Microtransit – Under the Microscope

ELP Group 5

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Outline

• **Introduction** - What is microtransit?
• **Survey Findings** - What you told us about your programs.
• **The Beginnings of a Program** - CATAGO in State College, PA
• **Words of Wisdom** - Industry expert share their thoughts
A transit service type also known as “on-demand” that has been used for several decades in paratransit and recently modernized by leveraging the convenience of mobile apps.
WHERE ARE OUR RESPONDENTS FROM?

32 Agencies
How many microtransit zones does your agency have?

- 1: 48%
- 2-3: 28%
- 4-5: 14%
- 6+: 10%

How long has your microtransit program been in operation?

- Less than 1 yr: 63%
- 1-3 yrs: 17%
- 4-5 yrs: 7%
- 6+ yrs: 13%
What type of microtransit does your agency offer?

- Door-to-Door Service: 13
- Feeder to a Higher Frequency Transit Service: 14
- Flex Stops: 4
- Point Deviation: 8
How important were each of these factors in deciding to implement your agency’s microtransit service?

- To replace an underperforming fixed route
- To increase ridership
- As a way to procure more vehicles
- To decrease rider's travel/wait time
- To serve a new market
- To increase customer satisfaction

- To achieve service equity at a reasonable cost
- To improve access for paratransit and/or senior populations
- To provide a first/last mile connection
- Current vehicles physically can't serve the desired area
- To try something new
People said achieving service equity at a reasonable cost was extremely important:

- Decrease to rider’s travel/wait time
- Increase Customer Satisfaction

![Graph showing importance levels]

- Extremely/Very Important
- Somewhat/Not at all important
First Mile/Last Mile

Serving a New Market

Increasing Ridership

Extremely/Very important

Somewhat/Not at all important
Replace Under-Performing Route

- Increasing Ridership
- Improve Access for Paratransit and/or Senior Populations

Extremely/Very important vs. Somewhat/Not at all important
Do you consider the program a success?

- Yes: 14
- NO: 4
- Not entirely sure: 3
- Unsure yet: 2
Welcome to State College, PA
The Beginning of a Program
Centre Area Transportation Authority, PA

CATABUS
69 Forty Footer | 5 Thirty-Three Foot Cutaways | 5 Sixty Footer

CATARIDE
10 ADA Vans

CATAGO
18 Vans

Serves + Surrounding Areas

PennState
The Beginning of a Program

Centre Area Transportation Authority, PA
XB Route – Bellefonte
TRANSPORT OPTIONS WITH CATA

<table>
<thead>
<tr>
<th>SERVICE AREA</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>ROUTE XB</th>
<th>CATAGO</th>
<th>CATARIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday</td>
<td>Saturday</td>
<td>Weekday</td>
</tr>
<tr>
<td>Beginning of revenue service</td>
<td>6:07 AM</td>
<td>6:42 AM</td>
</tr>
<tr>
<td>End of revenue service</td>
<td>10:52 PM</td>
<td>7:06 PM</td>
</tr>
<tr>
<td>Headway (minutes)</td>
<td>60</td>
<td>240</td>
</tr>
<tr>
<td>Vehicles Availables</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Fare</td>
<td>$2</td>
<td>$2</td>
</tr>
</tbody>
</table>
Ridership per Service Type in XB Service Area

<table>
<thead>
<tr>
<th></th>
<th>Boardings CATA GO</th>
<th>Boardings Route XB</th>
<th>Boardings CATA Ride</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 19</td>
<td>3,574</td>
<td>3,489</td>
<td>394</td>
</tr>
<tr>
<td>Feb 19</td>
<td>3,489</td>
<td>3,239</td>
<td>319</td>
</tr>
<tr>
<td>Dec 2019</td>
<td>3,239</td>
<td>3,486</td>
<td>300</td>
</tr>
<tr>
<td>Jan 20</td>
<td>3,486</td>
<td>493</td>
<td>346</td>
</tr>
<tr>
<td>Feb 20</td>
<td>3,256</td>
<td>1,389</td>
<td>349</td>
</tr>
</tbody>
</table>

Jan 2019
Feb 2021
TRAVEL PATTERNS BY SERVICE

**ROUTE XB**

- ORIGINS: State College - 1300, Unionville - 1688
- DESTINATIONS: Bellefonte - 1525, Zion - 1175

**CATAGO**

- ORIGINS: State College - 1300, Unionville - 1688
- DESTINATIONS: Bellefonte - 1525, Zion - 1175

**CATARIDE**

- ORIGINS: State College - 1300, Unionville - 1688
- DESTINATIONS: Bellefonte - 1525, Zion - 1175
TRAVEL PATTERNS BY SERVICE

ROUTE XB

ORIGINS

DESTINATIONS

CATAGO

CATARIDE

State College

State College

State College

State College

Benner Pike & Rolling Ridge Dr

Pleasant Gap

Nittany Mall

Pleasant Gap

Weis Market

Zion

Center Hall

Center Hall

1688

1,000

1300

375

1525

998

1455

1175
TRAVEL PATTERNS BY SERVICE

ROUTE XB

CATAGO

CATARIDE

ORIGINS

DESTINATIONS
Total CATAGO Rides per Hour*

*Data for period Jan 11 - Mar 8

Lower frequency on fixed routes
Pilot Pricing

• Pilot project with microtransit service provider

• Pricing breakdown:
  • Nine-month pilot:
    • Total cost for simulation and pilot: $185,000
    • Program subsidization: $160,000
    • Cost to CATA: $25,000

• After nine-month pilot
  • Software cost/vehicles: $500 per month ($3,000 total for six veh)
Pilot Pricing – February 2020 Operating Expenses

- Microtransit operating expenses
  - January Costs: $16,846
  - February Costs: $30,931
    - Lease 4 vehicles - $7,881
    - Towing/parts - $450
    - Wages: $18,688
    - Fuel & Maintenance - $3,170
    - Vehicle Insurance - $743

*January and February costs do not include advertising, hiring, or admin costs
Service Provider Online Portal

• Ridership data
• Live dispatch capabilities
• Reports – NTD reporting data
Services Productivity

\[
\begin{array}{|c|c|c|c|c|c|c|}
\hline
\text{Service} & \text{Pax per Day} & \text{Pax per Hour} & \text{Pax per Mile} & \text{Pax per Day} & \text{Pax per Hour} & \text{Pax per Mile} \\
\hline
\text{CATAGO} & 51 & 1.94 & 0.11 & 40 & 2.16 & 0.14 \\
\text{Route XB} & 136 & 8.75 & 0.51 & 41 & 6.89 & 0.40 \\
\hline
\end{array}
\]

- **Comparison to Route XB:**
  - Fewer passengers per mile/hour than existing XB
  - Passengers per day is about the same on Saturdays

**Microtransit sample:**
- Jan 11\textsuperscript{th} – Feb 29\textsuperscript{th}
- 43 days of service
- 2,093 total passenger trips
- Average ridership per day: 49
## Microtransit Performance

<table>
<thead>
<tr>
<th>Mode</th>
<th>Cost Calculation</th>
<th>Cost per Pax</th>
<th>Cost per Revenue Mile</th>
<th>Cost per Revenue Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Microtransit</strong></td>
<td>1) Hiring, advertising, and admin costs not included</td>
<td>$22.83</td>
<td>$2.52</td>
<td>$44.99</td>
</tr>
<tr>
<td></td>
<td>2) Pilot subsidizes service provider costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fixed Route (entire network)</strong></td>
<td>Fully-Allocated costs from 2018 NTD inflated to 2020</td>
<td>$2.51</td>
<td>$9.24</td>
<td>$108.24</td>
</tr>
<tr>
<td><strong>Paratransit (Contracted Service)</strong></td>
<td>Fully-Allocated costs from 2018 NTD inflated to 2020</td>
<td>$30.59</td>
<td>$3.79</td>
<td>$55.87</td>
</tr>
<tr>
<td><strong>Fixed Route (Route XB Only)</strong></td>
<td>Fully-Allocated costs from NTD with Jan-Feb performance data from CATA</td>
<td>$12.57</td>
<td>$6.26</td>
<td>$108.24</td>
</tr>
</tbody>
</table>

- Costs are not directly comparable
  - Microtransit costs are artificially low
  - Fixed route network costs are fully allocated and are therefore conservatively high
  - Paratransit is a contract service and also fully allocated
- Even with caveats – microtransit is a relatively expensive service to operate
• Efficiency metrics only part of the story
• Rider wait times – important part of service
Marketing Marketing Marketing

- Small service zones are limiting and sometimes difficult to understand. Marketing of the first/last mile service was difficult and required **more targeted outreach**.

- Clearly market the service as open to the public; make it clear that it is **not just another service only for seniors** and persons with disabilities. Set expectations that, by design, these are lower performing services, when compared to rail or fixed route transit (ridership-related metrics in particular).

- Marketing the service is critical. **On-site demonstrations** and hands-on activities generate the best conversion rate from users who sign-up to riding.
Technology

• Technology is not fool-proof. Our platform has crashed twice, which left some people without service. **Have a backup plan.**

• We've learned that the app and routing technology matter -- **Customers who have poor experiences are likely to not try again.**
Make it work for your agency!

• Have clear, realistic objectives. **Assess demand** and how microtransit will **integrate with the transit network**.

• Success of a flex route service depends on the **size of your area, number of vehicles, and productivity goals**. It can end up being more expensive than fixed route with similar wait times, but no schedule to plan around.

• **Establish goals of a program first** and chose a program based on those goals. Not all programs are created equal and they achieve different things. Understand your market and **set clear expectations** and KPIs to measure success.

• Make sure you really think this will be a good idea. **Some systems haven’t met our expectations** about cost savings or improved mobility.
Survey - Microtransit takes many shapes and forms but the common goal is to innovate to better serve the community. Do your homework and tailor a program that works for your unique needs and goals. Set realistic expectations for productivity targets.

CATA used a microtransit pilot to procure more vehicles and saw a huge success for the agency with an increase of 30% in ridership.

Technology has changed the way people expect to receive services. In the fight to reverse declining transit ridership microtransit may have some important lessons to bring to make transit more appealing.
Thanks!

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- Hannah Nelson hannah.nelson@kimley-horn.com
- Darron Stratton dstratton@catabus.com
COVID-19 Ridership

Weekly Ridership

FREE FARE

Fixed XB Route Suspended
Stay at Home Order

Weeks

JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG

37