

An Analysis of Bikeshare Options for Kalamazoo



Kevin Martini



What is Bikeshare?



Convenient, accessible bikes for short-term use



What **isn't** a Bikeshare?

BIKE
RENTAL



What **isn't** a Bikeshare?

- Cost structure makes longer rental expensive

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A green bicycle icon is positioned to the right of the word "BIKE" in the "BIKE RENTAL" text.

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- Intended to be for “minutes to hours”

What **isn't** a Bikeshare?

BIKE
RENTAL



- Cost structure makes longer rental expensive
- Intended to be for “minutes to hours”
- Not meant to compete with existing rental options

Rental Experience

To compliment other modes of transportation

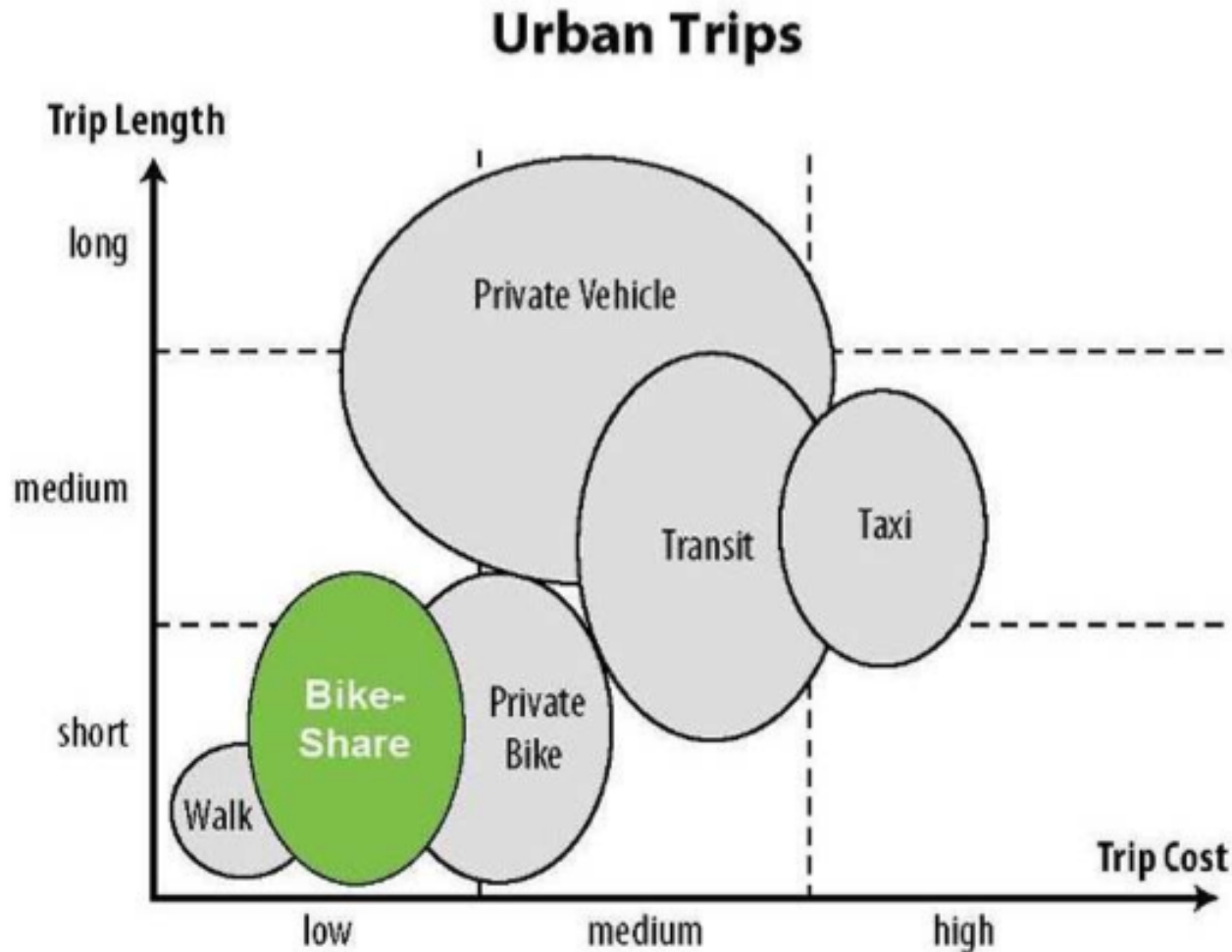


Figure 6 – Urban Transportation Spectrum

To compliment other modes of transportation

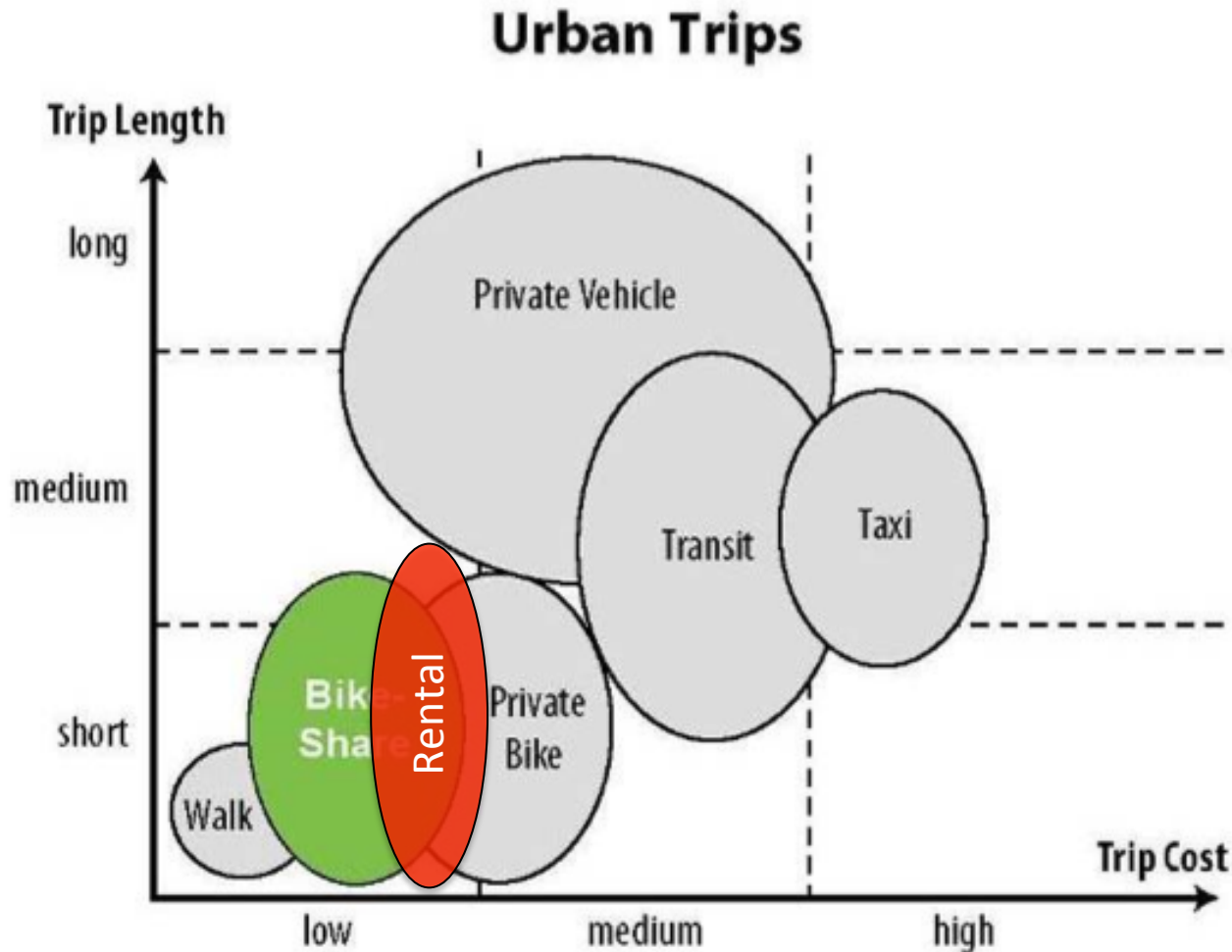


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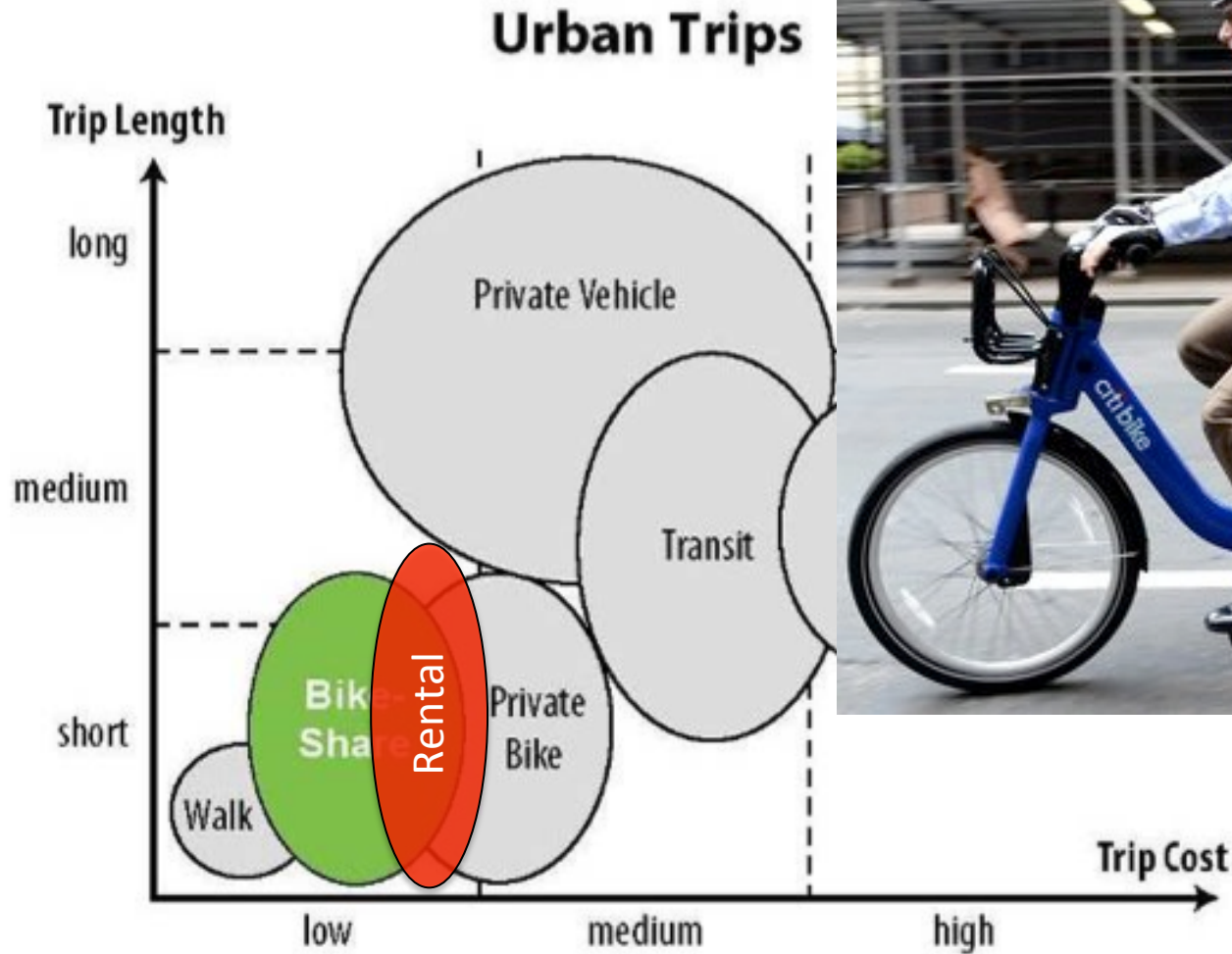
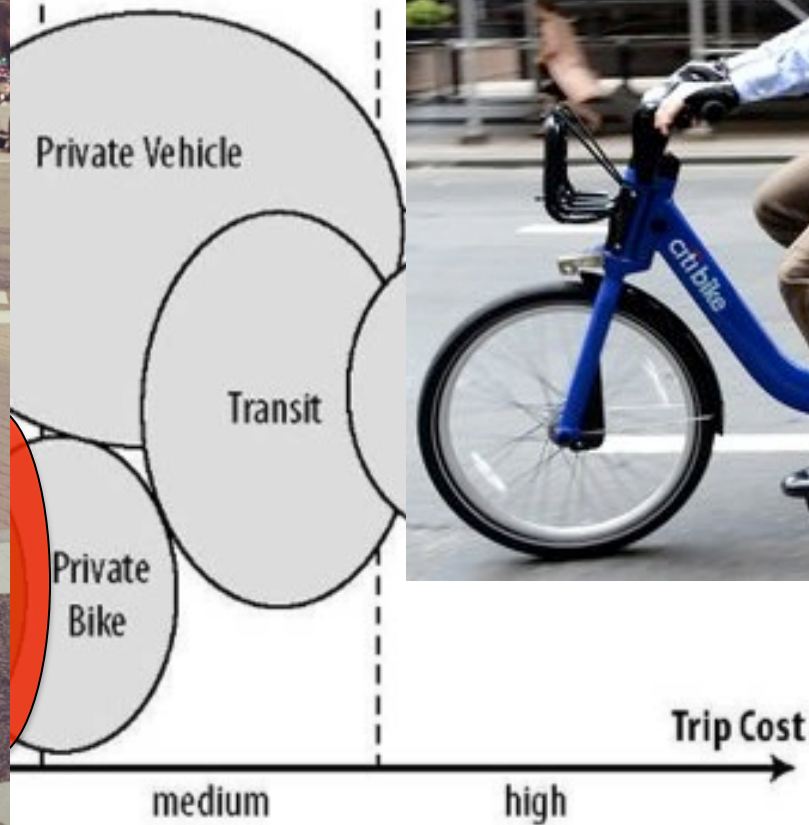


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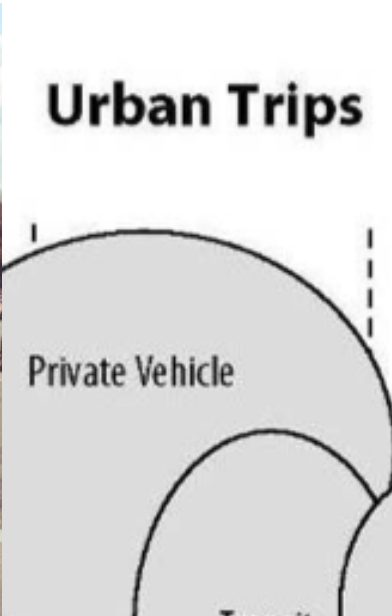


Urban Trips



6 – Urban Transportation Spectrum

To compliment other modes of transportation



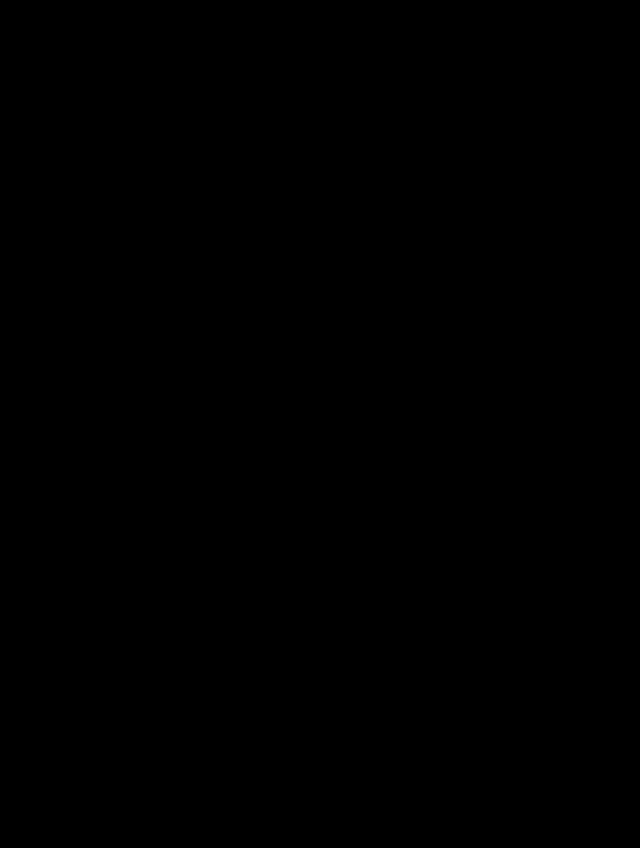
















History of Bikeshare

Progression can be broken into 3 Generations:

- Guerilla Bikes



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- Bike Vending



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- Smart Rentals



Generation 1 – Guerilla Bikes

- Oldest, most simple form of bike share



Red Bikes program, Madison WI
Active since 1996

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- System degrades, bikes fall into disrepair



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 - Liability issues
 - Lack of maintenance
 - No accountability (theft & destruction)



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Generation 2 – Bike Vending

- Special Robust bikes



Two bright green bicycles with yellow wheels are parked on a cobblestone street. The wheels feature Finnish text and logos. The front wheel of the bicycle in the foreground has the text "Sujuvaa kumpinkäyttöä" (Smooth use of the pump) and the HKL logo. The rear wheel has text including "Lähtöön voi tuntea kumpi nojautuu runkoon vasten - ja vain ilmestää kumpi nojautuu runkoon vasten" and "www.hkl.fi". The HKL logo is also visible on the rear wheel. The bicycles are parked next to a metal railing.

-
- A row of four yellow bicycles parked on a green lawn. Each bicycle has a large black smiley face on its front wheel. The frames are yellow with blue accents and text that reads "BYCYKLEN" and "KÖRANDEMAN PA TO RIGL". Small white cards are attached to the handlebars. In the background, there is a large, light-colored building with arched windows and a dark fence.



Generation 2 – Bike Vending

- Special Robust bikes
- Rented from designated station locations
- Similar to airport luggage cart



Generation 2 – Bike Vending

- PROS:
 - Reduced theft



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 - Improved bike reliability



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 - Anonymous rentals

Generation 2 – Bike Vending



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 - Improved bike reliability
 - Improved station predictability
- CONS:
 - Anonymous rentals
 - Liability problematic

Two bright green bicycles are parked on a cobblestone street, secured to a metal railing with chains. The bicycles have large yellow wheels with black text in Finnish. The front wheel of the bicycle in the foreground reads "Sujuvaa kumpinkäyttöä" (Smooth use of the pump) and "HKL Helsingin Kuntaliiton Kulkuvälinekeskus" (HKL Helsinki's Public Transport Vehicle Center). The rear wheel of the same bicycle reads "Lähtöön voi tuntea kumpin nojautuu runkoon vasten - ja vain ilmestyy kumpin nojautuu runkoon vasten" (You can feel the pump when you lean against the frame - and only appears when you lean against the frame). The bicycle in the background has a similar message on its rear wheel. The bicycles are parked on a cobblestone street next to a metal railing.



- PROS:
 - Reduced theft
 - Improved bike reliability
 - Improved station predictability
- CONS:
 - Anonymous rentals
 - Liability problematic
 - No revenue generation (fee as deposit only)

Generation 3 – Smart Rentals

- Generation 3 systems can be further subdivided into:
 - **Smart Racks:** Where the rack houses the rental system to track users and bikes



Generation 3 – Smart Rentals

- Generation 3 systems can be further subdivided into:
 - **Smart Racks:** Where the rack houses the rental system to track users and bikes
 - **Smart Bikes:** Where the rental system resides in an apparatus on the bicycle itself



Components of a bikeshare bike

Generation 3 – Smart Rentals

- Smart Racks:
 - Rental stations are placed throughout the city



Alta – Bike Chattanooga

Generation 3 – Smart Rentals

- Smart Racks:
 - Rental stations are placed throughout the city
 - Users swipe a credit card or membership card to gain access to a bike



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Generation 3 – Smart Rentals

- Smart Racks:
 - Rental stations are placed throughout the city
 - Users swipe a credit card or membership card to gain access to a bike
 - Bikes are robust, purpose-built bikes with fenders, cargo carriers & lights



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 - PROS:
 - Improved end-user accountability



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 - Bike redistribution



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 - Confusion price models



Alta – Bike Chattanooga

Price Confusion

You pay: Subscription Price + Trip Fees

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1 Year	\$65.00
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Trip Fees

0-30 min	No additional fee
up to 60 min	\$1.50
up to 90 min	\$4.50
Each additional half hour	+\$6.00

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Example:

- Membership (24h)
- 2 Hour ride
- Total Cost:



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Example:

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- 2 Hour ride 90 + 30
- Total Cost:



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Each additional half hour	+\$6.00

Example:

- Membership (24h) \$6.00
- 2 Hour ride 90 + 30 \$4.50 + \$6.00
- Total Cost: **\$16.50**

Kiosk Stations



Generation 3 – Smart Rentals

- Smart Bikes:
 - Rental stations are simply designated bike racks



ViaCycle's Smart Unit, Georgia Tech Bike Share

Generation 3 – Smart Rentals

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 - Users gain access by smartphone or text messaging a code from the bike they wish to use to unlock it



ViaCycle's Smart Unit, Georgia Tech Bike Share

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- Smart Bikes:
 - Rental stations are simply designated bike racks
 - Users gain access by smartphone or text messaging a code from the bike they wish to use to unlock it
 - Purpose-built bikes with fenders & lights



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 - PROS:
 - Reduced Infrastructure



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- Requires cellphone for rental

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ViaCycle's Smart Unit, Georgia Tech Bike Share

- CONS:

- Requires cellphone for rental
 - No active shares at the municipal level





Poverty



Poverty

Population density

Aspects of a Successful Bikeshare

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2) Social equity vehicle

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1) Transportation “gap filler”

2) Social equity vehicle

3) Recreational value

Costs









Initial Costs

Bikeshare City	Minneapolis	Calgary	Cincinnati (high cost)	Cincinnati (low cost)	Average	Kalamazoo?
Number of Bikes	1000	400	210	210	NA	100
Number of Stations	75	40	21	21	NA	10
Total Cost	\$3,386,913	\$2,438,381	\$1,350,000	\$1,200,000	NA	\$600,000
System as Cost per Bike	\$3,386	\$6,096	\$6,428	\$5,714	\$5,406	\$6,000
System as Cost per Station	\$45,158	\$60,960	\$64,285	\$57,142	\$56,886	\$60,000

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Bikeshare City	Minneapolis	Calgary	Cincinnati (high cost)	Cincinnati (low cost)	Average	Kalamazoo?
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Total Cost	\$3,386,913	\$2,438,381	\$1,350,000	\$1,200,000	NA	\$600,000
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System as Cost per Station	\$45,158	\$60,960	\$64,285	\$57,142	\$56,886	\$60,000

Annual Costs

Bikeshare City	Minneapolis	Calgary	Cincinnati (high cost)	Cincinnati (low cost)	Average	Kalamazoo?
Number of Bikes	1000	400	210	210	NA	100
Number of Stations	75	40	21	21	NA	10
Annual Cost	\$1,574,453	\$1,092,212	\$600,000	\$450,00	NA	\$350,000
System as Cost per Bike	\$1,574	\$2,731	\$2,857	\$2,142	\$2,326	\$3,500
System as Cost per Station	\$20,992	\$27,305	\$28,571	\$21,428	\$24,574	\$35,000

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Bikeshare City	Minneapolis	Calgary	Cincinnati (high cost)	Cincinnati (low cost)	Average	Kalamazoo?
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Kalamazoo's Costs

- Initial Costs:
\$600,000

Kalamazoo's Costs

- Initial Costs:
\$600,000
- Annual Costs:
\$350,000

Kalamazoo's Costs

- Initial Costs:
\$600,000



5 Year Cost:
\$2,500,000

- Annual Costs:
\$350,000

Revenues

US cities have reported “farebox recoveries” ranging from 36% (Boulder) to 97% (Capital Bikeshare)

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Meaning O&M recovery rate between
\$600 - \$1,000 per bike

Costs & Recovery

Recovery

\$600 - \$1,000 per bike per year

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O&M Costs

\$3,500 per bike per year

Costs & Recovery

Recovery

\$600 - \$1,000 per bike per year

O&M Costs

\$3,500 per bike per year

Average Loss

\$2,500 per bike per year

Costs & Recovery

Total Cost

\$250,000 per year

Recovery

\$600 - \$1,000 per bike per year

O&M Costs

\$3,500 per bike per year

Average Loss

\$2,500 per bike per year

Cost Reduction Strategies

- Tiered Sponsorship
 - Title
 - Presenting
 - Station/Fleet logoing



Cost Reduction Strategies

- Tiered Sponsorship
 - Title
 - Presenting
 - Station/Fleet logoing
- Grant Funding
 - Congestion Mitigations and Air Quality
 - Federal Transit Administration
 - Federal Highway Administration
 - CDC & Public Health Programs



Sponsorship Examples



New York City,
Citibank

– Tier 1: Title Sponsor

- 5 Year contract
\$41,000,000
- \$8200 per bike per
year



Sponsorship Examples

Boston,
New Balance

- Tier 2:
Presenting
Sponsor
 - 3 Year contract
\$600,000
 - \$333 per bike
per year



Sponsorship Examples

Minneapolis,
Blue Cross
Blue Shield

- Tier 2:
Presenting
Sponsor
 - \$1,000,000
initial
investment
 - 1/3 match on
all public funds
raised



Sponsorship Examples

Minneapolis,
Allina Health

- Tier 3:
Station Sponsor
 - 3 Year contract
\$10,000 per
year
 - Billboarding at
2 stations



Possible Sponsors

BORGESS

stryker[®]


**GREENLEAF
TRUST**



Upjohn



**ALFRED E
BIKE**


Studio Grill



 **BRONSON**

Sawall **HEALTH FOODS**



consumers
credit union

THANK YOU!



PARKS AND
RECREATION

COME
OUT AND PLAY!



clean energy
coalition



cycle

Bikes Belong™



NASHVILLE **B** cycle



COALITION

Potential Options



Potential Options

Potential Options



Potential Options



Potential Options



Potential Options

4th

Gen?



Possible Next Steps

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“Feeler Fleet” of
GPS bikes



Possible Next Steps

“Feeler Fleet” of
GPS bikes



Non-motorized
Transportation
Planning Consultant



