Micro-Transit Feasibility Study
Hall County, Georgia

Georgia Planning Association, Spring Conference, March 27, 2019
Hall County is located 50+ miles northeast of Atlanta.
Hall Area Transit System Profile

- City of Gainesville population: 37,291 (2017)
- Hall County population: 199,335 (2017)
- Classification: Small Urban
- Demand response service: Dial-A-Ride – since 1985
- Fixed route service: Gainesville Connection – since 1999
- City/County provide local match for Section 5307 & 5311 funds
- No 3rd party operator
- Vehicles used: Ford Goshen Cut-A-Ways – Diesel
- 10 full-time staff
- 15 part-time staff
Hall Area Transit (HAT)

Gainesville Connection
- Fixed route bus service
- 350 bus stops in Gainesville/Oakwood
- Six fixed routes
- Weekday service
- Operating hours 6:00 AM – 6:00 PM
- One-hour frequency/headway
- 11,400 monthly trips
- 50%-50% funding: FTA & Gainesville

Hall County Dial-A-Ride
- Hall Countywide demand response vanpool
- 429 square miles
- Curb-to-curb/door-to-door
- Weekday service
- Operating hours 7:00 AM – 5:00 PM
- 2,000-2,500 monthly trips (2017)
- 50%-50% funding: FTA & Hall County
Ridership & Cost

### Gainesville Connection

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
<th>Trips</th>
<th>Cost/Trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>$804,803</td>
<td>137,294</td>
<td>$3.50</td>
</tr>
<tr>
<td>2016</td>
<td>$745,763</td>
<td>141,590</td>
<td>$3.05</td>
</tr>
<tr>
<td>2015</td>
<td>$740,858</td>
<td>149,642</td>
<td>$4.65</td>
</tr>
<tr>
<td>2014</td>
<td>$714,390</td>
<td>146,797</td>
<td>$4.87</td>
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<tr>
<td>2013</td>
<td>$723,774</td>
<td>155,733</td>
<td>$4.87</td>
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<tr>
<td>2012</td>
<td>$731,497</td>
<td>240,190</td>
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<tr>
<td>2011</td>
<td>$753,331</td>
<td>215,433</td>
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</tr>
<tr>
<td>2010</td>
<td>$633,533</td>
<td>142,530</td>
<td>$5.86</td>
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</table>

### Hall County Dial-A-Ride

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
<th>Trips</th>
<th>Cost/Trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>$616,360</td>
<td>24,962</td>
<td>$24.69</td>
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<tr>
<td>2016</td>
<td>$623,717</td>
<td>25,627</td>
<td>$24.34</td>
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<td>2015</td>
<td>$590,646</td>
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<tr>
<td>2014</td>
<td>$569,100</td>
<td>26,647</td>
<td>$21.36</td>
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<tr>
<td>2013</td>
<td>$613,956</td>
<td>25,345</td>
<td>$24.22</td>
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<tr>
<td>2012</td>
<td>$586,010</td>
<td>27,116</td>
<td>$21.61</td>
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<tr>
<td>2011</td>
<td>$559,283</td>
<td>25,992</td>
<td>$21.52</td>
</tr>
<tr>
<td>2010</td>
<td>$561,467</td>
<td>28,119</td>
<td>$19.97</td>
</tr>
</tbody>
</table>
Gainesville Connection
Service Area Characteristics

• Low density development
• Residential, primarily single family and rural
• Employment: mostly industry and service related
• With very little office or high density
• Higher densities in Gainesville
Hall County Dial-A-Ride
Service Area Characteristics

• 429 square miles
• 54th largest county in land mass
• Trip pattern very random
• Trip origins vary
• Top destination points:
  – 35% aging services
  – 30% medical
  – 17% employment
  – 8% shopping
  – 6% education
  – 4% activities
Micro-Transit Study Background

• Gainesville urbanized area is considered a small urbanized area
• Gainesville is projected to become a large urbanized area following the 2020 Census
• Becoming a large urbanized area will mean a significant loss of federal transit funding
• What transit service is feasible in the face of reduced funding and how to provide it?
Micro-Transit Service
What’s Possible?

• Turnkey operation to:
  – Replace all or part of Gainesville Connection
  – Replace all or part of Dial-A-Ride

• Partial turnkey operation to:
  – Supplement Gainesville Connection
  – Supplement Dial-A-Ride

• Technology
  – Purchase license to use AP
  – Gainesville Connection/Dial-A-Ride provides micro-transit service
Hall County Micro-Transit Feasibility Study

• Feasibility of micro-transit service in:
  – Entire Hall County (400 square miles)
  – Gainesville urbanized area (130 square miles)
  – Gainesville City Limits (35 square miles)

• Hours of operation
• Quality of service
• Replace or supplement existing Gainesville Connection and/or Dial-A-Ride
Feasibility Study Methodology

• Study consisted of three steps:
  1. Identifying opportunities for micro-transit
  2. Projecting demand
  3. Simulating scenarios to determine a micro-transit configuration that meets HAT’s goals
Identifying Opportunities for Micro-Transit

• Micro-transit can achieve the following goals for HAT:
  – Provide transit in previously underserved areas (transit deserts)
  – Provide suburban mobility
  – Retire under-performing fixed route services
  – Provide first- and last-mile connections to fixed route services
  – Mitigate traffic congestion
  – Reduce parking congestion
  – Upgrade a paratransit offering

• HAT’s primary goals for micro-transit:
  – Upgrade existing Dial-A-Ride service
  – Replace under-performing fixed route services
Projecting Demand

- Demand was projected using historic Dial-A-Ride and fixed-route ridership
- Real-world ridership will depend on the following factors:
  - Travel patterns
  - Alternative modes of travel
  - Demographics
  - Pedestrian infrastructure
  - Seasonality of demand
  - Employment density
  - Residential density
  - Retail and entertainment density
  - Fare structure
  - Parking availability
  - Marketing budget and effectiveness
  - Weather conditions
  - Congestion levels
Micro-Transit Simulation

Six-step simulation process:
1. Set service area
2. Generate underlying road map
3. Determine traffic speeds
4. Set “terminals”
5. Generate “virtual bus stops”
6. Set simulation parameters
Micro-Transit Simulation

• The following 5 scenarios were simulated:
  1. Replace the Dial-A-Ride service
  2. Replace all six Gainesville Connection routes
  3. Replace three underperforming Gainesville Connection routes
  4. Replace the Dial-A-Ride and all Gainesville Connection routes (combination of 1 & 2)
  5. Replace the Dial-A-Ride and three underperforming Gainesville Connection routes (combination of 1 & 3)
## Summary of Results

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Expected Trips/Day</th>
<th>Recommended Micro-Transit Fleet Size</th>
<th>High Demand (2x Existing Demand) Fleet Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Upgrade DAR*</td>
<td>40-70</td>
<td>5-6</td>
<td>7-8</td>
</tr>
<tr>
<td>2) Upgrade 6 GC* Routes</td>
<td>600-900</td>
<td>14-15</td>
<td>21-24</td>
</tr>
<tr>
<td>3) Upgrade 3 Underperforming GC* Routes</td>
<td>200-350</td>
<td>7-8</td>
<td>9-11</td>
</tr>
<tr>
<td>4) Combination of 1 &amp; 2 – Upgrade DAR* &amp; All GC* Routes</td>
<td>600-1,000</td>
<td>16-18</td>
<td>24-28</td>
</tr>
<tr>
<td>5) Combination of 1 &amp; 3 – Upgrade DAR* &amp; Underperforming GC* Routes</td>
<td>250-400</td>
<td>9-10</td>
<td>14-16</td>
</tr>
</tbody>
</table>

* DAR = Dial-A-Ride  
GC = Gainesville Connection
• Scenario 5 – Upgrade Dial-A-Ride and 3 Gainesville Connection routes **RECOMMENDED CHOICE**
  – Retain Hall County’s three highest performing bus routes
  – Use micro-transit to replace all other routes, along with Dial-A-Ride service
  – Recommended micro-transit fleet: 9-10 vehicles
  – Recommended fixed route fleet: 3 vehicles (one vehicle per route)
  – Estimated ridership: 20%-50% increase in ridership
Recommendations

- Provide micro-transit service in entire Hall County
- Launch service with hours that match current service hours (Mon-Fri, 6:00 AM-7:00 PM)
- Design a service with average wait times of around 15 minutes, with maximum wait times of 35-40 minutes
- Scenario 5- highest quality of service that fits budget
Micro-Transit Operating Models

Three alternatives to choose:

• **Transportation as a Service**
  
  *Vendor provides everything—micro-transit technology, drivers, vehicles, and operations management*

• **Transportation as a Service – using HAT vehicles**
  
  *HAT provides vehicles; vendor bears operating costs*

• **Software as a Service**
  
  *Vendor provides micro-transit technology; HAT uses its own drivers, vehicles, and dispatchers*

Next Step: Solicit pricing proposals from providers for comparison.
Micro-Transit Feasibility Study
Hall County, Georgia

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March 27, 2019
GPA Spring Conference
Why Transit, Why Now?

Gwinnett Population Growth

Community Support for More Transit

- Abundant - we have more service than we need
- Appropriate - we have the right amount of service
- Don't Know
- Lacking - we need more transit service in the County
Why Agency Owned MicroTransit

The Power of Agency Owned

- Transit Expertise
- Finance Stability
- Operator Oversight
- Title VI
- Rider Equity and Accessibility
- Sustainability Initiatives

Title VI
Rider Equity and Accessibility
Sustainability Initiatives
Finance Stability
Operator Oversight
Transit Expertise

Why Agency Owned MicroTransit

[Image of a microtransit vehicle]
The Pilot

• Partnered with TransLoc for the Pilot
• Pilot included Scenario Simulations
• Full Support for Technology Deployment
• TransLoc walked us through the implementation process step by step
Advantage of a Pilot

• Opportunity to test drive the program
• Support proof of concept
• Determine contracting methods
• Determine policy for the program
GCT Pilot Scenario Analytics

### Operating Efficiency

<table>
<thead>
<tr>
<th>Miles</th>
<th>Vehicles</th>
<th>Vehicle Utilization (hrs per vehicle)**</th>
<th>Vehicle Miles (mile)**</th>
<th>Average Miles per Vehicle</th>
<th>Average Miles per Vehicle</th>
<th>Revenue hrs per Vehicle</th>
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</thead>
<tbody>
<tr>
<td>200</td>
<td>3</td>
<td>4.7</td>
<td>914</td>
<td>271</td>
<td>15.6/16.1</td>
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<tr>
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<td>5</td>
<td>3.5</td>
<td>1,002</td>
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<tr>
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<td>1,170</td>
<td>251</td>
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<td>3</td>
<td>6</td>
<td>901</td>
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<td>10.3/14.5</td>
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<td>3.7</td>
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<td>7</td>
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<td>1,408</td>
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<td>908</td>
<td>326</td>
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<td>5</td>
<td>4.9</td>
<td>1,183</td>
<td>264</td>
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<td>1,009</td>
<td>243</td>
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<tr>
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<td>9</td>
<td>2.9</td>
<td>1,508</td>
<td>254</td>
<td>5.8/10.7</td>
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</table>

### Time Utilization

### Ride Quality

<table>
<thead>
<tr>
<th>Miles</th>
<th>Vehicles</th>
<th>Average wait Time (min)</th>
<th>95th percentile wait Time (min)**</th>
<th>Average Vehicle Duration (min)</th>
<th>95th percentile Vehicle Duration (min)**</th>
<th>Average Vehicle Time**</th>
<th>95th percentile Vehicle Time**</th>
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</thead>
<tbody>
<tr>
<td>200</td>
<td>3</td>
<td>19.9/21.4</td>
<td>15.8/16.1</td>
<td>15.9/16.1</td>
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<td>15.9/16.1</td>
<td>15.9/16.1</td>
</tr>
<tr>
<td>200</td>
<td>5</td>
<td>9.0/10.9</td>
<td>9.1/10.9</td>
<td>15.9/16.1</td>
<td>15.9/16.1</td>
<td>15.9/16.1</td>
<td>15.9/16.1</td>
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<tr>
<td>200</td>
<td>7</td>
<td>7.5/9.2</td>
<td>8.1/9.4</td>
<td>14.5/15.7</td>
<td>14.5/15.7</td>
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<td>200</td>
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<td>10.5/17.5</td>
<td>10.5/17.5</td>
</tr>
</tbody>
</table>

### Wait Times

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*Note: The table and charts provide data related to operating efficiency, time utilization, ride quality, and wait times for different scenarios and vehicle miles.*
Why this Solution for Gwinnett

- Portions of the County with suburban design are difficult to serve with traditional transit means
- Refreshes an old model with technology
- Can be integrated with the rest of the network
Why a MicroTransit Solution

- On-demand, curb to curb, point to point service
- One Zone which is approx. 17 sq. miles
- Reservations made at time of trip
- Pilot connects to two GRTA routes, 3 Walmarts, Hospital and numerous schools
- Weekdays, 6:00 AM - 8:00 PM
- Saturday, 7:00 AM – 7:00 PM
Current Pilot/Feedback

- Positive overall
- Service continues to increase
- First month issues mainly involved staff training and policy development, rather than technology
Pilot Results – Reporting

Total Passengers

This report shows the total number of passengers who boarded and completed rides in a day.

<table>
<thead>
<tr>
<th>Service</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Services</td>
<td>01-01-2019</td>
<td>01-31-2019</td>
</tr>
</tbody>
</table>

![Bar chart showing total passengers by date from Jan 1 to Jan 31, 2019](chart.png)
Next Steps

- Run pilot will end April 30th
- Evaluate program, pros and cons
- Competitively procure technology
- Redeploy into Snellville and if funding is identified then Buford
- Work on items such as fare integration with Cubic System
PERIMETER CONNECTS

- Perimeter Connects is the Transportation Management Association serving the Central Perimeter market.
  - It is a program of the PCIDs
- 130,000 employees
- 5,000 companies
- 3 MARTA stations + 4 Xpress Routes
Last-Mile Solutions

• 18+ employer/PM shuttle routes connecting to transit
  − Varied schedules + stops
  − 5 operators

• Limited real-time info
  − Apps
  − Internal web portal
  − Screens at security

• Most passengers never know when shuttle is arriving
Market Research

**Surveyed Riders Rated Their Shuttle Experience on Average as:**

- **Good**
- **3.98/5.0**

**92% of riders would check their shuttle arrival time via smartphone or website, given the option.**

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**Average Wait Time Comparison:**

- **AM Average Wait Time**
- **PM Average Wait Time**
- **Number of Responses**
- **Total Number of Responses**

- **7000 Central Park:**
  - AM: 9
  - PM: 12
  - Responses: 325

- **Ashford Green:**
  - AM: 14
  - PM: 14
  - Responses: 40

- **Cox:**
  - AM: 5
  - PM: 8
  - Responses: 39

- **Focus Center:**
  - AM: 2
  - PM: 18
  - Responses: 36

- **Lakeview:**
  - AM: 6
  - PM: 10
  - Responses: 15

- **Mercedes Benz:**
  - AM: 9
  - PM: 39
  - Responses: 11

- **Perimeter Center:**
  - AM: 14
  - PM: 36
  - Responses: 6

- **Perimeter Summit:**
  - AM: 12
  - PM: 15
  - Responses: 11

- **Ravinia:**
  - AM: 40
  - PM: 1
  - Responses: 6

- **State Farm North:**
  - AM: 37
  - PM: 1
  - Responses: 11

- **State Farm South:**
  - AM: 64
  - PM: 1
  - Responses: 6

- **Terraces:**
  - AM: 9
  - PM: 12
  - Responses: 5

---
How Can Perimeter Connects Improve Existing Shuttles?

• Create a pilot using technology to improve customer service and shuttle operations on existing shuttles

Microtransit?!
Goals of the Microtransit Pilot

• Provide improved **customer service** for existing and future shuttle riders:
  • One tech platform for all Perimeter shuttle riders to identify and board correct shuttle
  • Provide all participating Perimeter shuttle locations in real time
  • Riders can guarantee their seat (pre book via computer, app, or phone call)
  • Time savings through dynamic routing; skip stops when no one has booked a ride
  • Easy to use (just like uber and lyft!)
Goals of the Microtransit Pilot

- **Improve operations:**
  - Improve shuttle operations to adjust timing to coincide with actual rider needs
  - Offer service to more locations instead of on a fixed route, specifically during off-peak hours

- **Possible future benefit:**
  - Allow Funders to charge for enhanced services if desired
Pilot Partners

- Pilot Phase 1:
  - Perimeter Glenlake
    - UPS
    - Embassy Row
    - Glenlake Pkwy

- Planned Phase 2:
  - Cox Enterprises
  - State Farm
  - Ravinia
  - Concourse
  - 64 Perimeter Center East
Communication

• Primary
  • In person: extensive on-shuttle outreach
  • Rider flyers
  • Shuttle posters
  • Webpage (FAQ, walk-through, and more)

• Secondary
  • Lobby posters
  • Digital display slides
  • Email announcements
How it worked

1. PERIMETER SHUTTLES
   Powered by RIDECO
   Search, book, and share the ride!

2. Book a Ride
   Sandy Springs, GA 30338, USA
   55 Glenlake Pkwy NE, Sandy Springs, GA 30328, USA
   1 Seat
   9:00 AM
   FIND RIDES
How it worked

3. Book a Ride
Select a Ride

PICK-UP SPOTS

DROP-OFF SPOTS

Perimeter Glenlake

Sandy Springs MARTA Station (Coppertop)
Sandy Springs MARTA Station
55 Glenlake Pkwy NE

PICK-UP
8:40 AM ~ 8:46 AM

ARRIVES BEFORE
9:23 AM

Sandy Springs MARTA Station (Coppertop)
Sandy Springs MARTA Station
55 Glenlake Pkwy NE

PICK-UP
9:40 AM ~ 9:46 AM

ARRIVES BEFORE
10:23 AM

4. My Rides

UPCOMING

Tomorrow

Perimeter Glenlake

Sandy Springs MARTA Station (Coppertop)

55 Glenlake Pkwy NE

8:40 AM ~ 8:46 AM

9:23 AM

11/13/2018

BOOK MORE
MY RIDES
PILOT RESULTS

Three weeks in, we knew it wasn’t working
Pilot Results

Know your riders

• Consistency over convenience
• Schedules; didn’t want to arrive early and couldn’t arrive late
• Smartphones/data
Pilot Results

Required Dynamic Routing to Succeed

- Property Managers were nervous to "drop a stop"
- The built environment didn’t really allow flexibility in routing
Drivers have to be on board

- Requires more training than you realize
- Drivers must turn on the app! And consistently check in passengers
- Drivers will interact with the app while driving no matter how much you tell them not to
Lessons Learned

1. Add - Don’t Replace
2. Consistency is King
3. Understand Riders
   - Degree of Schedule Variation (or not!)
   - Unique Needs
4. Be Clear and Specific About Your Tech Requirements
5. Drivers Are #1
How to Ensure Success?

1. Start small (but big enough)
2. Define relationships and roles
3. Train your drivers and buy them breakfast
4. Communicate it too much
5. Be there. In person.
6. Have open line to tech
7. Band-aid approach