Bloomington Route Optimization Study

PUBLIC AND STAKEHOLDER MEETINGS – MARCH 2019
Project Background

- Two primary transit operators in the City: BPTC and IU
  - 40,000 IU students account for 70% of BPTC ridership

- Strong ridership growth over past 35 years, but recent declines
  - Each system carries approximately 3 million riders per year
  - BT peaked at 3.5 million; IUCB peaked at 3.7 million

- Ridership declines in line with national trends
  - Changing mobility landscape
  - Changing market and development patterns
Project Goals

▪ Identify strengths and weaknesses of existing systems
  – Review travel patterns
  – Assess system efficiency
  – Identify unmet transit needs

▪ Recommend service improvements
  – Serve existing riders better
  – Attract new riders
  – Improve over-all system efficiency
  – Consider innovative solutions and emerging technologies
Project Approach

What does the market say? (Market Analysis)

What do the numbers say? (Service Analysis)

What do the people say? (Stakeholder Outreach)
Market Analysis

BLOOMINGTON ROUTE OPTIMIZATION

TRANSPORT POTENTIAL

Points of Interest
- Education
- Commercial
- Institutional
- Retail
- Parks
- Water

Population & Employment by NAZ
- >60 jobs = people / acre
- 35 - 60 jobs = people / acre
- 20 - 35 jobs = people / acre
- 5 - 20 jobs = people / acre
- < 5 jobs = people / acre

BLOOMINGTON ROUTE OPTIMIZATION

AVERAGE DAILY RIDERSHIP

Points of Interest
- Education
- Commercial
- Institutional
- Retail
- Parks
- Water

Stop Level of Ridership
- High Ridership Activity
- Low Ridership Activity

FOURSQUARE ITP
INTEGRATED TRANSPORTATION PLANNING
Survey Findings

- Open for approximately two months (November-December 2018)
- 625 surveys submitted
  - 33% regular riders
  - 36% occasional riders
  - 30% non-riders
# Service Analysis

## City Service

<table>
<thead>
<tr>
<th>City</th>
<th>Service Provider</th>
<th>Operating Expense Per Passenger Trip</th>
<th>Operating Expense Per Revenue Hour</th>
<th>Passenger Trips Per Revenue Hour</th>
<th>Passenger Trips Per Revenue Mile</th>
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</thead>
<tbody>
<tr>
<td>Bloomington, Ind.</td>
<td>Bloomington Public Transportation Corporation</td>
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<td>Athens, Ga.</td>
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<td><strong>Peer Average</strong></td>
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## University Service

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<tr>
<th>City</th>
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<th>Operating Expense Per Passenger Trip</th>
<th>Operating Expense Per Revenue Hour</th>
<th>Passenger Trips Per Revenue Hour</th>
<th>Passenger Trips Per Revenue Mile</th>
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</thead>
<tbody>
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<td>58.43</td>
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<td><strong>$69.92</strong></td>
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Guiding Principles

- Service Should be Simple:
  - For people to use transit, service should be designed so that it is easy to use and intuitive to understand

- Service Should Operate at Regular Intervals:
  - In general, people can easily remember repeating patterns, but have difficulty remembering irregular sequences.

- Routes Should Operate Along a Direct Path:
  - The fewer directional changes a route makes, the easier it is to understand. Circuitous alignments are disorienting and difficult to remember.

- Routes Should be Symmetrical:
  - Routes should operate along the same alignment in both directions to make it easy for riders to know how to get back to where they came from.

- Routes Should Serve Well Defined Markets:
  - The purpose of a route should be clear, and each should include strong anchors and a mix of origins and destinations.

- Service Should be Well Coordinated:
  - At major transfer locations, schedules should be coordinated to the greatest extent possible to minimize connection times for the predominant transfer flows.
Service Scenarios

Approach:
- Follow guiding principles
- Incorporate technical findings and stakeholder input
- Provide options
  - Two scenarios for each service
- Consider new technologies
BT Service Scenarios

▪ Scenario 1: “Out-and-Back Service Model”
  – Each route operates linearly to form a grid network
  – Most routes provide both local and regional connections
  – Transfers can accommodate movements between corridors

▪ Scenario 2: “Corridors and Circulators Service Model”
  – Fast and frequent service in key corridors
  – Bi-directional circulators for local access
  – Transfers can accommodate first/last mile connections
BLOOMINGTON ROUTE OPTIMIZATION

Bloomington Transit Scenario 2

Proposed BT Bus Route

Points of Interest
- Education
- Civic Building
- Retail
- Medical
- Housing
- Major Employer

Indiana University Campus
- Parks
- Water
Microtransit

- Technology-driven demand-response service
  - More coverage than fixed-route service
  - More flexibility than traditional dial-a-ride service
  - Familiar interface for those who have used Uber/Lyft app (phone reservations also possible)
  - More control over vehicles and driver vetting than Uber/Lyft

**Turn-Key Service**

**Technology Deployment**
IU Service Scenarios

- Scenario 1: “Dedicated Circulator Model”
  - Network built around a dedicated circulator in the core of campus
  - Circulator is clockwise only, but operates in a relatively compact loop
  - Other routes provide feeder service from outlying areas
  - Transfers can accommodate first/last mile connections

- Scenario 2: “Bi-Directional Service Model”
  - Two-way movement is available throughout the shuttle network
  - Each route is either bi-directional or overlaps another route operating in the opposite direction
  - Core circulation is less frequent, but more direct
Autonomous Shuttles

- Driverless fixed-route vehicles
  - Low speed (< 15 mph)
  - Relatively low-capacity (~ 10 passengers)
  - Fully electric (14-hour range)
  - Several on-going pilot programs
## Rural Transit

<table>
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<tr>
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<th>Downtown</th>
<th>Downtown</th>
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<tbody>
<tr>
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<td>Main Campus</td>
<td>Main Campus</td>
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