State of the Practice and Guide to Implementation

Getting Started with Bike Share

Federal Highway Administration
Pedestrian and Bicycle Information Center
Toole Design Group, LLC

March 22, 2012

Focus of study

Pedestrian and Bicycle Information Center

U.S. Department of Transportation
Federal Highway Administration

- Document current practices
  - Planning
  - Business models
  - Funding sources
  - System design and technology
  - Performance measures
- Provide implementation guidance
  - Program goals
  - Feasibility studies
  - Infrastructure options
  - Policy considerations
  - Promotion and marketing
- **Support program success!**

Source: Capital Bikeshare

Study participants

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EXISTING PROGRAMS

- Boulder B-cycle (May 2011)
- Capital Bikeshare (DC Area | Sep. 2010)
- Deco Bike (Miami Beach | March 2011)
- Denver B-cycle (April 2010)
- Hubway (Boston | July 2011)
- Nice Ride (Minneapolis | June 2010)
- San Antonio B-cycle (March 2011)
- Spartanburg B-cycle (July 2011)
- ZotWheels (UC Irvine | Oct. 2009)

Source: Boulder B-cycle, Capital Bikeshare, Deco Bike

UPCOMING PROGRAMS

- Chicago (summer 2012)
- Baltimore (fall 2012)
- Atlanta (feasibility study- summer 2012)

Answer the questions:

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- What is bike share?
- What does it cost?
- How do we pay for it?
- What about safety?
- How do we get started?

"We should start a bike share program!"

"… But what is bike share?"

What is bike sharing?

Source: Nice Ride

- Automated self-service rentals
- Priced to encourage short trips
- One style of bicycle
- One-way use/return bicycle at any station
- Long-term and casual members

Program profiles
Large systems (800-1,200 bikes)

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	Capital Bikeshare	Nice Ride	Deco Bike
Start date	September 20, 2010	June 10, 2010	March 15, 2011
Number of bikes	1200	1200	800
Number of Stations	140	116	91
Docks per station (Range)	11 to 39	11 to 39	13 to 19
Solar vs. wired	Solar	Solar	Solar
Service Area (Sq Mi)	35.95	33.30	6.30
Average Station Density (# station per Sq. Mile)	3.92	3.48	14.13
# of Members (Annual/Casual)	19,200 Annual 105,644 casual	3,521 annual 37,103 casual	2,500 annual No casual data reported
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	540,000 trips in 274 days
Business Model	Jurisdiction owned and managed	Non-Profit	For-Profit

Program profiles
Medium systems (200-600 bikes)

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	Hubway	Denver B-Cycle	San Antonio B-Cycle
Start date	July 28, 2011	April 22, 2010	March 1, 2011
Number of bikes	600	520	200
Number of Stations	60	52	20
Docks per station (Range)	13 to 19	9 to 19	7 to 23
Solar vs. wired	Solar	Solar and Wired	Solar and Wired
Service Area (Sq Mi)	11.79	12.571	4.77
Average Station Density (# station per Sq. Mile)	4.83	4.1365	4.19
# 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
Business Model	Advertising and Sponsorship Concession with profit sharing	Non-Profit	Non-Profit

Program Profiles
Small systems (under 150 bikes)

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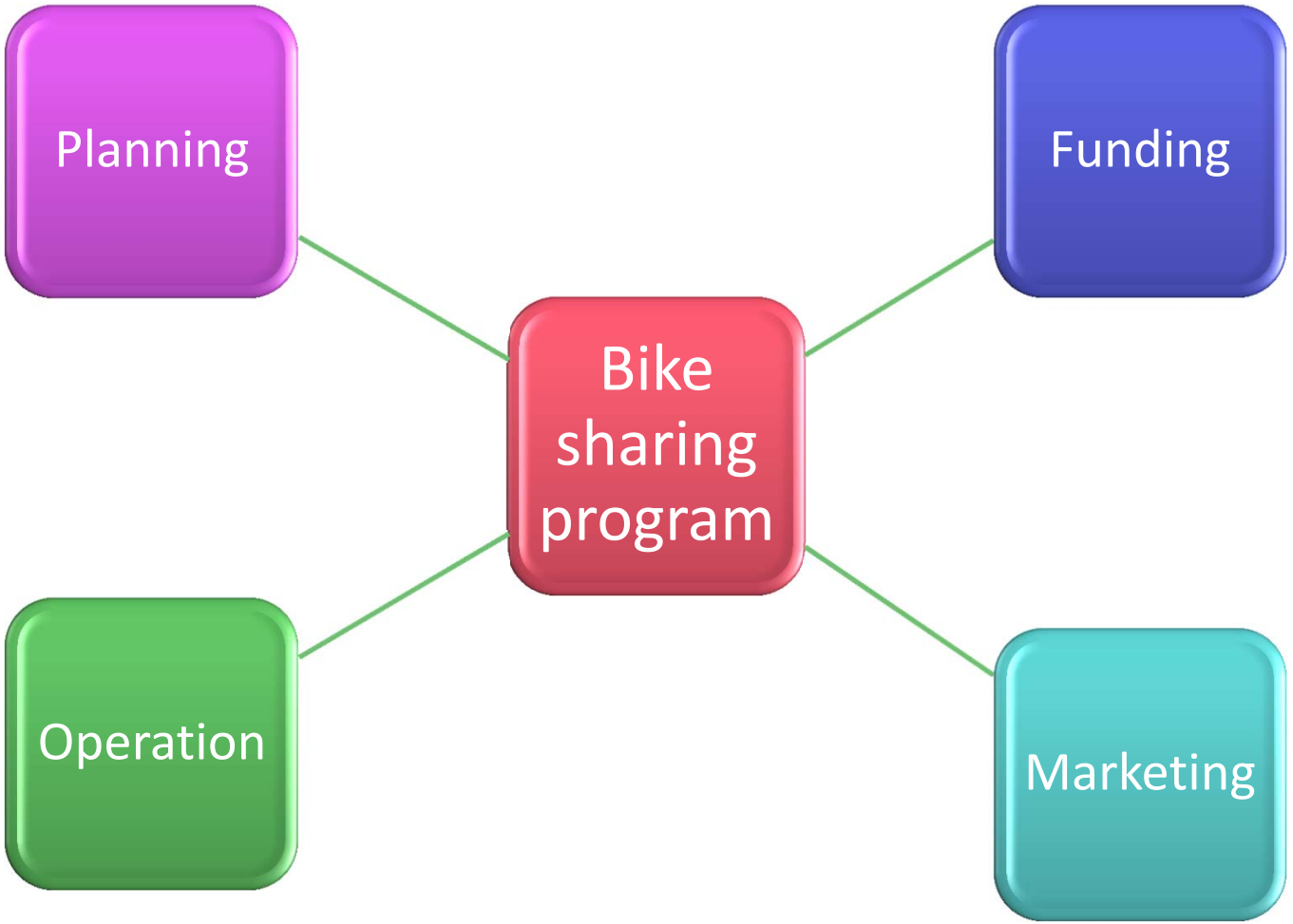
	Boulder B-Cycle	Spartanburg B-Cycle	ZotWheels*
Start date	May 20, 2011	July 7, 2011	October 1, 2009
Number of bikes	110	14	28
Number of Stations	15	2	4
Docks per station (Range)	11 to 15	9 and 11	8 to 12
Solar vs. wired	Solar and Wired	Solar and Wired	Wired
Service Area (Sq Mi)	4.69	1.42	1.29
Average Station Density (# station per Sq. Mile)	3.20	1.41	3.11
# of Members (Annual/Casual)	1,171 Annual 6,200 Daily	100 Annual 450 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	1500 trips in 150 days	2200 rides in 252 days
Business Model	Non-Profit	Non-Profit	Non-Profit

* ZotWheels was included to provide insights into university owned and managed programs. While this analysis does share lessons learned from the program, the findings of the report concentrate on urban bike sharing programs

Program components



Why bike sharing?

Source: Boulder B-cycle

- Spontaneous bicycle trips
- Increased mobility options
- Complement transit and other modes
- Environmental, social, economic and health benefits
- Reduced traffic congestion

"So, how much does it cost?"

Cost elements

- Program planning:
  - Feasibility study
  - Procurement
- Program startup:
  - Equipment
  - Permitting and installation
  - Marketing and outreach
- Sustaining the program:
  - Maintenance and operations
  - Customer service
  - Advertising and marketing*
  - Vendor payments
  - System evaluation, planning and expansion

Source: Deco Bike

How much does it cost?

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Station Size (Docks)	Bikes	Equipment and Installation	Approximate Annual Operating costs
11	6	$35,000 to $40,000	$12,000 to $15,000
15	8	$45,000 to $48,000	$18,000 to $21,000
19	10	$53,000 to $58,000	$24,000 to $28,000

Source: Interviews with Advisory group (Nov.2011- Jan. 2012)

"How do we pay for it?"

Federal Funding
US DOT support for walking and bicycling

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- US DOT 2010 *Policy Statement on Bicycle and Pedestrian Accommodation*
  - "…DOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists…"

- FTA 2011—eligibility of pedestrian and bicycle improvements
  - First and last mile focus
  - Catchment area (radius) around stop/station
    - Bike - 3 miles
    - Pedestrian - ½ mile
    - Can extend beyond if strongly connected
  - *Mentions bicycle share eligibility*

Federal Funding
Existing supporting programs

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FHWA

- Formula
  - Congestion Mitigation and Air Quality Improvement Program (CMAQ)
  - Surface Transportation Program/Transportation Enhancement (TE)
- Discretionary
  - Transportation, Community, and System Preservation Program (TCSP)
  - TIGER
- Other
  - Nonmotorized Transportation Pilot Program

Source: Capital Bikeshare

Federal Funding
Programs which can support Bike Sharing

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Source: Denver B-cycle

FTA

- Bus Livability
  - Orange County (CA) Transportation Authority (OCTA)
  - Austin, TX (Capital Metropolitan Transportation Authority)
- Paul S. Sarbanes Transit in Parks grant program
  - San Antonio, TX
- Job Access Reverse Commute
  - Planned for Montgomery County, MD

Federal Funding
Issues for bike share

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- US DOT working on consistent approach to funding eligibility questions.

- Funding issues:
  - Federal funding eligibility;
  - Grant administration and contract management;
  - Right-of-way (highway encroachment, public property use, private property impacts, outdoor advertising);
  - Buy America—products made of steel or iron;
  - Funds not for operating expenses and maintenance.

- Can federal funds pay for the bikes?
  - FTA: No. FTA has not historically included bicycles within the definition of public transportation.
  - FHWA: Yes. Bikes are part of a parking system.

Federal funding in the future

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- Follow the debate in Congress
- US DOT FY 2013 budget *proposal*
  - Program consolidation
  - Livable Communities formula and discretionary programs
- How will funding options for bike share programs change in reauthorization?



Funding sources

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PRIVATE GRANTS

GRANTS
- Blue Cross/Blue Shield
- Humana
- New Balance
- Mary Black Foundation
- JM Smith Foundation
- Children's Hospital
- Procter Gamble
- Gillette
- Harvard University
- others

CUSTOMER FEES

MEMBERSHIP FEES
- $45-$85 – one year
- $15-$60 – one month
- $15-$30 – 3 day/weekly
- $5-$7 – daily

USAGE FEES
- Free 30-60 mins
- Additional fee for every 30 mins thereafter

PUBLIC

FEDERAL
- Formula
- Discretionary
- FTA
- FHWA

STATE
- Colorado FASTER
- CPPW grants
- State DOTs

LOCAL
- Parking fees
- Matching funding

ADVERTISING AND SPONSORSHIP

- Naming rights
- Advertising
- Logos on equipment and website

Business models

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JURISDICTION OWNED AND MANAGED

NON-PROFIT ORGANIZATION

ADVERTISING AND SPONSORSHIP CONCESSION WITH PROFIT SHARING

FOR-PROFIT BUSINESS

Planning
Selecting a Business Model

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JURISDICTION OWNED AND MANAGED

- Jurisdiction buys and owns the equipment
- Fixed contract with system operator – maintenance and operation
- Profits (if any) are reinvested into the program
- Jurisdiction provides majority of capital funding

Capital Bikeshare (DC Area)

Source: Capital Bikeshare

Planning
Selecting a Business Model

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ADVERTISING AND SPONSORSHIP CONCESSION WITH PROFIT SHARING

- Program operates through shared costs and/or revenue agreements
- Contractor receives advertising and sponsorship revenues
- Contractor operates and maintains equipment
- Jurisdiction and contractor share net revenues

HUBWAY (Boston)

Source: Toole Design Group

Planning
Selecting a Business Model

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NON-PROFIT ORGANIZATION

- Non-profit entity created to operate bike share
- Jurisdiction(s) may act as conduit for public funding
- Non-profit assumes liability (legal and financial)

Spartanburg B-cycle
Source: Mary Black Foundation

Planning
Selecting a Business Model

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FOR-PROFIT BUSINESS

- System run by a private, for-profit operator
- Revenues from grants, member fees, advertising, and investors
- Minimal governmental involvement (incl. funding)
- Fees paid to jurisdiction for use of public space and permitting

Deco Bike (Miami Beach)

Source: Deco Bike

Business models, cont.

- Overlap between business models
- Multiple influencing factors:
  - Politics
  - Funding sources
  - Institutional capacity
  - Liability concerns
  - Regulations

Source: Boulder B-cycle

"Alright, I get it … What about safety and liability?"

Promoting safety

- Very low rates of reported crashes
- Helmet use encouraged
- Bicycle design (heavier, slower, highly visible)
- Educational information on websites and at kiosks
- Links to bicycle safety resources and training

Source: Capital Bikeshare

Getting a helmet for Boston's Hubway

Online - When you sign up for a Hubway membership, you can add a helmet to your purchase while registering. We'll mail it right to your front door.

In a Local Business - Buy a helmet from one of these retailers, many which are located conveniently near Hubway stations.

On the Street - Look for the Boston Bikes and Hubway Street Teams out at busy Hubway stations. We'll have helmets available right where the bikes are. Find out where we will be next on Facebook and Twitter.

Limiting liability

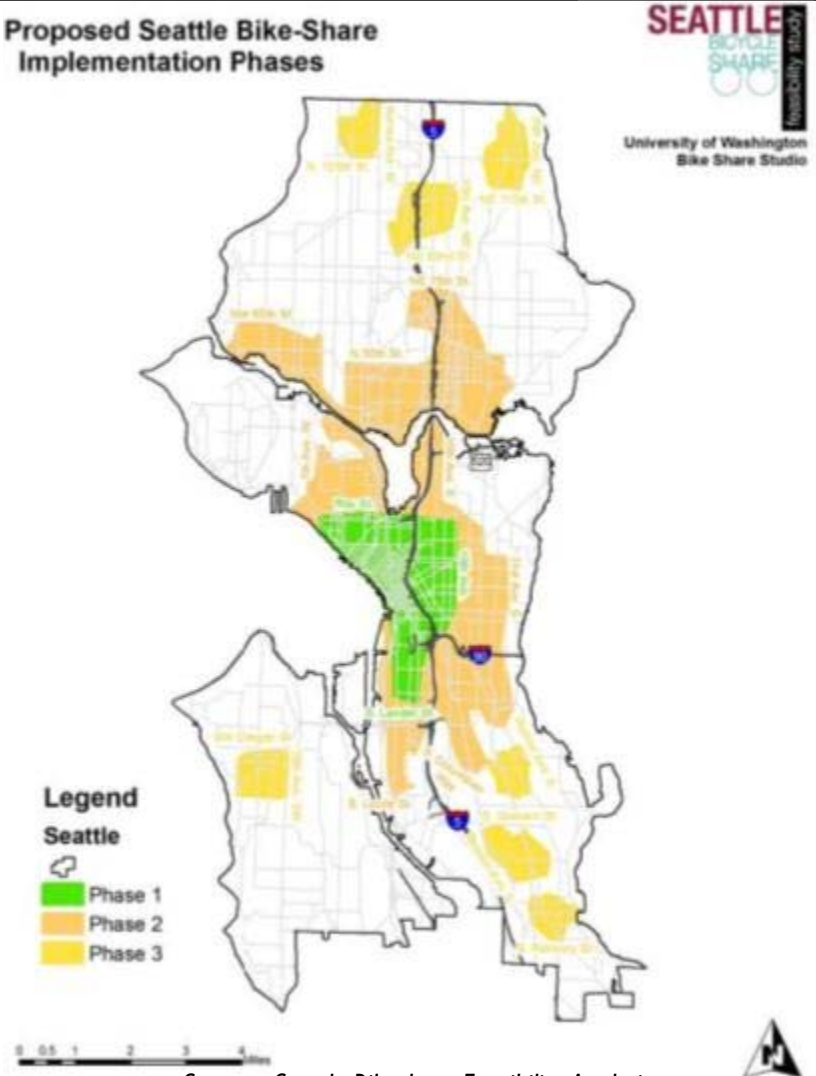
- Maintain equipment and infrastructure
- Include waivers in rental agreements
- Educate users about safe bicycling
- Strategic partnerships to distribute risk
- Purchase insurance
- Work with local attorneys

Source: Mary Black Foundation

"Great! Will it work?"

Planning
Feasibility studies

- Potential demand
- Scope and service area
- Business model
- Program costs
- Funding sources
- Technology/equipment
- Phasing
- Program administration, contracts, and procurement
- Sustainability



Source: Seattle Bikeshare Feasibility Analysis

Planning
Common variables

Citywide Bicycle Sharing Suitability
Source: Pittsburgh Feasibility Analysis

Service area/station siting:

- Population density
- Job density
- Retail density
- Presence of colleges/universities
- Infrastructure
- Tourist attractions
- Transit density/access
- Topography

Planning
Statistics (PRELIMINARY)

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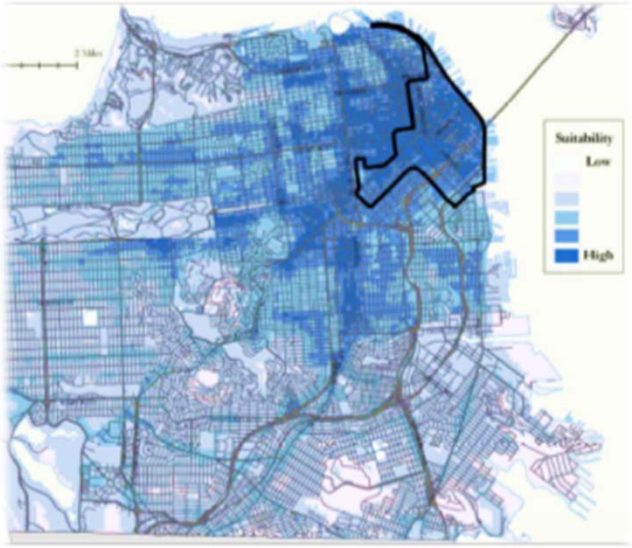
- Service area profiles
  - Size: 1.5 sq. mi. to 36 sq. mi.
  - Station density: 1.4-14.3 stations/sq. mi. (avg. 4.7)
  - Station spacing: 0.1-0.75 mi.
  - Housing: 1,400-9,300 units/sq.mi.
  - Employment: 570-7,000 jobs/sq. mi.
  - Income: $28,000-$66,000 (avg. $47,000)
  - BTW rate: 0.2% - 5% (avg. 3%).



Citywide Bicycle Sharing Suitability

Source: San Francisco Feasibility Analysis

Planning
Station siting and power

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- AC POWER

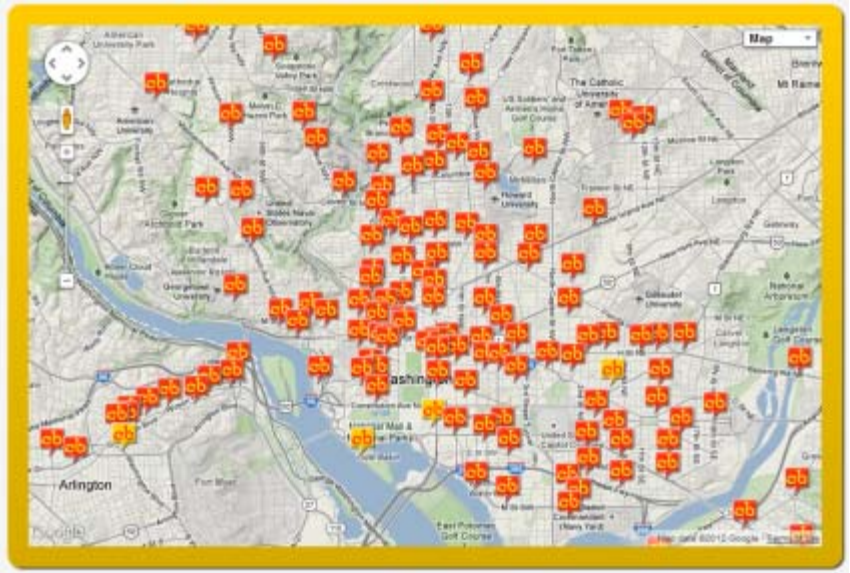
- SOLAR POWER

Docks	Width	Station Depth	Access Depth	Total Depth	Weight
11	31 to 32 feet	6 to 8 feet	4 feet	10' to 12'	3000 to 5000 lbs
15	40 to 42 feet	6 to 8 feet	4 feet	10' to 12'	4500 to 5500 lbs
19	50 to 52 feet	6 to 8 feet	4 feet	10' to 12'	5500 to 6500 lbs

Source: Interviews with Advisory group (Nov.2011- Jan. 2012)

Program success

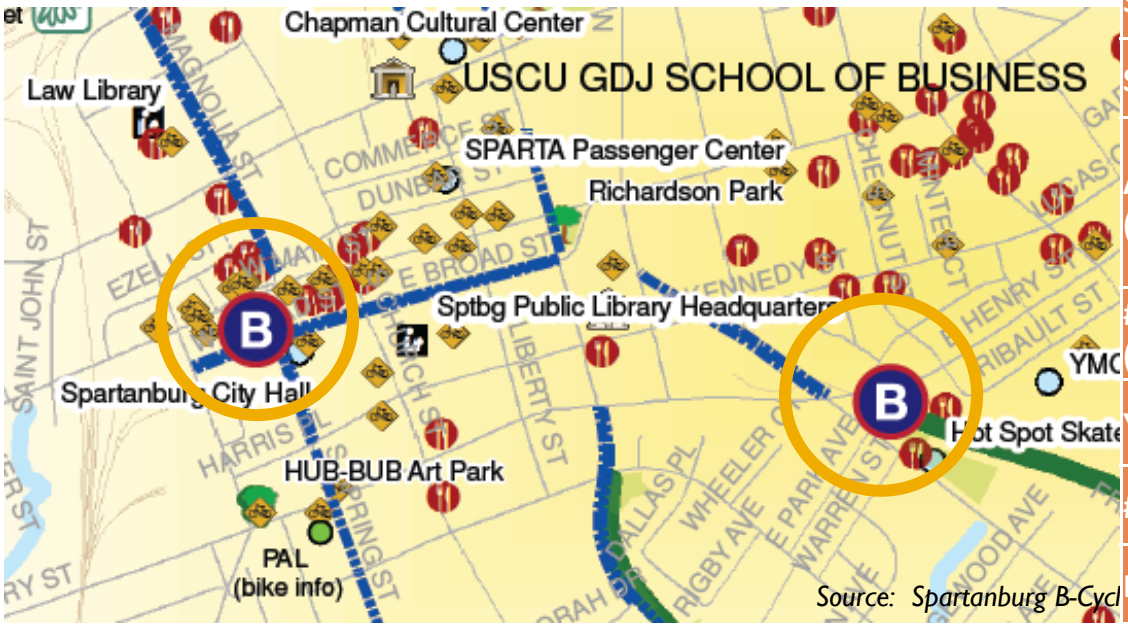
- Several successful large scale programs
  - Capital Bikeshare
    (1,200 bikes - DC/Arlington, VA)
  - Nice Ride
    (1,200 bikes - Minneapolis, MN)
  - Deco Bike
    (800 bikes - Miami Beach, FL)
  - Hubway
    (600 bikes - Boston, MA)
  - Denver B-Cycle
    (520 bikes – Denver, CO)



Source: Capital Bikeshare

Program success

- Successful small scale programs too!
  - Different goals
  - Different models



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# of Members (Annual/Casual)	100 Annual 450 Casual
Year round or seasonal	Year-round
# of Trips per year	1500 trips in 150 days
Business Model	Non-Profit

Program evaluation

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Multiple ways to measure success




Next steps

- Finalize document
- PBIC Webinar (April 26)
- Publish report (fall 2012)

Source: UC Irvine, Zotwheels

More information?

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THANK YOU!

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