Bicycle Sharing
Planning, Operations, and Benefits

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Bay Area Bike Share
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Presentation Overview

• Introduction to Bicycle Sharing
  • Planning for a Bicycle Sharing System
  • Operations and Data
  • User Characteristics
What is Bicycle Sharing?

- “Personalized Mass Transit”
- 1st Generation: “Yellow Bikes”
- 2nd Generation: Coin-operated systems
- 3rd Generation: Fully automated terminals, RFID, modular, solar powered, wireless
A Global Phenomenon

Source: http://bike-sharing.blogspot.com/
US Bike Sharing Doubles in 2013

Source: Earth Policy Institute
Alta’s World Class Operations

- 13,000 bikes worldwide
- 2 continents
- 200,000 members
- Over 250,000 trips per week
- 18+ million miles
- Melbourne, Washington DC, Boston, Chattanooga, NYC, Chicago, Columbus, Bay Area
Why Share Bikes?

- Environmental Benefits
- Extends range of transit system
- Increases viability of other modes
- Benefits local businesses
Environmental Benefits

• Over 80 percent of respondents increased bike use since joining Capital Bike Share

• 41 percent of members substantially reduced their use of a car

• 5 million reduced VMT, annually

• Reduced use of bus, metrorail, taxi
Extends Reach of Transit
Extends Reach of Transit
Extends Reach of Transit
Viability of Other Modes

• Addresses “last-mile” problem
  – Over 50 percent of survey respondents used bike share to access a metrorail station, and 20 percent to access a bus station
  – Used more frequently traveling FROM transit than TO transit

• Provides means for getting around during lunch hour

• Provides a ride home if too late for transit
Benefits Local Businesses

• Over 80 percent of respondents said they were more likely to patronize an establishment accessible by bike share

• Induced Trips:
  – 44 percent of bike share users used Capital Bike Share to make a new trip.
  – 95 percent of induced trips were social trips, restaurants, entertainment, or shopping

– Source: User Survey
Bay Area Bike Share Overview

- Regional system – 5 service areas
- Along Caltrain commute corridor
- Launched August 2013
- Phased implementation
  - Phase 1 – 700 bicycles
  - Phase 2 – 1,000 bicycles
- Pilot 12-24 months
- Contractor - Alta Bicycle Share, Inc
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• Operations and Data

• User Characteristics
Site Suitability Analysis

- **Live** — Population density
- **Work** — Employment density
- **Shopping / Recreation** — Retail corridors, landmarks, mixed use
- **Transit** — Bus, subway, ferry, trains
- **Intersection Density** — Street connectivity
- **Physical Geography** — Slope
- **Methodology** — Metrics used to generate a composite score. This provides a good starting point for station planning
The 11 maps below show the factors that were considered to generate the bike share pilot area. Studies have shown that these factors promote bicycle sharing.

Source: SFMTA
Preliminary Station Maps

City of San Francisco
Monthly Trip Demand (October)

Expected Demand and Total Docks per Station

Suitability Analysis Model Results
- Very High
- High
- Moderate
- Low
- Very Low

Proposed Station Plan and Number of Docks - San Francisco
Station Siting

• Station Design Guidelines
  – General Siting Requirements
    • Clear Path
    • Obstacles – Relocate or Not
    • Distance from Utilities
    • On-Street Regulations
  – Minimum / Maximum Station Size
  – Solar Exposure
  – Installation Access
  – Maintenance Access
Plan Views
Local Permits / Licenses

Station Approval Flow

Source: SFMTA
Final Station List
Installation
Installation
Installation
Installation
Installation
Launch!
• Introduction to Bicycle Sharing
• Planning for a Bicycle Sharing System
• **Operations and Data**
• User Characteristics
Operations – Bike Checking
Operations – Bike Maintenance
Operations – Rebalancing
Operations – Marketing
System Data

Source: http://bikes.oobrien.com/global.php
System Data

SYSTEM METRICS

<table>
<thead>
<tr>
<th>Total trips</th>
<th>Total annual members</th>
<th>Total casual members</th>
</tr>
</thead>
</table>

Total trips to date

Cumulative trips

Created with Datavizr.

To view the full data set, click here. To download data, click “Get the Data.”
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Capital Bike Share Use over Time

![Graph showing the number of trips and distance in miles from October 2010 to July 2012.](image)

- **Trips and Distance in Miles**
- **Axes**:
  - Y-axis: 0 to 250,000
  - X-axis: Months from October 2010 to July 2012

Legend:
- **Red Line**: Distance
- **Blue Line**: Trips
Time of Day
Bike Share User Survey

• Conducted in 2011 and 2012 for users of Capital Bike Share

• Key Findings:
  – Increased bicycling use among members
  – Bike share used most often for social trips, entertainment, errands and appointments
  – Members experienced an annual personal travel expense reduction of $819
Conclusion

• Bike sharing systems have provided tremendous benefits to their members
• Will continue to mature as an effective transportation option
• Data provide powerful analytical information for transportation practitioners
Thank you!

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Photo Credit: Richard Masoner