Implementation Plan for Enhanced Bus Service along Flagler Street

Presented by:
Parsons Brinckerhoff, Inc.
Today’s Meeting

- **Existing Corridor Characteristics**
  - Passenger Movement
  - Traffic Conditions
  - Physical Constraints
  - Roadway Configuration Analysis

- **EBS Recommendations**
  - Service Plan
  - Station locations
  - Park-and-Ride locations

- **EBS Implementation Plan**
Existing Service Plan

Existing Weekday Boarding Activity on Routes 11 and 51

- 6.1% of Boardings at SW 8 St
- 2.3% of Boardings at W Flagler St.
- 3.5% of Boardings at SW 107 Ave
- 8.2% of Boardings at SW 137 Ave
- 80.0% of Boardings at Mall of the Americas

Estimated Daily Boardings: 16,300

Flagler Routes
- Blue: Flagler Local Route 11
- Green: Flagler MAX Route 51
Daily Ridership (routes 11 and 51)
Roadway Configuration Analysis

Directional through lanes:
- Green: 4
- Yellow: 3
- Orange: 2
- Red: 1

Segments:
- Segment 1: Downtown Miami to 24th Ave
- Segment 2: 24th Ave to 72nd Ave
- Segment 3: 72nd Ave to FIU
<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
<th>EB Capacity</th>
<th>WB Capacity</th>
<th>AM EB Demand</th>
<th>AM WB Demand</th>
<th>PM EB Demand</th>
<th>PM WB Demand</th>
<th>Can we take a lane?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1,950</td>
<td>1,950</td>
<td>1,950</td>
<td>1,000</td>
<td>1,250</td>
<td>2,100</td>
<td>No</td>
</tr>
<tr>
<td>1</td>
<td>Two-way segment along Flagler St. from NW 107th Ave. to NW 87th Ave.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Two-way segment along Flagler St. from NW 87th Ave to Palmetto Expy.</td>
<td>2,859</td>
<td>2,859</td>
<td>1,950</td>
<td>1,250</td>
<td>1,700</td>
<td>2,150</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Two-way segment along Flagler St. from Palmetto Expy to NW 72nd Ave.</td>
<td>2,859</td>
<td>2,859</td>
<td>2,300</td>
<td>1,300</td>
<td>1,800</td>
<td>2,550</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>Two-way segment along Flagler St. from NW 72nd Ave to NW 57th Ave.</td>
<td>1,888</td>
<td>1,888</td>
<td>1,200</td>
<td>1,250</td>
<td>1,300</td>
<td>1,800</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>Two-way segment along Flagler St. from NW 57th Ave to Le Jeune Rd.</td>
<td>1,888</td>
<td>1,888</td>
<td>1,100</td>
<td>800</td>
<td>1,200</td>
<td>1,400</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>Two-way segment along Flagler St. from Le Jeune Rd to NW 24th Ave.</td>
<td>1,888</td>
<td>1,888</td>
<td>1,150</td>
<td>900</td>
<td>1,150</td>
<td>1,250</td>
<td>No</td>
</tr>
<tr>
<td>7</td>
<td>One-way EB along SW 1st St. and One-way WB along Flagler St. between NW 24th Ave and NW 12th Ave</td>
<td>2,340</td>
<td>2,340</td>
<td>2,250</td>
<td>1,100</td>
<td>1,700</td>
<td>2,000</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>One-way EB along SW 1st St. and two-way segment along Flagler St. from NW 12th Ave to NW 6th Ave</td>
<td>2,340</td>
<td>2,340</td>
<td>1,350</td>
<td>950</td>
<td>1,050</td>
<td>1,200</td>
<td>Yes</td>
</tr>
<tr>
<td>9</td>
<td>One-way EB along SW 1st St. and One-way WB along Flagler St. from NW 6th Ave to I-95.</td>
<td>3,120</td>
<td>2,340</td>
<td>650</td>
<td>150</td>
<td>550</td>
<td>450</td>
<td>Yes</td>
</tr>
<tr>
<td>10</td>
<td>One-way EB along SW 1st St. and One-way WB along Flagler St. from I-95 to NW 2nd Ave.</td>
<td>2,340</td>
<td>780</td>
<td>675</td>
<td>150</td>
<td>550</td>
<td>475</td>
<td>No</td>
</tr>
<tr>
<td>11</td>
<td>One-way EB along SW 1st St. and two-way segment along Flagler St. from NW 2nd Ave to Biscayne Blvd.</td>
<td>2,340</td>
<td>780</td>
<td>500</td>
<td>200</td>
<td>600</td>
<td>400</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### Roadway Configuration Analysis

**Key:** Red: Unlikely; Yellow: Possible; Green: Most Likely

<table>
<thead>
<tr>
<th>Segment 1</th>
<th>Median Busway</th>
<th>Reversible Center Bus Lane</th>
<th>Curbside Busway with Reversible Center Lane for Autos</th>
<th>Restricted Curbside Bus Lane (All Times)</th>
<th>Restricted Curbside Bus Lane (Peak Periods; Both Directions)</th>
<th>Restricted Curbside Bus Lane (Peak Periods; Peak Directions)</th>
<th>Mixed Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flagler Street and SW 1st Street One-Way Pair</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Green</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Segment 2</th>
<th>Median Busway</th>
<th>Reversible Center Bus Lane</th>
<th>Curbside Busway with Reversible Center Lane for Autos</th>
<th>Restricted Curbside Bus Lane (All Times)</th>
<th>Restricted Curbside Bus Lane (Peak Periods; Both Directions)</th>
<th>Restricted Curbside Bus Lane (Peak Periods; Peak Directions)</th>
<th>Mixed Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flagler Street between NW 24th Avenue and NW 72nd Avenue</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Green</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Segment 3</th>
<th>Median Busway</th>
<th>Reversible Center Bus Lane</th>
<th>Curbside Busway with Reversible Center Lane for Autos</th>
<th>Restricted Curbside Bus Lane (All Times)</th>
<th>Restricted Curbside Bus Lane (Peak Periods; Both Directions)</th>
<th>Restricted Curbside Bus Lane (Peak Periods; Peak Directions)</th>
<th>Mixed Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flagler Street between NW 72nd Avenue and SW 107th Avenue to FIU</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Green</td>
</tr>
</tbody>
</table>
Queue Jump Lane Analysis

• Preliminary Screening
  • Station location
  • Segment Level of Service (LOS)
  • Availability of a right turn lane
  • Availability of right-of-way

• Secondary Screening:
  • AM/PM Peak period field observations
  • Queue length
  • Station location
  • Right-of-way constraints
Recommended Roadway Configuration Analysis

Queue Jumps at Select Intersections

Restricted Curbside Bus Lane with Reversible Center Lane

Queue Jumps at Select Intersections

Curbside Busway with Reversible Center Auto Lane AM Peak

<table>
<thead>
<tr>
<th>6' SWK</th>
<th>2'</th>
<th>12' Eastbound Busway</th>
<th>12' Eastbound Auto Lane</th>
<th>12' Reversible Auto Lane</th>
<th>12' Westbound Auto Lane</th>
<th>12' Westbound Auto Lane</th>
<th>2' SWK</th>
</tr>
</thead>
</table>

12/22/2014
Service Plan Analysis

**Recommendation:**
- Concentrate all EBS service between FIU and Downtown Miami

**Will improve travel times by:**
- Increasing frequency in some segments
- Shifting trips to Limited Stop EBS service
Proposed Flagler EBS Service Plan

Flagler EBS: Peak Service Plan

Proposed Peak Service Frequencies
- Flagler EBS - Every 10 minutes
- Local - Every 10 minutes
Proposed Flagler EBS Service Plan

Flagler EBS: Peak Service Changes

**Proposed Change in Service Levels**
- **Service Level Increase**
- **Service Level Decrease**
- **No Change in Service Level**
Proposed Flagler EBS Service Plan

Proposed Off-Peak Service Frequencies
- Flagler EBS - Every 20 minutes
- Local - Every 15 minutes
Proposed Flagler EBS Service Plan

Flagler EBS: Off-Peak Service Changes

FREQUENCY DECREASES FROM EVERY 13.5 TO 20 MIN

FREQUENCY INCREASES FROM EVERY 24 TO 15 MIN

FREQUENCY INCREASES FROM EVERY 30 TO 20 MIN

Proposed Change in Service Levels
- Service Level Increase
- Service Level Decrease
- No Change in Service Level
Recommended EBS Station Location Plan

• 28 mainline stations
• 1 Transit Center - New Panther Station at FIU
• 14 connecting stations at cross routes (eastbound and westbound):
  – 12th Avenue
  – 17th Avenue
  – 27th Avenue
  – 37th Avenue
  – Le Jeune/42nd Avenue
  – 57th Avenue
  – 107th Avenue
Proposed Park-and-Ride Locations

- Panther Transit Center at FIU
- Flagler Street at 107th Avenue
- Flagler Street at SW 99th Street
- Mall of the Americas
Proposed EBS Implementation Plan

• EBS Branded Service

• Immediate to Short Term (5 years)
  • EBS and local service
  • Peak period curbside lane east of NW 24th Avenue
  • Implement Transit Signal Priority
  • First tier of Queue jump locations
  • Park-and-Ride lots

• Short to Medium Term (5-10 years)
  • Peak period curbside lane with reversible center lane between 72nd Avenue and 24th Avenue
  • Second Tier of Queue Jump Lanes
### Estimated Existing Operating Costs

<table>
<thead>
<tr>
<th></th>
<th>Revenue Hours</th>
<th>Cost per Revenue Hour</th>
<th>Revenue Miles</th>
<th>Cost per Revenue Mile</th>
<th>Operations Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Route 11</td>
<td>67,424</td>
<td>$52.65</td>
<td>725,979</td>
<td>$3.16</td>
<td>$5,843,975</td>
</tr>
<tr>
<td>Existing Route 51 - Flagler Max</td>
<td>24,718</td>
<td>$52.65</td>
<td>380,205</td>
<td>$3.16</td>
<td>$2,502,851</td>
</tr>
<tr>
<td>Total</td>
<td>92,142</td>
<td>-</td>
<td>1,106,184</td>
<td>-</td>
<td>$8,346,826</td>
</tr>
</tbody>
</table>

### Projected Project Operating Costs

<table>
<thead>
<tr>
<th></th>
<th>Revenue Hours</th>
<th>Cost per Revenue Hour</th>
<th>Revenue Miles</th>
<th>Cost per Revenue Mile</th>
<th>Operations Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Flagler EBS</td>
<td>28,013</td>
<td>$52.65</td>
<td>430,899</td>
<td>$3.16</td>
<td>$2,836,504</td>
</tr>
<tr>
<td>Proposed Local Service</td>
<td>74,462</td>
<td>$52.65</td>
<td>801,353</td>
<td>$3.16</td>
<td>$6,452,712</td>
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<tr>
<td>Total</td>
<td>102,475</td>
<td>-</td>
<td>1,232,252</td>
<td>-</td>
<td>$9,289,216</td>
</tr>
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</table>
• Estimated Capital Costs and Projected Change in Operating Costs

<table>
<thead>
<tr>
<th>Total Capital Costs</th>
<th>Net Projected Change in Total Annual O&amp;M Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>$35,592,000</td>
<td>$942,391</td>
</tr>
</tbody>
</table>
Questions?