Micro-Transit Feasibility Study
Hall County, Georgia

AMPO Annual Conference, Baltimore, October 2019
Hall County, Georgia

Hall County is located 50+ miles northeast of Atlanta.
Hall Area Transit System Profile

- City of Gainesville population: 41,000 (2018)
- Hall County population: 202,000 (2018)
- 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
- 12,200 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
- 900 monthly trips
- 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>2019</td>
<td>$902,285</td>
<td>145,948</td>
<td>$6.18</td>
</tr>
<tr>
<td>2018</td>
<td>$815,592</td>
<td>145,706</td>
<td>$5.60</td>
</tr>
<tr>
<td>2017</td>
<td>$804,803</td>
<td>137,294</td>
<td>$5.86</td>
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<tr>
<td>2016</td>
<td>$745,763</td>
<td>141,590</td>
<td>$5.27</td>
</tr>
<tr>
<td>2015</td>
<td>$740,858</td>
<td>149,642</td>
<td>$4.95</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>$4.65</td>
</tr>
<tr>
<td>2012</td>
<td>$731,497</td>
<td>240,190</td>
<td>$3.05</td>
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</tbody>
</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>2019</td>
<td>$460,044</td>
<td>10,619</td>
<td>$43.32</td>
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<tr>
<td>2018</td>
<td>$508,868</td>
<td>8,485</td>
<td>$59.97</td>
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<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>
</tr>
<tr>
<td>2015</td>
<td>$590,646</td>
<td>26,900</td>
<td>$21.96</td>
</tr>
<tr>
<td>2014</td>
<td>$569,100</td>
<td>26,647</td>
<td>$21.36</td>
</tr>
<tr>
<td>2013</td>
<td>$613,956</td>
<td>25,345</td>
<td>$24.22</td>
</tr>
<tr>
<td>2012</td>
<td>$586,010</td>
<td>27,116</td>
<td>$21.61</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
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
Recommendations

- 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 Steps

- Solicit pricing proposals from providers
- Select a vendor by December 2019
- Implement micro-transit service by spring 2020
Micro-Transit Feasibility Study
Hall County, Georgia

Sam Baker, AICP
Transportation Planning Manager
Gainesville-Hall Metropolitan Planning Organization
Telephone: 770-297-2604
Email: sbaker@hallcounty.org