

CHAPTER 5. PROGRAM EVALUATION

Research conducted for this Guide suggests there is no standard measurement of success for evaluating a bike share program. The goals and expectations from each jurisdiction varied.¹⁰⁸ While a higher concentration of jobs and population tend to enhance the performance of a bike share system as measured by its ridership numbers,¹⁰⁹ interviews with existing programs suggest several other metrics of success, including (1) the program's ability to become self-sustaining, (2) its ability to help make bicycling more visible, (3) the program's ability to promote healthy living, and (4) the program's ability to provide connections for underserved communities.

5.1 PROGRAM SUSTAINABILITY

Economic self-sufficiency is an important measure of success. Particularly during this era increased competition for limited public funds for transportation programs, new programs that cannot generate sufficient revenue to be self-sustaining are not looked upon favorably. Some programs reported being able to sustain and enhance their implementation. Early revenue analysis for Capital Bikeshare suggests that each partner jurisdiction within the program was able to cover some or all of their operating expenses: Arlington, VA experienced a 53% cost recovery when comparing revenue to the costs for operations, management and marketing.¹¹⁰ In the case of Washington, DC, the cost recovery for revenue vs. operations amounted to 120% cost recovery.¹¹¹ In this case, economic self-sufficiency represented an important measure of success for the program.

5.2 BICYCLING VISIBILITY

In jurisdictions where bicycling is not yet considered a major mode of transportation, bike share programs may have the ability to help raise awareness of bicycling as an additional and complementary mode. For example, smaller programs reported experiencing an increased visibility of bicycling as a sustainable and efficient way of getting around town. Representatives from San Antonio B-cycle reported increased enthusiasm for the expansion of the bicycle network within their jurisdiction.¹¹²



Figure 34: Denver B-cycle
Credit: Denver B-cycle (Denver, CO)

Additionally, other systems reported higher numbers of people bicycling throughout the jurisdiction.¹¹³

5.3 PROMOTION OF HEALTHY LIVING

The promotion of healthy living can be a major consideration when determining the success of a program. Several existing programs document the number of calories burned by bike share users.¹¹⁴ Additionally, existing programs promote themselves as sustainable transportation alternatives which are health-conscious and environmentally-friendly.

5.4 ACCESSIBILITY BY MINORITY AND LOW INCOME COMMUNITIES

As previously stated, bike sharing represents a great opportunity to provide a low cost transportation option for low income and minority communities which historically have low automobile ownership rates and high dependency on transit.¹¹⁵ While jurisdictions with existing programs are exploring and implementing innovative approaches to service provision (see Section 3.7

- Considering Issues of Equity, pg. 27) and have been able to document early achievements, additional assessment of these programs is needed. New programs should implement additional mechanisms to provide program access to low-income and minority communities.

5.5 TRACKING DATA

Bike share is a transportation program that is rich in opportunities for data collection. By its very nature, bike share is a program that tracks when and where a bicycle is checked out, and returned. GPS-enabled bicycles offer further enhancements to the rich amount of data that bike share can offer. Ridership data and customer surveys are necessary tools to help improve the overall service quality. Ridership data can help the operator and jurisdiction determine system utilization, track ridership patterns and plan for necessary improvements. This data can also help determine the environmental and health impacts of the program as the computations for the number of calories burned and carbon offset are derived from the total number of miles ridden by customers.¹¹⁶ Finally, data analysis can help make the case for additional funding for program expansion. Some data items observed in various existing programs include:¹¹⁷

- Total number of trips per month and year to date per member and system-wide.
- Bike availability per hour of the day.
- Total and average number of calories burned per day and month by customer and system-wide.
- Year to date membership counts.
- Number of new members and cancellations.
- Carbon offset per day per month, by customer and system-wide.
- Number of bicycles in service.
- Total trips per day by station.

Some existing systems reported offering data visualizations¹¹⁸ which have allowed the general public to track the progress of the program and increase transparency, while also showing the impact of their bike share system.¹¹⁹ Bike share programs that have opted to make data collected by the system widely available to

anyone have been able to capitalize on a great deal of analysis done by private citizens.

Jurisdictions should maximize public involvement in the planning and implementation process by requesting feedback on service and implementation practices. Several existing programs conduct annual member satisfaction surveys¹²⁰ and use simple mapping technology to request feedback on future station locations.¹²¹ User feedback can also help evaluate the success of marketing initiatives and increase transparency about the management of the program. New bike sharing programs should consider how public involvement and feedback can have a positive impact on the overall functionality and provision of service.

5.6 CONCLUSION

Bike sharing is a relatively new phenomenon in the U.S. that is experiencing tremendous political and social support. It is also a very visible element of a community's bicycling program. Where successful, bike sharing has the potential to increase rates of bicycling significantly. Conversely, a bike share program falling short of expectations may be perceived as an unnecessary drain on public funds. Therefore, it is important that communities considering bike share educate themselves on the myriad of issues related to program planning and implementation.

This Guide is a primer on bike share, providing lessons learned from some of the pioneering communities. Communities considering bike share will have several important questions to answer, such as "Where should we start our program?" "How will we pay for this?" and "What business model should we use?" This Guide provides background and examples to educate the next wave of bike sharing communities.

The current generation of bike share has come a long way from its forebearers. The concept is rapidly evolving with new features, technologies, business models and funding sources. It is likely that future bike share programs will evolve in new and interesting ways.

APPENDIX A. PROGRAM PROFILES

Figures presented are as of March 2012

BOULDER B-CYCLE

Jurisdiction	Boulder, Colorado
Opening date	May 20, 2011
Website	boulder.bcycle.com
Size	
Service Area:	4.69 sq mi.
Station Density:	3.20 stations per square mile in service area
Bikes (start/current):	110/110
Stations (start/current):	15/15
Docks per station range:	1 to 15
Solar vs. Wired :	Solar and wired
Operation:	Seasonal (Closed December through March)
Number of members	
Annual	1,171 members
Casual	6,200 users
Service Area demographics (per sq. mi)	
Employment	1,787 jobs
Median Household Income	\$51,767
Housing Density	2,294 units
Equipment Ownership:	Nonprofit owned
Operator name:	Boulder B-cycle
Equipment provider:	B-cycle
Business model:	Nonprofit owned and operated
Funding sources:	Sources not specified. Sponsorships - 22% Grants - 56% Gifts - 10% Membership and usage fees - 12%
City's denomination	
(League of American Bicyclists)	Platinum
Reported bike thefts	0
Reported bike share crashes	0
Bike facility characteristics:	300+ miles of bike lanes, routes, designated shoulders and paths
Membership and usage fees:	\$50 annual; \$15 - 7 day; \$5 -24 hours No fee first 60 min; \$4 for every half-hour thereafter



Credit: Boulder B-Cycle

CAPITAL BIKESHARE

Jurisdiction	Arlington, Virginia Washington, DC
Opening date	September 20, 2010
Website	capitalbikeshare.com
Size	
Service Area:	35.95 sq mi.
Station Density:	3.92 stations per square mile in service area
Bikes (start/current):	1100/1200
Stations(start/current):	110/140
Docks per station range:	11 to 39
Solar vs. Wired :	Solar
Operation:	Year-round
Number of members	
Annual	19,200 members
Casual	105,644 users
Service Area demographics (per sq. mi)	
Employment	5,010 jobs
Median Household Income	\$66,508
Housing Density	6,344 units
Equipment Ownership:	Jurisdiction
Operator name:	Alta Bikeshare
Equipment provider:	PBSC Urban Solutions
Business model:	Jurisdiction owned and managed
Funding sources:	Federal: CMAQ Local: vehicle decal fee, commissions from transit fare media sales Private: business sponsorship Membership and usage fees
City's denomination (League of American Bicyclists)	Silver (for both Arlington, VA and Washington, DC)
Reported bike thefts	9
Reported bike share crashes	14
Bike facilities characteristics	48 miles of marked bike lanes. Growing network of bike lanes, signed bike routes, and trails
Membership and usage fees	\$75 annual; \$25 30 days; \$15 3 days; \$7 24 hours. No fee first 30 min; \$1.50 /\$2.00 annual/casual members 30-60 min; \$4.50/\$6.00 for annual/casual members 60-90 minutes; \$6/\$8 for annual/casual members for every half-hour thereafter



DECO BIKE

Jurisdiction	Miami Beach, Florida
Opening date	March 15, 2011
Website	decobike.com
Size	
Service Area:	6.30 sq mi.
Station Density:	14.13 stations per square mile in service area
Bikes (start/current):	500/800
Stations (start/current):	50/91
Docks per station range:	8 to 34
Solar vs. Wired :	Solar
Operation:	Year-round
Number of members	
Annual	2,500 members
Casual	338,828 members
Service Area demographics (per sq. mi)	
Employment	3,425 jobs
Median Household Income	\$53,808
Housing Density	6,424 units
Equipment Ownership:	Privately owned
Operator name:	Deco Bike LLC
Equipment provider:	Deco Bike LLC
Business model:	For profit owned and operated
Funding sources:	Private investment Membership and usage fees Advertising space
City's denomination (League of American Bicyclists)	Silver
Reported bike thefts	7
Reported bike share crashes	1
Bike facilities characteristics	Sharrows throughout the city. Pathway along the and 35-85th street.
Membership and usage fees:	\$15 standard monthly (unlimited 30 min rides); \$25 deluxe monthly (unlimited 60 min rides); \$4 each additional 30 min. Hourly rentals of \$4 - 30 min \$5 - 1 hr; \$10 2 hr; \$18 4 hr; \$24 1 day; \$4 each additional 30 mins



Credit: Deco Bike

DENVER B-CYCLE

Jurisdiction	Denver, CO
Opening date	April 22, 2010
Website	denver.bcycle.com
Size	
Service Area:	12.57 sq mi.
Station Density:	4.14 stations per square mile in service area
Bikes (start/current):	400/520
Stations (start/current):	40/52
Docks per station range:	7 to 23
Solar vs. Wired :	Solar and wired
Operation:	Seasonal (closed December through March)
Number of members	
Annual	2,659 members
Casual	40,600 members
Service Area demographics (per sq. mi)	
Employment	3,371 jobs
Median Household Income	\$56,039
Housing Density	7,582 units
Equipment Ownership:	Nonprofit owned
Operator name:	Denver Bikesharing
Equipment provider:	B-cycle
Business model:	Nonprofit owned and operated
Funding sources:	Federal: energy Efficiency and Conservation Block Grant program; Transportation Community Preservation program. State: Vehicle registration Tax, FASTER program. Private: local match Membership and usage fees
City's denomination (League of American Bicyclists)	Silver
Reported bike thefts	0
Reported bike share crashes	0
Bike facilities characteristics	76 miles of bike lanes, 30 miles of sharrows, 82 miles of paved trails.
Membership and usage fees:	\$ 65 annual; \$30 30 days; \$20 7 day; \$6 24 hours No fee first 30 min; \$1 30-60 min; \$4 for every half-hour thereafter



Credit: Denver B-Cycle

HUBWAY

Jurisdiction	Boston, MA
Opening date	July 28, 2011
Website	thehubway.com
Size	
Service Area:	11.79 sq mi.
Station Density:	4.83 stations per square mile in service area
Bikes (start/current):	400/600
Stations (start/current):	40/60
Docks per station range:	13 to 19
Solar vs. Wired :	Solar
Operation:	Seasonal (closed December through March)
Number of members	
Annual	3,600 members
Casual	30,000 members
Service Area demographics (per sq. mi)	
Employment	7,084 jobs
Median Household Income	\$54,832
Housing Density	9,311 units
Equipment Ownership:	Jurisdiction owned
Operator name:	Alta Bikeshare
Equipment provider:	PBSC Urban Solutions
Business model:	Advertising and sponsorship concession with profit-sharing
Funding sources:	Federal: CMAQ and FTA State: Public Health Grant Private: direct system sponsor and other smaller sponsors Membership and usage fees
City's denomination (League of American Bicyclists)	Silver
Reported bike thefts	0
Reported bike share crashes	0
Bike facilities characteristics	50 miles on street bike lanes; 50 miles off street
Membership and usage fees:	\$85 annual; \$12 3 days; \$5 24 hours; No fee first 30 Min; \$1.50 /\$2.00 annual/casual members 30-60 min; \$1.50/\$2.00 for annual/casual members 30-60 minutes; \$4.50/\$6.00 for annual/ casual members for every half-hour thereafter



NICE RIDE

Jurisdiction	Minneapolis, MN Saint Paul, MN
Opening date	June 10, 2010
Website	niceridemn.org
Size	
Service Area:	33.30 sq mi.
Station Density:	3.30 stations per square mile in service area
Bikes (start/current):	1200/1300
Stations (start/current):	116/145
Docks per station range:	11 to 39
Solar vs. Wired :	Solar
Operation:	Seasonal (closed November through March)
Number of members	
Annual	3,521 members
Casual	37,103 subscriptions
Service Area demographics (per sq. mi)	
Employment	3,137 jobs
Median Household Income	\$44,011
Housing Density	3,838 units
Equipment Ownership:	Nonprofit owned
Operator name:	Nice Ride MN
Equipment provider:	PBSC Urban Solutions
Business model:	Nonprofit owned and managed
Funding sources:	Federal: FHWA funds through local program, Private: Blue Cross-Blue Shield, other private/nonprofit investors, and station sponsorships Membership and usage fees
City's denomination (League of American Bicyclists)	Gold
Reported bike thefts	0
Reported bike share crashes	2
Bike facilities characteristics	40 miles on street bike lanes when program started and 80 miles by the end of the year
Membership and usage fees:	\$65 annual/ \$55 student; \$30 30 days; \$5 24 hours; No fee first 30Min; \$1.50 - 30-60 min; \$4.50 60-90 min; \$6 for every half-hour thereafter



Credit: Nice Ride

SAN ANTONIO B-CYCLE

Jurisdiction	San Antonio, TX
Opening date	March 1, 2011
Website	sanantonio.bcycle.com
Size	
Service Area:	4.77 sq mi.
Station Density:	4.19 stations per square mile in service area
Bikes (start/current):	200/200
Stations (start/current):	20/23
Docks per station range:	7 to 23
Solar vs. Wired :	Solar and wired
Operation:	Year round
Number of members	
Annual	1,000 members
Casual	2,800 members
Service Area demographics (per sq. mi)	
Employment	1,570 jobs
Median Household Income	\$27,732
Housing Density	1,455 units
Equipment Ownership:	Jurisdiction owned
Operator name:	San Antonio Bikeshare
Equipment provider:	B-cycle
Business model:	Nonprofit managed
Funding sources:	Federal : EPA (EECBG), CDC (Communities Putting Prevention to Work), Obesity Reduction Grant; Advertising and Corporate Sponsorships; Membership and usage fees
City's denomination	
(League of American Bicyclists)	Bronze
Reported bike thefts	0
Reported bike share crashes	0
Bike facilities characteristics	Growing network of bike lanes, signed bike routes, and trails
Membership and usage fees:	\$60 annual; \$24 7 days; \$10 24 hours; No fee first 30 min; \$2 each additional 30 mins



Credit: San Antonio B-Cycle

SPARTANBURG B-CYCLE

Jurisdiction	Spartanburg, SC
Opening date	July 7, 2011
Website	spartanburg.bcycle.com
Size	
Service Area:	1.42 sq mi.
Station Density:	1.41 stations per square mile in service area
Bikes (start/current):	14/14
Stations (start/current):	2/2
Docks per station range:	9 to 11
Solar vs. Wired :	Solar and wired
Operation:	Year round
Number of members	
Annual	127 members
Casual	828 members
Service Area demographics (per sq. mi)	
Employment	2,513 jobs
Median Household Income	\$24,540
Housing Density	5,801 units
Equipment Ownership:	Non profit owned
Operator name:	Partners for Active Living
Equipment provider:	B-cycle
Business model:	Nonprofit owned and managed
Funding sources:	Local Grants: City of Spartanburg, Mary Black Foundation, and JM Smith Foundation Management Membership and usage fees
City's denomination	
(League of American Bicyclists)	Bronze
Reported bike thefts	0
Reported bike share crashes	0
Bike facilities characteristics	3.6 miles of bike lanes and signed routes; 2.7 miles of sharrows; 24.38 miles of trails; 7 miles of mountain bike trails; 172 Bike Racks
Membership and usage fees:	\$30 annual; \$15 - 30 days;\$5 - 24 hours; No fee first 60 min; \$1 for each additional 30 min



Credit: Spartanburg B-Cycle

ZOTWHEELS*

Jurisdiction	University of California, Irvine
Opening date	October 1, 2009
Website	parking.uci.edu/zotwheels
Size	
Service Area:	1.29 sq mi.
Station Density:	3.11 stations per square mile in service area
Bikes(start/current):	28/28
Stations (start/current):	4/4
Docks per station range:	8 to 12
Solar vs. Wired :	Wired
Operation:	Year-round
Number of members	
Annual	100 members
Casual	Non reported
Service Area demographics (per sq. mi)*	
Employment	1,557 jobs
Median Household Income	\$45,548
Housing Density	2,018 units
Equipment Ownership:	University owned
Operator name:	Transportation and Distribution Services University of California, Irvine
Equipment provider:	Collegiate Bicycle Company; Central Specialties, Lt.
Business model:	University owned
Funding sources:	Revenue (parking fees, citations) - Transportation and Distribution Services
City's denomination	
(League of American Bicyclists)	Silver (university denomination)
Reported bike thefts	0
Reported bike share crashes	0
Bike facilities characteristics	Sharrows, on inner university ring with one side for bike one side for pedestrians, Trails, dedicated bike lanes.
Membership and usage fees:	\$40 annual/no usage fees

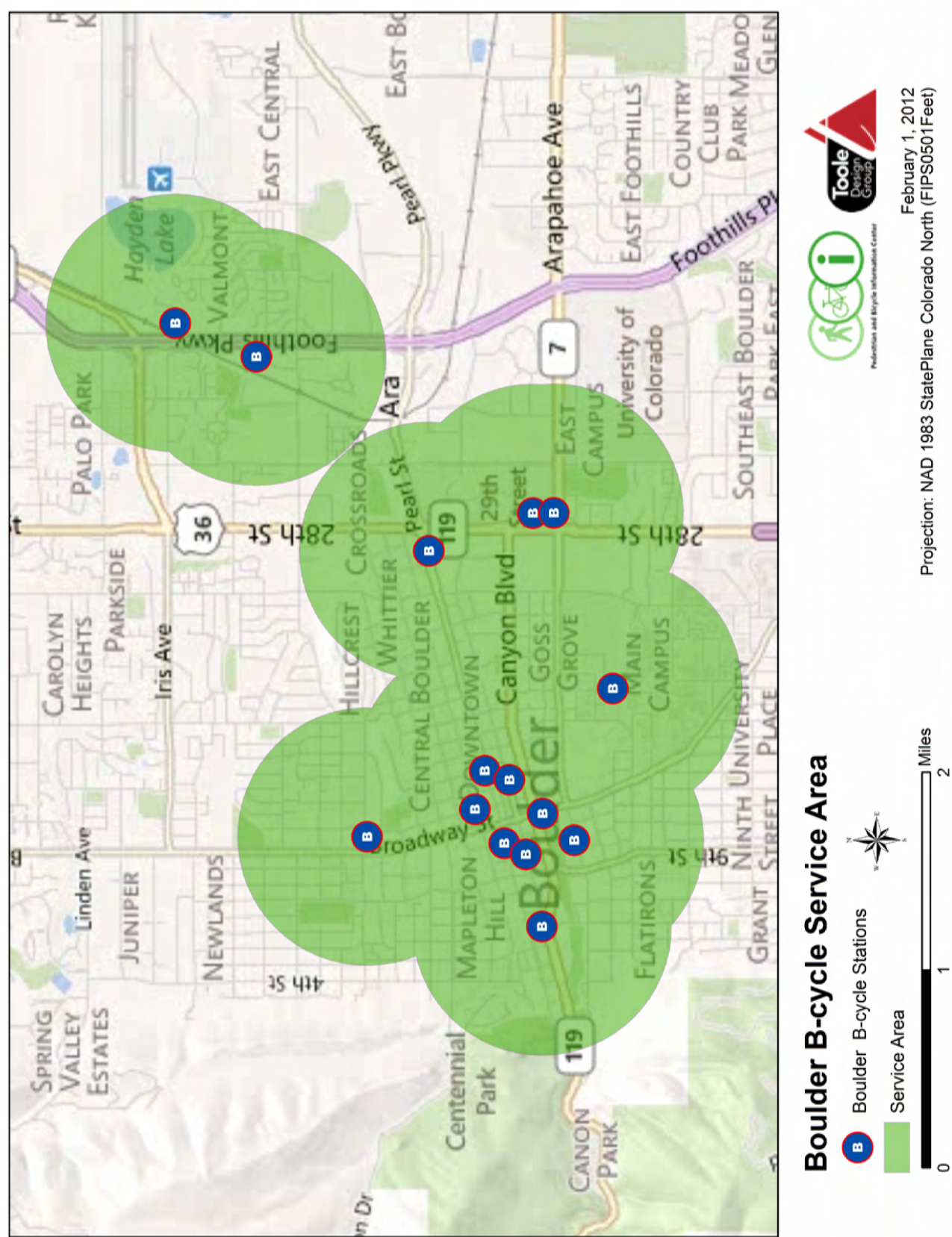


Credit: Zotwheels

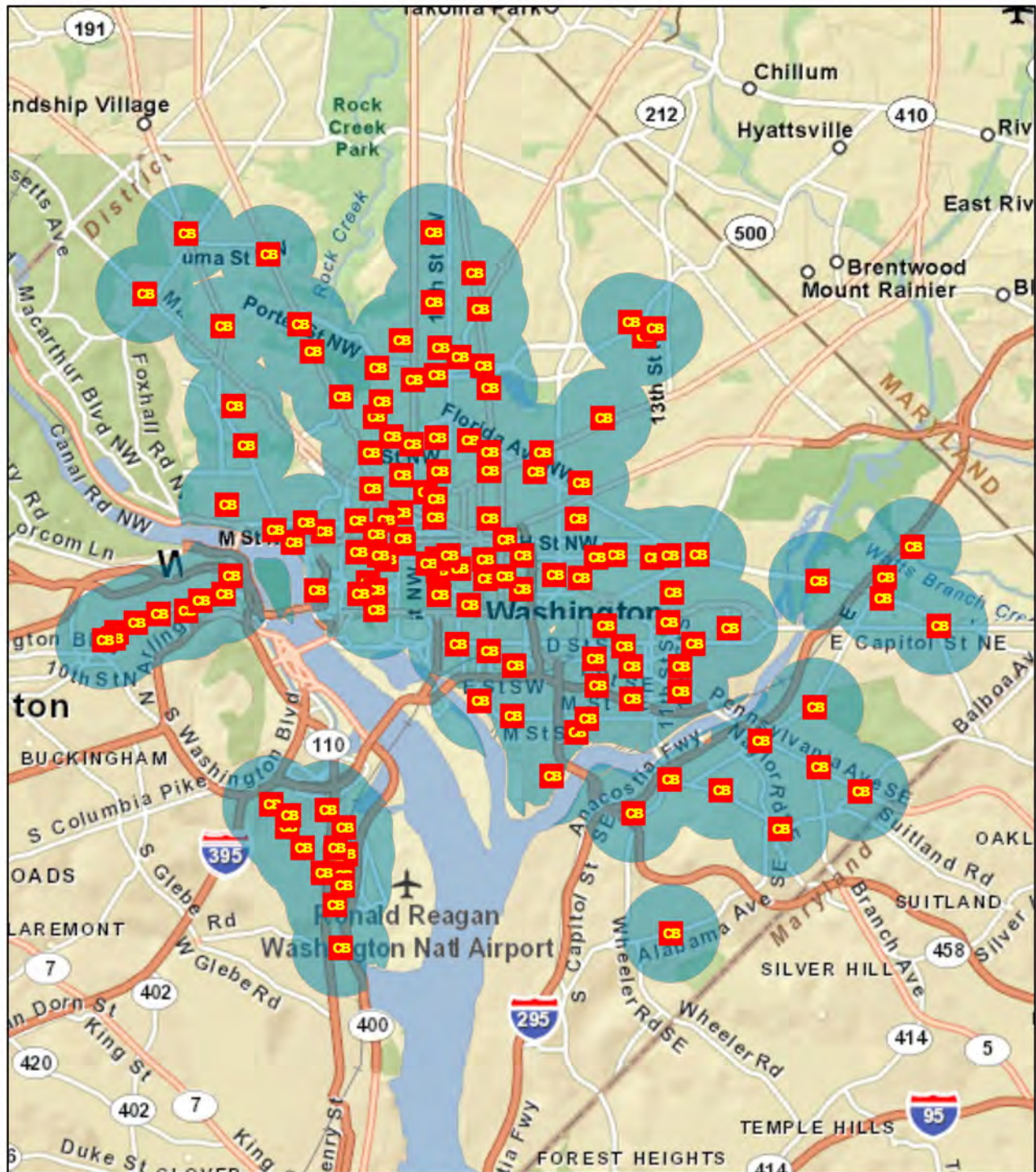
*These numbers are representative of the city of Irvine, not the University population

APPENDIX B. MAPS

BOULDER B-CYCLE




CAPITAL BIKESHARE (WASHINGTON DC/ ARLINGTON, VA)



Capital Bikeshare Service Area

 Capital Bikeshare Stations

 Service Area

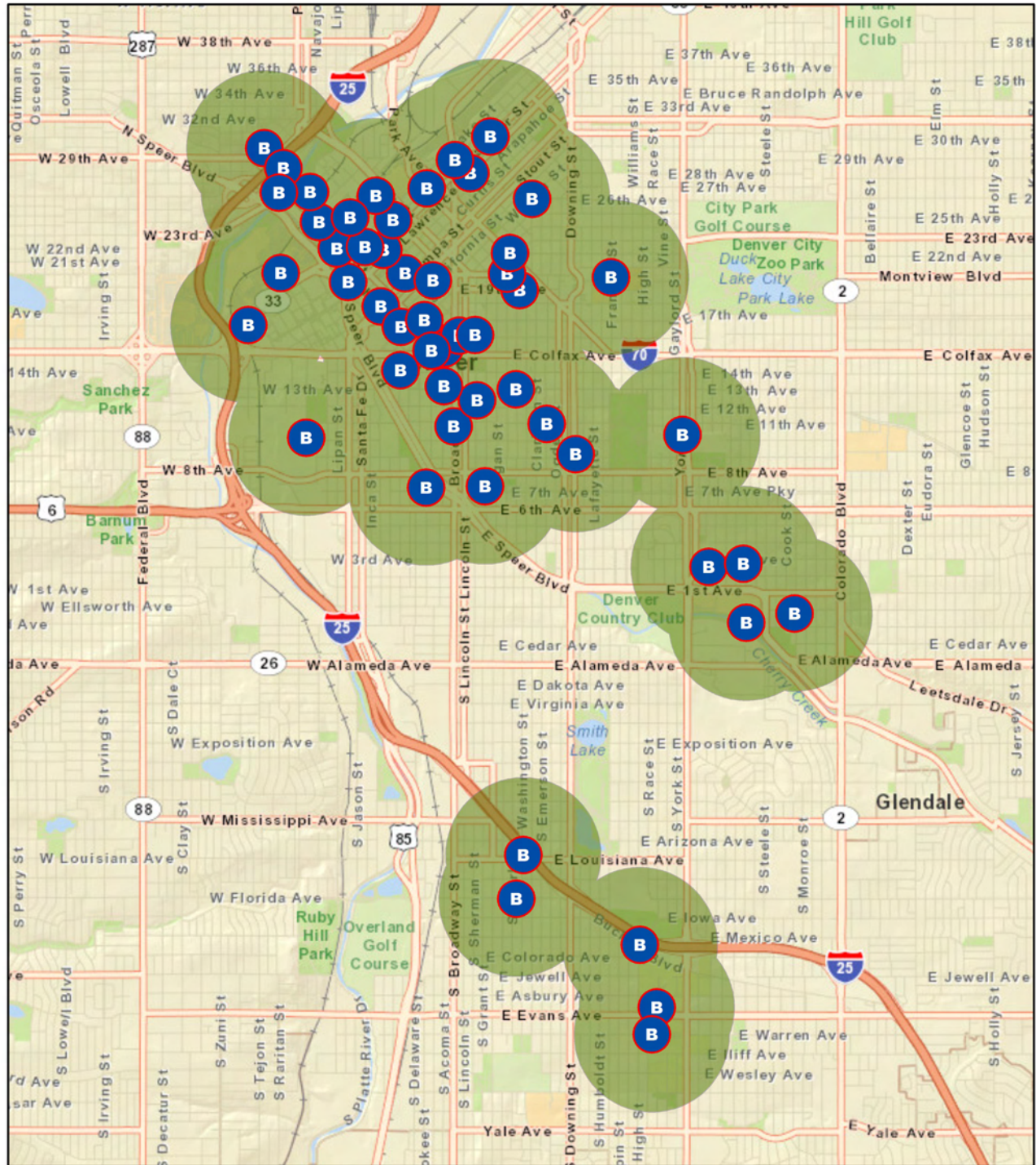
0 2 4
Miles




February 1, 2012

Projection: NAD 1983 StatePlane Maryland (FIPS1900 Feet)

DENVER B-CYCLE (DENVER, CO)



Denver B-cycle Service Area

 Denver B-cycle Stations

 Service Area

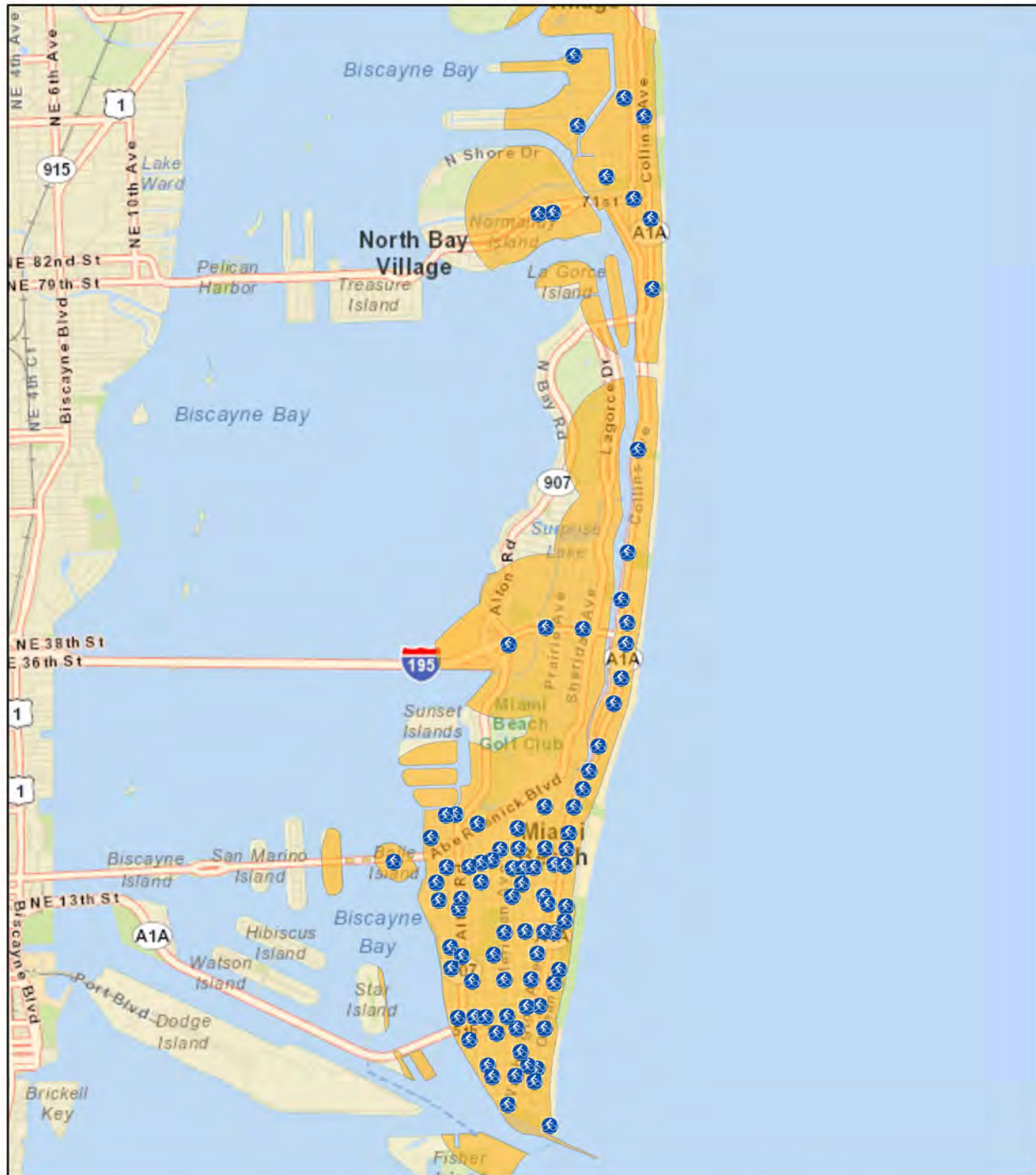
0 1 2
Miles





February 1, 2012

Projection: NAD 1983 StatePlane Colorado Centra (FIPS0502Feet)

DECO BIKE (MIAMI BEACH, FL)



Deco Bike Service Area

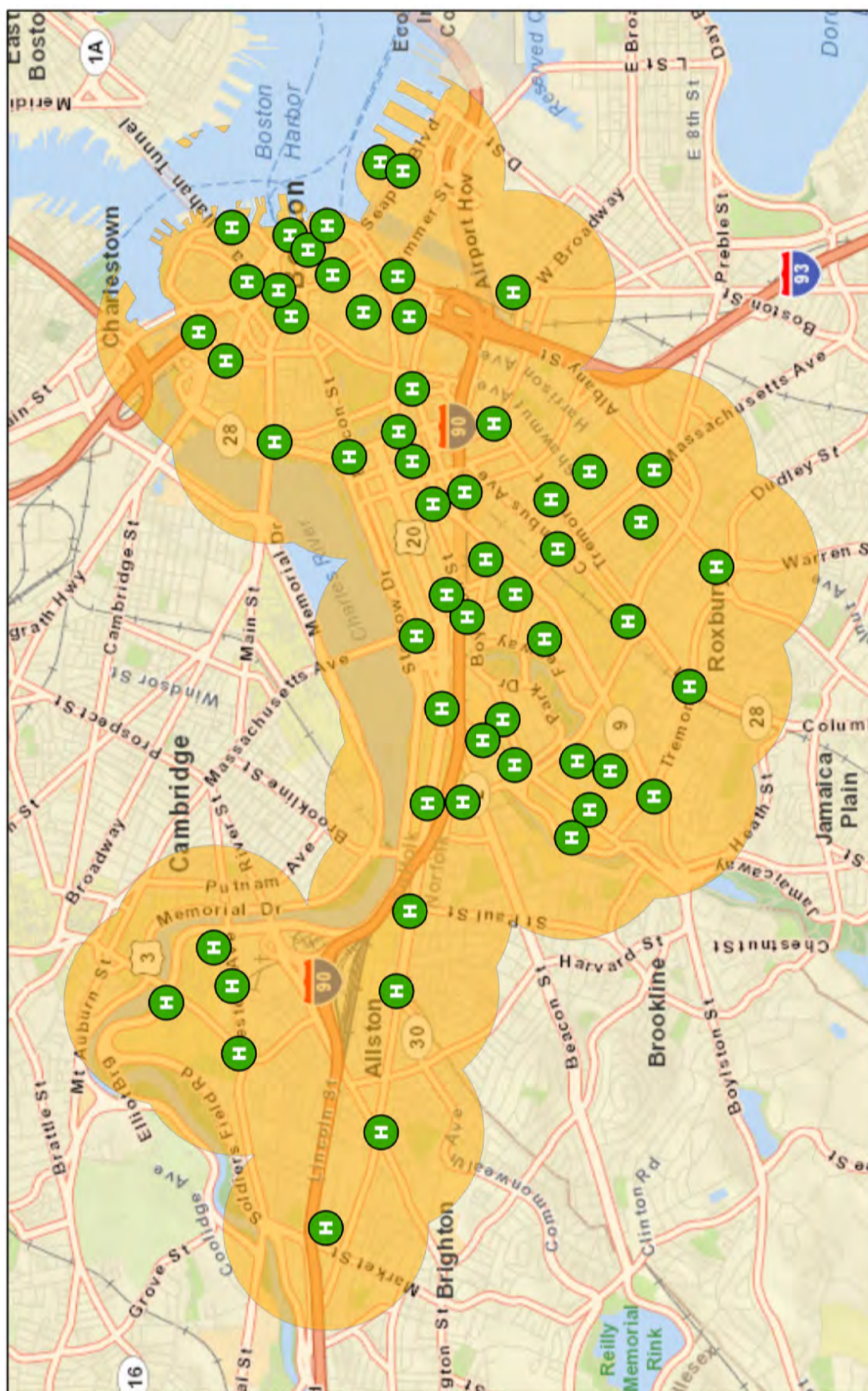
-  Deco Bike Stations
-  Service Area

0 1 2
Miles

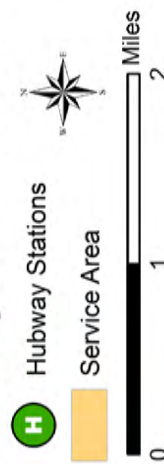


February 1, 2012
Projection: NAD 1983 StatePlane Florida East (FIPS0901) Feet

HUBWAY (BOSTON, MA)

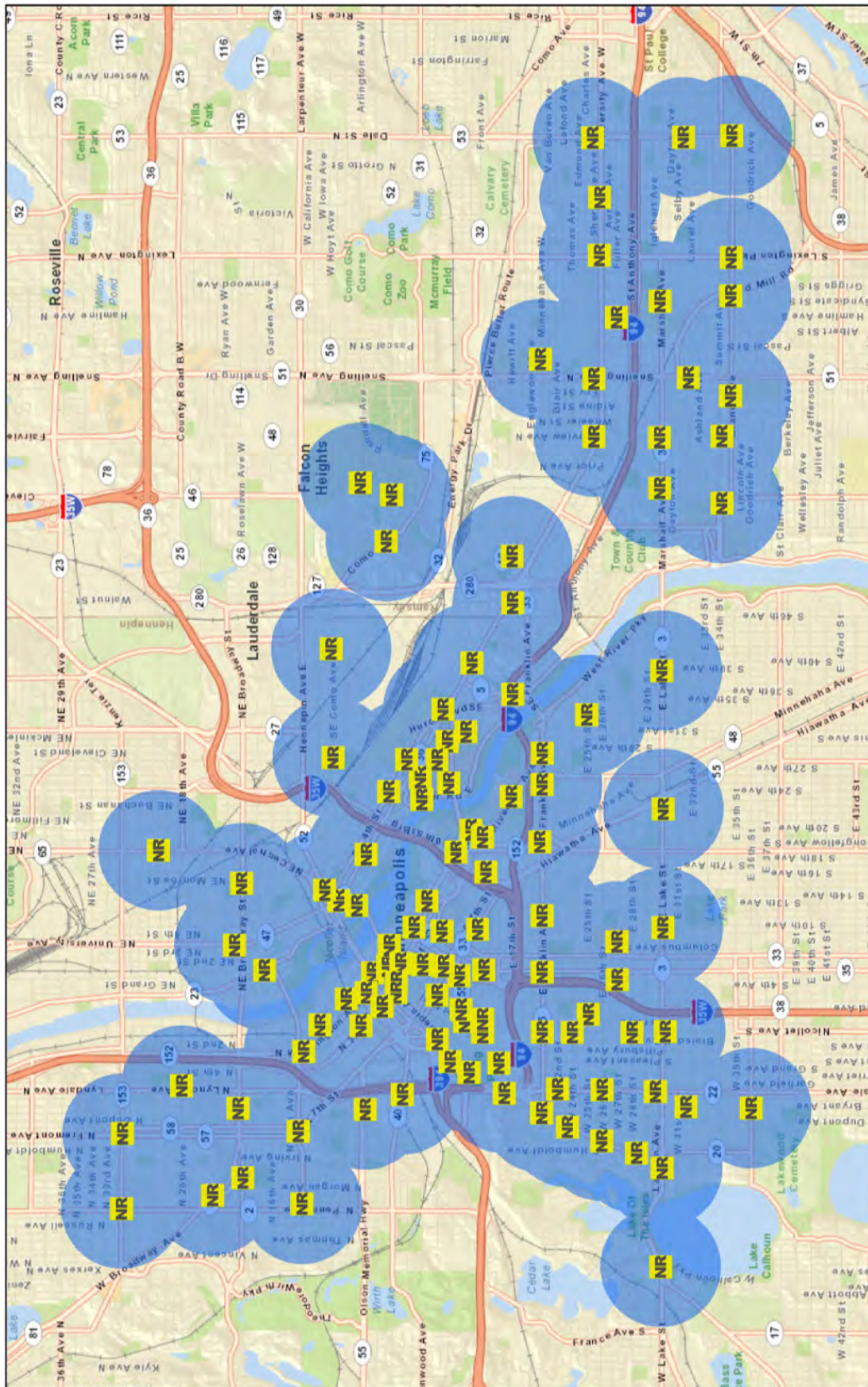


Hubway Service Area

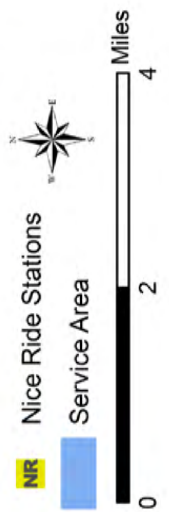


February 1, 2012
 Projection: NAD 1983 StatePlane Massachusetts Mainland (FIPS2001Feet)

NICE RIDE (MINNEAPOLIS/ST. PAUL, MN)



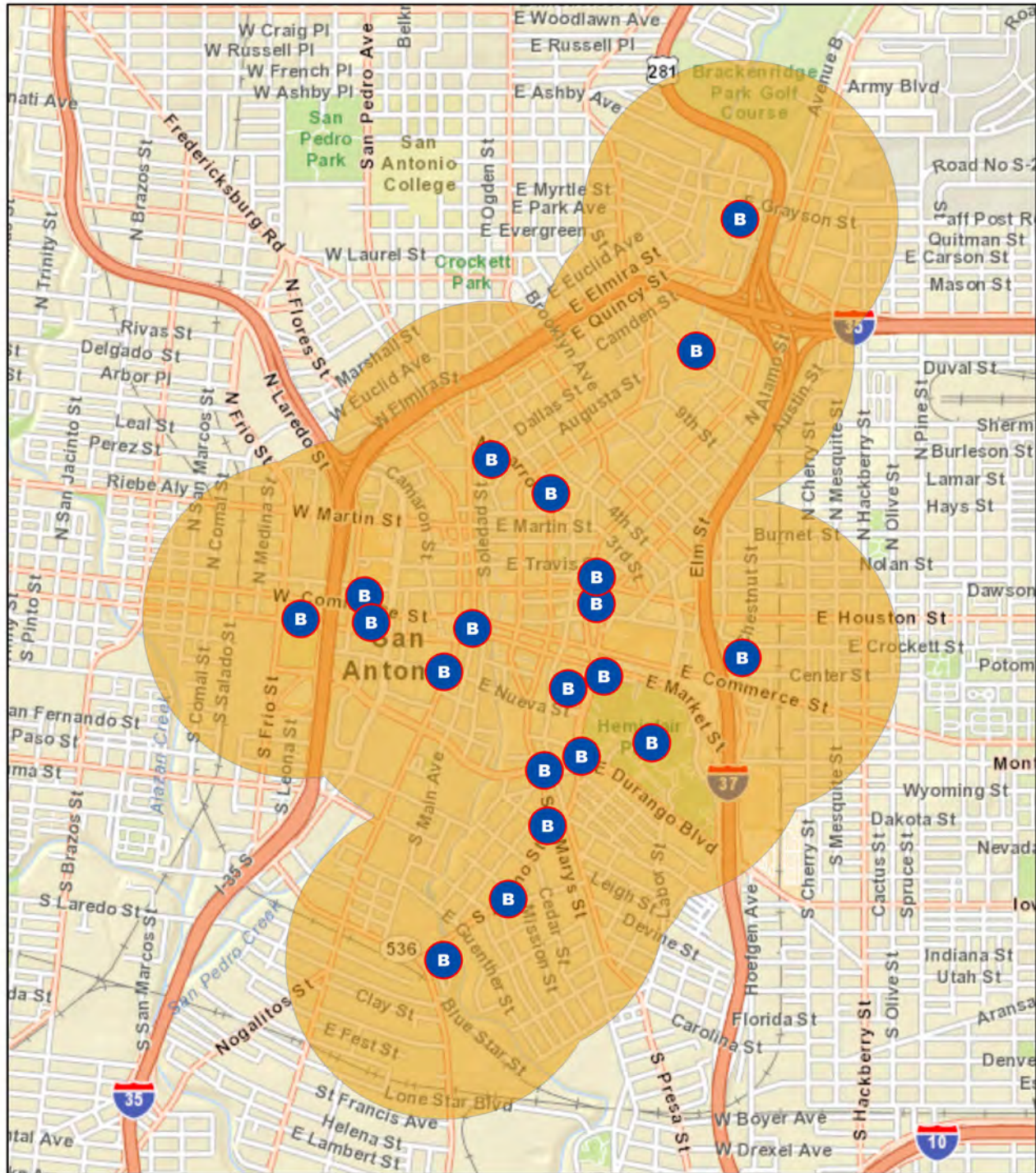
Nice Ride Service Area




February 1, 2012

Projection: NAD 1983 StatePlane Minnesota South (FPS2203Feet)

SAN ANTONIO B-CYCLE (SAN ANTONIO, TX)



San Antonio B-cycle Service Area

 B-cycle Stations

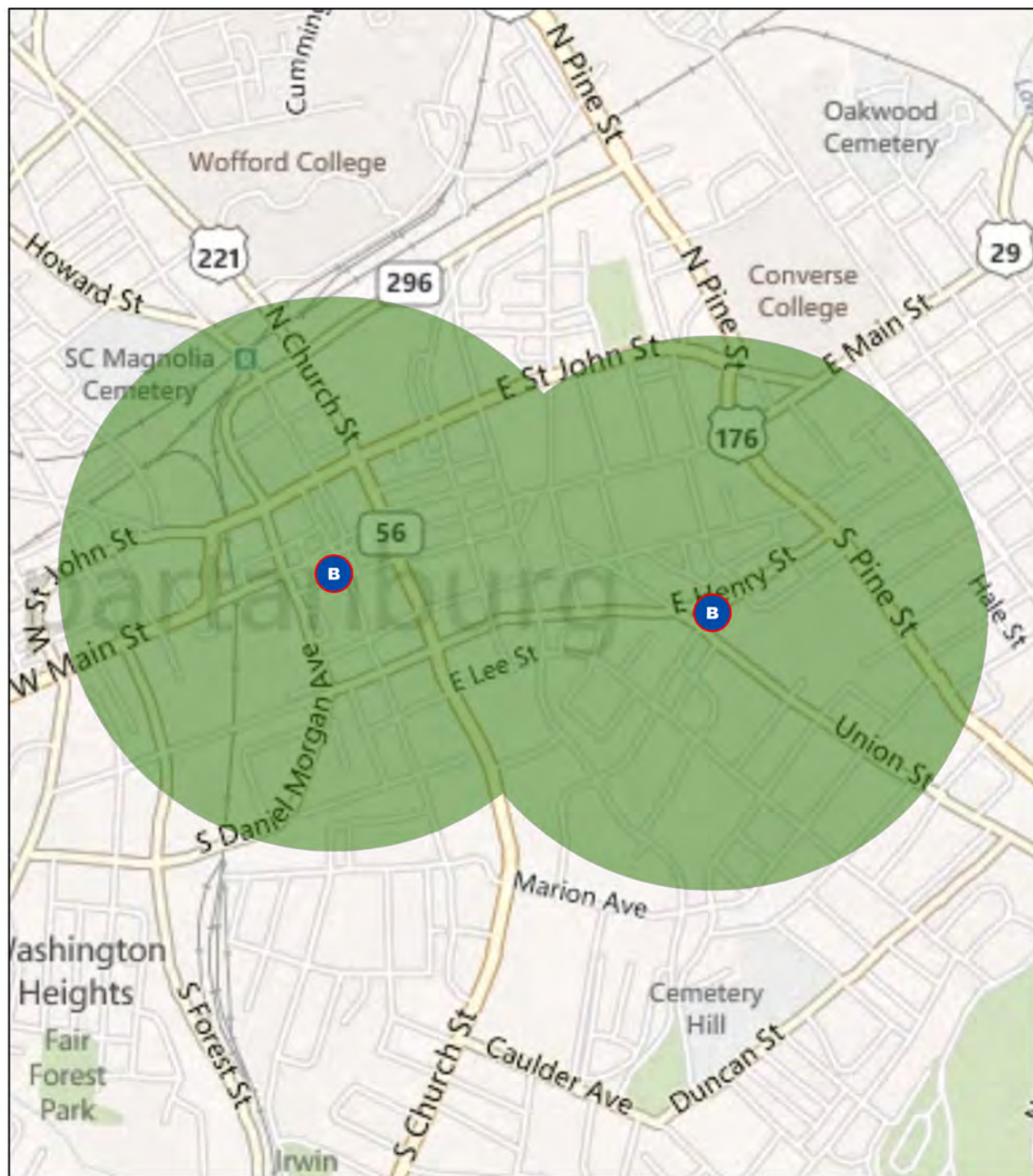
 Service Area

0 0.5 1
Miles

February 1, 2012
Projection: NAD 1983 StatePlane Texas South Central (FIPS4204Feet)



SPARTANBURG B-CYCLE (SPARTANBURG, SC)



Spartanburg B-cycle Service Area

Spartanburg B-cycle

Service Area

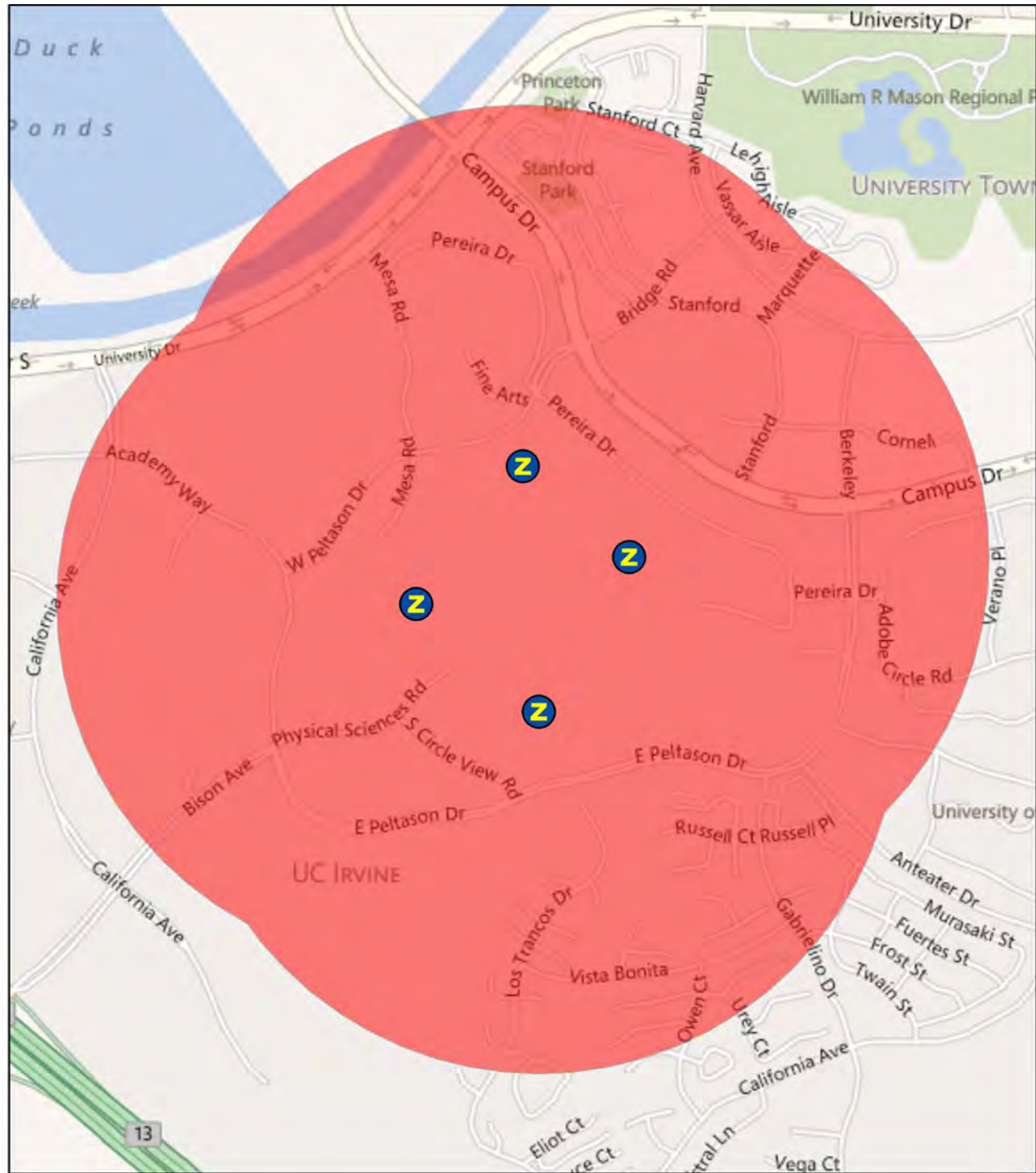
0 0.25 0.5
Miles




February 1, 2012

Projection: NAD1983 StatePlane South Carolina (FIPS3900Feet)

ZOTWHEELS (UNIVERSITY OF CALIFORNIA AT IRVINE)



ZotWheels Service Area

 UC Irvine - Zotwheels Stations

 Service Area

0 0.25 0.5
Miles



February 1, 2012

Projection: NAD 1983 StatePlane California V (FIPS0405Feet)

APPENDIX C. ADVISORY COMMITTEE SURVEY QUESTIONS

The survey was administered through a series of in-depth guided interviews during the months of October 2011 through February 2012 with program managers for existing bike sharing programs in the following cities: Boston, Boulder, Chicago, Denver, Miami Beach, Minneapolis, San Antonio, Spartanburg, University of California Irvine, and Washington DC/Virginia. Additional interviews were conducted with bicycle planners and administrators in Atlanta, Baltimore and Chicago, which have shown interest on implementing a bike share program.

GENERAL

1. Bike sharing System – Name of the Bike sharing system
2. City – municipality where the program is being implemented. Is the program multi-jurisdictional?
3. State(s) – state where the program is being implemented
4. Website – what is the program's website
5. Twitter handle – what is the program's Twitter handle
6. Facebook page – what is the program's Facebook page
7. Operator – who is the system operator?
8. Type of System – what are the bike and station specifications? Who manufactures them?

COMMUNITY DEMOGRAPHICS

1. Sex by Age – total number of people
2. Income – income distribution of population in your city/municipality
3. Density – how many people per square mile.
4. Service area Density – how many people per square mile served
5. Ethnicity – total number of people by ethnicity
6. Bike to work rate – what is the total number of people commuting by bicycle to work?

7. Transit availability – are there any other transit options (i.e. bus, rail, taxi, commuter train, etc) available in the community? If so, what?
8. Number of colleges and universities

PROGRAM INFORMATION

1. Program beginnings – how did the program start? Who advocated for it? Was there any mayoral/business influence? What was the start-up timeframe?
2. How does the program relate to the locality's provision of increased transit accessibility?
3. Bicycle friendly communities – how does the program relate to the pursuance of bicycle-friendly community status? Is this something the locality is pursuing? What other programs/infrastructure investments complement the initiative?
4. Status – is it open, closed or on planning stages
5. Open date – if open date when it opened. If planned, projected dates.
6. Organizational Scheme – which organization runs the program and how?
7. Seasonal information – Does the program shut down for the winter season? If so when is it on hiatus?
8. Methodology used to locate stations – how did you determine the geographic locations of the stations? What studies, if any were conducted? Who conducted these studies?
9. Number of bikes (over time) – current number of bikes vs. when program started
10. Number of stations (over time) - current number of stations vs. when program started
11. Geographic coverage – is it concentrated in CBD or is it spread throughout the city? Why?
12. Number of members – current vs. at the beginning of the program
13. Types of memberships available – membership schemes (i.e. annual, daily, monthly, other)

14. Average Ridership data – average number of rides per day, week, month and time of day.
15. Membership/rental rates – how much does each membership costs to the public. What are the rates?
16. Program promotion. Who does the promotion? Methods used? Is there any multi-modal collaboration? Which agency serves as marketing agency?
17. How does the program address transit accessibility for minority and economically challenged populations? Does the program offer discounted rates?
18. New media- website, twitter, smart phone applications, Facebook, etc.
10. Redistribution – What scheme does the program run to help redistribute the bicycles?
11. Data requirements – is the vendor required to report on any data? If so, what are the required items? How often does the operator report?
12. Member data – do program administrators collect data from members? If so, what? How often? How is this data gathered?
13. Customer Service - How is technical support handled (e.g. can't unlock bikes)?

PROGRAM LOGISTICS

1. Safety –are there any helmet laws? How is the system promoting the use of helmets? Does the system have liability insurance? If so, who is insured? Who pays for the insurance? Have there been any accidents since the program started? If so, how many?
2. Supporting programs are there any additional supporting programs promoting bike sharing?
3. Infrastructure – Was the bicycle infrastructure in place before implementation of the program? Is there any infrastructure program in place to complement bike sharing efforts? How is it managed?
4. Partnerships: What kind of partnerships exists, if any, between the implementing organization and other State, nonprofit, governmental or other organizations?
5. Permitting – which department does all permitting for station deployment
6. Number of vendor staff (over time) – how many people work for the vendor and function
7. Number of city staff (over time) – how many people work for the city and their function
8. Technology used – what types of bikes are being used
9. Different vendors/operators involved – e.g. Payment processing, bike supplier, operations, etc.)
1. Costs – what were the initial capital costs? What are the annual operating and managing costs?
2. Annual budget (operating/capital/etc.) – please share your most up-to-date annual budget
3. Funding scheme – how was the funding allocated? How were capital expenses funded? How are operation and management costs funded?
4. Funding Streams – please provide a list of funders and their capacity (i.e. advertising vs. sponsor). Is there Federal, State, local, and/or private funds are being used. If using Federal, what sources?
5. Ownership scheme – who and what is owned? Does the city own the bikes? E.g. city owns equipment, operator owns equipment, city owns bikes and operator owns stations, sponsor owns system, etc.
6. Revenues- are there any monthly/yearly revenues? What sort of revenues are coming in? Are there any advertising/sponsorship opportunities?
7. Profit sharing – if there is a profit, is there a profit sharing scheme? Does the city receive all revenues? Does the operator get all revenues?
8. Contract term – how long is the contract between the city/municipality and the operator
9. Copy of contract – Would you be able to share a copy of the most up-to-date contract
10. Copy of RFP used to start program – Would you be able to share a copy of the RFP used to start the program

APPENDIX D. LEAGUE OF AMERICAN BICYCLISTS: BIKE SHARING QUESTIONNAIRE

The electronic survey was administered from January 25th through February 1st, by the League of American Bicyclists to its Bicycle Friendly Communities. A total response rate of 78 out of 190 (41% response rate) jurisdictions completed the online survey.

DESCRIPTION OF THE PROJECT

The Pedestrian and Bicycle Information Center (PBIC) and Toole Design Group are conducting an independent, national study of current bike sharing programs in the United States on behalf of the Federal Highway Administration. The final report will be a resource of information about the implementation of the different bike sharing schemes, and will provide a guide for communities that are considering investments in bike sharing infrastructure. The following questionnaire will help provide some feedback to be used in the report.

QUESTIONNAIRE

1. Name of your Jurisdiction
2. Do you currently have a bike sharing program?
 - a. Yes
 - b. No
3. If no, are you considering the implementation of such a program?
 - a. Yes
 - b. No
4. If yes, what stage of the process are you in?
 - a. Initial stages of discussion – have not initiated a feasibility study
 - b. Feasibility and planning
 - c. Funding and procurement
 - d. Deployment and implementation
5. If a feasibility study was/is being conducted, how much did it cost?
 - a. N/A – no study conducted
 - b. The study was done in-house
 - c. Less than \$20,000
 - d. \$20,000 to \$50,000
 - e. \$50,000 to \$75,000
 - f. More than \$75,000
6. What model of implementation have you selected (or are likely to select) for your program?
 - a. Municipally owned and operated
 - b. Municipal concession (i.e. City owns equipment/ contractor operates system)
 - c. Nonprofit owned and operated
 - d. For-profit operated
 - e. We have not yet decided
 - f. Other (Please describe)
7. How big is the proposed program?
 - a. 1-25 stations
 - b. 25-50 stations
 - c. 50-100 stations
 - d. 100-200 stations
 - e. More than 200 stations
8. Any final comments? (Provide comment box)
9. May we contact you for additional information? If so, please provide your contact information below.

APPENDIX E.

BIKE SHARING PROGRAM ANALYZED – LARGE SYSTEMS

Figures presented are as of March 2012

	LARGE SCALE SYSTEMS		
	DC/Arlington	Minneapolis	Miami Beach
System Name	Capital Bikeshare	Nice Ride	Deco Bike
Web Address	capitalbikeshare.com	niceridemn.org	decobike.com
Start date	20-Sep-10	10-Jun-10	15-Mar-11
Number of bicycles (start/current)	1100/1200	1200/1300	500/800
Number of stations (start/current)	110/140	116/145	50/91
Docks per station (Range)	11 to 39	11 to 39	8 to 32
Solar vs. wired	Solar	Solar	Solar
Jurisdiction Bike to Work Rate (%)	Total: 3.1% Female: 32% Male: 68%	Total: 3.5% Female: 24% Male: 76%	Total: 5.0% Female: 25% Male: 75%
Service Area (Sq Mi)	35.95	33.3	6.3
Average Station Density (# station per Sq. Mile)	3.92	3.48	14.13
Emp. Density (# Jobs per mile in Service Area in Srvc Area)	5,010 jobs	3,137 jobs	3,425 jobs
Median Household income (within service area)	\$66,508	\$44,011	\$53,808
Housing Density (# of housing Units per Sq. Mile in Srvc. Area)	6,344 units	3,838 units	6,424 units
# of Members (Annual/Casual)	19,200 Annual 105,644 casual	3,521 annual 37,103 casual	2,500 annual 338,828 casual
Year round or seasonal	Year-Round	Seasonal (Closed Nov-Mar)	Year-round
# of Trips per year	1,171,562 trips in 365 days	217,530 trips in 212 days	1,107,175 trips in 474 days
Climate Description	Hot and humid summers. cool winter	Humid summers, cold winters	Hot, rainy summers, mild winters
Average Temperatures (Summer/Winter)	78° F/38° F	72° F/19° F	83° F/69° F
Average Precipitation in inches (Summer/Winter)	3.48/2.86	4.20/0.96	6.33/2.19
Bike facilities in city	48 miles of marked bike lanes	40 miles on street bike lanes when program started and 80 miles by the end of the year	Sharrows throughout the city. Pathway along the sand 35-85th street.
Bicycle Friendly Community Ranking	Silver	Gold	N/A

APPENDIX E.

BIKE SHARING PROGRAM ANALYZED – LARGE SYSTEMS

Figures presented are as of March 2012

	LARGE SCALE SYSTEMS		
	DC/Arlington	Minneapolis	Miami Beach
System Name	Capital Bikeshare	Nice Ride	Deco Bike
Oversight Entity	District Department of Transportation, Arlington County Commuter Services	Nice Ride MN	Deco Bike LLC
Operator Name	Alta Bike Share	Nice Ride MN	Deco Bike LLC
Equipment ownership	Jurisdiction owned	Nonprofit owned	Privately owned
Equipment provider	PBSC Urban Solutions	PBSC Urban Solutions	Deco Bike LLC
Business Model	Municipally Owned/ Managed	Nonprofit	For-Profit
Funding Sources	Federal: CMAQ, Local: vehicle decal fee, commissions from transit fare media sales Private: business sponsorship Member and usage revenues	Federal: FHWA funds through local program, Private: Blue Cross- Blue Shield, other private/nonprofit investors, station sponsorships Membership and usage fees	Private investment, memberships and advertising space.
Fares / Usage Fees	\$75 annual \$25 30 days \$15 3 days \$7 24 hours No fee first 30 min \$1.50 /\$2.00 annu- al/casual members 30-60 min \$4.50/\$6.00 for annual/casual members 60-90 minutes, \$6/\$8 for annual/casual members for every half-hour thereafter	\$60 annual \$30 30 days \$5 24 hours No fee first 30 min \$1.50 30-60 min \$4.50 60-90 min \$6 for every half- hour thereafter	\$15 standard monthly (unlimited 30 min rides), \$25 deluxe monthly (unlimited 60 min rides), \$4 each additional 30 min. Hourly rentals of \$4 - 30 min, \$5 - 1 hr, \$10 - 2 hr, \$18 - 4 hr, \$24 - 1 day \$4 each additional 30 mins
Reported Thefts	9	0	0
Reported Crashes	14	2	0

APPENDIX E.

BIKE SHARING PROGRAM ANALYZED – MEDIUM SYSTEMS

Figures presented are as of March 2012

	MEDIUM-SCALE SYSTEMS		
	Boston	Denver	San Antonio
System Name	Hubway	Denver B-Cycle	San Antonio B-Cycle
Web Address	thehubway.com	denver.bcycle.com	sanantonio.bcycle.com
Start date	28-Jul-11	22-Apr-10	26-Mar-11
Number of bicycles (start/current)	400/600	400/520	200/210
Number of stations (start/current)	40/60	40/52	20/23
Docks per station (Range)	13 to 19	9 to 19	7 to 23
Solar vs. wired	Solar	Solar and Wired	Solar and Wired
Jurisdiction Bike to Work Rate (%)	Total: 1.4% Female: 39% Male: 61%	Total: 2.2% Female: 35% Male: 65%	Total: 0.2% Female: 23% Male: 77%
Service Area (Sq Mi)	11.79	12.57	4.77
Average Station Density (# station per Sq. Mile)	4.83	4.14	4.19
Emp. Density (# Jobs per mile in Service Area in Srvc Area)	7,084 jobs	3,371 jobs	1,570 jobs
Median Household income (within service area)	\$54,832	\$56,039	\$27,732
Housing Density (# of housing Units per Sq. Mile in Srvc. Area)	9,311 units	7,582 units	1,455 units
# of Members (Annual/Casual)	3,600 Annual 30,000 Casual	2,659 Annual 40,600 Casual	1,000 Annual 2,800 casual
Year round or seasonal	Seasonal (Closed Dec-Mar)	Seasonal (Closed Dec-Mar)	Year-round
# of Trips per year	60,000 trips in 120 days	202,731 trips in 271 days	23,272 trips in 180 days
Climate Description	Warm summers, cold winters	Mild Summers, cold winters	Hot and humid summers, mild winters
Average Temperatures (Summer/Winter)	72° F/32° F	69° F/32° F	85° F/54° F
Average Precipitation in inches (Summer/Winter)	3.49/3.51	1.91/0.73	2.99/1.84
Bike facilities in city	50 miles on on-street bike lanes, 50 miles off street	76 miles of bike lanes, 30 miles of sharrows, 82 miles of paved trails.	Modest biking infrastructure. The hope is to use the program to get more people biking who can "request" more bike infrastructure
Bicycle Friendly Community Ranking	Silver	Silver	Bronze

APPENDIX E.

BIKE SHARING PROGRAM ANALYZED – MEDIUM SYSTEMS

Figures presented are as of March 2012

	MEDIUM-SCALE SYSTEMS		
	Boston	Denver	San Antonio
System Name	Hubway	Denver B-Cycle	San Antonio B-Cycle
Oversight Entity	City of Boston	Denver Bike sharing	City of San Antonio
Operator Name	Alta Bike Share	Denver Bike sharing	San Antonio Bike share
Equipment ownership	Jurisdiction owned	Nonprofit owned	Jurisdiction owned
Equipment provider	PBSC Urban Solutions	B-Cycle	B-Cycle
Business Model	Municipally Owned	Nonprofit	Nonprofit
Funding Sources	Federal: CMAQ and FTA State: Public Health Grant Private: direct system sponsor and other smaller sponsors Membership and usage fees	Federal: EPA (EECBG); Transportation Community Preservation program. State: Vehicle registration Tax, FASTER program. Private: local match Membership and usage fees	Federal : EPA (EECBG), CDC, Communities Putting Prevention to work., Obesity Reduction Grant advertising and corporate sponsorships Membership and usage fees
Fares / Usage Fees	\$85 annual \$12 3 days \$5 24 hours No fee first 30 min \$1.50 /\$2.00 annual/casual members 30-60 min \$1.50/\$2.00 for annual/casual members 30-60 minutes, \$4.50/\$6.00 for annual/casual members for every half-hour thereafter	\$65 annual \$30 30 days \$20 7 day \$6 24 hours No fee first 30 min \$1 30-60 min \$4 for every half hour thereafter	\$60 annual \$24 7 days \$10 24 hours No fee first 30 min \$2 each additional 30 mins
Reported Thefts	0	7	0
Reported Crashes	Not reported	1	0

APPENDIX E.

BIKE SHARING PROGRAM ANALYZED – SMALL SYSTEMS

Figures presented are as of March 2012

	SMALL-SCALE SYSTEMS		
	Boulder	Spartanburg	Irvine
System Name	Boulder B-Cycle	Spartanburg B-Cycle	ZotWheels
Web Address	boulder.bcycle.com	spartanburg.bcycle.com	parking.uci.edu/ZotWheels
Start date	20-May-11	7-Jul-11	1-Oct-09
Number of bicycles (start/current)	110/110	14/14	28/28
Number of stations (start/current)	15/15	2-Feb	4-Apr
Docks per station (Range)	11 to 15	9 to 11	12-Aug
Solar vs. wired	Solar and Wired	Solar and Wired	Wired
Jurisdiction Bike to Work Rate (%)	Total: 9.9% Female: 29% Male: 71%	Total: 0.1% Female: 9% Male: 91%	Total: 2.1% Female: 36% Male: 64%
Service Area (Sq Mi)	4.69	1.42	1.29
Average Station Density (# station per Sq. Mile)	3.2	1.41	3.11
Emp. Density (# Jobs per mile in Service Area in Srvc Area)	1,787 jobs	2,513 jobs	1,557 jobs
Median Household income (within service area)	\$51,767	\$24,540	\$45,548
Housing Density (# of housing Units per Sq. Mile in Srvc. Area)	2,294 units	5,801 units	2,018 units
# of Members (Annual/Casual)	1,171 Annual 6,200 Daily	127 Annual 828 Casual	100 Annual No casual data reported
Year round or seasonal	Seasonal (Closed Dec-Mar)	Year-round	Year-round
# of Trips per year	18,500 trips in 270 days	2802 trips in 365 days	2200 rides in 252 days
Climate Description	Mild summers, cold winters	Warm summers, cool winters	Warm summers, mild winters
Average Temperatures (Summer/Winter)	70° F/35° F	78° F/44° F	72° F/59° F
Average Precipitation in inches (Summer/Winter)	1.94/0.85	4.24/4.27	0.05/2.81
Bike facilities in city	300+ miles of bike lanes, routes, designated shoulders and paths	3.6 miles of bike lanes and signed routes; 2.7 miles of sharrows; 24.38 miles of trails; 7 miles of mountain bike trails; 172 bike racks	Sharrows, on inner university ring with one side for bike one side for pedestrians, Trails, dedicated bike lanes.
Bicycle Friendly Community Ranking	Platinum	Bronze	Silver (university)

APPENDIX E.

BIKE SHARING PROGRAM ANALYZED – SMALL SYSTEMS

Figures presented are as of March 2012

	SMALL-SCALE SYSTEMS		
	Boulder	Spartanburg	Irvine
System Name	Boulder B-Cycle	Spartanburg B-Cycle	ZotWheels
Oversight Entity	Boulder B-Cycle	Partners for Active Living	University of California, Irvine
Operator Name	Boulder B-Cycle	Partners for Active Living	UC Irvine -Transportation and Distribution Services
Equipment ownership	Nonprofit owned	Nonprofit owned	University owned
Equipment provider	B-Cycle	B-Cycle	Collegiate Bicycle Company, Central Specialties, Lt.
Business Model	Nonprofit	Nonprofit	Nonprofit
Funding Sources	Sponsorships - 22% Grants - 56% Gifts - 10% Membership and usage fees - 12%	Local Grants: City of Spartanburg, Mary Black Foundation, and JM Smith Foundation Management Membership and usage fees	Revenue (parking fees, citations) - Transportation and Distribution Services
Fares / Usage Fees	\$50 annual \$15 - 7 day \$5 -24 hours No fee first 60 min \$4 for every half-hour thereafter	\$30 annual \$15 - 30 days \$5 - 24 hours No fee first 60 min \$1 for each additional 30 min	\$40 Annual / no usage fees
Reported Thefts	0	0	0
Reported Crashes	0	0	0

APPENDIX E.

BIKE SHARING PROGRAM ANALYZED – PLANNED SYSTEMS

Figures presented are as of March 2012

	PLANNED SYSTEMS	
	Atlanta	Chicago
System Name	N/A	N/A
Web Address	N/A	N/A
Start date	N/A	Projected Summer 2012
Number of bicycles (start/current)	N/A	Proposed 3000
Number of stations (start/current)	N/A	Proposed 500
Docks per station (Range)	N/A	N/A
Solar vs. wired	N/A	Solar
Jurisdiction Bike to Work Rate (%)	Total: 0.9% Female: 22% Male: 78%	Total: 1.3% Female: 28% Male: 72%
Service Area (Sq Mi)	N/A	N/A
Average Station Density (# station per Sq. Mile)	N/A	N/A
Emp. Density (# Jobs per mile in Service Area in Srvc Area)	N/A	N/A
Median Household income (within service area)	N/A	N/A
Housing Density (# of housing Units per Sq. Mile in Srvc. Area)	N/A	N/A
# of Members (Annual/Casual)	N/A	N/A
Year round or seasonal	N/A	N/A
# of Trips per year	N/A	N/A
Climate Description	Hot and humid summers, mild winters	Mild, humid summers, cold winters
Average Temperatures (Summer/Winter)	79° F/46° F	74° F/28° F
Average Precipitation in inches (Summer/Winter)	4.37/4.31	4.02/2.22
Bike facilities in city	N/A	282 miles of bikeways including 125 miles of marked on-street bike lanes and 50 miles of off-street trails.
Bicycle Friendly Community Ranking	N/A	Silver
Oversight Entity	N/A	City of Chicago
Operator Name	N/A	N/A
Equipment ownership	N/A	Jurisdiction owned
Equipment provider	N/A	N/A
Business Model	N/A	N/A
Funding Sources	N/A	Federal CMAQ and TIGER advertising, Private: sponsorship agreements Membership and user fees
Fares / Usage Fees	N/A	Projected \$60-100 per year \$3-7 for daily

APPENDIX F. CALCULATIONS AND METHODOLOGY

This analysis used geographic data to calculate the employment, income and housing densities for each jurisdiction. The data used included, bike share station locations, U.S. Census Tracts and U.S. Census American Community Survey data.

To begin the analysis, the research team constructed maps for each jurisdiction showing the geographic location of each bike share station. To display the geographic extent of each program, a service area was constructed by creating a distance buffer of ½ mile for each station. The buffer created for each station was then combined into one aggregated shape file, and the total area of the service area was then calculated.

This analysis used tract boundaries from the 2000 U.S. Census for each of the jurisdictions being analyzed, rather than the slightly revised boundaries of the more recent 2010 U.S. Census tracts. This permitted the direct incorporation of U.S. Census American Community Survey (ACS) data for 2005-2009 into the analysis.

Census Tract employment data were used to account for job density in the area in the immediate vicinity of bike sharing stations. Median household income data was used to account for any impact that income might have on bicycling directly. Housing density data was used

to account for the impact that increased density can have on ridership patterns within a bike share system. Because the buffer area around each station is uniform (1/2 mile), the estimated population lying inside this area approximates residential density. All of these independent variables were compiled for each census tract within each jurisdiction analyzed, and joined with a GIS shape file of the 2009 block groups.

The Census Tract files were linked to the bike share station buffer areas. Because the buffer areas do not closely match the shapes of the Census Tracts, a GIS function called a 'union' was used to measure the proportion of each block group's area that falls within each bike sharing station buffer. This proportional area for each census tract was then used to give a weight to that Census tract's data, and the product was combined with data for other tracts lying wholly or partially within the station buffer area. The result is a weighted average of Census tract data for station buffer area. Finally, each of the weighted census tract averages were aggregated into one final number for each service area. The final employment density, median household income and housing density calculations for each jurisdiction are reported on Appendix E.

ENDNOTES

- ¹ The information in this guide was obtained through in-depth interviews with a bike share advisory group. In the fall and winter of 2011-2012 a bike sharing advisory group was convened to provide oversight and guidance. The group consisted of managers and planners from twelve different jurisdictions implementing or planning for the implementation of bike sharing programs in the US. To ensure the applicability to the broadest possible audience, the bike share programs selected for the in-depth analysis varied in size of program, size of city/county, geographic representation, stage of implementation, and types of technology used. The following programs were selected: East Coast: Hubway (Boston, MA) and Capital Bikeshare (Washington, DC/Arlington, VA)); Southeast: Deco Bike (Miami, FL) and Spartanburg B-cycle (Spartanburg, SC); Midwest: Nice Ride (Minneapolis, MN)); Mountain West: Denver B-cycle (Denver, CO) and Boulder B-cycle (Boulder, CO); Southwest: San Antonio B-cycle (San Antonio, TX); West: Zotwheels (University of California, Irvine).
- ² As of March 2012, the following is a list of major US cities implementing or planning to implement a bike share program within the next year: Atlanta, Charlotte, Chicago, Houston, Los Angeles, New York, Oklahoma City, Portland, San Francisco and Seattle.
- ³ Bikes meant for sharing: B-cycle and BIXI. <http://www.bikeradar.com/news/article/bikes-meant-for-sharing-b-cycle-and-bixi-29551>. BikeRadar.com. Retrieved January 12, 2012.
- ⁴ Nankervis, Max. The effect of weather and climate on bicycle commuting. *Transportation Research Part A* 33 (1999) 417-431
- ⁵ Midgely, Peter. "Bicycle-Sharing Systems: Enhancing Sustainable Mobility in Urban Areas." Background Paper No. 8. United Nations Commission on Sustainable Development. Pg 7-8. May 2011. http://www.un.org/esa/dsd/resources/res_pdfs/csd-19/Background-Paper8-P.Midgely-Bicycle.pdf
- ⁶ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁷ Interview with Lee Jones, Director of Sales, B-cycle LLC. July 27, 2012
- ⁸ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁹ Program profiles were created through interviews with different jurisdictions. See Program Profiles for more information.
- ¹⁰ Di Caro, Martin. DC Bike Shop Owners See Big Returns From Bike Share. *Transportation Nation*. Retrieved from <http://transportationnation.org/2012/06/29/dc-bike-shop-owners-see-big-returns-from-bike-share/> on June 30, 2012.
- ¹¹ Interview with Josh Moskowitz, Program Coordinator and Chris Holben, Program Coordinator. DC Department of Transportation. November 30, 2011.
- ¹² Although Chicago had an existing small-scale bike sharing system (7 stations), at the time this guide was being researched, the City was planning a larger, jurisdiction-wide system.
- ¹³ Although some are expanding to offer more than one type including tri-cycles and bicycles with additional cargo space.
- ¹⁴ Classic bike sharing schemes began in highly concentrated and dense jurisdictions according to the literature reviewed.
- ¹⁵ Bike-sharing Survey. League of American Bicyclists. January 2012.
- ¹⁶ Voeller, Gabrielle Elise. Optimizing the locations of Bike-sharing Stations in Denver, Colorado: A suitability Analysis. Cornell University. May 2011.
- ¹⁷ Capital Bikeshare commuters share why they ride — and its drawbacks. http://www.washingtonpost.com/local/capital-bikeshare-commuters-share-why-they-ride--and-its-drawbacks/2012/01/26/gIQAQzdGjQ_story.html. Washington Post online. Retrieved February 9 2012.
- ¹⁸ Boulder B-cycle. Annual Report 2011. January 2012.
- ¹⁹ Interview with Julia Diana, Manager, San Antonio Bikes - City of San Antonio. December 7, 2011.
- ²⁰ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ²¹ Ibid.
- ²² Shaheen, Susan A.; Guzman, Stacey; Zhang, Hua Zhang. Bike sharing in Europe, the Americas, and Asia Past, Present, and Future. *Journal of the Transportation Research Board*, 2143, Transportation Research Board. Washington, D.C., 2010, pp. 159–167
- ²³ Pardo, Carlos Felipe; Calderon, Patricia; Baranda, Bernardo; Medina, Cécile; Hagen, Jonas; Treviño, Xavier. Experiencias y lecciones de sistemas de transporte público en bicicleta para América Latina. Institute for Transportation and Development Policy (ITDP). October 2010.
- ²⁴ Ibid.
- ²⁵ Interview with Nate Evans, Bicycle & Pedestrian Planner, Baltimore Department of Transportation. November 17, 2011.
- ²⁶ Optibike website. <http://optibike.com>. Retrieved February 15, 2012.

- ²⁷ Interview with Susan Shaheen. Co-director, Institute of Transportation Studies' Transportation Sustainability Research Center (TSRC). University of California, Berkeley. February 15, 2012.
- ²⁸ A Bay Area Experiment in Electric Bike Sharing. <http://green.blogs.nytimes.com/2012/02/06/a-bay-area-experiment-in-electric-bike-sharing/>. New York Times online. Retrieved February 8, 2012. Interview with Interview with Susan Shaheen. Co-director, Institute of Transportation Studies' Transportation Sustainability Research Center (TSRC). University of California, Berkeley. February 15, 2012.
- ²⁹ Cycleshare website. <http://www.cycleshare.com/>. April 15, 2012.
- ³⁰ ViaCycle website. <http://www.viacycle.com>. Retrieved January 20, 2012.
- ³¹ Interviews with Advisory Committee Members conducted November 2011 – January 2012.
- ³² Clayton, Steven; Farber, Christina; Green, Steven; Kitzerow, Ellen; Markfield, Maxine; Song, Inyoung; White, Colin; Yang; Yang; Zavacky, Greg. Feasibility Study for a Pittsburgh Bike Share. Public Policy and Management. Heinz College. Fall 2011.
- ³³ Midgely, Peter. "Bicycle-Sharing Systems: Enhancing Sustainable Mobility in Urban Areas." Background Paper No. 8. United Nations Commission on Sustainable Development. Pg 7-8. May 2011. http://www.un.org/esa/dsd/resources/res_pdfs/csd-19/Background-Paper8-P.Midgely-Bicycle.pdf
- ³⁴ This area was calculated through GIS technology using the geographic location of bike share stations. The research group created a ½ mile buffer around each station and then calculated the combined area of the buffering around each station (see Appendix F for more information).
- ³⁵ Litman, T., & Steele, R. Land Use Impacts on Transport: How Land Use Factors Affect Travel Behavior. (2008). Vancouver, British Columbia: Victoria Transport Policy Institute.
- ³⁶ Bike share program report. Pioneer Valley Planning Commission Land Use & Environment. Section http://www.pvpc.org/resources/transport/encourg_bike/Bike_Share.pdf. Retrieved January 19, 2012.
- ³⁷ Buehler, Ralph; Pucher, John. Cycling to work in 90 large American cities: new evidence on the role of bike paths and lanes. Springer Science Business Media, LLC. 2011. Retrieved from <http://policy.rutgers.edu/faculty/pucher/bikepaths.pdf> on April 19, 2012.
- ³⁸ Capital Bikeshare Data, Part 7: Maps Edition. <http://jdantos.wordpress.com/2012/02/13/capital-bikeshare-data-part-7-maps-edition/>. Retrieved February 14, 2012
- ³⁹ Midgely, Peter. "Bicycle-Sharing Systems: Enhancing Sustainable Mobility in Urban Areas." Background Paper No. 8. United Nations Commission on Sustainable Development. Pg 7-8. May 2011. http://www.un.org/esa/dsd/resources/res_pdfs/csd-19/Background-Paper8-P.Midgely-Bicycle.pdf. Retrieved February 14, 2012.
- ⁴⁰ Capital Bikeshare Data Dashboard. <http://cabidashboard.ddot.dc.gov/>. Retrieved February 14, 2012
- ⁴¹ This number was calculated through GIS technology using the geographic location of bike share stations and the service area of each program. To obtain a final number, first a service area measurement was calculated. Using this number, a proportion was created dividing the number of available stations between the service area calculations. See Appendix F for more information.
- ⁴² Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁴³ Interview with Josh Moskowitz, Program Coordinator and Chris Holben, Program Coordinator. DC Department of Transportation. November 30, 2011.
- ⁴⁴ Buehler, Ralph; Pucher, John. Cycling to work in 90 large American cities: new evidence on the role of bike paths and lanes. Springer Science Business Media, LLC. 2011. Retrieved from <http://policy.rutgers.edu/faculty/pucher/bikepaths.pdf> on April 19, 2012.
- ⁴⁵ B-cycle Station dimensions (2011) and Capital Bikeshare Public Meeting presentation. Expansion to Montgomery County. November 29, 2011.
- ⁴⁶ Figures were obtained through interviews with Advisory Committee Members as well as a review of available literature and bike sharing resources available publicly.
- ⁴⁷ Interview with Nicole Freeman, Director of Bicycle Programs, City of Boston. December 01, 2011.
- ⁴⁸ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁴⁹ Interview with Josh Moskowitz, Program Coordinator and Chris Holben, Program Coordinator. DC Department of Transportation. November 30, 2011.
- ⁵⁰ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁵¹ Ibid.
- ⁵² Boulder B-cycle 2011 Annual report and Interview with Elizabeth Train, Executive Director - Boulder B-cycle. December 20, 2011. ⁵³ Interviews with Advisory Committee Members conducted November 2011 – January 2012.
- ⁵⁴ Interview with Elizabeth Train, Executive Director - Boulder B-cycle. December 20, 2011.
- ⁵⁵ Interview with Colby Reese, Vice President, Deco Bike. November 8, 2011.
- ⁵⁶ In some cases, public funding represented 100% of the funding allocated for program implementation

- ⁵⁷ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁵⁸ Construction Program Guide: Buy America Provisions. Federal Highway Administration. US Department of Transportation. Retrieved from <http://www.fhwa.dot.gov/construction/cqit/buyam.cfm> on June 6, 2012.
- ⁵⁹ The extension of some of the US Department of Transportation funding authorized through Federal legislation (SAFETEA LU) was under review as this guide was being completed.
- ⁶⁰ As of March 2012, Federal Highway funds may be used the procurement of both bicycles and bike sharing stations as reported by Advisory Committee members and representatives from Federal Highways Administration
- ⁶¹ As of March 2012, Federal Transit Administration funds can only be used for the procurement of bike sharing stations, as bike share bikes are considered Single Occupancy Vehicles under FTA definitions.
- ^{62, 63} Grant is funded through Federal mandate of the American Recovery and Reinvestment Act of 2009.
- ⁶⁴ Please note that there are additional Federal sources which can support bike share programs. Additional information can be found under http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/bp-guid.cfm#bp4
- ⁶⁵ Boulder B-cycle 2011 Annual report and Interview with Elizabeth Train, Director - Boulder B-cycle. December 20, 2011.
- ⁶⁶ Denver B-cycle 2010 Annual Report
- ⁶⁷ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁶⁸ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁶⁹ Ibid.
- ⁷⁰ Denver B-cycle pricing. <http://denver.bcycle.com/pricing.aspx>. Retrieved February 3, 2012.
- ⁷¹ Request for proposal for brokerage of a bicycle sharing system advertising, sponsorship and partnership for the city of Chicago. Exhibit A <http://www.cityofchicago.org/content/dam/city/depts/dps/ContractAdministration/Specs/2011/Spec102885.pdf>. Retrieved January 5, 2012
- ⁷² Interview with Josh Moskowitz, Program Coordinator and Chris Holben, Program Coordinator. DC Department of Transportation. November 30, 2011.
- ⁷³ For more information please refer to FHWA's bike share Frequent Asked Questions page: http://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/faq_bikeshare.cfm
- ⁷⁴ Interview with Nicole Freeman, Director of Bicycle Programs, City of Boston. December 01, 2011.
- ⁷⁵ Interview with Mitch Vars, I.T. Director, Nice Ride. December 14, 2011.
- ⁷⁶ Ibid.
- ⁷⁷ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁷⁸ Ibid.
- ⁷⁹ Interview with Anne Hudak, Active Lifestyles Coordinator. Partners for Active Living and Cate Ryba, Media and Communications Officer. Mary Black Foundation. November 8, 2011
- ⁸⁰ Interview with Anne Hudak, Active Lifestyles Coordinator. Partners for Active Living and Cate Ryba, Media and Communications Officer. Mary Black Foundation. November 8, 2011.
- ⁸¹ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁸² Ibid.
- ⁸³ Capital Bikeshare commuters share why they ride — and its drawbacks. http://www.washingtonpost.com/local/capital-bikeshare-commuters-share-why-they-ride--and-its-drawbacks/2012/01/26/gIQAQzdGjQ_story.html. Washington Post online. Retrieved February 9 2012.
- ⁸⁴ Baldwin Hess, Daniel; Ong, Paul. Traditional Neighborhoods and Automobile Ownership. Journal of the Transportation Research Board. Transportation Research Board of the National Academies. Volume 1805/2002. Pg 34-44.
- ⁸⁵ Toussaint-Comeau, Maude; L.W. Rhine, Sherrie. The Financing Experiences of Minority Businesses: Evidence from Asian, Hispanic and Black Small Business Owners. Federal Reserve Bank of Chicago.
- ⁸⁶ The Fine Print Behind Capital Bikeshare's Unbanked Program Emily Badger. The Atlantic Cities. December 30, 2011. <http://www.theatlanticcities.com/commute/2011/12/financial-fine-print-behind-capital-bikeshares-unbanked-program/826/>. Retrieved January 6, 2012.
- ⁸⁷ Interview with Elizabeth Train, Executive Director – Boulder B-Cycle. December 20, 2011.
- ⁸⁸ Interview with Nicole Freeman, Director of Bicycle Programs-City of Boston. December 01, 2011.
- ⁸⁹ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁹⁰ Interview with Colby Reese, Vice President – Deco Bike. November 8, 2011.
- ⁹¹ Nice Ride Website <https://www.niceridemn.org/merchandise/>. Retrieved February 27, 2012.
- ⁹² Interview with Josh Moskowitz, Program Coordinator and Chris Holben, Program Coordinator. DC Department of Transportation. November 30, 2011.

- ⁹³ Capital Bikeshare Data Dashboard. <http://cabidashboard.ddot.dc.gov/>. Retrieved January 12, 2012.
- ⁹⁴ Interview with Mitch Vars, I.T. Director. Nice Ride Minnesota. December 14, 2011.
- ⁹⁵ Interview with Josh Moskowitz, Program Coordinator and Chris Holben, Program Coordinator. DC Department of Transportation. November 30, 2011.
- ⁹⁶ Ibid
- ⁹⁷ Interview with Colby Reese, Vice President, Deco Bike. November 8, 2011
- ⁹⁸ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ⁹⁹ Interview with Nicole Freeman, Director of Bicycle Programs – City of Boston. Interview conducted December 1, 2011
- ¹⁰⁰ Care, Adam. Bike Share Scheme starts to gain Traction. <http://www.theage.com.au/victoria/bike-share-scheme-starts-to-gain-traction-20120209-1rwsx.html>. The Age News online. Retrieved February 09, 2012
- ¹⁰¹ MIT students invent bike helmet vending machine. GRIST online. Retrieved from <http://grist.org/list/helmethub/> on March 15, 2012.
- ¹⁰² Public Health Law Center at William Mitchell College of Law, Liability Issues for Bike Share Programs. <http://publichealthlawcenter.org/sites/default/files/resources/shipfs2-bikeshareliability-2011.pdf>. Retrieved March 12, 2012.
- ¹⁰³ Section 3-E (Operations). Arlington County Agreement No. 56-09. Retrieved from http://www.metrobike.net/index.php?s=file_download&id=34 on May 21, 2012.
- ¹⁰⁴ Interview with Josh Moskowitz, Program Coordinator and Chris Holben, Program Coordinator. DC Department of Transportation. November 30, 2011.
- ¹⁰⁵ Capital Bikeshare Data Dashboard. <http://cabidashboard.ddot.dc.gov/>. Retrieved January 12, 2012 and Capital Bikeshare Data, Part 8: Mileage and Elevation Change. <http://jdantos.wordpress.com/2012/02/22/capital-bikeshare-data-part-8-mileage-and-elevation-change/>. Retrieved February 24, 2012.
- ¹⁰⁶ Interview with Julia Diana, Manager, San Antonio Bikes - City of San Antonio. December 7, 2011.
- ¹⁰⁷ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ¹⁰⁸ Interviews with Advisory Committee Members conducted November 2011 – January 2012
- ¹⁰⁹ Program profiles were created through interviews with different jurisdictions. See Program Profiles section for more information.
- ¹¹⁰ Capital Bikeshare Striving to Become Financially Self-Sufficient. The Bike sharing Blog. Retrieved from <http://bike-sharing.blogspot.com/2012/02/capital-bikeshare-striving-to-become.html> February 15, 2012.
- ¹¹¹ Hernandez, Mauricio. Multimodal debate – Cost comparison of implementing a bike sharing program vs. a bus rapid transit system. University of Maryland. December 2011.
- ¹¹² Interview with Julia Diana, Manager, San Antonio Bikes - City of San Antonio. December 7, 2011.
- ¹¹³ Interview with Anne Hudak, Active Lifestyles Coordinator. Partners for Active Living and Cate Ryba, Media and Communications Officer. Mary Black Foundation. November 8, 2011.
- ¹¹⁴ Interview with Anne Hudak, Active Lifestyles Coordinator. Partners for Active Living and Cate Ryba, Media and Communications Officer. Mary Black Foundation. November 8, 2011.
- ¹¹⁵ Baldwin Hess, Daniel; Ong, Paul. Traditional Neighborhoods and Automobile Ownership. Journal of the Transportation Research Board. Transportation Research Board of the National Academies. Volume 1805/2002. Pg 34-44.
- ¹¹⁶ Interview with Julia Diana, Manager, San Antonio Bikes - City of San Antonio. December 7, 2011.
- ¹¹⁷ Notice of Award of Contract, Amendment No. 2. <http://egov.arlingtonva.us/purchasing/pdf/contracts/270-11A2.pdf>. Office of the Purchasing Agent. Arlington County, Virginia. October 19, 2011. Retrieved January 31, 2012.
- ¹¹⁸ Capital Bikeshare Data Dashboard. <http://cabidashboard.ddot.dc.gov/>. Retrieved January 12, 2012.
- ¹¹⁹ Massachusetts Bay Transportation Authority. Rider Tools. MBTA + Boston Bikes Developers Challenge. http://mbta.com/rider_tools/developers/default.asp?id=23648. Retrieved January 27, 2012
- ¹²⁰ Nice Ride Customer survey (November 2010). <http://appv3.sgizmo.com/reportsview/?key=102593-416326-6d13ea0276ea0822c9f59f4411b6c779>. Retrieved February 20, 2012.
- ¹²¹ Capital Bikeshare Crowd sourcing map. <http://mobilitylab.org/bikearlington/crowdsourcing/sharemap.php>. Retrieved February 3, 2012.



U.S. Department of Transportation
**Federal Highway
Administration**



CREDIT: SAN ANTONIO B-CYCLE (SAN ANTONIO, TX)



CREDIT: NICE RIDE (MINNEAPOLIS, MN)



CREDIT: HUBWAY (BOSTON, MA)