedestrian ways should be provided to reduce conflicts

6.1. Shared Use Paths Along Roadways

Design Summary

The AASHTO *Guide for the Development of Bicycle Facilities* generally recommends against the development of shared use paths directly adjacent to roadways.

Discussion

Also known as “sidepaths”, these facilities create a situation where a portion of the bicycle traffic rides against the normal flow of motor vehicle traffic and can result in wrong-way riding where cyclists enter or leave the path.

Example of a substandard sidepath

Additional Guidance

Utilizing or providing a sidewalk as a shared-use path is not as comfortable for several reasons. Sidewalks are typically designed for pedestrian speeds and maneuverability and not for higher bicycle speeds. Conflicts are common between pedestrians traveling at low speeds (e.g., exiting stores, parked cars, etc.) and bicyclists, as are conflicts with fixed objects (e.g., utility poles, mailboxes, parked cars extending into the sidewalk from a driveway). Walkers, joggers, skateboarders and in-line skaters can (and often do) change their speed and direction almost instantaneously, leaving bicyclists insufficient reaction time to avoid collisions.

Similarly, pedestrians often have difficulty predicting the direction an oncoming cyclist will take. At intersections, motorists are often not looking for bicyclists who are traveling at higher speeds than pedestrians) entering a crosswalk area, particularly when motorists are making a turn. Sight distance is often impaired by buildings, walls, fences and shrubs along sidewalks, especially at driveways. In addition, bicyclists and pedestrians often prefer to ride or walk side-by-side when traveling in pairs. Sidewalks are typically too narrow to enable this to occur without serious conflict between users.

It should also be noted that developing extremely wide sidewalks does not necessarily add to the comfort of sidewalk bicycle travel. Wide sidewalks might encourage higher speed bicycle use and can increase the potential for conflicts with motorists at intersections, as well as pedestrians with fixed objects.

Additional concerns about shared use paths directly adjacent to roadways (e.g., with minimal or no separation) are:

- Bicyclists on the path are required to stop or yield at cross-streets and driveways, unless otherwise posted.
- Stopped vehicles on a cross-street or driveway may block the path.

When designing a bikeway network, the presence of a nearby or parallel path, adequate shoulder or bike lane on the roadway should be included in a transportation plan. Bike lanes should be provided as an alternate (more transportation-oriented) facility whenever possible.

Shared use paths along roadways under the following conditions:

- The path will generally be separated from motor vehicle traffic on roadways
- Bicycle and pedestrian use is anticipated
- To provide continuity with an existing path through a roadway corridor
- There is access to local cross-streets and other facilities along the route
- The total cost of providing the proposed path is proportionate to the need

6.2. Shared Use Path Design

Guideline Summary

Width:

- 10' is the minimum recommended for a two-way shared use path.
- 12' is recommended in most situations

Lateral Clearance:

- A 2' or greater shoulder on both sides

Overhead Clearance:

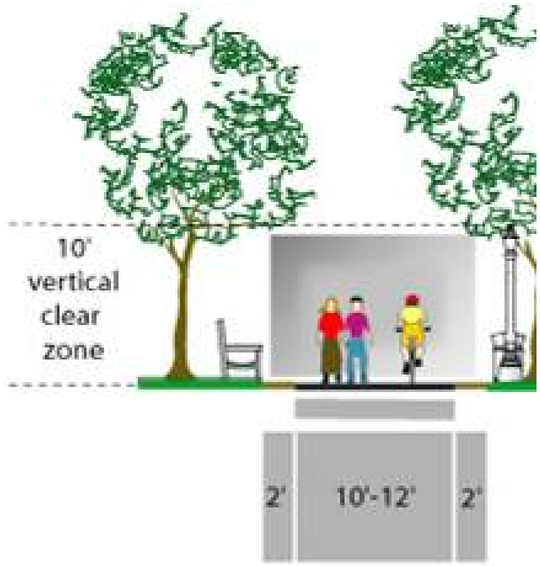
- Clearance to overhead obstructions should be 7' minimum, with 10' recommended.

Separation From Roadway:

- Where a shared use path is adjacent to a roadway, a physical barrier of sufficient height is recommended to be installed. This barrier can be either a curb (with a planting strip preferred) or a jersey-type barrier.

Discussion

Shared use paths should be designed with sufficient surfacing structural depth for the subgrade soil type to support maintenance and emergency vehicles. Where the path must be constructed over a very poor subgrade (wet and/or poor material), treatment of the subgrade with lime, cement or geotextile fabric should be considered.



Recommended shared use path design

The trail has sufficient width to accommodate a variety of users

6.3. Path/Roadway Crossings

Guideline Summary

At-grade path/roadway crossings generally will fit into one of four basic categories:

- Type 1: Marked/Unsignalized; Type 1+: Marked/Enhanced
- Type 2: Route Users to Existing Signalized Intersection
- Type 3: Signalized/Controlled
- Type 4: Grade-separated crossings

Discussion

At-grade crossings have not historically posed a problem. In most cases, path crossings can be properly designed at-grade to meet existing traffic and safety standards.

Crossing features for roadways include warning signs both for vehicles and path users. The type, location, and other criteria are identified in the AASHTO's Guide for the Development of Bicycle Facilities and the MUTCD.

Consideration for warning distance based on vehicle speeds and line of sight, with visibility of any signing may require additional alerting devices such as a flashing light, roadway striping or changes in pavement texture. Signing for path users should include a standard "STOP" sign and pavement marking, sometimes combined with other features such as bollards or a kink in the pathway to slow bicyclists.

A median stripe on the path approach will help to organize and warn path users. The actual crosswalk striping is a matter of local and State preference, and may be accompanied by pavement treatments to help warn and slow motorists. The following section identifies several path/roadway crossing treatments that should be considered for Everett's shared-use path system.

The proposed intersection approach that follows is based on established standards and published technical reports[4] from cities around the country.

6.3. Path/Roadway Crossings

Summary of Path/Roadway At-Grade Crossing Recommendations[4]

Roadway Type (Number of Travel Lanes and Median Type)	Vehicle ADT ≤ 9,000			Vehicle ADT > 9,000 to 12,000			Vehicle ADT > 12,000 to 15,000			Vehicle ADT > 15,000		
	Speed Limit **											
	30 mi/h	**35 mi/h**	**40 mi/h**	**30 mi/h**	**35 mi/h**	**40 mi/h**	**30 mi/h**	**35 mi/h**	**40 mi/h**	**30 mi/h**	**35 mi/h**	**40 mi/h**
2 Lanes	1	1	1/1+	1	1	1/1+	1	1	1+/3	1	1/1+	1+/3
3 Lanes	1	1	1/1+	1	1/1+	1/1+	1/1+	1/1+	1+/3	1/1+	1+/3	1+/3
Multi-Lane (4 or more lanes) with raised median ***	1	1	1/1+	1	1/1+	1+/3	1/1+	1/1+	1+/3	1+/3	1+/3	1+/3
Multi-Lane (4 or more lanes) without raised median	1	1/1+	1+/3	1/1+	1/1+	1+/3	1+/3	1+/3	1+/3	1+/3	1+/3	1+/3

*__General Notes:__ Crosswalks should not be installed at locations that could present an increased risk to pedestrians, such as where there is poor sight distance, complex or confusing designs, a substantial volume of heavy trucks, or other dangers, without first providing adequate design features and/or traffic control devices. Adding crosswalks alone **will not** make crossings safer, nor will they necessarily result in more vehicles stopping for pedestrians. Whether or not marked crosswalks are installed, it is important to consider other pedestrian facility enhancements (e.g., raised median, traffic signal, roadway narrowing, enhanced overhead lighting, traffic-calming measures, curb extensions), as needed, to improve the safety of the crossing. **These are general recommendations; good engineering judgment should be used in individual cases for deciding which treatment to use.**

For each pathway-roadway crossing, an engineering study is needed to determine the proper location. For each engineering study, a site review may be sufficient at some locations, while a more in-depth study of pedestrian volume, vehicle speed, sight distance, vehicle mix, etc. may be needed at other sites.

** Where the speed limit exceeds 40 mi/h (64.4 km/h), marked crosswalks alone should not be used at unsignalized locations.

*** The raised median or crossing island must be at least 4 ft (1.2 m) wide and 6 ft (1.8 m) long to adequately serve as a refuge area for pedestrians in accordance with MUTCD and AASHTO guidelines. A two-way center turn lane is not considered a median.

1= Type 1 Crossings. Ladder-style crosswalks with appropriate signage should be used.

1/1+ = With the higher volumes and speeds, enhanced treatments should be used, including marked ladder style crosswalks, median refuge, flashing beacons, and/or in-pavement flashers. Ensure there are sufficient gaps through signal timing, as well as sight distance.

1+/3 = Carefully analyze signal warrants using a combination of Warrant 2 or 5 (depending on school presence) and Equivalent Adult Unit (EAU) factoring, which weights senior, disabled and child pedestrians higher than adult pedestrians to account for the increased vulnerability and needs. Make sure to project pathway usage based on future potential demand. Consider actuated pedestrian half signals signals in lieu of full signals. Different designs of pedestrian half signals include the Pelican (pedestrian light-controlled crossing), Puffin (pedestrian user-friendly intelligent crossing), or HAWK (high-intensity activated crosswalk). For those intersections not meeting warrants or where engineering judgment or cost recommends against signalization, implement Type 1 enhanced crosswalk markings with marked ladder style crosswalks, median refuge, flashing beacons, and/or in-pavement flashers. Ensure there are sufficient gaps through signal timing, as well as sight distance.

6.3. Path/Roadway Crossings

6.3.1. Type 1: Marked/Unsignalized Crossings

A marked/unsignalized crossing (Type 1) consists of a crosswalk, signage, and often no other devices to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, path traffic, use patterns, and vehicle speed. The following thresholds recommend where unsignalized crossings may be acceptable:

Maximum traffic volumes:

- ≤9,000-12,000 Average Daily Traffic (ADT) volumes
- Up to 15,000 ADT on two-lane roads, preferably with a median.
- Up to 12,000 ADT on four-lane roads with median.

Maximum travel speed:

- 35 MPH

Minimum line of sight:

- 25 MPH zone: 155 feet
- 35 MPH zone: 250 feet
- 45 MPH zone: 360 feet
-

Type 1 Crossing

Discussion

Crossings of multi-lane higher-volume arterials over 15,000 ADT may be unsignalized with features such as a combination of some or all of the following: sight distance, sufficient crossing gaps, median refuges, and/or active warning devices.

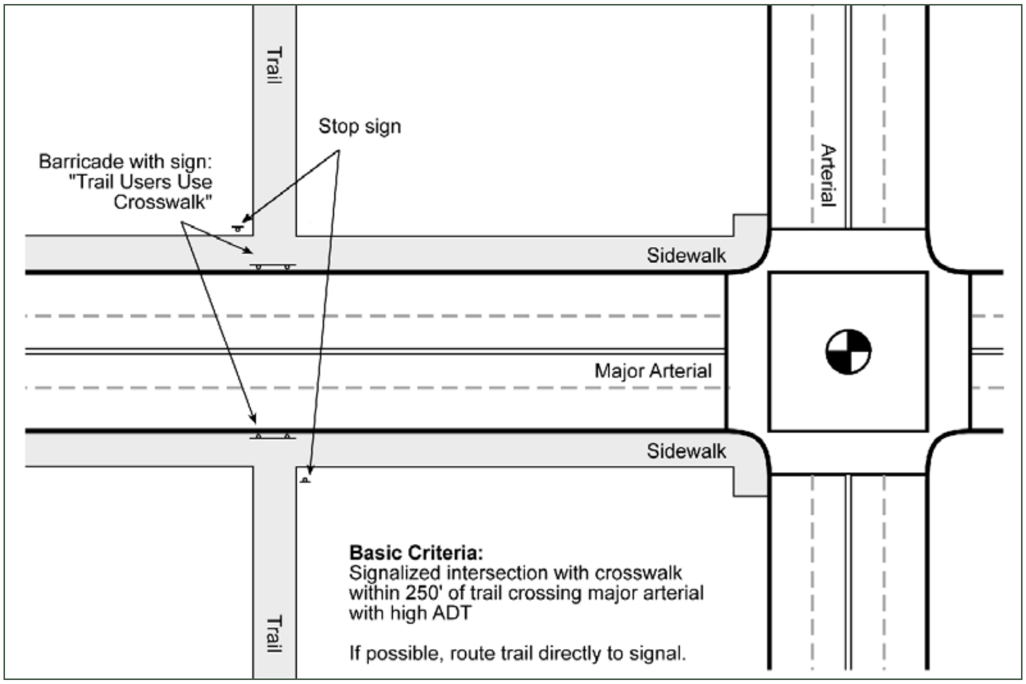
On two-lane residential and collector roads below 15,000 ADT with average vehicle speeds of 35 MPH or less, crosswalks and warning signs ("Path Xing") may be provided to warn motorists, and stop signs and slowing techniques (bollards/geometry) should be used on the path approach to slow or stop bicycle traffic. Care should be taken to keep vegetation (less than 30" more than 7') and other obstacles out of the sight line for motorists and path users. Engineering judgment should be used to determine the appropriate level of traffic control and design.

The top of the crosswalk is flat and typically made of asphalt, patterned concrete, or brick pavers. Brick or unit pavers should be discouraged because of potential problems related to pedestrians, bicycles, and ADA requirements for a continuous, smooth, vibration-free surface. Detectable warning strips are needed at the sidewalk/street boundary so that visually impaired pedestrians can identify the edge of the street.

6.3. Path/Roadway Crossings

6.3.2. Type 2: Route Users to Existing Signalized Intersection

Crossings within 250 feet of an existing signalized intersection with pedestrian crosswalks are typically diverted to the signalized intersection. For this option to be effective, barriers and signing may be needed to direct trail users to the signalized crossings.



Type 2 Crossing Treatment

6.3.3. Type 3: Signalized/Controlled Crossings

New signalized crossings may be recommended for crossings that meet pedestrian, school, or modified warrants, are located more than 100 feet from an existing signalized intersection and where 85th percentile travel speeds are 40 MPH and above and/or ADT exceeds 15,000 vehicles. Each crossing, regardless of traffic speed or volume, requires additional review by a registered engineer to identify sight lines, potential impacts on traffic progression, timing with adjacent signals, capacity, and safety.

Trail signals are normally activated by push buttons, but also may be triggered by motion detectors. The maximum delay for activation of the signal should be the same as a pedestrian crossing, with minimum crossing times determined by the width of the street. The signals may rest on flashing yellow or green for motorists when not activated, and should be supplemented by standard advanced warning signs.

Type 3 Crossing

6.3. Path/Roadway Crossings

6.3.4. Type 4: Grade-separated Crossings

Grade-separated crossings may be used where existing bicycle/pedestrian crossings do not exist, where ADT exceeds 25,000 vehicles, and 85th percentile speeds exceed 45 MPH. At-grade separated crossings, trail users may be isolated from the street and out of sight from areas of public activity

Type 4 Grade-Separated Undercrossing

Type 4 Grade-Separated Overcrossing

6.4. Path Signage

Design Summary

Three types of signage appropriate for trail use include:

- Wayfinding (top right)
- Regulatory (bottom right)
- Warning (traffic signage)

Discussion

Directional signing may be useful for pathway users and motorists alike. For motorists, a sign reading “Path Xing” with an Everett emblem or logo helps both warn and promote use of the path itself. For path users, directional signs and street names at crossings help direct people to their destinations. The directional signing should impart a unique theme so path users know which path they are following and where it goes. The theme can be conveyed in a variety of ways: engraved stone, medallions, bollards, and mile markers. A central information installation at trailheads and major crossroads also helps users find and acknowledge the rules of the path. They are also useful for interpretive education about plant and animal life, ecosystems, and local history.

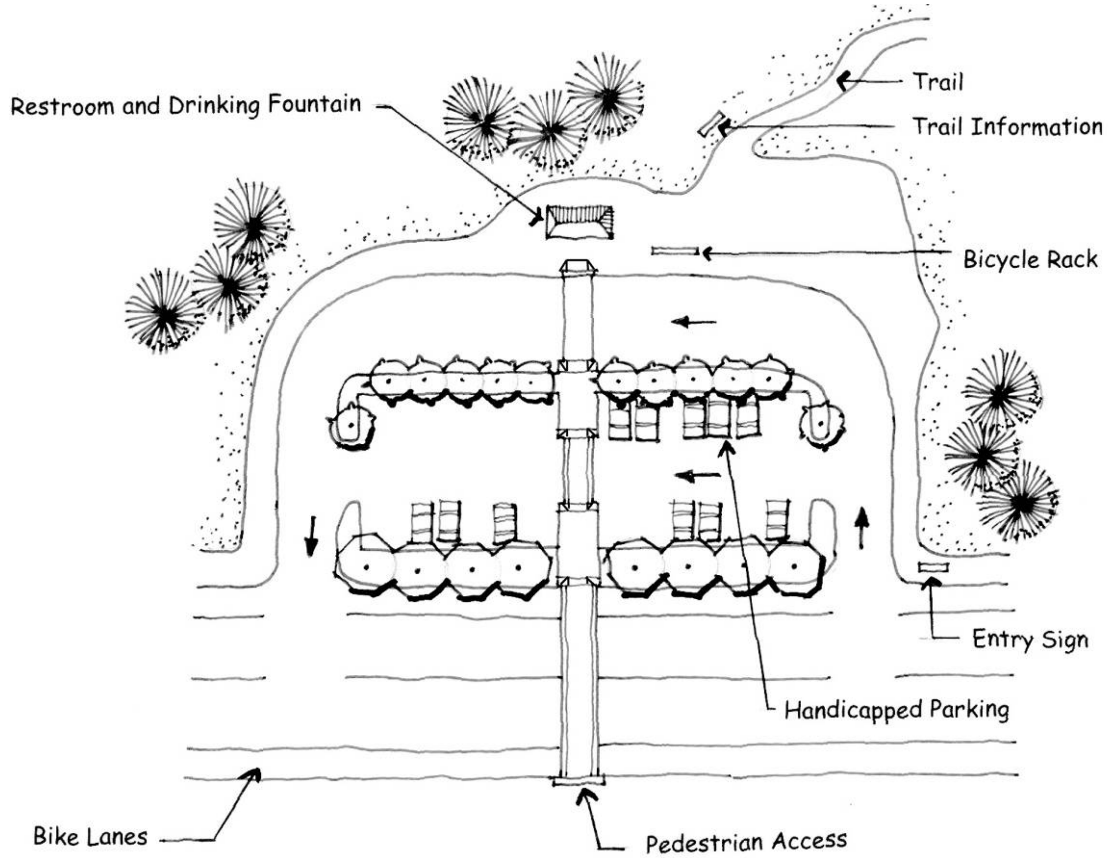
Additional signage could be installed along the Interurban Trail so that as users approach the various access points along the trail, they are alerted to the presence of bike facilities that will direct them to key locations throughout the city (see images to the right).

Directional and Trail Etiquette Signage

6.5. Trailheads

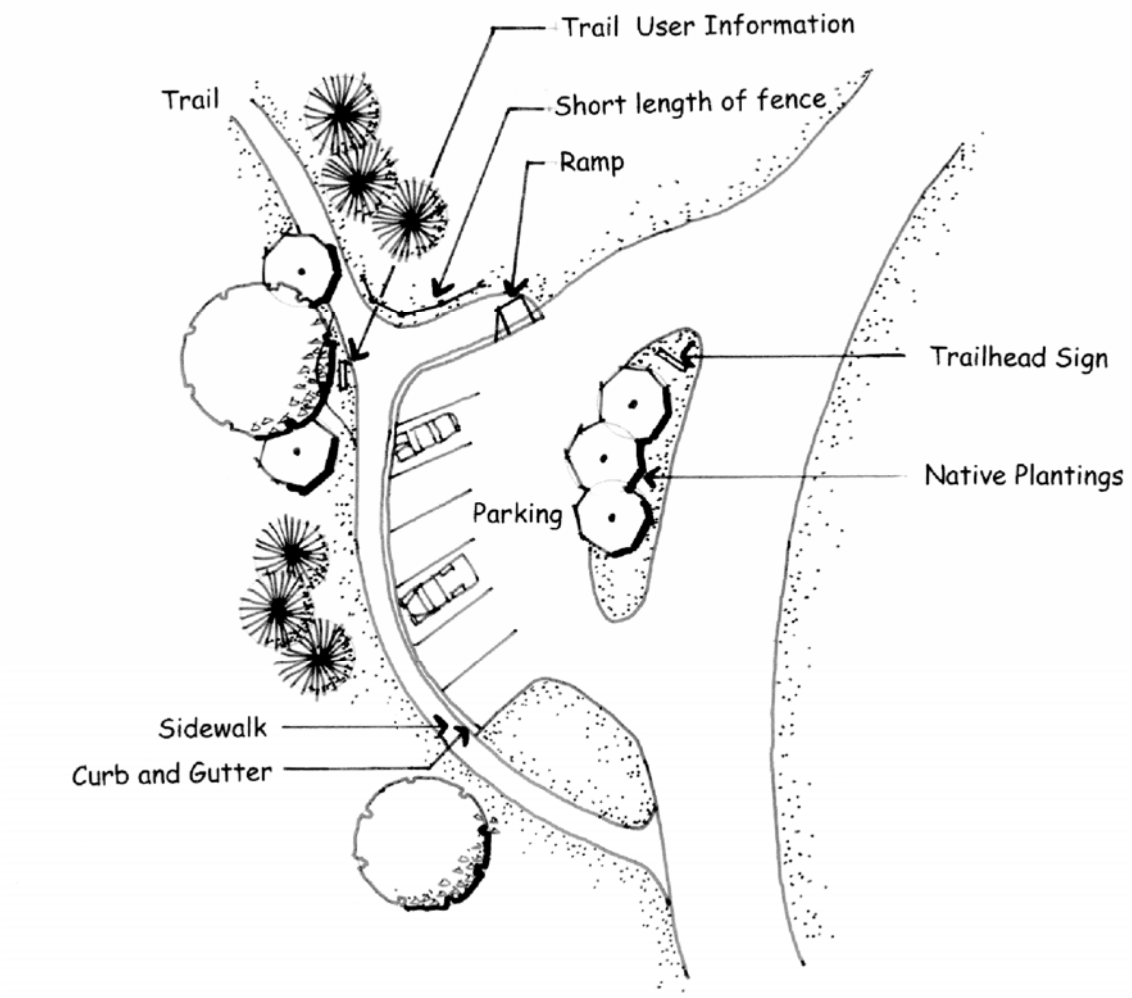
Trailheads (formalized parking areas) serve the local and regional population arriving to the path system by car, transit, bicycle or other modes. Trailheads provide access to the trail system and may include amenities like parking for vehicles and bicycles, restrooms (at major trailheads), and posted maps. A central information installation also helps users find their way and acknowledge the rules of the path.

6.5.1. Major Trailhead Example

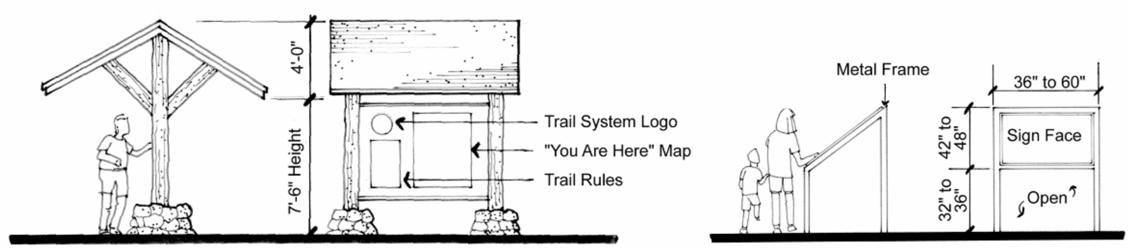


6.5. **Trailheads**

6.5.2. Trailhead with Small Parking Area Example



6.5.3. Informational Kiosk and Informational Sign



6.6. Path Amenities

A variety of amenities can make a path inviting to the user. The following table highlights some common items that make path systems stand out. Costs vary depending on the design and materials selected for each amenity.

6.6.1. Interpretive Installations

Interpretive installations and signs can enhance the users experience by providing information about the history of Everett and the surrounding area. Installations can also discuss local ecology, environmental concerns, and other educational information.

6.6.2. Water Fountains and Bicycle Parking

Water fountains provide water for people (and pets, in some cases) and bicycle racks allow recreational users to park their bikes if they wish to stop along the way, particularly at parks and other desirable destinations.

6.6.3. Pedestrian-Scale Lighting and Furniture

Pedestrian-scale lighting enables the facility to be used year-round. It also enhances the aesthetic of the pathway. Lighting fixtures should be consistent with other light fixtures in the city, possibly emulating a historic theme.

Providing benches at key rest areas and viewpoints encourages people of all ages to use the pathway by ensuring that they have a place to rest along the way. Benches can be simple (e.g., wood slates) or more ornate (e.g., stone, wrought iron, concrete).

6.6.4. Maps and Signage

A signing system makes a bicycle and pedestrian system stand out. Informational kiosks with maps at trailheads and other pedestrian generators can provide enough information for someone to use the network with little introduction.

6.6. Path Amenities

6.6.5. Art Installations

Local artists can be commissioned to provide art for the pathway system, making it uniquely distinct. Many pathway art installations are functional as well as aesthetic, as they may provide places to sit and play on.

6.6.6. Landscaping

Landscape features, including street trees or trees along paths, can enhance the visual environment and improve the path user experience. Trees can also provide shade from heat and also provide protection from rain.

6.6.7. Restrooms

Restrooms benefit path users, especially in more remote areas where other facilities do not exist. Restrooms can be sited at major trailheads or at other strategic locations along the path system.

6.7. Path Safety and Security

Guideline Summary

Various design and programmatic measures can be taken to address safety issues on a shared-use path. This table summarizes key safety issues and strategies for minimizing impacts.

Discussion

Privacy of adjacent property owners

- Clearly mark path access points.
- Post path rules that encourage respect for private property.
- Strategically placed lighting.

Unwanted vehicle access on the path

- Utilize landscaping to define the corridor edge and path, including earth berms and large boulders.
- Use bollards or gates at intersections
- Pass a motorized vehicle prohibited ordinance and sign the path.
- Create a Path Watch Program and encourage citizens to photograph report illegal vehicle use of the corridor.
- Lay the trail out with curves that allow bike/ped passage, but are uncomfortably tight for automobile passage

Litter and dumping

- Post path rules encouraging pack-it-in/pack-it-out.
- Place garbage receptacles at trailheads.
- Encourage local residents to report incidents as soon as they occur.
- Remove dumpsites as soon as possible.

Trespassing

- Post path rules encouraging respect for property.

Local on-street parking

- Place "no outlet" and "no parking" signs prior to path access points.

Surveillance from nearby buildings and pedestrian-scale lighting can increase trail visibility

Crime

- Place lights strategically and as necessary when used.
- Place benches and other amenities at locations with good visual surveillance and high activity.
- "Path Watch Program" involving local residents.
- Proactive law enforcement. Utilize the corridor for mounted patrol training.

Private use of corridor

- Attempt to negotiate win/win solutions with property owners.

Vandalism

- Select benches, bollards, gates, signage and other site amenities that are durable, low maintenance and vandal resistant.
- Respond through removal or replacement in rapid manner.
- Keep a photo record of all vandalism and turn over to local law enforcement.
- Encourage local residents to report vandalism.
- Trail Watch Program; maintain good surveillance of the corridor.
- Involve neighbors in path projects to build a sense of ownership.
- Place amenities in well used and visible areas.

6.7. Path Safety and Security

6.7.1. Community Involvement with Safety on the Path

Discussion

Provide good access to the path

Access ranges from providing conveniently located trailheads along the path. Access points should be inviting and signed so as to welcome the public onto the path.

High level of maintenance

A well-maintained path sends a message that the community cares about the public space. This message alone will discourage undesirable activity along the path.

Programmed events

Community events along the path will help increase public awareness and thereby attract more people to use the path. Neighbors and residents can help organize numerous public events along the path which will increase support for the path. Events might include a day-long path clean up or a series of short interpretive walks led by long time residents or a park naturalist.

'Share the Path' and other community programs raise awareness of safety and other trail issues

Adopt-a-Path Program

Nearby businesses, community institutions, and residential neighbors often see the benefit of their involvement in the path development and maintenance. Businesses and developers may view the path as an integral piece of their site planning and be willing to take on some level of responsibility for the path. Creation of an adopt-a-path program should be explored to capitalize on this opportunity and build civic pride.

Path Watch Program

Partnering with local and county law enforcement, a path watch program would provide an opportunity for local residents to become actively involved in crime prevention along Everett's path system. Similar to Neighborhood Watch programs, residents are brought together to get to know their neighbors, and are educated on how to recognize and report suspicious activity.

Appendix B. Relationship to Other Planning Documents

Appendix B excerpts relevant sections of other planning documents as they relate to bicycle, pedestrian, and non-motorized planning. Unless otherwise noted, the text shown is taken directly from the referenced document.

Everett, WA City Code

Comprehensive Plan[1]

The 1994 Everett Comprehensive Plan was written to comply with requirements of the State of Washington Growth Management Act of 1990 (GMA). The objective of the growth management plan was to provide a balanced transportation system to control the sprawl of urban land uses and encourage alternatives to the single occupant vehicle (SOV), particularly during the peak period. Bicycles are one of the modes promoted as an alternative to driving alone. The 2006 update to the Transportation Element maintains the goals of the 1994 plan. It contains updated "mode of travel" targets and a list of capital projects required to accommodate the future demands of each mode, including bicycles.

Population note: Everett has 41% of all jobs in S. County, with one-third of these in the North End. Snohomish County determined total employment for Everett's Planning Area is 86,147. The median household income in Everett Planning Area was $44,814 in 2000, which is lower than the median in all of Snohomish County, which was $60,726. The population is growing, particularly the proportion of Asians and Pacific Islanders.

Table 1. City of Everett population and employment forecasts

	2008 American Communities Survey	2025 Alternative 1: Existing Trends	2025 Alternative 2: Adopted Targets	2025 Alternative 3: Snohomish County High Growth Alt in UGA
Population	104,838	161,168	167,519	169,896
Employment	82,770	127,130	132,545	139,060

Land Use Element

<u>Policy 2.11.7 High Capacity Transit Corridors/ Transit Stations:</u>

d. High capacity transit stations should be sited so as to maximize the opportunity to integrate with other modes of transportation, especially bus transit, pedestrian and bicycle modes, and to reduce the need for use of the automobile.

[1] http://www.everettwa.org/default.aspx?ID=1202

Policy 2.11.9 Urban Centers

The PSRC VISION 2040 Growth and Transportation Strategy proposes a hierarchy of "urban centers" for the Central Puget Sound region as a means of concentrating future growth into defined geographic areas developed at densities high enough to support an efficient public transportation system.

a. Metropolitan Centers: The Everett Central Business District is the metropolitan center for Snohomish County.

   5) New development and redevelopment shall be designed to be compatible with transit use, as well as encouraging pedestrian and bicycle activity.

b. Growth Centers. Growth centers are to be located outside of the CBD at stations for the high capacity transit system. Growth centers shall be compact, with a radius of approximately one-quarter mile from the transit station, with the emphasis upon pedestrian access to the transit station.

   3) New development and redevelopment within growth centers shall be designed to encourage public transit use, pedestrian access and bicycle activity.

Policy 2.11.10 Use of Special Study Area Plans.

These documents should be used as the basis for approving or applying conditions to permits when reviewing land use proposals for properties located within the study areas covered in the following documents:

a. A Development Plan for Everett's Central City
b. An Urban Design Plan for Everett Harborfront
c. Snohomish River Bicycle-Pedestrian Public Access Plan
d. Everett Harborfront Public Access Plan
e. Rucker & Grand Avenues Historic Overlay Zone
f. Urban Service Area Element
g. Shoreline Master Program
h. Shoreline Public Access Plan
i. SW Everett Paine Field Subarea Plan

Shoreline Land Use Element

Eventually, the City will complete a continuous and interconnected system of parks, trails, pedestrian walkways and bicycle paths in and between shoreline areas, including the Silver Lake area.

Goal 3.3 To achieve safe, convenient, pedestrian friendly, and diversified circulation systems to provide public access to the shoreline, efficient movement of people and goods, with minimum disruption to the shoreline environment and minimum conflict among shoreline uses and between shoreline users and abutting upland areas.

Objective 3.3.5 Provide for bicycle and pedestrian circulation as a means of personal transportation and recreation, and connect bicycle and pedestrian trails to shoreline public access features.

Policy 3.6.17 Transportation corridors should be designed to be pedestrian and bicycle friendly and to provide safe circulation through and to the shoreline. Pedestrian and bicycle routes should be connected to each other and neighborhoods throughout greater Everett, and should be constructed in such a manner as to provide both recreational and commuting options for pedestrians and bicyclists.

Policy 3.34.6 Shoreline parks, recreation areas, and public viewing points should be linked by an integrated system of paths and bicycle lanes which provide substantial public access.

Policy 3.38.7 New and expanded public streets in shoreline areas should include facilities for pedestrians, bicycles, and public transportation, where feasible

Housing Element

16. Provide public amenities such as parks; public plazas; street trees; street lights; community centers; and pedestrian and bicycle connections to the CBD, water, and nearby trails to encourage private investment in high density housing in strategy areas in and near the downtown.

Transportation Element Update (2006)

2.4. NON-MOTORIZED TRANSPORTATION SERVICES

- The bicycle network actually constructed has significant gaps between facilities, requiring cyclists to use other roads or routes not specifically designated for bicycles.
- In describing existing bicycle facilities, the plan states that "While there are many bicycle racks provided at parks, schools and by key businesses, there are only 50 public storage lockers at park-and-ride facilities."

Table 2. City of Everett trail system

Trail	Between	Surface Type	Width	Length (miles)
Interurban	44th Street and 128th Street SW	Paved	12 ft	13.0
Lowell Riverfront	41st Street and Lowell-Rotary Park	Paved	8 ft	1.8
Harborfront	Alverson and Pigeon Creek Viewpoint	Paved	8 ft	6.5

Silver Lake	Interurban Trail and Thornton A. Sullivan Park	Paved	8 ft	0.6
Langus Riverfront	Langus Riverfront Park and Spencer Island	Paved	8 ft	3.6
Forest Park Nature Trails	Mukilteo Boulevard and Waterfront	Paved	8 to 12 ft	0.8

The most significant trail facility is the regional north-south Interurban Trail which parallels I-5. The trail surface is twelve feet wide on a separate right-of-way that is 70 to 80 feet in width. The majority of the City of Everett's built bicycle network consists of separate bicycle lanes on Arterial streets. The bicycle lanes are typically five feet wide on the curb side of the road and are clearly marked with paint striping. A few of the bicycle lanes are located on streets with onstreet parallel parking.

3.2 PRINCIPLES AND POLICIES OF THE TRANSPORTATION OJECTIVES

Objective #1 - Expand Multi-Modal Travel Opportunities

Plan, finance and maintain a multi-modal transportation system that provides expanded travel opportunities for transit, pedestrian, bicycle and ride-sharing while accommodating private automobile use and supporting economic development within the community.

Objective #1 Planning Principles: Develop an integrated pedestrian and bicycle plan including trails, bike lanes and sidewalks to provide a non-motorized option for accessing transit facilities and for accessing local activity areas directly without driving a vehicle.

1.13. Develop a Pedestrian and Bicycle System Plan to be used in the planning, design, designation and construction of pedestrian and bicycle facilities and routes in the city to promote non-motorized travel.

1.14. Fully integrate the planning of sidewalks, walkways, and bicycle facilities and trails into overall transportation planning, programming, and construction activities.

1.15. Promote safe, well-lighted pedestrian walkways and trails to minimize travel distances within and between new development, adjoining residential areas, transit stops, and activity centers.

1.16. Plan specific city roadways to accommodate bicycle routes, consistent with the Bicycle System Plan.

1.17. Encourage accessibility for bicyclists on the transit system.

1.18. Encourage, using code amendments as appropriate, new and redeveloping properties, major transit stations, and park-and-ride lots located within the city to provide secure bicycle parking and related amenities to help encourage the use of bicycles by residents, employees, shoppers and visitors.

1.19. Encourage private and public institutions, such as hospitals, churches, schools districts and others, to develop and continue the implementation of safe pedestrian and bicycle routes and connections to and from schools and bus stops, neighborhood parks and activity centers, transit hubs, industrial and recreational areas of the marine waterfront, and other places of community and public interest.

1.20. Encourage public and private institutions, civic organizations, clubs and other interest groups to provide educational programs that promote the use of safe riding skills.

Transportation Funding

1.31. Actively seek local, state, and federal funding and grants for the provision and enhancement of bicycle and pedestrian facilities and amenities.

Objective #2: Develop Appropriate Design Standards and Procedures

Design and construct safe, convenient and efficient transportation facilities with greater emphasis on minimizing person-travel delay, public safety and barrier-free, pedestrian oriented accessibility, while assuring the continued movement of goods.

Objective #2 Planning Principles: Develop a transportation network hierarchy that identifies priorities for each transportation mode; streets, transit, bicycle, pedestrian, and freight. Construct a system of pedestrian/bicycle routes, pathways and sidewalks that will allow convenient non-motorized access from all Everett neighborhoods to all major transit corridors and mixed-use centers.

Site Design

2.2. The design and mix of land uses around designated transit centers/stations shall emphasize the ease and safety of pedestrian and bicycle circulation and orientation to transit routes.

2.3 The design of park and ride facilities around transit centers shall encourage shared-use parking with other transit-oriented development and shall not obstruct the ease and safety of pedestrian and bicycle access to a transit center from other land uses.

2.4. New developments shall incorporate physical features designed to promote and enhance alternatives to the single-occupant vehicle, including code amendments to require secure bicycle parking and to reduce vehicular parking requirements where appropriate.

Neighborhood Traffic and Circulation

2.10. New residential development shall be served by interconnected local public streets with bicycle and pedestrian routes.

Transportation Facility Design

2.20. Establish and adopt design standards to ensure that the implementation of bicycle and pedestrian system projects are coordinated and consistent in design and construction with other transportation system improvements.

Level of Service Goals

Mode of Travel Share by Subarea (p.43 of the Transportation Element Update)

- The City will also review elements of its development code, such as minimum parking requirements for vehicles and bicycles, with the objective of encouraging a higher proportion of non-motorized travel.
- The Plan provides for continued investments in expanding existing transit centers and building new transit centers. Associated parking facilities for vehicles and bicycles will be provided at the centers.

4.4 NON-MOTORIZED TRANSPORT SERVICES STRATEGY

The Plan provides for significant improvements in bicycle and pedestrian facilities to assure greater choice and mobility for commuters, students, and recreational uses to be programmed over the three program periods, short-term TIP, Mid-Term plan and Long-Term plan.

Proposed Bicycle and Multi-Use Facility Improvements

The bicycle facilities have been planned with a greater focus on commuter needs and provide a network of bicycle lanes and signed routes, as well as multi-purpose trails.

Bike / Ped Bridges and Crossing Facilities

The Plan recognizes that there are several major barriers to pedestrians and cyclists, both in the natural topography of the land and in the man-made structures of freeways and railways. It is assumed that sidewalks and bicycle lanes will be included with many new interchanges and arterial road crossings of I-5, such as 128th Street, 112th Street, 100th Street, 41st Street, Pacific Avenue, and Everett Avenue.

The Plan provides for separate trail crossings of the BNSF at Bond Street, 36th Street, and near Pigeon Creek No. 1. It also provides for additional crossings of SR 526 at Seaway Boulevard, of the Snohomish River to Smith Island, of Woods Creek from Gold Way to 181st Place and of East Marine View drive at Henry M. Jackson Park.

The potential capital costs of these Bridge and Crossing improvements are estimated at about $10 Million over the Plan period.

Bike / Ped Trail Facilities

The Plan provides for completion of the multi-use trail system including the Harborfront Trail from Mukilteo to North Broadway, the Lowell / Riverfront Trail from 41st Street to North Broadway, and the Smith Island Trails. New park trails are provided along Pigeon Creek No.1 and 2, Narbeck Creek, Powder Mill Creek and Japanese Gulch and a trail connection from the Interurban to Larimer Road along Ridgewood. Trails are also planned along East Marine View Drive and SR 526.

The potential capital costs of these Trail facilities are estimated at more than $30 Million over the Plan period.

Bike Lane Facilities

The Plan provides for significant investments in bike lanes over the three time periods to provide wide coverage for commuter and student cyclists. Key facilities on Hoyt Avenue and California Avenue will service the Downtown area. Bike lanes on SR-529 to Marysville are a high priority. Bike lanes on 128th Street, 112th Street, 100th Street and Pacific Avenue will provide key eastwest routes across I-5. North-south routes on 4th Avenue and 7th Avenue will complement other bike lanes on Seaway Boulevard and Beverly Lane/Dogwood.

The potential capital costs of these Bike Lane improvements are estimated at about $40 Million over the Plan period.

Bike Route Designations

In addition to construction of specific lanes for bicycles, the Plan recognizes that some local, residential streets are sufficiently safe to be designate as preferred bicycle routes without the need to build special bicycle lanes. Planning and signage is estimated at less than $1 Million. The Future Bicycle Facilities plan is shown on Figure 4.7 including trails, bicycle lanes and signed bike routes. (Future projects Table p.62 of the Transportation Element Update).

Economic Development Element

Policy 7.4.5. Provide transportation links for water-oriented tourist uses, such as pedestrian, bicycle, bus, and launch vehicle access.

14. Develop a recognizable pedestrian route from Downtown to the Port areas. Tie the riverfront to the harborfront by extending sidewalks and bicycle lanes, tree plantings and other "gateway" design features between the two waterfronts.

Urban Design & Historic Preservation Element

9. Encourage pedestrian and transit-oriented developments with greater emphasis on sidewalk improvements, interconnected trails, and bicycle facilities.

Objective 8.3.2 To create better pedestrian, bicycle, and transit linkages between commercial centers and nearby residential areas.

Objective 8.4.3 To develop a network of well-functioning pedestrian pathways and bicycle trails in areas of high scenic value, such as the waterfront, the riverfront, and the various greenbelt ravines, with connections to adjacent neighborhoods.

Objective 8.4.5 To designate bicycle routes in the city and provide ample directional and interpretive signage.

Policy 8.8.3 Undertake the design and implementation of public improvement projects in any of the designated gateway corridors identified in this section shall include aesthetic as well as functional considerations to support and enhance the visual quality and character of the city. Such aesthetic considerations shall include, but not be limited to, appropriate street trees and plantings, utility structures such as street lighting and traffic control devices, public right-of-way signs, retaining walls and pedestrian safety rails, bicycle lanes, transit benches and shelters, and other right-of-way improvements as appropriate.

Parks

Trails include lineal public land areas not contained within existing parks that are designated for pedestrian and bicycle use. The City-wide trail system is intended not only to enhance the City's formal system of parks and open space, but also to connect that system. This system includes bicycle trails, nature and shoreline walking trails, jogging and fitness trails, and in the future waterborne trails for canoeing, kayaking, and pleasure boating. The trail system does not include sidewalks and other non-motorized lanes in the public right of way.

Trails are usually characterized by the following features:

- Paved or blacktopped.
- Preferable minimum of 10 feet in width.

Ideally, pedestrian trails should be separated from bicycle trails both for safety reasons and to avoid conflict.

If the right of way is limited and both bicycles and pedestrians may have to be accommodated on the same trail, curbing, striping, and signage could serve to enhance the feeling of separation. Ample room should be given to allow safe passing and blind curves should be avoided. This is particularly important because most of the trails within the City of Everett will be combined pedestrian/bicycle trails.

There are several different types of pedestrian trails.

- Access Trails provide links both to and between specific destinations, such as schools and parks.
- Sidewalk Connector Trails provide pedestrian rights-of-way along city streets and roadways.
- Pedestrian/Bicycle Paths provide pedestrian access on 12 to 16 foot rights-of-way trails that are shared with bicycles and are separated from streets and roadways.

all bicycle routes should be coordinated with urban forestry goals; the combination of street trees and trails will help to provide pleasant, tree-lined, linear parks.

When designed primarily for transportation, routes should:

- Be direct, convenient, and understandable, with appropriate trail furnishings, such as directional signage, drinking fountains, and safe crossings.
- Link with existing transportation facilities like bus stops and park and rides.

When designed primarily for recreation, trail routes should:

- Take advantage of local amenities, even when more direct routes are possible.
- Be designed for variety, incorporating desirable views and access to parks and other natural areas.

- Be designed for slower speeds, allowing comfortable sightseeing.

Mountain bicycles will be allowed on some bicycle/pedestrian routes; however, due to their impact, they will be prohibited on trails which feature environmentally sensitive areas. The use of All-Terrain Vehicles (ATVs) is strictly prohibited within the city limits.

Development Code

13.28.190 Driving vehicles on sidewalks.

It is unlawful for any person to drive, wheel or draw upon any sidewalk, any kind of a vehicle except hand carriages for children, barrows and trucks for delivering and receiving of goods; and it shall be unlawful for any person to lead or drive any animal upon any sidewalk, or permit any beast of burden or any animal under his control, to stand upon or in any manner obstruct any crossing. (Prior code § 13.16.190)

46.04.040 Bicycles on sidewalks—Exemption for police.

The provisions of RCW 46.90.555(1), relating to riding a bicycle upon a sidewalk in a business district, shall not apply to police officers while in the performance of their official duties. (Ord. 1876-92 § 1, 1992)

18.40.080 Mitigation analysis and plan.

C. Other Improvements to Address Project Impacts. Improvements proposed or under consideration to address adverse transportation impacts, if any, identified in the traffic analysis, such as bicycle and pedestrian safety, freight mobility, or other measures.

37.060 Permitted uses and activities [on critical areas]

4. Public and private pedestrian paths and trails. Public and private pedestrian trails, including interpretive signage, overlooks, and benches, may be permitted subject to the following criteria and subject to approval by the director:

   a. The trail or path is designed to minimize impacts to the critical area and its buffer. The trail is located on the outer edge of the buffer, except for areas which provide for public viewpoints or educational opportunities and which are designed to minimize the footprint of the trail/path within the critical area or its buffer. Trails and paths shall not be permitted when critical area functions will be substantially degraded.

   b. The trail surface meets all other requirements including all applicable water quality standards. Use of pervious surfaces is encouraged.

   c. Critical area and buffer widths shall be increased where possible, equal to the width of the trail corridor, including disturbed areas.

d. Trails proposed to be located in landslide or erosion hazard areas shall be constructed in a manner that does not increase the risk of landslide or erosion and in accordance with an approved geotechnical report.

e. Public and quasi-public trails shall include interpretive signs identifying the critical area and buffer specific to the site.

37.150 Lakes, ponds, and created ponds.

D. Access to the Water Through Buffers. Trails may be provided through the buffer to access the water. The width of trails shall be the minimum necessary, and should not exceed four feet. The trails should be one hundred percent porous to the maximum extent feasible.

33D.080 Public access element.

7. Except where clearly not feasible, public access improvements shall include construction of trail to implement the non-motorized transportation plan, or as such shall be superseded or amended.

11. Public access sites shall be connected directly to the nearest public street or trail.

18. When public access is incorporated into buffers, buffer plantings shall be preserved and/or restored to the extent practicable. However, improvements such as paved trails, non-motorized public access bridge structures, overlooks, limited grassy recreational areas, and limited areas of hardened surfaces for direct access to the water may be permitted.

22. Minimum two-hundred-foot buffers shall be required adjacent to areas designated Aquatic Conservancy (SO AUs 2.21, 2.28, 2.30, 2.31, 2.32, 2.41, 2.44) and SO AU 3.05 on Smith Island north of 12th St. NE and on North Spencer Island (see Figure 3.9-1). A function assessment must be completed for all projects to demonstrate that these buffers result in no net loss of wetland or stream function. A wider buffer will be required when necessary to protect wetland and stream ecological functions. The buffers may be reduced in accordance with PDI 01-005 where there has been prior substantial legal alteration to the buffer and when the project applicant: (1) completes an approved function assessment, and (2) prepares an approved habitat management plan that includes buffer enhancement that would improve the functional performance of the buffer and the associated critical area. In no case shall buffers be reduced below one hundred feet, except:

c. Public access improvements such as trails and interpretive facilities may be included in portions of the buffer when the biological assessment and habitat management plan (if required) demonstrate no significant adverse impacts or that significant adverse impacts are mitigated.

24. The buffer on the south side of the Category 1 wetland north of the Simpson development pad shall be determined by a wetland analysis per Sections 33D.450 and 33D.520 of the Everett Municipal Code…In no case shall the buffer be reduced below seventy-five feet, and the trail shall be relocated

outside of that buffer except where it connects to the trail along the river. The buffer shall be enhanced to provide for the potential for large woody debris recruitment into the wetland; provided, however that a spur trail to the wetland may be provided in the buffer to provide views into the wetland. Associated interpretive facilities such as signs, a viewing platform, and benches may also be provided in the buffers.

Park Code

9.06.130 Restrictions on vehicles.

It is unlawful to ride or drive any bicycle, tricycle, motorcycle, motor vehicle, horse or pony over or through any park except along and upon the park drives, parkways, park boulevards, or at a speed in excess of fifteen miles per hour, or to stand or park any vehicle, except in areas designated by the parks director. Violation of any of the provisions of this section constitutes an infraction, and may be punished by a penalty of not more than two hundred fifty dollars. (Ord. 2442-00 § 20, 2000: prior code § 14.08.140)

9.06.148 Trail use.

Unless otherwise posted, it is unlawful to use bicycles or other similar wheeled vehicles on unpaved trails. Further, it is unlawful for any person to travel on a trail at a speed greater than is reasonable and prudent under the existing conditions and having regard to actual and potential hazards. In every event, speed shall be so controlled as may be necessary to avoid colliding with others who are complying with the law and using reasonable care. Travel at speeds in excess of fifteen miles per hour on a walking/vehicle trail, unless otherwise posted, shall constitute in evidence a prima facie presumption that the person violated this section. Travel at speeds fifteen miles per hour or less shall not relieve the rider from maintaining control of themselves and their equipment, and from the duty to ride with due regard for the safety of all persons. Violation of any of the provisions of this section constitutes an infraction, and may be punished by a penalty of not more than two hundred fifty dollars. (Ord. 2442-00 § 9, 2000)

Destination 2030, Metropolitan Transportation Plan[2]

Bikeway: Any road, street, path, or right-of-way that is specifically designated in some manner as being open to bicycle travel, either for the exclusive use of bicycles or shared use with other vehicles or pedestrians.

Non-Motorized Transportation

By the year 2030, biking and walking could account for as much as 20 percent of all trips in the region. Destination 2030 calls for creating a regionally integrated network of non-motorized facilities linking bicycle and pedestrian infrastructure within urban places, and connecting these facilities to regional transit services. Priority investments are those that

[2] Puget Sound Regional Council. *Available at:* http://psrc.org/projects/mtp/pubs/D2030plan5.07.pdf

complete the non-motorized system by filling gaps in the existing network, creating connections to, and improved circulation within, urban centers and high capacity station areas, and developing intermodal connections. Non-motorized transportation investments include:

- Over 700 miles of new paths and bikeways by 2010, including over 180 miles of separated off-road bicycle/pedestrian paths and over 550 miles of on-road bicycle lanes.
- Over 500 additional miles of new paths and bikeways by 2030, including over 170 additional miles of off-road bicycle/pedestrian paths and over 370 miles of on-road bicycle lanes.
- 5 commuter bicycle stations by 2010.
- Pedestrian improvements in selected transit station and designated urban center zones.

Investing in Non-motorized Transportation

To provide for non-motorized mobility, the region should respond to Federal Highway Administration direction that identifies bicycle and pedestrian facilities as crucial components of all future transportation improvements. (See USDOT FWHA Design Guidance — Accommodating Bicycle and Pedestrian Travel: A Recommended Approach, 2000). The U.S. Department of Transportation has set a national goal that by 2010 bike and walk trips will comprise 15 percent of all trips. A regionally integrated network of nonmotorized facilities linking bicycle and pedestrian infrastructure within urban places, and connecting these facilities to regional transit services, will help to achieve this goal in the central Puget Sound region.

Commuter Bicycle Stations. The early action strategy includes six commuter bicycle stations at the following locations: Overlake Transit Center in Redmond, the Montlake flyer stop on SR 520, the Everett Multimodal Station, the downtown Bellevue Transit Center, and the Tacoma Dome Station. Bikestation Seattle opened in 2003 in Pioneer Square near King Street Station.

Additional Research

Puget Sound Regional Council (PSRC) VISION 2020 Growth and Transportation Strategy

- Endorsed in 1990 by local governments in the central Puget Sound region, including Everett and its neighboring jurisdictions within Snohomish County.
- Calls for a concentration of a large percentage of future employment and population growth into designated urban centers and linking the centers with a regional high capacity transit system
- Adopted into public policy in 1995

- Provided a framework for the transportation planning and investment decisions that shaped Destination 2030, the Metropolitan Transportation Plan.

A Pedestrian and Bicycle Access Plan for Everett's Snohomish Riverfront (1987)[3]

This Plan was written during a turning point, as the industrial uses were moving away from the shoreline and were being replaced by "a vibrant string of commercial, residential, water-oriented industrial, recreational, and wild life management uses adding a new dimension to the city's life."

… "The primary goals of this study are to plan for short and long term bicycle and pedestrian vehicular access routes along the Snohomish Riverfront…"

… "It is intended that the trail system not only result in a substantial public benefit but also be a stimulus for private development by providing an amenity for residential communities and an attraction supporting commercial uses…"

Specific recommendations involving bicycle facilities include:

- Recommendations for improvements, primarily on existing street right-of-way parallel to the river from the from Legion Memorial Park/Alverson Bridge at the north to the city limits near Lowell at the South.
- Longer term recommendations for bicycle/pedestrian, links adjacent to the river which will incorporate privately sponsored access improvements required as part of an integrated system of access and recreational improvements.

Implementation:

- 1st Phase – developing bike/ped. system from Alverson Boulevard to Lowell within the next 3-5 years. (on dedicated city right-of-ways
- Phase 2 – ultimate objective is a ped/bike trail largely fronting directly on the shoreline and linking commercial centers, recreational facilities and water-dependent industrial sites within the waterfront district. The accessway will also fit within Everett's and Snohomish County's bikeway plans and integrate with traffic and transit systems.

The Plan calls for the construction of a two-way eight-foot-wide grade-separated trail paralleling the roadside beginning just west of the Alverson bridge. The bridge itself presents a barrier to bicycles and pedestrians, with steep slopes and narrow sidewalks. The Plan continues in great detail regarding the right-of-way, opportunities and constraints along the path's route.

[3] *Prepared by* Makers Architecture and Urban Design. *Prepared for* the City of Everett Planning Department.

Existing State of Snohomish Riverfront Trail

- There do not seem to be bike lanes on E. Marine View Drive (looking at GoogleMaps), although it is marked on the Snohomish bicycle map as a moderate traffic and speed street.

Everett Downtown Plan (2006)

Bicycle and Pedestrian Facilities

While cyclists can use any street in the downtown core, there are no designated bicycle lanes or other bicycle-only facilities. The Harborfront Trail touches the northwest corner of the downtown core and provides connections between the Everett Marina and Forest Park. However, bicycle lanes on Colby Avenue to the north are terminated before reaching downtown, and there is no north-south bicycle link through downtown to connect to the Interurban Trail in the south at 41st Street. There is also no east-west bicycle facility connecting to trails on Highway 2.

Goal 6: Safe, Efficient, and Attractive Multimodal Transportation Network

6-A Improve bicycle network leading to and through downtown. Pedestrian and bicycle routes are equally important. This plan recommends implementing the recommendations of the Everett Shoreline Public Access Plan of 2003 and the bicycle links recommended in the transportation plan. Additionally, the routes to the neighborhoods north and south of the core are also critical.

Proposed Transportation Improvement Actions

T- 4 Bicycle parking requirements in City Code. Secure bicycle parking facilities are needed to encourage more employees to ride to work. The recent expansion of the Snohomish County Campus provided a secure lock-up room for 100 bicycles. A provision needs to be added to the development code to require secure bicycle parking (individual bike lockers or controlled lock-up rooms) for employees. The code should require one secure bicycle parking space per 5,000 square feet of commercial office or retail floor area. The code should further require provision of shower and locker facilities for employees in all commercial buildings greater than 20,000 square feet. On-street bicycle parking racks should be provided for customers wherever appropriate. These facilities should be included in the downtown street standards to ensure consistency with other street furniture and themes.

T- 5 Bicycle lanes on Hoyt Avenue. North-south bicycle corridors to and through downtown are considered essential to attract more people to use this mode of travel. Hoyt Avenue is considered the prime candidate for a north-south bicycle route that would connect the bike lanes on Colby Avenue at 23rd Street to the Interurban Trail at 41st Street in the south. Angle parking on Hoyt Avenue must be redesigned to parallel parking to accommodate designated bike lanes in each direction. The route will take cyclists through the downtown core and past the Everett Library, the Monte Cristo, the Childrens' Museum and the Post Office.

T-6 Bicycle lanes on California Street. East-west bicycle corridors to and through downtown are also considered essential to attract more people to use this mode of travel. California Avenue is considered the prime candidate for an east-west bicycle route that will connect the Harborfront Trail to the Highway 2 Trestle on the east. A new traffic signal will be required at Broadway and California. Angle parking on California will need to be redesigned to parallel parking to accommodate designated bike lanes in each direction.

Proposed Open Space Actions

O-5 Continue efforts to connect downtown to other open space and recreational resources by implementing planned access to the Port Gardner Waterfront and trail connections to neighborhood parks and the Snohomish Riverfront. The city has an adopted a Shoreline Public Access Plan that includes measures to connect downtown to its harborfront and riverfront; most notably pedestrian and bicycle connections north on Grand Avenue and westward on Hewitt Avenue. Additionally, Bicycle connections to the north, south and west as noted in the Transportation chapter and Streetscape section will be important enhancements for people both living and visiting downtown. Although these are primarily circulation improvements, they constitute an important element of a comprehensive open space strategy.

Everett Shoreline Public Access Plan (2003)

This Plan has extensive details about bicycle and pedestrian trails along the Everett shoreline. Generally, trails are designated as 8' – 12' wide. Some of the trail segments are temporarily aligned on sidewalks.

First Phase actions – finish within three years

- Complete streetside trail segments along E. Marine View Drive
- The Riverside area (near the ramp to the US 2 bikeway along the bridge)
- Snohomish River Road

Second Phase actions – 3 – 6 years

- Fund & construct trail links between Port of Everett south terminal and Howarth Park
- Connection at Bayside park
- Link between US 2 and Lowell Riverfront Trail
- Potential: trails and boating facility on Smith and Spencer Islands, walkway from W. Grand Avenue to the waterfront

Proposed ped/bike bridges over the Snohomish river near the I-5 crossing and along the SR 529 corridor.

CITY OF EVERETT

2010 To 2015 Six-year Transportation Improvement Program

Interstate
1. I-5 / Downtown Everett Interchange Access Improvements (Everett Ave. Hewitt Ave., US 2, Pacific Ave.)
2. I-5 / 100th Street SE HOV Access/Undercrossing
3. NB Everett Mall Way / SB I-5 Onramp
4. I-5 / Smith Island Interchange (12th St. or SR 529)
5. I-5 / East Marine View Drive Interchange Improvements
6. I-5 HOV Lanes (US 2 to SR 528)
7. I-5 / 128th Street Interchange
8. I-5 / 128th Street HOV Ramps (Mariner PNR)
9. I-5 / 112th Street Interchange Study

Freeways
1. US 2 Improvements (I-5 to SR 204)
2. SR 526/ Hardeson Road Interchange
3. SR 526 Extension (I-5 to US 2)
4. SR 526/Evergreen Way Interchange
5. SR 529/Smith Island Ramps
6. SR 526/40th Avenue W. Intersection Improvements

Principal Arterials
1. W. Marine View Dr./Rucker/41st Freight Route Improvements
2. **Broadway Bridge Replacement (Bridge #529/5a)**
3. Broadway Corridor Improvements (SR 529 to SR 526)
4. SR 99/Evergreen Way BRT Improvements. (128th to Pacific)
5. Arterial Safety Projects (Forest Park, I-5 and Pacific, etc.)
6. Pacific Avenue/BNSF Grade Crossing Improvements
7. Evergreen Way Improvements (41st St. to Gipson Road)
8. I-5 to Port of Everett Truck Route
9. Mukilteo Blvd. Safety Imp. (Friday Ave. to City Limits)
10. Arterial Needs Study

Minor Arterials
1. 112th Street SW-SE Street Improvements (I-5 to SR 527)
2. 116th Street SE Street Improvements (SR 527 to 35th)
3. 100th Street SW Street Improv. (4th Ave. W. to Airport)
4. Casino Rd. Safety Improvements (Evergreen to 5th Ave.)
5. 4th Avenue West Improvements (104th to 112th)
6. 100th Street SE Improvements (SR 527 to 7th Ave SE)
7. 100th Street SE Improvements (7th Ave to Evergreen)
8. 110th Street SE Improvements (SR 527 to 35th St.)
9. Lenora St./Lowell-River Rd./BNSF Rail Line Oxing
10. Minor Arterial Streetscape Improvements

Collector Arterials
1. East Everett Avenue/BNSF Overcrossing
2. Holly Dr. Non-motorized Imp. (4th Ave. W. to 92nd)
3. Bond Street Ped/Bike Improvements. (Kromer to Terminal)
4. Chestnut St. /Eclipse Mill Road. Improvements (Pacific to 36th)
5. Silver Lake Road – 121st Street SE Ped. Improvements
6. 36th St./Smith St. Ped, Bike, Landscape Improvements
7. 36th St./BNSF At-grade Rail Crossing Closure
8. 37th Street Improvements (Rucker to Broadway)
9. Collector Arterial Streetscape Improvements

Local Access and Other Projects
1. BNSF RR safety improvements (Safety)
2. Local roadway safety projects (Safety)
3. Safe routes to schools (Safety)

1. Annual Street Overlay Program (Maintenance)
2. Sidewalk repair and replacement (Maintenance)
3. Pavement marking projects (Maintenance)

1. 106th Place SE Improvements (Street)
2. 3rd Avenue SE Improvements (Street)
3. Local Street Improvements (Pine, Fulton, etc.) (Street)
4. Upper & Lower Ridge Rd. Improvements (Street)
5. Simpson Site Access Improvements (Street)
6. **Downtown Streetscape Improvements (Street)**

1. **Traffic Signal Central Control Repl. (Traffic Signals)**
2. Traffic Signal Interconnect (Traffic Signals)
3. Traffic Signal Improvements (Traffic Signals)

1. Neighborhood Block Grants (Neighborhoods)
2. Neighborhood Traffic Studies/Proj. (Neighborhoods)
3. Residential Sidewalks (Neighborhoods)

1. City Entryway Landscaping / Signs (Landscaping)

Non-Motorized Trail/Path Improvements
1. Riverfront Walkway Phase II
2. East Grand Walkway Connection
3. 7th Avenue SE Ped/Bike Improvements (92nd to 112th)
4. Henry M. Jackson Ped. Bridge
5. 36th St. (or vicinity)/BNSF Rail Line Ped/Bike Crossing
6. Smith Island Bike and Pedestrian Improvements
7. Riverside Bus Pk. Ped. Trail (16th to N. Broadway)
8. West/East Marine View Drive Bike-Ped Improvements
9. 47th Street Ped Improvements (Evergreen to Black Forest Lane)
10. Pigeon Creek No. 1/BNSF Rail Line Crossing
11. Grand Avenue/North Marina Ped-Bike Connection
12. Shoreline Access Imp. (Various Locations)
13. Snohomish River Bike/Pedestrian Bridge Evaluation
14. Pigeon Creek Rd. No. 1 Improvements
15. Everett Non-motorized Projects (Various Locations in Everett)
16. Lowell Snohomish River Road. Bike/Ped Connection
17. Riverfront District Bike/Ped Paths
18. Interurban Trail Bike/Ped Path Improvements

Transit
1. Bus Replacements – 2010 to 2015
2. Bus Fleet Expansion
3. Implementation of State CTR law
4. Midtown Transit Center
5. Base Relocation
6. Southeast Transit Center
7. SWIFT Northern Terminal
8. Marysville Paratransit Shuttle
9. Transit Priority Equipment
10. Riverfront to Harborfront Connector
11. **Smart Bus Technologies**

HOV Projects
1. Everett Station Park & Ride Parking Structure

Projects in bold type not included in 2009-2014 TIP

Appendix C. Collision Data Analysis

This section provides a summary of collision data involving bicycles for 2005-2007. Collision data is a valuable source of information that can help identify difficult or dangerous areas for bicycles. In absence of actual bicycle counts, it can also gives an indication as to where people bicycle in Everett. However, caution must be used when interpreting collision data.

First, bicycles collisions are generally considered to be significantly under-reported worldwide, particularly for collisions that do not result in serious injury. Therefore, a street or intersection that did not see a collision over these three years is not an indication that people are not bicycling there or that there are not hazards.

Second, in absence of bicycle and vehicle counts, there is no way to measure bicycle "exposure" to collisions. For example, consider two streets that experience the same number of collisions but different numbers of cyclists. The street with significant bicycle traffic is likely less dangerous than the street that has the same number of collisions but sees little bicycle traffic.

Table 1 provides a summary of the collision data. There were a total of 93 collisions involving bicycles over the three years, which resulted in 63 injuries and 1 fatality. Thirty-seven collisions involving bicycles were recorded in both 2005 and 2006. Only 19 collisions involving bicycles were recorded in 2007. Seventy-three of the collisions took place within 100 feet of an intersection while 20 took place mid-block not in close proximity to an intersection. Five of the 93 collisions did not involve a collision with a motor vehicle.

Table 1 - Summary of collision data.

Year	Number of Collisions	Collisions in or Near an Intersection	Non-Intersection Collisions	Number of Injuries	Number of Fatalities
2005	37	28	9	29	1
2006	37	30	7	22	0
2007	19	15	4	12	0
Total	**93**	**73**	**20**	**63**	**1**

* Data provided by the City of Everett

Time of Day/Year

Figure 1 shows the number of collisions per month. Higher numbers of collisions in the summer months likely indicates that cycling is more prevalent during these good weather months. A high number of collisions in February and March may indicate that though levels of cycling are lower, inclement weather may lead to less safe conditions (due to low visibility, slick surfaces, or debris in bicycle lanes). In addition, with fewer cyclists on the roads in winter months, vehicles may be less likely to look out for cyclists.

Figure 2 shows the number of collisions by time of day. Again, this data may give some indication of the hours that people bicycle in Everett. Bicycling appears to occur at all hours of the day, with a minor morning peak period and a larger evening peak period. Approximately 20% of the collisions occurred in the 5 o'clock hour.

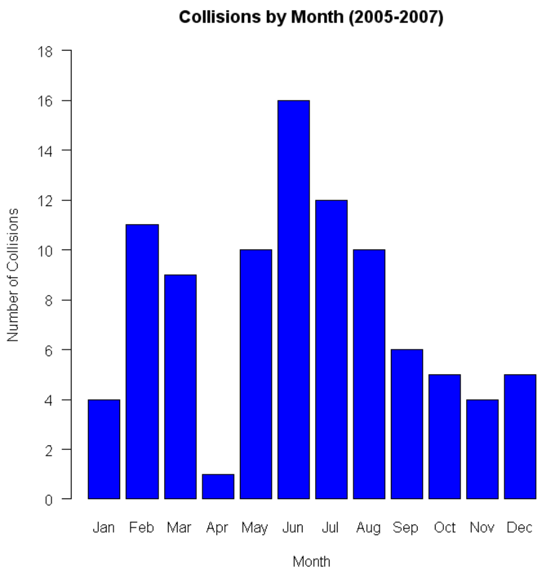


Figure 1 - Collisions by month

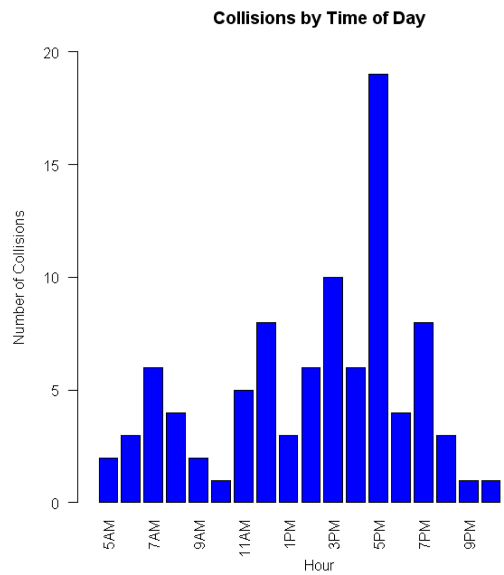


Figure 2 - Collisions by time of day

Collisions by Street and Intersection

Figure 3 shows the streets with the most collisions. The number of collisions that occurred at an intersection is shown in blue while the number of collisions that occurred outside of an intersection is shown in red. Consistent with the overall data, most collisions occurred in close proximity to an intersection. While a high number of collisions does not necessarily make a street a prime candidate for bicycle improvements, this information is a useful starting point for evaluating the current and future bicycle network in Everett.

Figure 4 shows the intersections that experienced the highest number of collisions in the three years. Intersections are sorted by street name to show streets with multiple intersections that appear prone to collisions. For example, five of the six collisions on 41st Street took place at two intersections (41st Street & Rucker Ave and 41st Street & High Street).

Because collisions tend to be infrequent events, the intersections with multiple collisions from 2005 to 2007 may or may not present particularly difficult conditions for bicycles. Furthermore, difficult intersections not listed in Figure 3 may serve as important connections along current or proposed bicycle routes and therefore be a higher priority for improvements.

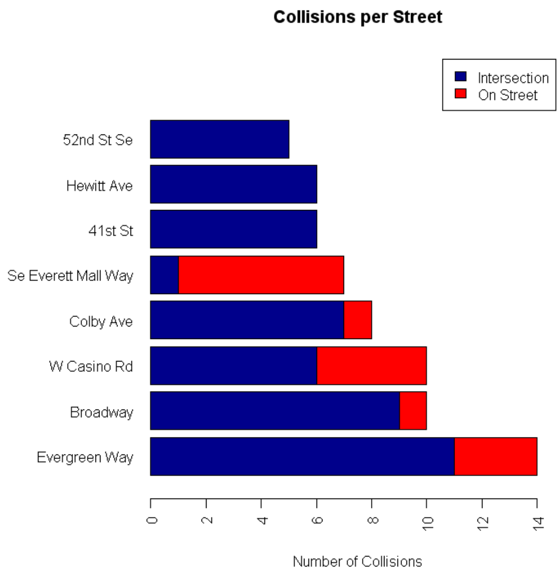


Figure 3 - Collisions per street

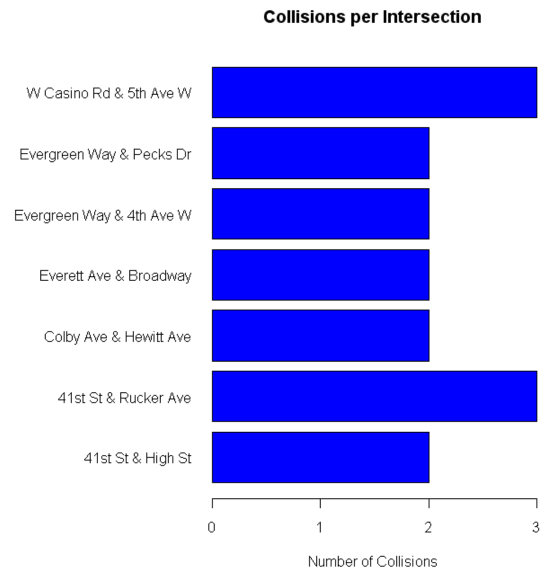


Figure 4 - Collisions per intersection

Table 2 displays further information about the streets found in Figure 3. It turns out that each intersection in Figure 4 has at least one of its streets listed in Figure 3. These intersections are identified in the 'Key Intersections' column in Table 2.

Table 2 - Attributes of streets with many bicycle collisions

Street	Coll-isions	Street Length	Colli-sions per Mile	Lanes	Bike Lanes	Part of 2006 Proposed Network	Key Intersections
Evergreen Way	14	6.96	2.0	6	No	No	Pecks Drive (2 collisions) 4th Ave W (2 collisions)
Broadway	10	6.52	1.5	2-4	No	No	Everett Ave (2 collisions)
W Casino Road	10	1.83	5.5	2	Yes	No	5th Ave W (3 collisions)
Colby Avenue	8	4.80	1.7	2-4	North of 26th only	No	Hewitt Ave (2 collisions)
SE Everett Mall Way	7	2.15	3.3	6	No	No	
41st Street	6	0.70	8.6	5-6	No	Yes	Rucker Ave (3 collisions) High Street (2

							collisions)
Hewitt Ave	6	0.55	10.9	4	No	No	Colby Ave (2 collisions)
52nd Street SE	5	0.69	7.2	2	No	Yes	

Key Points from Table 2

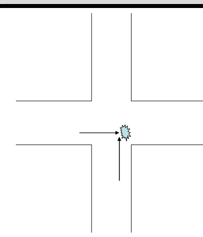
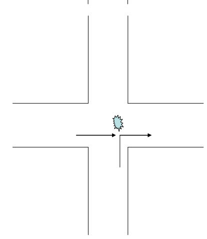
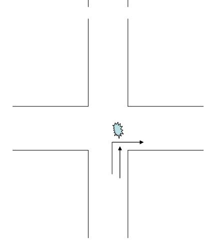
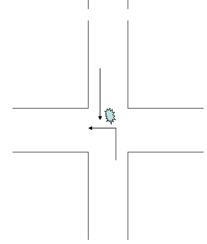
- Hewitt Avenue, 41st Street, 52nd Street SE and W Casino Road experienced the highest number of collisions per mile.
- Evergreen Way, Broadway and Colby Avenue are more than 4.5 miles long, which may partly explain their higher number of collisions.
- West Casino Road is a shorter street and has bike lanes, yet had 10 collisions involving bicycles.
- A stretch of 41st Street less than 1/2 a mile long experienced 6 bicycle collisions.
- SE Everett Mall Way, a six lane street, is noteworthy for its six non-intersection collisions.
- Only two of the streets have facilities for bicycles (West Casino Road and Colby Avenue).
- Two of the eight streets are on the Future Non-motorized Improvement Projects list of the Transportation Element 2006 Update.

Direction of Travel

Table 3 shows the direction vehicles (including bicycles) were traveling when the collision occurred. Though there are a large number of potential combinations of movements, 54 of the 93 collisions where characterized by only four basic movements.

Both the bicycle and the automobile were traveling straight on intersecting streets for 25 of the collisions. For 12 of the collisions, one vehicle was turning right onto a street and collided with another vehicle already traveling straight on that street. For nine of the collisions, it appears a bicycle collided with a vehicle traveling in the same direction making a right turn. This is sometimes known as a "right hook" collision. Finally, eight of the collisions were characterized by a left turning vehicle colliding with an oncoming vehicle.

Table 3 - Common collision movements

Vehicle 1 Movement	Vehicle 2 Movement	Direction of travel of Vehicle 1 relative to Vehicle 2	Number of Collisions	Illustration	Possible Causes
Going Straight Ahead	Going Straight Ahead	Perpendicular	25		• No traffic control • Running red light
Making Right Turn	Going Straight Ahead	Perpendicular	12		• Right turn on red • Running red light
Making Right Turn	Going Straight Ahead	Same Direction	9		• Vehicle not seeing bicycle on right • Right turn on red
Making Left Turn	Going Straight Ahead	Opposite Direction	8		• Difficult left turn across multiple lanes • No left turn phase at signal

Conclusion

In the absence of bicycle and motorized vehicle count data at locations around Everett, collision data provides insight into the time of year, time of day and locations people bicycle. The data suggest that people bicycle at all times of the year, but that there are more bicyclists on the roads in months with better weather (May – September). The data also suggests that people bicycle at all times of the day, not just during morning and evening commute periods.

The collision data also provides an indication of where in Everett people are bicycling and where bicyclists are running into difficulty. As the map in Figure 5 shows, many bicycle trips occur in downtown Everett. There also appears to be significant bicycling along the streets listed in Table 2.

Four of the eight streets listed in Table 2 experienced a particularly high collision rate per mile.

- Hewitt Avenue is an east-west route downtown, where there are currently few facilities for bicycles. California Avenue, a nearby parallel street, is listed in the future bicycle network in the Transportation Element 2006 Update to Everett's Comprehensive Plan and is a recommended Tier 1 facility in this Plan.
- Both 41st Street and 52nd Street SE are part of the future bicycle network in the Transportation Element 2006 Update. These sections of these roadways where the collisions took place are less than a mile and represent key gaps in Everett's bicycle network.
- There were on average approximately three collisions per year on W Casino Road. Most of W Casino Road has bike lines and is an active bicycle and pedestrian area. As a result, the collisions may be indicative of high bicycle activity on this road.

Most of the streets in Table 2 are busy streets with more than two lanes of traffic that present complicated traffic patterns. A key question is whether bicyclists are using these routes because alternatives do not exist, because they are not aware of the alternate routes, or because they need to access destinations on these streets.

Alternate routes can be provided on less busy streets, while a complimentary network of signage can direct cyclists to routes that are safer for bicycling. However, while it may be desirable to provide bicycle facilities to encourage bicycle travel on less trafficked streets, key destinations such as stores, restaurants and employment sites are often located on busy streets. It is thus important to provide facilities to enable bicyclists to safely travel on streets with key destinations. Furthermore, bicyclists sometimes travel on busy streets because they prefer direct and fast routes to their destinations. Finally, some busy streets do not have a lower volume parallel street that is better suited for bicycles due to a lack of street connectivity. This is the case for some streets in the south part of Everett, including Everett Mall Way. For the above reasons, creating multi-modal streets may be a worthy goal for some of the busier streets in Everett.

Over 75% of the collisions involving bicycles took place at or near an intersection. Collision rates would likely be decreased by taking measures to increase visibility of bicyclists at intersections. There are various ways to do this. Colored bicycle boxes place bicycles in front of traffic to increase visibility at intersections. Colored paint can also be used to alert motorists to the presence of bicycles on intersection approaches. Complicated intersections should be simplified where possible. Driveways are another conflict point for bicycles and automobiles. Consolidating breaks in the pavement for driveways (curb cuts) improves safety for bicycles traveling in a bike lane.

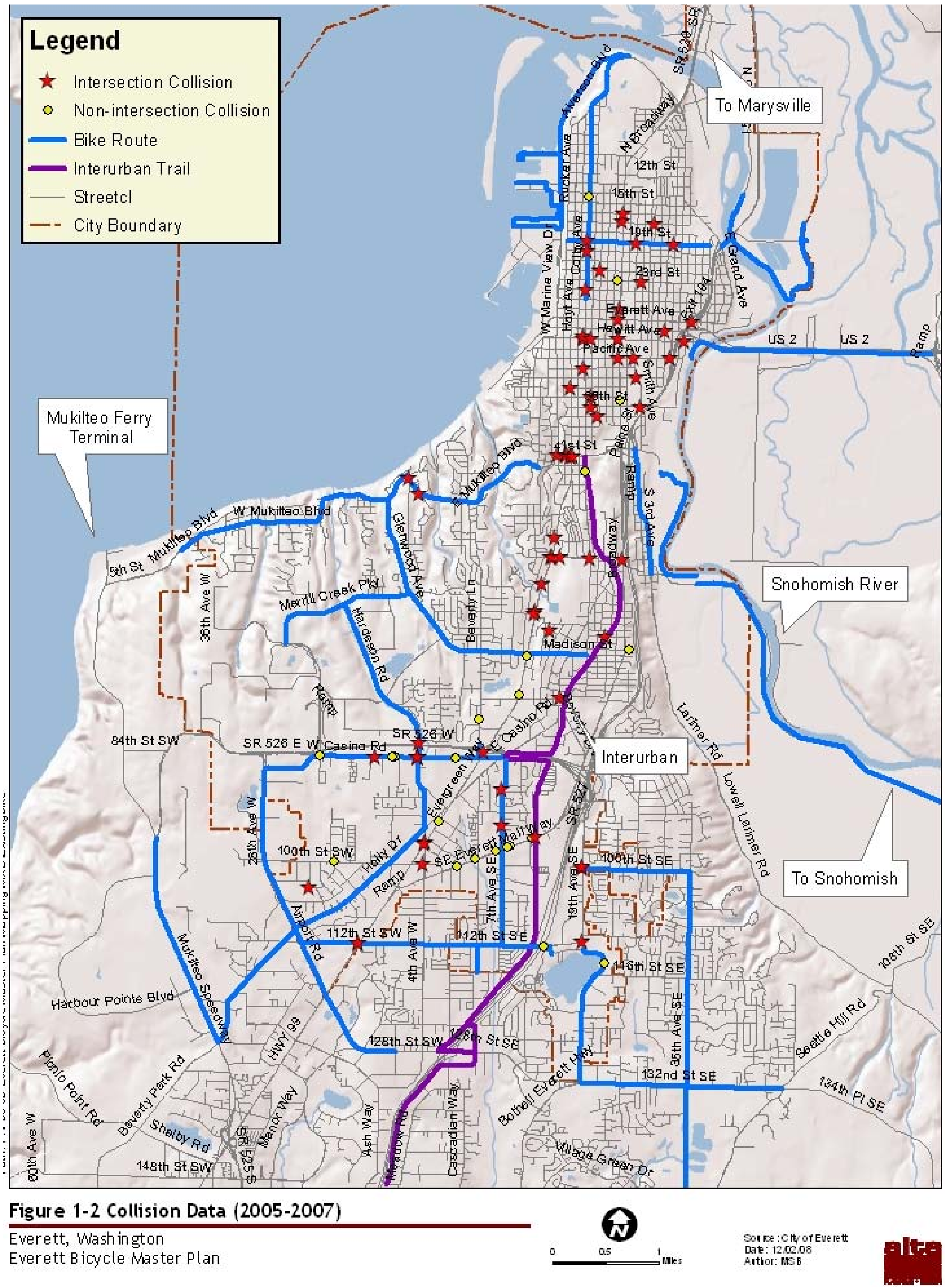


Figure 5 - Map of bicycle collision locations

Appendix D. Survey of Commute Trip Reduction Employers

This section provides a summary of the results of an online survey of employers participating in Everett's Commute Trip Reduction Program. Of the forty-one employers currently enrolled in the program, sixteen employers representing more than 8,000 employees responded to the online survey. Employers enrolled in the Commute Trip Reduction program who were contacted as part of the survey included the following:

- Achilles USA
- Agilent Technologies
- Applied Technical Services (ATS)
- Aramark Uniform Services
- Bridgeways
- City of Everett - Public Works Complex
- City of Everett - Downtown Complex*
- Comcast Cable
- Community Transit - Merrill Creek
- Communtiy Transit - Kasch Park
- Contour Aerospace
- Electronetics
- Everett Community College*
- Fluke Mfg Co. - Main
- Fluke Mfg Co. - Evergreen
- Frontier Bank
- Idearc Media
- Intermec*
- JanSport Inc.*
- Kimberly-Clark
- Naval Station Everett*
- Perteet*
- Providence Health - Colby Campus*
- Providence Health - Pacific Campus
- SNBL USA
- Snohomish County Government - Main Campus*
- Snohomish County Government - Denny Juvenile Justice Center
- Snohomish Co. PUD#1 - Downtown Everett*
- Snohomish Co. PUD#1 - Paine Field*
- Snohomish Health District*
- StockPot*
- The Boeing Company - Everett
- The Boeing Company - Bomarc
- The Everett Clinic – Main*
- The Everett Clinic - Gunderson Bldg*
- The Everett Clinic - Business Services
- Verizon - Main
- Verizon - Casino Complex
- Washington State DSHS - Support Enforcement*
- Washington State DSHS - Everett / Employment Sec
- Zumiez

* Responded to survey

End of Trip Facilities

Table 1 displays the number of Commute Trip Reduction employers providing various types of end of trip facilities. Of the 14 employer sites providing outdoor parking racks, eight of the sites include at least some covered bicycle parking.

Table 1

Facilities present at your organization	Number of Employers	Percentage of Respondents
Outdoor bicycle parking racks	14	87.5%
Shower facilities	14	87.5%
Locker Facilities	12	75.0%
Controlled access bike room	2[4]	12.5%
None	0	0.0%
Other[5]	4	25.0%

Indoor and Outdoor Parking

Table 2 shows the number of indoor and outdoor bicycle parking spaces reported in the survey. Survey respondents were reminded that one bicycle rack can provide two or more parking spaces.

Table 2

Type of Parking	Number of Employers	Percentage of Respondents	Total Number of Parking Spaces	Maximum Offered by One Employer
Outdoor Parking (Uncovered)	10	62.5%	128	60
Outdoor Parking (Covered)	8	50.0%	76	30
Indoor Parking	6	37.5%	106	75

Controlled Access Bike Rooms

Table 3 indicates the different ways that employers provide access to controlled access bicycle parking rooms.

Table 3

How employees gain access to controlled access room	Number of Employers
Key Card	3
Key	1
Other[6]	2

Employer Programs

Table 4 indicates the programs employers offer to support bicycling to work.

[4] While only two employers indicated having a controlled access bike room, responses to a question later in the survey (see Table 4) indicate that at least four employers have a controlled access bike room.
[5] Other responses include (1) Indoor bike rack, small lockers, (2) we have a locker room with showers that emp can pay $35.00 a year to use, (3) Indoor bicycle parking, (4) Concealed outdoors bicycle lockers
[6] Other responses include (1) Key for concealed outdoors bicycle lockers and (2) The entire compound has controlled access that requires a key card or check in with security

Table 4

Programs to support bicycling	Number of Employers
Participation in 'bike to work' days	13
Guaranteed ride home program	12
Offering incentives to bike commuters[7]	7
Education, such as bike commuting workshops	2
Employee access to a company vehicle for personal use during the day	2
None	1
Employee access to company bicycles	0
Parking cash out program	0

CTR Employer Suggestions to Improve Bicycling

The following responses were given to the question "What facilities or programs could be included in the Everett Bicycle Master Plan to improve the bike to work mode share?"

- Provide bike lanes where possible, Bike racks on all buses
- On the bike to work days, it seems like there are not very many stops from North or South to our facility at 916 Pacific Ave, or 1321 Colby Ave [provided by respondent from Providence Health Systems]
- Bike lanes or shareways on local streets
- Add bicycle lanes and keep the edge of the roads clean, remove sand after snow fall in a timely manner.
- Clearer bike lanes. Better enforcement of bike laws and protection of bikers.
- More distribution of bicycle maps. Showers. Bike lockers.
- We are expected to have a place for bike locker users to be able to shower and lockers for personal items.

Conclusion

The survey indicates that employers are making good progress in their efforts to facilitate and encourage their employees to bicycle to work and achieve the goals of the Commute Trip Reduction Program. The City of Everett could take further steps to provide these and other employers with additional resources for their employees. For example, while employers may be unlikely to dedicate more staff to time to improve their current programs, they would likely host bike commuting and other similar workshops if they were offered by the city.

[7] Financial incentives, increased vacation time, credit at a local bike shop, reimbursement of bicycle-related expenses, etc.

Appendix E. Stakeholder Interviews

As part of the Everett Bicycle Master Plan Implementation, several key stakeholders were interviewed regarding the conditions for bicyclists in Everett. Stakeholders from the following organizations were interviewed:

- Sharing Wheels Community Bike Shop
- Snohomish Health District
- B.I.K.E.S. Club of Snohomish County
- Community Transit
- Cascade Bicycle Club
- David Roberts, Resident
- John Lindstrom, Resident

Key Themes

<u>Key destinations needing bicycle access</u>

- Everett Waterfront
- Boeing
- Everett Station
- Everett Community College
- Everett College Station
- Downtown Everett (including County buildings)
- Hewitt (US2) Trestle
- Providence Hospital
- Department of Social and Health Services (DSHS)
- Future University of Washington campus
- Public Housing on N End of Everett
    - Plan for access to the south or east (downtown, station, trestle or north to 529)
- Large disadvantaged population in NE Everett
- Large disadvantaged population in South Everett and along Casino Road
- New Bus Rapid Transit stations

Major Barriers

The following streets were identified as major barriers to bicycle travel in need of frequent bicycle crossings:

- Evergreen Way
- Everett Mall Way
- Broadway
- I-5

Major Gaps in the Network

- The area around Silver Lake
- Interurban Trail to downtown
- Interurban Trail to Everett Station
- Everett Station to the Trestle
- E/W route from Trestle Trail
- Access to Marina from the south
- Residential locations in south Everett to commercial areas on 128th St
    - Park n ride at 128th and I-5
- Gap between new widened Interurban bridge and new bike lane on Hwy 527
    - Could be fixed with wayfinding and use of side streets
- Schools – need signed routes

Specific Locations in Need of Attention

- 41st Street, including the new I-5 overpass
    - 41st & Rucker
    - 41st & Colby
- 52nd Street
- 128th Street
- Colby (by the hospital, south of 10th) – lanes get very tight
- Hoyt south of 21st Street
- Evergreen Way/Rucker
- Pacific Ave from Everett Station
    - short steep hills, have to cross Broadway, semis coming off I-5/reaching the navy base

- Hwy 529 Bridge to/from Marysville
- I-5 southbound on ramp from E. Marine View Dr.
- I-5 northbound off ramp onto E. Marine View Dr.
- Pedestrian overpass at the waterfront - difficult to get to and when you get off it
- Casino & Evergreen Way
- Other Casino Road intersections
- Broadway & Everett
- Evergreen & 112th St
- 112th St and 4th Ave
- Casino and 5th Ave
- 52nd Street & Evergreen
  - bike lane heading West (from Trestle) stops before Evergreen Way
  - need for signage to let bicycle know they can move into the thru lane

Ideas for additional routes

- From Everett Station
  - 33rd is not bad (steep hill – no way around the hills)
- California could be an E/W street with a light to cross Broadway
  - Need to cross I-5 as well
- Grand Avenue could be made a primo bike/ped street
- Something on either side of Colby or Broadway for N-S travel
  - Rockefeller could work well
  - Maybe re-stripe Broadway 2-lane w/back-in parking
- Colby would be the ideal street from end of Interurban to Downtown
  - Remove parking
- 3 routes to Everett Waterfront

  1. End of Grand Ave – great for families; gets you close to farmers market

  2. Pedestrian overpass – need to make access better and identified, then give bicyclists a safe place to go when they get there

  3. Hewitt Avenue, right on Marine View Dr – Marine View would need a bike lane there. Hewitt is less used than Pacific. California is not bad, but has a steep hill.

Opportunities

- Community Transit will begin Swift bus rapid transit service between Everett and the Aurora Village Transit Center beginning November 30, 2009, originating at Everett station with stops along Evergreen Way and Pacific Avenue. Details are available at http://www.commtrans.org/Projects/Swift.cfm.
- Riverfront Development Plan
- Broadway Plan – redevelopment happening on Broadway
- Port of Everett Waterfront Plan

Policy Issues

- Traffic Signal Detection & Tuning
  - Need markings when detectors are paved over
- Bicycle Parking Code, and lack thereof
- Bike lane sweeping
- Bicycle/Pedestrian Coordinator
- Reduce car parking minimums
- Complete Streets Policy to require new or rebuilt arterial or other major roads to safely accommodate the needs of pedestrians, bicyclists and transit users regardless of age or ability.
- Driver education
- Land use - Change height density
- Land use - Co-locate origins/destinations
- Curb the auto
- Bike Share Program

Signage

- Interurban - Tell users where they are while on the trail (cross streets, near transit stations, etc.)
- Interurban - To direct user to it
- Interurban to direct users from end of trail (41st & Colby) to Downtown
- Interurban to direct users from end of trail (41st & Colby) to Everett Station
- Interurban and 112th – direct users to new park n ride
- Bike/ped bridge over HWY 526 at Evergreen Way – direct users to it
- Hewitt Ave Trestle Bridge/Trail
- 23rd Street
- Bikes on roadway signs

Appendix F. Newsletters

Everett Bicycle Master Plan

Update #1

In this issue: Kick-off! A tour. Preliminary goals brainstorm. Next Steps.

A Fall morning on the Interurban and Ron Toppi at Share Wheels Community Bike Coop

Welcome to Update #1 for the **Everett Bicycle Master Plan**, a periodic effort to keep interested parties informed on the progress Everett is making in planning for bicycle transportation.

We had the project introductions, kick-off and preliminary tour earlier this week. I spent Monday and Tuesday with City Project Manager **Jim Ozanne** (Public Works) and **Steve Ingalsbe** (Planning and Community Development) discussing: project schedule, data needs, previous plans and making a windshield tours of various parts of the city.

Tuesday morning I enjoyed a sunny cool morning ride around Everett with several of the citizens and visited Sharing Wheels, Everett's community bike co-op.

Goals

As an introductory exercise on Monday evening I asked the participants to brainstorm what the goals should be for the Everett Bicycle Master Plan. The list below is a product of that exercise. Some of the comments were appropriate project goals and some were really site specific or topical solutions. Many of these ideas will resurface or be addressed throughout the project in one form or another.

- Increase the bicycle mode share (the proportion of trips made by bicycle)
- Reduce bicycle collisions
- Improve interconnection with other jurisdictions (neighboring cities and in the county)
- Create clear, connected routes with Everett
- Establish a bike coordinator position (or at least make it part of someone's assignment)
- Establish a bike and pedestrian advisory committee (perhaps part of the Transportation Advisory Committee)
- Improve connections across barriers (such as I-5 and other highways and major arterials)
- Improve access to mountain biking
- Tie in the school district (getting fat off kids, safe routes)
- Incorporate healthy communities initiatives
- Increase number and locations of bicycle storage
- Improve the connection to the Snohomish River Trestle at Hewitt
- Improve waterfront access
- Clarify the contradictory policies regarding sidewalk riding
- Provide clear design guidelines for bicycle facilities
- Improve bike access to transit vehicles and make policies consistent between agencies
- Improve wayfinding on the Interurban Trail and other routes
- Seek Bicycle Friendly Community status from the American League of Bicyclists

We also discussed who should be informed of the project, and who might be champions for improvements to bicycling transportation facilities:

- Health care providers (active living, healthy communities efforts)
- The mayor and council
- School district(s)
- Parents of school children
- Neighborhood groups and department of neighborhoods

Next Steps

We really are just getting started, so the calendar is somewhat flexible. We will be scheduling two open houses – March (or so) and late Summer. In the meantime, we will be absorbing the background information, preparing our inventory of existing conditions and refining the goals for the project. Look for additional site visits by our staff and perhaps some questions on specific ideas and routes as we think about improving bicycle transportation in Everett.

Thank you. Please feel free to contact me and the city's project manager Jim Ozanne phone: 425 257 8926.

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Everett Bicycle Master Plan

Update #2

Welcome to Update #2 for the **Everett Bicycle Master Plan**, a periodic effort to keep interested parties informed on the progress Everett is making in planning for bicycle transportation.

In this issue: Deficiencies corrected, background info, existing routes, employer bike commuting survey, what is a public bike program, how you can help. Next Steps.

Cycling with local bike enthusiasts on College Avenue near Woodlawn, a quieter north-south street parallel to Evergreen Way.

To Begin With

Wow, what a kick-off. Thank you everyone in Everett and all the agencies and organizations that have shown an interest in the Everett Bicycle Master Plan. Our email list went from 20 to 100 in a week, and we are still adding names. If you know of people or organizations that should be included, please contact: mattberkow@altaplanning.com. Don't forget to check your spam folder to make sure we are getting through.

Deficiencies Corrected

Can we take credit for this? The first Update generated some comments to public works staff on current challenges to bicycle commuting experienced by Everett cyclists due to construction on Marine Drive. Same-day service got the contractor motivated to improve bike access through or around the work site. No promises, but being in touch can be helpful.

Jim Ozanne at the City of Everett is responsive to deficiency requests and is the appropriate person to contact. While some items can be addressed quickly, larger projects may need to be prioritized. Please send information on other deficiencies to:

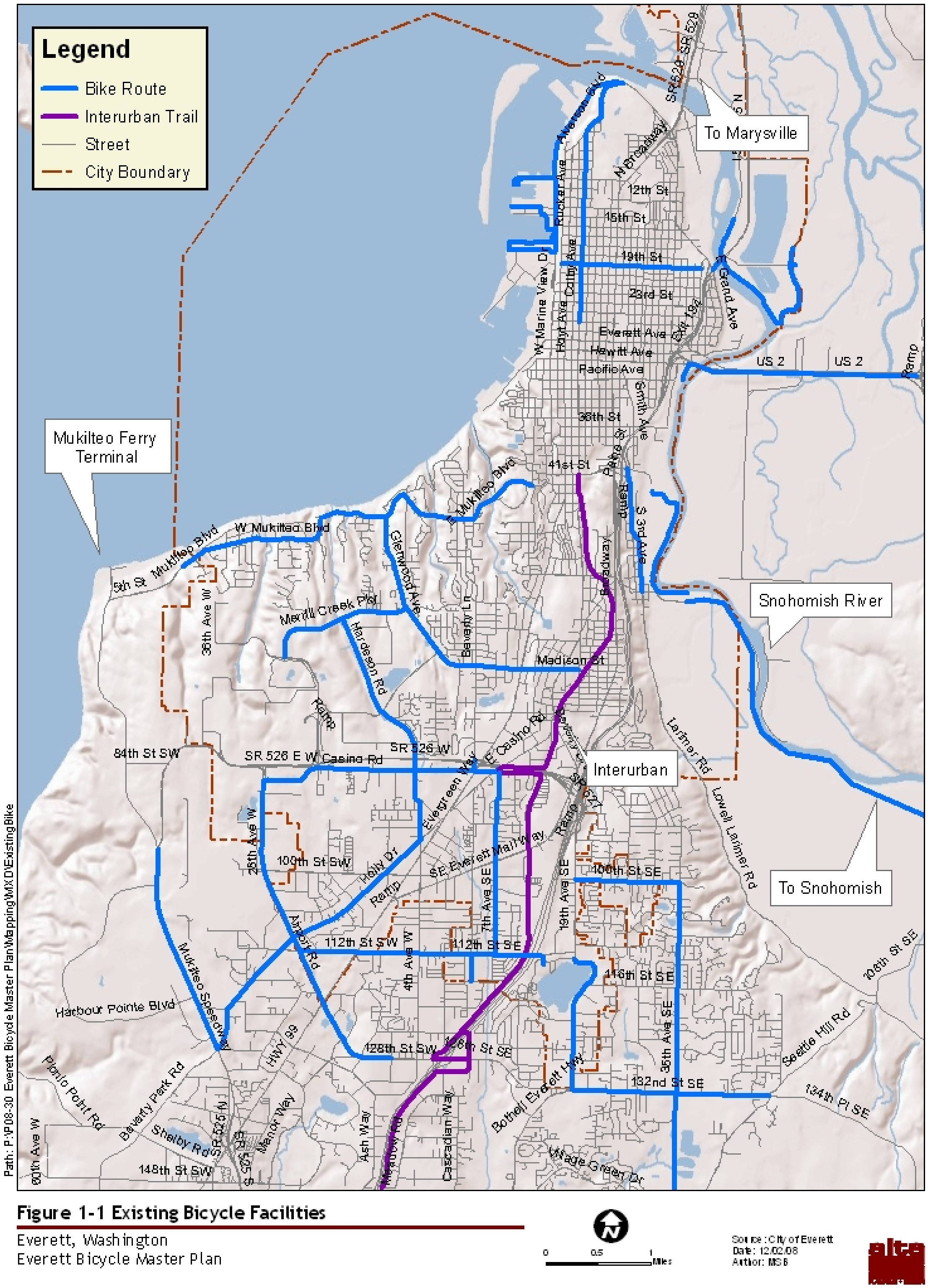
Jim Ozanne, PE
Engineering Services
City of Everett
3200 Cedar ST
Everett, WA 98203
(425) 257-8926
jozanne@ci.everett.wa.us

Background Info

We are currently gathering background information on:

- The location of existing bicycle facilities, including lanes, signage, and parking
- The status of projects recommended in the Transportation Element 2006 Update
- Developments and land use changes that could impact bicycling
- Transit oriented projects
- Potential sources of funding for bicycle projects

Existing Routes & Facilities



Existing bicycle routes in Everett from the Transportation Element 2006 Update.

You can help

Existing Routes & Facilities

Please use the attached map that displays bicycle facilities in Everett to provide feedback on one or more of the following:

1. Areas that are difficult for bicycles - please be specific in describing the location and the problem (*provide addresses or cross streets if possible*)
2. Key destinations – places that you especially want to bicycle that lack adequate accommodation for bicycle travel (*provide addresses or cross streets if possible*)
3. Errors on the map - such as a bike lane not shown on the map or one that is shown but does not exist

You can print the map and draw your comments directly on the map. You may also write on the back or on a separate piece of paper to provide further explanation. For those that are computer savvy, you can make your changes on the image itself and email files and comments to mattberkow@altaplanning.com. Otherwise, mail your comments to the following address:

Mathew Berkow
Alta Planning + Design
711 SE Grand
Portland, OR 97214

mattberkow@altaplanning.com

Employer Bike Commuting Survey

An online survey was sent to 41 employers that participate in Everett's Commute Trip Reduction Program to help assess existing conditions for bicycles in Everett. Survey questions generally seek information on programs (guaranteed ride home, incentives, etc.) and facilities (bike parking, showers, etc.) that support bicycling to work. If you received notice of the survey, have you responded?

Bike Sharing Programs

What is a Public Bike Program?

Bike sharing is an innovative approach to urban mobility. Combining the convenience and flexibility of a private vehicle with the accessibility and reliability of public mass transit. Public bicycles are available on demand- fast and easy access for any trip around the city without the hassles presented by parking a private car or waiting on a transit timetable. When used in combination with other transportation systems, a shared bike program can reduce the travel time between transit stop and office and overcome the distance between residence and shopping center. The flexibility and freedom presented by a public bicycle program are perfectly suited for modern urban commutes.

What issues are there to consider with Public Bike Programs?

Many issues need to be considered before embarking on a public bike sharing program. Proper planning for station locations and number of bicycles is important for the program to have significant impact on mode share. Start-up costs for equipment (including the bicycle fleet, station infrastructure and station technology) are considerable. Fleet management and maintenance plans need to be in place to account for theft, wear and tear from use, and redistribution of bicycles from one station to another. Liability and safety of users and operators continues to be a concern for cities considering bicycle sharing.

Where are Public Bike Programs?

Public bicycle programs have gained momentum throughout Europe. Ninety-plus cities around the world have some form of shared bike infrastructure; everywhere from Europe to Australia to Asia. Italy, France, Germany and Spain have all enjoyed the success and popularity of a public bicycle rental system and the United Kingdom and United States are next, with a dozen major cities planning to implement bicycle systems in the coming years. Washington D.C. is the first U.S. city to execute a European-style model of self-service public bike rental. Minneapolis, Minnesota and Albuquerque, New Mexico have plans to kick-off similar self-service public bike programs in 2009.

In the next Update

Draft design guidelines, and what makes public bike programs work?

Next Steps

We are well underway documenting existing conditions and current practices in Everett. Alta staff will be visiting again to document some of the tough connections and field check the project mapping. We will be scheduling two open houses – March (or so) to review improvement alternatives and late Summer to review the proposed plan.

Thank you. Please feel free to contact us and the city's project manager Jim Ozanne phone: (425) 257-8926 [JOzanne@ci.everett.wa.us].

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Update #3

Welcome to Update #3 for the Everett Bicycle Master Plan Implementation, a periodic effort to keep interested parties informed on the progress Everett is making in planning for bicycle transportation.

In this issue:

- Open House Recap
- Updated Map
- Stakeholder Interviews
- Project Website
- Past and Present: Bicycling in Everett
- Next Steps

Open House Recap (see attached minutes)

As many of you know, we had a fantastic turnout at the second open house, which took place on Tuesday, March 10th. According to the sign-in sheet, there were 69 people in attendance! This was a great show of enthusiasm for the work the city is doing to improve its implementation of bicycle facilities. The event also received excellent media coverage, with an article appearing in both the Herald (link: A Path to a Healthier City) and the Tribune.

The open house began with a 20 minute introduction, which was followed by several activities designed to obtain citizen input and feedback on preliminary maps and facility recommendations. The meeting ended with a short question and answer session.

Participants were given seven (7) dots to select the proposed improvements that were most important to them. Proposed improvements were based upon stakeholder interviews, feedback received from email updates as well as previous planning efforts. Space was provided to suggest additional improvements. The following table lists the improvements that received the most votes.

Spot Improvements

Project Location	Improvement	Number of Votes
41st & Colby	Improve intersection for bicycles / Add bicycle detection at signal	35
Hwy 529 Bridge	Improve bicycle access	27
Trestle (US 2/ Hewitt)	Improve bicycle access	24
Pedestrian Bridge over W Marine View Drive @ 25th	Improve bicycle access	11
Casino & Evergreen Way	Improve intersection for bicycles	11
Interurban & Everett Mall Way	Improve intersection for bicycles	11
Colby: 10th to 19th	Increase bike lane width	8
California & Broadway	Allow bikes to continue straight	7
41st & Rucker	Improve intersection for bicycles	7

Participants were given an additional seven (7) dots to evaluate the *preliminary prioritization* (tiering) of proposed routes. Proposed routes were also based upon stakeholder interviews, feedback received from email updates and previous planning efforts. Of the several downtown routes listed on the map, Colby (North-South) and California (East-West) received the most votes. Though not initially on the map, Grand received many votes as an additional North-South route on the west side of town. The following table lists the routes that received the most votes.

Proposed Routes Evaluation

Route	Facility	Preliminary Tier	Votes for Should Be Higher Priority
41st St. - Interurban to Riverfront Trail	Trail	3	15
SR 529: Broadway to Marysville	Bike Lanes	3	14
Other: Grand Ave	Bike Boulevard/Shared lane markings	None	13
Colby	Bike Lanes	1	12
Larimer Rd.: Seattle Hill Lowell	Bike Lanes	2	9
52nd St. Fleming to Lowell-Larimer	Bike Lanes	2	8
Japanese Gulch: Mukilteo B. to SR 526	Trail	3	8
California: W. Marine View to US 2	Bike Lanes	1	8
Pigeon Creek 1:Mukilteo B. to Dogwood	Trail	3	7
Riverfront Trail: 16th St. to 41st St.	Trail	3	7
Hewitt	Bike Lanes	1	6
19th Ave - 112th - 100th	Bike Lanes	3	6

Evaluation Criteria - Participants were asked to comment on the proposed criteria and the relative weight of each one. Participants commented that higher weight should be given to Improves Safety, Recreational Value and Provides Access to Destinations. Connectivity to Other Modes (bus, park/ride) was suggested as an additional criterion.

Updated Map

We have updated the Everett Bicycle Map based on feedback provided at the open house. As the legend explains, the colors of the facilities represent our current tiering (prioritization) of proposed facilities. These may still change. Feel free to email corrections or comments on the prioritization of a given facility.

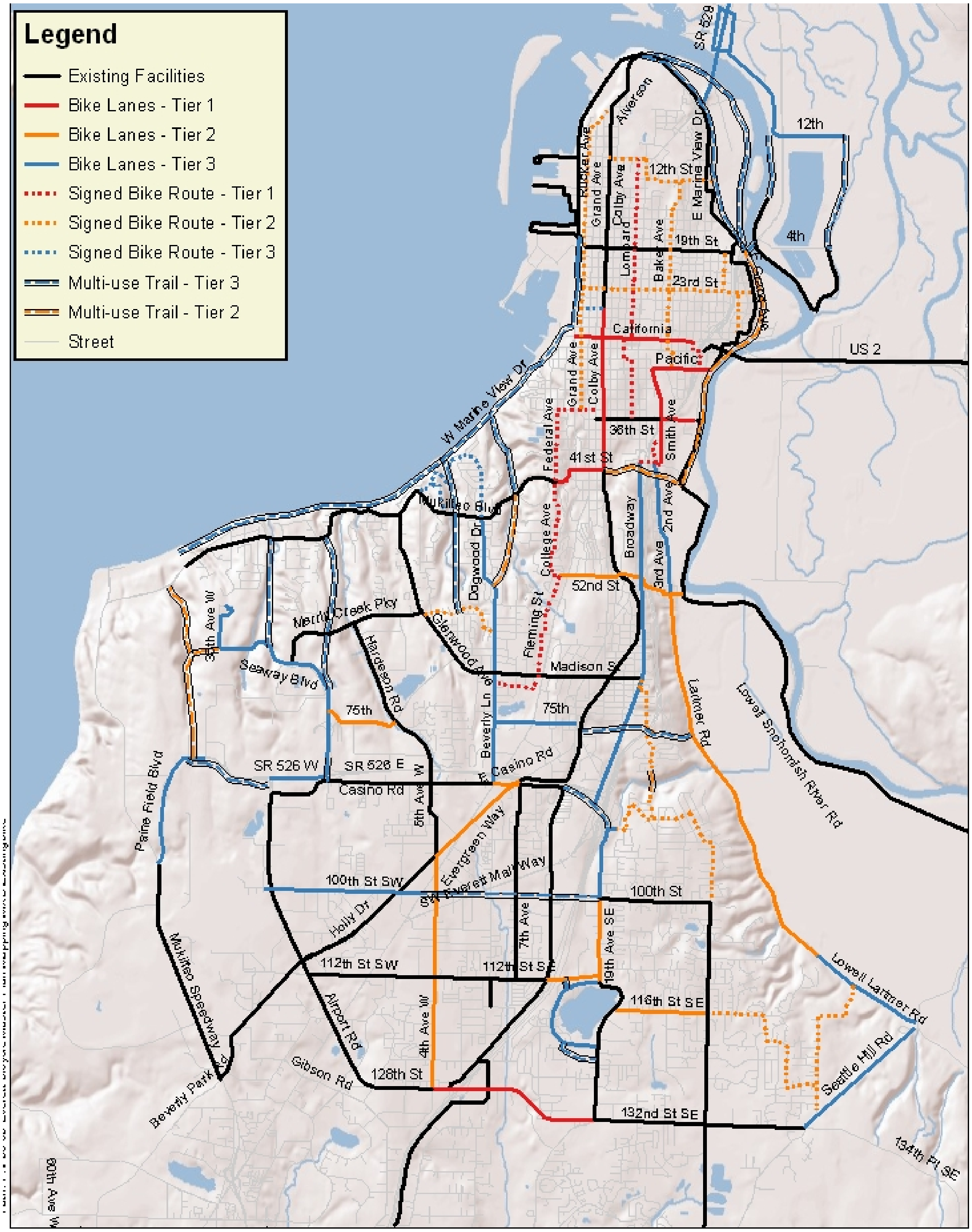

Figure 1-1 Evaluation of Proposed Bicycle Facilities

Everett, Washington

Everett Bicycle Master Plan

Source: City of Everett
Date: 1/23/08
Author: MSB

Stakeholder Interviews

Prior to the Open House, stakeholder interviews were conducted with people selected to represent a diverse cross-section of Everett's population. The Sharing Wheels Community Bike Shop works with low-income, homeless and youth populations. B.I.K.E.S. Club of Snohomish County has approximately 130 members and is organized mostly around road/recreational riding. The Cascade Bicycle Club, headquartered in Seattle, is more focused on promoting utilitarian bicycle trips, and reached out to approximately 100 of its members in the Everett area in anticipation of the interview. An employee of Community Transit spoke to the needs of people who make bike-transit connections. An employee of Snohomish Health District added the perspective of Healthy Communities, a community-based effort to improve health through active living and healthy eating. Individuals interviewed included those who travel exclusively by bicycle, occasional commuters and recreational riders.

This effort provided important information regarding:

- Destinations needing bicycle access (Everett Station, the waterfront, Boeing, Downtown, etc.)
- Major barriers to bicycle travel (Evergreen Way, Everett Mall Way, Broadway, I-5)
- Major gaps in the network (such as the end of the Interurban to Downtown)
- Specific locations in need of improvements (including at specific intersections)

Project Website

The Everett Bicycle Master Plan Implementation project now has its own page on the City of Everett website! The web page contains a description of the planning effort and copies of materials from the March 10th Open House. Check it out: Bike Planning Study in Everett.

Past and Present: Bicycling in Everett

The goal of the Bicycle Master Plan Implementation is to improve conditions for bicycling in Everett, but existing bicycle facilities didn't come out of thin air. The following is a list of some of the past important developments for bicycling in Everett, along with the dates when they occurred. Check out the history of the current popular bikeways in Everett, and then read on to see what new facilities are currently under development by the city.

Past projects:

- 1973: W Marine View Dr – Mukilteo Blvd
- Early 1990s: Everett's core routes
- 1995-7, 2004-5: Interurban Trail
- 2001, 2006: Holly Drive
- "The Bike Group": informal, stakeholder-based process

- 2006 Transportation Plan Update: created the existing and future maps found in the update
- 2008-09: Bicycle Master Plan Implementation

Current projects:

- **West Marine View Drive**
    - Project limits: (1) Everett Ave. to 25th St, (2) 10th Street to near North View Park.
    - Right of Way negotiation/acquisition is in progress.
    - Construction will start when ROW acquisition is complete.
    - For additional project funding and description, please visit: http://www.everettwa.org/Get_PDF.aspx?pdfID=1610
- **Snohomish Riverfront Trail** - Phase II (Smith Street Connector)
    - Project limits: S. 3rd Ave. at 41st intersection to Smith Street, near Everett Transit Station.
    - Design phase is 90% complete.
    - Construction will occur between 2009-2011.
    - For additional project funding and description, please visit: http://www.everettwa.org/Get_PDF.aspx?pdfID=1611
- **East Everett Pedestrian Walkway** (East Grand Ave/East Marine View Drive)
    - Project Limits: North of 21st Street, to Summit Ave.
    - Design phase is 30% complete.
    - Construction will occur between 2009-2011.
- **36th BNSF Overcrossing**
    - Multi-use bicycle and pedestrian over crossing.
    - Currently in design.
- **112th Street**
    - Project limits: Meadowdale High School to 19th Avenue NE.
    - Completion predicted next year; most of the western end is already completed.
- **Holly Way**
    - Using recently-awarded stimulus package funding, we are continuing to improve Holly Way for use by bicyclists.
    - Much of the corridor has been completed over the last several years.
- **Riverfront Development**

- Planned to connect to the existing Lowell Riverfront Trail to the south, to Pacific Avenue on the north, to the Interurban trail and the Everett Transit Center to the west.
- Currently in the planning phase.

- **BNSF Railroad at Pigeon Creek**
    - We are looking at alternatives to cross the BNSF Railroad tracks at Pigeon Creek to create a connection with the South Terminal Trail.

Next Steps

We have gathered a wealth of information and received feedback from the community and are now ready to finalize a prioritized list of projects. The next step is to create a set of design guidelines for providing different types of bicycle facilities (bike lanes, signed routes, multi-use trails, etc.) in a variety of settings. The final document will apply these design guidelines to Tier 1 projects, including an assessment of how to deal with unusual or difficult parts of a given route (such as a difficult intersection or constrained right-of-way). A final open house will take place in late summer/early fall to give the community an opportunity to provide feedback on the final Everett Bicycle Master Plan Implementation document.

Please send comments to myself or

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3200 Cedar ST
Everett, WA 98203
(425) 257-8926
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Thanks very much for your continued interest, feedback and support...

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Appendix G. End-of-Trip Facilities

End-of-trip facilities are critical to encourage bicycle travel. Not only are end-of-trip facilities a fundamental component of a bicycle network, but a lack of safe and secure parking facilities can be a real obstacle to promoting bicycle riding. Surveys have found concern about bicycle theft or vandalism to be one of the top reasons people cite for not riding their bicycles.

The purpose of this memo is to review existing end-of-trip facilities, policies and bike parking code in Everett and provide recommended actions based on best practices from around the country.

The memo is organized into six sections:

I. Local plans, policies, and standards

II. Summary of existing facilities

III. End-of-trip facilities policy elements

IV. Proposed end-of-trip facilities standards policy language

V. Proposed bike parking code

VI. Recommended action items

Local Plans, Policies, and Standards

The City of Everett does not currently have minimum parking requirements for bicycle parking in its development code. The exception is development code that applies to the Central City (Zone B-3), which does contain a requirement of secure parking facilities, shower and change room facilities for office buildings with more than ten thousand square feet gross floor area. Bicycle facility improvements are set out as goals in several places in the Comprehensive Plan, including future code amendments to require secure bicycle parking, reduce vehicular parking where appropriate and establish design standards for the implementation of bicycle projects. The Downtown Plan calls for the development of bicycle parking requirements in City Code and suggests specific requirements.

This section summarizes current local policies and standards that relate to end-of-trip facilities in Everett. The following documents reference end-of-trip facilities:

- Everett Development Code
- Everett Comprehensive Plan Transportation Element Update 2006
- Everett Comprehensive Plan Land Use Element
- Everett Downtown Plan

Everett Development Code

Chapter 46.68 - Commute Trip Reduction

This ordinance is designed to encourage employers to take measures to reduce vehicle miles traveled (VMT) per employee and single occupancy vehicle (SOV) trips. The ordinance contains both mandatory and additional elements for employers. The following is an additional (optional) element:

- Provision of bicycle parking facilities, lockers, changing areas, and showers for employees who bicycle or walk to work.[1]

Chapter 22 – Zone B-3 Regulations

The following bicycle policy is specific to the Central City (Zone B-3):

- Office buildings with more than ten thousand square feet gross floor area shall include secure bicycle parking facilities and shower and change room facilities for employees. Design of such facilities shall be subject to approval by the city to ensure adequate capacity for anticipated use, and for convenience of bicyclists.[2]

[1] Chapter 46.68, Section 46.68.080, B4k
[2] Chapter 22, Section 22.020, H

Chapter 16.13 - Sustainable Building and Infrastructure Policy

The Sustainable Building and Infrastructure Policy states the intent of the city to promote green building practices in all city-owned capital facilities. The city also encourages such building practices in private developments, where appropriate. The U.S. Green Building Council's LEED certification is required of new city buildings in excess of 5,000 square feet. Full certification is not required of smaller buildings, but incorporation of some green building elements is still required.

In order to receive LEED certification, buildings receive points based on a green building scoring system which is detailed in a document called Green Building Rating System (version 2.1). Buildings receive one point for Alternative Transportation: Bicycle Storage & Changing Rooms. To receive the point, the building must meet the following requirements found in the document:

> Credit 4.2: For commercial or institutional buildings, provide secure bicycle storage with convenient changing/shower facilities (within 200 yards of the building) for 5% or more of regular building occupants. For residential buildings, provide covered storage facilities for securing bicycles for 15% or more of building occupants in lieu of changing/shower facilities.

Everett Comprehensive Plan Transportation Element Update 2006

The 1994 Everett Comprehensive Plan was written to comply with requirements of the State of Washington Growth Management Act of 1990 (GMA). The objective of the growth management plan was to provide a balanced transportation system to control the sprawl of urban land uses and encourage alternatives to the single occupant vehicle (SOV), particularly during the peak period. Bicycles are one of the modes promoted as an alternative to driving alone. The 2006 update to the Transportation Element maintains the goals of the 1994 plan. It contains updated "mode of travel" targets and a list of capital projects required to accommodate the future demands of each mode, including bicycles. The following section describes references in the plan that relate to end-of-trip facilities.

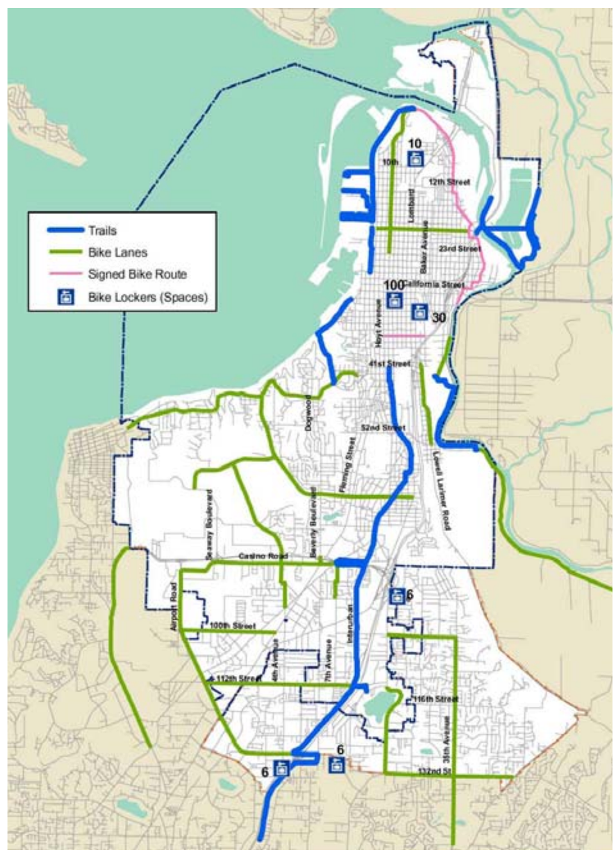

Figure 1 – Bike Locker Locations and Spaces

Section 2 - Existing Conditions

In describing existing bicycle facilities, the plan states that "While there are many bicycle racks provided at parks, schools and by key businesses, there are only 50 public storage lockers at park-and-ride facilities."[3] A map of existing bicycle facilities that includes the location of the storage lockers is found in Figure 2.10 of the plan, and reproduced here in Figure 1.

Section 3 - Transportation Goal, Objectives and Policies

Objective #1 - Expand Multi-Modal Travel Options

- 1.17 Encourage accessibility for bicyclists on the transit system.
- 1.18 Encourage, using code amendments as appropriate, new and redeveloping properties, major transit stations, and park-and-ride lots located within the city to provide secure bicycle parking and related amenities to help encourage the use of bicycles by residents, employees, shoppers and visitors.
- 1.31 Actively seek local, state, and federal funding and grants for the provision and enhancement of bicycle and pedestrian facilities and amenities.

Objective #2 - Planning Principles

- 2.3 The design of park and ride facilities around transit centers shall encourage shared-use parking with other transit-oriented development and shall not obstruct the ease and safety of pedestrian and bicycle access to a transit center from other land uses.
- 2.4. New developments shall incorporate physical features designed to promote and enhance alternatives to the single-occupant vehicle, including code amendments to require secure bicycle parking and to reduce vehicular parking requirements where appropriate.
- 2.20. Establish and adopt design standards to ensure that the implementation of bicycle and pedestrian system projects are coordinated and consistent in design and construction with other transportation system improvements.

Section 4 – Transportation Implementation Strategy

- Section 4.1, Multi-modal Management Transportation Strategy, states that the City will review its development code, "such as minimum parking requirements for vehicles and bicycles, with the objective of encouraging a higher proportion of non-motorized travel."
- Section 4.3, Public Transportation Services Strategy, contains a subsection on 'Stations and Facilities' which calls for bicycle parking at new and expanded transit centers. "The Plan provides for continued investments in expanding existing transit centers and building new transit centers. Associated parking facilities for vehicles and bicycles will be provided at the centers."

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[3] Section 2.4

Comprehensive Plan - Land Use Element

The land use element of Everett's Comprehensive Plan makes a few references to bicycles. While the element does not specifically mention end-of-trip facilities for bicycles, it does state that new development and redevelopment in urban centers "shall be designed to be compatible with transit use, as well as encouraging pedestrian and bicycle activity."[4]

Everett Downtown Plan

The Everett Downtown plan, adopted in 2006, acknowledges that there are no bike lanes or bike-only facilities in downtown Everett. The plan outlines a commitment to improving bicycling conditions in downtown.

The plan recommends the development of bicycle parking requirements in order to encourage more people to commute to work by bicycle. The plan makes mention of a secure lock-up room installed on the Snohomish County Campus.

The plan also states that on-street bicycle parking racks "should be included in the downtown street standards to ensure consistency with other street furniture and themes."[5]

In addition to the provision of bike lanes on two streets (Hoyt Avenue and California Street), the Proposed Transportation Improvement Actions section calls for:

- the creation of a Transportation Management Association (TMA)
    - The plan states that transportation demand management (TDM) programs, to be implemented by the TMA, can include "bicycle parking and shower facilities"[6]
- the development of bicycle parking requirements in City Code[7]

The plan recommends specific development code requirements with regard to end-of-trip facilities, including:

- secure bicycle parking (individual bike lockers or controlled lock-up rooms) for employees
- one secure bicycle parking space per 5,000 square feet of commercial office or retail floor area
- the provision of shower and locker facilities for employees in all commercial buildings greater than 20,000 square feet[8]

[4] Chapter 2, Section 4C, Policy 2.11.9, a5
[5] Proposed Transportation Improvement Actions – T4
[6] Proposed Transportation Improvement Actions – T1
[7] Proposed Transportation Improvement Actions – T4
[8] Proposed Transportation Improvement Actions – T4

Summary of Existing Facilities

The City of Everett has installed approximately 18 wave style bicycle parking racks in the central business district. Several other styles of bicycle parking racks have been installed by organizations other than the city.

The Everett Comprehensive Plan Transportation Element Update 2006 refers to "many bicycle racks provided at parks, schools and by key businesses" and mentions "50 public storage lockers at park-and-ride facilities."[9]

A recent online survey of employers participating in Everett's Commute Trip Reduction program provides further detail on the types of parking available in Everett. Sixteen employers responded to the online survey. Table 2 displays the number of employers providing various types of end of trip facilities.

Table 2 – End of Trip facilities provided by Commute Trip Reduction Employers

End of Trip Facility	Number of Employers (16 respondents)
Outdoor parking racks	14
Shower facilities	14
Locker facilities	12
Controlled access bike room	2

Of the 14 employer sites providing outdoor parking racks, eight of the sites include at least some covered bicycle parking. Table 3illustrates the amount of indoor and outdoor bicycle parking reported in the survey.

Table 3 – Amount of Indoor and Outdoor parking provided by Commute Trip Reduction Employers

Type of Parking	Number of Employers	Number of Parking Spaces
Outdoor Parking (Uncovered)	10	128
Outdoor Parking (Covered)	8	76
Indoor Parking	6	106

[9] Section 2.4

End-of-Trip Facilities Policy Elements

End-of-trip facilities policy is typically comprised of two elements:

1. Standards for bicycle access and parking

   A section of standards describes necessary elements of good bicycle parking. This section describes items such as location, space requirements, covering and lighting to ensure that the facilities provided are convenient, functional and secure.

2. Off-street parking requirements

   Off-street parking requirements specify the minimum amount of bicycle parking required under different commercial and residential land uses. Bike parking requirements typically distinguish between the number of required short-term and long-term spaces. Requirements also often specify that a certain percentage of bicycle parking be covered.

   - Long-term bicycle parking facilities provide a high degree of security and protection from the weather. They are intended for situations where the bicycle is left unattended for long periods of time, such as apartments and condominium complexes, schools, places of employment and transit stops. These bicycle parking facilities are usually lockers, cages or rooms in buildings.
   - Short-term facilities provide a means of locking the bicycle frame and both wheels, but do not provide accessory and component security or weather protection (unless covered). They are for decentralized parking where the bicycle is left for a short period of time and is visible and convenient to the building entrance.

Proposed End-of-Trip Facilities Standards Policy Language

Standards for Bicycle Access and Parking

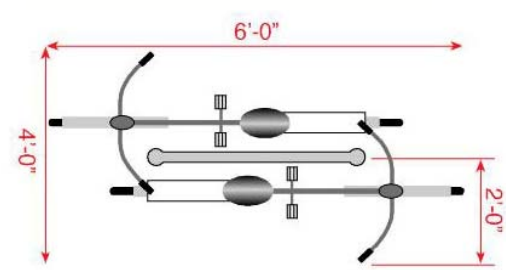
All bicycle parking facilities required in conjunction with development shall conform to the standards in this Section. Bicycle parking shall be located on-site with safe, convenient access to the public right-of-way, and shall conform to the specifications below.

A. Location

- For convenience and security, bicycle parking must be located within 50 feet of an entrance to the building. If there are a number of small businesses on a given block, a centralized bike parking area in the middle or end of a block may be appropriate. Bicycle parking should be permanently secured to a paved surface and be located such that it will not become buried by snow removal operations. Covered bicycle parking is recommended wherever possible.
- Bicycle parking may be provided within a building, but the location must be easily accessible to the street or sidewalk.
- Curb cuts near the facility can discourage cyclists from riding on the sidewalk to access parking.

B. Dimensions

- Bicycle parking spaces must be at least 6 feet long and 2 feet wide, and in covered situations the overhead clearance must be at least 7 feet.
- A 5 foot aisle must be provided and maintained behind all bicycle parking to allow cyclists to maneuver their bicycles. If there is more than one row of bicycle parking, a 5 foot aisle must be provided between each row.
- Each required bicycle parking space must be accessible without moving another bicycle.
- Areas set aside for bicycle parking must be clearly marked and reserved for bicycle parking only.



C. Visibility and Security

- Bicycle parking for customers and visitors of a use shall be visible from street sidewalks or building entrances, so that it provides sufficient security from theft and damage.

D. Signage

- Bicycle parking signs should be used where bicycle parking can not be seen from the street or building entrance. The Manual on Uniform Traffic Control Devices specifies a bicycle parking guide sign (D4-3) which can be used to inform bicyclists of parking areas.

E. Lighting

- For convenience and security, adequate lighting shall be provided such that the bicycle parking facility is illuminated and visible from adjacent sidewalks or vehicular parking areas during all hours of use.

F. Long-Term Parking

- Long-term bicycle parking requirements can be met by providing a bicycle storage room, bicycle lockers, or other secure storage space inside or outside of the building.

G. Covering

- At minimum, 50 percent of the required short-term bicycle parking shall be covered.
- If vehicle parking is covered, a proportionate amount of bicycle parking shall also be covered. However, the minimum amount specified in the first bullet of this section above shall be provided.
- Covering for bicycle parking facilities shall be permanent and shall provide protection from precipitation.
- Covering may be provided by an independent outdoor structure, a parking garage, a wide roof overhang, or a wide awning. Bicycle parking facilities may also be located within buildings, provided the other requirements of this Section are met.

H. Rack Type

Bicycle racks must hold bicycles securely, and meet the following criteria:

- Support the frame of the bicycle in two places
- Allow the frame and one wheel to be locked to the rack when both wheels are left on the bike
- Allow the frame and both wheels to be locked to the rack if the front wheel is removed
- Accommodate high-security U-shaped bike locks
- Be securely anchored

Developers may design a rack that does not meet the above criteria, but City approval is required to receive an exception before such a rack is installed.

Recommended Bicycle Racks

‘Inverted U’, or ‘Staple’ Rack

This type of rack is typically secured to a concrete base and is very secure and easy to use.

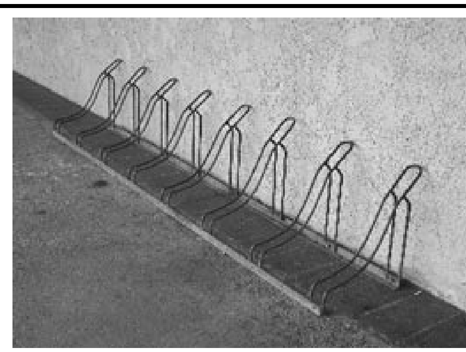
Post and Loop or ‘Lollypop’ Rack

This rack has many of the same characteristics as the Inverted U rack, but is more compact. Can be installed in series (shown) or along a curb line in the sidewalk furnishing zone.

Discouraged Bicycle Racks

Wheelbender Rack

This rack only supports the wheel of the bicycle and can cause serious damage to the bicycle if twisted while secured in the rack. This rack also does not work with all types of locks.



Comb Rack

This rack suffers from many of the same shortcomings as the wheelbender type rack where only the front or rear wheel of the bicycle is supported. Many users of this rack type lift there bicycle over the top and rest the frame on the rack to allow use of a bicycle lock.

Acceptable Bicycle Racks

Wave Rack

To properly use this rack the cyclist places the bicycle through the 'wave' pattern where it is only supported at one point. Bicycles parked in these racks are unstable and frequently tip over. Many cyclists park their bicycle sideways in this rack to gain stability, thereby reducing the capacity by 60-80 percent. Furthermore, due to the narrow space between 'waves,' it is difficult to accommodate the stated rack capacity (six bicycles in the example shown) even when bicycles are parked properly.

The City of Everett previously installed a number of wave style racks in the Central Business District. The current racks are wider and thus an improvement over the traditional Wave Rack (shown in the top picture), which makes it is easy to accommodate the stated rack capacity (four bicycles in the example of Everett's wave rack shown in the bottom picture). However, because the bicycle is only supported in one place and users may park their bicycles sideways (reducing the rack capacity to two bikes), "Inverted U" racks are recommended for future installations.

Downtown Everett Streetscape Plan Recommended Rack

'Inverted U', or 'Staple' Rack

The Downtown Everett Streetscape Plan calls for "Welle series, single-loop series, or approved equal, mounted in pavement (inverted "U" configuration)" bicycle racks. This rack design falls under the 'Inverted U', or 'Staple' Rack design recommended above.

Proposed Bike Parking Code

Table 3 - Minimum Required Bicycle Parking Spaces

Use Categories	Specific Uses	Long-term Spaces (covered or enclosed)	Short-term Spaces (near building entry)
Residential Categories			
Household Living	Multifamily	1 per 4 units	2, or 1 per 20 units
Group Living		2, or 1 per 20 bedrooms	None
	Dormitory	1 per 8 bedrooms	None
Commercial Categories			
Retail Sales And Service		2, or 1 per 12,000 sq. ft. of floor area	2, or 1 per 5,000 sq. ft. of floor area
	Lodging	2, or 1 per 20 rentable rooms	2, or 1 per 20 rentable rooms
Office		2, or 1 per 10,000 sq. ft. of floor area	2, or 1 per 40,000 sq. ft. of floor area
Commercial Outdoor Recreation		8, or 1 per 20 auto spaces	None
Major Event Entertainment		8, or 1 per 40 seats or per land use review	None
Industrial Categories			
Manufacturing And Production		2, or 1 per 15,000 sq. ft. of floor area	None
Warehouse And Freight Movement		2, or 1 per 40,000 sq. ft. of floor area	None
Institutional Categories			
Basic Utilities	Bus transit center	8, or 1 per 2 buses per hour at peak	2, or 1 per 6 buses per hour at peak
Community Service		2, or 1 per 10,000 sq. ft. of floor area	2, or 1 per 10,000 sq. ft. of floor area
	Park and ride	8, or 5 per acre	None
Parks (active recreation areas only)		None	8, or per land use review
Schools	Grades 2-5	1 per classroom, or per land use review	1 per classroom, or per land use review
	Grades 6-12	2 per classroom, or per land use review	4 per school, or per land use review
Colleges	Excluding dormitories (see Group Living, above)	2, or 1 per 20,000 sq. ft. of net building area, or per land use review	2, or 1 per 10,000 sq. ft. of net building area, or per land use review
Medical Centers		2, or 1 per 70,000 sq. ft. of net building area, or per land use review	2, or 1 per 40,000 sq. ft. of net building area, or per land use review
Religious Institutions and Places of Worship		2, or 1 per 4,000 sq. ft. of net building area	2, or 1 per 2,000 sq. ft. of net building area
Daycare		2, or 1 per 10,000 sq. ft. of net building area	None

Code Implementation

While all new buildings constructed in Everett shall comply with these bicycle parking requirements, a plan should strategically bring existing buildings into compliance. Nonconformance code triggers need to be written for bicycle parking to ensure the appropriate development of bicycle parking facilities for existing buildings in Everett. The proposed code following incorporates language used Portland, OR and Oakland, CA, where established bicycle promotion policies are aimed to grow supplies of bicycle parking. It also includes language from Everett's existing code on nonconforming parking.

Bicycle Parking Required for New and Existing Uses

A. Bicycle Parking Shall Be Provided for New Facilities and Additions to Existing Facilities. Bicycle parking as prescribed hereafter shall be provided for activities occupying facilities, or proportions thereof, which are constructed, establishes, wholly reconstructed, or moved onto a new lot after the effective date of the bicycle parking requirements, or of a subsequent rezoning or other amendment thereto establishing or increasing bicycle parking for such activities, except to the extent that existing bicycle parking exceed such requirements for any existing facilities. The required amount of new bicycle parking shall be based on the cumulative increase in floor area, or other applicable unit of measurement prescribed hereafter, after said effective date. The parking supply only needs to be increased to account for the demand generated by the new building area or use, and not for the whole site overall.

B. Bicycle Parking Shall be Provided for Remodels. "Remodel" means any proposed physical improvement of an existing structure which requires a building permit but does not include New Facilities or Additions to Existing Facilities.
   a. Remodel projects that are over 10,000 s.f. and have an estimates construction cost, excluding seismic retrofit costs, greater than 50% of the market value or assessed value of the structure, shall provide the number of short-term bicycle parking spaces prescribed in Table 3. The cost of coming into compliance need not exceed 10% of the value of the improvement, so as not to cause undue burden on the owner.
   b. Remodel projects that are over 50,000 s.f. and have an estimates construction cost, excluding seismic retrofit costs, greater than $1,000,000 shall provide, in addition to short-term bicycle parking, the number of long-term bicycle parking spaces prescribed in Table 3. Sites that do not have accessory surface parking or buildings in Zone B-3 shall be exempt from updating compliance with long-term bicycle parking standards, but not short-term requirements.
   c. Compliance shall be updated when the primary use of a building changes.

C. Bicycle Parking Shall be Provided for New Living Units in Existing Facilities. If any facility, or portion thereof, which is in existence on the effective date of the bicycle parking requirements, of or a subsequent rezoning or other amendment thereto establishing or increasing bicycle parking requirements for an activity therein, is altered or changed in occupancy so as to result in an increase on the number of residential living units therein, bicycle parking as prescribed hereafter shall be provided for the new units. However, such bicycle parking need be provided only in the amount by which the requirement prescribed hereafter for the facility as it existed prior to such alteration or change; and such new bicycle parking need not be provided to the extent that existing bicycle parking exceed the latter requirement.

Complementary Bicycle Parking Programs

Portland, OR has a program where businesses can request free installation of short-term bicycle parking in front of their establishments.[10] The city pays for this program out of a bicycle parking fund, which developers pay into when they cannot bring their structure into compliance with bicycle parking code. For example, a developer may not be able to satisfy short-term parking requirements because the sidewalk in front of the building is too narrow to accommodate bicycle racks without blocking pedestrian travel. With city approval, they may pay a sum into the bicycle parking fund in lieu of their own compliance, which in turn pays for bicycle parking improvements elsewhere in the city.

Some businesses in Everett may proactively decide they want to improve bicycle parking for their customers, independent of code. To provide consistency and ensure that racks are properly installed, the city may set up a bicycle rack installation program to install bicycle parking at a break-even rate. Short-term bicycle parking is relatively inexpensive, with "inverted-U' racks costing about $175 each, including installation. While Portland's program installs racks only in public right-of-way due to liability issues, they also serve as an information clearinghouse that businesses can turn to for advice on installing bicycle racks on their own property. Sample language is provided below.

A. Bicycle Parking Fund Use. An owner of a building without surface parking, or without parking or open areas within 50 feet of the main entrance may choose to pay a fee to the Office of Transportation Bicycle Parking Fund in lieu of short-term bicycle parking required above.

B. Bicycle Parking Fund Applicability.

    a. The Bicycle Parking Fund may be used where the following criteria are met:

        i. All on-site surface parking areas are more than 50 feet from the main entrance as measured along the most direct pedestrian route; and

        ii. All on-site plazas, exterior courtyards, and open areas, other than landscaping, are more than 50 feet from the main entrance as measured along the most direct pedestrian route or are not large enough to accommodate all required short-term bicycle parking.

    b. This option may not be used if any required short-term bicycle parking is provided on site.

C. Fund Use and Administration. The Bicycle Parking Fund is collected and administered by the Office of Transportation. The funds collected will be used to install bicycle parking and associated improvements in the right-of-way.

D. Calculation of Required Fund Contributions. Applicants must contribute to the cost to purchase, install, and maintain bicycle parking and associated improvements, The cost to purchase, install, and maintain bicycle parking will be adjusted annually as determined by the City Engineer.

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[10] Available online at: http://www.portlandonline.com/shared/cfm/image.cfm?id=154748

Shower Facility Requirements

The following is an example of shower facility requirements from Santa Cruz, California. The requirements have been modified to get Everett's bicycle program started and can be modified as bicycle mode share improves.

1. Employee shower facilities in compliance with ADA standards shall be provided for any new commercial building constructed or for any addition to or enlargement of any existing building in compliance with the following table:

Use	Gross Floor Area of New Construction (Square Feet)	No. of Showers
Industrial, manufacturing, and medical, general business office or financial service	0 – 12,499	No requirement
	12,500 – 29,999	1
	30,000 – 49,999	2
	50,000 and up	4
Retail, eating and drinking and personal service	0 – 24,999	No requirement
	25,000 – 99,999	1
	100,000 and up	2

2. Shower facilities shall include at least one personal locker for every twenty employees. If only one shower is provided it must be designed as a unisex facility that is accessible to the handicapped.
3. As an alternative to including shower facilities within a building, a new business may submit a written agreement for employees to utilize existing shower facilities of a business within three hundred feet of the project's property lines. This agreement must be signed by both parties involved, allow use of the facilities in perpetuity, establish allowable hours of use, include provisions for maintenance, and involve shared liability agreements.

End of Trip Facilities Guidelines

Bike Parking

Bicycle parking can be broadly defined as either short-term or long-term parking:

- **Short-term parking**: Bicycle parking meant to accommodate visitors, customers, messengers and others expected to depart within two hours; requires approved standard rack, appropriate location and placement, and weather protection.
- **Long-term parking**: Bicycle parking meant to accommodate employees, students, residents, commuters, and others expected to park more than two hours. This parking is to be provided in a secure, weather-protected manner and location.

Short-term Bike Parking

Short-term parking typically takes the form of a simple bicycle rack. There are several important factors to consider when providing short-term bicycle parking:

1. Type of rack
2. Space requirements for each rack
3. Location of the parking facility

1. Type of Rack

A bicycle rack should:

- Support the bicycle frame in two places to increase stability and reduce the risk of falling which can cause damage to the bicycle
- Accommodate high-security U-shaped bike locks
- Enable the frame and one or both wheels to be secured

Inverted-U or staple racks are a commonly used rack that fulfills the above requirements. Section IV of this plan displays this and other appropriate rack styles. Examples of styles that do not fulfill the above requirements and should be avoided are also provided.

2. Space Requirements

- Bicycle parking spaces should be at least 6 ft long and 2 ft wide. A common installation error is to leave insufficient space (less than 2 feet) between the rack and a building or other obstacle (see diagrams in Standards for Bicycle Access and Parking).
- A 5 foot aisle should be provided and maintained behind all bicycle parking to allow cyclists to maneuver their bicycles. If there is more than one row of bicycle parking, a 5 foot aisle should be provided between each row.
- Bicycle racks should be securely anchored to the surface or a structure.

- Overhead clearance in covered spaces should be at least 7 ft.

3. Location of the Parking Facility

The location of parking facilities impacts both the bicycle's security from theft or vandalism while it is parked at the facility and the bicyclist's safety from traffic and crime as he or she enters and exits the parking area.

Items to consider with regard to location include:

- Bicycle parking should be located within 50 feet of the main entrance of a building
- A highly visible location is preferable to a dark or obscure one
- Bike parking should not obstruct pedestrian flow
- Bicycle parking should be at least as convenient as automobile parking
- Curb cuts near the facility can discourage cyclists from riding on the sidewalk to access parking

Long-term Parking

Secure long-term parking can be provided in a number of ways:

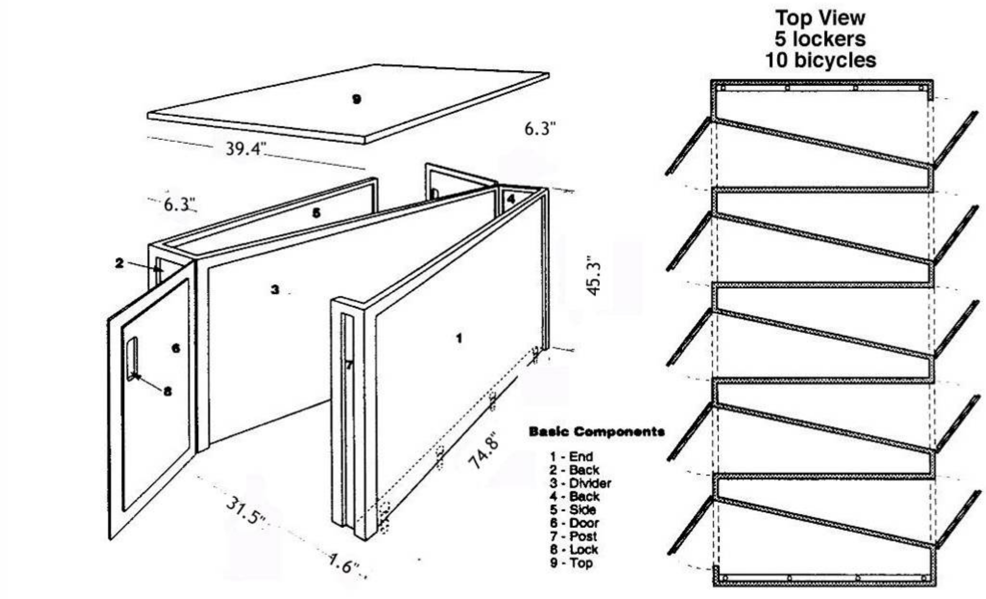
- Bicycle lockers
- Bicycle racks in a room or cage (with key or card access)
- Formal or informal supervision
- Full service bike depots with secure, attended, covered parking with lockers and showers

Types of Long-term Parking

Bicycle Lockers

Bicycle lockers provide space to store a bicycle as well as a few accessories or rain gear. Bicycle lockers have traditionally been available on a sign-up basis, whereby cyclists are given a key or a code to access a particular locker for a month or a year. However, lockers can also be made available for one-time use. New computerized on-demand systems allow users to check for available lockers or sign up for them online, enabling them to serve both regular and incidental system users. Lockers available for one-time use have the advantage of serving multiple users a week. Monthly rentals, by contrast, ensure renters that their own personal locker will always be available.

New federal security requirements mandating that locker contents be visible has highlighted a tradeoff between security and perceived safety. Though these measures are designed to increase station security, bicyclists tend to perceive the contents of their locker as less secure if they are visible. This change in federal policy is likely to make bicyclists more reluctant to use lockers.



Bicycle Racks in a Cage or Room

The security of a bicycle rack parking facility can be increased by enclosing it in a restricted access cage. The cage can be fitted with a gate and an electronic passcard access to provide unsupervised parking. Where there is a high demand for parking, several small cages provide more security than one larger one, as they reduce the number of people who have access to each cage. Parking inside an enclosed room is a more secure, but also more expensive option.

Bike Depot or BikeStation

Bike depots generally refer to full-service parking facilities typically located at major transit locations that offer secure bicycle parking and other amenities. There is no universally accepted terminology to describe different types of full-service bicycle parking facilities. While each depot is unique, they often provide:

- Attended or restricted-access parking spots
- Shared-use bicycle rentals
- Access to public transportation
- Commute trip-planning information

The non-profit organization BikeStation™, which runs several parking facilities in California and Washington[11], offers free parking during business hours and key-card access after-hours for members. Paying members enjoy a number of services. Services, which differ by location, may include bicycle repairs, bicycle rentals, sales and accessories, restrooms, changing rooms and showers, and access to vehicle-sharing, such as ZipCar. They can also incorporate restaurants or other services.

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[11] The Seattle Bikestation™ is located at 311 3rd Avenue South in Seattle, Washington. It is currently operated by the Bicycle Alliance of Washington who can be reached at (206) 224-9252.

Seattle Bikestation™ members receive discounted ZipCar and Bicycle Alliance of Washington memberships, as well as access to repair services, rentals, and a library of bicycling resources. They also offer a guaranteed ride home program, which reduces the fear of being stranded by a flat tire or other malfunction.

The example layout shown in Figure 1 is a full-service bike depot that takes into account the space and circulation requirements of services that involve short periods of intense activity at peak times. These include attended bicycle parking and bike rentals. The layout allows flexibility for the addition and removal of amenities that are more experimental, and has bicycle parking in an unheated location, while areas in which people gather would be heated. The Bikestations in Seattle and the San Francisco Bay Area have similar layouts. Figure 2 is an example of a simpler bike depot that combines a variety of parking options with an outdoor plaza.

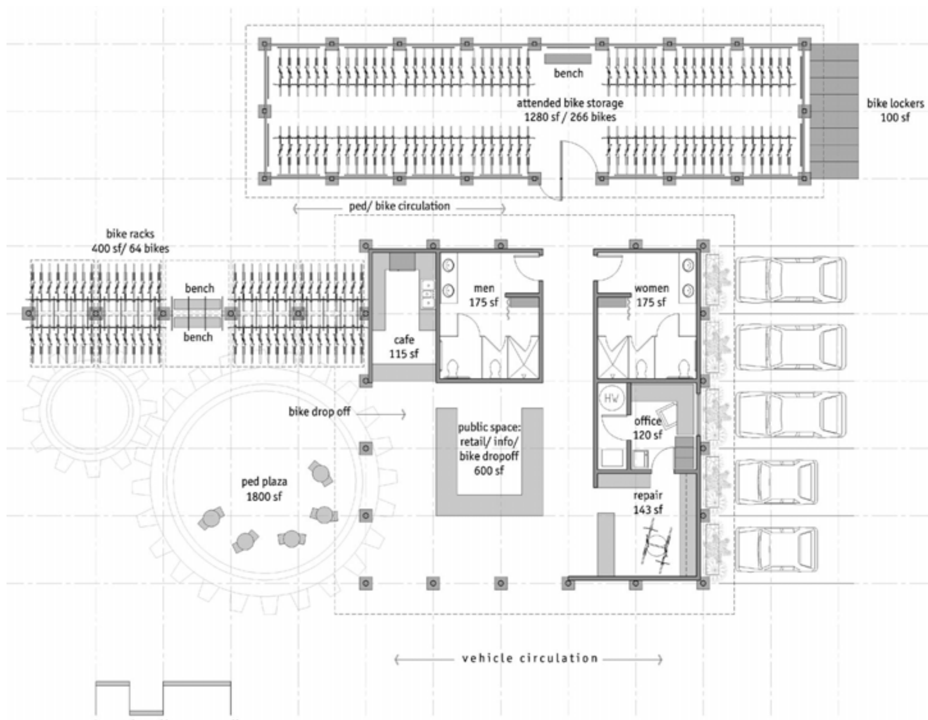

Figure 1. Example Floor Plan of a Full-Service Bike Depot

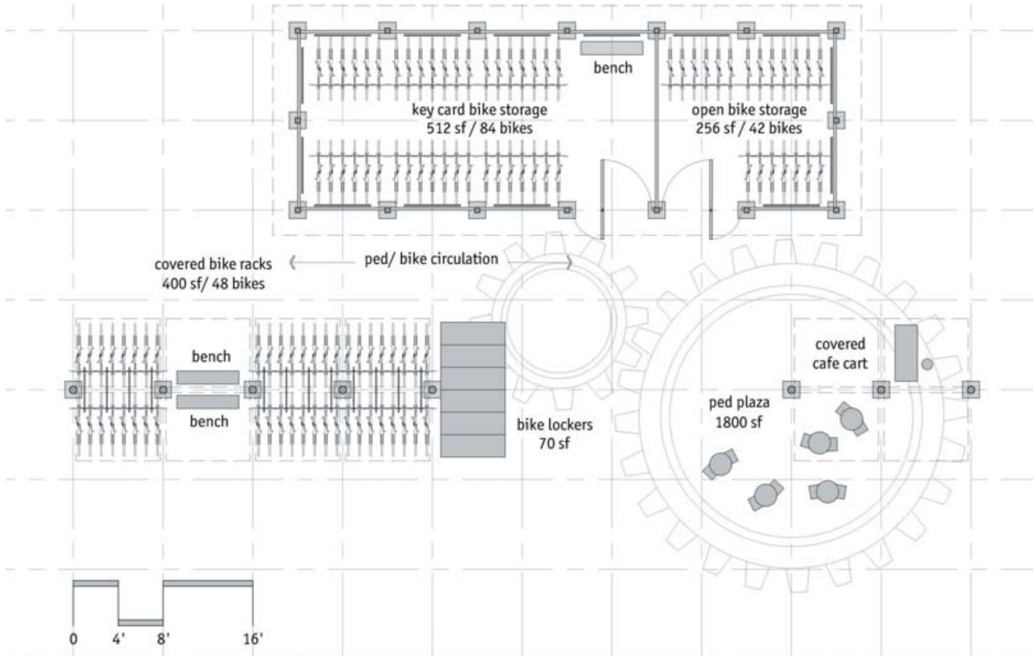

Figure 2. Bike Depot Design Proposed in Central Puget Sound Regional Bikestation Project Report

Full-service bike depots are typically subsidized by local agencies as part of an effort to expand the range of their transit services and encourage bicycling. No Bikestation™ in the U.S. at present is self-sustaining in revenue; all require public subsidies of some sort for both operating and capital expenses (e.g. waived rent in government-owned buildings). The Seattle Bikestation™ charges $96 per year, $12 per month, or $1 per day, in addition to a $20 annual administrative fee.

Capital: $25,000-$3 Million (BikeStation™ fact sheet)
Operating: Fully staffed: $150-200,000/yr (BikeStation™ Berkeley)/Staffed during commute hours: $60,000/yr (BikeStation™ Embarcadero)

Eyes on the Bikes

Supervision of a bicycle parking area greatly enhances security. However, supervision can be provided without an actual attendant. Placing parking in proximity to and within view of retail or other institutional activity can provide de facto supervision of the parking area. As a rule of thumb, locating bicycle parking near people adds security. With this in mind, a well-planned (and placed) parking facility can offer improved security and convenience for bicyclists at a fraction of the price of a full service bike depot.

Other Factors to Consider

The following are other elements to consider when drafting policy and guidelines:

- Showers and changing facilities
- Covered facilities
- On-street bicycle parking

- Bikes and Transit

Showers and Changing Facilities

Bicyclists sometimes arrive at their destination muddy, wet or just plain sweaty. This can be a real deterrent to riding a bicycle, especially to work. Providing employees with a place to shower as well as store and change clothes can help encourage bicycle commuting. There are several ways to provide these services:

- They can be required in new buildings or retro-fitted in old buildings.
- A shower and clothes lockers can sometimes be added to existing restrooms. A single shower stall and space to change clothes typically requires a six by four foot space.
- Employers can partner with places that already have these facilities, such as a local gym.
- Several employers or a Transportation Management Association (TMA) can establish facilities that are shared by several employers.

Covered Facilities

Covered parking is beneficial for users of short-term parking and essential for long-term parking. The covering should extend two feet beyond the parking area to prevent rain from cross-winds from blowing onto parked bicycles.

On-street Bicycle Parking

On-street bicycle parking

Where racks are not possible on sidewalks (because of narrow sidewalk width, sidewalk obstructions, or other issues), bicycle parking can be created in the street where on-street vehicle parking is allowed. Two possible options for creating parking in the street include clustered racks in a car parking space protected by bollards or curbs, and racks installed on sidewalk curb extensions where adequate sight distance can be provided. Installing bicycle parking directly in a car parking space incurs only the cost of the racks and bollards or other protective devices. A typical parallel parking space can accommodate six 'inverted U' racks to provide 12 bicycle parking spaces.

A curb extension is more expensive to install, and can be prohibitively expensive if substantial drainage and/or utility work is necessary. Costs may be less if the curb extension is installed as part of a larger street or pedestrian improvement project. While on-street bicycle parking may take space away from the automobile parking, there are ways to mitigate auto parking loss: Additional auto parking spaces can be created by consolidating driveways, moving fire hydrants, or otherwise finding places where it may be possible to admit auto parking where it is currently prohibited. Options for combining bicycle and motorcycle parking also exist.

Bikes and Transit

Bikes and transit are two modes with the potential to be highly complementary. For example, the increased range of bicycling as compared to walking effectively increases the market capture of each transit stop. Transit, for its part, increases the range of a bicycle trip.

People combine bicycling with transit for a number of reasons. A recent survey of TriMet riders in Portland, Oregon found that people combine bicycling with transit for trips that are too far or would take too long on a bicycle, in order to avoid transfers and hills and to take advantage of the speed of buses or trains.

High-quality, secure and ample bicycle parking facilities encourage bicycle-to-transit connections. While bicycle parking can be a simple outdoor rack, many bicyclists are unwilling to lock their bicycle for more than a short time because of concerns about theft and vandalism. Most bicycles today cost $350 to over $2,000 and are one of the most-often stolen items in all communities, with components frequently stolen even when a bicycle is securely locked in public.

In order to achieve significant usage of bicycle parking, higher-security parking should be provided that affords weather, theft and vandalism protection. Gear storage space and 24-hour access can further increase usage. Parking facilities at transit stations can reduce the need to accommodate bicycles on transit vehicles, which benefits transit providers that have limited space on board vehicles.

Everett Transit and Community Transit both have racks on the front of their buses that can accommodate two bicycles. The new Swift bus rapid transit (BRT) vehicles will have onboard racks to accommodate three bicycles. The vehicles will also have three separate doors – one for walk on boarding, one for handicapped boarding, and one for bicycle boarding.

Transit vehicles in Everett do a good job of accommodating bicycles. However, adequate bicycle parking is not always available at transit stations or stops. Community Transit, for example, is not planning to provide bicycle parking at BRT stops. Increased bicycle parking at stations and stops helps facilitate bike-transit trips for people that do not need their bicycle at the other end of the trip. Adequate bicycle parking also helps ensure that there is room on the bus racks for those people that need their bike on both ends of the trip.

Recommended Action Items

Action 1

Amend Everett Municipal Code to include minimum requirements for bicycle parking. Title 19 (Zoning) - Chapter 34 (Off-street Parking - Loading Requirements) is the appropriate section.

Action 2

Prepare guidelines for placement and design of bicycle parking within City rights-of-way, with Planning Department and Public Works Department input.

Action 3

Work with Permit Services to develop a strategy for monitoring and enforcement of bicycle parking provisions in the Everett Municipal Code, especially when issuing building permits.

Action 4

Hold meetings as needed between Permit Services, Planning Department staff and the Everett Police Department Parking Enforcement Unit to establish a program to monitor citywide bicycle-parking compliance status.

Action 5

Conduct bicycle parking training for new Permit Services personnel as needed.

Action 6

Amend Everett Municipal Code to lower the number of automobile parking spaces required in buildings where long-term bicycle parking is provided. Developers and businesses can be given the option to provide additional bicycle parking beyond the minimum requirements in lieu of required auto parking on a 4:1 or 5:1 basis, up to a certain maximum percentage. For most cities that have implemented this system, the maximum amount of auto parking allowed to be replaced by bicycle parking ranges from 10% to 25%. The City of Everett should decide what maximum amount is most appropriate to institute.

Action 11

Create a bike rack installation program where businesses or residential developments can install bicycle racks at their facilities. Develop a bicycle registration program with a permit fee to be used to implement this program.

Action 12

Work with the Everett Police Department to make bicycle theft investigation a higher priority and to create an improved system for returning recovered bicycles to their owners. Boulder, Colorado is an example of a city with a bicycle registration program (http://tinyurl.com/7fuqkm).

Appendix H. Bike Sharing Technical Memorandum

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PLANNING + DESIGN

White Paper

Summary

This white paper will discuss worldwide best practices of successful bike share programs, summarize lessons learned from historic and existing programs, and then discuss the feasibility of implementing a bike share program in Everett, Washington.

A review of international best practices suggests that Everett is not a good candidate for a bike sharing program at the present time. US Cities currently considering bike share programs, such as Minneapolis, Minnesota, generally have a larger base population than Everett and higher population density within the city. To meet baseline conditions observed in cities with successful bike share programs, Everett's population would have to double and the population density increase significantly.

Based on the data presented in this paper, implementation of a bike share program in Everett will not meet the needs of the population and will provide a poor return on money invested in bicycles, personnel and supporting infrastructure. To achieve a desirable level of success, the program must provide a minimum number of stations, bicycles and docks such that 1.) bicycles will be available at each location and 2.) users will consistently find an empty dock to return their bicycles. Given the population size and density in Everett, even the minimum number of bicycles, stations and docks would be underutilized.

A bike share system should be considered as a potential part of Everett's long term cycling future. In the near term the City can prepare for the future implementation of a bicycle share program by focusing on engineering improvements to complete its on-street bikeway system.

Bike Share Programs

Bike share programs can provide safe and convenient access to bicycles for short trips, such as running errands during lunch, and transit-work trips. The international community has experimented with bike share programs for nearly 40 years. Until recently, bike share programs worldwide have experienced low to moderate success; in the last 5 years, innovations in technology have given rise to a new (third) generation of technology-driven bike share programs These new bike share programs can dramatically increase the visibility of cycling and lower barriers to use by requiring only that the user have a desire to bike and a smart card, credit card or cell phone.

Bike share programs, such as systems in Paris and Lyon, France, help increase cycling mode share, complete gaps in the public transit system, reduce a city's travel-related carbon footprint and provide additional 'green' jobs related to system management and maintenance. In the US, many cities are considering bike share programs, though they have not yet been widely implemented. These systems are not foolproof; poor design, inadequate supply of bicycles, and a lack of maintenance are among the potential pitfalls faced when building and implementing a bike share system.

Elements of Existing Bike Share Programs

Technology-driven bike share programs have many common elements including equipment and systems (e.g., bike fleets, parking and locking mechanisms, user interface and check-out protocols, and station networks), as well as maintenance and management requirements (e.g., fleet and station maintenance, status information systems and bicycle redistribution systems). This memo draws examples from programs worldwide to illustrate the various elements and highlight the variety of possible approaches.

Equipment

Bike Fleet

Fleet bikes, such as those used in Deutsche Bahn Call-a-Bike system, should be easily distinguishable.

Fleet bikes should be distinctive, designed for easy city use, and be clearly branded to increase their visibility. Bikes typically come with full fenders, chain guards and, in some cases, locking mechanism attached to the bike's frame. In most systems, bikes come equipped with a Global Position System (GPS) unit, Radio Frequency Identification (RFID) tag, used to locate the bike within the system. This function is typically used in fleet management, utilization analysis, and location of lost or stolen bikes.

Parking and Locking Mechanisms

Two major types of locking technology, both fully automated, are available:

1. Bikes lock to either a rack or kiosk where users collect and drop bikes using a smart card or credit card. Card-access systems are found throughout the world. These systems are generally simple to operate, making them accessible to the general public.

2. Bikes are secured using an electronic lock mounted on the bike. The customer calls the telephone number given on the bike which includes the bike's ID and gets by voice the 4 digit opening code, which he then types onto the bike's touch screen to unlock it. This is commonly referred to as a dial-a-bike, or call-a-bike system. These systems are found predominately in Germany.

The Washington D.C. bike share program uses card-access technology.

Call-a-bike check-out requires very little infrastructure as the necessary mechanisms are mounted on the bike itself. Stations using card-access systems generally require:

- A bar, dock, post or other physical structure to lock bicycles between uses
- A computerized system to check bicycles in and out
- A power source to control check-in/check-out and track bicycles

Call-a-bike systems use locking technology built into the bike itself.

Station Design, User Interface and Check-in/Check-out protocols

All bike share programs require a user interface to collect and retrieve bicycles through a check-in/check-out system. The interface should be simple and easy to understand (e.g., give instructions diagrams and multiple languages when necessary). Stations should provide clear directions on how to access and return a bicycle. Other recommended elements and design guidelines include:

- Instructions on where and how to return bicycles
- Cost and pricing information
- Contact information to report damaged bikes or stations
- Maps of nearby stations and recommended bicycle routes
- Damage-resistant locking mechanisms
- Quick access to avoid queues and maximize safety[12]

Check-in/check-out procedures at a card-access kiosk. Instructions are available in several languages.

Both system styles may require the user to register prior to bike check-out. The best systems will offer multiple options to register and pay for bike check out (e.g., smart card or credit card.)

Smart card systems allow quicker, more convenient bicycle access as users are not required to make a phone call in order to check bikes in or out. Programs using a smart card system generally do not provide users with a lock. If users have prepaid for a Smart Card, or registered for the service with a credit card, they can simply swipe the appropriate card and go. Many systems also allow the user to register for an account at station locations.

Call-a-bike check-out is accomplished in part by phone but also operates via an automated user interface.

Call-a-bike systems require the user to know and plan for the need to place a phone call in order to unlock the bike, but allow increased flexibility in terms of return locations and provide the ability to temporarily secure the bike during the rental period. Users can generally register for Call-a-bike systems via the internet or a customer service line. After completing the initial set-up these systems, users simply call an automated number and receive the bike's unlock code. Time is charged against the credit card registered during the initial Call-a-Bike account set-up. Users receive a periodic statement detailing each rental change during the previous billing cycle.

[12] Clear Channel Outdoor suggests that bicycle access should require less than ten seconds.

Table 1 includes basic recommendations for bicycles, locking technology, and station design.

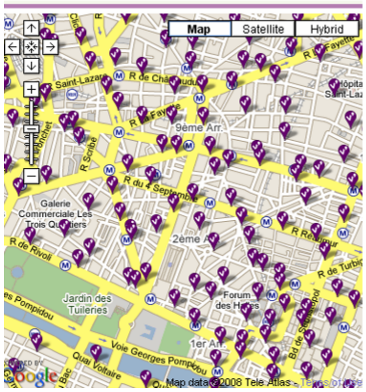
Table 1. Recommendations for bicycles, locking technology and station design.

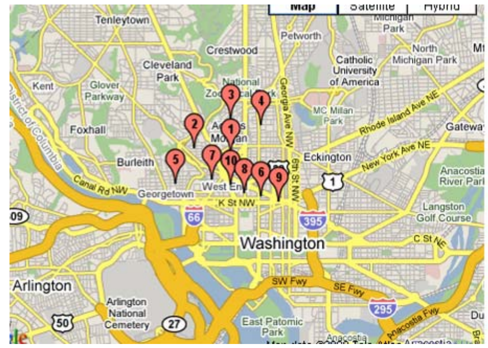
Equipment	Guidelines
Bicycles	• Easy and comfortable to ride • Equipped for utilitarian, city riding (e.g., include chain guard, kick stand, bell, bicycle lights, front and rear wheel fenders, a large basket or bike rack) • Includes bike lock, if full-day rentals are permitted and/or if users may "return" the bike by leaving it anywhere • Distinctly 'branded' to permit easy recognition and reduce the chance of theft. Some bike systems also include non-standard components of bicycle frames to reduce the chance of disassembly and resale.
Parking and Locking Mechanisms	• Secure, and easy to use • Visible and well-lit, even if hours of use are restricted • Denote availability of bikes through indications of status (typically red or green light). The location of this light will be dependant on the type of system. In the Washington D.C. system availability is denoted on-line, or on the kiosk; in Call-a-Bike systems the status indicator is generally on the bike itself. • Should provide a map of other nearby stations and directions on how bike check-out and return methods • Include clear information about bicycle rental costs
Station design, check-out method and protocols	• Automated, simple and easy to use • Resistant to damage and vandalism • Accessible to users of casual and regular users • Provide a method for initial registration

Station Networks

Station networks should be designed with regard to anticipated users and trip types. For example, some systems in the Netherlands target rail commuters who need a bike to get from the rail station to work. In Paris, stations are placed to create a citywide network with stations available about every 300 - 500 meters. A call-a-bike system may be ideal for casual commuters or tourists who may take advantage of the opportunity to make spontaneous one-way trips and would benefit from the option to leave the bike at any street intersection within a predefined service zone. A good station network will:

- Place bikes at easily-found high-traffic locations
- Connect to public transit stops and stations
- Serve the needs of recreation and utilitarian trips
- Appeal to the targeted population by placing stations near desirable destinations
- Include sufficient stalls at each station to exceed anticipated demand under normal conditions
- Take terrain into consideration (most cyclists prefer to avoid hilly terrain when possible)
- Have stations placed within a reasonable travel distance of each other (difficulty created by inconvenient rental/return locations could contribute to underutilization of the system)





The map on the left shows station locations in a small portion of Paris. The map on the right shows all the stations in Washington D.C. In Paris, the stations are placed evenly throughout the city; in D.C the stations are placed near transit stations and key travel destinations.

Maintenance and Management

A key aspect of any bike share program is system and fleet maintenance and management. These activities can help keep the bike share system is in top operating order and provide sufficient bikes to accommodate normal demand.

Fleet Management

Status Information System

A status information system will allow operators to:

- Track bike status (e.g., track a bike's location and whether it is in or out of service)
- Track bike location and usage history
- Track station usage
- Track each user's usage statistics and billing information

The bike system status information allows system operators to track management, develop and refine bike redistribution strategies, track maintenance, and perform other critical system activities. Some systems may also handle billing and subscription related activities.

Bicycle Redistribution Mechanism

Users need a high level of confidence that a bicycle will be available at the station of their choice. In order to meet this expectation, bicycles will have to be redistributed from one station to another from time to time. Past performance of systems in Lyon and Paris indicates that many locations experience peak times of use when a rack will be either completely full or completely empty, making the check-out or return of bikes impossible. Information about bicycle demand should be gathered through GPS units, Radio Frequency Identification (RFID) tags and any other means used to track bicycle locations. Redistribution may require attention throughout the day as activity patterns shift. For example, transit stations may run out of bikes during early morning commute hours, while the evening hours will likely see the opposite effect: a lack of empty parking spots to return bikes. Areas likely to require redistribution include:

- Community colleges
- Transit stations
- Large employment centers

- Stations located at the top or bottom of large hills (e.g., people may decide to walk or take transit up the hill rather than take the bike).

Fleet and Station Maintenance

Bike fleet maintenance includes common activities such as filling tires with air and tuning up bike gears. Station maintenance may include repairing lock mechanisms, replacing damaged interfaces, and installing new power sources. Bikes and stations not kept in good repair can create safety and liability issues. System operators should consider requiring users to sign a libability release waiver. An example from the U.C. Berkeley Bike Share Program is included in Appendix B.

Some systems, such as the one in Washington DC, will send messages about required bike and station maintenance. Others systems, such as the Bycyklen stations in Copenhagen, have little to no automation and require regular inspection to ensure that stations and bicycles remain in good repair.

Bike fleets and stations will require both scheduled (preventative) maintenance and as-needed maintenance as issues arise. A bike share program should include a plan for fleet and station maintenance. Suggested plan elements include:

Maintenance and management are a key part of bike share systems, as in this photo of bike redistribution from Barcelona.

- A method for users to report bike damage, necessary repairs or vandalism
- A schedule for regular station inspection and or maintenance
- A clearly identified party or group in charge of fleet or system maintenance
- A funding source, or identified method to pay for scheduled and as-needed maintenance required to keep bicycles and stations in working order

Cost, Funding and Operational Models

Costs associated with a bike share systems fall into four categories:

- Direct capital costs (e.g., bikes and terminals)
- Direct operating costs (e.g., administration, maintenance, and electricity to power terminals)
- Associated capital costs (e.g., streetscape improvements)
- Associated operating costs (e.g., the existing bikeway network, bicycle maintenance, bicycle redistribution, insurance costs)

It is common for a government agency to undertake operation of a bike share system with an operating partner, as most bike share systems are not financially self-sustaining. Funding for public bicycle systems typically commonly comes through a combination of advertisements, user fees, and public government funds, and operates as a public-private partnership. One exception to the public/private partnership model is the Bixi system in Montreal. This system, managed by the parking department, already has staff and logistics in place for roving workers to visit stops and already has billing and revenue collection processes in place.

In Paris, advertiser JC Decaux funds the entire system and relies upon revenue from billboard space (granted to the company by the city) and bike rentals to pay the bills. If advertising rights are included as part of the partnership agreement, the city should consider what type of proposals are acceptable, including limitations on content, ad placement, and duration of advertising rights. Municipal Codes and State laws sometimes place restrictions on where advertising may occur, which could impact the use of this funding mechanism.

System costs vary widely based program scope and size. For example, lessons learned from the European Union cite bike costs ranging from 250-1200 Euros ($350 to $1580 USD[13]) depending on the type of technology[14]. The anticipated cost of the Paris program and the Rennes program was estimated at about 1,000 Euros ($1300 USD[15]) per year/per bike, but has been higher due to greater than expected levels of bike theft and vandalism.

Lessons Learned

Historic Failures

The history of bike share programs in the United States and Europe provides an understanding of lessons learned and barriers overcome by technology.

First and Second Generation Bike Share Systems

First-generation bike share programs began in 1968 in Amsterdam and spread to other cities throughout the world. Program organizers assembled a fleet of bikes and gave them a distinguishing feature, such as painting them white. Bikes were left around the city in key locations for free use.

Theft and poor organization were the key reasons cited for program failure in many first generation bicycle programs.

The coin deposit required by the Bycyklen system does not always provide enough incentive for the user to return the rented bike.

Second-generation systems attempted to minimize theft and increase organization by modifying bikes to require a minimal check-out deposit payable at designated bike pick-up/drop-off stations. Like first generation systems, bikes were still painted or otherwise branded to ensure that each vehicle was recognized as part of the bike share system. Bikes were also equipped or retrofitted with a locking mechanism that allowed them to be checked out and returned. An example of this system is the Copenhagen Bycyklen, founded in 1995, and discussed in Table 2 in the Appendix. However, the return of the required deposit does not always present the user with enough incentive to return the bike, and theft remains a common problem. It was estimated that 300 bikes (about 15% of the fleet) was lost to theft in 1996

Historic Lessons Learned

A summary of problems found in historic systems includes:

- Lack of user accountability resulting in:
    - Little or no reason for borrowers to return bicycles to designated locations

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[13] As of January 26, 2009.
[14] Sebastian Bührmann, Rupprecht Consult Forschung & Beratung GmbH, Cologne (Germany)
[15] As of January 26, 2009.

    - Bicycles in poor condition due to lack of user regard
    - Bicycle theft

- Bicycles in poor conditions due to lack of maintenance
- Inadequate or no funding to maintain or advertise the system

Case Study: An Unsuccessful 'Smart' Bike share program in Brussels, Belgium

The Brussels bike share program has not seen the same level of success exhibited by the Lyon and Paris systems, despite being run by the same advertiser and sponsor. The cities each have similar topography, climate and levels of vehicular traffic and bicycle facilities. Each of these cities has hilly topography, moderately rainy climates, and incomplete bicycle facility networks. Reasons cited for failure of the Brussels system include:

- An inadequate number of bicycles. The Lyon and Paris systems both contain about one bike per 100 inhabitants, compared to 250 bikes for 1,000,000 residents in Brussels[16]. In order to achieve the same coverage found in the successful programs in Lyon and Paris, the Brussls system would need to provide about 1,000 bikes.
- Inadequate station coverage. The system in Brussels contains about 20 stations all centered in the city core, while in Paris and Lyon, stations are placed throughout the city at distance of one station every 300 - 500 meters (approximately 0.2 – 0.3 miles).
- A system focused on recreation rather than utilitarian trips. The station placement in Brussels fails to capture many home-to-work utilitarian trips, which account for about 65% of trips in the Paris and Lyon systems.
- Hilly terrain. Several locations in Brussels are quite steep, which may have had the effect of deterring system use from the start. It is possible that system use was further impacted by the choice of system bike – heavy bikes with only three speeds that increased the difficulty of traveling uphill. Though the same bike is used in all three cities, a greater distribution of system stations in Paris and Lyon allows users more chances to avoid hilly terrain and leave the bike at the bottom of a hill.
- System pricing. While the first half hour of rental in Paris or Lyon is free, renters in Brussels are required to pay .50 Euro cents for the first half hour. Failure to allow free short trips increases the cost until it is comparable with the use of other public transit or private bicycle purchase, and likely deters first time or occasional use.

Characteristics of Successful Technology-Driven Bike Share Programs

Match the Bike Share System to the Target Group

Systems experiencing higher levels of success have identified key target groups and tailored their bike share programs accordingly. For example, call-a-bike systems create highly flexible networks for city centers. Users who enter from areas such as rail stations can use bikes as their transport while in town but are not required to return the bike to a specific location. Smart Card systems may be more appropriate in areas where local users will be able to pick up and return bikes at different location within the city.

Match the Program to the Existing Conditions

Many practitioners mention that bike share systems targeted at the general population work best in moderate to large cities with a minimum population of about 200,000 people. Other case studies have shown that smaller cities have achieved success with systems targeted at a specific population demographic, such as rail

[16] http://www.treehugger.com/files/2008/01/free_bikes_flop.php

commuters. Other bike share programs have targeted university students (e.g., the system being planned for the University of Washington) or employees of one or two large companies.

Initial Bike Roll-out

Case studies suggest that a system must have enough critical mass at roll-out to attract users to the system. For example, the Paris program began operation with nearly half its fleet (10,000 bikes at 750 stations). Spring or summer is an ideal time to roll-out a bike share system, as it reduces weather-related barriers to bicycle travel. Starting a bike share program in conjunction with another event will help draw attention to the program.

Provide a Mechanism for Bike Redistribution

It is important for users to be able to rely on the availability of a bike to rent and to find space for a return. Bike redistribution is likely to be most necessary at particular stations, related to travel patterns. Over time, usage trends can be identified and a bike redistribution mechanism developed to help balance the locations of high demand and availability.

Price Bicycle Rental Affordably

Pricing rental on a graduated scale will encourage prompt return of bicycles and reinforce the idea of user accountability. The Paris system is free for the first half-hour, and then charges about $1.30 for the second half hour, $2.60 for the third half hour and $5.20 for the fourth half hour and each additional half hour.

Allowing free rental for the first thirty minutes encourages users to try the system. In Paris and Lyon, this policy has resulted in about 95% of rides being free. A system run by advertiser JC Decaux in Brussels is considered to have poor ridership, in part due to a lack of free service.

Ensure User Accountability

Most successful systems ensure user accountability by providing an incentive to return the bike and treat it well during use. Systems enforce a varying amount of accountability. In systems that require a user to register prior to use, the system operator can bill users for bicycle damages or unreturned bikes

In some programs rental time is restricted to a maximum (typically three hours). If a bicycle is not returned within the allotted window, the user (identified by their check-out code) is fined a set amount, or simply charged for the cost of the bike. This system can be frustrating to users unless stations are frequent and easy-to-find.

The call-a-bike system continues to charge against the credit card provided until the user calls and verifies the return receipt number.

The least stringent accountability system is associated with the Copenhagen Bycyklen system. Users receive their deposit back, but have very little incentive to return the bike to a designated location.

Create a System Optimized for the Average Bicycle Trip Length

Cities such as Paris and Lyon (e.g., cities not selecting Call-a-Bike technology) have been very successful in creating systems where bicycles serve as a major source of public transportation within the core downtown area, aimed at trips under 5 km (about 3.1 miles). Bike trips commonly last under 30 minutes and cover less than 3 miles. As the first half hour of bike rental is free in the Paris and Lyon systems, users are provided with an incentive to use the system for short trips. As users become accustomed to using the bikes, they may begin to use them for longer trips (e.g. in Everett trips to the ECC, Everett Mall, Boeing, ferry terminals, etc.).

Extension of Public Transportation System

To function as an effective part of the public transportation system, bike share programs should conform to the same standards as other modes for dependability, affordability and convenience. Recommendations and system characteristics that will help to ensure success include:

- Frequently spaced, convenient stations that take terrain and other environmental factors into account

- Bikes that are consistently and readily available at transit transfer points (e.g., train stations and other transit hubs) to ensure a reliable linkage between other modes of public transportation and the bike share system

- Bikes available at key trip start and end points in the downtown area (sports stadiums, train stations, major employers, and parks)

- A bike redistribution system to ensure availability of bikes at all station locations

- Unlimited hours of service or hours of service that match those of local transit providers

- Rental window of a suitable duration to allow bicycle use for utilitarian trips (e.g., permitting two or three hour rentals facilitates using a bicycle for a trip to a meeting across town or to the grocery store)

Technology is Not Always the Answer

Depending on the scope and scale of the project, a technologically based system may be unnecessarily complex and costly. For example, a small company's internal bike share program may only require the employee to note their name and expected return time. A bike share program through a university or co-op may track rental through a paper trail and involve technology (e.g., the university's financial system) only when a user fails to return the bike. Programs that do not utilize technology for bicycle check-in/check-out require a greater dedication of person-time to keep track of fleet bikes and could essentially be classified as a bicycle library. Human-administered systems are also more prone to break down due to error (e.g., failure to check a bike in properly). Despite the greater input of time, a bicycle library system is less expensive than a technology based system, can operate successfully on a smaller scale, has fewer associated costs and can provide greater flexibility (e.g., variation in the amount of time a user is allowed to borrow a bike).

Bike Share Programs in Everett

A bike share program in Everett could benefit both visitors and residents, but it would not come without cost. Prior to implementing a bike share system, the City should consider the potential costs and issues presented in Table 2.

Table 2. Potential Costs and Issues Associated with Bike Share Programs

Issue for Consideration	Discussion
Cost	No bike share systems is financially self-sustaining at this time. Any money allocated to a bike share system will likely come from a funding stream that could otherwise be used to construct new bicycle infrastructure and move towards a comprehensive bikeway network in Everett. Based on an cost estimates from the Paris system (about $1,300 dollars per bike/year) a system of 1,000 bikes would cost the city $1.3 million/year. Though some of this cost may be absorbed by an operating company and user fees, the city would still have to provide some form of compensation, either in financial resources or advertising space.
Safety/Liability	Even if users are required to sign a liability waver, the system owner/operator will incur some responsibility for the system's safety.

Existing Bicycle Facilities	The system of bikeways in Everett is incomplete. People may choose not to bike due to the actual or perceived lack of a complete safe and comfortable network of bikeway facilities that connect to their desired destinations.
Number of Bikes	Lessons learned from Europe suggest that a system should have at least 1 bike per 100 people. So, for a city of 100,000 Everett would need at least 1,000 bikes. US bike share systems may require a greater number of bikes to achieve the same level of success seen in European systems, due in part to variations in land use patterns. Successful systems have started operation with a significant percentage of the fleet ready to roll. Ideally, a system in Everett would begin operation with at least 50% or 500 bikes on the ground.
City Population	Lessons learned in Europe indicate that bike share systems are most suitable in moderately sized cities with a population of at least 200,000 people. Based on this fact alone, a bike share program in Everett may not achieve the level of success seen in other cities.
Selection of Destinations and Station Placement	Some places in Everett will not be reached as easily as others. For example, Everett Mall is several miles from downtown and would require a longer bicycle trip than many people would be willing to make. Also, significant elevation changes between destinations may decrease people's willingness to bike.
Weather	Everett has a significant number fairly cold, rainy days. Potential system users, especially infrequent cyclists, may not choose to utilize the system when they perceive if conditions are not optimal or adequate for cycling.
Terrain	Everett's topography could impact the amount of bicycle activity within the city. Hilly terrain could cause a reduction in trip distance or duration or an outright reduction in the number of trips taken. The impact of terrain may be magnified by the weight and gearing of the selected rental bike.

If after careful consideration the city decides to develop a bike share program, it should consider creating partnerships with smaller non-profit bike share library systems such as the Sharing Wheels Community Bicycle Co-op. Within these partnerships, the city could act as a clearinghouse to connect interested people and providers and provide technical expertise such as route recommendations and small grant programs to defray program start-up costs. Providing low-level assistance now could help to develop a solid knowledge and vision of the necessary characteristics a bike share program should have in order to provide the greatest benefit to the city in the long term. If the city does choose to implement a technology-based system, it should consider a partnership with an organization or firm experienced in bike share program operations.

Potential target populations for a technology-based system include:

- Commuters entering the city via the Washington State Ferry System. It should be noted that the ferry terminal may be too far from other key destinations to make bicycling a desirable mode of transportation to and from these locations.

- Commuters entering the city through bus rapid transit. It should be noted that bike racks are not included in current station plans, though buses will be able to carry up to 4 bikes. Commuters entering the city via Sounder commuter rail.

- Students at local colleges such as Everett Community College and City University. It should be noted that these colleges may be too far from other key destinations to make bicycling a desirable mode of transportation to and from these locations, except from the North Everett residential areas.

- Large employers including Boeing, Verizon, Providence Medical Center, Fluke, and Kimberly Klein.

- Local government including the City of Everett and Snohomish County.

Key station locations would be based on the targeted population, but could include:

- Transit stops

- Buildings of major employers

- Everett Station, Everett Transit, Community Transit, Sound Transit, Greyhound, and Amtrak

- Park and rides

- Washington State Ferry terminal. It should be noted that ridership to and from the ferry terminal will be impacted by distance. A station placed at this location may not achieve the expected level of performance

- Everett Mall. It should be noted that ridership to and from the mall will be impacted by distance and hilly terrain. A station placed at this location may not achieve the expected level of performance

- Other downtown locations

A targeted survey and data gathering effort can help identify locations where stations are likely to attract high ridership. The data used to site potential station locations should include transit connections, bicycle network data, day and nighttime population, key activity centers (e.g., major tourist attractions and employment centers) and topography. These data can be overlaid using maps or Geographic Information Systems (GIS) to create an initial plan for station locations. Site visits should be used to augment user surveys and refine the initial placement plans to create stations that function well in each location and meet the needs of potential customers.

The fleet size and the number of stations would depend on the target population and the chosen system model. A system of fixed pick-up destinations but flexible return destinations, such as the call-a-bike system, may fit Everett's needs better than a Smart Card system. System roll-out should focus on the targeted population and provide information about check-in/check-out systems and rental locations. System use could be increased or made more convenient by providing tools to allow users to quickly determine the location of available bikes via the internet.[17] As state law does not currently require helmets, their distribution is not required. However, providing helmets for use could reduce the severity of injury in the event of an accident. Use of proper safety equipment (e.g., helmets) should be included in any liability release waiver required by the system operator.

The success of a bike share program in Everett would depend on the type of program chosen and the desired program outcome. The city's population (about 100,000) indicates that a bike share program targeting the general population (e.g., the Paris system) may not achieve the desired level of performance. A program targeting a specific segment of the population could be successful but would still require a significant investment of time and resources on the part of the city, even if the system is operated by a third party.

[17] This is a feature of the Washington D.C. bike share program aimed at commuters.

Consideration of the factors in Table 2 should result in a clear vision of how a bike share program would increase Everett's bike-friendliness. This statement should acknowledge any trade-offs the city must make in order to fund and maintain the system.

Recommendations/ Next Steps

- A bicycle sharing program should be kept in mind as a future option for the City of Everett, but is not recommended at this time
- Consider the larger context of facilitating bicycling in Everett by improving the bike network facilities, increasing mode share, and then if successful, re-examining the bicycle sharing program
- Determine how a bike share program will contribute to Everett's goal of becoming more bicycle friendly
- Identify the desired outcome of a bike share program in Everett
- Determine whether the benefit of a bike share program compensates for the opportunity cost (e.g., investment in a bike share program vs. expanding the bikeway network)
- Determine what type of bike share program, if any, would be most appropriate for Everett
- Consider working with or supporting smaller bike share programs with local partners such as Sharing Wheels Community Bicycle Co-op by providing funding, advertising or technical assistance
- Regular data collection of target audiences would help target the program more successfully.

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Appendix. Elements of Existing Bike Share Programs Review and Summary

Table A presents a comparison and overview of bike sharing programs in the United States and worldwide. These programs take a variety of approaches to the previously discussed program elements.

Table A. Bike Sharing Program Summary and Comparison.

Program Location	Program Summary	Funding Sources	Station and Fleet Specifications	Check-out procedures	Station Network, Fleet and Station Maintenance	Fleet Management
Paris, France	The Vélib' program provides rental bikes available day or night throughout the city. Station locations are set about 300-500 M (approximately 0.2-0.3 miles) apart to maximize system accessibility. Funding is supplied through subscriptions and outdoor advertising. The system is operated by JC Decaux. A recent study showed cycling has increased in Paris by 70% in the year since the system's implementation.	Subscriptions are available annually but not required for 29 Euros (37 USD). The first 30 minutes of each use are free, and then the individual's account is charged. Max ride time is 3 hours. One-day or seven-day short-term subscriptions are also available. Funding also comes from outdoor advertising. The city provides about 1600 billboards to JC Decaux free of charge.	Stations consist of terminals and stands for securing the bikes. Bikes include baskets, internal hub lights, chain guards and reflective strips on wheels. Helmets and locks are not provided.	Smart card swipe at any station. Return bike at any station. Credit card may also be used to purchase a short-term pass. Annual registration is not required.	1450 stations are located about 300 – 500 meters apart. Map of station locations is provided online.	Bike redistribution handled by maintenance crew when necessary.

Program Location	Program Summary	Funding Sources	Station and Fleet Specifications	Check-out procedures	Station Network, Fleet and Station Maintenance	Fleet Management
Lyon, France	The Velo'v system is similar to the Paris program. Bikes are available day and night. Funding is supplied through subscriptions and outdoor advertising. The system is operated by JC Decaux. Rides on this system are about 65% home based work trips.	The first 30 minutes of each ride is free, however the maximum ride time is 3 hours. Short term rental is allowed. Funding also comes from outdoor advertising.	Stations consist of terminals and stands for securing the bikes. Bikes include baskets, internal hub lights, chain guards and reflective strips on wheels. Helmets are not provided. The fleet consists of about 8,000 bikes.	Smart card, swipe at any station. Return bike at any station. Credit card may also be used to purchase a short term pass. Annual registration is not required.	340 stations are located about 300 meters apart. Map of station locations is provided on-line.	Bike redistribution handled by maintenance crew when necessary.
Washington D.C.	Called SmartBike DC, this program includes 120 bikes located at 10 stations. This system is operated by Clear Channel Outdoor in partnership with the District Department of Transportation. Bicycles are available from 6 AM to 10 PM Daily. Users must be at least 18. System is designed to serve utilitarian rather than recreational bicycle trips.	Annual Subscription $40 for unlimited trips (max 3 hours each). Short term rental not allowed. Bike replacement fee $550 is charged if bike is not returned within 24 hours of rental. Funding also comes from outdoor advertising.	Stations consist of a vertical pillar locating the station and then a horizontal bar that includes locking mechanisms for the bikes. Designed for "simplicity, strength and comfort." The fleet consists of about 120 bikes.	User card allows automated access at any of 10 stations as long as bikes are present. Red light denotes a potential error in bike return, green light indicates successful return. When red light appears the user is instructed to call an 800 number to report the error.	Each bike station is equipped with electronic communication assemblies that are in permanent contact with the station terminal. Remote processing is used to analyze the number and condition of bikes at each station. Minor repairs are carried out on site. Stations are at key locations throughout the city. An online and mobile-friendly Google map provides real-time information about the number of bikes and return slots available at each location. An online map also provides recommended routes between each station.	Redistribution is handled by the service team as a part of remote management
Louisville, KY	The Freewheelin' bike share system in Louisville system is operated by Humana health care. The system uses stations designed by the Canadian firm QI systems, which operates at least one other bike share program in the US, in Tulsa, OK.	System is free for use to all Humana employees.	The QI Cycle Stations include bikes and solar-powered, card-activated stations that are easy to install and relocate. The 20 three-speed bikes (Trek Limes) are located at two stations. Plans exist to expand the system.	Smart card activated swipe and go. Bikes can be returned at either station in the system.	Two stations located near Humana buildings.	No information available.

Program Location	Program Summary	Funding Sources	Station and Fleet Specifications	Check-out procedures	Station Network, Fleet and Station Maintenance	Fleet Management
Brussels, Belgium	The Cyclocity bike share system is operated by JC Decaux and is similar to the Paris and Lyon systems in operation and equipment	Annual subscription pricing is differs from systems in Paris and Lyon; There is no free ride time in this system. Funding also comes from outdoor advertising.	Stations consist of terminals and stands for securing the bikes. The 250 bikes include baskets, internal hub lights, chain guards and reflective strips on wheels. Helmets are not provided.	Smart card, swipe at any station. Return bike at any station. Credit card may also be used to purchase a short term pass. Annual registration is not required.	Twenty stations are located in the city core.	Bike redistribution handled by maintenance crew when necessary.
Copenhagen, Denmark	The Bycyklen system is provided by the city and is available seasonally April – November.	The city offers placement of logos on city bikes through sponsorship. Information is available by writing info@bicyklen.dk	Stations are coin operated (as a deposit). There is no usage charge. Bikes come equipped with a map of the bike area. The fleet comprises 2000 bikes. Bikes are not equipped with lights or locks.	Bikes may be checked out by depositing a 20 DKK coin (about $3.25) at one of 110 stations within the bike zone. The deposit is returned with the returned of the bike at any location. Bike use does not carry a time limit.	Bike use is allowed within a citywide bike zone. Use of bikes outside the zone may result in a fine. Stations are located near high-traffic locations (e.g., transit stations, museums and parks) Bycykelservice, a department in the Copenhagen rehabilitation department, maintains the bicycles.	Respondents can call, email or fax to report a bike found or spotted outside the bike zone. There is no bike fleet redistribution.
Deutsche Bahn (German rail operator), Germany	Operates call-a-bike services in 6 German cities: Berlin, Frankfurt, Cologne, Munich, Stuttgart and Karlsruhe. The system is based on the idea that many trips to the city start and end at rail stations.	Subscription and then is fee based on time. Bike use is .08 Euro cents a minute with a maximum charge of 9 Euros per 24 hours. Bikes may be rented on a weekly basis for 60 Euros.	Locking mechanism is built into the bike. The system includes an electronic locking mechanism that can be unlocked by inputting a code. The bike may be temporarily locked for convenience (e.g., running errands) without terminating the rental.	Two check-out systems dependent on location. 1) Bikes come with a variable code lock. When rental is completed, close lock and select 'end trip'. Call and report receipt code and location of bike. 2) Bike must be returned at specific bike pickup/drop off location. Details of drop off point are reported via phone.	Bikes are available in several locations within each town and can be returned in one of two ways (based on the type of locking technology used in each town).	Bike station and fleet are managed by Deutsche Bahn (German Rail)
Montreal, Canada	The Bixi system is operated by the city's parking department. The system is scheduled to debut in Spring, 2009.	Annual subscription will cost approximately 70$, monthly/weekly plans will be available as well	The system include 2,400 bikes at 300 stations Bikes are checked-out from completely modular stations (solar powered) which can be set up in city at will	Users must register in person- no deposit required, but CC#, 2 forms of ID and Personal info recorded	Bikes are available at stations throughout the city The city estimates it will cost about $1500 per year/per bike to maintain	The system is operate and maintained by the city's parking authority

Appendix I. Traffic Signal Operation and Vehicle Detection

Introduction

This monograph is an overview of traffic signal operation and vehicle detection. The City of Everett uses both signals with and without detection. In the downtown grid the traffic signals run a very short cycle length that repeats the same pattern of operation repeatedly all day long. These signals, which represent about a 1/6th of the City's signals, have neither, vehicle or pedestrian detection. The remaining signals use vehicle and pedestrian detection, though this has only been in the last 20 years or less. Prior to the late eighties the policy of the City was that driver expectancy and predictable behavior was more important than any reduction in delay provided by vehicle detection.

The City relies on the federal (as amended and adopted by the State of Washington) published "Manual on Uniform Traffic Control Devices" as guidance in the installation of all traffic control devices. The "Manual on Uniform Traffic Control Devices" provides the following instructions on the use of traffic signals:

> *Guidance:*
>
> *The selection and use of traffic control signals should be based on an engineering study of roadway, traffic, and other conditions.*
>
> *Support:*
>
> *A careful analysis of traffic operations, pedestrian and bicyclist needs, and other factors at a large number of signalized and unsignalized locations, coupled with engineering judgment, has provided a series of signal warrants, described in Chapter 4C, that define the minimum conditions under which installing traffic control signals might be justified. Engineering judgment should be applied in the review of operating traffic control signals to determine whether the type of installation and the timing program meet the current requirements of all forms of traffic.*

It also provides the following warning:

> *Traffic control signals are often considered a panacea for all traffic problems at intersections. This belief has led to traffic control signals being installed at many locations where they are not needed, adversely affecting the safety and efficiency of vehicular, bicycle, and pedestrian traffic.*

Local Operation

Each traffic signal is controlled by a computer, typically on one of the corners near the signal. Figure 1 shows a photo of a traffic signal cabinet, annotated to call out different components. Everett has four locations where two intersections are controlled by a single computer. These are closely spaced traffic signals such as on 19th Ave SE at 110th and 112th. Each cabinet that controls the traffic signal has a second computer that watches the operation of the first computer and will put the signal on flash if it detects an anomaly in the operation of the traffic signal.

A driver approaching a traffic signal can experience three conditions. First, the signal can be dark or with all the displays off. This is typically caused by a power failure and the traffic signal should be treated as a four way stop. The second condition is a flashing operation. The traffic signals in Everett flash in all red on all approaches, when the signal is in flashing mode. Therefore a driver approaching a flashing signal in Everett would treat it as an all way stop. Typically this condition is experienced when a problem with the traffic signal has been detected. In the past the City used to flash traffic signals during periods of low demand, but once vehicle detection was installed this practice was stopped. The driver's normal experience is that the traffic signal will display green yellow and red to alternatively give the right-of-way to the various vehicle movements at the intersection.

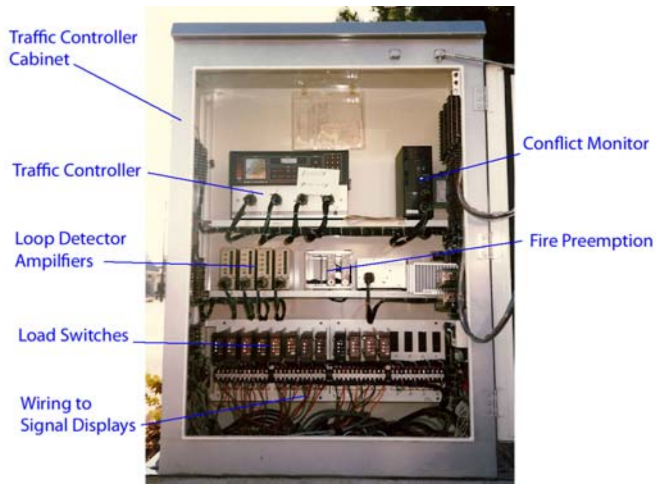


Figure 1 – Traffic Signal Controller Cabinet

Flashing Operation

A flashing traffic signal can be used to augment a stop sign controlled intersection or a crosswalk. Everett also uses flashing signals at the driveways for fire stations that change their operation to a regular traffic signal when there is an emergency. Flashing operation is often used during maintenance, construction or special circumstances. Flashing operation is also the fall back condition when an anomaly is detected in the operation of the traffic signal.

Fixed Time Operation

Fixed time operation is like the second hand on an analog clock that can be adjusted so that it takes less than a minute to several minutes to complete each revolution (or cycle length). Figure 2 shows a graphic representation of a fixed time traffic signal cycle using this analogy (the different numbers represent different movements at the intersection, for example, the number 5 could represent a left turn movement from one lane on the south leg of the intersection). To use the clock analogy every time the second hand passes 15 seconds the traffic light changes from green to

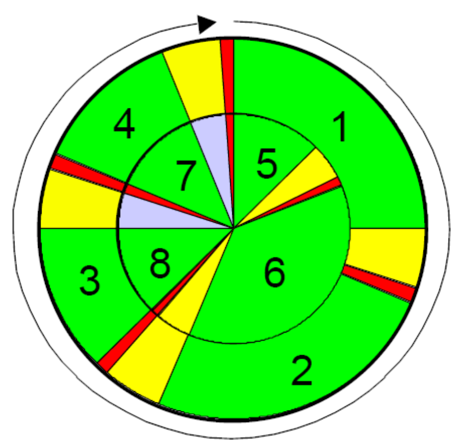


Figure 2 – Visualization of One Cycle of a Traffic Signal Using Fixed Time Operation

yellow, then at 19 seconds it changes from yellow to red and at 21 seconds it changes from red to green on the next approach to get the right of way and so on. This is the method used to control the signals in the interior of the downtown (between Broadway and Rucker and Pacific and Everett.) The computer that controls the traffic signal has a calendar and a clock that allows it to change the cycle length and the pattern of operation by time of day, day of week and day of the year. Changing the pattern of operation can be used to change the operation of the left turn signals by time of day or changing the order that the approaches are given the right-of-way Fixed time operation does not require detection of either pedestrians or vehicles. If an intersection that is running fixed time has detectors, they are ignored or are used for data collection only.

Semi Actuated Operation

Semi actuated operation only has detection on the low volume approaches. When a vehicle is detected on one of the low volume approaches the flow on the main movement is interrupted and the right-of-way is given to the low volume movement. This approach is used with many of the left turn movements in the City. As a vehicle enters and stops in the left turn lane the presence of the vehicle is detected and if the vehicle is not able to make the left turn on the green light, after a selectable amount of time the left turn arrow will come up at the end of green time for that approach. In locations with low pedestrian volumes and long crossing times the pedestrian movement can be actuated to reduce vehicle delay for vehicles, when no pedestrians are present.

Actuated Operation

Actuated operation or fully actuated operation is when detectors are placed on all movements. In Everett's case this includes general purpose lanes, bicycle lanes and pedestrian crossings. An isolated intersection with randomly arriving traffic is a perfect candidate for fully actuated operation. Each approach is serviced based on its actual demand as modified by minimum required green times or maximum allowed green times. Movements without demand can be skipped or serviced for some minimum time or if no demand is present elsewhere at the intersection a selected movement can remain green.

Local Control

All of the traffic signals in the City of Everett have the ability to run locally, relying only on the equipment in the local controller cabinet. Under local control the intersection can run fixed time, semi actuated, fully actuated or coordinated based on the controllers internal time clock. Local coordinated operation is susceptible to clock drift in the controller. For example if the local controllers clock is off by ten seconds and the coordinated movements time is 20 seconds then fifty percent of the green time will be uncoordinated.

Local control relies exclusively on the equipment in the controller cabinet on the corner by the signal. The signal responds, if actuated, to local traffic conditions. It is typically used at locations isolated from other signals, where communications to other equipment would be expensive. Or it is used where there are no organized platoons (a group of closely spaced vehicles) arriving on the approaches to the signal.

Although the control equipment used by the City can not communicate with other local controllers directly, they can communicate with a central computer house in the engineering department. Approximately 60% of the intersections in the City are connected to this central computer using city owned copper wire.

Closed Loop Control

Closed loop control is a system used to coordinate an isolated arterial or other roadway with several signals. In addition to the local control equipment a local master controller is installed that communicates with the group of isolated signals to provide coordination without the risk of clock drift. Because of the isolated nature of the arterial closed loop systems eliminate the need for communication to a central location. Most closed loop systems can be logged onto remotely.

Centralized Control

Centralized control relies on a computer system at a centralized location that communicates with connected local control equipment. The central system the City currently uses has more capabilities than the local controller and talks to the local controller every ½ second. Newer traffic controllers incorporate both the capabilities of the City's current local controllers and central system. The newer central systems act more as a data management system and a way to command the local control equipment in a particular fashion. Central systems can also display a variety of data in map or tabular form. Both our existing system and newer systems allow the remote monitoring of local signal operation for trouble shooting and providing citizen callers with real time feed back. Central systems also eliminate clock drift by providing a consistent time to all connected control equipment.

Local Control

The central system can command the local controller to take control of the signal and ignore the central system. This is often done late at night or during periods of light demand.

Time Based Coordination

Time base coordination with the City's current Central System implements time based coordination based on parameters entered into the central system rather than the time based coordination parameters in the local controllers. In the newer central systems the central system tells the controller to run a specific time based coordination pattern entered in the local controller.

Traffic Responsive

Traffic responsive coordination uses traffic data collected from selected vehicle detectors to select a coordination pattern. In the City's current central system these parameters are entered into the central system. In newer system only the selection criterion is entered into the central system, which then directs the local controller to run a specific pattern.

Detector Types

The purpose of detectors is to monitor demand by approach or vehicle movement and pedestrian traffic. This data is used to modify the operation of the traffic signal to reflect the demand on each approach. Over the last fifty years the type of detectors used has changed as technology has changed. Switches have been used to detect pedestrians and even vehicles and are wired directly to the traffic control. Loop detectors have been consistently used the longest in varying configurations to detect vehicles. Loop detectors rely on a computer (detector amplifier) in the controller cabinet that works in tandem to determine the presence of vehicles. These computers can either be simply an interpreter that informs the controller when a vehicle is present or can preprocess the detector data prior to passing the information along to the controller. The detector amplifier can delay the notification of the controller when a vehicle is present; an example of when this might be used is a movement with a large percentage of right turns. The detector can extend the apparent presence of a vehicle; an example of when this might be used is when larger than normal gaps are in between vehicles in one lane of a multi lane approach. Both of these functions are now incorporated in the traffic controller as well.

Switches

Simple and intelligent switches are used to detect pedestrian and bicyclists (on the interurban trail at Beverly Blvd). In the past pressure plates were used to detect vehicles. A non-used pressure plate can be found in the Rite Aid/ Staples driveway on Evergreen Way. Switches are generally reliable and last a very long time.

Loop Detectors

Traffic loop detectors work by inducing an electric current (very, very small) in an object that conducts electricity. Gold, silver and copper are best and aluminum is better than steel, carbon fiber or plastic don't work at all. This induced current lowers the energy in the loop and this lower energy state is what is detected. Based on industry research if you tilt your bicycle as little as 15 degrees from vertical over the loop wires it will increase the loop detectors ability to detect a bicycle by as much as 3 to 5 times. For carbon fiber rims, a rim with a copper bead around the rim can be purchased.

All of the traffic signals are controlled by loop detectors in the City of Everett. Typically they are located 3 feet in front of the stop line (the white line you stop at when the light is red) and continue approximately 25 feet farther from the traffic signal. They are 6 feet wide and centered in the travel lane. At older traffic signals the loops may be a 6 foot by 30 foot rectangle (which are less sensitive to bicycles, especially in the middle of the 30 foot detection zone). In the late 80's we switched to a 6' by 15 foot rectangle at the stop line (to increase sensitivity for motorcycles and bicycles) and a second 6' by 6' loop -- 6' farther away, for a 27 foot zone of detection. In the Late 90's we started using three 6' diameter circular loops, which are sensitive to bicycles. In some cases, on arterials where the main street goes back to green automatically after the minor movements are served. There are no loops at the stop bar only advance loops between 150' and 250' in advance of the signal. In the early 90's we attempted to create an inventory of our loop detectors by having the Signal Shop place a six inch by six inch white diamond at each loop location (approximately in the center of the loop) prior to obtaining a high resolution digital photo of the city. The photos show many of the loops but some are obscured by vehicles, trees or shadows. The plan was to compare the diamonds to the individual signal plans and make them a layer in the City's GIS, but this step was never completed. As a part of the recommended projects in this Bicycle Master Plan is marking the stop bar loop locations so bicyclists will know where to stop.

Most loop detectors are referred to as dipole loops and are either circular or rectangular where the wire buried in the pavement is wrapped in a circular fashion. A second type of loop is a quadrapole loop which has the wire wrapped in a figure eight pattern. The quadrapole loop was originally developed to reduce detection of vehicles in adjacent lanes. Because the height of the inductive field created by a loop detector is proportional to the width of the detector, quadrapoles loops do not work well with high bed trucks. A number of other loop configurations have been developed for various applications.

Quadrapole loops are recommended to detect bicycles in a bike lane, where bicycle placement is generally predictable. Loop detection of bicycles should be supplemented with a stencil that indicates proper placement that will maximize the chances of detection. Figures 3 shows a quadrapole loop in a bike lane with a bicycle loop detector pavement marking. Diagonal quadrapole loops are recommended to most reliably detect bicycles riding in a travel lane, where lane placement of the bicycle may vary over a larger area.

Figure 3 – Quadrapole Loop Detector with Pavement Marking Indicating Optimal Bicycle Placement

Some types of loop detectors are more sensitive to vehicles placed over a certain portion of the loop. Even though some of these loops are generally not known to detect bicycles consistently, they may be augmented with a bicycle loop detector pavement marking (as shown in Figure 4) over the most sensitive area in order to provide service to bicyclists. The City of Portland, Oregon operates a program within their Bureau of Transportation that installs these markings on older loops, determining optimal placement with a visit from a traffic engineering crew manually using a bicycle to test for a reliable detection area, and then installing a marking at the optimal location.

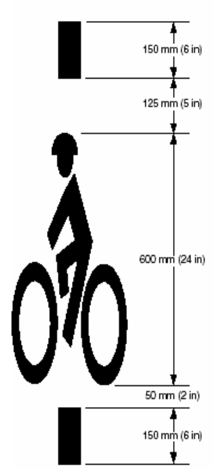


Figure 4 – Bicycle Loop Detector Pavement Marking

The City of Everett relies on citizen input to adjust, repair or replace defective loop detectors. Therefore, if you are aware of locations with problems please notify the City of Everett at 425-257-8800 or jozanne@ci.everett.wa.us. Further, we continue to request from the bicycle community and the community, as a whole, spot improvement locations, such as pavement defects, improperly working vehicle or pedestrian detection, vegetation encroachment and other issues so they can be investigated and address appropriately. If the issues are part of the City's regular maintenance programs we can usually have them fixed in a week or so.

Infrared Detectors

Infrared detectors are used at Alta and 52nd to detect pedestrians and bicyclists wanting to cross 52nd. The detectors are mounted in bollards on each side of the crosswalk and when something breaks the infrared beam in pavement flashing pavement markers begin to flash.

Micro Loops

Micro loops are a small point based detector installed under the pavement. The City doesn't use micro loops at this time. They are often used on structures with steel reinforcing. Another application may be narrow bike lanes.

Video Detection

Though the City does not currently use video detection its use is probably second to loop detectors as the most used detection method. Video detection works reliably 90 to 98 percent of the time. It doesn't work when the camera can't see the vehicles, due to heavy fog, rain or snow. Video is also affect by the high contrast present with the rising or setting sun.

Video detection is configured by drawing a zone of detection (like a loop detector) on the scene observed by the camera. The main advantage over loop detection is that the zones of detection can be changed locally or remotely to reflect changes in lane configuration due to construction detouring or changes in intersection configuration, whereas loop detection would have to be reinstalled.

Vehicle Detection Strategies

Movement Recall

The traffic controller has the ability to display a green light on a movement, either after the previous movement has timed out its maximum green time or when there is no demand on any other movement. The recall function can time either a minimum amount of time or a maximum amount of time. In a fixed time operation all movements will be placed on maximum recall. In semi actuated mode the main street will be on recall.

Another use of recall is if the detection system fails for some reason. In almost every case loop detectors fail in the on condition and present continuous demand to the traffic controller.

Presence Detection

The granting of right-of-way or providing a green light to the approach or movement with demand is the simplest use of detection at a traffic signal. The movement with existing demand or the last registered demand continues to display a green light until another approach has demand on it and the approach with the green light either ceases to have demand or it reaches some preset maximum amount of time.

Stop Line Detection

Stop line detection places detection at the stop line and only detects vehicles as they approach and cross the stop line. In the case of loop detectors or video detection, stop line detection typically covers an area of 15 to 50 feet using either one detector or a series of detectors. This type of detection is used on low speed approaches or on approaches with low demand. On higher speed approaches or approaches with high demand it is often used in conjunction with advance detection.

Stop line detection is used in turn pockets, as they are not typically long enough to warrant advance detection. In right turn pockets the notification of vehicle presence is often delayed to allow for right-on-red. Most stop line detection extends the call to the controller to allow the next vehicle to enter the zone of detection.

Often the City receives call from citizens indicating that a traffic signal is defective, when in fact they have not stopped over the zone of detection. If a vehicle stops in advance of the stop line detection no call will be placed in the traffic controller. If a vehicle drives through the zone of detection a call may be placed momentarily, but the call is dropped as the vehicle pulls forward into the intersection. In order to maintain a call to the traffic controller to provide a green light or arrow to your movement it is important that you stay in the zone of detection.

Delay Extension Detection

For left turn pockets controlled by a green ball and a left turn arrow (protected permissive control) the detection is operated in a delay extension manner. As a vehicle enters the left turn pocket and stops at the stop line the vehicle is detected but notification of the traffic controller is delayed for a preset number of seconds. If during this delay time the vehicle turns left on the green ball the detector delay time is reset until another vehicle reenters the zone of detection. If the vehicle does not make a left on the green ball, a call is placed in the traffic controller and the detector is placed in extension mode. In extension mode the call is extended after the vehicle leaves the zone of detection for a preset amount of time, allowing the next vehicle to enter the zone of detection and place a call before the detector goes back into delay mode.

Advanced Detection

Advance detection, are zones of detection placed 100 to 500 feet in advance of the stop line based on the speed of the approaching traffic. In the City of Everett advance detection is typically either 150 feet or 200 feet in advance of the signal. Advanced detection is often extended to allow the vehicle to get to the point where the driver will continue through the intersection on the yellow and all red clearance intervals. If vehicles continue to cross the advance detector at an interval less than the extension time, times out, the extension time is reset and the movement will retain its green indication.

Volume Density Operation

Volume density control uses advance detection to count the number of vehicles arriving on a red indication. The traffic controller then adjusts the minimum green time for that movement based on the queue of vehicles crossing over the advance detectors and assumed to be queued up at the stop line.

Full Actuated Detection

Fully actuated detection utilizes detection on all movements to allocate the green time to each movement. This approach is often used at isolated intersections. The traffic controller can control both the minimum and maximum times that the signal will be green. Further, either the traffic controller or the detector amplifier can set the amount of time each vehicle call is extended.

System Detection

System detection can be located near the intersection being controlled or some distance away. System detection can also be placed on the cross street rather than the arterial controlled. System detection is used to collect data on the volume, speed and the percent of time the zone of detection is occupied. This data combined with intersection data is used to record historical trends and to help determine the optimal settings for the traffic controller and central system. System detection is also used to calculate which control pattern is most appropriate for the current traffic conditions.

Appendix J. Comments to Draft Plan

AppendixJ

Reviewer	Chapter	Page	Paragraph	Comment	Staff Response
Brian Hallgarth	3	-	-	I am a daily bike commuter riding from north Everett to 40th. Over the last 8 years I have come to a number of conclusions regarding bike travel in our city. The Colby bike lane is dangerous. 19th is not much better. Just because you have a wide enough road to take three feet for a bike lane doesn't make it a safe route. I believe that taking a road with low use and making it a " quiet street " is a much better approach. A quiet street is created by limiting the distance cars can travel before having to turn,speed bumps and other obstacles to discourage fast through traffic. Vancouver B.C. has used this approach. Here in Everett, Grand Ave. is close to being a quiet street with its speed bumps and only three way intersections. Judging from the number of bikes I see on Grand vs. Colby I would say that other riders also prefer this approach . In order to increase bike usage riders have to feel comfortable on the road ,painting a line doesn't necessarily do this.	We agree with your call for more attention to "quiet streets" and have tried to identify those streets (such as Grand) that are already optimized in some form for that type of bicycle accommodation.
Joel Niemi				I've scribbled a few notes (well, in the case of the east end of Hewitt / west end of the Snohomish River Bridge Hwy 2 connection, quite a few notes) on a few of the pages, scanned them and attached as a pdf for your use. - (Joel Niemi.pdf)	thanks for your attention. We will discuss further at the open house.
Joel Niemi				And, I don't recall seeing it in the list of places to improve, but the traffic sensor for northbound Smith at Pacific (coming up the ramp from Everett Station, and wanting to turn left) needs adjustment or replacement.	Will note in revision. In plan on map
Joel Niemi				A bit of background for me: I commute from Snohomish to 1716 West Marine View Drive. In the late spring / early summer, and this year almost all summer, I do it by bicycle; and, I'm intending to ride in once or twice a week through the winter as well. (we'll see on that). There are two good routes: Riverside/Riverview Roads and Homeacres road, across the river and up Hewitt to West Marine View and turn right; or, cross the river at Avenue D in Snohomish, ride the Lowell/River Road to Lowell, then along the east side of I-5, past Everett Station, Pacific/Broadway/Hewitt etc. I don't "need" a bike lane, but will ride in one if convenient and debris-free. Through town on Hewitt, I "take th lane", avoid the door zone, and motorists react appropriately. I can understand that there are some bicycle riders who want the comfort of a lower-traffic route; I'd suggest that where that is really most in need in Everett is south of 41 on Evergreen, and the whole Everett Mall Way racecourse. Downtown, drivers seem a bit more mellow.	Evergreen and Everett Mall Way are both larger projects that have been identified as corridor replacement projects. No bike-specific projects will not be developed for those roadways at this time.
Greg Sutherland				I don't know if you care, but it has been a long frustration of mine that the shoulders of State Route 529 are not cleaned. Repeatedly I have contacted the City and D.O.T. about this, but there is no action taken to make the shoulders more rideable. Because of this situation, I have given up on riding my bicycle to work. One of the times I called (D.O.T.,) the person I spoke with told me I shouldn't be riding my bicycle on State Route 529 as it is too dangerous. Riding on State Route 529 is a great way to ensure you have a high probability of a flat tire due to the years of debris that isn't ever cleaned off.	This is an issue for WSDOT, and we will pass on your comments to the appropriate party.
Brian Baugh				I received the CD in the mail a few days ago. I appreciate it. The proposal looks good and is very well put together. As a bike commuter to Boeing from Mukilteo (via the western approach mentioned on page V-57), I appreciated the description of our predicament. I know that this is a very well traveled (and somewhat precarious) route. The unfortunate thing about this route is that it is incredibly safe until the last quarter mile. It doesn't seem like it would take much to improve access. My proposal is shown in the attached image. Since I've ridden this route hundreds of times, I'm familiar with it. The RED route is where the current nice bike trial ends. The PINK route is the existing detour that I take to avoid being on 526 very long. The GREEN route is a wishlist item (non-necessity) which eliminates the need for a detour. If implemented, the detour should be built on the North side of the 526 bend. Lastly, the BLUE route is what I find to be most critical. A joint effort between the city of Everett and Boeing should be able to implement that improvement at a low cost. As shown, I think that this trail would be best located on the north side of the 526, and the west side of Boeing's perimeter access road. Given the volume of riders who could benefit from this trail (THOUSANDS of Boeing employees live within 3 miles of work to the West of Boeing, and this proposal could greatly improve their access to work) and the apparent ease of implementing it, I'm confident that this project would enjoy a very "high utilization per dollar spent" ratio. Please let me know if I can be of any assistance in furth explaining my concerns. As the proposal is currently written, I feel that this project is given lower priority than it should.	Thanks for your attention. Added in as OAP.
Scott Watkins				I would like to echo Brian's comment as I think he hit the nail on the head. As I bike and drive to work from Mukilteo, I see many bikers on the route that leads into Boeing's West entrance. Unfortunately, I also see many bikers risking it all to ride along Highway 526 since there are not many better options for bicyclists that come from the West side. Paine Field and Boeing properties serve as two giant obstacles, and the only neck of corridor through the two is Highway 526. There are many people that would benefit from a trail leading along 526 and into the Boeing property as Brian mentions. Thank you for your support!	thanks for your attention.
Hugh and Judy Matheson				I also feel that Everett needs a full-time bicycle coordinator. In addition I encourage you to consider adding the route suggestions made by John Lindstrom and Bob Jackson to the plan for easier study. John and Bob have spend a considerable amount of time studying the best routes around the city and have a significant amount of expertize in urban bicycle activities.	We receive less than half a dozen bike comments a month, Jim O will b retained as part-time bicycle coordinator continuing for indefinite future working on this project.
Lloyd Weller				My main comment is that I feel the the city and the plan would benefit from a full time bike/ped coordinator, as is the case for many cities. Thank you.	
Sally and Dick Brigham. Everett				First, I'm just thrilled that the city has embraced the need for bicycle friendly roadways. Secondly, Everett needs a full-time bicycle coordinator. Thirdly, please consider adding the route suggestions made by John Lindstrom and Bob Jackson to the main body of the plan for easier study. They are garbled in an appendix and difficult to follow because of the format. John & Bob are our resident experts. They have generously given time and careful consideration to the best bicycle routes around the city. They really know the best routes because they consistently ride their bikes and encourage others to engage in this healthy activity.	Most of the John's and Bob's comments did make the body in the form of the routes. They were a great help and extremely knowledgeable, as you note. The notes at the back were for reference.
Art Grossman				1. Education: I really appreciated the appearance of the "sharrows" markings between 41st street and the Everett Station; however, what would be your guess on how many people in the city know what they mean? I would wager that if I mentioned the word sharrow at a City Council meeting, I would be greeted by many blank stares! The appearance of the sharrow markings should have been coupled with some typ of media coverage and explanation of their significance, especially since they were the first and only in Snohomish County(now the city of Snohomish has some too!!). We need to explain to motorists what those markings are(and see No. 2).	Excellent point. Education is needed for all users of the roadway.
Art Grossman				2. More education: Guess how many "Share the Road. It's the Law" signs there are in Everett. Don't bother counting; I don't think they exist at all. Many motorists have no idea that it IS the law that allows us to bicycle on the roads, and we are not just some nuisance. The drivers need lots of reminders. Chelan County has many signs that are large and divided into 4 parts--"Chelan County shares the roads" and there are pictures of a car, a tractor, a pedestrian, and a bicyclist. Obviously, in most, but not all parts of Everett, we could do without the tractor, but the message is clear.	Excellent point. Education is needed for all users of the roadway.
Art Grossman				3. Guess how many metal detectors on "smart" traffic lights can be triggered by a bicycle. Again, for those of you who have waited inordinate amounts of time, you know the answer:just about none are adjusted that way. We either have to stop, look, and go through the red light, or bike up onto the sidewalk(illegal downtown) to hit the walk button. And no, tilting your bike sideways over the metal detector does NOT work. Cascade Bike Club in Seattle is always asking members to identify the intersections in Seattle that will not react to a cyclist; in Everett, it's easy--every intersection. Getting those adjusted would be most helpful.	Good point
Art Grossman				4. Interurban Trail: I did notice that mentioned in the bike plan. The section between Everett mall and 128st is extremely dangerous and NEVER will be otherwise. I have biked there at night and will never do it again. AND...after that assault on a bicyclist at the park in Marysville in daylight, I must admit that I am a little edgy every time I pass a group of young men walking on the Interurban in that section. But...the issue that can be addressed by the people who live near there is the trash an broken glass on the trail. I do see many locals walking along there, and there should be a city representative who goes to that neighborhood and engages the locals to take ownership of the maintenance of that section of the trail, and hopefully put pressure on the neighborhood to prevent the trashing of the trail. Weekly sweepings, local Boys and Girls Clubs, etc could be engaged to improve the condition of the trail itself. However, the trail will never really be safe at night until either more cyclists are on it(not likely)or all the vegetation bordering it is removed(also not likely). Let's just focus on keeping the asphalt usable!!	Will make sure that nrighborhood clean-up and maintenance are mentioned in maintenance section for the trail
Art Grossman				5. Speaking of trash:is there a policy in Everett that Mukilteo Blvd through Forest Park has to have glass in the bike lane? Since I bike through there 2 to 6 times a day, I figure it takes 3 days after street cleaning(which is a rare occurrence!) for the glass to reappear. How many anti-littering signs are there along there? none. How many local organizations have volunteered to keep that section of the road clean? none. Who responsible for policing and controlling the vandalism on the road that goes through the "crown jewel of the Everett parks system"? apparently no one. The fines for despoiling that area should be equal to the crime!!! How much money is spent in planting and removing the beautiful flowers along the boulevard, but can easily be blotted out by the sight of broken beer bottles, long stretches of cracked glass, and yes, even a discarded half case of beer bottles? Those bike lanes through there are hilly and narrow, and when one encounters the inevitable broken glass, dangerous.	thanks. We will make sure to note the maintenance issues.
Art Grossman				6. The Police: Getting the local police to buy into supporting and helping out with cyclists is critical. And this is important on several fronts. A) how about enforcing the high frequency violations of crosswalks by motorists. There are some intersections, like 41st St and Rucker, where cyclists have to use the walk light and crosswalk to negotiate some of the crossings. Getting mown down(along with the poor pedestrians)while crossing with the walk light is fairly routine. Has anyone ever seen a motorist picked out by the police for that infraction(or conversely, has anyone even seen a pedestrian cited for crosswalk violations)? I am sure in the big picture of "crime in Everett" crosswalk violations are small potatoes; that is, until someone dies at an intersection. B) I have seen many children cycling without helmets; I have seen many teenagers or adults bicycling without helmets, going the wrong way in traffic(often on Rucker! or Mulkiteo Blvd!!!); I have seen the first two scenarios, AND the cyclist was wearing black pants, black hooded sweatshirt with the hood up, no lights, and at night. Yet despite the numerous instances that I have seen this, I have never once seen an Everett policeman stopping or chatting with such cyclists. If all the above	thanks. We can add/update the enforcement section
Art Grossman				7. Education and Police:it has been a long time since any local agency--bike stores, police, parks, boys and girls clubs, the Y, United Way--got together to promote helmet use and safe cycling in the city. The cost is small, and the rewards are high. I am sure there are many cycling advocates(like me)who would willingly go to schools with police and free helmets to promote safe cycling. I feel like going up to every kid I see who cycles without a helmet and say to them "I guess your parent doesn't love you, huh?". But I really think it is a education issue and a cost issue. Both should be easy ones to address.	true.
Art Grossman				8. Advocacy: I used to belong to the Cascade Bike Club, but then I discovered that primarily their advocacy is in Seattle and King County. Hopefully, our email list is a good starting point for a local organization to do similar work in Snohomish County and Everett. It does not take a rocket scientist to look at the Seattle and King County bicycling maps, and then compare them to the Snohomish County bicycling map to see how far behind we have fallen. Even the most car-oriented parts of Bellevue have more signed bike routes than Everett does; we have lots of work to accomplish.	good idea, creating a more local advocacy group.
Lucie Johns				The September 2010 plan looks quite good to me. I saw what a good bike plan can do for a city. I lived in Fort Collins, CO throughout the 1980s and the bike amenities were then about what we have in Everett now. Over the years it has become a bicycle mecca. Bike commuting, utility riding and recreational riding have enhanced the city enormously. A couple important aspects I've noted there now: * It is possible to go anywhere in the city on trails or bike lanes, seldom resorting to bike routes. Connecting to transit is easy. * The trails/lanes are well maintained (after snow, the bike trails are plowed before many of the streets - and bikers use them). Here it wou be more a matter of removing debris and especially glass. * There is a wonderful bike trail along a scenic river with small parks along the way. A comparable route in Everett would be along the waterfront. * Over the years there has been a successful effort to educate motorists and bicyclists. Conflict is rare now - though there is still the occasional idiot motorist or bicyclist. This was certainly not the case during the 1980s (having suffered aggressive motorists more than once). * They update the bike maps fairly regularly * More improvements are in the works, especially inter-city trails.	thanks for the comments

Reviewer	Chapter	Page	Paragraph	Comment	Staff Response
Brian Hallgarth	3	-	-	I am a daily bike commuter riding from north Everett to 40th. Over the last 8 years I have come to a number of conclusions regarding bike travel in our city. The Colby bike lane is dangerous. 19th is not much better. Just because you have a wide enough road to take three feet for a bike lane doesn't make it a safe route. I believe that taking a road with low use and making it a "quiet street " is a much better approach. A quiet street is created by limiting the distance cars can travel before having to turn,speed bumps and other obstacles to discourage fast through traffic. Vancouver B.C. has used this approach. Here in Everett, Grand Ave. is close to being a quiet street with its speed bumps and only three way intersections. Judging from the number of bikes I see on Grand vs. Colby I would say that other riders also prefer this approach . In order to increase bike usage riders have to feel comfortable on the road ,painting a line doesn't necessarily do this.	We agree with your call for more attention to "quiet streets" and have tried to identify those streets (such as Grand) that are already optimized in some form for that type of bicycle accommodation.
Bob Jackson				Unless I missed it, the plan does not recommend ongoing citizen input through a bicycle advisory committee. I believe the citizen input you've been getting while developing the plan has added to the quality of the plan. You recommend that the plan be seen as a "living document," subject to change as circumstances warrant. It seems to me that input from a bicycle advisory committee would also increase the quality during the implementation phase.	TAC will incorporate non-motorized into their agenda
Will McMahan				Maybe I misread the master plan several weeks ago, but I did not see the logic of having work done on 100th SE, between the Bothell-Everett Highway and 31st Ave SE. There is a bike lane on both sides of the street.	Will double-check map. Thanks.
Richard Smith				I have public comments regarding the proposed bicycle facility along Lombard Avenue including recommendations for the upgrade of th intersection at Lombard Avenue and 18th Street. This intersection is unique in that it is situated just one block north of a collector arterial, 19th Street and one block west of a major arterial, Broadway. Entries at 18th Street and Broadway as well as Lombard Avenue and 19th Street (alo proposed bike facility) serve as first, but not only Northwest neighborhood access points, particularly during high traffic commute hours. Motorists exceed posted speed limits approaching intersection and do not comply with stop signs compromising pedestrian, vehicular and bike safety (I witnessed a truck that pulled onto westbound 18th Street and sped through the stop sign during daytime without even slowing down. I have videotaped motorists speeding and not complying with stop signs at the intersection during commute hours). Reliance on police enforcement for compliance with stop signs is a temporary measure, limited by availability of personnel, particularly during higher demands time such as commute hours. 18th Street is a major pedestrian corridor due to proximity of both (1700 and 1800 blocks of Oakes) senior citize	will vote at meeting
Tessa Greegor (Cascade Bicycle Club)				Dennis Neuzil asked that I send you a copy of Cascade's Regional Route network map (attached) – which illustrates Pass/Fail segments of the network in Everett. We will be submitting comments on the Draft Bicycle Master Plan as well.	thanks.
Bob Jackson	Ex Sum	6	Map ES-1	Change the black semi-circle at Hewitt and Broadway to a full black circle at California and Broadway	signal or tunnel under street (vote)
Bob Jackson	II	6	Map Figure 2	E Grand Ave south of 20th is not an existing Bike Sidewalk path. It is an ordinary street and sidewalk.	will double-check.
Bob Jackson	III	8	last, bullet 4	At end of sentence add "and neighborhoods east of Evergreen Way/Rucker Ave"	done
Bob Jackson	III	8	Figure 6	Keet the same design as current Interurban Trail signs	vote
Bob Jackson	III	11	Map Figure 7	The draft Bicycle Route Map daetd 4-12-10 showed a Tier 1 route from E Marine View Drive into the Riverside Business Park and south along the Snohomish River finally connecting to the Summit Ave/19th St route. Figure 7 eliminates this route and shows the word "PRIVATE". This is not private. Owned by Port of Everett. There is a paved, landscaped trail segment right where the word PRIVATE is. (and more)	will add back. At south end near I-5 bridge, there is a ped/bike bridge
Bob Jackson	III	12	Table 4	CEF-D is listed twice - remove one.	done
Bob Jackson	III	14	Table 6 T2-D	Make last column entry read "Interurban Trail/Colby Ave" to add clarity	done
Bob Jackson	IV	9	page	Pagination. This page is labeled 1, should be page 9.	done
Bob Jackson	V	30	CEF-E	Not 36th St. To connect Hoyt to the transit center, place route on 33rd, where there is already a signal at Broadway.	moved route
Bob Jackson	V	39	First	Change "Cyclists traveling eastbound" to "Cyclists traveling westbound"	done
Bob Jackson	V	47	T2-Z	Description says nothing about what is proposed.	updated
Bob Jackson	App A	4	Last	Does the width of a bike lane include the width of both stripes? If so, does the width of a parking or driving lane exclude the width of the stripes? Make this clear in the narrative.	clarified.
Bob Jackson	V	26	EF-K2	Existing bike lanes are not 5.2 feet wide. In the northbound lane I measured once in every block from 19th st. to 10th st. They are all between 54 and 56.5 inches including the width of both stripes. In the 900 block of Colby, bike lane width increases to 59 inches, but there is no center median in this block. From 19th St. to 10th St. the 7-foot parking lane is so narrow, that pickup trucks and larger SUVs have driver's side mirrors extending well into the bike lane. Recommend reducing the driving lanes to 10 feet and adding one foot to the bike lanes.	can't narrow the lanes. At meeting, add Hoyt or E Grand as bike route, remove bike lanes on Colby?
Bob Jackson	App J	6 jacks/Linds	5	Consider adding the route labeled "Not shown" to the plan. This route duplicates the existing one along 41st St. over the I-5 bridge that connects to the Smith St. route to the transit center, but it does so by avoiding the four times a biker has to cross the I-5 on and off ramps. Much of the infrastructure has already been built including a paved trail from 41st. St. to Broadway, and some sidewalk already widened to trail standard.	added
Bob Jackson	Final Thoughts			I appreciate the tremendous work that has been put into this plan by Alta and City staff. It is imaginative and comprehensive. Its implementation will be most welcome by the current and future biking public.	thanks
Cascade Bicycle Club				We concur with the finding that the network of grid -connected streets is lacking south Everett (p II-4), and applaud the suggestion that efforts be made to secure easements and pursue other strategies to provide routes and facilities beyond those on higher-speed, more heavily trafficked roadways. We would go on to suggest that Everett adopt codes or ordinances related to development that would facilitate improved link/node densities in the south end. In the same vein, we recommend that all elements of the plan that would benefit from code changes and implementation policies receive the same attention.	many grade issues, wetland issues, development issues, existing land use issues, city does look at these corridors from time to time.
Cascade Bicycle Club				The timeline for plan implementation is the first item that raises concerns for us (p III-1). Compared to many regional and local transportation capital projects, the Everett bicycle plan is both more cost effective and more equitable. Moreover, as a modestly priced plan at less than $40m, it should be implementable within a decade. We would recommend that dedicated funding be identified sufficient to complete the plan with a decade and that projects be rephased into 0-3 years, 3-5yrs, and 5-10 year windows.	not physically possible. Down economy.
Cascade Bicycle Club				The inclusion of sidewalks (p III-4, etc.) in the facility inventory also raises some concerns. Statistically, sidewalks have the greatest frequency of crashes/collisions per mile ridden. We would recommend that they either be upgraded to full multi-use trails or dropped from the official inventory.	dollars vs/ right-of-way. Already made public investment, bicycle volumes low.
Cascade Bicycle Club				Page III-9 provides a rational framework for network development and prioritization. Our only suggestion would be to collapse bullets 3 and 4, substituting an "activity intensity" index for the "CTR businesses" and "destinations" categories. Seattle, King County and others have developed easy to use models to aid in project prioritization, such as the King County Transportation Programming Tool, which may provide a ready-made framework for project prioritization.	done
Cascade Bicycle Club				In reading the draft plan, we were unsure what "Other Agency Projects" referred to on page III-17. This may benefit from more description in the narrative on page III-10.	added explanation
Cascade Bicycle Club				There is a simple edit required on page IV-3. We are the Cascade Bicycle Club, and not Cascade Cycling Club as referenced.	done
Cascade Bicycle Club				We support the bicycle parking proposal as identified and look forward to seeing the more fine grained implementation strategy.	para somewhere that downtown needs X # of new bike parking spaces Zoning code chanes would require that level and will be achieved in next 5 yrs. Encourage JC and mall to provide more
Cascade Bicycle Club				While we generally focus on capital facilities, Chapter IV may be the most important part of the plan. Encouragement and official support plays an enormous role encouraging bicycle use. Moreover, simply having more bicycles on the road may be the most effective way to make bicycling safer	true.
Cascade Bicycle Club				Given their potential importance (labeled p IV-1 in the draft, but follows p IV-4), we have a number of suggestions. While rodeos are fairly common, research has not documented their long -term effectiveness. The alternative we would recommend for the Everett plan is a research-backed program Cascade Bicycle Club currently offers - Basics of Bicycling (see text in comments from CCC)	added more to this section
Cascade Bicycle Club				Though it may sound self-serving, we would also suggest a reference to our adult and non-school based programming	added reference
Cascade Bicycle Club				A component of programming that may be missing from the plan is more comprehensive community-based social marketing and education efforts. This forms the umbrella for promotion and public-service-announcement programs in other jurisdictions. Programs such as Start Trips in Portland and Bike Smart in Seattle combine all of the promotion, public relations, education and programming activities into one comprehensive package. This cost-effective TDM approach has yielded significant mode-share gains in Bellingham, Seattle, Portland and other locales.	added
Cascade Bicycle Club				Actuated signals are a regular source of complaints from bicyclists. Persons who travel by bicycle less often are unlikely to understand how to use loop detectors, while others may feel - correctly or not - that detectors are incapable of functioning for bicycles. Page V-7 addresses some detection issues, but lacks specificity. Will pavement markings regularly be used to identify proper bicycle placement on loop detectors?	clarified
Cascade Bicycle Club				We also feel the signals and detection section would benefit from referencing the state statute, RCW 47.36.025, that requires signals to function for all lawful roadway users. Further, we feel the draft plan would benefit from a description of the statutorily mandated process for reporting non-compliant detection equipment	
Cascade Bicycle Club				Finally, the funding section (p V-57 through V65) is comprehensive, but lacks a concrete commitment to plan funding and implementation. This is an absolutely critical component of any successful plan. The simplest way for Everett to justify and support reprioritizing transportation capital funds to expedite plan implementation is to acknowledge the city's statutory obligations under RCW's 70.235.020, and 47.01.440, while also revising the city's adpoted transportation "level of service" to either the forthcoming "urban arterial LOS" in the 2010 HCM, or other multi-modal level of service.	not doing LOS thing. Not enough staff to do analysis.
Cascade Bicycle Club				Though we've acknowledged that the draft plan contains a comprehensive list of fund sources, there are sources identified that we would oppose. To put a point on it, until we eliminate or reduce the massive subsidies currently enjoyed by automobile users (see Delucchi, Littman, Moffet, etc.), we would strongly oppose any of the "bike taxes" identified on page V-65.	just a universe of alternatives. Add in tab fee.

Appendix J

Reviewer	Chapter	Page	Paragraph	Comment	Staff Response
Jim Ozanne				The spreadsheet in the back needs to printed on more sheets or atleast 11 by 17 so it is more reasonsl	ok
Jim Ozanne				In the stake holders interview and the field work comments there should be a reference to where it is discussed in the report or why it was not added to the report.	
Jim Ozanne				Page v-57 6th paragraph shoudl read It is reccommended that the City work with WSDOT, Snohmish County, Mukilteo and Boeing ...etc The reason for this is that portions of the facilities from the west are not in the city limits.	ok
Jim Ozanne				The crossections in sections in section v\need to use a different font and thinner line weight they are not readable. Further it does not appear that the buffer areas were included for lanes adjacent to parking.	done
Jim Ozanne				Most of the descriptions are very brief if they could be fleshed out a little more it would help. CEF-j is to connect with a path the county is planning to construct. T1-C1 we maybe able to provide a bicycle and pedestian undercrossing as a part of the broadway bridge replacement project rather than a signal, In T1 F1 - F11 in the third paragraph you reference the design guidelines I believe this is now incorrect. on T1 h2 h3 h6 and h8 13th and 14th should be allway stops as they are the access routes to the hospital from broadway	updated where possible. The cross-sections are the key take away in this section
Jim Ozanne				You use the term bicycle boulevard in discribing several project that were intended to be just signed routes. Please review so we use the correct description. The only bike boulevard I remember is Lombard, but it is possible that hot and grand may qualify as well.	modified
Jim Ozanne				the use of existing and proposed in descrbing the existing conditions and then describing the proposed conditions works well in teh existing facility section lets use the same format in the remaining categorys.	There is no existing conditions in the other categories, as we are proposing new routes
Jim Ozanne				In t2-H we connect to WHAT??? on sR 526	modified
Jim Ozanne				In t2-I the trail connects Seway Blvd to Mukilteo Blvd	modified
Jim Ozanne				T2-X should read a proposed trail that connects two neighborhoods to broadway at the north and 19th Ave SE at the southend, thus bypassing teh current difficult crossing of I-5 and SR 526	done
Jim Ozanne				T2-C see comments in email I sent today	will be discussed at meeting, no action at this time
Jim Ozanne				Lets break the details into lane, sidewalk, and trail and have the buffer conditions separate.	done
Jim Ozanne				curb and gutter	done
Jim Ozanne				Parking adjacent to bike lane	done
Jim Ozanne				Parking on sholder behind bike lane	done
Jim Ozanne				Compacted dirt or gravel	done
Jim Ozanne				uncompacted dirt gravel or grass.	done
Jim Ozanne				fence or wall	done
Jim Ozanne				Slope + and Minus	done
Jim Ozanne				railing on jersy barrier	done
Jim Ozanne				We also need a detail for a bicycle friendly fence	done
Jim Ozanne				a detail for a railing on a jersy barrier	done
Jim Ozanne				Sign and ledgend spacing along a corridor / 1 with sharrows and one with t\lanes and one just signed	done
Jim Ozanne				We need a detail for a bike lane adjacent to back in parking	done
Jim Ozanne				We need drawings of all the signs to be used on the project	done
Jim Ozanne				on the pavement marking page you need to add shareows, and lets remove the bike only symbol and standardise on the bike and rider symbol as it is consitant with the loop detector symbol.	done
Jim Ozanne				We should also specify the widths and profiles for lane lines adjacent to bike facilities.	done
Jim Ozanne				On the standard grate design please refer to one of everett's existing standards. I sent them to you earlier.	done
Jim Ozanne				Lets bring section 2.2 and in appendix a into the design standards section, duplicating it would be fine	done
Jim Ozanne				Lets show a detail off a median refuge island in the design section	done
Jim Ozanne				We still need the details for sidewalk to lane and back to sidewalk treatments	done
Mary Cunningham				See Planning's comment 1 bullet 4. The attached exhibits show the existing paved trail on Smith Island, with the red lines showing the proposed relocation due to bridge failures in the portion shown in purple. The exact alignment of the northern/12th St dike and trail isn't known yet, but the bike plan should show a paved trail connecting 12th St to Smith Island Road.	added
Mary Cunningham (City of Everett Planning and Community Developme				1. Consistency with Shoreline Public Access Plan. - The Shoreline Public Access Plan includes trails along the north end of the Everett peninsula and in the Riverside Industrial area that should be included in the plan. See Plan segments 4.3 through 5.5. - For segment 4.5 on Alverson Street/Marine View Drive, the Shoreline Public Access Plan recommends consideration of a jersey barrier-type separation from the roadway. These improvements should be included in the Bicycle Plan, or the Plan should describe why they are not included. - Shoreline Public Access Plan segment 5.6 is a planned foot/bike bridge from Jackson Park across the river to Langus Park. It should be included as a Tier 3 project. - The Plan doesn't show the existing paved trails on Smith Island through Langus Park and the Water Pollution Control Facility as bike trails. The existing trails on Smith Island should be shown as on page 59 of the Public Access Plan, except that north of 4th St, the eastern trail is being relocated to the east side of the ponds. It will be gravel temporarily, but should be paved by the Fall of 2011 up to 12th Street as part of the City/County wetland restoration projects. Several alternative ali	done
Mary Cunningham				2. Other Routes. It would be helpful if the plan included a section on routes considered, but not included, with an explanation of why they were not included. - Did the plan consider a connection from 36th Ave. W to Sound Avenue along the water line easement? - For the north south route parallel to Broadway from 14th to 26th, was Oakes considered for the route, rather than Lombard? It is wider and has an existing signal at Everett Ave.	Trail along dirt path from 36th to Sound (12' asphalt trail - Tier 2) Will vote on Oakes vs Lombard vs Baker
Mary Cunningham				3. In several areas, the Plan states that construction of bicycle facilities on sidewalks is generally not recommended (page II Page A-36). However, the Plan recommends future sidewalk facilities, such as on Smith Ave, 36th St from Smith Avenue to Lowell Riverfront Trail, Sievers-Duecy Blvd., and 75th Street. Where the Plan recommends the sidewalk improvements, it would be helpful if the text explains why a bike lane is not proposed instead.	dollars vs ROW
Mary Cunningham				4. Much of the text in the figure portions of the Project Sheets is not readable. It would be helpful to use thinner font, such on the figures on page V-39, and/or to slightly enlarge the figures.	done
Mary Cunningham				5. A State Environmental Policy Act (SEPA) review is required prior to City Council action on the plan. The Planning Department staff will work with you to expedite that review.	steve inglasbe action
Mary Cunningham				● Page III-14, T2-N and T2-A say Sievers-Duecy Blvd between Hardeson and Glenwood and 75th St. SE between Seaway Blvd and Hardeson Rd are trails. Also on Page V-44 Figure 13, the line type for these 2 roads looks like the Trail line versus the Sidewalk Path line. Page V-52 says they are sidewalks. On Page V-52, please describe why sidewalks paths or trails are proposed versus lanes.	dollars vs ROW
Mary Cunningham		Page IV-2		Create Bicycle Maps. Community Transit should also be listed as a partner	done
Mary Cunningham		Page V-23		Colby Ave. from 5th St. -9th St. No action is proposed, but the cost is $17,000.	updated
Mary Cunningham		Page V-26		Colby Ave from 9th St – 19th St. No action is proposed, but cost is $756,000.	updated
Mary Cunningham		Page V-28		Does the Planning Level Cost Opinion include the corridor replacement portions?	no
Mary Cunningham		Page V-30		CEF-E and CEF-H2. What are the proposed improvements?	updated
Mary Cunningham		Page V-37		T1-R/T1-S. For clarity, we suggest the project description be on 2 lines, with top line stating Summit Ave 19th St – 23rd, and 2nd line stating Harrison Ave., California St – 23rd.	done
Mary Cunningham		Page V-37		T1-T/T1-U. Suggest project description is on 2 lines with first stating Wall St Broadway – Smith and 2nd line stating Smith Ave – Wall St. to 32nd.	done

Mary Cunningham		Page V-38		T1-Q. What is the proposed project?	updated
Mary Cunningham		Page V-39		First sentence under California Street: Pine Street to Virginia Avenue is not complete. Should the sentence say "Cyclists traveling westbound…"? The Facility and Edge Treatment letters are not consistent with the letters in Table 11.	done
Mary Cunningham		Page V-40		The text refers to Design Guideline Section 4.3. Is the proposed improvement 4.3.7 and 4.3.8?	still under consideration
Mary Cunningham		Page V-46		T2-L. What is the proposed improvement?	updated
Mary Cunningham		Page V-46		T2-Q, R, and S. The title is confusing – suggest 3 separate lines – one for each section. What is the proposed improvement? Would the signal need to be in place prior to implementing this route?	updated
Mary Cunningham		Page V-47		T2-DD. This route is difficult to follow based on title. Does it also go on Highland and California?	updated title
Mary Cunningham		Page V-53		T2-I. Should description be connecting from Seaway Blvd to Mukilteo Blvd, or is the graphic wrong?	updated
Mary Cunningham		Page V-54		Project title is incorrect. At the end of the description, add "at 75th St. SE".	updated
Mary Cunningham		Page A-5		2nd paragraph, 2nd sentence states that the additional sheets highlight innovative techniques for improving bike lane visibility (including colored bike lanes…); and when describing the colored bike box example, page A-13, 2nd paragraph under Discussion says "similar to the colored bike lane treatment described earlier." I can't find the earlier description of the colored bike lane treatment.	modified text
Mary Cunningham		Page A-36		Last sentence preceding 5 bullets is incomplete.	done
Mary Cunningham		Page A-37		Separation From Roadway. This states that where a shared use path is adjacent to a roadway, a physical barrier of sufficient height should be installed. Is this referring to barriers such as the jersey barriers along portions of Alverson/Marine View Drive, or is a curb sufficient?	updated text
Jim Ozanne				Ryan thinks the two diverent bike sybols are ok	great
Jim Ozanne				Lets divide up chapter 5 into the following V - Design standards VI - Project descriptions VII - Funding strategis	done
Jim Ozanne				on page two under kick off meeting it should read Project Team Members, City Staff and Key members of the bicycle community	done
Jim Ozanne				Same page after Open house put in a paragraph that describes the distribution of the draft, made available to over 200 stakeholders, X number of cds mailed and x number printed copies given to staff for review. Month long review period. Comments basis of final public meeting etc	done
Jim Ozanne		page 3		bullet two in major barriers include terrrain.	done
Jim Ozanne		Page 4		near bottom divide up chapters and change design guidelines to project guidelines	done
Jim Ozanne		Page 4 and page I-2		2nd to last bullet break up chapters	done
Jim Ozanne		Page i-2		change design guidelines in the final bullett to project guidelines	done
Jim Ozanne		Page II-4		Add graph along evergreen and parallel routes to this page and change the language to Figure 1 and 2 show that Everett has significate elevation change both east west and north south.	done
Jim Ozanne		Page II-9		add section about sending out draft to stakeholders see above	done
Jim Ozanne		Page ii-9		to the second bullet add terrain as major barrier, as we have areas with no thru streets due to terrain.	done
Jim Ozanne		Page ii-10		6th line under collisions it should read an approximate number of bicycle and vehicles taht travel	done
Jim Ozanne		Page II-11		The three categories of comments are project team aggrees, the project team disagrees and optional treatments which will be decussed at the final meeting	done
Jim Ozanne				Figure 5 could be divided by fair good and better by color	difficult, and potentially confusing to have color and facility type. I think it would decrease legibility.
Jim Ozanne		page iii-8		under trails you talk about enhancements but don't say what. Maybe you could add a second paragraph that decides the types of enhancements desirable.	updated
Jim Ozanne		page iii-8		same page Interurban trail we need to come up with a standard treatment at all entrances, whatever is used needs to be hig visiable	updated
Jim Ozanne				Tier 3 summary page ii-15 we should move low cost projects to tier 2 and high cost tier 1 and 2 to tier 3	I think that we slotted facilties in a particular Tier for a reason, and we should not change tha based on cost alone. It is understood that funding may dictate implementation
Jim Ozanne		Page iii-16		Coridor Replacement projects needs a paragrah explain the dificulty of providing bicycle improvements in these corridor and that significant corridor reconstruction would be required as well as signficant right of way would have to be purchased.	done
Jim Ozanne		Page iii-17		needs a paragraph explaining what these are. provide connectivity, City will encourage the development of these corridors to adjacent government agencies.	done
Jim Ozanne		iv-8		table 10 signs are replaced every 7 year	done
Jim Ozanne				after page iv-1 which really is Iv-9 we need a map showing where the wayfinding signs should be placed and a tier 1 project to place them.	added Tier 1 wayfinding signage to recommended network map. Can separate into own map if truly desired.
MJZ (Snohomish County)				It would be helpful to have a glossary w/ definitions for such terms as "bike boulevard" and "bike sidewalk path." Since Appendix A contains design standards that also include some definitions, adding appropriate cross-references might also work.	new glossary added to appendix
MJZ (Snohomish County)				Coordination with neighboring jurisdictions (generically referenced as "other agencies" on the "Recommended Network" map) – particularly Snohomish County, the City of Mukilteo, and the City of Mill Creek – will be important for successful implementation. This is particularly true for "Corridor Replacement" and "Other Agency" projects, such as along Evergreen Way, as well as for bicycle counts and other planning, monitoring and program activities. The plan could also talk more about the appropriate next steps for corridor replacement projects, and how those bike routes should be treated by the city the interim.	coordination is very key.
MJZ (Snohomish County)				It is not clear how the classifications of bicycle routes as "recreational" and "commuter" were made for the map in Figure 3. Some routes may be currently functioning primarily as recreational routes, but may have significant potential to serve commuter traffic in the future – particularly if the connections identified in this plan are completed. If there is value in distinguishing recreational from commuter routes, there should be recognition that specific routes could well see their role change in the future, or that more routes are likely to evolve into multi-purpose routes serving both commuter and recreational traffic.	adeded language to description
MJZ (Snohomish County)				Improvements to major regional network facilities, such as the Inter-Urban Trail, and key connections to it should be considered for high priority status. These regional facilities, because of their continuous length, proximity to urban populations, and connection to the King County trail network, have great potential to function as real transportation corridors for commuting and/or other utilitarian purposes. By enabling different types of trips by alternative modes, these facilities can contribute significantly to meeting greenhouse gas reduction targets. It would be helpful to map major trip origins (such as high-density residential areas) and destinations (such as major employers, schools, commercial centers, etc.) within the city that are near the Inter-Urban Trail and identify deficient or missing connections between them and the Inter-Urban Trail.	connections were considered for higher priority status.
MJZ (Snohomish County)				Appendix B is difficult to follow – it is not always clear where the other documents are being excerpted, summarized or commented upon. It would be helpful to have excerpts from these other documents clearly denoted by quotation marks or a different font style and size from the text of the bicycle plan. Also, this appendix does not mention the 6-year Transportation Improvement Program (TIP), a key planning document that outlines the city's capital investment plans for transportation projects over the next six years.	updated
Aaron Lee (Snohomish	1	6	n/a	The street names obstruct the full display of the bike routes	cleaned up a little
Aaron Lee	2	6	n/a	The street names obstruct the full display of the bike routes	cleaned up a little
Aaron Lee	2	7	n/a	The street names obstruct the full display of the bike routes	cleaned up a little
Aaron Lee	3	3	n/a	The street names obstruct the full display of the bike routes	cleaned up a little
Aaron Lee	3	4,6,7	n/a	It would be helpful to list the actual bike route (not just beginning and ending streets)	decreases legibility
Aaron Lee	3	11	n/a	The street names obstruct the full display of the bike routes	difficult to modify placement too much on this size map
Aaron Lee	3	12-17	n/a	It would be helpful to list the actual bike route (not just beginning and ending streets)	decreases legibility
Aaron Lee	Exec Summ	8	n/a	Provide an explanation for the acronym "TOPS" - referenced later in chap 5 pg 64	deleted
Aaron Lee	3	8	bottom	Consider maintaining consistency with existing sign design to help users know what to look for. (interurban signs for example)	just a recommendation, will be discussed at meeting

Aaron Lee	3	11	n/a	The street names obstruct the full display of the bike routes	difficult to modify placement too much on this size map
Aaron Lee	3	12-17	n/a	It would be helpful to state details such as sidewalk or sidewalks and so on. One or two bike lanes?	too much detail for this table
Aaron Lee	3	17	n/a	It would be helpful to state what the planned facility type will be (Lane, sidewalk, etc) for other agencies.	not a consideration - just identifying as desired route
Aaron Lee	3	12	n/a	Does sidewalk mean bikes can ride on them at the listed locations?	yes
Aaron Lee	4	3	n/a	http://www.bikeeverett.org/ is not working	not supposed to be working - it's a suggested domain
Aaron Lee	4	7	bottom	Lighting should be in maintenance	parks territory
Aaron Lee	5	15	n/a	The street names obstruct the full display of the bike routes	difficult to modify placement too much on this size map
Aaron Lee	5	29	n/a	The street names obstruct the full display of the bike routes	difficult to modify placement too much on this size map
Aaron Lee	5	35	n/a	The street names obstruct the full display of the bike routes	difficult to modify placement too much on this size map
Aaron Lee	5	44	n/a	The street names obstruct the full display of the bike routes	difficult to modify placement too much on this size map
Aaron Lee	Other	Other	Other	How come the existing bike trail listed in previous ALTA maps (2/2008 & 1/2008) along Smith Island Rd and 4th St SE east of the Snohomish River is not shown on the Master Bicycle Draft map?	maps have been updated
Aaron Lee	Other	Other	Other	How come the existing bike trail listed in previous ALTA maps (2/2008 & 1/2008) along Lowell Snohomish River Rd east towards Snohomish along the Snohomish River is not shown on the Master Bicycle Draft map?	maps have been updated
Aaron Lee	Other	Other	Other	How come many of the existing bike facilities listed in previous ALTA maps (2/2008 & 1/2008) are not listed in the current Master Bicycle Draft map and vice versa. (besides the two listed above)	maps have been updated
Aaron Lee	Other	Other	Other	Consider keeping the trail visible from surrouding area (low vegetation/lwalls) to improve safety/security. (particular areas along the interurban trail are secluded from view due to high vegetation)	always a consideration
Aaron Lee	Other	Other	Other	The map displaying all the bikeways makes it appear that the interurban trail is not continuous north and south of SR 526.	not clear what map referencing.
Aaron Lee	Other	Other	Other	Work together with surrounding jurisidictions (Snohomish County/Cities/Transit) when implementing bicycle plans that will approach or cross boundaries. This ensures each jurisdiction has knowledge what each other is planning.	absolutely
Snohomish County Pa	3	8	Third, First Bullet	We would support the removal of the crossing gates on the Interurban in favor of a bollard system. Parks is currently in the process of doing that on the existing Centennial Trail and does not use them when doing new construction. The crossing gates attract more complaints (by far) than anything else related to trails.	probably not going to happ
Jim Ozanne				on page a-4 1st line second paragraph the word guidelines should be replaced with project concepts, this applies to other similar references as well.	done
Jim Ozanne				The right turn examples still need dimensions	done
Jim Ozanne				Page a-16 Roadway widening we need to mention that such improvements assist pedestrians as well and maybe a shared use sign showing peds and bicycles.	done
Jim Ozanne				Page a-20 maybe a sign to explain the sharows would be useful initially.	done
Jim Ozanne				Page a-22 we were going to add right in right out diverters. Stops signs on cross streets favor through bicycles only if safety issues or traffic volumes permit.	the diverter is the median at the bottom of the diagram
Jim Ozanne				Let's move the bike boulevard from Lombard to Oakes.	a discussion item for the open house
Jim Ozanne				a-25 4.2.3 shared lane markings need signs to explain purpose	there is no sign approved by the MUTCD. Need a education campaign
Jim Ozanne				a-27, 4.3.1 add discussion traffic volumes and intersection safety	done
Jim Ozanne				a-28 patterned pavement should discuss profile maximum to prevent loss of control by cyclists	done
Jim Ozanne				a-41 signalized crossing must be more than 100' from nearest intersection	done
Jim Ozanne				spreadsheets of cost estimating should be printed on 11 by 17, so they are readable	done
Jim Ozanne				When we printed the cd not all of the pages in the appendixes were in the right order	bob and johns pages were scanned strangely, this is the order that I have them in.
Jim Ozanne				I will get the comments from the street superintendent on Monday.	okay
Roy Harris	xec. Summar	1	1	Delete the word "safe."	done
Roy Harris	xec. Summar	1	4	Delete the word "safe."	done
Roy Harris	xec. Summar	1	5	Insert the word "potential" in the second line to read "existing bicycle facilities and a map of a *potential* future bicycle network."	done
Roy Harris	xec. Summar	2	1	Insert "of the total transportation usage" into the second line, so it reads "Increasing bicycle mode share *of the total transportation usage* is the ultimate goal . . ."	done
Roy Harris	xec. Summar	2	1	Insert "practical trip usage like" in the last sentence, so it reads "and convert recreational riders to *practical usage like* commuters, part-time commuters . . ."	done
Roy Harris	xec. Summar	3	6	Paragraph should open with "Current streets," so it reads "*Current streets*, bike lanes, etc . . ."	done
Roy Harris	xec. Summar	3	6	End the last sentence with "and type of network," so it reads "The quantity and quality of facilities varies by location *and type of network*."	done
Roy Harris	xec. Summar	3	8	Last bulleted item - remove the word "Good"	done
Roy Harris	xec. Summar	4	3	Remove the bulleted item "Maintenance issues (e.g., debris in bike lanes and on the Interurban Trail).	done
Roy Harris	xec. Summar	5	1	Insert the word "roadways" into the last sentence, so it reads "The system includes a variety of facilities including: *roadways,* bike lands, etc."	done
Roy Harris	xec. Summar	5	2	The word "all" to be stricken from Sentence 3, so it reads "Project descriptions are provided for … Existing Facilities, etc."	done
Roy Harris	xec. Summar	6	Figue ES-1	Add note that all road systems can be used for bike traffic.	done
Roy Harris	xec. Summar	7	2	For Federal Funding Sources, has the SAFETEA-LU been updated to 2010-2015?	done
Roy Harris	xec. Summar	7	4	Include "but are not limited to" within the sentence under State Funding Sources - "State funding sources includes *but are not limited to* the following programs:"	done
Roy Harris	xec. Summar	8	2	Remove the adjective "great" from Sentence 1 under Last Thoughts - "is a roadmap to creating a … bicycle network . . ."	done
Roy Harris	xec. Summar	8	2	Insert "The goal of" to start Sentence 2. "*The goal of* implementing the recommended connections …"	done
Roy Harris	I	I-1 - I-2		Delete - Duplicate Text	done
Roy Harris	II	II-3	3	In the final sentence, replace the word "implementation" with "master" - "The routes found on these maps served as a starting point for this *master* plan."	done
Roy Harris	II	II-5	2	Insert "and ferries" in Sentence 1. "regional bus services, as well as commuter rail *and ferries* which provide …"	done
Roy Harris	II	II-5	3 to 7	Delete all items under "Bicycling Conditions" heading - Duplicate Text	modify ES
Roy Harris	II	II-8	2 to 4	Delete all items under "Public Involvement" heading - Duplicate Text	modify ES
Roy Harris	II	II-9	All	Delete - Duplicate Text	modify ES
Roy Harris	II	II-10	1 to 30	Delete all bullets at top of page and "Summary of Fieldwork" text - Duplicate Text	modify ES
Roy Harris	II	II-11	2	Delete "Distribution of Draft Report" heading and contents - Duplicate Text	modify ES
Roy Harris	III	III-3	Figure 5	Delete - Same as page II-6.	done
Roy Harris	III	III-5	4	Delete "in Everett" from Sentence 2, so it reads "are a common shortcoming of bike lanes …, resulting in …"	done
Roy Harris	III	III-5	4	Insert "lanes used by" in Sentence 3, so it reads "Bicycle stencils remind drivers of *lanes used by* bicyclists"'	done
Roy Harris	III	III-5	4	Remove "right to" from Sentence 3 and replace with "on", so it reads "bicyclists' … *on* the roadway."	done
Roy Harris	III	III-5	4	Remove "legitimize" from Sentence 4 and replace with "identify" - "would help to … *identify* the place …"	done
Roy Harris	III	III-5	4	Remove "of" from Sentence 4 and replace with "used by" - "help to *identify* the place … *used* by bicycles …"	done

Roy Harris	III	III-5	4	Remove "frequency" and replace with "use" in the last sentence - "recommendations on the … *use* of bicycle stencils."	done
Roy Harris	IV	IV-2	All	Delete	done
Roy Harris	IV	IV-2(2)	2	Delete "annual" from the last sentence under "TECHNICAL TRAINING …" - "Outside experts can be brought in to conduct … trainings for City staff."	done
Roy Harris	IV	IV-2(2)	4	Delete "regularly" from the last sentence uner "CREATE BICYCLE MAPS" - "the City of Everett should … update the bike map."	done
Roy Harris	IV	IV-3	4	Delete Sentence 1 from the paragaph, starting at "The City of Everett should take the lead role …"	done
Roy Harris	IV	IV-4	4	Remove the word "by" and replace with "in ways like:" in Sentence 3 under the "BIKE TO WORK MONTH" category - "and expand its involvement with the promotion … *in ways like:* sponsoring events, etc."	done
Roy Harris	IV	IV-7	2	Delete entire paragraph.	done
Roy Harris	IV	IV-7	4	Delete Sentence 1 from the paragraph, starting with "Routine maintenance of bikeway facilities …"	done
Roy Harris	IV	IV-7	4	Delete the word "Further" from the start of Sentence 3 - " … Guidance on maintenance activities …"	done
Roy Harris	IV	IV-7	4	Delete the words "to improve bicycle conditions:" from Sentence 4 so it reads - "The plan recommends the following maintenance related actions: …"	done
Roy Harris	IV	IV-8	4	Delete the words "on a monthly basis" from the bullet "Regular maintenance of multi-use paths" - "Paths should be monitored … checking paving surfaces, etc."	done
Roy Harris	IV	IV-8	5	Delete entire paragraph - bulleted item "Actively coordinate with maintenance workers."	done
Roy Harris	IV	IV-8	Table 10.	Delete first row - "Inspections"	done
Roy Harris	IV	IV-8	Table 10.	Delete from second row, column 2 "weekly in fall" and replace with "about once every 8 weeks."	done
Roy Harris	IV	IV-1(9)	2	Delete Sentence 3, starting with the words "For signs along shared use paths …"	done
Roy Harris	IV	IV-1(9)	2	Include the phrase "but must also meet sight triangle clearance" somewhere in this section.	done
Roy Harris	V	V-3	1	Delete most of paragraph. Suggested replacement would read "The following pages contain design standards that are recommended."	done
Roy Harris	V	V-4	Figure	Delete various parts of the image to account for a more correct accounting of the bike lane's size.	done
Roy Harris	V	V-5	Figure	Delete various parts of the image to account for a more correct accounting of the bike lane's size.	done
Roy Harris	V	V-6	2	Delete entire paragraph and section 3B.22 PREFERENTIAL LANE WORD AND SYMBOL MARKINGS	done
Roy Harris	V	V-7	1	Delete last sentence, starting with the words "One purpose of bicycle loops …"	done
Roy Harris	V	V-7	3	Delete entire paragraph, starting with the words "Without a stencil …" Also, insert a new figure.	done
Roy Harris	V	V-8	1	Remove the word "wastewater" from Sentence 1 and replace it with "sewer" - "through which water drains into the municipal … *sewer* system."	done
Roy Harris	V	V-8	1	Delete Sentences 2 and 3, starting with the words "Many grates are designed …"	done
Roy Harris	V	V-8	1	Remove the words "A more" from the start of Sentence 4, so it reads "… Bicycle-friendly design of drainage …"	done
Roy Harris	V	V-9	Figure	Change size of Multi-use path from 12'-14' to 10'-14'	done
Roy Harris	V	V-10	All	Delete all. NOTE: Redesign with an addition that says "Bikes on off-street need to adjust speed to conditions."	done
Roy Harris	V	V-11	All	Delete all. NOTE: Redesign with an addition that says "Bikes off street should adjust to the site."	done
Roy Harris	V	V-12	1	Delete Sentences 2 and 3, starting with the words "Conventional diagonal parking …"	done
Roy Harris	V	V-12	1	Remove the words "However, if conventional" from the start of Sentence 4 and replace with "When," so it reads - "When *diagonal* parking …"	done
Roy Harris	V	V-12	1	Remove the words "to be" from Sentence 4, so it reads "diagonal parking is … utilized …"	done
Roy Harris	V	V-12	2	Delete all of Paragraph 2, starting with the words "The use of 'back-in diagonal parking' …"	done
Roy Harris	V	V-12	Figure	Remove the R3-17 Bike Lane Sign	done
Roy Harris	V	V-13	3	Remove the words "design guidelines" from the last sentence and replace with "discussion of project concepts" so it reads "Appendix A contains comprehensive *discussion of project concepts*."	done
Roy Harris	V	V-15	Figure 10	Delete Figure. Same as II-6 and others.	done
Roy Harris	V	V-16	Figures	Numbers in the "Proposed" columns need to be changed.	done
Roy Harris	V	V-17	Figures	Numbers in the "Proposed" columns need to be changed.	done

Appendix K. Fieldwork Comments

Comments on Draft Copy of Bicycle Route Map

General Comments

The first question to be asked when creating bike routes is, "Will people use them?" As a general strategy we believe that, to the extent possible, bike routes should be created on roads already commonly used by bikers. Over time bikers have usually figured out the most desirable streets to ride.

We should strive to connect as many bike routes together as possible.

Another principle should be that, unless bikers are sharing a fairly high-speed vehicle route, like Mukilteo Blvd, it is highly desirable to eliminate the center yellow lines. This tends to slow vehicle traffic.

Angled parking and bike routes do not mix. Cars backing out of parking spaces are a dangerous hazard. Because of the vehicles parked next to them, drivers often cannot even see other vehicles, let alone bikes. Angled parking also eats away at a huge amount of road width, sometimes as much as 18 feet on both sides of a street.

Wherever it is deemed appropriate to mark a bike route with painted double chevrons on the street surface, these chevrons should frequently be accompanied by a painted bike silhouette. This will serve to educate drivers who are not familiar with the meaning of street chevrons.

Bike routes should be accompanied at all turns by small distinctive bike route signs such as those now found along the Interurban Trail.

All measurements mentioned in these comments are approximate. They were measured by use of a tape measure, but not always with a lot of time before the next car came along.

BJacksonJMurphy@aol.com

Bob Jackson 303 0127

Existing Bike/Sidewalk Path on W. Marine View Dr. from Alverson Blvd. to California Av.

Continue the low concrete wall that exists on the bridge over BNSF tracks where the sidewalk is adjacent to the curb. (None needed where a planting strip is between road and sidewalk).

At intersection with Alverson Blvd., the preferred solution for crossing Marine View Dr. is a curving bike/pedestrian bridge from the north sidewalk to the northwest corner of the grassy area at Legion Park overlook. A less expensive solution, though more disruptive to vehicle traffic, would be a pedestrian activated crosswalk. This could be an interim solution.

Bob

At Lift Station 31, place the bike trail to the west side of lift station. Aquire the land or an easement.

From 25th St. south widen the trail to 10 feet. Eliminate stairs just north of Milltown Credit Union. Pedestrians can share ramp with bikes.

Turn the bike route east at California St. Add "bike route" sign for southbound users showing turn east onto California. Paint striping across W. Marine View Dr. on south side of the intersection.

Existing bike/sidewalk route along E. Marine View Dr. and E. Grand Av. from Alverson Blvd to US Hwy 2

Along E. Marine View Dr. there is a bike lane on the pavement along the south side of the road and a bike/sidewalk path along the north side. The north sidewalk should continue the 32-inch high concrete wall that exists along the curb on the bridge over BNSF tracks west of Alverson Blvd. Also a curb cut should be added at the approximate entrance to the left turn lane for westbound drivers turning onto Alverson Blvd. This would give bikers the option to enter the same left turn lane.

The map should show the small paved connection that exists from the bike/sidewalk path to US Hwy 529.

After 19th St. the wide pedestrian/bike sidewalk becomes an 8-foot wide bike path continuing on the east side of E. Grand Av. to take users safely past the off and on ramps connecting to I-5. We suggest enlarging it to 10 feet and painting a center stripe to make it obvious that 2-way bike and walking traffic is invited. It could even be separated from vehicle traffic by adding a curb or short wall.

South of 20th St. bike lanes could be painted on both sides of the street. Where this route turns onto Everett Av., there are inviting benches at Riverside Park but no curb cuts to access the park. Add these. The remaining route here has nice signage to connect to US Hwy 2.

Tier 1 - California St. Route from W. Marine View Dr. to US Hwy 2

Stripe intersection across W. Marine View Dr. on north side of California St. Add "bike route" sign for westbound users showing turn north onto path along west sidewalk of W. Marine View Dr.

Change all angled parking to parallel parking. Realign center yellow line. Stripe for bike lane and stencil with double chevrons and bike symbol.

At Oakes Av. move the yellow stripe back to the center of road and eliminate "Right Turn Only" sign for eastbound traffic.

Install full stop light at Broadway.

At Fulton St show a bike route turning onto Fulton to get to train station and another one continuing towards US Hwy 2

Extend path across Maple St. and widen sidewalk on east side of Maple towards Hewitt Av. Add "bike route" signs to reflect the turn. Angle the path across the small park to east side of Judd and Black parking lot where it should continue to Hewitt Av. Preferred solution to connection with US Hwy 2 bike path would be to go under the I-5 bridge on the fenced off north side of Hewitt. Start immediately sloping a ramp to go over the eastbound Hwy 2 traffic as it starts into the first highway curve.

If this is impossible because of clearance issues, cross Hewitt Av. from the Judd and Black parking lot on a ramp partially attached to the west side of the I-5 bridge. Spiral the ramp down to a bike path on the south side of Hewitt Av. At the stop sign which controls traffic continuing east on Hewitt Av. past I-5, diagonally stripe the bike path northeast across that intersection to the area of the small paved island. Continue striping the path across the entrance for traffic merging onto US Hwy 2 from westbound Hewitt.

Both of those solutions involve expensive, elevated crossings. The cheapest solution, but one which tangles with lots of traffic at rush hour, would be to continue on the sidewalk/bike path along the east side of Maple Av. from California St. to and across Hewitt Av. to meet the bike path proposed in the preceding paragraph. Add a "bike route" sign to reflect the turn.

Tier 2 - 23rd St. Route from Grand Av. to E. Grand Av.

Consider making this a higher priority route since it requires relatively low-cost work. It is also an east-west connection to US Hwy 2 which avoids entanglement with vehicles entering the highway. Stencil large share-the-road chevrons both directions.

At the intersection with Summit Av. take Bill Weber's suggestion to add a bike route north which would follow a more gradual slope down to E. Grand Av. north of 19th St.

At the intersection with Harrison Av. (just west of the I-5 over-crossing), the bike route should split to either continue east downhill to connect with E. Grand Av. or turn south along Harrison which is a shorter connection to US Hwy 2. For the continuation east, install "bike route" signs pointing both directions at E.Grand Av. since this is a bike route both ways.

For the turn off of 23rd St. to access US Hwy 2, proceed south on Harrison Av. to California St. Turn west on California St. to Highland Av. Turn south on Highland Av. to Hewitt Av. Proceed west to the US Hwy 2 bike path. Bike route signs should be installed at all the preceding turns.

Not Shown – An alternative route from 23rd St. to the Everett Station

Since Pacific Av. is very uncomfortable to bike, an alternative to the Pacific Av. approach to Smith St. shown on the map would be to leave 23rd St. on Fulton Av. eventually crossing Pacific just south of Lowe's. The street is then called Hill St. Turning west on the sidewalk, which could be expanded, this route enters the new station parking lot on the east side of the tracks. In the corner of that lot is a public elevator taking riders up to a pedestrian bridge over the tracks and another elevator down to the station.

Existing – 19th St. from Grand Av. to Summit Av. & E. Grand Av.

In general, this is the Cadillac of Everett's existing bike routes. The street is wide and the bike path is usually 5 feet. Improvements will make it better. From Grand Av. to Colby the street is 48 feet wide. The bike lanes are 4 feet wide. There is room to take a little space from the parking lanes, driving lanes, or both, and increase the bike lanes here to 5 feet.

At Colby the street width increases to 52 feet. Inexplicably, the current bike lane disappears for two blocks from Lombard Av. to McDougal Av. even though the street stays wide. The bike lane should be continued here.

At Walnut Av. the bike lane shrinks to about 26 inches at the stop light. It appears that the driving lanes and left turn lanes could be adjusted to remedy this.

At Summit Av. the main route turns north and curves down to E. Grand Av. There is currently no bike lane on the east side of the street though there is a 5-foot-wide bike lane on the west side. The street appears wide enough to have bike lanes on both sides.

The intersection at 19th and Summit is currently a 3-way stop allowing east-bound traffic not to stop as they turn onto Summit. The stop sign for south-bound traffic on Summit is in the middle of the street to make room for a right turn lane. If Summit is to become a bike route going both directions, this intersection should have a normal 4-way stop, and the sign moved out of the road to a normal position.

Tier 1 – Lombard Av. from 10th St. to 37th St.

This route can become the major north-south alternative to riding on Broadway Av. It appears that this is slated to become Everett's north-south bike boulevard which would divert vehicle traffic off Lombard every other block, but allow bikers to proceed straight. Bike route signs should be installed at 10th St, 12th St, 19th St, and 23rd St. to mark connections to other bike routes. Intersections at 10th St, 19th St, and 23rd St. would be made four way stops.

Since Lombard does not connect from Hewitt Av. to Wall St. because of Comcast Arena, the map shows this route turning west on 26th St. to Oakes, then rejoining Lombard at

32nd St. This is potentially ok for bikers proceeding south. The map shows this route stopping at 36th St. and joining a connecting route going both east and west on 36th St. This is not good. Going west, 36th St. climbs very steeply to Colby Av. Going east, there is no crossing at Broadway. The map even shows a bike route along 36th St. east of Smith Av. past the old animal shelter to the trail along the Snohomish River. 36th street has been blocked to all crossing of the BNSF tracks for years. We suggest the Lombard route be extended to 37th St. where a safe crossing of Broadway could be made at the stoplight. Westbound bikers would still have to ride uphill to Colby, but not as steeply as on 36th St. or 35th St.

Not Shown - An alternative route from southbound Lombard Av. to Everett Station

We propose an alternative route crossing Broadway for people needing to get to Smith St. and the Everett Station. This is a route in common use by bikers already.

This route would have bikers turn west off Lombard at California to cross Broadway when the new light is installed. (Until then bikers should proceed to Hewitt and walk their bikes on the sidewalk one block to cross Broadway.) Bikers should proceed south on the east sidewalk along Broadway between California and Hewitt which is now 8 feet wide (10 feet over the railroad bridge). This could be expanded another couple of feet to be brought up to bike/pedestrian route standards. Crossing Hewitt the route stays on another wide sidewalk for about 100 feet before turning east into an alley which has been closed to vehicle traffic. The fence there has been placed to leave enough room for pedestrians and bikers to use it. It could be opened another two or three feet to make it safer for bikes. This alley leads to McDougal Av. where bikers turn south for one half block to Wall St. At Wall St. the route proceeds one block east to Smith Av. where bikers turn south. They can either ride under the Smith Av. bridge into the station parking lot or stay on the west side of Smith to proceed south.

Tier 1 - Smith St. from Pacific Av. to 41st St.

The route south along Smith past the train station narrows unsafely for bikes. The curb bulbs here could be reduced in size to accommodate bikes passing the station. Until then, chevrons must be painted. From 33rd St. to 35th St. the east sidewalk/bike path should be widened to match the 12-foot wide sidewalk south of there. "No Parking" sign poles placed in the sidewalk should be examined to see if they could be made safer for bikes.

remove sharrows

At 38th St., the new access road curves up to connect with 41st St. It has been made to accommodate bikes as the obvious route, but does not appear as a bike route on the map. It should. Instead the map shows the bike route proceeding south on Smith St. to 41st St. This is a mistake since Smith has been blocked by a fence at the old right of way under the bridge leading to the Riverfront Project.

The access road curving up to 41st St. is very busy with cars and trucks. It accommodates bikes in an odd way. On the east sidewalk a full 12-foot wide bike/pedestrian path has been built. On the same side there are bike chevrons in the street. On the west side there is a painted bike lane in the roadway. It would seem safer to at least eliminate the chevrons and encourage northbound bikers to use the sidewalk.

Tier 3 – 3rd Av. and 2nd Av. from 41st St. through Lowell to Lenora St.

From 41st St., 3rd Av. runs south to 47th St. where the main route curves west on Junction Av. to 2nd Av. Along this route there is what appears to be a 5-foot wide bike lane along the east side, but no bike accommodation on the west side where parking is allowed. It is advisable to find room for bike lanes going both directions.

A route could also be built to proceed south to Lowell by reopening Smith St. at 41st and perhaps acquiring an easement on the flat path just west of the old Black Clawson factory. It would pass the current Acrowood Company and eventually run just west of Lowell Park, or perhaps inside the park itself, to join 2nd Av.

Existing bike path along 41st St. from Colby Av. to 3rd Av.

In general this is a good wide path along the south sidewalk and across the I-5 bridge. It does need to be made safer. Two of the four ramp crossings on the bridge have no "walk" buttons. They are the on-ramp for eastbound 41st St. traffic to enter I-5 going south and the off-ramp for northbound freeway traffic exiting onto 41st St to go west. Walk buttons should be installed.

Not shown – Potential route from 41st St. across Broadway to access Smith St to the train station

There has been built a nice bike path off the 41st St. route just west of the I-5 bridge leading down to Broadway. At first, this route stays on the sidewalk west of Broadway and goes north. The sidewalk starts as a 12-foot modern bike path, but soon reverts to old sidewalk size. This could be widened north to 38th St. Crossing 38th St. at the stop light, the route proceeds east to McDougal Av., north to 37th St., east to Paine St., north to 36th St., and east to join the bike route at Smith Av. These are all quiet streets to 36th St.

Tier 1 – 10th St. from Grand Av. to N. Broadway Av.

On the map the 10th St. route is only shown from Colby Av. to N. Broadway Av. Since the 10th St. route intersects two other north-south bike routes west of Colby, this route should be extended west to Grand Av.

Tenth St. is too narrow to allow for a painted bike lane. It should be marked with large share-the-road chevrons and bike symbols.

An alternative to crossing N. Broadway at 10th St. is shown on the map by turning north on Broadway Av. (street name can be confused with N. Broadway one block east), which curves east into Tower St. after it passes the college entrance. Tower leads to another stoplight at N. Broadway. This short alternative has no parking so bike lanes could be painted. The road is pinched by a curb bulb connecting sidewalks from the major transit stop and the college entrance, but is well marked as a crosswalk which should be enough to slow vehicle traffic.

A second alternative for bikers planning to proceed north would be to turn off Tower St. on Waverly Av. and ride north to 8th St. This stretch is blocked to through vehicular traffic. Bike access is currently available and could be made even better at the locked swinging gate. Going east on 8th St, the route would turn north on Legion Av. for about 100 feet before turning east on 7th St. to the stoplight at N. Broadway Av. This quiet route could probably be painted with bike lanes or stenciled for sharing the road.

N. Broadway Av. from 10th St. to the merge with SR 529

This is not an ideal road to bike on because of existing vehicle speed limits up to 40mph, but it is a natural connection to the SR 529 bridge over the Snohomish River. We recommend elimination of on-street parking, which is already sparse, and the creation of 8-foot wide bike lanes.

For northbound bikers approaching the off-ramp to E. Marine View Dr., angle the bike lane to start down the off-ramp, but actually cross it to the redundant little 100-foot stretch of roadway that leads north to a stop sign at the on ramp to SR 529. Close this little section of roadway to vehicles. Then bikers and pedestrians must cross the on ramp to north-bound SR 529. At both of these ramp crossings, well-marked crosswalks should be painted and road signs added warning drivers of bike/pedestrian crossings. This on ramp is busy during rush hour, but traffic should be intermittent because of the stoplight nearby on E. Marine View Dr.

extend Park to South side outline of EMVD

This crosswalk would lead bikers to a short bike path along the edge of a park-like space leading back up to SR 529 at the bridge over E. Marine View Dr. At this point the bike path would have to be extended back into the existing roadway but could be kept elevated to match the narrow walkway over the bridge. This involves moving the existing guard rail a couple of feet east on the south side of the bridge. On the north side of the bridge the guard rail should be adjusted to accommodate a smooth opening into the existing path leading to the Snohomish River bridge walkway.

The west side of Broadway Av. should be handled in a similar fashion for bikers and pedestrians getting off the Snohomish River Bridge to continue south on Broadway.

Tier 1 - Entrance Road to Riverside Business Park

Paint a bike lane along the downhill side of the road and move the center line accordingly. Add a little width to the sidewalk on the uphill side.

Connect the road to the recently paved section of bike/pedestrian trail the Port put in. This spur should be added to the bike map. It extends from the base of the hill northwest to the BNSF mainline track.

Install whatever bridge screening is required by BNSF so that the road can be opened to the public.

Tier 2 – Grand Av. from 35th St. to Alverson Blvd

For several reasons Grand Av. is, and will continue to be, well used through downtown and out to Alverson Blvd by both walkers and bikers. It is a natural route since it's the furthest west street through north Everett without dropping down to W. Marine View Dr. Grand Av. has no streets intersecting from the west below 21st St. and it leads to both Grand Av. Park and Legion Park. This seems like a good candidate to be moved up from Tier 2 to Tier 1.

From 35th St. to 32nd St. this route is a quiet residential street with parking on both sides. Bike-sharing chevrons and bike route signs are enough here. From 32nd St. to Pacific Av. there is no parking on the east side now, so designated bike lanes could start here and continue all the way through downtown and out to 19th St.

From Pacific Av. to Everett Av. the road widens to 48 feet. Much of this stretch now has angled parking which could be converted to parallel parking to make room for the bike lanes. North of Everett Av. the road shrinks to 40 feet. We recommend eliminating the yellow center line to encourage traffic slowing.

North of 19th St. the road narrows to 28 feet, and to 24 feet north of 16th St. At 19th St. the use of chevrons could replace bike lanes. Pedestrian striping exists currently at the 19th St and 16th St. entrances to Grand Av. Park. We recommend doing the same at the 17th and 18th St. entrances.

At 8th St. Grand Av. widens again to 36 feet and a double yellow stripe is added to the center as it curves east into Alverson Blvd.

Tier 1 - Alverson Blvd. from Maultsby Ln. to Marine View Dr.

A 6-foot wide "Ped Path" lines each side instead of sidewalks. Since this is shared by both walkers and bikes it is our recommendation to note this dual use with signs beside the path or on the pavement or both. Increasing the path width to 8 feet would allow room to mark one side of the paths for walkers and one for bikers. The yellowcenter line should be eliminated. This still leaves enough room for cars to meet without encroaching on the Ped Paths, but would have a calming effect on traffic.

Tier 1 - Hoyt Av. from Alverson Blvd. to 35th St.

Hoyt Av. could become a main north-south route through downtown passing Everett High School, the library, and the Post Office. Making it a bike-friendly route may help encourage some students to ride to school. Between Alverson Blvd. and Everett Av. the street is fairly narrow, first 30 feet, then 34 feet at 16th St. This could be handled by painting street chevrons. We also advise making the two-way stops into four-way stops at 10th St, 13th St, and 16th St. We suggest eliminating the current yellow center stripe from 19th to Everett Av.

Through downtown the street widens to 50 feet from Everett Av. to Hewitt Av. and 40 feet from Hewitt Av. to 32nd St. We suggest making this safer for bikes by eliminating the existing angled parking from Everett to Hewitt and eliminating the yellow center line through all of downtown.

Not Shown - Wetmore Av. from downtown to 41st St.

An alternative north-south route using Wetmore Av. has been proposed by John Lindstrom. This involves creating one lane into a one-way street from Pacific Av. to 37th St. The other lane would be next to the curb with no parking and be dedicated to bikes going both directions. It could be separated from the car lane by an attractive planting strip. A four-way stop would be required at 37th St. This route would also mean reopening a closed street right-of-way south of 40th St. and perhaps acquiring an easement on private property as the route approaches 41st St. Alternatively, the route could turn west at either 37th St. or 38th St. to join the bike route at Colby Av. Choosing 38th St. would require some sort of stoplight at the intersection with Colby. This is not good because of the proximity of so many other lights on Colby. Therefore 37th would probably be chosen and would require a four-way stop.

Tier 2 – Baker Av. (and Poplar St.) from California Av. to 12th St.

On either side of Broadway Av. a north-south route is designated so bikers don't have to fight the impossible traffic on Broadway. Lombard is designated one block west, but Baker is designated on the east even though it is four blocks from Broadway. This was probably done because McDougal Av., which is one block east of Broadway, is blocked on the south at 24th St. by North Middle School and blocked on the north where it dead ends after 14th St. It is still a question whether bikers will choose to go up to Baker.

Baker is a pleasant residential street with light traffic and no real blockages. It is 25 to 36 feet wide allowing for parking on both sides where it is widest. The street itself is concrete in very poor condition. If it is to catch on with bikers, the street will have to be repaved. Even though it is very narrow, it may be desirable to paint 4-foot wide bike lanes and keep no center lane to entice bikers to use it. If this seems impossible, add bike chevrons instead

The bike map shows this route starting at Hewitt Av. but it would make more sense to start it at California St. since that is a planned bike route. The 2-way stops at 19th St. and 16th St. should be converted to 4-way stops. At 15th St. Baker curves east into Poplar St. The bike route would turn west on 12th St. to cross Broadway Av. at the traffic light.

Tier 2 & 1 – 12th St. from Baker Av. to Lombard Av.

From Baker Av. to Broadway Av. there is a yellow center line which could be removed. There exist now 4-foot wide bike lanes that narrow to 3 feet approaching the light at Broadway. There is enough room to widen the bike lanes to 5 feet. Add bike lanes from Broadway to Lombard Av.

Many Tiers - Colby Avenue (and Beverly Blvd.) from Alverson Blvd. to the intersection with Broadway Av. south of the Everett Mall.

For miles Colby Av. runs right on top of the main north-south ridge bisecting Everett. It has long been one of the most important roads in town. Colby also carries its share of bikers. On the proposed map this street is given at least four different designations as it travels much of the length of Everett. While this is understandable, it seems helpful to think of this route as one whole entity.

Colby Av. begins at Alverson Blvd. in a residential neighborhood and is currently designated as a bike route. Although the street is not nearly as wide as it becomes further south, there is still a generous amount of room to create bike lanes in the five blocks where they are now missing. At the intersection with Alverson, the north-bound bike lane should be painted with the main driving lane approaching the stop sign instead of further right with the right turn lane.

At 9th St. Colby widens dramatically and is soon divided by an 18-foot wide grass and tree planting strip. The lanes here shrink accordingly. The driving lane is 11 feet wide, the bike lane which begins here is 4 feet (actually 42 inches of space inside the edges of the white lines), and the parking lane is 7 feet. Left turn lanes take room from the parking strip at major intersections. Because cars have virtually no competition here, bikes are forced to ride very close to cars parked in the narrow parking lane. It is advisable to increase the bike lane width to 5 feet at the expense of the driving lane.

The parking strip disappears at 19th St., though the road remains 62 feet wide. After 25th street, angled parking begins and takes up 18 feet of street width. The driving lane is also a generous 13 feet wide. To promote more and safer biking through town, angled parking should be changed to parallel parking and bike lanes painted all the way through downtown.

Curb bulbs from 26th St. through Pacific Av. present quite a challenge. They calm traffic and are terrific for promoting safe and frequent pedestrian crossings. They also squeeze bike riders. Ideally, these curb bulbs should be moved back a few feet. This would still give pedestrians the confidence to cross safely, but also allow enough room for standard width bike lanes. This is, undoubtedly, an expensive solution, but one worth taking eventually. Until then, big bike chevrons and silhouettes should be added to these few blocks or simply squeeze the bike lanes very narrow at the pedestrian crossings. It doesn't hurt to have bikers slow down as they, too, watch out for pedestrians.

At Hewitt Av. Colby narrows to 56 feet. There is still plenty of width for bike lanes. In the few blocks of downtown Colby, it may take time and expense to adjust completely for bike lanes. Angled parking could be changed now, but bike lanes between Pacific Av. and 24^{th} St. could wait. Until then large bike-sharing chevrons could be used.

South of 34^{th} St. the street width stays at 56 feet, but the number of driving lanes increases from one to two each direction. This is true only between 34^{th} and 44^{th} where it reverts to one lane each direction with a generous two-way left turn lane in the center. The road width shrinks to about 46 feet here and continues that way to 63^{rd} where it curves and becomes Beverly Blvd. all the way to its intersection with Broadway north of the Everett Mall. Through this whole section the driving lanes are about 11 feet wide, the two-way left turn lane is about 10 feet, and the parking lanes vary from 6.5 to 8 feet. Some squeezing should allow for at least 4-foot-wide bike lanes.

Several gas and water access covers need adjusting along this stretch of Colby. At the intersection with Madison St., there is a red gas cover with gaps in the pavement surrounding it. At 6627 Colby an abandoned gas or water access point should be filled in. A water access cover at 6605 should be raised to street level.

Tier 3 - 43^{rd} St. from Colby Av. to Grand Av.

This short connection from the Colby Av. route near the Interurban Trail to a north-south route along Grand Av. and Norton Av. to W. Marine View Dr. makes sense, but requires a pedestrian/biker activated light at 43^{rd} and Rucker Av. Street chevrons would be all the signage required.

Tier 3 – Grand Av./Norton Av./W. Marine View Dr. from 43^{rd} St to Wall St.

This route from 41^{st} St. to Pacific Av. is a favorite shortcut for drivers coming from the west wanting to access W. Marine View Dr. and the waterfront. It is all residential and has generated numerous complaints of speeding. There is also no left turn allowed onto this route from 41^{st} St. but that has not deterred all drivers. On the day this route was scouted, the police had installed a mobile vehicle speed indicator in the 3300 block of Norton. Adding a designated bike route here may help slow traffic.

Starting at the turn off 43^{rd} St. onto Grand Av. the whole route could be signed using chevrons. At the crossing with 41^{st} St. a pedestrian/biker activated light would need to be installed. North of 41^{st} St. the current yellow center line should be removed. At the intersection with High St. in the 3700 block, the street name changes from Grand to Norton Av. as it jogs very slightly west.

From 32nd St. to Pacific Av. traffic is one way going south. In order to accommodate north-bound bikers, parking must be removed on the west side of the street and a bike lane installed. Since northbound bikers would be going against the general flow of traffic, it would be desirable to add another curb or parking strip to separate bikers and cars. If this were done, it would probably still be possible to accommodate some parking east of the bike lane. Alternatively, the sidewalk along the east side of the street could simply be widened to bike/pedestrian standards for one block. The current signage at Pacific restricting entry to Norton would have to be modified to read "except bikes."

The map shows this route continuing on W. Marine View Dr. to California St. Alternatively, it could turn east at Wall St. for one block to the Grand Av. route. Northbound bikers not continuing toward the waterfront would certainly go this way anyway to avoid the continued downhill drop to California St. which would simply require riding back uphill to Grand anyway.

Tier 1 - Federal Av./College Av./Fleming Av from 35th St. to either Pecks Dr. or Madison St.

Federal Av. is narrow and should be marked with chevrons. As the road goes uphill from 35th St., there is a white line on the west side of the road that is not a bike lane, but simply a marker for the road edge where there is no curb. It also continues in spots where there is a curb and sometimes widens south of Mukilteo Blvd. to as much as 8 feet. It can be confusing for drivers believing that bikers or pedestrians should be inside it when it is often way too narrow. Eliminate the line where it is confusing, and keep it where it is needed for safety reasons.

Where the road splits to go downhill to Mukilteo Blvd. or continue straight leading to the pedestrian overpass at Mukilteo Blvd., show both connections on the street and the map. Currently the map only shows the connection by riding downhill to Mukilteo Blvd., turning east, and turning south on Elk Hill Dr. going back uphill to rejoin Federal. Nobody rides this way unless they are joining this route from Mukilteo Blvd.

The map shows the route proceeding south on Alger Av. where Federal ends at 46th St. It then shows a connection to College Av. via Alpine Dr. This is not the way bikers typically ride this route. It is more common for them to turn off Federal onto 46th St. and then turn south again onto College Av. We suggest the map be changed to reflect this. At the intersection of College and 47th St., the 2-way stop sign should be changed to 4-way.

Where this route turns east onto 52nd St. it would be best to change the one way stop sign to a 3-way stop sign. Another 3-way stop would be helpful where the route turns off 52nd St. to proceed south on Fleming St.

Where Fleming intersects Pecks Dr. bikers have a choice to make. If they are eventually riding west toward the Boeing Company, Hardeson Rd., etc., they can either turn west on

Pecks Dr., or cross Pecks Dr. and later turn west on Madison. The Pecks Dr. connection does not appear on this map, but needs to be shown, since this is the more common route. In either case, the stop at Fleming and Pecks needs to be changed from 2-way to 4-way. At rush hour this is a dangerous crossing. Adding a 4-way stop here would also mean the restriction on late afternoon bikers on Pecks Dr. wanting to turn left onto Fleming could be safely removed.

It may be possible to squeeze bike lanes onto Pecks Dr. It would certainly be desirable since it is a busy road. Those proceeding west on Pecks Dr. will generally cross Beverly Ln. to use the Brookridge Blvd. connection to Glenwood Av. This connection is shown on the map as a Tier 2 project.

John Lindstrom
Bob Jackson

Everett Bicycle route Map - Plan Comments

Map Draft Dated April 2010

Starting from the SW quadrant:

Hwy. 525 – Mukilteo Speedway – I believe that should be marked “other agency existing lanes”

Kasch Park Road – should have striped bike lanes to encourage park access. The road width exists. There is a center turn lane, but nowhere to turn into. Program for next striping or pavement update.

80th Street SW (Hardeson to 16th Ave – see Community Transit bike map)– should be considered for future bike lane. It is far less steep than 75th, which is a barrier.

Sievers –Deucy – should have existing width to add bike lanes sooner than 10-20 years.

Hardeson (75th to Merrill Creek) – existing lanes are substandard width, especially considering truck traffic. Should be identified to widen lane and narrow travel lane or center lane. This would also improve the walkability of this street. Probably applies to other existing lanes in this area.

Beverly Road (Hwy 526 to Mukilteo Blvd) – not sure what “connection to existing lanes” means, but seems to have width and bike traffic generators (middle school) sufficient to demand designated bike

Casino & Evergreen intersection – needs bike-ped safety improvements (due to high turning volumes) and better directional signage for Hwy. 526 overpass.

Madison & Fleming, Pecks & Fleming – I assume that these intersection projects are to remove the restriction on bikes turning left to go north on the bike route? Yes!

Pecks & Beverly – intersection needs grate replacements

Casino (east of Evergree) – short of a corridor replacement for this “missing link” access between Interurban Trail, Cascade High School and Swift, this section could use sharrows or simply “share the road” signs.

Evergreen intersections – all (or most) north-south lights should be programmed to provide an automatic walk signal, so peds don’t have to wait unnecessarily. E-W crossings of Evergreen should be given a leading pedestrian signal when activated for safety. This is especially important near busy bus stops such as Swift.

Evergreen at 57th – signal does not properly detect bikes- may just need a paint mark to show where to stand.

Evergreen at 47th – pedestrian call for N-S was very slow – should be automatic or allowed to come on immediately if there is time.

College Ave- from the bike route, this map proposes dropping down Alpine to Alger to access Federal just north of 47th Street. The Alger route makes sense– to avoid steep hill on 47th if coming to/from Evergreen. However, if the goal is to provide a N-S route alternative to Evergreen, there is no need to avoid the hill via Alger and the simpler, commonly-used bike route of College to 46th to Alger/Federal should be designated in the city plan. The CT bike map has shown that for many years, which also has benefit of approaching Forest Park from the back side.Also, Federal /Alger north of 47th is very narrow with curbing and a bit uncomfortable on a bike.

Pecks (Beverly to Evergreen) should be designated bike route with sharrows – it passes a school and is a 25 mph zone.

Grand Avenue – between 41st and 35th – there is a killer hill NB in this section. I mean killer. Not a good bike route. Grand from 35th to Alverson should be a near term designated route. It is low speed, scenic, good grade, low traffic and VERY COMMONLY USED. All it needs is signage. It is better than Colby north of downtown because Colby has parallel parking on a hill with a road narrowed by center median and high volume in-out due to hospital.

Smith & Pacific – this is not the best way to go N out of Everett Station – hill! An intersection improvement for cyclists coming from Pacific to Station would be great – signal needs better detection and also a bike-accessible ped button on the NW corner of the intersection for people not brave enough to get into turn lane would be good.

California & Broadway – intersection improvement of pedestrian-bike only signal (HAWK) with refuge median would be great.

Hewitt Ave. Trestle – what is the route from the trail to Everett Station? Something needs to be identified for near or long term. Walnut to Pacific is possible.

Hwy 529 at Marine Drive – should be identified for “intersection” improvement, as SB cyclists coming from Marysville have lots of fast moving, right turning traffic to cross.

Appendix L. Cost Estimating Spreadsheet

Facility ID	Planned Facility Type	Facility	From	To	Direction To Measurement Point	Measurements At	Plot Scale	Segment Length in Feet	Roadway Classification	Curb to Curb Width	No. of Travel Lanes	Total Travel Lane Width	Average Travel Lane Width	Center Left Turn Lanes	Center Turn Lane Width	On Street Parking	Average Parking Width	Bike Lane Type	Shared Use	Total Bike Lane Width	Average Bike Lane Width	Edge type Curb Shoulder Parking	Existing Bike Lane Comfort Level
		Existing Facilities																					
EF-A	Lane	100Th St SE	19Th Ave SE	31St Ave SE	East of	29Th Dr SE	1 inch = 20 Feet	3,952	local	42.5	2.0	20.7	10.4	yes	12.2	no	n/a	Lane	no	9.6	4.8	Curb	Fair
EF-B1	Lane	112Th St Sw	Airport Rd	Evergreen Way	East of	Paine Field Way	1 inch = 20 Feet	2,760	local	68.0	4.0	46.7	11.7	yes	11.3	no	n/a	Lane	no	10.0	5.0	Curb	Good
EF-B2	Lane	112Th St Sw	Evergreen Way	Silver Lake Rd	West of	9Th Pl W	1 inch = 20 Feet	9,352	Arterial	66.0	4.0	43.9	11.0	yes	12.7	no	n/a	Lane	no	9.9	5.0	Curb	Good
EF-C	Lane	19Th Ave SE	112Th St SE	132Nd St SE	North of	124Th Pl SE	1 inch = 20 Feet	8,025	Arterial	67.3	4.0	44.6	11.2	yes	12.6	no	n/a	Lane	no	9.9	5.0	Curb	Good
EF-D1	Lane	19Th St	Summit Ave	Mcdougall Ave	West of	Maple St	1 inch = 20 Feet	3,959	Arterial	51.8	2.0	27.5	13.8	no	n/a	yes	7.0	Lane	no	12.3	6.2	Parking	Better
EF-D2	Lane	19Th St	Lombard Ave	Grand Ave	West of	Rockefeller Ave	1 inch = 20 Feet	2,442	Arterial	51.3	2.0	27.1	13.6	no	n/a	yes	6.9	Lane	no	10.4	5.2	Parking	Good
EF-E	SW	41St St	Colby Ave	S 3Rd Ave	East of	Broadway	1 inch = 20 Feet	2,613	Arterial	94.6	7.0	87.1	12.4	no	n/a	no	n/a	SW	yes	11.7	11.7	SW	Good
EF-F	Lane	4Th Ave W	Corbin Dr	Holly Dr	North of	93Rd St Sw	1 inch = 20 Feet	1,873	Collector	44.0	2.0	21.2	10.6	yes	13.1	no	n/a	Lane	no	9.2	4.6	Curb	Fair
EF-G	Lane	5Th Ave W	W Casino Rd	Corbin Dr	In the	8700 Block	1 inch = 20 Feet	1,667	Collector	42.2	2.0	21.6	10.8	yes	12.1	no	n/a	Lane	no	8.4	4.2	Curb	Fair
EF-H1	Lane	7Th Ave SE	84Th St SE	92Nd St SE	In the	8700 Block	1 inch = 20 Feet	2,743	Collector	45.2	2.0	21.5	10.8	yes	12.8	no	n/a	Lane	no	10.9	5.5	Curb	Better
EF-H2	Lane	7Th Ave SE	92Nd St SE	95Th Ct SE	North of	95Th Pl SE	1 inch = 20 Feet	1,154	local	42.4	2.0	19.0	9.5	yes	11.9	no	n/a	Lane	no	11.5	5.8	Curb	Better
EF-H3	Lane	7Th Ave SE	100Th St SE	112Th St SE	South of	110Th Pl SE	1 inch = 20 Feet	3,996	local	43.6	2.0	23.4	11.7	yes	12.5	no	n/a	Lane	no	7.6	3.8	Dirt	Fair
EF-I1	SW	Airport Rd	W Casino Rd	Kasch Park Rd	North of	Kasch Park Rd	1 inch = 20 Feet	720	Arterial	90.6	7.0	75.1	10.7	yes	12.1	no	n/a	SW	yes	11.8	11.8	Curb	Good
EF-I2	Lane	Airport Rd	Kasch Park Rd	94Th St Sw	South of	Kasch Park Rd	1 inch = 20 Feet	1,688	Arterial	72.7	6.0	63.3	10.6	yes	9.2	no	n/a	Lane	no	8.8	4.4	Curb	Fair
EF-I3	Lane	Airport Rd	100Th St Sw	Evergreen Way	South of	106Th St Sw	1 inch = 20 Feet	7,225	Arterial	81.0	6.0	64.7	10.8	yes	11.3	no		Lane	no	10.0	5.0	shold/curb	Good
EF-J	Signed Route	Alverson Blvd	W Marine View Dr	Colby Ave	North of	Colby Ave	1 inch = 20 Feet	3,095	Collector	33.8	2.0	21.7	10.9	no	n/a	no	n/a	Lane	no	12.0	6.0	Shoulder	Better
EF-K1	Signed Route	Colby Ave	5Th St	9Th St	South of	7Th St	1 inch = 20 Feet	1,743	Arterial	40.2	2.0	26.2	13.1	no	n/a	yes		road	yes	0.0	0.0	Curb	Good
EF-K2	Lane	Colby Ave	9Th St	19Th St	North of	15Th St	1 inch = 20 Feet	4,803	Arterial	65.4	2.0	21.6	10.8	median	20.0	yes	14.0	Lane	no	10.4	5.2	Curb	Good
EF-K3	Lane	Colby Ave	19Th St	24Th St	North of	20Th St	1 inch = 20 Feet	2,389	Arterial	63.7	2.0	24.5	12.3	yes	12.5	yes	7.0	Lane	no	11.7	5.9	Parking	Good
EF-L1	SW	E Marine View Dr	Skyline Dr	16Th St	South of	Butler St	1 inch = 20 Feet	7,237	Arterial	37.0	2.0	28.5	14.3	median	8.5	no	n/a	SW	yes	10.4	10.4	Dirt	Fair
EF-L2	SW	E Marine View Dr	16Th St	Summit Ave	North of	Summit Ave	1 inch = 20 Feet	1,212	Arterial	48.2	4.0	48.2	12.1	no	n/a	no	n/a	SW	yes	10.5	10.5	dirt	Fair
EF-M1	Lane	Glenwood Ave	Mukilteo Blvd	5700 Block	In the	4900 Block	1 inch = 20 Feet	3,873	Arterial	50.5	2.0	22.8	11.4	no	n/a	yes	14.0	Lane	no	6.8	3.4	Curb	Fair
EF-M2	Lane	Glenwood Ave	5700 Block	6300 Block	South of	60Th St Sw	1 inch = 20 Feet	2,762	Arterial	45.6	2.0	21.1	10.6	yes	11.6	no	n/a	Lane	no	13.0	6.5	Curb	Better
EF-M3	Lane	Glenwood Ave	6300 Block	Sievers-Duecy Blvd	South of	Gateway Ter	1 inch = 20 Feet	915	Arterial	59.5	3.0	36.7	12.2	yes	13.7	no	n/a	Lane	no	9.0	4.5	Curb	Fair
EF-M4	Lane	Madison St	Sievers-Duecy Blvd	E Cady Rd	West of	Willow Rd	1 inch = 20 Feet	3,980	Arterial	49.0	2.0	22.2	11.1	yes	11.8	one side	7.3	Lane	no	7.6	3.8	shoul/park	Fair
EF-M5	Lane	Madison St	Rainier Dr	Berkshire Dr	West of	Berkshire Dr	1 inch = 20 Feet	300	Arterial	49.6	3.0	32.3	10.8	no	n/a	one side	7.0	Lane	no	8.8	4.4	shoul/park	Fair
EF-N	Lane	Everett Ave	E Grand Ave	Harrison Ave	East of	Harrison Ave	1 inch = 20 Feet	492	Arterial	68.5	2.0	30.8	15.4	yes	11.2	yes	8.2	Lane	no	10.2	5.1	Parking	good
EF-O	Lane	Hardeson Rd	Merrill Creek Pky	W Casino Rd	South of	Industry St	1 inch = 20 Feet	8,789	Arterial	44.6	2.0	23.7	11.9	yes	12.5	no	n/a	Lane	no	8.3	4.2	Curb	Fair
EF-P1	Lane	Holly Dr	4Th Ave W	100Th St Sw	South of	98Th St Sw	1 inch = 20 Feet	2,530	Arterial	37.5	2.0	24.9	12.5	no	n/a	no	n/a	Lane	no	12.6	6.3	Curb	Better
EF-P2	Lane	Holly Dr	100Th St Sw	Airport Rd	North of	Dakota Way	1 inch = 20 Feet	5,525	Arterial	36.6	2.0	26.5	13.3	no	n/a	no	n/a	Lane	no	10.0	5.0	Curb	Good
EF-Q1	SW	Interurban Trail	Colby Ave	44Th St SE	North of	43Rd St SE	1 inch = 20 Feet	1,373		49.0	4.0	39.5	9.9	yes	yes	9.5	n/a	SW	yes	6.2	6.2	curb/dirt	Fair
EF-Q2	Trail	Interurban Trail	44Th St SE	Alta Dr	In the	4800 Blk	1 inch = 20 Feet	3,043						no	n/a	no	n/a	Trail	yes	13.3	13.3	Shoulder	Better
EF-Q3	Lane	Interurban Trail	Alta Dr	52Nd St SE	North of	52Nd St SE	1 inch = 20 Feet	586	local	31.0	2.0	21.0	10.5	no	n/a	no	n/a	Lane	no	10.0	5.0	Shoulder	Good
EF-Q4	Trail	Interurban Trail	52Nd St SE	Commercial Ave	In the	4300 Block	1 inch = 20 Feet	1,124						no	n/a	no	n/a	Trail	yes	14.1	14.1	dirt	Better
EF-Q5	Lane	Interurban Trail	Commercial Ave	Madison St	South of	Melvin Ave	1 inch = 20 Feet	4,586		32.7	2.0	20.0	10.0	no	n/a	no	n/a	Lane	yes	12.8	6.4	Shoulder	Better
EF-Q6	Trail	Interurban Trail	Madison St	Adams Ave	North of	Wetmore Ave	1 inch = 20 Feet	638										Trail	yes	10.9	10.9	Dirt	Good
EF-Q7	Trail	Interurban Trail	Adams Ave	W Casino Rd	In the	7000 Block	1 inch = 20 Feet	6,721		12.7	1.0	12.7	12.7	no	n/a	no	n/a	Trail	yes	12.7	12.7	Dirt	Better
EF-Q8	SW	Interurban Trail	E Casino Rd	84Th St SE	East of	7Th Ave SE	1 inch = 20 Feet	613		36.0	2.0	26.0	13.0	yes	10.0	no	n/a	SW	yes	9.2	9.2	Dirt	Fair
EF-Q9	Lane	Interurban Trail	84Th St SE	1400 Block	West of	Xavier Way	1 inch = 20 Feet	2,085		31.7	2.0	21.5	10.8	no	n/a	no	n/a	Lane	no	10.2	5.1	Shoulder	Better
EF-Q10	Trail	Interurban Trail	1400 Block	W Mall Dr	In the	8600 Block	1 inch = 20 Feet	2,342						no	n/a	no	n/a	Trail	yes	11.8	11.8	Shoulder	Good
EF-Q11	Lane	Interurban Trail	W Mall Dr	Se Everett Mall Way	In the	9300 Block	1 inch = 20 Feet	1,434		28.1	2.0	20.6	10.3	no	n/a	no	n/a	Lane	no	7.5	3.8	Shoulder	Fair
EF-Q12	Trail	Interurban Trail	Se Everett Mall Way	128Th St SE	In the	10600 Block	1 inch = 20 Feet	12,813						no	n/a	no	n/a	Trail	yes	10.9	10.9	Shoulder	Fair
EF-R	Trail	Lowell Riverfront Tra	4300 Block	Rotary Park	In the	4900 Block	1 inch = 150 Feet	7,484						no	n/a	no	n/a	Trail	yes	9.6	9.6	Shoulder	Fair
EF-S	Lane	Merrill Creek Pky	Glenwood Ave	Seaway Blvd	West of	Hardeson Rd	1 inch = 20 Feet	7,436	local	44.7	2.0	22.9	11.5	yes	13.0	no	n/a	Lane	no	8.9	4.5	Curb	Fair
EF-T1	Lane	Mukilteo Blvd	Grandview Ave	Dogwood Dr	West of	42Nd St SE	1 inch = 20 Feet	5,021	Arterial	31.5	2.0	22.2	11.1	no	n/a	no	n/a	Lane	no	9.3	4.7	Curb	Fair
EF-T2	Lane	Mukilteo Blvd	Elm St	Mukilteo Ln	East of	Glenhaven Dr	1 inch = 20 Feet	15,437	Arterial	43.9	2.0	23.3	11.7	yes	10.2	no	n/a	Lane	yes	10.5	5.3	Shoulder	Good
EF-U	Trail	Smith Island Trail	Langus Park	4Th St SE	South of	Boat House	1 inch = 150 Feet	7,439						no	n/a	no	n/a	Trail	yes	6.9	6.9	Shoulder	Better
EF-V1	Lane	W Casino Rd	Airport Rd	5Th Ave W	West of	Walter E Hall Dr	1 inch = 20 Feet	7,886	Arterial	45.3	2.0	23.2	11.6	yes	10.7	no	n/a	Lane	no	11.4	5.7	Curb	Better
EF-V2	Lane	W Casino Rd	5Th Ave W	Casino Square W D	At	Meridian Ave	1 inch = 20 Feet	2,976	Arterial	63.7	4.0	43.1	10.8	yes	10.2	no	n/a	Lane	no	10.4	5.2	Curb	Good
EF-W1	SW	W Marine View Dr	Skyline Dr	Alverson Bridge	East of	Alverson Blvd	1 inch = 20 Feet	3,345	Arterial	66.8	4.0	47.2	11.8	yes	11.9	no	n/a	SW	yes	11.0	11.0	dirt	Good
EF-W2	SW	W Marine View Dr	Alverson Bridge	North View Park	In the	300 Block	1 inch = 20 Feet	4,214	Arterial	58.8	4.0	48.0	12.0	no	n/a	no	n/a	SW	yes	10.8	10.8	Dirt	Fair
EF-W3	SW	W Marine View Dr	North View Park	18Th St	In the	1600 Block	1 inch = 20 Feet	4,740	Arterial	57.2	4.0	46.1	11.5	yes	11.1	no	n/a	SW	Yes	8.4	8.4	Shoulder	Fair
EF-W4	SW	W Marine View Dr	18Th St	Everett Ave	In the	1200 Blk	1 inch = 20 Feet	4,315	Arterial	77.2	5.0	65.0	13.0	yes	12.3	no	n/a	SW	Yes	9.6	9.6	Shoulder	Fair
EF-X	Trail	Port Waterside Trail (	Everett Ave	Pigon Creek 1	South of	Bond St	1 inch = 20 Feet	5,729	Local	12.7	1.0	12.7	12.7	no	n/a	no	n/a	Trail	yes	12.7	6.4	Shoulder	Better
EF-Y	Signed Route	Bond St	Hewitt Ave	Port Waterside Trail (a	North of	Kromer Ave	1 inch = 20 Feet	1,790	Local	61.9	4.0	49.7	12.4	no	n/a	yes		Trail			0.0	Curb	none
EF-Z	Lane	41St St	S 3Rd Ave	Lowell Riverfront Trail	East of	I-5	1 inch = 20 Feet	2,714	Collector	57.0	4.0	45.5	11.4	no	n/a	no	n/a	Lane	no	11.5	5.8	Curb	

			Proposed Cross Section													
Facililty ID	Planned Facility Type	Roadway Classification	Revised Curb to Curb Width	Revised No. of Travel Lanes	Revised Travel Lane Width	Revised Average Travel Lane Width	Center Left Turn Lanes	Revised Center Turn Lane Width	Revised On Street Parking	Revised Average Parking Width	New Bike Lane Type	Revised Shared Use	Revise Bike Lane Width	Revised Average Bike Lane Width	Revised Edge type Curb Shoulder Parking	Proposed Bike Lane Comfort Level
EF-A	Lane	local	42.5	2	22	11	yes	10	No	0	Lane	no	10.5	5.25	curb	Good
EF-B1	Lane	local	68.0	4	44	11	yes	11	no	0	Lane	no	13	6.5	curb	Better
EF-B2	Lane	Arterial	66.0	4	44	11	yes	11	No	0	Lane	no	11	5.5	curb	Better
EF-C	Lane	Arterial	67.3	4	44	11	yes	11	No	0	lane	no	12.3	6.15	curb	Better
EF-D1	Lane	Arterial	51.8	2	24	12	no	0	yes	7	lane	no	13.8	6.9	parking	Better
EF-D2	Lane	Arterial	51.3	2	24	12	no	0	yes	7	lane	no	13.3	6.65	parking	Better
EF-E	SW	Arterial	94.6								SW			11.7		better
EF-F	Lane	Collector	44.0	2	22	11	yes	11	No	0	lane	no	11	5.5	curb	Better
EF-G	Lane	Collector	46.2	2	22	11	yes	11	no	0	lane	no	13.2	6.6	curb	Better
EF-H1	Lane	Collector	45.2	2	22	11	yes	11	No	0	lane	no	12.2	6.1	curb	Better
EF-H2	Lane	local	42.4	2	20	10	yes	11	No	0	lane	no	11.4	5.7	curb	Good
EF-H3	Lane	local	43.6	2	21	10.5	yes	11	no	0	lane	no	11.6	5.8	dirt	Better
EF-I1	SW	Arterial	90.6								SW		14	14		
EF-I2	Lane	Arterial	89.0	6	66	11	yes	11	No	0	lane	no	12	6	curb	Better
EF-I3	Lane	Arterial	89.0	6	66	11	yes	11	No	0	lane	no	12	6	curb	Better
EF-J	Signed Route	Collector	33.8								signed route					Better
EF-K1	Signed Route	Arterial	40.2								signed route					Better
EF-K2	Lane	Arterial	68.4	2	22	11	median	20	yes	7	lane	no	12.4	6.2		Good
EF-K3	Lane	Arterial	63.7	2	24	12	yes	12	yes	7.5	lane	no	12.7	6.35	parking	better
EF-L1	SW	Arterial	37.0			#DIV/0!	median				SW		12	12		
EF-L2	SW	Arterial	48.2			#DIV/0!	no				SW		12	12		
EF-M1	Lane	Arterial	50.5	2	24	12	no	0	yes	7.5	lane	no	11.5	5.75	parking	Better
EF-M2	Lane	Arterial	45.6								lane					better
EF-M3	Lane	Arterial	59.5	3	36	12	yes	12	No	0	lane	no	11.5	5.75	curb	Better
EF-M4	Lane	Arterial	59.0	2	22	11	yes	10	yes	7	lane	no	13	6.5	curb	Better
EF-M5	Lane	Arterial	49.6	2	22	11	no	0	yes	7	lane	no	13.6	6.8	curb	Better
EF-N	Lane	Arterial	68.5	2	26	13	yes	11	No	0	Lane	No	14	7	curb	Better
EF-O	Lane	Arterial	44.6	2	22	11	yes	11	No	0	lane	no	11.6	5.8	curb	Better
EF-P1	Lane	Arterial	37.5								lane					Better
EF-P2	Lane	Arterial	36.6	2	24	12	no	0	No	0	lane	no	12.6	6.3	curb	Better
EF-Q1	SW		49.0			#DIV/0!	yes				SW		12	12		Better
EF-Q2	Trail		0.0								trail					Better
EF-Q3	Lane	local	31.0	2	20	10	no	0	No	0	lane	no	11	5.5	shoulder	Better
EF-Q4	Trail		0.0								trail					Better
EF-Q5	Lane		32.7								lane					Better
EF-Q6	Trail		0.0			#DIV/0!					trail		12	12		Better
EF-Q7	Trail		12.7								trail					better
EF-Q8	SW		36.0			#DIV/0!	yes				SW		12	12		Better
EF-Q9	Lane	local	31.7								lane					better
EF-Q10	Trail		0.0			#DIV/0!	no				trail		14	14		Better
EF-Q11	Lane	local	31.0	2	20	10	no	0	No	0	lane	no	11	5.5	shoulder	Better
EF-Q12	Trail		0.0			#DIV/0!	no				trail		12	12		Better
EF-R	Trail		0.0			#DIV/0!	no				trail		12	12		Better
EF-S	Lane	local	44.7	2	22	11	yes	11	no	0	lane	no	11.7	5.85	curb	Better
EF-T1	Lane	Arterial	33.0	2	22	11	no	0	No	0	lane	no	11	5.5	curb	Better
EF-T2	Lane	Arterial	43.9	2	22	11	yes	10	No	0	lane	yes	11.9	5.95	shoulder	Better
EF-U	Trail		0.0			#DIV/0!	no				trail		12	12		Better
EF-V1	Lane	Arterial	45.3								lane					Better
EF-V2	Lane	Arterial	66.0	4	44	11	yes	11	no	0	lane	no	11	5.5	curb	Better
EF-W1	SW	Arterial	66.8			#DIV/0!	yes				SW		14	14		Better
EF-W2	SW	Arterial	58.8			#DIV/0!	no				SW		12	12		Better
EF-W3	SW	Arterial	57.2			#DIV/0!	yes				SW		12	12		Better
EF-W4	SW	Arterial	77.2			#DIV/0!	yes				SW		12	12		Better
EF-X	Trail	Local	12.7			#DIV/0!	no						12.7	6.35		Better
EF-Y	Signed Route	Local	61.9	2	24	12	no	0	yes	16	signed route					better
EF-Z	Lane	Collector	57.0			#DIV/0!	no		no							

Facility ID	Planned Facility Type	Required Widening in Ft	C=Commercial or R=Residential ROW?	ROW in SF	Cost Estimating Estimated Cost of drainage	Estimated Cost of Widening with curb and gutter	# of lane lines to remove	# of lanes lines to restripe	# of wide lane lines to remove	# of wide lane lines to restripe	# of legends to paint	Est. Cost of Restriping	# Signs to remove	# Signs to install	Est. Cost of Signing	ROW Cost	Est. Trail Construction Costs, SF	Est. Sidwalk Construction Costs, SF	Addt'l Improvements	Est. Cost of Addt'l Improvements	Est. Project Cost	Mobilization Costs	Traffic Control	Estimated **TOTAL** Project Cost Estimate
EF-A	Lane				$0	$0	2	2	2	2	11	$37,613		22	$3,300	$0	$0	$0			$40,913	$6,137	$10,228	$57,278
EF-B1	Lane				$0	$0	4	4	2	2	8	$30,732		16	$2,400	$0	$0	$0			$33,132	$4,970	$8,283	$46,385
EF-B2	Lane				$0	$0	4	4	2	2	27	$104,116		54	$8,100	$0	$0	$0			$112,216	$8,977	$28,054	$149,248
EF-C	Lane				$0	$0	4	4	2	2	23	$89,318		46	$6,900	$0	$0	$0			$96,218	$14,433	$24,054	$134,705
EF-D1	Lane				$0	$0	3	3	2	2	11	$40,844		22	$3,300	$0	$0	$0			$44,144	$6,622	$11,036	$61,802
EF-D2	Lane				$0	$0	3	3	2	2	7	$25,226		14	$2,100	$0	$0	$0			$27,326	$4,099	$6,831	$38,256
EF-E	SW				$0	$0	0					$0			$0	$0	$0	$0			$0	$0	$0	$0
EF-F	Lane				$0	$0	2	2	2	2	5	$17,794		10	$1,500	$0	$0	$0			$19,294	$7,500	$7,500	$34,294
EF-G	Lane	4.0			$100,020	$106,688	2	2	2	2	5	$15,920		10	$1,500	$0	$0	$0			$224,128	$17,930	$56,032	$298,090
EF-H1	Lane				$0	$0	2	2	2	2	8	$26,161		16	$2,400	$0	$0	$0			$28,561	$4,284	$7,140	$39,986
EF-H2	Lane				$0	$0	2	2	2	2	3	$10,951		6	$900	$0	$0	$0			$11,851	$7,500	$7,500	$26,851
EF-H3	Lane				$0	$0	2	2	2	2	11	$38,014		22	$3,300	$0	$0	$0			$41,314	$6,197	$10,328	$57,839
EF-I1	SW	2.2			$43,200	$25,344					2	$300			$0	$0	$0	$12,672			$81,516	$12,227	$20,379	$114,122
EF-I2	Lane	16.3			$101,280	$440,230	6	6	2	2	5	$21,512		10	$1,500	$0	$0	$0			$564,523	$45,162	$141,131	$750,815
EF-I3	Lane	8.0			$433,500	$924,800	6	6	2	2	21	$92,018		42	$6,300	$0	$0	$0			$1,456,618	$116,529	$364,154	$1,937,301
EF-J	Signed Route				$0	$0					9	$1,350		18	$2,700	$0	$0	$0			$4,050	$7,500	$7,500	$19,050
EF-K1	Signed Route				$0	$0					5	$750		10	$1,500	$0	$0	$0			$2,250	$7,500	$7,500	$17,250
EF-K2	Lane	3.0			$288,180	$230,544	2	2	2	2	14	$45,807		28	$4,200	$0	$0	$0			$568,731	$45,499	$142,183	$756,413
EF-K3	Lane				$0	$0	4	4	2	2	7	$26,612		14	$2,100	$0	$0	$0			$28,712	$4,307	$7,178	$40,197
EF-L1	SW	1.6			$434,220	$185,267						$0			$0	$0	$0	$92,634			$712,121	$56,970	$178,030	$947,121
EF-L2	SW	1.5			$72,720	$29,088						$0			$0	$0	$0	$14,544			$116,352	$9,308	$29,088	$154,748
EF-M1	Lane				$0	$0	3	3	2	2	11	$39,993		22	$3,300	$0	$0	$0			$43,293	$6,494	$10,823	$60,610
EF-M2	Lane				$0	$0					8	$1,200		16	$2,400	$0	$0	$0			$3,600	$7,500	$7,500	$18,600
EF-M3	Lane				$0	$0	3	3	2	2	3	$9,509		6	$900	$0	$0	$0			$10,409	$7,500	$7,500	$25,409
EF-M4	Lane	10.0			$238,800	$636,800	2	3	2	2	11	$39,062		22	$3,300	$0	$0	$0			$917,962	$73,437	$229,491	$1,220,889
EF-M5	Lane				$0	$0	3	3	2	2	1	$3,120		2	$300	$0	$0	$0			$3,420	$7,500	$7,500	$18,420
EF-N	Lane				$0	$0	4	2	2	2	2	$5,269		2	$300	$0	$0	$0			$5,569	$7,500	$7,500	$20,569
EF-O	Lane				$0	$0	2	2	2	2	50	$87,480		50	$7,500	$0	$0	$0			$94,980	$14,247	$23,745	$132,972
EF-P1	Lane				$0	$0					14	$2,100		14	$2,100	$0	$0	$0			$4,200	$7,500	$7,500	$19,200
EF-P2	Lane				$0	$0	1	1	2	2	32	$50,658		32	$4,800	$0	$0	$0			$55,458	$8,319	$13,864	$77,641
EF-Q1	SW	5.8			$82,380	$127,414						$0			$0	$0	$0	$63,707			$273,502	$21,880	$68,375	$363,757
EF-Q2	Trail				$0	$0						$0		6	$900	$0	$0	$0			$900	$0	$0	$900
EF-Q3	Lane				$0	$0	1	1	2	2	4	$5,464		4	$600	$0	$0	$0			$6,064	$7,500	$7,500	$21,064
EF-Q4	Trail				$0	$0						$0		2	$300	$0	$0	$0			$300	$0	$0	$300
EF-Q5	Lane				$0	$0					26	$3,900		26	$3,900	$0	$0	$0			$7,800	$7,500	$7,500	$22,800
EF-Q6	Trail	1.1			$0	$0						$0		2	$300	$0	$3,509	$0			$3,809	$0	$0	$3,809
EF-Q7	Trail				$0	$0						$0		14	$2,100	$0	$0	$0			$2,100	$0	$0	$2,100
EF-Q8	SW	2.8			$36,780	$27,462						$0			$0	$0	$0	$13,731			$77,974	$11,696	$19,493	$109,163
EF-Q9	Lane				$0	$0					12	$1,800		12	$1,800	$0	$0	$0			$3,600	$7,500	$7,500	$18,600
EF-Q10	Trail	2.2			$0	$0						$0		4	$600	$0	$25,762	$0			$26,362	$0	$0	$26,362
EF-Q11	Lane	2.9			$86,040	$66,538	1	1	2	2	8	$13,102		8	$1,200	$0	$0	$0			$166,880	$13,350	$41,720	$221,950
EF-Q12	Trail	1.1			$0	$0						$0		26	$3,900	$0	$70,472	$0			$74,372	$0	$0	$74,372
EF-R	Trail	2.4			$0	$0						$0		14	$2,100	$0	$89,808	$0			$91,908	$0	$0	$91,908
EF-S	Lane				$0	$0	2	2	2	2	42	$73,968		42	$6,300	$0	$0	$0			$80,268	$12,040	$20,067	$112,375
EF-T1	Lane	1.5			$301,260	$120,504	1	1	2	2	28	$45,874		28	$4,200	$0	$0	$0			$471,838	$37,747	$117,960	$627,545
EF-T2	Lane				$0	$0	2	2	2	2	88	$153,677		88	$13,200	$0	$0	$0			$166,877	$13,350	$41,719	$221,946
EF-U	Trail	5.1			$0	$0						$0		14	$2,100	$0	$189,695	$0			$191,795	$0	$0	$191,795
EF-V1	Lane				$0	$0					46	$6,900		46	$6,900	$0	$0	$0			$13,800	$7,500	$7,500	$28,800
EF-V2	Lane	2.3			$178,560	$109,517	4	4	2	2	18	$34,543		18	$2,700	$0	$0	$0			$325,320	$26,026	$81,330	$432,676
EF-W1	SW	3			$200,700	$160,560						$0			$0	$0	$0	$80,280			$441,540	$35,323	$110,385	$587,248
EF-W2	SW	1.2			$252,840	$80,909						$0			$0	$0	$0	$40,454			$374,203	$29,936	$93,551	$497,690
EF-W3	SW	3.6			$284,400	$273,024						$0			$0	$0	$0	$136,512			$693,936	$55,515	$173,484	$922,935
EF-W4	SW	2.4			$258,900	$165,696						$0			$0	$0	$0	$82,848			$507,444	$40,596	$126,861	$674,901
EF-X	Trail				$0	$0						$0		12	$1,800	$0	$0	$0			$1,800	$0	$0	$1,800
EF-Y	Signed Route				$0	$0	3		2		10	$8,660		10	$1,500	$0	$0	$0			$10,160	$7,500	$7,500	$25,160
EF-Z	Lane	the existing bike lanes already me			$0							$0			$0	$0	$0	$0		$0	$0	$0	$0	$0

										Existing Cross Section													
Facililty ID	Planned Facility Type	Facility	From	To	Direction To Measurement Point	Measurements At	Plot Scale	Segment Length in Feet	Roadway Classification	Curb to Curb Width	No. of Travel Lanes	Total Travel Lane Width	Average Travel Lane Width	Center Left Turn Lanes	Center Turn Lane Width	On Street Parking	Average Parking Width	Bike Lane Type	Shared Use	Total Bike Lane Width	Average Bike Lane Width	Edge type Curb Shoulder Parking	Existing Bike Lane Comfort Level
		Connections to Existing Facilities																					
CEF-A1	Lane	100Th St Sw	Airport Rd	Dakota Way	East of	Airport Rd	1 inch = 20 Feet	3,181	Arterial	44.7	2.0	27.7	13.9	yes	10.1	no	n/a	houlder / S	no	6.9	6.9	rb / Shoulder	
CEF-A2	Lane	100Th St Sw	Dakota Way	Evergreen Way	West of	E Loop Rd	1 inch = 20 Feet	2,664	Arterial	24.2	2.0	20.4	10.2	no	n/a	no	n/a	SW (1)	yes	n/a	n/a	Curb / Dirt	
CEF-B	Lane	112Th St SE	Silver Lake Rd	Silver Lake Rd	West of	16Th Ave SE	1 inch = 20 Feet	1,592	Arterial	48.7	3.0	33.6	11.2	yes	10.2	no	n/a	SW	yes	n/a	n/a	Curb	
CEF-C	Lane	19Th St	Lombard Ave	Mcdougall Ave	West of	Broadway	1 inch = 20 Feet	736	Arterial	52.6	2.0	25.9	13.0	yes	12.0	yes	7.4	SW	yes	n/a	n/a	Curb	
CEF-D	SW	36Th St	Smith Ave	Lowell Riverfront Tra	East of	Smith Ave	1 inch = 20 Feet	1,582	Collector	23.4	2.0	23.4	11.7	no	n/a	no	n/a	Shared	yes	n/a	n/a	Dirt	
CEF-E	Signed Route	36Th St	Colby Ave	Smith Ave	West of	Broadway	1 inch = 20 Feet	2,819	Collector	34.8	2.0	34.8	17.4	no	n/a	yes	Shared	Shared	yes	n/a	n/a	Curb	
CEF-H1	Lane	Dogwood Dr/Beverly	Mukilteo Blvd	79Th Pl SE	North of	75Th St SE	1 inch = 20 Feet	11,550	Collector	40.0	2.0	26.4	13.2	no	n/a	yes	6.8	Shared	yes	n/a	n/a	Curb	
CEF-H2	Signed Route	Beverly Ln	79Th Pl SE	W Casino Rd	South of	Barbara Ln	1 inch = 20 Feet	1,381	Arterial	21.5	2.0	21.5	10.8	no	n/a	yes	Shared	Shared	yes	n/a	n/a	Curb	
CEF-I	Marking	Bicycle Detection Symbols					1 inch = 20 Feet																
CEF-J	Trail	Lowell Riverfront Tra	Rotary Park	City Limits	Adjacent to	Lowell-Snohomish River Rd	1 inch = 250 Feet	3,325		25.0	2.0	22.4	11.2	no	n/a	no	n/a	Shared	yes	n/a	n/a	Dirt	
CEF-K	Lane	Madison St	Berkshire Dr	Broadway	West of	Lombard Ave	1 inch = 20 Feet	4,050	Arterial	47.6	2.0	47.6	23.8	no	n/a	yes	Unclear	Shared	yes	n/a	n/a	Curb	
CEF-L	Lane	Mukilteo Blvd	Dogwood Dr	Elm St	West of	Dogwood Dr	1 inch = 20 Feet	331	Arterial	61.5	4.0	49.1	12.3	yes	12.5	no	n/a	SW	yes	n/a	n/a	Curb	
CEF-M	Detection	Pacific Ave And Ru	Replace Intersection Detection				1 inch = 20 Feet		Arterial														
CEF-N	Trail	Lowell Riverside Trai	Pacific Ave	36Th St	Adjacent to	Eclipse Mill Rd	1 inch = 250 Feet	2,743															
CEF-O		Stop Bar Detectioin	Various Locations				1 inch = 20 Feet																
CEF-P	Lane	Summit Ave	E Marine View Dr	19Th St	North of	Cleveland Ave	1 inch = 20 Feet	553	Arterial	45.2	2.0	39.2	19.6	no	n/a	yes	6.0	SW(1)	yes	n/a	n/a	Curb	
CEF-Q	Detection	Pacific Avenue And	Video Detection				1 inch = 20 Feet		Arterial												0.0		
		Tier 1 Facilities (1 to 10 years out)																					
T1-A1	Shared Route	35Th St	Federal Ave	Rucker Ave	West of	Grand Ave	1 inch = 20 Feet	1,475	Collector	27.1	2.0	27.1	13.6	no	n/a	no	n/a	SW	yes	n/a	n/a	Curb	
T1-A2	Shared Route	35Th St	Rucker Ave	Colby Ave	East of	Hoyt Ave	1 inch = 20 Feet	687	Collector	29.4	2.0	29.4	14.7	no	n/a	Shared	n/a	SW	yes	n/a	n/a	Curb	
T1-A3	Signal	35Th St And Colby	Add Traffic Signal				1 inch = 20 Feet		Collector														
T1-C1	Lane	California St	W Marine View Dr	I-5	West of	Grand Ave	1 inch = 20 Feet	5,860	Collector	52.7	2.0	25.9	13.0	no	n/a	yes	13.4	SW	yes	n/a	n/a	Curb	
T1-C3	Trail	I-5 Row	California St	Hewitt Ave	West of	I-5	1 inch = 20 Feet	60															
T1-E	Signal	Alverson Blvd & W M	Add Traffic Signal	NA	NA	NA	1 inch = 20 Feet	0	Arterial	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-F1	Signed Route	Federal Ave	35Th St	42Nd St SE	South of	40Th St	1 inch = 20 Feet	3,392	local	29.3	2.0	22.6	11.3	no	n/a	yes	6.7	SW(1)	yes	n/a	n/a	rb / Shoulder	
T1-F3	Signed Route	Elk Hill Dr	E Mukilteo Blvd	Federal Ave	North of	Federal Ave	1 inch = 20 Feet	990	local	27.9	2.0	22.7	11.4	no	n/a	no	n/a	Shared	yes	n/a	n/a	Dirt	
T1-F4	Signed Route	Federal Ave	Elk Hill Dr	4400 Block	South of	Elk Hill Dr	1 inch = 20 Feet	1,023	local	27.5	2.0	21.8	10.9	no	n/a	no	n/a	Shoulder	yes	5.6	2.8	Dirt	
T1-F5	Signed Route	Federal Ave	4400 Block	Alger Ave	In The	4400 Block	1 inch = 20 Feet	450	local	23.4	2.0	23.4	11.7	no	n/a	no	n/a	Shoulder	yes	9.2	9.2	Unpaved	
T1-F5	Signed Route	Alger Ave	Federal Ave	47Th St SE	In The	4600 Block	1 inch = 20 Feet	590	local	24.4	2.0	18.7	9.4	no	n/a	no	n/a	Shoulder	yes	5.7	2.9	Unpaved	
T1-F6	Signed Route	Alger Ave	47Th St SE	Alpine Dr	South of	47Th St SE	1 inch = 20 Feet	901	local	22.8	2.0	22.8	11.4	no	n/a	Shared	n/a	Shared	yes	n/a	n/a	Curb	
T1-F7	Signed Route	Alpine Dr	Alger Ave	College Ave	South of	Alger Ave	1 inch = 20 Feet	280	local	30.7	2.0	30.7	15.4	no	n/a	Shared	n/a	Shared	yes	n/a	n/a	Curb	
T1-F8	Signed Route	College Ave	Alpine Dr	52Nd St SE	South of	Alpine Dr	1 inch = 20 Feet	1,059	local	36.4	2.0	36.4	18.2	no	n/a	Shared	n/a	Shared	yes	n/a	n/a	Curb	
T1-F9	Signed Route	52Nd St SE	College Ave	Fleming St	East of	College Ave	1 inch = 20 Feet	391	local	35.8	2.0	35.8	17.9	no	n/a	Shared	n/a	Shared	yes	n/a	n/a	rb / Unpaved	
T1-F10	Signed Route	Fleming St	52Nd St SE	56Th St SE	South of	52Nd St SE	1 inch = 20 Feet	931	local	26.3	2.0	26.3	13.2	no	n/a	no	n/a	Shared	yes	n/a	n/a	Unpaved	
T1-F11	Signed Route	Fleming St	56Th St SE	Madison St	South of	56Th St SE	1 inch = 20 Feet	4,068	Local	20.9	2.0	20.9	10.5	no	n/a	no	n/a	Shared	yes	n/a	n/a	Curb	
T1-F12	Signal	Pecks And Flemming	Add Traffic Signal				1 inch = 20 Feet		Local														
T1-F13	Signal	Madison And Flemm	Add Traffic Signal				1 inch = 20 Feet		Arterial														
T1-G1	Signed Route	Hoyt Ave	Alverson Blvd	Everett Ave	South of	7Th St	1 inch = 20 Feet	10,062	Local	30.9	2.0	31.0	15.5	no	n/a	Shared	n/a	Shared	yes	n/a	n/a	Curb	
T1-G2	Signed Route	Hoyt Ave	Pacific Ave	35Th St	South of	Pacific Ave	1 inch = 20 Feet	1,931	Local	39.7	2.0	24.1	12.1	no	n/a	yes	7.8	SW	yes	n/a	n/a	Curb	
T1-G3	Signed Route	Hoyt Ave	35Th St	41St St				2,500	local														
T1-H2	BB	Lombard Ave	10Th St	26Th St	North of	13Th St	1 inch = 20 Feet	7,673	Local	30.2	2.0	30.2	15.1	no	n/a	Shared	n/a	Shared	yes	n/a	n/a	Curb	
T1-H3	Lane	26Th St	Lombard Ave	Oakes Ave			1 inch = 20 Feet	350	Local	38.9	2.0	24.2	12.1	no	n/a	yes	7.4	Shared	yes	n/a	n/a	Curb	
T1-H4	Signed Route	Oakes Ave	26Th St	Everett Ave	North of	Everett Ave	1 inch = 20 Feet	468	Local	35.6	2.0	35.6	17.8	no	n/a	Shared	n/a	Shared	yes	n/a	n/a	Curb	
T1-H6	BB	Oakes Ave	Pacific Ave	32Nd St	South of	Pacific Ave	1 inch = 20 Feet	485	Local														
T1-H7	Lane	32Nd St	Oakes Ave	Lombard Ave	East of	Oakes Ave	1 inch = 20 Feet	347	local	31.1	2.0	31.1	15.6	no	n/a	Shared	n/a	Shared	yes	n/a	n/a	Curb	
T1-H8	BB	Lombard Ave	32Nd St	36Th St	Noth of	33Rd St	1 inch = 20 Feet	1,920	local	27.8	2.0	20.3	10.2	no	n/a	yes	7.5	Shared	yes	n/a	n/a	Curb	
T1-J3	Signed Route	Fulton St	Pacific Ave	Hewitt Ave	South of	Hewitt Ave	1 inch = 20 Feet	856	local	33.6	2.0	33.6	16.8	no	n/a	no	n/a	Shared	yes	n/a	n/a	Curb	
T1-J4	Signed Route	Fulton St	Hewitt Ave	California St			1 inch = 20 Feet	485	local	27.5	2.0	27.5	13.8	no	n/a	no	n/a	Shared	yes	n/a	n/a	Dirt	
T1-K	Trail	Us 2 And Hewit Ave	Intersection Improveme				1 inch = 100 Feet		Arterial												0.0		
T1-N	Lane	California St	Harrison Ave	Highland Ave	East of	Highland Ave	1 inch = 20 Feet	696	Collector	42.0	2.0	33.7	16.8	no	n/a	no		Lane	yes	8.4	4.2	Curb	Fair
T1-O	Lane	Highland Ave	California St	Hewitt Ave	North of	Hewitt Ave	1 inch = 20 Feet	989	Collector	37.0	2.0	27.6	13.8	no	n/a	no		Lane	no	9.3	4.7	Curb	fair
T1-P	Signal	California and Broad	Add Traffic Signal						Arterial														
T1-Q	BB	23Rd St	Grand Ave	E Grand Ave			1 inch = 20 Feet	8,175	Collector	27.7	2.0	27.7	13.9	no	n/a	no	n/a	Shared	yes	n/a	n/a	Curb	

			Proposed Cross Section													
Facility ID	Planned Facility Type	Roadway Classification	Revised Curb to Curb Width	Revised No. of Travel Lanes	Revised Travel Lane Width	Revised Average Travel Lane Width	Center Left Turn Lanes	Revised Center Turn Lane Width	Revised On Street Parking	Revised Average Parking Width	New Bike Lane Type	Revised Shared Use	Revise Bike Lane Width	Revised Average Bike Lane Width	Revised Edge type Curb Shoulder Parking	Proposed Bike Lane Comfort Level
CEF-A1	Lane	Arterial	44.7	2	22	11	yes	11	no	0	lane	no	11.7	5.85	curb	better
CEF-A2	Lane	Arterial	36.0	2	24	12	no	0	no	0	lane	no	12	6	curb	better
CEF-B	Lane	Arterial	58.0	3	36	12	yes	11	no	0	lane	no	11	5.5	curb	better
CEF-C	Lane	Arterial	62.0	2	24	12	yes	12	yes	7.4	lane	no	11.2	5.6	parking	better
CEF-D	SW	Collector	23.4			#DIV/0!	no		no		SW		12	12	curb	good
CEF-E	Signed Route	Collector	34.8								signed route					better
CEF-H1	Lane	Collector	48.0	2	22	11	no	0	yes	7	lane	no	12	6	parking	better
CEF-H2	Signed Route	local	21.5								signed route					better
CEF-I	Marking															
CEF-J	Trail		25.0			#DIV/0!	no		no		trail		12	12		good
CEF-K	Lane	Arterial	47.6	2	22	11	no	0	yes	7	lane	no	11.6	5.8	parking	better
CEF-L	Lane	Arterial	80.0	4	44	11	yes	11	yes	7	lane	no	11	5.5	parking	good
CEF-M	Detection	Arterial														
CEF-N	Trail					#DIV/0!					trail		12	12		good
CEF-O																
CEF-P	Lane	Arterial	45.2	2	24	12	no	0	yes	7	lane/sharrows		7.2		parking	better
CEF-Q	Detection															
T1-A1	Shared Route	local	31.0	2	31	15.5	no	0	no	0	shared route	yes			curb	better
T1-A2	Shared Route	local	45.0	2	31	15.5	no	0	yes	7	shared route	yes			parking	Better
T1-A3	Signal	Collector														
T1-C1	Lane	Collector	52.7	2	25	12.5	no	0	yes	7.5	lane	yes	12.7	6.35	parking	better
T1-C3	Trail															
T1-E	Signal	Arterial	-	-	-		-	-	-	-	-	-			-	-
T1-F1	Signed Route	local	29.3								signed route					better
T1-F3	Signed Route	local	27.9								Signed Route					better
T1-F4	Signed Route	local	27.5								Signed Route					better
T1-F5	Signed Route	local	23.4								Signed Route					better
T1-F5	Signed Route	local	24.4								Signed Route					better
T1-F6	Signed Route	local	22.8								Signed Route					better
T1-F7	Signed Route	local	30.7								Signed Route					better
T1-F8	Signed Route	local	36.4								Signed Route					better
T1-F9	Signed Route	local	35.8								Signed Route					better
T1-F10	Signed Route	local									Signed Route					better
T1-F11	Signed Route	Local									Signed Route					better
T1-F12	Signal	Local														
T1-F13	Signal	Arterial														
T1-G1	Signed Route	Local	30.9								Signed Route					better
T1-G2	Signed Route	Local	39.7								Signed Route					better
T1-G3	Signed Route	local									Signed Route					better
T1-H2	BB	Local	30.2								bike blvd					Better
T1-H3	Lane	Local	40.0	2	20	10	no	0	yes	7	lane/sharrows	no	6			
T1-H4	Signed Route	Local	35.6								Signed Route					better
T1-H6	BB	Local									bike blvd					better
T1-H7	Lane	local	40.0	2	20	10	no		yes	7	lane/sharrows	yes	6			better
T1-H8	BB	local	27.8								bike blvd					Better
T1-J3	Signed Route	local	33.6								Signed Route					better
T1-J4	Signed Route	local	27.5								Signed Route					better
T1-K	Trail	Arterial											0	0		
T1-N	Lane	Collector	42.0	2	min24	min 12	no		no		Lane	yes	11	min 5.5	curb	Better
T1-O	Lane	Collector	37.0	2.0	22.0	11.0	no	no	no	no	Lane	no	11.0	min 5.5	curb	better
T1-P	Signal	Arterial														
T1-Q	BB	Collector	27.7								bike blvd					better

		Cost Estimating																						
Facililty ID	Planned Facility Type	Required Widening in Ft	C=Commercial or R=Residenial ROW?	ROW in SF	Estimated Cost of drainage	Estimated Cost of Widening with curb and gutter	# of lane lines to remove	# of lanes lines to restripe	# of wide lane lines to remove	# of wide lane lines to restripe	# of legends to paint	Est. Cost of Restriping	# Signs to remove	# Signs to install	Est. Cost of Signing	ROW Cost	Est. Trail Construction Costs, SF	Est. Sidwalk Construction Costs, SF	Addt'l Improvements	Est. Cost of Addt'l Improvements	Est. Project Cost	Mobilization Costs	Traffic Control	Estimated **TOTAL** Project Cost Estimate
																$0					$0			
CEF-A1	Lane				$0	$0	2	2	2	2	18	$31,647		6	$900	$0	$0	$0			$32,547	$4,882	$8,137	$45,566
CEF-A2	Lane	11.8			$159,840	$502,963	1	1	2	2	16	$24,511		6	$900	$0	$0	$0			$688,214	$55,057	$172,054	$915,325
CEF-B	Lane	9.3			$95,520	$236,890	3	3	2	2	10	$17,261		4	$600	$0	$0	$0			$350,270	$28,022	$87,568	$465,860
CEF-C	Lane	9.4			$44,160	$110,694	2	4	2	2	4	$7,739		2	$300	$0	$0	$0			$162,894	$13,031	$40,723	$216,648
CEF-D	SW	12			$94,920	$303,744					0	$0		0	$0	$0	$0	$151,872			$550,536	$44,043	$137,634	$732,213
CEF-E	Signed Route				$0	$0					16	$0		16	$2,400	$0	$0	$0			$2,400	$7,500	$7,500	$17,400
CEF-H1	Lane	8.0			$693,000	$1,478,400	1	1	2	2	66	$105,765		66	$9,900	$0	$0	$0			$2,287,065	$182,965	$571,766	$3,041,796
CEF-H2	Signed Route				$0	$0					8			8	$1,200	$0	$0	$0			$1,200	$7,500	$7,500	$16,200
CEF-I	Marking										0				$0	$0	FALSE	FALSE			$0	$7,500	$7,500	$15,000
CEF-J	Trail	12			$0	$0								6	$900	$0	$199,500	$0			$200,400	$0	$0	$200,400
CEF-K	Lane				$0	$0	1	3	2	2	24	$39,645		24	$3,600	$0	$0	$0			$43,245	$6,487	$10,811	$60,543
CEF-L	Lane	18.5			$19,860	$97,976	4	4	2	2	2	$3,842		2	$300	$0	$0	$0			$121,978	$9,758	$30,494	$162,230
CEF-M	Detection				$0	$0									$0	$0	$0	$0	Detection	$180,000	$180,000	$14,400	$45,000	$239,400
CEF-N	Trail	12			$0	$0								6	$900	$0	$164,580	$0			$165,480			$165,480
CEF-O															$0	$0	FALSE	FALSE			$0	$7,500	$7,500	$15,000
CEF-P	Lane				$0	$0	1	3	2	2	4	$5,522		4	$600	$0	$0	$0			$6,122	$7,500	$7,500	$21,122
CEF-Q	Detection				$0	$0									$0	$0	$0	$0	Detection	$180,000	$180,000	$14,400	$45,000	$239,400
																$0					$0			
T1-A1	Shared Route				$0	$0	1	1	2	2	8	$13,443		8	$1,200	$0	$0	$0			$14,643	$7,500	$7,500	$29,643
T1-A2	Shared Route				$0	$0	0	0	0	0	4	$600		4	$600	$0	$0	$0			$1,200	$7,500	$7,500	$16,200
T1-A3	Signal				$0	$0	0	0	0	0	0	$0			$0	$0	$0	$0	Signal	$180,000	$180,000	$14,400	$45,000	$239,400
T1-C1	Lane				$0	$0	1	3	2	2	34	$57,254			$0	$0	$0	$0			$57,254	$8,588	$14,314	$80,156
T1-C3	Trail	interchange - this is unlikely to be			$0	$0	0	0		0	0	$0		0	$0	$0	#VALUE!	$0			#VALUE!	$0	$0	#VALUE!
T1-E	Signal	-			$0	$0	0	0	0	0	0	$0		0	$0	$0	$0	$0	Signal	$180,000	$180,000	$14,400	$45,000	$239,400
T1-F1	Signed Route				$0	$0	0	0	0	0	20	$3,000		20	$3,000	$0	$0	$0			$6,000	$7,500	$7,500	$21,000
T1-F3	Signed Route				$0	$0	0	0	0	0	6	$900		6	$900	$0	$0	$0			$1,800	$7,500	$7,500	$16,800
T1-F4	Signed Route				$0	$0	0	0	0	0	6	$900		6	$900	$0	$0	$0			$1,800	$7,500	$7,500	$16,800
T1-F5	Signed Route				$0	$0	0	0	0	0	2	$300		2	$300	$0	$0	$0			$600	$7,500	$7,500	$15,600
T1-F5	Signed Route				$0	$0	0	0	0	0	4	$600		4	$600	$0	$0	$0			$1,200	$7,500	$7,500	$16,200
T1-F6	Signed Route				$0	$0	0	0	0	0	6	$900		6	$900	$0	$0	$0			$1,800	$7,500	$7,500	$16,800
T1-F7	Signed Route				$0	$0	0	0	0	0	2	$300		2	$300	$0	$0	$0			$600	$7,500	$7,500	$15,600
T1-F8	Signed Route				$0	$0	0	0	0	0	6	$900		6	$900	$0	$0	$0			$1,800	$7,500	$7,500	$16,800
T1-F9	Signed Route				$0	$0	0	0	0	0	2	$300		2	$300	$0	$0	$0			$600	$7,500	$7,500	$15,600
T1-F10	Signed Route				$0	$0	0	0	0	0	6	$900		6	$900	$0	$0	$0			$1,800	$7,500	$7,500	$16,800
T1-F11	Signed Route				$0	$0	0	0	0	0	24	$3,600		24	$3,600	$0	$0	$0			$7,200	$7,500	$7,500	$22,200
T1-F12	Signal				$0	$0	0	0	0	0	0	$0		0	$0	$0	$0	$0	Signal	$180,000	$180,000	$14,400	$45,000	$239,400
T1-F13	Signal				$0	$0	0	0	0	0	0	$0		0	$0	$0	$0	$0	Signal	$180,000	$180,000	$14,400	$45,000	$239,400
T1-G1	Signed Route				$0	$0	0	0	0	0	58	$8,700		58	$8,700	$0	$0	$0			$17,400	$7,500	$7,500	$32,400
T1-G2	Signed Route				$0	$0	0	0	0	0	12	$1,800		12	$1,800	$0	$0	$0			$3,600	$7,500	$7,500	$18,600
T1-G3	Signed Route				$0	$0	0	0	0	0	14	$2,100		14	$2,100	$0	$0	$0			$4,200	$7,500	$7,500	$19,200
T1-H2	BB				$0	$0	0	0	0	0	44	$6,600		44	$6,600	$0	$0	FALSE			$13,200	$7,500	$7,500	$28,200
T1-H3	Lane	1.1			$21,000	$6,160	1	2	2	2	2	$3,310		2	$300	$0	$0	$0			$30,770	$4,616	$7,693	$43,078
T1-H4	Signed Route				$0	$0	0	0	0	0	2	$300		2	$300	$0	$0	$0			$600	$7,500	$7,500	$15,600
T1-H6	BB				$0	$0	0	0	0	0	2	$300		2	$300	$0	$0	FALSE			$600	$7,500	$7,500	$15,600
T1-H7	Lane	8.9			$20,820	$49,413	1	1	2	2	2	$3,180		2	$300	$0	$0	$0			$73,713	$11,057	$18,428	$103,198
T1-H8	BB				$0	$0	0	0	0	0	10	$1,500		10	$1,500	$0	$0	FALSE			$3,000	$7,500	$7,500	$18,000
T1-J3	Signed Route				$0	$0	0	0	0	0	4	$600		4	$600	$0	$0	$0			$1,200	$7,500	$7,500	$16,200
T1-J4	Signed Route				$0	$0	0	0	0	0	2	$300		2	$300	$0	$0	$0			$600	$7,500	$7,500	$15,600
T1-K	Trail				$0	$0	0	0	0	0	0	$0		0	$0	$0	$0	$0			$0	$0	$0	$0
T1-N	Lane				$0	$0	1	1	2	2	4	$6,377		4	$600	$0	$0	$0			$6,977	$7,500	$7,500	$21,977
T1-O	Lane				$0	$0	1	1	2	2	6	$9,109		6	$900	$0	$0	$0			$10,009	$7,500	$7,500	$25,009
T1-P	Signal				$0	$0	0	0	0	0	0	$0		0	$0	$0	$0	$0	Signal	$180,000	$180,000	$14,400	$45,000	$239,400
T1-Q	BB				$0	$0	0	0	0	0	46	$6,900		46	$6,900	$0	$0	FALSE			$13,800	$7,500	$7,500	$28,800

										Existing Cross Section													
Facililty ID	Planned Facility Type	Facility	From	To	Direction To Measurement Point	Measurements At	Plot Scale	Segment Length in Feet	Roadway Classification	Curb to Curb Width	No. of Travel Lanes	Total Travel Lane Width	Average Travel Lane Width	Center Left Turn Lanes	Center Turn Lane Width	On Street Parking	Average Parking Width	Bike Lane Type	Shared Use	Total Bike Lane Width	Average Bike Lane Width	Edge type Curb Shoulder Parking	Existing Bike Lane Comfort Level
		Tier 2 Facilities (10 to 20 years out)																					
T2-A	Trail	75Th St SE	Seaway Blvd	Hardeson Rd	In the	1400 Block	1 inch = 20 Feet	3,431	local	27.0	2.0	27.0	13.5	no	n/a	no	n/a	SW	yes	6.6	6.6	Curb	
T2-B	Lane	12Th St	Broadway	Chestnut St			1 inch = 20 Feet	3,112	Collector	35.1	2.0	27.3	13.7	no	n/a	no	n/a	Lane	no	7.7	3.9	Curb	
T2-C	Trail	Trail And Overcrossin	42Nd St SE	Elk Hill Dr	North of	Elk Hill Dr				8.0	1.0	8.0	8.0	no	n/a	no	n/a	Trail	yes	8.0	8.0	n/a	
T2-D	SW	41St St	Hoyt Ave	Interurban Trail				300	Arterial														
T2-E	Signed Route	Baker Ave/ Poplar St	12Th St	Hewitt Ave			1 inch = 20 Feet	8,158	local	23.4	2.0	23.4	11.7	no	n/a	Shared	n/a	Shared	yes	n/a	n/a	Curb	
T2-F	Lane	Brookridge Blvd	Beverly Lane	Glenwood Ave			1 inch = 20 Feet	4,239	local	36.8	2.0	36.8	18.4	no	n/a	no	n/a	Shared	yes	n/a	n/a	Curb	
T2-G	Lane	10Th St	Grand Ave	Lombard Ave	East of	Rockefeller Ave	1 inch = 20 Feet	2,076	Collector	40.3	2.0	25.9	13.0	no	n/a	yes	7.2	SW	yes	n/a	n/a	Curb	
T2-H	Trail	Japanese Gulch	W Mukilteo Blvd	Sr 526			1 inch = 500 Feet	9,285															
T2-I	Trail	Japanese Gulch Connector	Seaway Blvd	Sr 526			1 inch = 500 Feet																
T2-J	Lane	Larimer Rd	S 2Nd Ave	City Limits			1 inch = 20 Feet	10,182	Arterial	20.1	2.0	20.1	10.1	no	n/a	no	n/a	Shared	yes	n/a	n/a	Dirt	
T2-K	Signed Route	Grand Ave	Alverson Blvd	35Th St			1 inch = 20 Feet	13,365	local	23.8	2.0	23.8	11.9	no	n/a	Shared	n/a	Shared	yes	n/a	n/a	Curb	
T2-L	Signed Route	Pigeon Creek Rd	Mukilteo Blvd	Puget Sound			1 inch = 20 Feet	4,080	local	11.5	1.0	11.5	11.5	no	n/a	no	n/a	Shared	yes	n/a	n/a	Shoulder	
T2-M	Trail	Riverside Trail	Sr 529	Pacific Ave			1 inch = 20 Feet	2,073															
T2-N	Lane	Sievers-Duecy Blvd	Hardeson Rd	Glenwood Ave			1 inch = 20 Feet	4,159	local	59.4	4.0	47.0	11.8	yes	12.4	no	n/a	SW	yes	n/a	n/a	Curb	
T2-O	SW	W Marine View Dr	Everett Ave	California St			1 inch = 20 Feet	510	Arterial	54.5	4.0	47.8	12.0	yes	6.7	no	n/a	SW	yes	n/a	n/a	Curb	
T2-P	SW	W Marine View Dr	Caifornia St	Pacific Ave	North of	Pacific Ave	1 inch = 20 Feet	1,570	Arterial	59.3	4.0	43.7	10.9	no	n/a	yes	7.8	Trail			0.0	Curb	fair
T2-Q	Signed Route	Norton Ave	Pacific Ave	Grand Ave	North of	35th St	1 inch = 20 Feet	4,637	Local	27.0	2.0	19.0	9.5	no	n/a	yes	8.0	roadway	yes	0.0	0.0		good
T2-R	Signed Route	Grand Ave	Norton Ave	43rd St SE	North of	39th St	1 inch = 20 Feet	2,687	Local	33.2	2.0	18.0	9.0	no	n/a	yes	7.0	roadway	yes	0.0	0.0	Parking	good
T2-S	Signed Route	43rd St SE	Grand Ave	Colby Ave	West of	Evergreen Way	1 inch = 20 Feet	1,141	Local	37.3	2.0	23.0	11.5	no	n/a	yes	7.0	roadway	yes		0.0	Curb	fair
T2-T	Lane	E Casino Rd	Beverly Blvd	7th Ave SE	North of	Xavier Way	1 inch = 20 Feet	1,258	Arterial	44.0	2.0	29.1	14.6	no	n/a	yes	11.7	none					
T2-Y	Lanes	Oakes Ave	Everett Ave	Pacific Ave	North of	Pacific Ave	1 inch = 20 Feet	1,935	Local	29.5	2.0	29.5	14.8	no	n/a	no	n/a	SW	yes	n/a	n/a	Curb	
T2-Z	SW	Smith Ave	Pacific Ave	3600 Block	in the	3400 Block	1 inch = 20 Feet	2,078	Collector	51.2	2.0	32.0	16.0	yes	11.5	yes	7.7	SW	yes	7.9	7.9	Curb	
T2-BB	SW	Pacific Ave	Smith Ave	Fulton St	West of	Fulton St	1 inch = 20 Feet	767	Arterial	55.7	4.0	55.7	13.9	no	n/a	no	n/a	SW	yes	7.5	7.5	Curb	
T2-CC	SW	Tower St	Broadway	N Broadway	East of	Waverly Ave	1 inch = 20 Feet	824	Collector	45.2	2.0	26.3	13.2	no	n/a	yes	6.9	Sidewalk	yes	none	6.0	Curb	fair
T2-DD	Signed Route	Harrison Ave	Everett Ave	California St	North of	California St	1 inch = 20 Feet	484	Collector	46.6	2.0	32.0	16.0	no	n/a	shoulder	10'	roadway	yes			Curb	good
		Tier 3 Facilities (Grant Funding Required)																					
T3A	Lane	S 2Nd Ave	47Th St SE	Lenora St			1 inch = 20 Feet	3,111	local	22.6	2.0	22.6	11.3	no	n/a	no	n/a	Shared	yes	n/a	n/a	urb / Unpaved	
T3B	Lane	S 3Rd Ave	41St St	47Th St SE			1 inch = 20 Feet	3,112	local	34.0	2.0	23.6	11.8	no	n/a	yes	10.4	Shared	yes	n/a	n/a	Curb	
T3C	Lane	Ross Ave/Smith Islan	Langus Park	Sr 529			1 inch = 20 Feet	10,689	local	21.3	2.0	21.3	10.7	no	n/a	no	n/a	Shared	yes	n/a	n/a	Unpaved	
T3D	Lane	Seaway Blvd	36Th Ave W	Sr 526			1 inch = 20 Feet	10,509	local	44.8	3.0	34.5	11.5	no	n/a	no	n/a	Lane	no	9.9	5.0	Curb	
T3E	Lane	Silver Lake Rd	19Th Ave SE	112Th St SE			1 inch = 20 Feet	5,371	Collector	27.8	2.0	20.8	10.4	no	n/a	no	n/a	Lane	no	5.1	5.1	Curb	
T3F	Lane	Colby Ave	44th St SE	Beverly Blvd	North of	52nd St SE	1 inch = 20 Feet	9,553	Arterial	47.9	2.0	23.6	11.8	yes	9.9	yes	14.5	none					
T3G	Lane	25Th St	Colby Ave	W Marine View Dr			1 inch = 20 Feet	1,316	local	28.4	2.0	28.4	14.2	no	n/a	yes	Unclear	Shared	yes	n/a	n/a	Curb	
T3H	Lane	Mukilteo Ln	Mukilteo Blvd	1St St			1 inch = 20 Feet	4,224	local	20.1	2.0	20.1	10.1	no	n/a	no	n/a	Shared	yes	n/a	n/a	Curb	
T3I	Lane	Olympic Blvd	Mukilteo Blvd	Mukilteo Blvd			1 inch = 20 Feet	7,939	Collector	29.0	2.0	21.4	10.7	no	n/a	yes	7.8	houlder / S\	yes	n/a	n/a	Curb	
T3J	Lane	Beverly Blvd	Colby Ave	Broadway	South of	Madison St	1 inch = 20 Feet	7,402	Arterial	53.1	2.0	28.2	14.1	yes	11.8	yes	7.5	none					
T3K	overcrossing	Evergreen Way	Holly Dr	Holly Dr																			
T3L	Signal	Evergreen Way and 43rd																					
T3M	Trail	Kasch Park Trail	Kasch Park	18th Ave W																			
T3N	Shared Route	18th Ave W	end	100th St SW				1,400	local														
T3O	Shared Route	Pecks Drive	Fleming St	Brookridge Blvd				1,250	local														

Assumptions:

Bicycle Blvd. (BB)

1. Pavement markings and signs will be required
2. Pavement markings and signs cost calculated at 350 feet intervals, both directions
3. Mobilization and traffic control costs will be required

Detection

4. Mobilization and traffic control costs will be required

Lane

5. Pavement markings and signs will be required
6. Pavement markings and signs cost calculated at 350 feet intervals, both directions
7. Mobilization and traffic control costs will be required

Shared Routes

8. Pavement markings and signs will be required
9. Pavement markings and signs cost calculated at 350 feet intervals, both directions
10. Mobilization and traffic control costs will be required

Signals

11. Mobilization and traffic control costs will be required

Signed Route

12. Pavement markings and signs will be required
13. Pavement markings and signs cost calculated at 350 feet intervals, both directions
14. Mobilization and traffic control costs will be required

Sidewalks (SW)

15. When a widening of a sidewalk is planned, drainage and curb and gutter construction will be required
16. When a widening of a sidewalk is planned, mobilization or traffic control costs will be required
17. No signs or pavement markings will be required
18. If sidewalk widening is part of a road reconfiguration with bike lanes, pavement markings and signs will be required (and calculated at 350 feet intervals), both directions
19. Sidewalk construction costs estimated at $8 per SF

Trails

20. No drainage, curb and gutter, mobilization and traffic control costs will be required
21. Sign cost calculated every 1000 feet intervals, both directions
22. No pavement markings will be required
23. No mobilization and traffic control costs will be required
24. Asphalt trail construction costs estimated at $5 per SF

All other costs not listed above provided by client.

			Proposed Cross Section													
Facililty ID	Planned Facility Type	Roadway Classification	Revised Curb to Curb Width	Revised No. of Travel Lanes	Revised Travel Lane Width	Revised Average Travel Lane Width	Center Left Turn Lanes	Revised Center Turn Lane Width	Revised On Street Parking	Revised Average Parking Width	New Bike Lane Type	Revised Shared Use	Revise Bike Lane Width	Revised Average Bike Lane Width	Revised Edge type Curb Shoulder Parking	Proposed Bike Lane Comfort Level
T2-A	Trail	local	27.0			#DIV/0!	no		no		SW		12	12		good
T2-B	Lane	Collector	35.1	2	23	11.5	no	0	no	0	lane	no	12.1	6.05	curb	better
T2-C	Trail		8.0								trail	yes	12	12		good
T2-D	SW	Arterial											0	0		
T2-E	Signed Route	local	23.4								signed route					better
T2-F	Lane	local	36.8	2	24	12	no	0	no	0	lane	no	12.8	6.4	curb	better
T2-G	Lane	Collector	47.0	2	22	11	no	0	yes	7	lane	yes	11	5.5	parking	Better
T2-H	Trail										trail			12		
T2-I	Trail										trail			12		
T2-J	Lane	Arterial	36.0	2	24	12	no	0	no	0	lane	no	12	6	curb	better
T2-K	Signed Route	local	52.0	2	24	12	no	2	yes	7	shared route	no			parking	better
T2-L	Signed Route	local									signed route					
T2-M	Trail													12		
T2-N	Lane	local	59.4	2	22	11	yes	11	yes	7	lane	no	5.5	5.5		
T2-O	SW	Arterial	54.5								sidewalk			12		
T2-P	SW													12		
T2-Q	Signed Route	Local									signed route			0		
T2-R	Signed Route	Local									Signed Route					
T2-S	Signed Route	Local	37.3	2.0	22.0	11.0	yes	12	yes	0	Signed Route	no	3.3	1.7	curb	better
T2-T	Lane	Arterial	44.0	2	22	11	no	0	one side	4	lane	no	14	7	curb	better
T2-Y	Lanes	Local	31.0	2	20	10	no	0	no	0	lane	no	11	5.5	curb	better
T2-Z	SW	Collector	51.2				yes		yes		SW	yes	12	12		
T2-BB	SW	Arterial	55.7				no		no		SW	yes	12	12		
T2-CC	SW	Collector	45.2	3	22 to 24	11 to 12	no		yes		Sidewalk	yes	12	12	dirt	Better
T2-DD	Signed Route	Collector	46.6	2	20	10	no		shoulder		Lane	yes	14	7	shoulder	Better
T3A	Lane	local	22.6				no		no							
T3B	Lane	local	34.0				no		yes							
T3C	Lane	local	21.3				no		no							
T3D	Lane	local	44.8				no		no							
T3E	Lane	Collector	27.8				no		no							
T3F	Lane	Arterial	60.0	22	2	11	yes	12	yes	7	lane	no	12	6	parking	better
T3G	Lane	local	28.4				no		yes							
T3H	Lane	local	20.1				no		no							
T3I	Lane	Collector	29.0				no		yes							
T3J	Lane	Arterial	60.0	22	2	11	yes	12	yes	7	lane	no	12	6	parking	better
T3K	overcrossing															
T3L	Signal															
T3M	Trail															
T3N	Shared Route	local														
T3O	Shared Route	local														

		Cost Estimating																						
Facililty ID	Planned Facility Type	Required Widening in Ft	C=Commercial or R=Residenial ROW?	ROW in SF	Estimated Cost of drainage	Estimated Cost of Widening with curb and gutter	# of lane lines to remove	# of lanes lines to restripe	# of wide lane lines to remove	# of wide lane lines to restripe	# of legends to paint	Est. Cost of Restriping	# Signs to remove	# Signs to install	Est. Cost of Signing	ROW Cost	Est. Trail Construction Costs, SF	Est. Sidwalk Construction Costs, SF	Addt'l Improvements	Est. Cost of Addt'l Improvements	Est. Project Cost	Mobilization Costs	Traffic Control	Estimated **TOTAL** Project Cost Estimate
																$0					$0			
T2-A	Trail	5.4			$0	$0	0	0	0	0	0	$0		6	$900	$0	$92,637	$0			$93,537	$0	$0	$93,537
T2-B	Lane				$0	$0	1	1	2	2	9	$27,180		9	$1,350	$0	$0	$0			$28,530	$4,279	$7,132	$39,941
T2-C	Trail	4			$0	$0	0	0	0	0		$0		0	$0	$0	$0	$0			$0	$0	$0	$0
T2-D	SW				$0	$0	0	0	0	0	0	$0			$0	$0	$0	$0			$0	$7,500	$7,500	$15,000
T2-E	Signed Route				$0	$0					23	$3,450		23	$3,450	$0	$0	$0			$6,900	$7,500	$7,500	$21,900
T2-F	Lane				$0	$0					12	$1,800		12	$1,800	$0	$0	$0			$3,600	$7,500	$7,500	$18,600
T2-G	Lane	6.7			$124,560	$222,547	1	3	2	2	12	$20,276		12	$1,800	$0	$0	$0			$369,184	$29,535	$92,296	$491,014
T2-H	Trail	12			$0	$0						$0		18	$2,700	$0	$557,100	$0			$559,800	$0	$0	$559,800
T2-I	Trail	12			$0	$0					0	$0		0	$0	$0	$0	$0			$0	$0	$0	$0
T2-J	Lane	15.9			$610,920	$2,590,301	1	1	2	2	29	$88,861		29	$4,350	$0	$0	$0			$3,294,431	$263,555	$823,608	$4,381,594
T2-K	Signed Route				$0	$0					38	$5,700		38	$5,700	$0	$0	$0			$11,400	$7,500	$7,500	$26,400
T2-L	Signed Route				$0	$0					12	$1,800		12	$1,800	$0	$0	$0			$3,600	$7,500	$7,500	$18,600
T2-M	Trail	12			$0	$0					0	$0		4	$600	$0	$124,380	$0			$124,980	$0	$0	$124,980
T2-N	Lane	12			$0	$0	4	4	0	0	12	$15,109		8	$1,200	$0	$0	$0			$16,309	$0	$0	$16,309
T2-O	SW	6			$30,600	$48,960					0	$0		0	$0	$0	$0	$24,480			$104,040	$8,323	$26,010	$138,373
T2-P	SW	12			$94,200	$301,440					0	$0		0	$0	$0	$0	$150,720			$546,360	$43,709	$136,590	$726,659
T2-Q	Signed Route				$0	$0	0	0	0	0	0	$0		13	$1,950	$0	$0	$0			$1,950	$7,500	$7,500	$16,950
T2-R	Signed Route				$0	$0	1	0	0	0	8	$2,544		8	$1,200	$0	$0	$0			$3,744	$7,500	$7,500	$18,744
T2-S	Signed Route				$0	$0	1	2	2	2	3	$10,263		3	$450	$0	$0	$0			$10,713	$7,500	$7,500	$25,713
T2-T	Lane				$0	$0	1	2	2	2	4	$11,419		4	$600	$0	$0	$0			$12,019	$7,500	$7,500	$27,019
T2-Y	Lanes	1.5			$116,100	$46,440	1	1	2	2	12	$17,861		12	$1,800	$0	FALSE	FALSE			$182,201	$14,576	$45,550	$242,327
T2-Z	SW	4.1			$124,680	$136,317	0	0	0	0	0	$0			$0	$0	$0	$68,158			$329,155	$26,332	$82,289	$437,776
T2-BB	SW	4.5			$46,020	$55,224	0	0	0	0	0	$0			$0	$0	$0	$27,612			$128,856	$10,308	$32,214	$171,378
T2-CC	SW	6			$49,440	$79,104	3	3	2	2	4	$8,758		4	$600	$0	$0	$39,552		$0	$177,454	$14,196	$44,363	$236,013
T2-DD	Signed Route	4			$29,040	$30,976	2	2	2	2	2	$4,704		2	$300	$0	$0	$0			$65,020	$9,753	$16,255	$91,029
T3A	Lane										9	$1,350		9	$1,350	$0	$0	$0			$2,700	$7,500	$7,500	$17,700
T3B	Lane										9	$1,350		9	$1,350	$0	$0	$0			$2,700	$7,500	$7,500	$17,700
T3C	Lane										31	$4,650		31	$4,650	$0	$0	$0			$9,300	$7,500	$7,500	$24,300
T3D	Lane										30	$4,500		30	$4,500	$0	$0	$0			$9,000	$7,500	$7,500	$24,000
T3E	Lane										15	$2,250		15	$2,250	$0	$0	$0			$4,500	$7,500	$7,500	$19,500
T3F	Lane	12.1			$573,180	$1,849,461	4	4	0	2	27	$82,385		27	$4,050	$0	$0	$0			$2,509,075	$200,726	$627,269	$3,337,070
T3G	Lane										4	$600		4	$600	$0	$0	$0			$1,200	$7,500	$7,500	$16,200
T3H	Lane										12	$1,800		12	$1,800	$0	$0	$0			$3,600	$7,500	$7,500	$18,600
T3I	Lane										23	$3,450		23	$3,450	$0	$0	$0			$6,900	$7,500	$7,500	$21,900
T3J	Lane	6.9			$444,120	$817,181	4	4	0	2	21	$63,846		21	$3,150	$0	$0	$0			$1,328,297	$106,264	$332,074	$1,766,635
T3K	overcrossing											$0			$0	$0	$0	$0			$0			$0
T3L	Signal										0	$0			$0	$0	$0	$0	Signal	$180,000	$180,000	$14,400	$45,000	$239,400
T3M	Trail										0	$0			$0	$0	$0	$0			$0	$0	$0	$0
T3N	Shared Route										4	$600		4	$600	$0	$0	$0			$1,200	$7,500	$7,500	$16,200
T3O	Shared Route										4	$600		4	$600	$0	$0	$0			$1,200	$7,500	$7,500	$16,200

Appendix M. Urban Design Streetscape Examples

The following photos were taken by Paul B. Crane, City of Everett while in Malmo, Sweden and Copenhagen Denmark on a follow-up to a sustainability tour.


ANTONIUS
TAXI
BA


Inviting the World of Sport
LG Mobile
Rådhus-
pladsen
BURGER KING

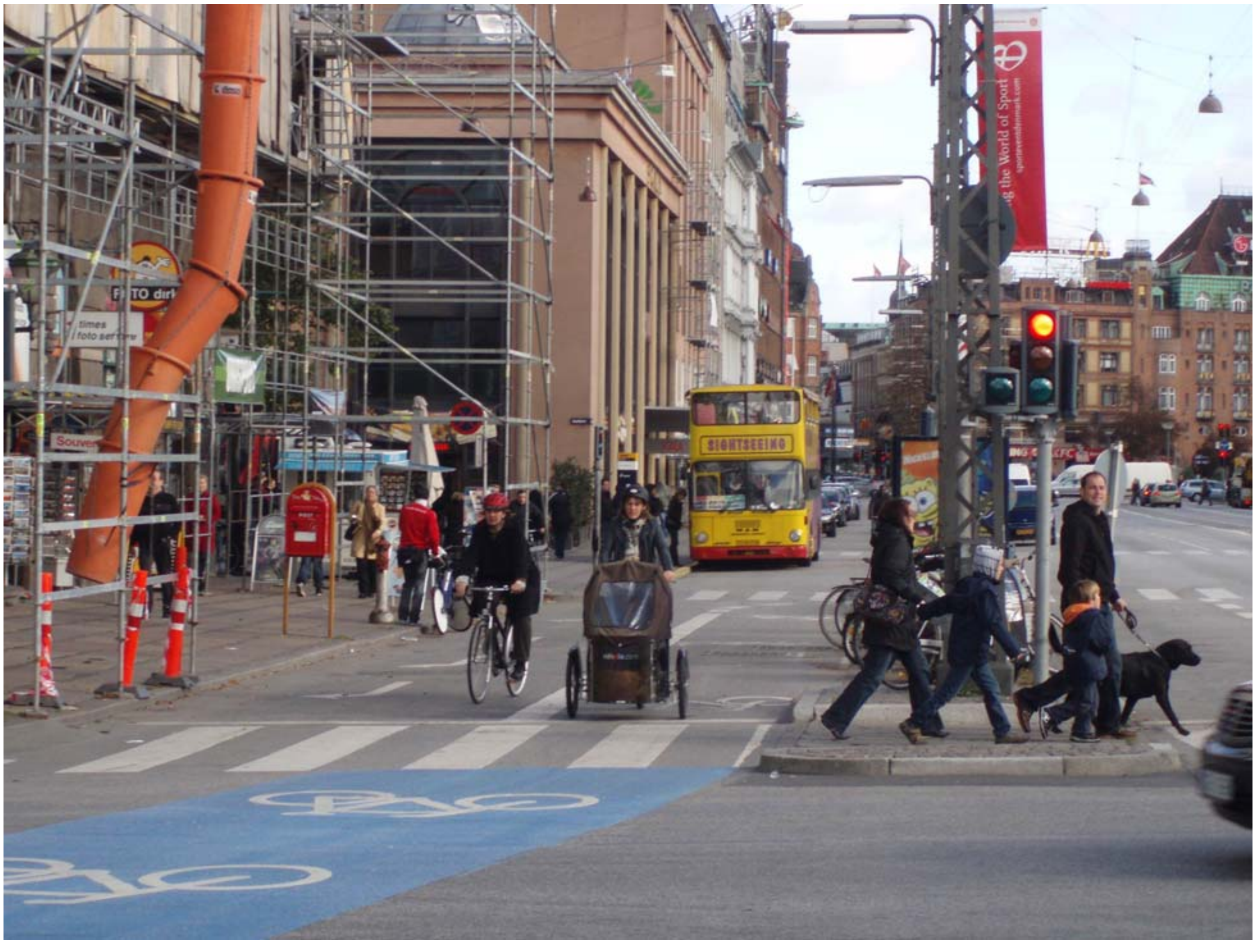

68 Lyngby st.


the World of Sport

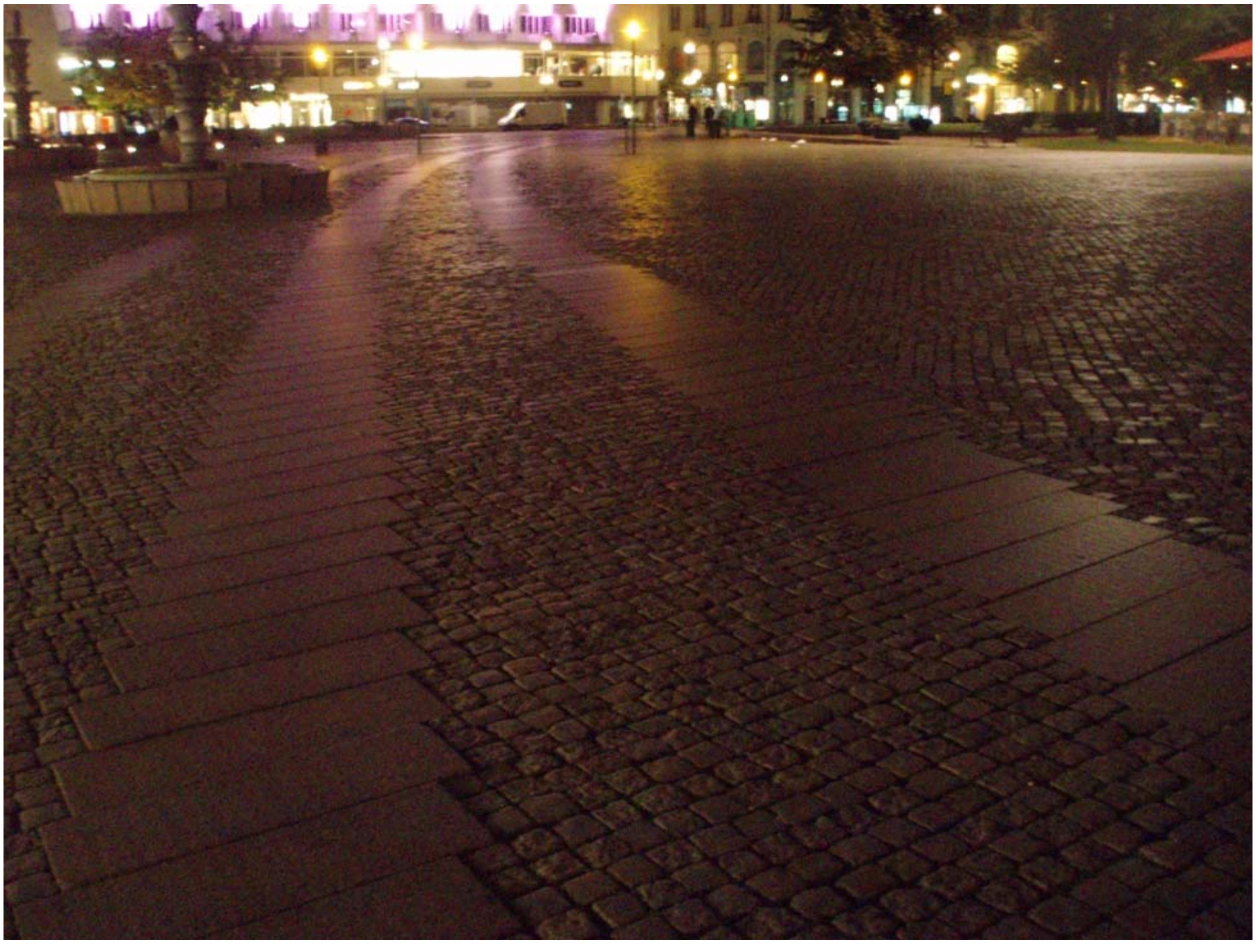

FOTO dirk


DONG
energy
www.dongenergy.dk
770


DAN-LOCK
20 KR


SIGHTSEEING


Scandic
737
990
BUS

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Baltzarsgatan

Appendix N: Errata Sheet

For Everett Bicycle Master Plan (April 2011)

Errata posted 04/06/2011

VI-41	For Project T2-M, statement should end with phrase that "project could be along the water or an interior route depending on land uses." Note: This project became T1-Z based upon the recommendations of Planning and the Port.

Errata posted 04/15/2011

Figures 6 & 29 Existing Bicycle Facilities	• Show the portion of the trail adjacent to the Cymbaluk trucking company as existing (between SR 529 and the bridge/access road to the Riverside Business Park – Riverside Road. • Delete the portion of the trail south of Riverside Road.(the access bridge from East marine View Drive to the Riverside Business park) • Show the Snohomish River between the mainland and Smith Island.
Figure 8 Recommended Bicycle Facilities	• For the Riverside Business Park site, show the two alternate alignments of the trail with a dashed line Tier 1, just as the Shoreline Public Access Plan shows, along with a new paragraph in the description: *On the Port's Riverside Business Park, if the site develops with water-dependent uses, the path will follow the existing north-south road where the existing paths can be widened to 12 feet. If the site develops with non-water dependent uses, the path will be aligned along the shoreline.*