An Analysis of Bikeshare Options for Kalamazoo

Kevin Martini
What is Bikeshare?

Convenient, accessible bikes for short-term use
What isn’t a Bikeshare?
What isn’t a Bikeshare?

- Cost structure makes longer rental expensive
What isn’t a Bikeshare?

• Cost structure makes longer rental expensive

• Intended to be for “minutes to hours”
What *isn’t* a Bikeshare?

- 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.
To compliment other modes of transportation
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History of Bikeshare

Progression can be broken into 3 Generations:

– Guerilla Bikes
History of Bikeshare

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– Bike Vending
History of Bikeshare

Progression can be broken into 3 Generations:

– Guerilla Bikes

– Bike Vending

– Smart Rentals
Generation 1 – Guerilla Bikes

- Oldest, most simple form of bike share

Red Bikes program, Madison WI
Active since 1996
Generation 1 – Guerilla Bikes

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- Reconditioned, spray painted bikes

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- Oldest, most simple form of bike share
- Reconditioned, spray painted bikes
- Unlocked at racks around the city
- System degrades, bikes fall into disrepair

Red Bikes program, Madison WI
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• PROS:
  – Low Cost

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• PROS:
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- PROS:
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  – Liability issues

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• PROS:
  – Low Cost
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  – Socially Inclusive

• CONS:
  – Liability issues
  – Lack of maintenance
  – No accountability (theft & destruction)

Red Bikes program, Madison WI
Active since 1996
Generation 2 – Bike Vending

- Special Robust bikes
Generation 2 – Bike Vending

- Special Robust bikes
- Rented from designated station locations
Generation 2 – Bike Vending

- Special Robust bikes
- Rented from designated station locations
- Similar to airport luggage cart
Generation 2 – Bike Vending

• PROS:
  – Reduced theft
Generation 2 – Bike Vending

• PROS:
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  – Improved bike reliability
Generation 2 – Bike Vending

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  – Liability problematic
Generation 2 – Bike Vending

• 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

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
  - Bikes are robust, purpose-built bikes with fenders, cargo carriers & lights

Alta – Bike Chattanooga
Generation 3 – Smart Rentals

Smart Racks:

- **PROS:**
  - Improved end-user accountability

Alta – Bike Chattanooga
Generation 3 – Smart Rentals

- Smart Racks:
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Generation 3 – Smart Rentals

Smart Racks:
- **PROS:**
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- **CONS:**
  - Large physical footprints

Alta – Bike Chattanooga
Generation 3 – Smart Rentals

• Smart Racks:
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    • Improved member liability
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    - Bike redistribution
    - Confusion price models

Alta – Bike Chattanooga
Price Confusion

You pay: Subscription Price + Trip Fees
Price Confusion

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<table>
<thead>
<tr>
<th>Subscriptions</th>
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<tbody>
<tr>
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Example:

- Membership (24h)
- 2 Hour ride
- Total Cost: $?
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Example:
- Membership (24h)
- 2 Hour ride 90 + 30
- Total Cost:
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Example:

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

- Solar Power
- Pay Station
- Bicycle Dock
- System Map
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

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

ViaCycle’s Smart Unit, Georgia Tech Bike Share
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- Smart Bikes:
  - PROS:
    - Reduced Infrastructure
Generation 3 – Smart Rentals

• Smart Bikes:
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    • Easily scalable (adding additional racks)

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    - Allows for reactive redistribution

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

ViaCycle's Smart Unit, Georgia Tech Bike Share
I will miss you...
Poverty
Poverty

Population density
Aspects of a Successful Bikeshare
Aspects of a Successful Bikeshare

1) Transportation “gap filler”
Aspects of a Successful Bikeshare

1) Transportation “gap filler”

2) Social equity vehicle
Aspects of a Successful Bikeshare

1) Transportation “gap filler”

2) Social equity vehicle

3) Recreational value
Costs
# Initial Costs

<table>
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<tr>
<th>Bikeshare City</th>
<th>Minneapolis</th>
<th>Calgary</th>
<th>Cincinnati (high cost)</th>
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<tr>
<td>Number of Bikes</td>
<td>1000</td>
<td>400</td>
<td>210</td>
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<td>NA</td>
<td>100</td>
</tr>
<tr>
<td>Number of Stations</td>
<td>75</td>
<td>40</td>
<td>21</td>
<td>21</td>
<td>NA</td>
<td>10</td>
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<tr>
<td>Total Cost</td>
<td>$3,386,913</td>
<td>$2,438,381</td>
<td>$1,350,000</td>
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<tr>
<td>System as Cost per Bike</td>
<td>$3,386</td>
<td>$6,096</td>
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<td>$1,574,453</td>
<td>$1,092,212</td>
<td>$600,000</td>
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<tr>
<td>System as Cost per Bike</td>
<td>$1,574</td>
<td>$2,731</td>
<td>$2,857</td>
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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
• Annual Costs: $350,000

5 Year Cost: $2,500,000
Revenues

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

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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
Costs & Recovery

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

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 logging
Cost Reduction Strategies

• Tiered Sponsorship
  – Title
  – Presenting
  – Station/Fleet logoping

• 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
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
Minneapolis, Allina Health

– Tier 3: Station Sponsor

• 3 Year contract $10,000 per year
• Billboarding at 2 stations
Possible Sponsors

BORGESS

stryker

GREENLEAF TRUST

Pfizer

Studio Grill

PEDAL BICYCLES

PNC

Upjohn

ALFRED E BIKE

KALAMAZOO COLLEGE

Better World Builders

ECCU

WATER STREET COFFEE JOINT

gazelle sports

KALAMAZOO VALLEY COMMUNITY COLLEGE

BRONSON

Sawall HEALTH FOODS

BELL'S

KALAMAZOO people's FOOD CO-OP

Food Dance

consumers credit union
THANK YOU!

[Logos and brand names including 'alta', 'Outdoor Chattanooga', 'NICE RIDE', 'University of Tennessee at Chattanooga MOCs', 'Parks and Recreation', 'Clean Energy Coalition', 'Nashville BCycle', 'Bikes Belong', 'COALITION']
Potential Options
Potential Options
Possible Next Steps
Possible Next Steps

“Feeler Fleet” of GPS bikes
Possible Next Steps

“Feeler Fleet” of GPS bikes

Non-motorized Transportation Planning Consultant