

3. Policy Framework

Introduction

In this chapter we identify a possible policy framework for planning and implementing a bike-share program in Seattle. This framework encompasses several proposed elements of a bike-share system, including program model, siting and installation of stations, user fee structure, and public outreach and education. The overall policy framework also includes city and regional plans and policies that we have identified as potentially affecting implementation of a bike-share program in Seattle.

These plans and policies include the following:

- The King County bicycle helmet law
- Seattle sign code restrictions
- The Seattle Bicycle Master Plan
- Land-use and right-of-way improvement regulations
- Curbspace management policies
- The Seattle Pedestrian Master Plan
- Race and social justice initiatives
- Other Sound Transit or King County Metro policies that would affect a bike-share program in Seattle

System Elements

This section reviews the potential system elements we have identified as necessary pieces for successful planning and implementation of a bike-share program in Seattle.

Basic Program Model

There are two basic models of bike-share programs: “flexible” programs and “fixed” programs.

Flexible programs are similar to the Call-a-Bike program operated by Deutsche Bahn, the German national rail company. Flexible programs do not use designated check-out stations. Instead, they rely on existing bicycle racks, poles, and posts throughout the implementation area. Bicycles are checked out and returned to any of these fixtures that are near the origin and destination, respectively. The check-out method consists of using a cellular phone to obtain a combination for the bike’s built-in locking device. A benefit of flexible programs is that they do not require the additional hardware of designated docking stations; they have much lower capital costs and are cheaper to operate and maintain. A drawback of flexible programs is that users may not find a bicycle when they need one.

Fixed programs involve the more “traditional” method of assigning designated check-out stations from which bicycles can be checked out and returned. An example of a fixed program is Barcelona’s Bicing program. A benefit of fixed programs is that users can easily locate bicycles by identifying check-out stations near their trip origin. Furthermore, the operating agency can provide greater public outreach by supplying the public with maps that indicate all station locations throughout the implementation area. A drawback of fixed programs is that capital and maintenance costs are higher. In addition, some sort of protocol must be implemented to redistribute bicycles from at-capacity stations to empty stations. Redistribution efforts can add significant operating costs and be particularly challenging in hilly areas, as bicycles tend to flow downhill and remain at lower elevations.

Station Installation

Within the category of fixed programs, there are two additional categories that relate to the installation of the check-out stations: “permanent” stations and “modular” stations.

Permanent stations are installed directly into the street or sidewalk and are powered with existing infrastructure. An example of a program that utilizes permanent stations is the Vélib’ program in Paris. A benefit of permanent stations is that they become part of the built environment, communicating that the program is “here to stay.” A drawback of permanent stations is that they are costly to alter if initial demand estimates are inaccurate and stations need to be expanded or reduced to meet actual demand.

Modular stations, on the other hand, are not installed directly into the street or sidewalk. These stations are dropped into the location with a crane or forklift and secured by their sheer weight. The docking stations and payment kiosk are powered by solar power. An example of a program that utilizes modular stations is Montréal’s Bixi program. Benefits of modular stations are that they are easy to install and remove and can be more easily expanded or reduced, depending on space or demand. For example, an entire program can be scaled back during seasons of poor weather and low usage, thus saving on maintenance costs. Potential drawbacks of modular stations include the psychological impact of a “removable” program on users as well as the uncertain capacity of solar power to keep the system operable 24 hours a day. Note, however, that neither of these drawbacks has been confirmed by the literature.

Site Criteria and Placement of Stations

Over the years, an industry standard for bike-share station density has become accepted. This density, also referenced as one bike-share station every 300 meters or one station every four to five blocks, is the density needed to ensure that users

The number of bicycle docks in the entire network of stations should be twice the amount of bicycles in the system.

can find a bicycle when they need one and return it easily when they are done.⁶⁴

Bike-share station sizes in Seattle should vary depending on the expected volume of traffic and proximity to other stations. Important factors include population density, worker density, proximity to cultural or recreational attractions, and proximity to retail shopping opportunities. The number of bicycle docks in the entire network of stations should be twice the amount of bicycles in the system.⁶⁵ For instance, if a program has 100 bicycles, there should be 200 individual bicycle docks spread throughout the network of stations. This ensures that users can always find a place to leave their bicycle.

Some cities have identified general guidelines for the placement of bike-share stations.⁶⁶ Best practices for bike-share station placement suggest that bike-share stations be:

- On wide sidewalks or in the roadbed; Stations should not impede pedestrian or vehicular traffic
- Spaced with enough frequency to ensure program visibility and use (every 300 meters)
- Along existing or proposed bicycle lanes whenever possible
- Near light rail stations, major bus stops, and other transit hubs
- Near major cultural and tourist attractions
- Adjacent to major public spaces and parks

Transport for London (TFL) is in the process of planning a bike-share program for central London. In deciding on general locations for station placement, TFL planners placed a grid over a map of the Central London implementation area (Zone 1), a size of about 44 square kilometers. The grid was spaced in such a way that there were nine small squares per kilometer—three on each side—and one station was to be placed somewhere within each square. Each small square was 333 meters on each side, providing TFL with a distance of approximately 300 meters per station. TFL is planning to install 400 stations for Zone 1. Each station will average 25 bicycle docks with 15 to 20 bicycles per station, for a total of 6,000 bicycles that serve Zone 1.⁶⁷

64 New York City Department of City Planning. *Bike-Share Opportunities in New York City*. New York City: New York City Department of City Planning, 2009.

65 Cabañas, Jordi, interview by Max Hepp-Buchanan. *Smartbike Interview* (September 7, 2009).

66 New York City Department of City Planning. *Bike-Share Opportunities in New York City*. New York City: New York City Department of City Planning, 2009.

67 Hillcoat, Chris, interview by Max Hepp-Buchanan. *Transport for London Interview* (September 21, 2009).

User Fee Structure

Many bike-share programs offer a long-term (one-year), short-term (one-month or one-week), and one-day subscriptions. Subscription rates vary depending on the program operator and location. Table 7 shows the consumer cost for an annual subscription in three European programs. In comparing programs, it is important to remember that cost will drive ridership to some degree. To our knowledge, no studies have been designed to determine the relationship between the costs of annual membership and ridership.

Table 7: Consumer Cost in European Bike-Share Systems

Consumer Cost in European Bike-Share Systems				
City	Residents Within Service Area	Number of Annual Subscribers	Annual Subscription Rate	Annual Subscription Price (in USD)
Paris	2,166,200	166,000	8%	\$37.70
Lyon	466,400	52,000	11%	\$36.50
Barcelona	1,000,000	100,000	10%	\$31.20

Source: Non-Profit Business Plan for Twin Cities Bike Share System (http://www.nic-eridemn.com/downloads/doc_plan.php)

After a user pays for a subscription of some length of time, almost all bike-share programs offer the first 30 minutes of use free of charge. After the first 30 minutes, prices often increase at an escalating rate for each additional 30 minutes. Table 8 illustrates fee structures for two programs that are operated by two different vendors: JCDecaux (Paris) and Public Bike System Company (Montréal). The table shows that the fees paid by the users are proportionally the same.

Table 8: Typical Bike-Share Usage Fee Structure

Typical Bike-Share Usage Fee Structure				
Program & City	1 st Half Hour of All Trips	2 nd Half Hour	3 rd Half Hour	4 th Half Hour & Each Additional
Vélib' (Paris)	Free	1 euro	2 euro	4 euro
Bixi (Montréal)	Free	\$1.50	\$3.00	\$6.00

Customer research undertaken for London showed that charging for the initial 30 minutes could reduce up-take by as much as 15 percent.⁶⁸ This reduction could be even higher for smaller programs with limited network options.

⁶⁸ Transport for London. Feasibility study for a central London cycle hire scheme. London: Transport for London, 2008.

Public Outreach and Education

Though public outreach and education is not a system element in the same way that program models and types of installation are, we recognize the importance of an extensive public education and outreach campaign before, during, and after bike-share implementation. This effort would be essential in educating the people of Seattle about what bike-sharing is, how it works, and why it is important. People would want to know why the city was investing in this new form of mobility, and public outreach would help explain this.

Many bike-share programs, such as Vélib' in Paris, assigned city employees at all major bike-share stations during the first week of implementation to answer questions and help new users experience the program for the first time.⁶⁹ Furthermore, evidence from Montréal's Bixi program suggests that an extensive public education and outreach campaign during the bike-share planning phase can help reduce rates of vandalism after the program launches.⁷⁰ Citizens of Montréal were asked for their opinions on the style of bike, system components that were important to them, and even for name suggestions. The name "Bixi" itself was named by a resident of Montréal. As a result, Stationnement de Montréal believes

that residents see Bixi as a form of public transportation that was designed for them and therefore hold themselves accountable for the system's integrity.⁷¹

People will want to know why the City is investing in this new form of mobility, and public outreach will help explain this.

A key element of the outreach and education campaign in Seattle might be to market the proposed bike-share program as a supplemental element to the city's transportation systems. Bike-sharing should not be seen as a competitor to Sound Transit and King County Metro, but rather as an instrument for completing the last mile of a commute. Furthermore, any integration of bike-sharing with the ORCA card—such as the ability to check out a public bicycle by using ORCA—would help facilitate this integration.

City and Regional Policies and Plans

This section examines the city and regional plans and policies we identified as having a potential effect on the proposed bike-share program in Seattle. Each policy or plan is discussed in detail, with potential problem areas, best practices to overcome challenging aspects, and recommendations where appropriate. A summary of our key findings from each analysis of policies and plans can be found at the end of this section.

King County Bicycle Helmet Law

King County has long had a bicycle helmet law, but it was not until the King County Bicycle Helmet Regulation, revised and unanimously adopted by the King County Board of Health in July 2003, that the law expanded to the City of Seattle as well. The law now mandates

69 Didier Couval, interview by Max Hepp-Buchanan, , Vélib Interview, (August 26, 2009).

70 Bérengère Thériault and Michel Philibert, interview by Max Hepp-Buchanan, , Bixi Interview, (September 25, 2009).

71 Ibid.

that all bicycle riders in King County wear a fastened, safety-approved helmet.⁷² The penalty for violation is a civil infraction (ticket), and the base fine is \$30. Additional court costs of \$51 are added to the base fine amount for a total of \$81. All law enforcement officers have the authority to enforce this code.⁷³

The self-service nature of most bike-share programs limits their ability to provide helmets. Most bike-share programs in existence do not require helmets for users over the age of 18, and we did not find any program that actually requires users to wear helmets. Helmet use would be a challenge to bike-share use in Seattle and throughout King County, as people might not always be carrying a helmet with them. Unless a way around the helmet law in King County is discovered, the helmet requirement could dramatically reduce the number of bike-share riders by eliminating the spontaneity of bike-share use.

Best Practices Regarding Helmet Use

There are no easy answers to the question of how a bike-share program would operate under the King County helmet law. However, the best practices that inform our recommendations are discussed below.

JCDecaux

Global bike-share provider JCDecaux has already begun investigating the practice of imbedding membership cards into personal bicycle helmets.⁷⁴ However, this practice would require that bike-share users carry a helmet with them in order to use the program, which would almost certainly have a negative impact on usage rates. In addition, if the city wanted to offer one-day subscriptions to the public, there would be no way to make use of the program contingent on wearing a helmet through this practice.

New York City

Though much more research is needed to find a way to satisfy the helmet requirement and still have high rates of use, the New York City Department of City Planning has identified several innovative ways to encourage helmet use:⁷⁵

- Give out free helmets with annual bike-share membership

Unless a way around the helmet law in King County is discovered, the helmet requirement may dramatically reduce the number of bike-share riders by eliminating the spontaneity of bike-share use.

72 King County, "Bike helmets are "Ticket to Safety", Public Health - Seattle & King County, May 15, 2004, <http://www.kingcounty.gov/healthservices/health/news/2004/04051501.aspx> (accessed February 23, 2010).

73 Davis Law Group, P.S., Answers to your legal questions, <http://www.injurytriallawyer.com/faqs/is-there-a-helmet-law-in-seattle.cfm> (accessed March 5, 2010).

74 New York City Department of City Planning, *Bike-Share Opportunities for New York City*, (New York: New York City Department of City Planning, 2009).

75 Ibid..

- Explore the “chip in helmet” program that is being developed by JCDecaux
- Continue public service campaigns encouraging helmet use

Minneapolis

In Minneapolis, the Nice Ride bike-share program (due to launch in spring of 2010) will not provide rental helmets to users because of sanitation and physical integrity issues.⁷⁶ Helmets are also not required for Minneapolis cyclists by local regulations. However, bike-share users will receive education about helmets and sign an agreement that helmet use is their responsibility. Website subscribers will also be offered a reduced rate on the purchase of helmets from local bicycle shops.⁷⁷

Boston

In January 2009, the Massachusetts Legislature enacted Chapter 525 of the Acts of 2008, which provides that “[a] person, firm, or corporation engaged in the business of renting bicycles shall make available a bicycle helmet conforming to the specifications for bicycle helmets of the United States Consumer Product Safety Commission to each person renting a bicycle.”

The European Cyclists’ Federation believes that, instead of making it compulsory for cyclists to wear helmets, the authorities should concentrate on preventing accidents.

Boston’s 2009 request for proposal (RFP) for bike-sharing requires that the vendor “make a helmet available to each person renting a bicycle so as to be in compliance with the Massachusetts Bicyclist Safety Bill.”⁷⁸ However, the Boston RFP also notes that the legislation “does not define what ‘shall make available’ means. Potential vendors are encouraged to consult their counsel to develop a system for helmet purchase that complies with the law... ”⁷⁹

There are significant differences between the Massachusetts law and the King County law—namely that King County requires that all cyclists wear a helmet whereas Massachusetts requires that all bike-rental businesses make helmets available to their customers.⁸⁰ Nevertheless, observing the proposal of Public Bike System Company (Boston’s selected vendor of bike-sharing) to satisfy the mandates in the RFP and conform to the Massachusetts helmet requirement might give the City of Seattle some insight into how to approach this challenge.

76 City of Lakes Nordic Ski Foundation, Non-Profit Business Plan for Twin Cities Bike Share System, (Minneapolis: City of Minneapolis Community Planning and Economic Development Department, 2008).

77 Ibid.

78 The bill is Ma. Stat. 2008, c. 525, s.7.” Metropolitan Area Planning Council, Request for Proposals, (Boston: Metropolitan Area Planning Council, 2009).

79 Metropolitan Area Planning Council, Request for Proposals, (Boston: Metropolitan Area Planning Council, 2009).

80 Washington State does not appear to have a similar law requiring private bicycle rental companies to provide helmets for their customers.

Europe

Europe has a different take on helmets altogether. The European Cyclists' Federation believes that, instead of making it compulsory for cyclists to wear helmets, the authorities should concentrate on preventing accidents.⁸¹ The Federation believes that promoting the wearing of helmets by cyclists is not an effective way to improve safety for cyclists and that road safety for cyclists can only be improved by calming traffic and removing the danger at its source. Some European leaders believe that requiring cyclists to wear helmets actually discourages cycling as a major form of transportation because helmet laws make riding inconvenient and communicates to the public that it is somehow unsafe.⁸² The clear policy direction under this framework would be to overturn the King County helmet law, although such a major change is viewed as highly unlikely.

Conclusion and Recommendations

The above best practices may not lead to any immediate solutions for approaching the challenge of required helmet use in King County. However, if enforcement of helmet laws were loose or contingent on the commission of a separate offense (as is the case with the state's seatbelt law, in which a driver can only be cited if pulled over for another violation), it might be possible for bike-share-related helmet use to be handled the same way it is handled for regular cycling—that is, riders choose whether or not to comply with the law.

Until the bike-share industry develops a way to overcome this challenge, we recommend that the City of Seattle do the following:

- ❖ Consult with a team of legal experts on liability issues surrounding bike-sharing and helmet use
- ❖ Subsidize helmets for online subscribers by providing them with a voucher for a free or low-cost helmet from a local business⁸³
- ❖ Consider contracting a low-cost local helmet manufacturer to mass-produce and saturate the city with helmets for public use that can be obtained from businesses near bike-share stations
- ❖ Consider the implications of the selected helmet policy on the use of bike-sharing by tourists and non-residents of Seattle. In heavily touristed areas, we

Some European leaders believe that requiring cyclists to wear helmets actually discourages cycling as a major form of transportation because helmet laws make riding inconvenient and communicates to the public that it is somehow unsafe.

81 Quay Communications, Inc., TransLink Public Bike System Feasibility Study, (Vancouver: TransLink, 2008).

82 Ibid.

83 ProRider, a local helmet manufacturer quoted the cost of a single helmet at \$3.95, purchased in bulk by an organization. Quote accessed at <http://www.prorider.com>, as of March 11, 2010.

recommend exploring ways to easily provide helmets to one-time bike-share users, perhaps through the installation of helmet vending stations

Sign Code Restrictions

The sign code presents several issues that would need to be addressed if Seattle developed a bike-share program. Bike-share systems rely on signs to advertise their presence, to explain how to use the system, and, in some cases, to fund the system by advertising other products. The Seattle permitting process presents several regulatory and procedural challenges to creating a bike-share program, particularly given the lack of precedence for bike-sharing. The general categories of issues that need to be addressed are as follows:

- **Jurisdiction:** Depending on sign locations, approval must be given by the Department of Planning and Development (DPD), the Seattle Department of Transportation (SDOT), the Department of Neighborhoods (DON), the Seattle Department of Parks and Recreation, and/or several Preservation Boards.
- **Classification of signage type:** Signage rules vary depending on whether the content of the sign is informational, advertises other products, advertises the bike-share system itself, or is a sponsorship. If legal review of the code shows that advertising for other products is impossible or extremely limited, the potential of an advertising-based business model will be limited.
- **Nature of bike-share station:** Rules differ for public infrastructure facilities, business establishments, and off-premises advertisements.
- **Zone and network-specific regulations:** Sign regulations vary by land-use zone and, in some cases, by street corridor. A bike-share network spanning several zones could have to meet several different sets of requirements, depending on the intensity and interpretation of signage elements.
- **Administrative process issues:** The sign code calls for a separate permit application for most signs, which would make implementation lengthier. However, there is a rule allowing for special exceptions from the Director of Planning in certain zones under specified circumstances.
- **Sign design:** The sign code mandates materials of a certain quality, clearances, and illumination.

These are discussed in detail below.

Overview

The municipal code description of the intent of sign code standards reads as follows:

- A. To encourage the design of signs that attract and invite rather than demand the public's attention, and to curb the proliferation of signs;
- B. To encourage the use of signs that enhance the visual environment of the city;

- C. To promote the enhancement of business and residential properties and neighborhoods by fostering the erection of signs complementary to the buildings and uses to which they relate and which are harmonious with their surroundings;
- D. To protect the public interest and safety;
- E. To protect the right of business to identify its premises and advertise its products through the use of signs without undue hindrance or obstruction; and
- F. To provide opportunities for communicating information of community interest.

Note that the aim of the sign code is explicitly to “curb the proliferation of signs.” It is expressly designed to make it difficult to add signage. Thus, bike-share developers should anticipate some degree of challenges when dealing with this code.

This is not to say that the code is entirely set against a bike-share system. It could be argued that signage advertising a bike-share service could be designed to enhance the visual environment of the city (element B), promote the enhancement of a bike-share “business” (element C), protect the public interest by supporting transportation choice (element D), protect the right of a bike-share business to identify its premises (element E), and that advertising the existence of bike-sharing would communicate information of community interest (element F). On the other hand, advertising on bike-share stations that promoted the use of unrelated products could run contrary to the intent of elements C through F.

Jurisdiction

Authority for sign approval varies depending on whether the sign is in the public right-of-way and whether the sign is in a historic review district.

- For signs not in the Public Right-of-Way: DPD issues sign permits
- For signs that extend into the Public Right-of-Way: SDOT must issue a Street Use Permit before DPD may issue the sign permit. These signs are governed by the Street Use Ordinance, Title 15 of the Seattle Municipal Code (see Station Design & Permit Review discussion)
- For signs in historic or special review districts, or on the same lot as a Landmark structure: the preservation board with jurisdiction over the property must first make a recommendation to DON, which must then issue a written approval of the proposal before DPD may issue the sign permit
- For sign kiosks located adjacent to a park, playground, or publicly owned community center: Seattle Department of Parks and Recreation must also review the sign design. Requirements for this type of sign are listed in

Appendix D

Two Types of Signs

The business model on which a bike-share system was based would determine which elements of the sign code were applicable. Bike-share systems that relied on advertising of other products would have more stringent requirements to meet than bike-share systems that only needed to advertise itself on its stations. A system that relied on sponsorships might also have fewer regulatory hurdles to clear. For example, Seattle Streetcar stations display the name of a corporate sponsor (but not product advertising) and therefore did not need to go through an additional permitting process.

On-bicycle advertising might present less of an issue, as the sign code does not address vehicle-based advertising. This has allowed Metro to advertise inside and outside its buses. However, unlike buses, bike-share bicycles might spend substantial time parked on public right-of-way. SDOT would therefore want to verify that docked bicycles would not be viewed as an advertising sign. See Figure 4 for examples.

Nature of the Bike-Share Station

The sign code includes different rules for public infrastructure, business establishments, and off-premises advertisements. However, it is not clear which of these categories a bike-share system would fall under. It could potentially be construed as a vending machine, which is not addressed under the sign code.

The rules for off-premises advertisements are the most restrictive. Business establishment rules are intended to allow business owners to display the names of their establishments on the outsides of their buildings. Public infrastructure rules are the least defined in the code.

Off-Premises Signs

SDOT should determine whether signs on bike-share stations that were used to advertise other products would fall under the category of “Off-premises signs.” If so, the sign code has a number of restrictions. These are detailed in Appendix D.

Zone and Network-Specific Regulations

Sign restrictions vary by zone, making it potentially challenging to design a sign that would be appropriate in every zone. Each zone has restrictions on the number, size, and illumination standards for signs. Restrictions in single family zones are the most restrictive, while most commercial zones are least restrictive. However, the Pioneer Square Preservation District and the International Special Review District present particularly stringent design requirements and review processes. Pike Market Historic District, Shoreline areas, and certain transportation corridors also have additional requirements, although these appear easier to satisfy.

The Application Process

The codes call for the applicant to obtain the zoning and zone-specific sign regulations from DPD Sign Inspections for each sign. This is because sign regulations vary by zone. Depending on the location and extent of the implementation area and the number of stations, this

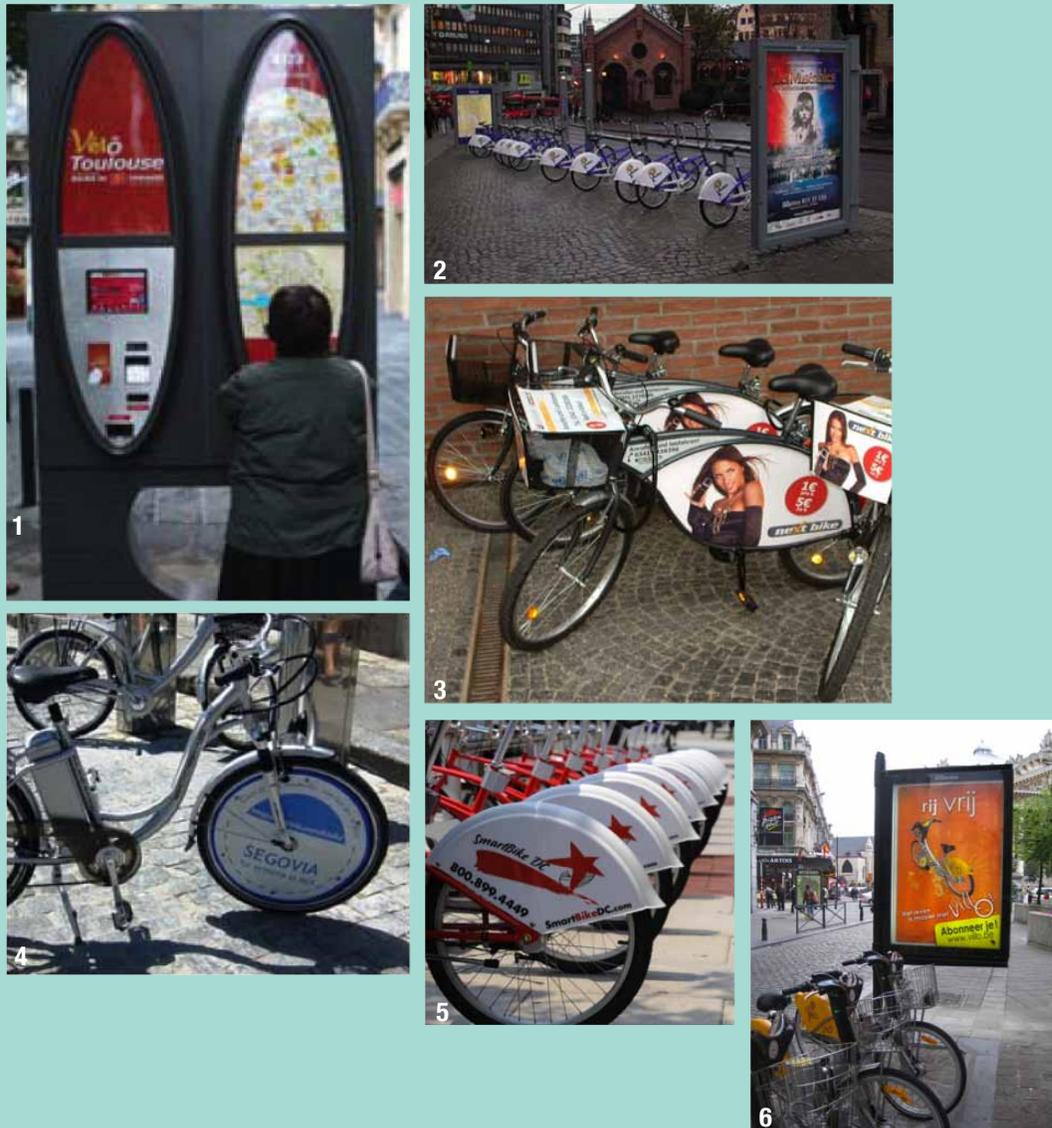


Figure 4: Photos of On-Station and On-Bicycle Advertising Opportunities

1 NYC Department of City Planning, “Bike-Share Opportunities In New York City,” Spring 2009, http://www.nyc.gov/html/dcp/pdf/transportation/bike_share_complete.pdf, p.45.

2 NYC Department of City Planning, “Bike-Share Opportunities In New York City,” Spring 2009, http://www.nyc.gov/html/dcp/pdf/transportation/bike_share_complete.pdf, p.88.

3 MetroBike, LLC, “Nextbike,” The Bike-sharing Blog, July 3, 2007, <http://bike-sharing.blogspot.com/2007/07/nextbike.html>.

4 MetroBike, LLC, “Onroll Rolls Across Spain,” The Bike-sharing Blog, December 21, 2009, <http://bike-sharing.blogspot.com/2009/12/onroll-rolls-across-spain.html>.

5 MetroBike, LLC, “Washington, D.C. Launches North America’s First Bike-sharing,” The Bike-sharing Blog, August 13, 2008, <http://bike-sharing.blogspot.com/2008/08/washington-dc-launches-north-americas.html>.

6 Max Hepp-Buchanan, 2009

could involve many separate applications under several different regulations. For example, the bike-share system in Paris covers 35 square miles and consists of 1,451 stations. If separate permits for each station were required of a system of this size, the permitting process could be onerous.

Each application would have to include the precise location of the sign, as well as a description and drawing of the sign. The requirement to accompany the application with adequate plans and specifications would likely be waived for bike-share stations, as the building official can waive this requirement when the structural aspect is of minor importance.

Finally, each application has a corresponding permit fee. SDOT might want to investigate whether it would be possible to waive these fees for a bike-share system.

While this process would not be insurmountable, it would add time and coordination to the process, especially because there should be stations every 300 meters. If separate permits had to be obtained for each station, this could cause delay.

Special Exceptions for Signs in Commercial and Downtown Zones (Seattle Municipal Code (SMC) 23.55.040)

Perhaps the most important element of the sign code is its allowance for special exceptions granted by the Director of Planning. Regulations for size, number, type, height and depth of projection of on-premises signs in neighborhood commercial, commercial, downtown office core, downtown retail core, downtown mixed commercial and downtown harborfront zones may all be waived pursuant to Chapter 23.76, Procedures for Master Use Permit and Council Land Use Decisions. Note that no special exception may be authorized for video display methods. These exceptions can take place if the proposed sign plan shows an exceptional effort toward creating visual harmony among signs, desirable streetscape features, building facades and other architectural elements of the building structure through the use of a consistent design theme.

Sign Design

The code includes restrictions on sightlines, illumination and movement, clearance, and construction standards. Sightlines and illumination are discussed below; clearance and construction standards are discussed in the appendix.

Sightlines

Signs that are 10 feet or less in height and obscure the vision of motorists must be located at least 20 feet from intersections.⁸⁴ This could affect the potential for placing bike-share stations in curbside areas that are located next to intersections and currently prohibit parking.

Illumination and Movement

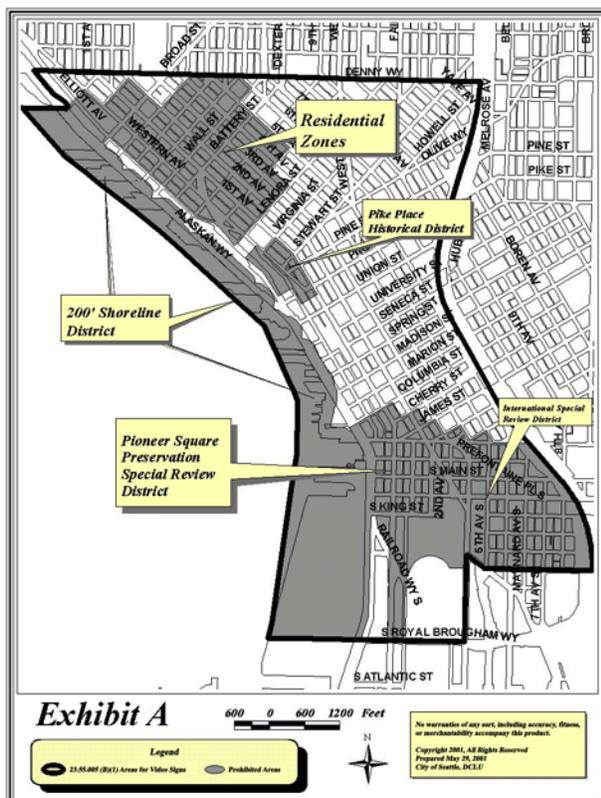
Certain types of signs are explicitly outlawed by the land use code. For example, flashing signs, quickly rotating signs, and banners are allowed in few if any zones. There are substantial restrictions on signs that use a video display method; video signs are not allowed

84 SMC 23.55.008

off-premises or in residential, Neighborhood Commercial 1, Neighborhood Commercial 2, Special Review District, Historical District, Preservation District, or shoreline zones. Video signs within 50 feet of a residential zone must be oriented so that no part of the sign face is visible from structures in that zone. The code favors video signs smaller than 3 ft by 3 ft. Additionally, the code governs the duration and timing of the video messages and forbids accompanying audio.

Note that several of the areas with special sign restrictions are included in the area we are recommending for Phase 1 implementation, as shown in Figure 5.

Figure 5: Special Sign Restrictions in Center City Seattle



Seattle Bicycle Master Plan (BMP)

Primary Goals of the BMP

The Seattle Bicycle Master Plan (BMP) has two primary goals, both of which would be furthered through implementation of a bike-share program in Seattle. These goals are as follows:

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

Though we cannot at this time accurately predict how many cycling trips a bike-share program would add in the next seven years, the general purpose of bike-

Increasing the use of bicycling in Seattle through implementation of a bike-share program (Goal 1) also helps to accomplish the second goal of the BMP by adding more cyclists to the street and creating “safety in numbers.”

sharing is to increase mobility in urban areas. Implementation of a bike-share program would add a significant number of trips made by bicycle to the current levels of bicycle mode-share in the city. For example, in only one year of operation, the Velo’v program in Lyon essentially tripled the mode share of bicycles.⁸⁵

Goal 2: Improve safety of bicyclists throughout Seattle. Reduce the rate of bicycle crashes by one third between 2007 and 2017.

Bicyclists feel safer when other cyclists are on the road. Increasing the use of bicycling in Seattle through implementation of a bike-share program (Goal 1) would also help to accomplish the second goal of the BMP by adding more cyclists to the streets, creating “safety in numbers.”

Principal Objectives of the BMP

The city has identified four principal objectives for achieving the goals of the BMP. Of the four objectives, two are directly relevant to implementation of a bike-share program and are discussed in detail below.

Objective 2: Provide supporting facilities to make bicycle transportation more convenient.

The BMP states, “In order for bicycling to be a fully viable form of transportation in Seattle, other programs and facilities are needed to complement the Bicycle Facility Network.” Although the BMP does not specifically mention implementation of a bike-share program as an “action item” in the chapter for Objective 2, bike-sharing does relate to the following items recommended in the plan:

- Improve bicycle storage facilities at transit stations. Bike-share stations installed at transit stations throughout the city could help serve this purpose by allowing users to leave a public bicycle at a transit station and pick up a new one at their destination station
- Continue to fund and promote the use of staffed bicycle facilities. This action refers to the Seattle BIKE PORT® transportation center (formerly known as BikeStation Seattle®) in Pioneer Square, but it could also be applied to bike-share stations, as they would also make it easier for “bicyclists to make trips by linking bicycling and transit.”
- Improve bicycle access to transit stops, stations, and ferries. Installation of large bike-share stations at these locations would help “improve the ability of bicyclists to connect to transit throughout the city.”

85 Keroum Slimani, interview by Max Hepp-Buchanan, , Lyon and Velo’v, (September 3, 2009).

- Increase the availability of bicycle parking throughout the city. Current industry standards locate bike-share stations every 300 meters throughout the implementation area. A bike-share network with this density would add public use bicycle parking “located in close proximity to building entrances and transit entry points,” which would be “essential in order to accommodate bicycling.” While bike-share stations do not accommodate the parking of private bicycles, they are technically places to park (public) bicycles and serve the market of those cyclists who may not own a private bicycle

Objective 3: Provide bicycle education, enforcement, and encouragement programs through partnerships.

The BMP states, “The education, enforcement, and encouragement programs recommended in this chapter are intended to help grow the number of bicyclists while also increasing safe and appropriate behavior by bicyclists and all other roadway users.” Again, bike-share implementation is not mentioned as an action item in this chapter, but it does relate to the following actions recommended in the plan:

- Educate Seattle transportation system users about new bicycle facility types. Bike-sharing in Seattle would be a new facility type. Most existing bike-share programs made extensive public outreach and education efforts by stationing staff at bike-share stations throughout the city at program inception. Staff could educate new subscribers about use of the program and about improvements to the bicycle infrastructure.
- Promote bicycle and pedestrian education and encouragement in Seattle through partnerships with community organizations. A relatively new practice in the bike-share industry is to contract local businesses for bicycle maintenance and upkeep of the program. Similar efforts could be made with organizations in Seattle—such as the Cascade Bicycle Club—to help educate the public on how bike-sharing works and how to safely use the program.
- Increase enforcement of bicyclist and motorist behavior to reduce bicycle and motor vehicle crashes. An increase of bicyclists on the road, brought about through implementation of a bike-share program, would require increased enforcement of traffic laws for both cyclists and motorists on the part of Seattle Police Department.

Implementation of a bike-share program in Seattle would have a significant impact on the success of the BMP. Bike-sharing directly relates to both of the BMP’s primary goals, two of its primary objectives, and several of its action items.

Note that the bicycle infrastructure indicator used in our demand analysis was heavily weighted with regard to on-street bicycle facilities. Therefore, any acceler-

ated or aggressive implementation by the city of the infrastructure and network projects recommended by the BMP—especially within the proposed Phase 1 implementation area—would facilitate the success of a bike-share program in Seattle.

Station Design Policies

Bike-share station design would be affected by a variety of Seattle regulations. The Right-of-Way Improvements Manual governs construction and design in the right-of-way. Requirements for standard clearances and widths should not prevent bike-share station implementation. However, some special consideration might be warranted for stations. Given the low-profile and open nature of bike-share stations, they might impede movement less than their footprint would suggest. However, most right-of-way regulations consider footprint size.



Figure 6: Bixi, Montréal Bike-Share Station Footprint Impact: With Bikes and When Empty.

Photos: Max Hepp-Buchanan, 2009

Special review districts exist in many neighborhoods, which would add a layer of design review for bike-share stations. The city should attempt to coordinate district review. If placement of bike-share stations was proposed in one or several districts, the city should work to ensure that the same station design could be acceptable in all districts.

Special District Review

Generally, the preservation board for special districts must review changes to the right-of-way, and the Director of the DON must approve proposals. Signs must be compatible with the district design. In the Pioneer Square District, electric signs and freestanding signs are not allowed (SMC 23.66.160). Verification would be needed if freestanding bike-share payment kiosks were allowed, though this would likely be the case given their similarity to parking pay stations.

Bike-share stations that required changes to the right-of-way would require review and approval in these districts: Pioneer Square (SMC 23.66.190), International District (SMC

23.66.334), Ballard Avenue (SMC 25.16.070), Columbia City (SMC 25.20.070), Fort Lawton (SMC 25.21.060), Harvard-Belmont (SMC 25.22.090), and Pike Place Market (SMC 25.24.060). The approval by the DON Director is required before approval of a Master Use Permit (SMC 23.76.010).

Right-of-Way Improvements Manual Requirements

The Right-of-Way Improvements Manual guides installation and construction in the public right-of-way. Bike-share providers would have to comply with requirements of the manual. Some sections provide specific design guidance that might also be useful.

Bicycle parking requirements would likely apply to bike station racks. Section 4.13.2 of the manual specifies design for on-street bicycle racks. Racks must have a minimum height of 2.5 feet, be intuitive to use, and have adequate clearance.⁸⁶ These requirements are reasonable and make sense to apply to bike stations.

Bike-share providers should also be asked to consider pedestrian mobility around bike stations, both when bicycles are docked or when docks are empty. Some stations, such as those in Washington, D.C., use a long bar that impedes movement. Other stations have single bars for each bike, so pedestrians can move between bike spaces when the station is empty. The city should ask for a similar design to aid in movement near stations.

Section 4.20 explains appropriate clearances between street elements (see tables 9 and 10). These requirements would need to be considered when potential locations were identified. These requirements would eliminate some potential locations or reduce possible station size. If stations were interpreted to be similar to parking meter posts, there will be fewer limits on possible locations. The exceptions for these posts allow for closer placement to the curb face, to the sidewalk edge, and several other elements. If the stations did need to retain the 3-ft clearance from the curb face, as well as the required sidewalk widths, potential location areas would be limited.

⁸⁶ City of Seattle, “4.13 Bicycle Facilities,” Seattle Right of Way Improvements Manual, 2010, http://www.seattle.gov/transportation/rowmanual/manual/4_13.asp (accessed January 30, 2010).

Table 9: Standard Lateral Clearances from Right-of-Way Manual⁸⁷

Standard Lateral Clearances		
From	To	Standard Clearance
Curb face	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	3 feet
Edge of sidewalk	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	1 feet
Textured surface of wheel chair ramp	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	1 feet
Edge of sidewalk	Stair riser	2 feet
Pole face, fire hydrant	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	5 feet
Stop sign	Nearest parking space	30 feet
Obstruction in sidewalk	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	6 feet
Multi-use trail, edge of pavement	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	2 feet (3 feet preferred)

Table 10: Standard Lateral Clearances from Bicycle Parking, from Right-of-Way Manual⁸⁸

Standard Clearances from Bicycle Parking		
From	To	Standard Clearance
Bicycle parking	Curb when adjacent to parking	3 feet
	Curb when adjacent to vehicle travel lane	2 feet
	Street trees and street furniture for the rail-type rack	1 foot

Section 4.25, governing street furniture, public art and unique objects in the public right-of-way, is particularly significant to the installation of bike-share stations. Bike-share stations would likely qualify as “unique objects,” similar to public kiosks, bus shelters and wayfind-

⁸⁷ City of Seattle, “Clearances,” Right-of-Way Improvements Manual, January 2010, http://www.seattle.gov/transportation/rowmanual/manual/4_20.asp (accessed February 22, 2010).

⁸⁸ Ibid.

ing signage.⁸⁹ Design considerations include the following:⁹⁰

- The leading edge of the object should be less than 27 inches above the sidewalk, for accessibility considerations for pedestrians with vision impairment
- SDOT coordinates approval for unique objects for the applicant by working with the Design Commission, Arts Commission, Seattle Parks Department Historical Preservation section, Office of Arts and Cultural Affairs, and other appropriate review authorities
- An annual street use permit is required
- The pavement should be durable, slip resistant, and free of trip hazards
- The City of Seattle will require a maintenance agreement and may also require insurance

The Landscape/Furniture Zone denotes a specific area of the sidewalk, which is where bike-share facilities might be located. However, flexibility in placement for some elements of stations is suggested. Similar to parking pay station placement, bike station payment kiosks should not be an issue when placed closer to the curb face. The zone is a minimum of 4 ft wide, with 3 of those feet creating a buffer from the face of the street curb. Street furniture, art, and landscaping should be placed here, and bike-sharing would also be a logical use. This is also the zone designated as a Transit Zone for bus shelters, benches, customer waiting, and other transit functions.⁹¹ Next to the landscape/furniture zone is the pedestrian zone.

The Pedestrian Zone is the portion of the sidewalk reserved for pedestrian travel and is a minimum of 6 ft. wide. Bike-share facilities could not extend into this zone.⁹² Any flexibility would need to be balanced against the need to retain 6 ft of the sidewalk for pedestrian uses.

Figure 7 illustrates the landscape/furniture zone and the potential for a bike-share station in that location, given sufficient sidewalk width. The landscape/furniture zone could also function as an extension of a bike-share station located in parking spaces along the curb.

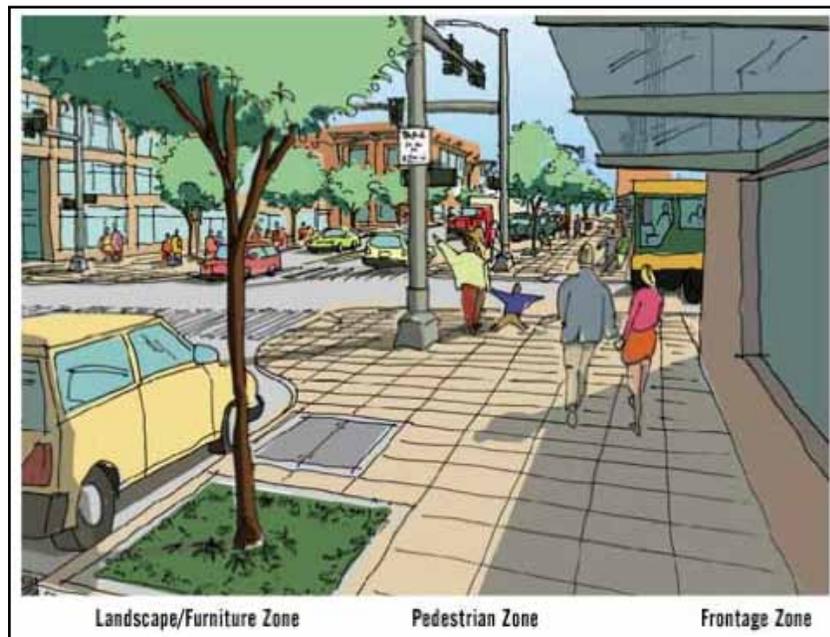
89 City of Seattle, "4.25 Street Furniture, Public Art and Unique Objects in the Public Right-of-Way," Right-of-Way Improvements Manual, January 2010, http://www.seattle.gov/transportation/rowmanual/manual/4_25.asp (accessed January 30, 2010).

90 Ibid.

91 City of Seattle, "4.11 Sidewalks," Right-of-Way Improvements Manual, January 2010, http://www.seattle.gov/transportation/rowmanual/manual/4_11.asp (accessed January 30, 2010).

92 Ibid.

Figure 7: Landscape Furniture Zone, from Seattle Right-of-Way Improvements Manual⁹³



Bike-share stations fit the definition of uses in the Landscape/Furniture Zone. This zone also provides a 4-ft-wide area for station elements extending from the curbspace into the landscape/furniture zone. The city should consider interpreting some elements of a bike-share station, such as the pay station kiosk, as similar to parking pay stations to allow for additional potential locations.

Curbspace Management Policy

The SDOT curbspace priorities do not explicitly address bike-share use.

In residential areas the priorities for curbspace use are as follows:

1. transit use (bus stops and spaces for bus layover)
2. passenger and commercial vehicle loading zones
3. parking for local residents and for shared vehicles
4. vehicular capacity

In business or commercial areas, including blocks with mixed-use buildings containing residential units, the priorities for curbspace use are as follows:

1. transit use (bus stops and spaces for bus layover)
2. passenger and commercial vehicle loading zones

⁹³ City of Seattle. (2010). 4.13 Bicycle Facilities. Retrieved January 30, 2010, from Seattle Right-of-Way Improvements Manual: http://www.seattle.gov/transportation/rowmanual/manual/4_13.asp

3. short-term customer parking (time limit signs and paid parking typically for 1-or 2-hours)
4. parking for shared vehicles, and vehicular capacity⁹⁴

If bike-sharing were considered “transit use,” then it could be listed as the number one priority for curbspace. To the extent that it was considered a “shared vehicle,” it could be construed to fall under the third priority for residential areas and the fourth priority for business or commercial areas. If bike-share stations were considered “short-term customer parking,” then they would fall under the third highest priority for business and commercial areas.

These rankings are derived from SDOT’s Transportation Strategic Plan elements, including the following:

- Make the best use of the streets we have to move people, goods, and services
- Increase transportation choices
- Make transit a real choice
- Encourage walking and biking—they’re the easy, healthy way to get around
- Price and manage parking wisely
- Promote the economy by moving freight and goods
- Improve our environment
- Connect to the region
- Protect our infrastructure
- Make the most of transportation investments⁹⁵

Specifically, the Strategic Plan’s parking principle is to “Price and manage parking to support healthy business districts and transit use. Manage curbspace to recognize the importance of principal arterials in moving people, goods and services.” This does not seem to exclude using curbspace as bike-share parking. As the Strategic Plan is updated, it can be rewritten to specifically reference bicycle parking and bike-sharing.

Existing priorities in the Bicycle Master Plan have already established precedence for removing spaces. Parking spaces were converted to bicycle racks in three locations in 2009, and additional on-street bicycle parking facilities are actively being

94 Seattle Department of Transportation, “Curb Use Priorities in Seattle”, City of Seattle. Accessed at: <http://www.cityofseattle.net/transportation/parking/parkingcurb.htm>

95 Seattle Department of Transportation, City Of Seattle Transportation Strategic Plan, 2005 Update, <http://www.cityofseattle.net/transportation/tsphome.htm>

Regardless of the department's stated priorities and existing precedent, it is likely that some people would object to any removal of automobile parking spaces. This is particularly likely in the downtown area, given the upcoming Alaskan Way Viaduct closure.

planned.⁹⁶

Regardless of the department's stated priorities and existing precedent, it is likely that some people would object to any removal of automobile parking spaces. This is particularly likely in the downtown area, given the upcoming Alaskan Way Viaduct closure. While Seattle currently has around 5,000 on-street paid parking spaces between Denny Way and the stadiums, and an additional 95,000 off-street parking spaces, up to 1,200 public parking spaces will likely be removed or restricted as a result of construction.⁹⁷ Objections from the public might be mitigated to some extent by SDOT parking programs such as the new e-Park electronic parking guidance system.

Seattle Pedestrian Master Plan

Overview

The Seattle Pedestrian Master Plan contains elements that offer both opportunities and challenges to the development of a bike-share program. Pedestrian plan elements that seek to improve non-automotive infrastructure, promote diverse land uses, or reduce conflict between automobiles and non-automotive travel should all help to promote bicycle ridership. Improvements to the sidewalk realm are particularly

likely to support bike-share users, as anecdotal evidence from Philadelphia suggests that bike-share users are more likely to ride on the sidewalk than other bicyclists. However, other elements of the Pedestrian Master Plan promote pedestrian uses of the right-of-way over cyclist use. These elements would need to be addressed for successful bike-share implementation. This section discusses Pedestrian Master Plan elements that support or hinder bike-share promotion, as well as other relevant elements of the Pedestrian Master Plan, including performance measurements and “toolkit” findings.

Supportive Policies

Improve Infrastructure

Elements of the Pedestrian Master Plan that plan, fund, or implement improvements to the sidewalk and streetscape should promote the use of a bike-share program. For example:

- Strategy 1.1: Fund new improvements and maintenance programs to promote walking—calls for changes that would generate more sidewalk repair and other streetscape funding from developers and business improvement associations.
- Strategy 2.1: Create and maintain a walkable zone on all streets to enable a clear

⁹⁶ Seattle Department of Transportation, “On-Street Bike Parking,” City of Seattle, <http://www.seattle.gov/transportation/bikeparking.htm> (accessed March 11, 2010).

⁹⁷ Center City Parking Program: FINAL Technical Report, Nelson\Nygaard Consulting Associates, June 2008.

pedestrian path of travel—calls for installation of non-slip surfaces, expanded sidewalk maintenance requirements through the site analysis process, and greater consideration of pedestrian facilities in site plan review.

- Strategy 2.3: Create an expanded set of design standards for pedestrian paths and sidewalks—would simplify the right-of-way improvement permit process and fee structure for sidewalk repairs, while simplifying access to qualified contractors.

Similarly, the Pedestrian Plan calls for prioritizing infrastructure improvements in an equitable manner across transportation modes:

- Strategy 4.1: Allocate and design Seattle’s rights-of-way to support Complete Streets principles—would revise plans and specifications for curb bulbs, bicycle lanes and signage locations; establish new guidelines for allocating right-of-way by using trails and bikeway designations; and examine locations to determine whether sidewalk widening was possible.

The pedestrian toolkit portion of the plan also discusses the need for curb ramps, which are primarily designed to meet ADA requirements but which also serve the needs of many users, including cyclists.⁹⁸

Improve Land Use

One of the most promising opportunities presented by the Pedestrian Master Plan is its proposal to create bicycle parking in the curbspace near crosswalks. This space is currently kept vacant to maintain pedestrian sightlines. Here, station design would be a critical factor in implementing this strategy; tall and wide pay stations that blocked driver-pedestrian sightlines would defeat the intent of the strategy (see Figure 8).

- Strategy 3.1: Maintain pedestrian visibility at intersections—suggests that SDOT update existing codes, as needed, to allow bicycle and scooter parking within this 20-ft zone in certain situations.

Several elements of the Pedestrian Master Plan call for making land-use decisions with an eye toward improving the urban environment in ways that benefit both pedestrians and cyclists. The following strategies all work toward improving the mix of destinations, the human scale and vitality of street-level design, and the connectivity of spaces:

- Strategy 2.2.a: Prioritize walking connections to major pedestrian destinations—calls on SDOT to consider identifying high priority pedestrian areas by using criteria such as bicycle access, to develop wider

⁹⁸ City of Seattle, “Curb Ramps,” Pedestrian Master Plan, http://www.seattle.gov/transportation/pedestrian_masterplan/pedestrian_toolbox/tools_deua_ramps.htm (accessed March 10, 2010).



Figure 8: Bike-Share Stations Showing Different Levels of Sightline Impact
 Photos: Max Hepp-Buchanan, 2009

sidewalks in these areas, and to define the core corridors and hubs that make up the city center walking, bicycling, and transit network.

- Strategy 5.1: Create an appropriate mix of uses and destinations within neighborhoods—calls for using land-use and zoning tools to encourage pedestrian friendly land-use mixes; improving the design review process; and using parking maximums to encourage people to use non-automotive travel means.
- Strategy 5.2: Reclaim and activate public spaces—calls for designing and permitting active, accessible, and connected public spaces, and redeveloping existing unused street space for pedestrian and bicyclist uses such as on-street bicycle parking.

Improve Safety

Bicyclists and pedestrians both benefit from vehicle speed reductions. In addition to the increased level of rider comfort, vehicle speed has been shown to be the primary factor in the risk of injuries to cyclists from bicycle-vehicle collisions.⁹⁹ Therefore, the plan's suggestion to slow motorists should encourage use of a bike-share system. Specific implementation measures are listed below:

- Strategy 3.3: Manage vehicle speeds to support and encourage walking—would use enforcement, engineering, and lower posted limits to decrease vehicle speeds, particularly in high pedestrian priority zones.

Promote Non-automotive Travel

The Pedestrian Plan proposes several measures to encourage people to drive less and use other transportation modes more. Although the experience of other bike-share systems suggests that most bike-share users are primarily transit users, drive-less programs may still entice some drivers to try bike-sharing. Proposed efforts are listed below:

⁹⁹ Ciaran Simms and Denis Wood, *The Relationship between Vehicle Impact Speed and Pedestrian and Cyclist Projection Distance*, 2009, Dordrecht: Springer.

- Strategy 6.1: Promote the benefits of walking as part of citywide sustainability and equity initiatives and through new and expanded programs—calls for expanding auto reduction programs, increasing participants in city commute trip reduction programs, and exploring a “ride free” transit day.
- Strategy 6.2: Foster communication to support pedestrian travel—would develop a “Travel Right” guide to disseminate right-of-way information; distribute sidewalk maintenance guides to property owners; and expand pedestrian wayfinding efforts through signage, maps, and Web-based tools, focusing on transit stops. Note, this would provide an opportunity to put bike-share station locations on transit stop way-finding maps.¹⁰⁰

Directly Relevant Policies

Maintaining a Walkable Zone

While many elements of Strategy 2.1, Create and maintain a walkable zone on all streets to enable a clear pedestrian path of travel, could boost bike-share ridership through the construction of better right-of-way infrastructure, the proposal to “define a minimum 6’ wide x 8’ high walkable zone on all streets citywide” could hinder a bike-share program.¹⁰¹ Many bike-share systems use sidewalk-based bike-share stations. While this might not prove a problem for areas with extra-wide sidewalks, bulbouts, or off-street locations, it could limit the number of feasible station locations. Even in locations where the sidewalk was wide enough to maintain a 6-ft-wide buffer around a station, an implementing agency would need to evaluate station placement on a case-by-case basis, as areas with the greatest sidewalk square footage might also see the greatest pedestrian volume. Additionally, the walkable zone could be encroached upon as bike-share users removed their bicycles from the station racks.

The alternative to sidewalk placement—the reconfiguration of street parking to hold bike-share stations—would also present challenges. In existing systems such as in Montréal, users need to step into the street to retrieve their bicycles from the on-street stations. This would present a potential hazard to bike-share users unless the bike-share provider was instructed to design stations that allowed access from the sidewalk.

Other elements of Strategy 2.1 could also affect bike-sharing. Revising “utility infrastructure...and street furniture placement guidelines so that they do not impact the walkable zone” could limit station placement if the guidelines were not written to consider bike-share stations. Likewise, the proposal to “Identify preferred placement of signage and signal control equipment along the roadway, eliminating signage from the clear pathway...to preserve the walkable zone” might pose ad-

100 City of Seattle, “Pedestrian Master Plan Implementation Actions,” Pedestrian Master Plan, September 16, 2009, http://www.seattle.gov/transportation/pedestrian_masterplan/docs/ImplementationMatrixrevised91609.pdf (accessed March 10, 2010).

101 Ibid.

ditional issues to advertising-based business plans.¹⁰²

Non-Policy Elements

While not a Pedestrian Master Plan policy per se, the plan does note that sidewalk and path development is limited near parks because they must be sited within adjacent rights-of-way. (Initiative 42 prevents the conversion of any park property for non-park use.) This could impose a similar limit on the location of bike-share stations.

Likewise, the “Pedestrian Toolbox,” while not a policy, seems to advocate increased enforcement to address unsafe behaviors by drivers (running red lights, parking in crosswalks, speeding), pedestrians (“dart-outs,” failing to look before crossing), and bicyclists (riding into traffic without looking, riding against traffic, failing to cede the right-of-way to pedestrians on a sidewalk or in a crosswalk, failing to wear a helmet).¹⁰³ Enforcement of these unsafe behaviors would make the environment safer for all cyclists but might limit the attractiveness of bike-sharing for some users.

Opportunities

Several of the strategies in the Pedestrian Master Plan would not immediately affect the bike-share program but should be addressed to make sure they would result in bike-share friendly outcomes. For example:

- Strategy 2.3.a. “prepare an expanded set of sidewalk standards (for pedestrian paths and walks), an updated standard driveway detail, and a curbless pedestrian path design standard for inclusion in the City’s Standard Plans. Advance these standards through the SDOT review committee and the City review committee... .”
- Strategy 4.1.a “Establish procedures, resources, and responsibility for developing streetscape design concept plans with the goal of appending concept plans to the Right-of-Way Improvements Manual.”
- Strategy 4.1.d: “Allocate and design Seattle’s rights-of-way to support Complete Streets implementation” addresses Complete Streets modal conflicts through coordination with other modal plans and through the creation of a Complete Streets project checklist and Street Corridor Design Concept Plans.¹⁰⁴

All of these strategies provide opportunities to incorporate bike-share standards in the development of right-of-way designs and modal priorities, thus potentially contributing to the success of a bike-share program.

Supportive Performance Measures and Targets

102 City of Seattle, “Pedestrian Master Plan Implementation Actions,” Pedestrian Master Plan, September 16, 2009, http://www.seattle.gov/transportation/pedestrian_masterplan/docs/ImplementationMatrixrevised91609.pdf (accessed March 10, 2010).

103 City of Seattle, “Enforcement Tool,” Pedestrian Master Plan, http://www.seattle.gov/transportation/pedestrian_masterplan/pedestrian_toolbox/tools_enf.htm (accessed March 10, 2010).

104 City of Seattle, “Pedestrian Master Plan Implementation Actions,” Pedestrian Master Plan, September 16, 2009, http://www.seattle.gov/transportation/pedestrian_masterplan/docs/ImplementationMatrixrevised91609.pdf (accessed March 10, 2010).

The Pedestrian Plan is designed with performance measures to ensure successful implementation.¹⁰⁵ Many of these measures could be monitored by bike-share program managers or bike-share providers to determine the environmental conditions affecting bike-sharing. For example, the plan calls for:

- a reduction in 85th percentile vehicle speeds on identified corridors,
- an increase in transit ridership,
- an increase in street use permits that include streetscape elements, and
- a decrease in the percentage of respondents reporting little or no physical activity.

The more that progress is made toward achieving these goals, the better the conditions should be for bike-share use.

Current Condition Issues

While not policy-related, the Pedestrian Master Plan identifies several pedestrian issues with current street conditions that are also relevant to bike-share users. Bike-share providers and planners should be aware of these conditions and, when possible, work to correct them. These are listed in Appendix D.

Race, Social Justice and Bicycling

“The Race and Social Justice Initiative (RSJI) envisions a city where racial disparities have been eliminated and racial equity achieved.”¹⁰⁶ In November 2009, the City Council directed that the initiative should continue through 2010. 2010 goals of the agency include beginning to address race-based disparities in economic equity, environmental justice, criminal justice, health, and education.¹⁰⁷

There are differences in cycling rates among race/ethnic groups, though these tendencies are likely the result of other factors, such as income differences, access to comfortable places to ride, and locations of home and work. Many studies show a high propensity to cycle among whites,¹⁰⁸ though results vary among studies.¹⁰⁹

Members of the Latino community are also frequent cyclists, “though trip purpose differs [from Caucasians], with the majority of bicycle trips taken by whites being

105 City of Seattle, “Performance Measures and Targets,” Pedestrian Master Plan, http://www.seattle.gov/transportation/pedestrian_masterplan/pmp_table.htm (accessed March 10, 2010).

106 City of Seattle. (2009). Race and Social Justice Initiative. Retrieved January 31, 2010, from Seattle.gov: <http://www.seattle.gov/rsji/>

107 Ibid.

108 Mudon, A. V., Lee, C., Cheadle, A., Collier, C., Johnson, D., & Schmid, T. (2005). Cycling and Built Environment, A US Perspective. *Transportation Research Part D*, 10 (3), 245-261.

109 Sener, I. N., Eluru, N., & Bhat, C. (2008). *An Analysis of Bicyclists and Bicycling Characteristics: Who, Why, and How Much are they Bicycling?* Austin: Texas Department of Transportation, Department of Civil, Architectural and Environmental Engineering.

for leisure, and the majority taken by Latinos being for work.”¹¹⁰ The National Survey of Pedestrian and Bicyclist Attitudes and Behaviors Report (2002) also shows higher rates of ridership by Latinos in comparison to whites.¹¹¹

William and Larsen found that race was predictive of bicycle use; Latinos did the most cycling, followed by, in order, American Indians, Asians, Whites, and then African Americans.¹¹² They also stated that “since many members of Hispanic and Asian populations have recently immigrated to the United States, they may be influenced by the extensive use of bicycles for transport found in Latin and Asian countries.”¹¹³

In order to provide for more equal opportunities to use bike-share, the city could use a discounted rate or a graduated payment plan for low-income populations.

With increased investment and resources, bicycle use should increase among all groups in Seattle. Affordable pricing will help make bike-sharing a feasible alternative transportation choice for Seattleites. Unlike other forms of urban transportation, most bike-share systems rely on annual membership fees, which require the poor to accumulate enough savings to pay for an annual membership. To provide more equal opportunities for using bike-sharing, the city could implement a discounted rate or a graduated payment plan for low income populations.

Bike-share systems have successfully been installed in central business districts, and our recommendation is to do the same. Demand, generally measured through the density of origins and destinations in the downtown core, is greatest there. However, this serves to mostly facilitate the mid-day mobility needs of central business district workers, not

necessarily those of lower income neighborhoods. The city may consider balancing the clear demand created in a business district with the policy goals of supporting racial and social equity through government initiatives. Comparing the Seattle Pedestrian Plan Median Household Income map¹¹⁴ with our demand analysis, it is clear that outlying neighborhoods with a median income under \$30,000 do not rate highly for bike-share demand. There is, however, a high concentration of social services in the city center; bike-share use by people with low-incomes would aid mobility and access to these services. The city might try particular outreach to these organizations to help them encourage their users to consider bike-sharing.

110 Pucher, J., & Renne, J. L. (2003). Socioeconomics of Urban Travel: Evidence from the 2001 NHTS. *Transportation Quarterly*, 57 (3), 49-77.

111 National Highway Traffic Safety Administration. (2002). *National Survey of Pedestrian and Bicyclist Attitudes and Behaviors*. Washington DC: US Department of Transportation’s National Highway Traffic Safety Administration.

112 William, J., & Larsen, J. (1996). Promoting Bicycle Commuting: Understanding the Customer. *Transportation Quarterly*, 50, 67-68.

113 Ibid.

114 City of Seattle. (2010). Median Household Income. Retrieved February 21, 2010, from Pedestrian Master Plan: <http://www.seattle.gov/transportation/docs/pmp/maps/Median%20HH%20Income.pdf>

Providing public bike-sharing might help address the diabetes and health issues identified by the Pedestrian Plan. However bike-share bicycles are heavy and slow and are intended for short trips and transportation purposes, rather than exercise.

The demand analysis implemented in this study did match up with maps of households with lower rates of car ownership.¹¹⁵ Some neighborhoods in South Seattle and near Ballard and Fremont are recommended as secondary implementation areas and do have low car-ownership rates. The city might consider balancing equity goals with demand analysis, pushing for a quicker implementation date in these areas. Another method of ensuring equitable bike-share implementation would be to target outreach and education to culturally and economically diverse parts of the city. Education about the benefits of bike-share, subsidized subscription opportunities that might be made available, and marketing of the system would encourage bike-share usage among these populations.

Sound Transit and King County Metro Policies

We were asked by SDOT to consult with Sound Transit and King County Metro (KCM) regarding any policies that could affect the implementation of a bike-share program in Seattle near transit stations and bus stops.

Sound Transit Policies

The studio team consulted with Rebecca Roush, bicycle coordinator for Sound Transit. She was not aware of any Sound Transit policies that would affect implementation of a bike-share program in Seattle. However, bike-share stations would be prohibited on transit platforms (Link light rail and Sounder), and if SDOT wanted to place bike-share stations on other types of Sound Transit property, further consultation with Sound Transit would be required.

King County Metro Policies

The studio team also consulted with Eileen Kadesh, Senior Transportation Planner with King County Metro Transit, and she was also not aware of any KCM policies that would affect implementation of bike-sharing in Seattle. She did note, however, that “Metro is very careful to keep bus zones as uncluttered as possible. There are many zones in downtown where ‘street furniture’ (trash cans, newspaper vending machines, etc.) are too close to the bus zone, and this can block the

Bike-share provides the opportunity for the City of Seattle and King County Metro to help incentivize employers to provide their staff with bike-share membership subscriptions at a reduced rate, similar to the FlexPass model, now being replaced by ORCA Passport.

¹¹⁵ City of Seattle. (2010). Pedestrian Master Plan. Retrieved February 21, 2010, from Cars per Housing Unit: <http://www.seattle.gov/transportation/docs/pmp/maps/Cars%20per%20Housing%20Unit.pdf>

line-of-sight for bus drivers.”¹¹⁶ She recommended that once specific areas of implementation and station installation had been identified, SDOT should further consult with KCM and the Transit Route Facilities staff.

The Commute Trip Reduction (CTR) program is a tool that requires large companies (those with over 100 employees) to take into consideration their employee commute patterns and create policies that reduce the use of single-occupancy vehicles. Bike-sharing would provide the opportunity for the City of Seattle and King County Metro to help employers provide their staff with bike-share membership subscriptions at a reduced rate, similar to the FlexPass model, now being replaced by ORCA Passport. A program of this sort would guarantee a certain amount of bike-share program revenue each year, help increase bike-share ridership, and add to the overarching goal of decreasing vehicle miles traveled.

Currently, there do not appear to be any Sound Transit or King County Metro policies that would immediately obstruct the implementation of a bike-share program in Seattle. However, we do recommend working with King County Metro to provide bike-share membership to employees of large companies through the CTR program.

Key Findings from City and Regional Policies and Plans

Below we have summarized our key findings from each of the potential policy implications discussed above. A complete discussion of our recommendations and conclusions is provided in the next chapter.

Helmet Law

- The self-service nature of most bike-share programs limits their ability to provide helmets
- Helmet use would be a significant challenge to bike-share use in Seattle, as there is a county-wide helmet law for cyclists of all ages
- A number of best practices are currently being used and investigated by bike-share providers and cities across world. These practices may shed some light on how the City of Seattle might choose to address the issue of helmet use

Sign Code

- An explicit goal of the sign code is to slow the proliferation of signs, which makes it an inherently challenging goal to satisfy
- The impact of the sign code will vary depending on the business model of the bike-share supplier; advertising-based systems will have a much higher regulatory bar to meet
- The sign code could present a significant implementation hurdle; regulations and regulatory agencies vary by zoning code and transportation corridor

116 Eileen Kadesh, interview by Max Hepp-Buchanan, , King County Metro Bike-Share Email, (February 9, 2010).

- The undefined nature of bike-share systems makes it difficult to determine what the impact of the sign code would be; requirements would differ greatly depending on whether bike-share stations were considered street infrastructure, business establishments, off-premises signs, vending machines, or other.

Seattle Bicycle Master Plan

- Implementation of a bike-share program in Seattle would be consistent with the two primary goals of the Bicycle Master Plan (BMP)
- The city has identified four principal objectives for achieving the goals of the BMP. Of the four objectives, two are supportive of bike-share implementation in Seattle
- Any accelerated or aggressive implementation by the city of the infrastructure and network projects recommended by the BMP—especially within the proposed Phase 1 implementation area—would facilitate the success of a bike-share program in Seattle

Station Design

- Bike-share stations would fit the definition of uses in the Landscape/Furniture Zone. This zone also provides a 4-ft-wide area for station elements extending out of curbspace
- Special review districts requirements would add a layer of design review

Curb Space Management Policy

- The curbspace management policy does not specifically reference bike-share use but is generally supportive; precedence exists for converting parking spaces to bicycle parking, but pressure almost always remains from the public to maintain and expand—not reduce—current parking supply

Pedestrian Master Plan

- Many elements of the Pedestrian Master Plan would likely promote bike-share ridership, including policies promoting bicycle and street infrastructure, mixed land use, reduced vehicle speeds, and communication strategies to generate non-automotive mode choice
- Some elements of the Pedestrian Master Plan create planning opportunities that should be approached with bike-sharing in mind, such as the plan to redesign street furniture guidelines
- The plan's call for maintaining a 6-ft pedestrian zone clearance could limit the placement of bike-share stations

Race and Social Justice and Bicycling

- Education and outreach to low-income and culturally diverse populations

would help promote bike-share ridership to these groups

- The city should also provide bike-share information to service organizations within the proposed implementation area to encourage usage by low-income populations seeking services within the city center.
- The second and third implementation stages will reach populations with low income levels and low rates of auto ownership. Speeding up implementation in these areas would balance strict demand with race and social justice

Sound Transit and King County Metro Policies

- Currently, there do not appear to be any Sound Transit or King County Metro policies that would immediately obstruct the implementation of a bike-share program in Seattle