

EXECUTIVE SUMMARY

More than 1 in 3 Seattle residents use a bicycle for transportation or recreation. Since biking is so important in Seattle, SDOT has spent the past year building this Bicycle Master Plan. We held three city-wide public meetings, met with small groups throughout the city and heard from several residents about how we can make Seattle more bicycle friendly.

The Seattle Bicycle Master Plan defines a set of actions, to be completed within 10 years, to make Seattle the best community for bicycling in the United States. By increasing support for bicycling, the city will make its transportation system more environmentally, economically, and socially sustainable. Seattle is currently in a position to make major improvements to bicycling in the city because:

- The city established a Complete Streets Policy in September 2006 and is implementing this policy;
- The “Bridging the Gap” transportation funding initiative was passed by Seattle voters in late 2006, which provides \$27 million over nine years for bicycle lanes, multi-use trails, and other safety improvements; and
- Seattle is currently undertaking a major initiative to meet or beat the global warming pollution reduction target of the Kyoto Protocol.

The Plan is a visionary, yet practical, action strategy to make Seattle a world-class city for bicycling. It provides the framework and actions needed to create a Bicycle Facility Network and develop the supporting facilities and programs necessary to make bicycling a viable choice for a wide variety of trips. Improving the convenience and safety of bicycling in the city will provide cost-effective, healthy, and convenient transportation for residents who bicycle. It will also increase social interaction on streets, offer alternatives to driving on congested roadways, and reduce pollution—public benefits that will make Seattle an even better place to live.



- Every day, approximately 6,000 Seattle residents use a bicycle as their primary mode of transportation to work. Thousands more bicycle to school, to access transit, to visit friends, to go shopping, or to improve their health.
- Between 1992 and 2000, the total number of bicyclists entering and leaving the Central Business District during the morning peak period increased by 57%.
- Approximately 1,800 bicyclists use the Burke-Gilman Trail on a typical weekday, and 2,200 bicyclists use the trail on a typical Saturday.

Bicycling is already a popular mode of transportation in Seattle. While many residents and visitors currently bicycle, there are many more people who would bicycle if new bicycle lanes, signed bicycle routes, trails, and safe roadway crossings were provided throughout the city. Seattle currently has approximately 25 miles of bicycle lanes and 40 miles of multi-use trails. However, with over 2,000 miles of roadways throughout the city, there are gaps that need to be filled. Over the four-year period between 2002 and 2005, there were 1,088 police-reported bicycle crashes in the city.

This Plan is critical for the following reasons:

- Bicycling is an affordable mode of transportation that provides physical activity, produces no pollution, and supports social interaction.
- As a vehicle, the bicycle is very efficient in its use of public space.

- Bicycling supports healthy lifestyles.
- Although Seattle has made great progress by building a trail network that is a model for cities throughout the world, Seattle lacks a connected system of bicycle facilities. Bicyclists face barriers, such as freeways, roadway crossings, and topography in many parts of the city. Many people would choose to bicycle if they had a connected network of comfortable, safe bicycle facilities throughout the city.
- Unsafe behaviors from both motorists and bicyclists increase the chances of injuries on roadways.
- Existing and emerging policies support improving and connecting bicycle facilities.
- There is a growing amount public support for more bicycling and better bicycle facilities, as reflected in support for the city's Complete Streets Policy and voters supporting "Bridging the Gap".

• Goals and Objectives of the Plan

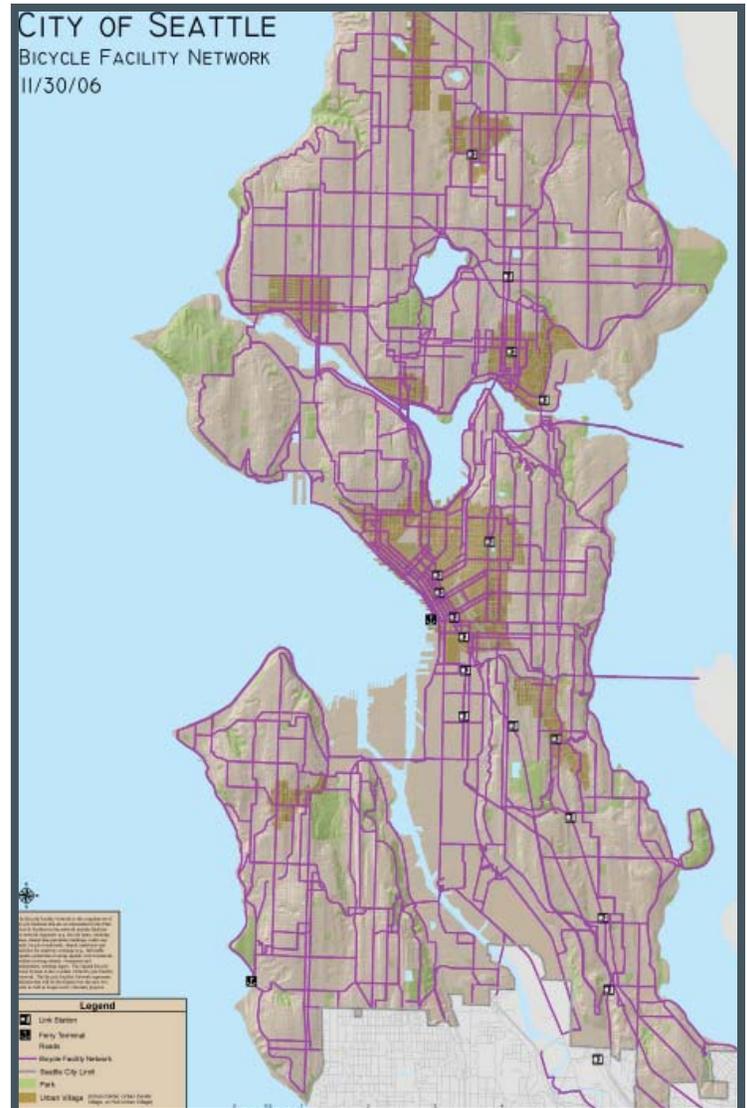
The city of Seattle Bicycle Master Plan was created to achieve two goals:

- Goal 1. Increase use of bicycling in Seattle for all trip purposes. Triple the amount of bicycling in Seattle between 2007 and 2017.
- Goal 2. Improve safety of bicyclists throughout Seattle. Reduce the rate of bicycle crashes by one third between 2007 and 2017.

The city has identified four principal objectives (provided below) to achieve the goals of the Plan. The objectives are supported by 38 specific actions that will be accomplished over the next ten years, as well as a number of performance measures that will enable the city to monitor progress. For more detailed information on the objectives, actions and performance measures, please refer to the full Master Plan report (see <http://www.seattle.gov/transportation/bikemaster.htm>).

• Objective 1

Develop a safe, connected, and attractive network of bicycle facilities throughout the city. One of the most important outcomes of this Plan is a detailed assessment of Seattle's transportation system, resulting in specific recommendations for new bicycle facilities throughout the city. The Plan map (see Inset: Bicycle Facility Network) identifies the location and initial design concept for a system that encompasses approximately 450 miles. This system extends to all parts of the city, and will be designed to meet the needs of all types of bicyclists. The system will include bicycle lanes and other facilities on arterial roadways, a citywide bicycle route system, and completion of the Urban Trails and Bikeways System. A number of non-arterial streets with low traffic volumes and speeds complete the gaps in this system (these are not shown on the Bicycle Facility Network map). The Plan will also result in bicycle safety improvements at roadway crossings, and improvements to the maintenance of the bicycle network.



Bicycle Facility Network Summary

Mile of Recommended Facilities			
Facility Type	Existing	2007-2009 <i>(includes existing)</i>	Total <i>(includes existing)</i>
Bicycle Lanes/ Climbing Lanes	26	63	142
Shared Lane Pavement Markings	0	54	107
Bicycle Boulevards	0	8	18
Other On-Road Bicycle Facilities	2	6	47
Signed Local Street Connections	0	29	77
Multi-Use Trails	39	42	58
Other Off-Road Bicycle Facilities	0	1	3
TOTAL NETWORK	67	203	452

Objective 2

Provide supporting facilities to make bicycle transportation more convenient. In order for bicycling to be a fully viable form of transportation in Seattle, other programs and facilities need to compliment the Bicycle Facility Network. This includes integrated bicycle and transit services, adequate bicycle parking at all destinations, showers at employment centers, convenient repair services, and coordination with other components of a multi-modal transportation system. Partnerships will be needed with area transit agencies and other service providers to accomplish these actions.

Objective 3

Identify partners to provide bicycle education, enforcement, and encouragement programs. As the Bicycle Facility Network is built and more people are encouraged to ride, new programs will be needed to educate bicyclists and motorists about how to co-exist safely in the roadway environment. Partnerships will be needed between SDOT, the Seattle Police Department (SPD), the Bicycle Advisory Board, the Bicycle Alliance of Washington, and Cascade Bicycle Club in order to accomplish this objective.

Objective 4

Secure funding and implement bicycle improvements. In order to implement this Plan, it will be necessary to include bicycle accommodations in all future transportation projects, secure grant funding, train staff, integrate the recommendations of the Plan into city policies and regulations, and coordinate with other jurisdictions in the region. In addition, new roadway design treatments will be evaluated for their effectiveness, and performance measures will be used to monitor progress over time. Finally, it will be important to reassess priorities and update this Plan in future years as new needs and opportunities are identified.

Public Outreach

This Plan is the product of extensive public outreach, background research, inter-agency coordination and detailed field work. There is a very high level of public interest in the Plan, as shown by the large turnout at public meetings. Previous plans and initiatives from the Seattle Department of Transportation (SDOT) and organizations representing parks and recreation, public transit, freight mobility, land use, open space, trails, pedestrian access, and regional coordination were reviewed and incorporated within the recommendations for this Plan. The foundation of the network plan was a detailed field inventory of over 600 miles of Seattle roadways (including all arterial streets where bicycles are permitted).

Public Involvement



Public Involvement in the Seattle Bicycle Master Plan

- More than 750 people attended public meetings held in the University District, Ballard and Columbia City in August and December of 2006.
- Nearly 1,600 people responded to the online Bicycle Master Plan survey
- More than 100 people e-mailed comments to SDOT during the planning process.
- Representatives of the Cascade Bicycle Club, Bicycle Alliance of Washington, Seattle Bicycle Advisory Board, other organizations, and neighborhood residents attended monthly meetings of the Citizens Advisory Board (CAB) during the planning process.

• Characteristics of the Bicycle Network

This Plan recommends a 450-mile network of bicycle facilities that, when implemented, will put more than 95 percent of Seattle’s residents within one-quarter mile of a bicycle facility (see Recommended Bicycle Facility Network Map). The network of bicycle facilities will provide access across the rivers, waterways, freeways, and rail corridors that are currently barriers to bicycling in the city, and create hundreds of miles of new bike lanes, bike routes, trails, and transit connections. The recommended Bicycle Facility Network and supporting actions will serve all types of bicyclists—from new bicyclists to experienced riders. Components of the Bicycle Facility Network include:



Bicycle facilities on arterial roadways—these facilities will provide direct access to transit stations, offices, businesses, residences, and other destinations. This category includes bicycle lanes, climbing lanes, shared lane pavement markings, and paved shoulders throughout the city.



Roadway crossing improvements—this category includes safety improvements to key intersections, particularly in locations where trails and signed bicycle routes cross arterial roadways. Crossing improvements may include new traffic signals, pedestrian signal heads, curb extensions, median crossing islands, and other types of improvements.



A Citywide Signed Bicycle Route System—this system of routes will connect all Urban Villages in Seattle. Signed routes will extend along multi-use trails, bicycle boulevards, non-arterial streets with low traffic speeds and volumes, and lower volume arterial streets with bicycle lanes.



A completed Urban Trails and Bikeways System—this system, adopted in the SDOT Transportation Strategic Plan (TSP), includes multi-use trails and streets with bicycle lanes that together form an interconnecting system.

• Innovation

The city embraces an innovative approach to improving bicycle transportation. Seattle is already widely recognized for its outstanding trail system, and the city will continue to serve as a national leader through the rapid implementation of this complete, connected, citywide bicycle network. However, the Plan also includes the following innovations:

- Shared lane pavement markings to indicate the proper direction of bicycle travel, encourage bicyclists to ride away from parked car doors, and to increase drivers’ expectations to see bicyclists on roadways.
- Climbing lanes on hills to provide designated space for bicyclists on uphill slopes and encouraging bicyclists to move away from parked car doors and share motor vehicle lanes on downhill slopes.
- Bicycle boulevards to provide a high-quality bicycle experience for people with a wide variety of skills and ability to ride in traffic.
- A comprehensive bicycle route signage system that shows distances to major destinations.
- New bicycle safety treatments, such as warning signs, pavement markings, and traffic controls where multi-use trails and bicycle routes cross arterial roadways.
- Bicycle and pedestrian bridges to make critical connections across barriers.
- Exploration of new bicycle detection technologies at signalized intersections.
- Support for using new technologies for counting and surveying bicyclists.

Implementation Plan

This Plan is designed to be implemented. The recommendations are realistic and achievable because they are based on detailed field work and close agency and public coordination. In most cases, the facilities and actions identified in the Plan will require additional traffic analysis and neighborhood involvement in order to ensure proper implementation. The Plan identifies a variety of partnerships to develop and maintain bicycle facilities, support the education of motorists and bicyclists about bicycle safety, and encourage more people to bicycle for utilitarian and recreation purposes.

Keys to Success



Keys to Successful Plan Implementation

- Continue institutional commitments to improving bicycle transportation
- Devote adequate staff resources to implementing the Plan
- Provide sustained funding for projects and programs
- Learn from implementing projects and adjust approaches, as necessary

It is anticipated that three full-time staff will be needed to implement the Plan recommendations within the ten-year timeframe. The pre-2007 staffing of the Program will not be adequate because the volume of work recommended in this Plan is a significant increase over previous years.

Short-Term Implementation (2007 to 2009)

Within the next three years, the Plan recommends the installation of 133 miles of new bicycle facilities. Facility recommendations during this period may ultimately vary because many are tied closely to repaving projects. The city will use funding from the “Bridging the Gap” initiative and other sources to focus immediately on a number of key on-street bicycle facilities, including 55 roadway crossing improvements, 106 miles of signed bicycle routes, 8 miles of new bicycle boulevards, 53 miles of shared lane pavement markings, and 37 miles of bicycle lanes and climbing lanes on arterial roadways. The city will also construct a key bicycle and pedestrian bridge (the Thomas Street Overpass) and add an additional two miles to the Urban Trails and Bikeways System. Partnerships for bicycle and pedestrian safety education, enforcement, and encouragement and bicycle transit access improvements will also be developed in this short-term period.

Medium-Term Implementation (2010 to 2012)

From 2010 through 2012, the city will reconfigure arterial roadways and will install many additional miles of bicycle lanes, climbing lanes, and shared lane pavement markings. Seattle will also complete the Signed Bicycle Route System, complete the majority of the bicycle boulevards recommended in this Plan, install additional roadway crossing improvements, construct additional sections of the Urban Trails and Bikeways System, and finish an online bicycle wayfinding system. In addition, the Plan will be updated during this time period to reflect new priorities that arise.

Long-Term Implementation (2013 to 2016)

During the latter stage of implementation of the 10-year timeframe for this Plan, Seattle will complete the Urban Trails and Bikeways System, roadway crossing improvements, and the majority of bicycle facilities on arterial roadways. Major construction projects to provide bicycle and pedestrian bridges and bicycle facilities in constrained roadway corridors are likely to be designed during this long-term timeframe. The completion of new bicycle and pedestrian bridges and major roadway reconstruction projects are visionary projects that are likely to occur further in the future, but they are identified as important needs in this Plan.

The level of investment that will be required in order to implement this Plan is relatively modest in comparison to other transportation facilities. The estimated cost to implement this Plan over 10 years is approximately \$240 million (based on 2007 dollars). The Plan cost includes approximately \$35.7 million for on-road bicycle facilities, \$7.0 million for roadway crossing improvements, \$63.7 million for multi-use trail facilities (includes the Burke-Gilman Trail missing link), \$80.6 million for major capital projects (e.g., bicycle and pedestrian bridges), \$46.5 million for bicycle facility maintenance, and \$5.9 million for other projects (e.g., bicycle parking, bicycle maps, bicycle education, etc.).

Plan Outcomes

Outcomes of implementing this Plan over the next 10 years include:

- Bicycle facilities on 62 percent (295 miles) of Seattle's arterial streets
- A 230-mile system of signed bicycle routes, connecting all parts of Seattle
- A signed route within ¼ mile of 72 percent of Seattle's schools
- 50 percent more (19 additional miles of new) multi-use trails
- A bicycle facility within ¼ mile of 95 percent of Seattle residents



This Plan not only establishes the vision, but also very practical steps that are needed in the future to ensure that Seattle will become a world-class city for bicycling. This Plan is an important first step - much work lies ahead. By providing the necessary human and financial resources to accomplish this Plan, Seattle could very well exceed its current goals for increasing the use and safety of bicycling. It will therefore be important in the future to measure progress, reassess priorities, and strive to further increase the use and safety of bicycle transportation as the city moves forward with the implementation of this Bicycle Master Plan.

¹ U.S. Census 2000.

² Approximately 11 percent of bicycle trips are for the purposes of earning a living or going to school; 89 percent of bicycle trips are for other purposes. Source: US DOT, *National Household Travel Survey*, 2001.

³ Counts were taken between 6:30 and 9:00 a.m. at 29 Downtown entry points on a typical Wednesday in September in 1992 and 2000.

⁴ Moritz, B. and Cascade Bicycle Club. Burke-Gilman/Sammamish River Trail Survey, 2005. Counts taken from 7 a.m. to 7 p.m.

⁵ Tripling the amount of bicycling is contingent upon the completion of key connections in the Bicycle Facility Network. The Plan identifies 20 capital projects to make these key connections (see Chapter 2). The amount of bicycling is measured by counting bicyclists at a consistent sample of locations in the city.

⁶ The rate of bicycle crashes is the number of bicycle crashes in a year divided by the number of bicyclists counted at the sample locations and by the annual change in motor vehicle traffic volumes throughout the city.

⁷ Within the context of the city's upcoming Pedestrian Master Plan, additional connector bicycle routes will be added to bring all schools to within ¼ mile of a roadway with bicycle route signs.