

## Chapter 7. Performance Measures

As described in Chapter 6, several performance measures should be monitored to determine the amount of progress being made toward achieving the goals and objectives of the Plan. The measures summarized in Table 7 and described below are intended to quantify the overall goals of the Plan and objectives described in the previous chapters. These performance measures will be reviewed and updated every two years to ensure that the city continues to use the best available metrics to assess Plan implementation. Performance monitoring will be led by the SDOT Policy and Planning Division, with support from the SDOT Pedestrian and Bicycle Program.

*Table 7. Bicycle Master Plan Performance Measures*

	Performance Measure	Baseline Measurement	Performance Target	Data Collection Frequency	Data Collection Responsibility
<b>Goal 1</b>	Number of bicyclists observed at counting locations throughout Seattle	To be counted in 2007	Triple the number of bicyclists between 2007 and 2017	Every two years	SDOT, Volunteer groups, Bicycle advocacy organizations
<b>Goal 2</b>	Number of reported bicycle crashes per total number of bicyclists counted and annual traffic volumes	To be calculated in 2007	Reduce the bicycle crash rate by one third between 2007 and 2017	Every two years	SDOT, Law enforcement agencies, Volunteer groups, Bicycle advocacy organizations
<b>Objective 1</b>	Percentage of Bicycle Facility Network Completed	65 miles of existing facilities	Provide 450 miles of recommended facilities by 2017 (includes existing)	Every two years	SDOT Policy and Planning Division & SDOT Pedestrian and Bicycle Program
<b>Objective 2</b>	Number of bicycle racks installed through the SDOT Bicycle Parking Program	Approximately 3,000 existing bicycle racks	Provide 6,000 racks by 2017 (includes existing)	Every two years	SDOT Pedestrian and Bicycle Program
<b>Objective 3</b>	Number of Seattle Bicycling Guide Maps distributed	23,338 maps distributed in 2005	150,000 bicycle maps to be distributed between 2007 and 2017	Every year	SDOT Pedestrian and Bicycle Program or its designated representative
<b>Objective 4</b>	Percentage of targeted SDOT staff who participate in training on bicycle issues	To be counted in 2007	100% of targeted staff participating in training every year	Every year	SDOT Pedestrian and Bicycle Program
	Number of bicycle project grant applications applied for and obtained for bicycle programs	To be tracked in 2007	At least one grant application for every available funding opportunity	Every year	SDOT Policy and Planning Division
	Number of Bicycle Spot Improvements Completed	To be counted in 2007	Depends on needs & priorities set each year	Every year	SDOT Pedestrian and Bicycle Program

*a. This table does not include the performance measures recommended for consideration by non-city agencies or organizations.*

## Performance Measure Framework

This Plan establishes two types of performance measures. The performance measures used to monitor progress towards the goals will quantify long-term trends in bicycle use and safety. The performance measures related to the objectives are strategic—they will calculate the amount of progress that has been made toward specific 2017 performance targets.

Several of the performance measures have been used previously by SDOT, while others are new. For each new performance measure, SDOT will collect the data necessary to establish baseline measurements in 2007.

A few of the performance measures listed below are recommended for organizations other than SDOT to consider. These measures are important metrics for tracking progress on this Plan, but they will not be included in official SDOT performance reports.

## Long-Term Performance Measures

Long-term performance measures monitor progress towards the goals of increasing bicycle use and improving bicycle safety.

**Goal 1: Increase use of bicycling in Seattle for all trip purposes.**  
Triple the amount of bicycling in Seattle between 2007 and 2017<sup>1</sup>.

### **Long-Term Performance Measure 1.1 (New): Number of bicyclists observed at counting locations throughout Seattle.**

Bicycle counts should be taken at up to 30 locations throughout the city every other year to benchmark the amount of bicycling in the city. Count locations could include Downtown entry points, locations on each of the city's major trails, arterial roadways with bicycle lanes or shared lane markings, and intersections of arterial roadways with existing or planned bicycle facilities. SDOT should continue to support and work with the Cascade Bicycle Club on counts, especially the ones done on Bike to Work Day and on the Burke Gilman Trail. The official counts for this performance measure should be taken around the same date each year, on the same day of the week, and under similar weather conditions. In other cases, one-time before and after counts should be taken to measure increases in bicycle use related to a specific bicycle lane, shared lane marking, or trail project.



Additional bicycle counts may be obtained by requiring bicycles to be included in current, manual traffic counts. This data set would not represent all bicycle activity throughout Seattle, but would begin to provide some basic data on the use of bicycle facilities. Counts may also include observations of important bicyclist behaviors, such as wearing helmets, riding on the correct side of the street, obeying traffic controls, and using lights at night. The city will need the assistance of local bicycle advocacy and other organizations to take these counts. In addition, pneumatic tubes should be used to reduce the labor required to count bicyclists on trails. Bicycle counting technologies, such as video and infrared detection should be explored for counts in all types of locations, and the city should move toward adopting these technologies.

<sup>1</sup>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.

- Data Collection Responsibility: SDOT, Volunteer groups, Seattle area bicycle advocacy organizations.
- Data Collection and Reporting Frequency: Every Two Years.

**Long-Term Performance Measure 1.2 (Recommended for PSRC consideration): Bicycle mode split.** Bicycle mode split should be documented every five years through the Puget Sound Regional Travel Survey. Documenting mode shift from personal automobile use to bicycle use is an important benchmark for demonstrating that the City of Seattle is achieving its pollution reduction goals and meeting the Kyoto Protocol. PSRC should improve the survey and reporting methodology to capture an accurate sample of bicycling trips and to report data for each jurisdiction in the region separately. This will allow the City of Seattle to benchmark progress towards shifting single-occupant vehicle trips to bicycle trips.



Photo taken by Amber Trillo

- Data Collection Responsibility: PSRC.
- Data Collection and Reporting Frequency: Every Five Years.

**Goal 2: Improve safety of bicyclists throughout Seattle.**  
Cut the rate of bicycle crashes by one third between 2007 and 2017<sup>2</sup>.

**Long-Term Performance Measure 2.1 (New): Number of police reported bicycle crashes per total number of bicyclists observed during the bi-annual bicycle count.** This measure would compare bicycle crash trends (as reported in police records) in terms of bicycle exposure. Exposure would approximate the bi-annual bicycle counts at up to 30 locations throughout the city. Note that police-reported crashes do not represent all bicycle collisions<sup>3</sup>.

- Data Collection Responsibility: SDOT, Law enforcement agencies, Volunteer groups, Seattle area bicycle advocacy organizations.
- Data Collection and Reporting Frequency: Every Two to Five Years.



### Strategic Performance Measures

Strategic performance measures calculate the amount of progress that has been made toward specific 2017 performance targets.

**Objective 1: Develop and maintain a safe, connected, and attractive network of bicycle facilities throughout the city.**

**Strategic Performance Measure 1.1 (New): Percentage of Bicycle Facility Network completed.** This measure will track progress toward completing the entire

<sup>2</sup>The rate of bicycle crashes is the number of police-reported bicycle crashes in a year divided by the number of bicyclists counted at the sample locations.

<sup>3</sup>A study by Stutts and Hunter of a sample of cases collected at eight hospital emergency rooms in three states, showed that only 56 percent of the pedestrians and 48 percent of the bicyclists were successfully linked to cases reported on their respective state motor vehicle crash files<sup>a</sup>. This study looked at only the most serious crashes (involving emergency room treatment). We can assume that less-severe crashes were accurately reported at an even lower rate.

Source: Stutts, J.C. and W.W. Hunter. "Police-reporting of Pedestrians and Bicyclists Treated in Hospital Emergency Rooms," *Transportation Research Record No 1635*, Transportation Research Board, 1998. P. 88-92.

recommended 450-mile Bicycle Facility Network by 2017. An additional option that will be considered is tracking the percentage of network miles completed for different facility types (e.g., bicycle lanes, climbing lanes, shared lane markings, multi-purpose trails, and bicycle boulevards). This performance measure builds on SDOT's existing measure of the number of bicycle lane miles created each year.

- Data Collection Responsibility: SDOT Policy and Planning Division and SDOT Pedestrian and Bicycle Program.
- Data Collection and Reporting Frequency: Every Two Years.

**Objective 2: Provide amenities that make bicycle transportation more convenient.**

**Strategic Performance Measure 2.1 (Existing): Number of bicycle racks installed through the SDOT Bicycle Parking Program.** This measure will monitor progress towards providing short-term bicycle parking near key destinations throughout Seattle by 2017. It is estimated that 11,000 racks are needed to meet the estimated demand for bicycle parking in key areas of the city (this estimate of 11,000 includes the approximately 3,000 racks that are currently available in the city)<sup>4</sup>. SDOT installed 61 racks in 2005.

- Data Collection Responsibility: SDOT Pedestrian and Bicycle Program.
- Data Collection and Reporting Frequency: Every Two Years.

**Strategic Performance Measure 2.2 (Recommended for Sound Transit and KC/METRO consideration): Percentage of estimated 2017 bicycle parking demand met by current bicycle racks and lockers at transit stations in Seattle.**

Sound Transit and KC/METRO should provide SDOT with the number of bicycle parking spaces available at each transit stop and station in Seattle. Bicycle parking demand for 2017 should be estimated using the PSRC Regional BikeStation Project methodology.

- Data Collection Responsibility: Sound Transit, KC/METRO.
- Data Collection and Reporting Frequency: Every Two Years.

**Strategic Performance Measure 2.3 (Recommended for KC/METRO and Sound Transit consideration): Number of bicycles carried on KC/METRO and Sound Transit buses.** KC/METRO should obtain more complete, year-round data on bike-on-bus boardings. For example, KC/METRO should count bicycle-on-bus boardings each month, and provide SDOT with these counts. This measure would include all routes served by KC/METRO throughout the region, and would not be exclusive to the City of Seattle.

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<sup>4</sup>The city will double the number of bicycle racks available to 6,000 racks by 2017. However, it is estimated that 11,000 racks are needed. The estimated need for 11,000 bicycle racks is based on the following assumptions: 1) An average of one bicycle rack is needed per 100 feet of arterial roadway block face in all Urban Village Centers (includes Hub Urban Villages, Urban Centers, and Urban Center Villages). This average of one rack per 100 feet of arterial roadway block face overestimates the number of bicycle racks by counting arterial roadway sidewalks that may be too narrow to install bicycle racks or may have lower bicycle parking demand, but underestimates the number of bicycle racks by not including racks on adjacent non-arterial streets in commercial districts with higher bicycle parking demand. 2) An average of 10 bicycle racks are needed per public school (includes administration buildings, resource centers, etc., and varies depending on the size and location of the school). 3) An average of five bicycle racks are needed per private school (varies depending on the size and location of the school and students living within bicycling distance). 4) An average of five bicycle racks are needed per community center (varies depending on the size and location of the community center). 5) An average of three bicycle racks are needed per library (varies depending on the size and location of the library). Since approximately 3,000 bicycle racks are already in place, 8,000 racks will need to be installed between 2007 and 2017 to meet the estimated demand. Therefore, the city should consider looking for ways to fund, locate, and install additional racks.

- Data Collection Responsibility: KC/METRO.
- Data Collection and Reporting Frequency: Every Year.

**Objective 3: Partner with organizations to develop bicycle education, enforcement, and encouragement programs.**

### **Strategic Performance Measure 3.1 (Existing): Number of Seattle Bicycle Guide Maps distributed.**

This measure will monitor progress toward improving bicycle wayfinding and encouraging people to use the city's bicycle facilities. The SDOT Pedestrian and Bicycle Program should continue to track the number of bicycle maps that are distributed. This currently includes paper maps, but in the future should include the number of times online maps are accessed. 150,000 Bicycle Guide Maps should be distributed between 2007 and 2017. 23,338 maps were distributed in 2005<sup>5</sup>.



- Data Collection Responsibility: SDOT Pedestrian and Bicycle Program or its designated representative.
- Data Collection and Reporting Frequency: Every Year.

### **Strategic Performance Measure 3.2 (Recommended for Seattle area bicycle advocacy organizations consideration): Number of Seattle residents participating in pedestrian or bicycle safety education programs or events.**

Seattle area bicycle advocacy organizations should track the number of participants in education or encouragement activities (e.g., Bike to Work Day, bicycle commuter classes, bicycle safety training, bicycle camps, etc.), for inclusion in the Bicycle Benchmarking Report. The number of participants in these bicycle activities should triple between 2007 and 2017.



- Data Collection Responsibility: Seattle area bicycle advocacy organizations, Volunteer groups.
- Data Collection and Reporting Frequency: Every Year.

**Objective 4: Secure funding and implement bicycle improvements.**

### **Strategic Performance Measure 4.1 (New): Percentage of targeted SDOT staff who participate in training on bicycle planning, design, and engineering issues.**

This measure will help indicate the level of internal training that is provided on bicycle issues. The following types of staff should receive bicycle training: planners, designers, project managers, staff working on projects with signs and paint, staff working on signals, crew chiefs, and field crews. SDOT should take advantage of everyday opportunities to provide these targeted staff with bicycle training. This includes Complete Streets training, Pedestrian and Bicycle Program presentations, field demonstrations of products (e.g., pavement markings, multi-use trail ramps, and bollards), ProWalk/ProBike conference sessions, mobile workshops, walking audits, and out-of-town expert presentations. 100 percent of targeted SDOT staff should receive some type of training every year.

<sup>5</sup> The number of bicycle maps distributed by the city is typically higher during the year after a revised version of the map is published. A good goal for distribution is an average of 15,000 maps per year.

- Data Collection Responsibility: SDOT Pedestrian and Bicycle Program.
- Data Collection Reporting Frequency: Every Year.

**Strategic Performance Measure 4.2 (New): Amount of grant funding applied for and obtained for bicycle programs.** The SDOT Policy and Planning Division should continue to track the amount of bicycle project funding that SDOT applies for and obtains through grant sources. This measure has been collected internally in the past.

- Data Collection Responsibility: SDOT Policy and Planning Division.
- Data Collection and Reporting Frequency: Every Year.

**Strategic Performance Measure 4.3 (Existing): Number of Bicycle Spot Improvements Completed.** This measure will track SDOT's responsiveness to public requests for bicycle spot improvements. SDOT completed 49 spot bicycle and pedestrian improvements in 2005 (bicycle and pedestrian improvements were reported together).

- Data Collection Responsibility: SDOT Pedestrian and Bicycle Program.
- Data Collection and Reporting Frequency: Every Year.



*Bicycle spot improvements can fix pavement problems.*