Open House Meetings
Tier 2 Evaluation

April 24 & 25, 2007
Agenda

1. Introductory Comments
2. Background
3. Tier 1 Evaluation
4. Tier 2 Alternatives Evaluation
5. Traffic Evaluation
6. Next Steps
Kendall Corridor Transportation Alternatives Analysis
What is the problem to be addressed
Kendall Area Population Growth

- **1970**: 136,416
- **1980**: 254,826
- **1990**: 383,469
- **2000**: 499,865
- **2010 (projected)**: 604,614
- **2020 (projected)**: 652,126
Miami Area Employment Origins

- Kendall: 221,010
- South: 93,840
- Northeast/Beaches: 129,823
- CBD: 32,028
- Central: 125,100
- Airport/Doral: 22,605
- Northwest: 191,425
3 Primary Study Corridors

- **Kendall Drive**
  - East – West
  - U.S. 1 – Krome
- **HEFT / 107th**
  - North – South
  - Metro Zoo – MIC
- **874/826/CSX**
  - North – South
  - Metro Zoo – MIC
  - Kendall Airport - MIC
Tier 1 Alternatives
Tier 1 Alternatives

Kendall Corridor
1. Bus Rapid Transit
2. Light Rail Transit
3. MetroRail

HEFT / 107th Corridor
1. Bus Rapid Transit
2. MetroRail

826 / 874 Corridor
1. Bus Rapid Transit

CSX Corridor
1. Diesel Multiple Unit (DMU)
Tier 2 Alternatives
Tier 2 Alternatives

- Kendall Drive
  - Exclusive BRT
  - Metrorail
- HEFT Corridor
  - Metrorail (Extension of East-West Corridor)
- CSX Corridor
  - DMU
- 137th Ave BRT (New Option)
Bus Rapid Transit (BRT)

Please view the Bus Rapid Transit (BRT) example video on the main project page.
Diesel Multiple Unit (DMU)

Please view the Diesel Multiple Unit (DMU) example video on the main project page
Kendall Corridor Alternatives
Alternatives A1-A3 – Kendall BRT
**Alternative A1 – A3 - Kendall BRT**

<table>
<thead>
<tr>
<th>Mode</th>
<th>BRT</th>
</tr>
</thead>
</table>
| **Daily Transit Trips** | A1 - 10,000  
A2 - 7,041  
A3 - 5,834 |
| **Headways** | 6 / 10 Minutes |
| **Capital Cost** | A1 - $326.6m  
A2 - $253.7m  
A3 - $249.7m |
| **O&M Cost** | $4.6m-5.2m |
Alternative A4 – Kendall MetroRail
## Alternative A4 – Kendall MetroRail

<table>
<thead>
<tr>
<th>Mode</th>
<th>MetroRail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Transit Trips</td>
<td>15,600</td>
</tr>
<tr>
<td>Headways</td>
<td>6/12 Minutes</td>
</tr>
<tr>
<td>Capital Cost</td>
<td>$1.68b</td>
</tr>
<tr>
<td>O&amp;M Cost</td>
<td>$18.8m</td>
</tr>
</tbody>
</table>
HEFT Corridor Alternatives
Alternative B1 - HEFT MetroRail
## Alternative B1- HEFT MetroRail

<table>
<thead>
<tr>
<th>Mode</th>
<th>MetroRail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Transit Trips</td>
<td>12,250</td>
</tr>
<tr>
<td>Headways</td>
<td>6/12 minutes</td>
</tr>
<tr>
<td>Capital Cost</td>
<td>$ 1.69b</td>
</tr>
<tr>
<td>O&amp;M Cost</td>
<td>$19.7m</td>
</tr>
</tbody>
</table>
CSX Corridor Alternatives
CSX Corridor - DMU

Option C2
4 passenger stations
30 min. peak hour headways

Option C3
7 passenger stations
20 min. peak hour headways

Options C4 & C5
Full Double track
9 passenger stations
15 min. peak hour headways
Alternatives C2-C4 - DMU
### Alternatives C2-C4 - DMU

<table>
<thead>
<tr>
<th>Mode</th>
<th>DMU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Transit Trips</td>
<td>C2 - 600</td>
</tr>
<tr>
<td></td>
<td>C3 - 1,144</td>
</tr>
<tr>
<td></td>
<td>C4 - 3,100</td>
</tr>
<tr>
<td>Headways</td>
<td>C2 - 30/60 minutes</td>
</tr>
<tr>
<td></td>
<td>C3 - 20/40</td>
</tr>
<tr>
<td></td>
<td>C4 - 15/30</td>
</tr>
<tr>
<td>Capital Cost</td>
<td>C2 - $190m</td>
</tr>
<tr>
<td></td>
<td>C3 - $224.1m</td>
</tr>
<tr>
<td></td>
<td>C4 - $368m</td>
</tr>
<tr>
<td>O&amp;M Cost</td>
<td>$5.2m – 12m</td>
</tr>
</tbody>
</table>
### Alternative C5 - DMU

<table>
<thead>
<tr>
<th>Mode</th>
<th>DMU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Transit Trips</td>
<td>3,000</td>
</tr>
<tr>
<td>Headways</td>
<td>15/30</td>
</tr>
<tr>
<td>Capital Cost</td>
<td>$386m</td>
</tr>
<tr>
<td>O&amp;M Cost</td>
<td>$12.2m</td>
</tr>
</tbody>
</table>
137th Ave. Corridor Alternatives
Alternatives D1 – 137th BRT
Alternative D1 – 137th BRT

Mode: BRT

Daily Transit Trips: 7,800

Headways: 6 / 10 Minutes

Capital Cost: $407M

O&M Cost: $6.5m
Traffic Evaluation
Basis for BRT Analysis

- BRT in Median
- Transit Signal Priority at Intersections
  - 10-second green extension
- Six-Minute Headways
- 2030 Traffic Conditions
- PM Peak Hour
- Major Intersections Only (also looked at select intersections with geometric modifications)
Evaluation of Impacts

- Impacts of Transit Signal Priority
- Impacts of Geometric Modifications
- In Comparison to No-Build Alternative
- Measured in Cumulative Vehicle Hours or Impact per Vehicle in Seconds
Impacts of BRT Alternative

Note: Positive values indicate time savings.
Summary – BRT Alternative

• Transit Signal Priority → Marginal Benefits to Kendall Drive East-West Movement

• Geometric Modifications and Traffic Diversion → Adverse Impacts

• Most Significantly Affected Intersections → SW 137 Ave, SW 122 Ave, SW 117 Ave, SW 107 Ave, and SW 87 Ave
Basis for DMU Analysis

- DMU in CSX Corridor
- Two-Car Trains Sets
- Double Track
- 15-Minute Headways
- 2030 Traffic Conditions
- PM Peak Hour
- Major Grade Crossings Only (Mid-Blocks and Intersections)
Evaluation of Impacts

• Impacts of Gate Closure

• 45-Second Gate Closure Duration

• In Comparison to No-Build Alternative

• Measured in Cumulative Vehicle Hours or Impact per Vehicle in Seconds
### Impacts of DMU Alternative

<table>
<thead>
<tr>
<th>Cross Street</th>
<th>Net Cumulative Impact (veh-hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flagler Street</td>
<td>-5.6</td>
</tr>
<tr>
<td>Tamiami Trail</td>
<td>-5.2</td>
</tr>
<tr>
<td>Coral Way</td>
<td>-5.2</td>
</tr>
<tr>
<td>Bird Road</td>
<td>-7.8</td>
</tr>
<tr>
<td>Miller Road</td>
<td>-5.0</td>
</tr>
<tr>
<td>Sunset Drive</td>
<td>-5.1</td>
</tr>
<tr>
<td>Kendall Drive</td>
<td>-7.1</td>
</tr>
<tr>
<td>SW 112 Street</td>
<td>-2.2</td>
</tr>
<tr>
<td>Coral Reef Drive</td>
<td>-6.9</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>-5.6</strong></td>
</tr>
</tbody>
</table>

Negative Values Indicate Delays
Summary – DMU Alternative

- Gate Closure Marginally Impacts Vehicular Traffic
- Per Vehicle Impact is Around 45 Seconds
- Highest Cumulative Delay → Bird Road, Kendall Drive, and Coral Reef Drive
Comparison of Alternatives

- **BRT Alternatives**
  - Transit Signal Priority Marginally Benefits Traffic
  - Geometric Modifications Adversely Impact Traffic

- **DMU Alternative**
  - Affects Fewer Vehicles
  - Average Delay Per Impacted Vehicle is 45 Seconds
Summary
<table>
<thead>
<tr>
<th>Alternative</th>
<th>Ridership (Trips)</th>
<th>Capital Cost (millions)</th>
<th>O &amp; M Cost (millions)</th>
<th>Traffic Impact</th>
<th>Major Intersections Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 – Kendall BRT</td>
<td>10,048</td>
<td>$326.6</td>
<td>$4.8</td>
<td>High</td>
<td>16</td>
</tr>
<tr>
<td>A2 – Kendall BRT</td>
<td>7,041</td>
<td>$253.7</td>
<td>$5.2</td>
<td>High</td>
<td>15</td>
</tr>
<tr>
<td>A3 – Kendall BRT</td>
<td>5,834</td>
<td>$249.7</td>
<td>$4.6</td>
<td>High</td>
<td>13</td>
</tr>
<tr>
<td>A4 – Kendall MetroRail</td>
<td>15,565</td>
<td>$1,682.0</td>
<td>$18.8</td>
<td>Low</td>
<td>N/A</td>
</tr>
<tr>
<td>B1 – HEFT MetroRail</td>
<td>12,265</td>
<td>$1,686.3</td>
<td>$19.7</td>
<td>Low</td>
<td>N/A</td>
</tr>
<tr>
<td>C2 – DMU / CSX – 30 min.</td>
<td>600</td>
<td>$190.6</td>
<td>$5.2</td>
<td>Low</td>
<td>9</td>
</tr>
<tr>
<td>C3 – DMU / CSX - 20 min.</td>
<td>1,912</td>
<td>$224.1</td>
<td>$7.7</td>
<td>Low</td>
<td>9</td>
</tr>
<tr>
<td>C4 – DMU / CSX – 15 min.</td>
<td>3,083</td>
<td>$368.0</td>
<td>$12.0</td>
<td>Low</td>
<td>9</td>
</tr>
<tr>
<td>C4 – DMU / CSX – SW 157th</td>
<td>3,017</td>
<td>$386.5</td>
<td>$12.2</td>
<td>Low</td>
<td>10</td>
</tr>
<tr>
<td>D1 – 137th Ave. BRT</td>
<td>7,785</td>
<td>$407.9</td>
<td>$6.5</td>
<td>High</td>
<td>14</td>
</tr>
</tbody>
</table>
Next Steps
Next Steps

1. **Further Technical Analysis**
   - Refine Ridership Demand
   - Develop FTA User Benefits

2. **Public / Stakeholder Outreach**

3. **Identify Preferred Transit Strategy**
   - Near-Term
   - Mid-Term
   - Long Term Vision

4. **MPO Action**