

Bicycle Share Planning, Operations, and Benefits



Kansas Waugh, Project Director
Bay Area Bike Share
September 26, 2013



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

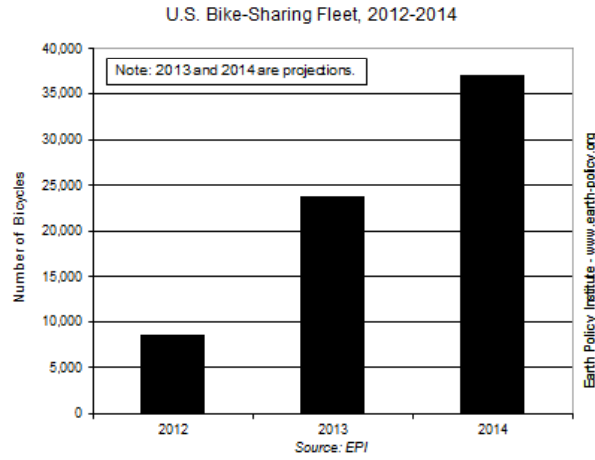


A Global Phenomenon



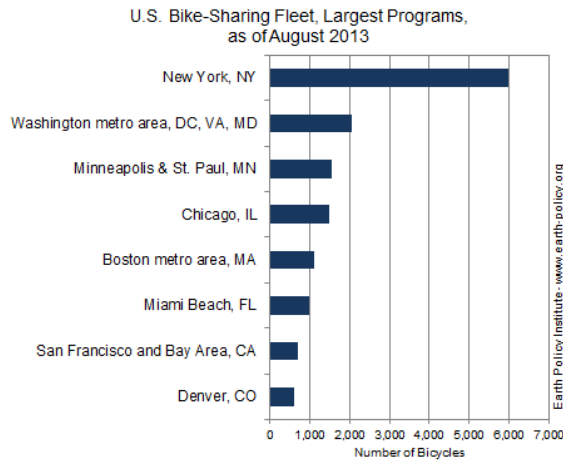
Source: <http://bike-sharing.blogspot.com/>

US Bike Sharing Doubles in 2013



Source: Earth Policy Institute

Largest US Systems



Source: Earth Policy Institute

Alta Bicycle Share



- Grew out of Alta Planning + Design
- Bicycle share program design, deployment, operations, management
- Partner with Public Bike System Company (Bixi)
- Melbourne, Washington DC, Boston, Chattanooga, NYC, Chicago, Columbus, Bay Area



Why Share Bikes?



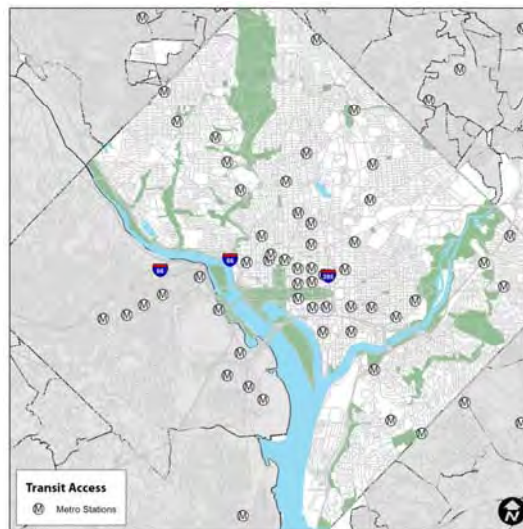
- Environmental Benefits
- Extends range of transit system
- Increases viability of other modes
- Benefits local businesses

Environmental Benefits

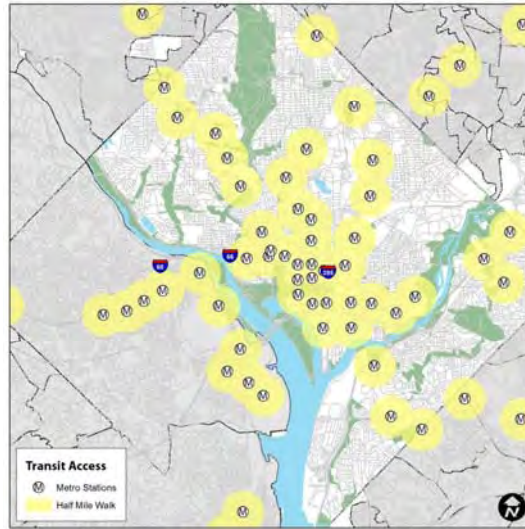


- Over 80 percent of respondents increased bike use since joining Capital Bike Share
- 41 percent of members substantially reduced their use of a car
 - 5 million reduced VMT, annually
 - Also, reduced use of bus, metrorail, taxi

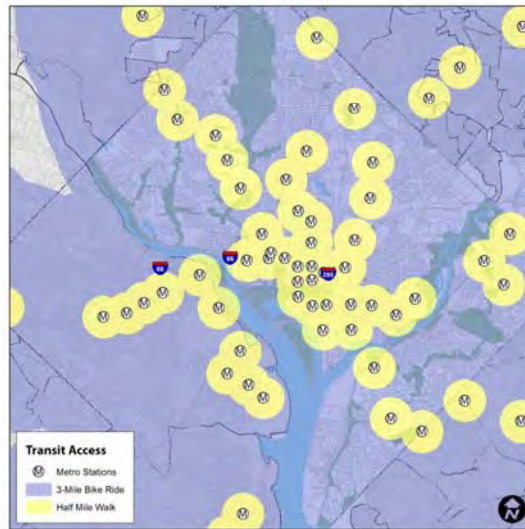
Extends Reach of Transit



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
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Capital Bikeshare



- Launched September 2010
- 380,827 Casual users
- 22,139 Active Annual members
- 5,165,582 trips
- 2,533 Bikes
- 247 Stations in Washington DC ,
Alexandria, and Arlington



Boston Hubway



- Launched August 2011
- 161,466 Casual users
- 8,928 Active Annual members
- 1,248,196 trips
- Stations retracted for winter
- 1,090 Bikes
- 114 stations in Boston, Brookline,
Cambridge, and Somerville



Citibike



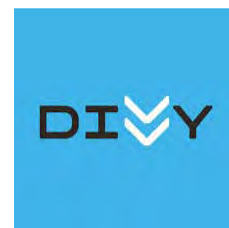
- Launched May 2013
- 197,472 Casual users
- 78,617 Active Annual members
- 2,921,861 trips
- 6,000 Bikes
- 332 stations in Manhattan and Brooklyn



Chicago Divvy



- Launched June 2013
- 56,538 Casual users
- 7,281 Active Annual members
- 285,990 trips
- 1,595 Bikes
- 200 stations



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



Bay Area Bike Share Overview



- Develop unified regional system that complements existing transportation options for making short trips
- Test viability of bike sharing in different-sized communities
- Assess impacts and benefits
- Explore and develop recommendations for potential expansion

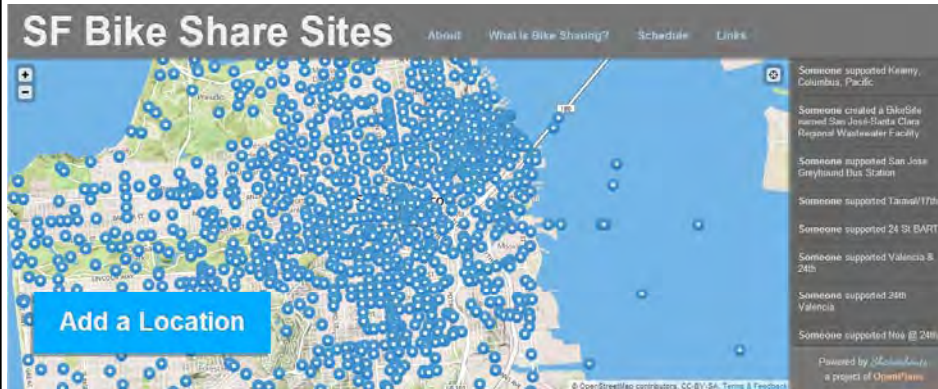
Funding

- Multi-agency partnership
- Project Lead
 - Air District
- Funding ~ \$11.2m
 - \$7.1m – MTC
 - \$2.8m – Air District
 - \$1.3m – Local Funding



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Crowdsourcing



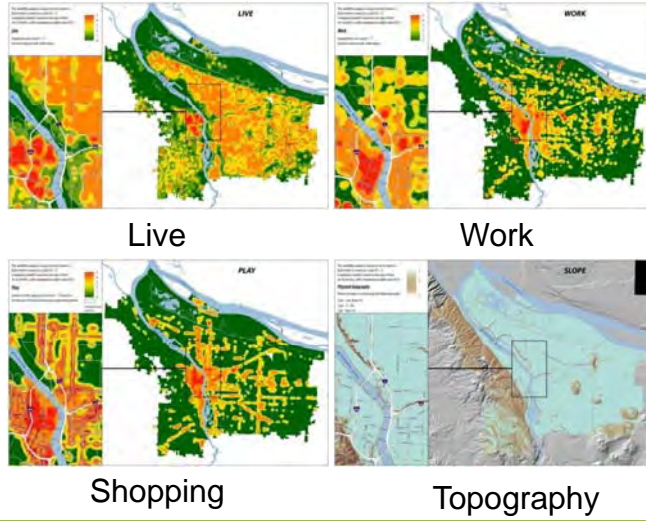
Source: SFMTA

Site Suitability Analysis

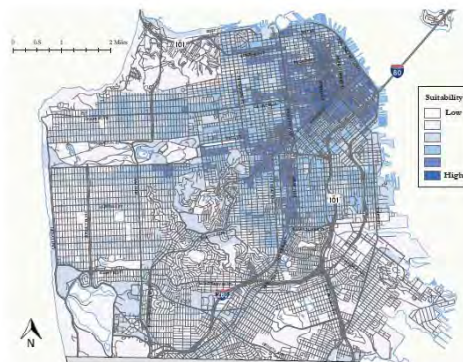


- **Live** – Population density
- **Work** – Employment density
- **Shopping / Recreation** – Retail corridors, landmarks, mixed use
- **Transit** – Bus, subway, ferry, trains
- **Intersection Density** – Street connectivity
- **Physical Geography** – Slope
- **Methodology** – Metrics used to generate a composite score. This provides a **good starting point** for station planning

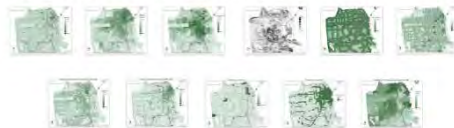
Demand Estimation



SFMTA Suitability

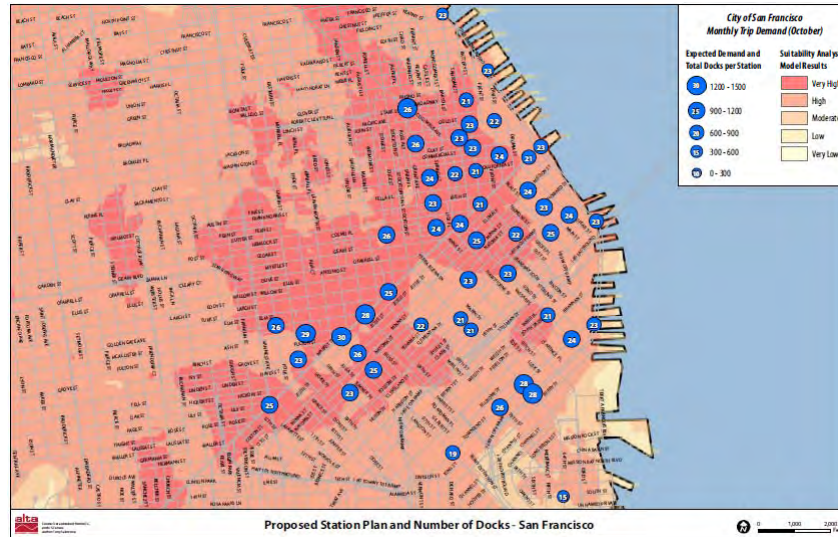


The 11 maps below show the factors that were considered to generate the bike share pilot area. Studies have shown that these factors promote bicycle sharing.



Source: SFMTA

Preliminary Station Maps



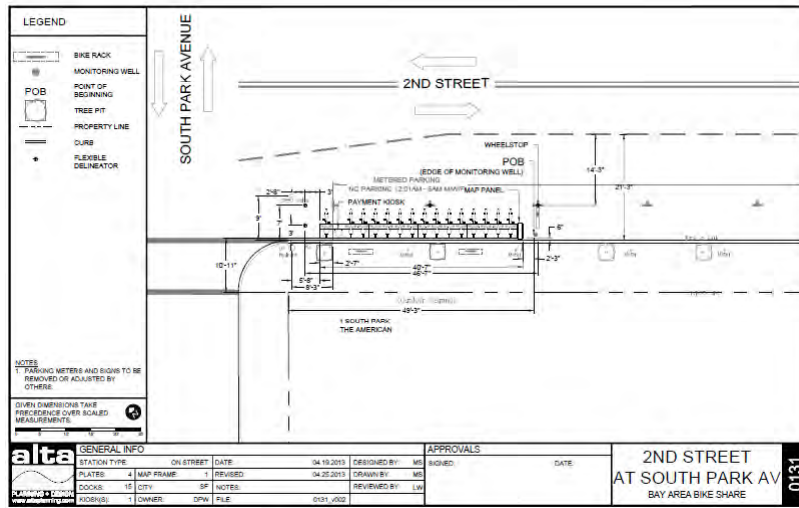
Station Siting



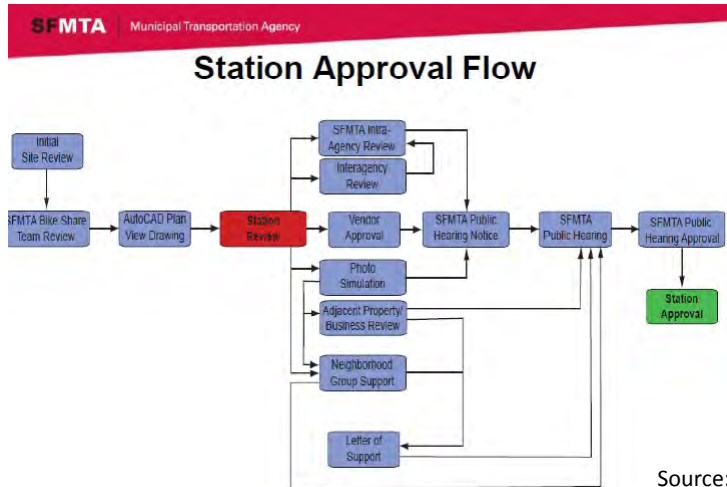
- Station Design Guidelines
 - General Siting Requirements
 - Clear Path
 - Obstacles – Relocate or Not
 - Distance from Utilities
 - On-Street Regulations
 - Minimum / Maximum Station Size
 - Solar Exposure
 - Installation Access
 - Maintenance Access



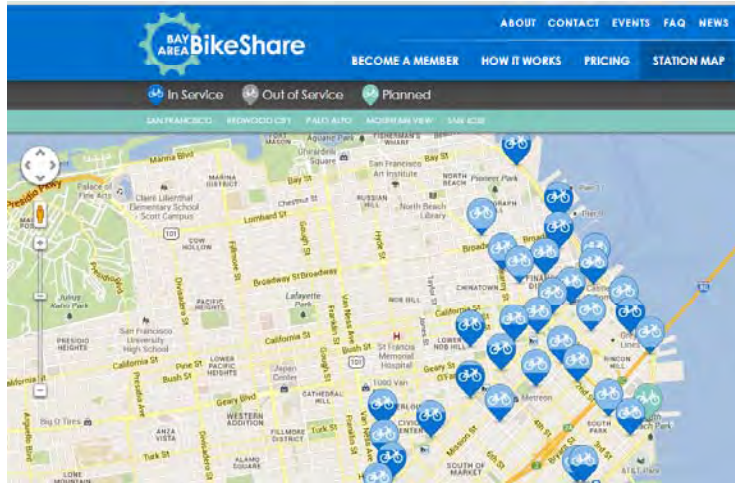
Plan Views



Local Permits / Licenses



Final Station List



Installation



Installation



Launch!



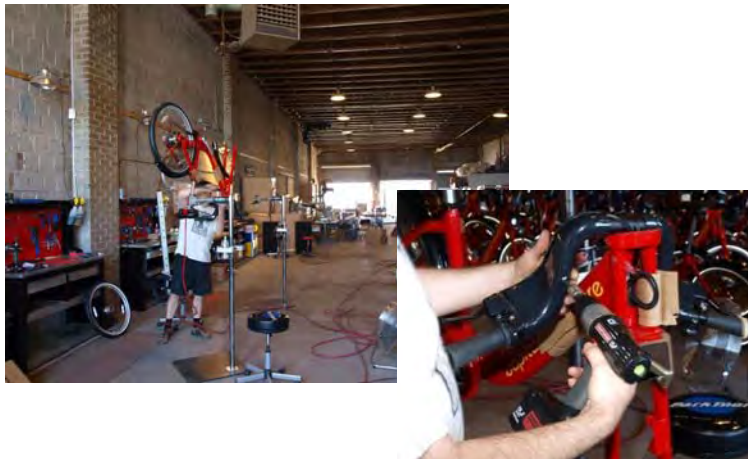


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Operations – Bike Checking



Operations – Bike Maintenance



Operations – Rebalancing



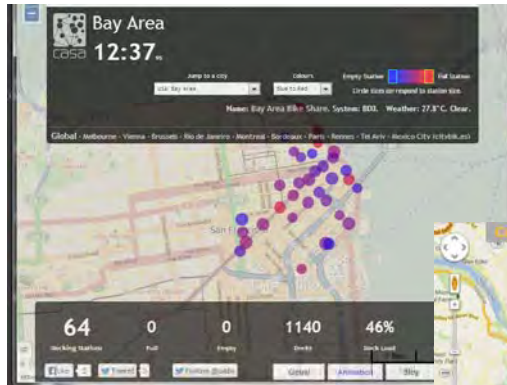
Operations – Rebalancing



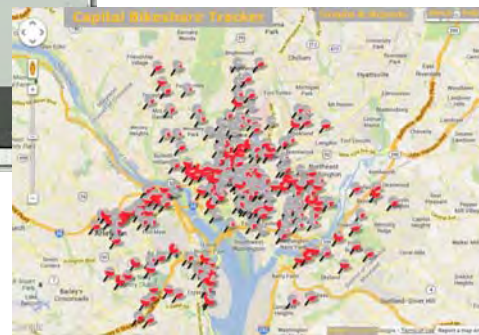
Operations – Marketing



System Data

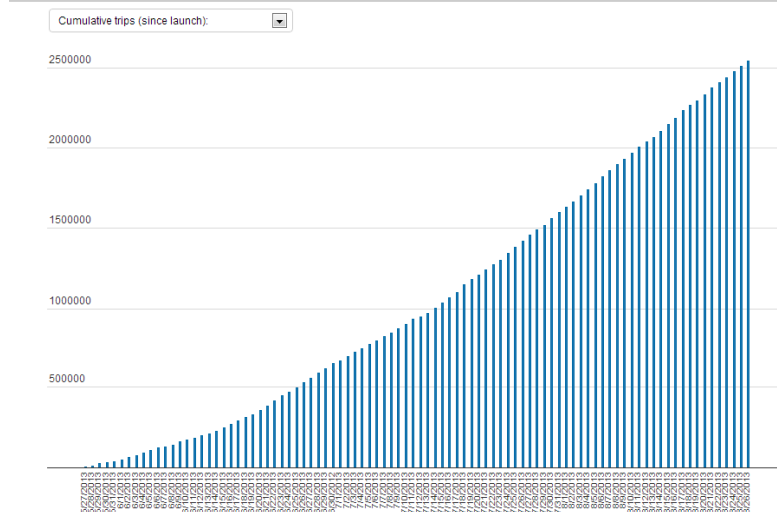


Source: <http://bikes.oobrien.com/global.php>



Source: <http://www.cabitracker.com/>

System Data



Source: NYC Bike Share

Safety

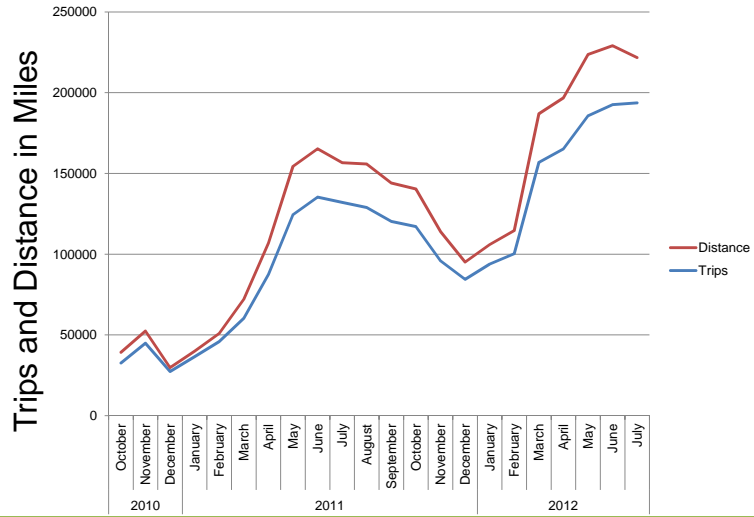


- Bike share riders have better overall safety records than general cycling public
 - London -- 4.5 million trips with no serious injuries
 - DC – After 330,000 trips 7 crashes reported (vs 13 on personal bikes)
 - “Safety in Numbers”
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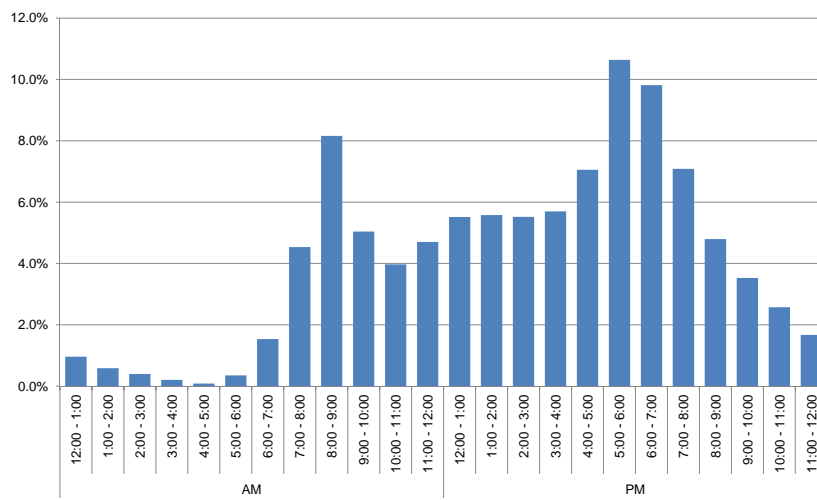


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Capital Bike Share Use over Time



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
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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
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Thank you!



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