Executive Summary

Overview

This report assesses the feasibility of a public use bike-share system for Seattle, Washington. Colloquially referred to as "bike-share" or "bike-sharing," such systems are considered a form of public transportation. Bike-share bicycles are intended for short-term use and are accessible via automated check-out systems. An important benefit of bike-share systems is the flexibility to return rented bicycles to any station within the system, thereby encouraging use for one-way travel and the "final mile" of a trip.

The four major chapters of this report represent the organization of our research and analysis. The topic areas are:

- **Introduction**: Bike-share history and the structure of our study
- **Demand Analysis**: Our analytic and forecast methodologies along with results of their application
- **Policy Framework**: Consideration of governance institutions and their effects on system implementation
- **Bike-Share Program Recommendations**: Summation of our findings and recommendations for how Seattle should proceed

Bike-share bicycles are intended for short-term use, accessible via automated check-out systems.

During our analysis, we looked at demand for bike-share in Seattle. We have concluded that demand is sufficient to support a program. Our final recommendation includes three implementation phases, beginning with the downtown and surrounding neighborhoods.

However, despite anticipation of program demand, there are institutional policy challenges that must be addressed before successful implementation. Prominent among these are:

- The King County helmet law
- City of Seattle sign codes
- Policies that affect station design and use of curbspace

In the case of the latter two, individual neighborhoods and districts may each have their own, unique impacts. Fortunately, Seattle has the flexibility to address these issues, and there are systems in place to overcome these challenges. Once addressed, we recommend the City move forward with implementing a bike-share program.

Despite anticipation of demand for bike-share, there are institutional policy issues that must be addressed before successful implementation.

Bike-Share Through Time

Since inception of the first system in Amsterdam, in the mid-1960s, bike-share has grown and adapted. Originally comprised of painted, free-to-use bicycles, early systems quickly succumbed to theft and vandalism. This shortcoming was later addressed through the introduction of coin-operated locking mechanism, not unlike those of airport luggage carts. However, anonymity of system users, and the minimal investment on their part—in the form of loose change—could not overcome the continued occurrence of theft and vandalism.

Technological advancements in the mid- to late-90s paved the way for the modern bike-share system, also known as "third generation" programs. These consist of bicycle parking stations with kiosks that leverage electric card-reading technology. Whether using a credit card or a membership smartcard, new systems can attribute bicycle rentals to individual users, creating the ability to enforce liability for damaged or stolen equipment. The advent of third generation bike-share programs has led to increasing popularity and widespread implementation. As of 2010, there are approximately 160 bike-share systems throughout the world.

Bike-share systems increase accessibility by extending traditional transportation systems.

Discussed in more detail within this report, bike-share systems increase accessibility by extending traditional transportation systems. Referred to as the "last mile" of travel, bike-share trips provide convenient access to areas not directly served by transit or areas where bike-share can provide faster or more convenient access.

Bike-Share Riders and System Demand

The Demand Analysis section represents the majority of our work in this report. The goal was to provide a quantitative evaluation of bike-share potential across all areas of the city. Combining the size of our proposed implementation areas with available travel data, we were able to estimate ridership, recommended bicycle stock, and recommended number of check-out stations.

We identified a set of twelve metrics we believe act as indicators of the likelihood of success of a bike-share system. Discussed in greater detail in Chapter 2, these indicators include:

1. Population Density	2. Non-Institutionalized Group Quarter Housing
3. Job Density	4. Retail Job Density
5. Commute Trip Reduction Companies	6. Tourist Attractions
7. Parks/Recreation Areas	8. Topography
9. Regional Transit Stations	10. Bicycle Friendly Streets
11. Streets with Bicycle Lanes	12. Local Transit Stops

Using individualized calculations for each indicator, we divided the entire city into a series of ten meter squares or cells and generated a score for each cell. Following individual scoring we created a combined score for each cell, representing the cumulative potential for bike-share. Appendix A is a collection of maps that illustrate this process. By identifying large, contiguous high-scoring cells, we arrived at our three recommended areas of implementation.

To estimate demand within the three phases of implementation, we used a combination of trip origin and destination data provided by the Puget Sound Regional Council. Using rates of bike-share trips diverted from other modes, identified by prominent, European bike-share systems, and the geographic extent of the proposed implementation areas, we estimated ranges for the number of bicycles and number of docking stations necessary to support each phase of implementation. Our estimates are:

- Proposed Phase 1: 790 to 980 bicycles and 55 to 65 docking stations
- Proposed Phase 2: An additional 1,115 to 1,235 bicycles and 75 to 85 stations
- Proposed Phase 3: An additional 355 to 375 bicycles and 24 or 25 stations

While we are confident in our analysis and the potential for a successful bike-share program in Seattle, we cannot over-emphasize the recommendation that implementation of proposed Phase 2 and Phase 3 are contingent upon successful implementation of Phase 1. Furthermore, the institutional policy issues mentioned earlier will play an important role in the planning and implementation of bike-share in Seattle.

Moving Forward

Although this report provides an analytical basis for the potential success of a bike-share system, there will be challenges. In short, any proposed program will be subject to a wide variety of governance structures, in addition to those mentioned above, which must be accommodated. In many instances, individual neighborhoods or districts will overlay their own unique mandates for compliance, adding complexity to installation or operation of a system. Success, therefore, will require an active role on the part of the sponsoring agencies to streamline the process to the greatest extent possible.

Bike-share system providers should make sure the public understands the benefits and feels a personal stake in the success of the system.

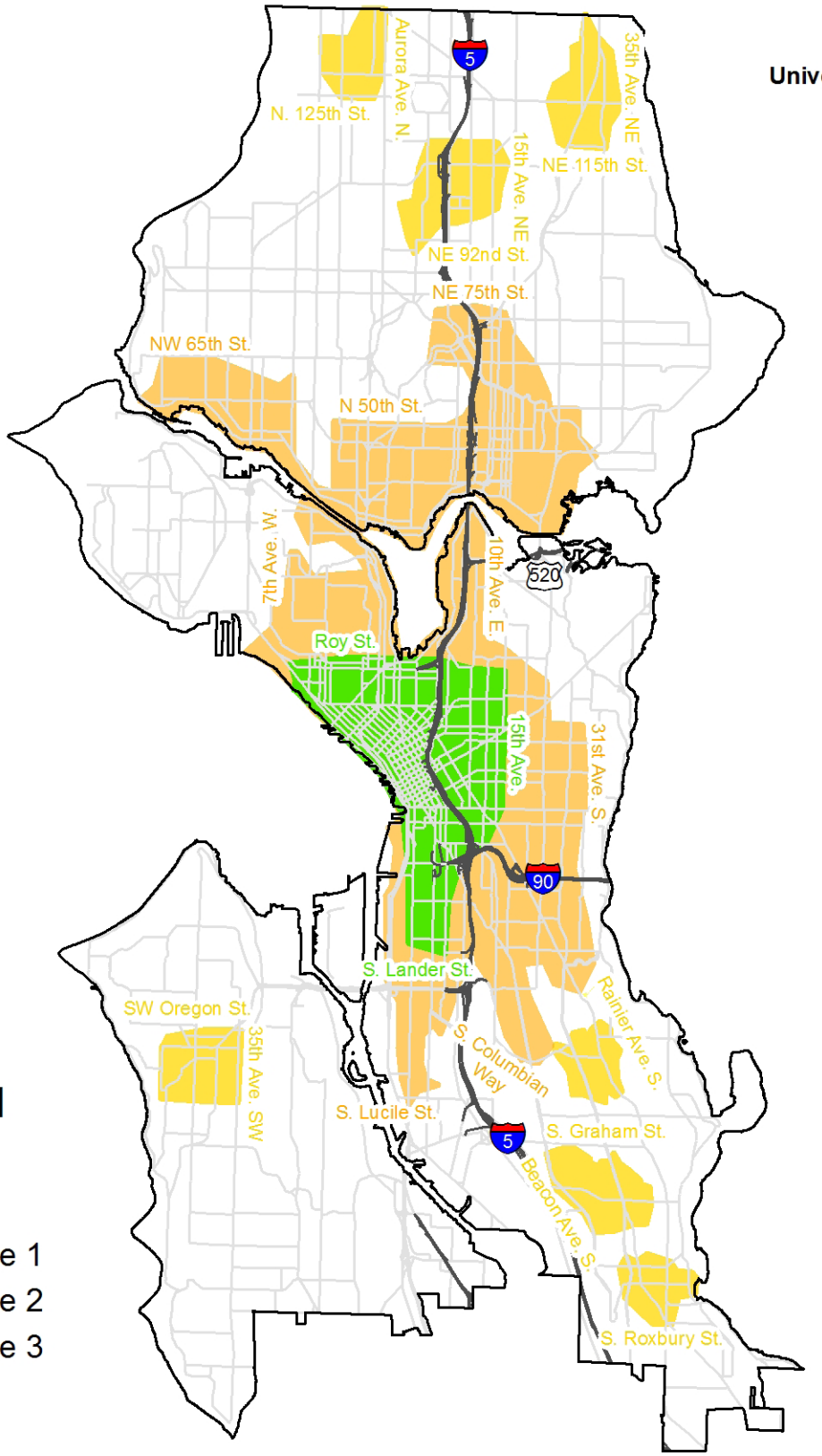
It is also worth mentioning that an active role must be taken not only in clearing logistical hurdles, but also in introducing a new system to the public. As a relatively new concept, outreach and education will play a key role in developing understanding and support. Bike-share will be most successful when the public understands the benefits and feels a personal stake in the system.

Finally, if the City does decide to implement a bike-share system, there are number of specific steps and actions detailed in this report that City staff can take to ensure that bike-share infrastructure is installed in the most effective locations, will function efficiently, and will provide the maximum benefit to Seattle's transportation system.

Proposed Seattle Bike-Share Implementation Phases

SEATTLE BICYCLE SHARE feasibility study

University of Washington
Bike Share Studio



Legend

Seattle

- Phase 1
- Phase 2
- Phase 3

0 0.5 1 2 3 4 Miles