Health Line Corridor Extension Project
What is the purpose and need?

**Purpose:**
- Provide more travel choices
- Improve access, mobility and connectivity
- Provide faster, more-reliable public transit services
- Support redevelopment and channel new development

**Need:**
- Population and employment migration
- Increasing suburbanization in the study area
- Decreasing access to public transit network
- Increasing vehicle trips
- Increasing congestion
- Lack of reliable travel times
Why improve public transport?

- Reduce Congestion
- Conserve Energy
- Improve Environment
- Increase Choices
Alternative B (Heavy Rail Transit/DMU)

PROPOSED RTA RED LINE/HEALTHLINE EXTENSION
ALTERNATIVE B

LEGEND
Route Length = 5.72 miles

Euclid Park-N-Ride
Alternative E (Bus Rapid Transit)

East 300th Street / Shoregate Shopping Center
Alternative G (Bus Rapid Transit)
Catalyst for redevelopment
TOD: What Do We Mean?

Patterns of land use and development that feature:

• Transit-supportive density within walking or shuttle distance
• Mixed-use station areas or corridors
• A safe, walkable environment
• Adapting the model to industrial employment centers
A Catalyst for Redevelopment

Why is transit-oriented development (TOD) so important?

• Increases ridership and revenue for RTA
• Stimulates sustainable, thriving communities
• Enhances value capture opportunities to fund the project
• Improves chances of FTA New Starts/Small Starts funding
More simply put:

Transit Investment

Returns to Community

Economic Benefits
TOD Choices Couldn’t Be More Different

Red Line Extension
- Several stations
- A swath of industrial land with job destinations but poor connectivity

HealthLine BRT Alternatives
- Several corridors
- In the fabric of downtown Euclid, neighborhoods, lakeshore, industry
Urban Fabric Analysis

Red Line/HealthLine Extension Major Transportation Improvement Analysis
Urban Fabric Analysis
Urban Fabric: BRT Extension

- How do Euclid Ave., Lakeshore Blvd., St. Clair Ave., and the connecting streets compare to the HealthLine median corridor?

- Can they accommodate:
  - Distinctive stations?
  - BRT running ways?
  - BRT on a complete street?
Euclid Avenue Cross Section (Downtown)
St. Clair Avenue at East 156th Street
Urban Fabric: Red Line Extension

- Station spacing and location
- Pedestrian connectivity:
  - station design concept
  - horizontal and vertical connections
  - Is there something to connect to?
- Industrial land:
  - Land recycling opportunities vs. active employment centers
  - Is there a concerted public policy to recycle and reposition?
- Last-mile shuttle connections
Drilling Down: GIS, Babbitt (Euclid)
Drilling Down: GIS, Five Points (Collinwood)
Drilling Down: Euclid Ave. (East Cleveland)
A TOD Vision for Red Line Extension

Boston MBTA Assembly Square: heavy rail infill station, 65-acre industrial brownfield transformed by transit-oriented development
A TOD Vision for Bus Rapid Transit

York “VIVA” BRT: multiple corridors, complete streets, TOD plans and policies, a new downtown
Vision – Euclid Avenue at Noble Road
The Business Case
Our objective: Provide an unbiased assessment of transit alternatives resulting in consensus for a preferred alternative.
FTA New Starts Project Evaluation Rating

Summary Rating

Project Justification Rating (50%)
- Environmental Benefits (16.66%)
- Cost Effectiveness (16.66%)
- Land Use (16.66%)

Financial Rating (50%)
- Current Conditions (25%)
- Commitment of Funds (25%)
- Reliability/Capacity (50%)

Cost Effectiveness (16.66%)
- Mobility Improvements (16.66%)
- Economic Development (16.66%)
Alternatives Evaluation Criteria for Tier 2

- **Cost Effectiveness**
  - Capital and operating costs
  - Ridership
  - Cost per trip

- **Mobility Improvements**
  - Reduction in auto VMT
  - Trips per zero car household

- **Land Use**
  - Urban Fabric analysis
  - Current land use plans

- **Economic Development**
  - Market Assessment
  - Redevelopment potential
Cost Effectiveness

Annual capital and operating cost per trip.

Number of trips is not an incremental measure but simply the total estimated trips.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are we measuring?</td>
<td>Total annualized cost per project boarding</td>
</tr>
<tr>
<td>What are the sources?</td>
<td>FTA national transit model STOPS</td>
</tr>
<tr>
<td>Reporting methods</td>
<td>FTA standardized cost category workbook</td>
</tr>
<tr>
<td></td>
<td>Cost effectiveness template</td>
</tr>
<tr>
<td>How did FTA determine rating breakpoints?</td>
<td>Sampling of recent New Start project data.</td>
</tr>
</tbody>
</table>
# Cost Effectiveness Index Values

<table>
<thead>
<tr>
<th>Features</th>
<th>Alternative B</th>
<th>Alternative E</th>
<th>Alternative G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminus</td>
<td>Babbitt Road</td>
<td>East 260th Street</td>
<td>East 260th Street</td>
</tr>
<tr>
<td>Technology</td>
<td>HRT DMU Rapid + BRT BRT BRT Lite BRT</td>
<td>Rapid + BRT BRT BRT Lite BRT</td>
<td>Routes Miles</td>
</tr>
<tr>
<td>CAPEX</td>
<td>$917 $743 $745 $357 $416 $431 $718 $353 $412 $427</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annualized CAPEX</td>
<td>$25.8 $22.2 $30.7 $11.6 $13.5 $13.8 $29.3 $11.5 $13.4 $13.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annualized OPEX</td>
<td>$11.9 $30.8 $16.3 $6.0 $6.1 $6.1 $18.3 $7.1 $7.0 $7.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annualized Total</td>
<td>$37.7 $53.0 $47.0 $17.6 $19.6 $35.4 $29.8 $20.8 $32.8 $39.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ridership</td>
<td>Daily 13,400 8,200 8,800 9,500 10,000 10,000 9,000 9,800 10,400 10,400</td>
<td>Annual (000) 4,020 2,460 2,640 2,850 3,000 3,000 2,700 2,940 3,120 3,120</td>
<td></td>
</tr>
</tbody>
</table>
Mobility Improvements

Total Number of Linked Trips using the proposed project, with a weight of two given to trips by transit dependent people. Reductions in daily automobile miles traveled.

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<tr>
<th>Question</th>
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<tbody>
<tr>
<td>What are we measuring?</td>
<td>Total “project boardings” with weighting of transit dependent trips. Reductions in daily automobile miles traveled (VMT)</td>
</tr>
<tr>
<td>What are the sources?</td>
<td>Local transit model or STOPS</td>
</tr>
<tr>
<td>Reporting methods</td>
<td>Travel forecast template; mobility template</td>
</tr>
</tbody>
</table>
### Reduced Automobile Vehicle Miles Traveled

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HRT</td>
<td>DMU</td>
<td>Rapid+</td>
</tr>
<tr>
<td>Route Miles</td>
<td>6.5</td>
<td>6.5</td>
<td>7.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Daily Riders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily trips on project</td>
<td>13,400</td>
<td>8,200</td>
<td>8,800</td>
</tr>
<tr>
<td>New transit trips</td>
<td>11,100</td>
<td>5,600</td>
<td>3,300</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Daily Reductions in Automobile Miles Traveled (VMT)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily auto VMT</td>
<td>(75,200)</td>
<td>(45,900)</td>
<td>(23,100)</td>
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</table>
## Mobility Improvements

<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td>HRT</td>
<td>DMU</td>
<td>Rapid+</td>
</tr>
<tr>
<td><strong>Route Miles</strong></td>
<td>6.5</td>
<td>6.5</td>
<td>7.4</td>
</tr>
<tr>
<td><strong>Zero Car Households</strong></td>
<td>525</td>
<td>525</td>
<td>904</td>
</tr>
<tr>
<td><strong>Mobility Improvements</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily trips on project</td>
<td>13,400</td>
<td>8,200</td>
<td>8,800</td>
</tr>
<tr>
<td>% trips from zero car households</td>
<td>33%</td>
<td>34%</td>
<td>41%</td>
</tr>
<tr>
<td>Transit dependent trips</td>
<td>4,422</td>
<td>2,788</td>
<td>3,608</td>
</tr>
<tr>
<td>Weighted trips</td>
<td>8,844</td>
<td>5,576</td>
<td>7,216</td>
</tr>
<tr>
<td>Non-transit dependent trips</td>
<td>8,978</td>
<td>5,412</td>
<td>5,192</td>
</tr>
<tr>
<td>Total Daily Weighted trips</td>
<td>17,822</td>
<td>10,988</td>
<td>12,408</td>
</tr>
<tr>
<td>Annualized mobility improvements (000)</td>
<td><strong>5,346,600</strong></td>
<td>3,296,400</td>
<td>3,722,400</td>
</tr>
</tbody>
</table>
Examination of the existing corridor and station area development, character, and affordability housing.

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<tr>
<th>Question</th>
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<tbody>
<tr>
<td>What are we measuring?</td>
<td>Number of legally binding affordable housing units. Density of population and employment within ( \frac{1}{2} )-mile of stations.</td>
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<tr>
<td>What are the sources?</td>
<td>Census data; affordable housing policies</td>
</tr>
<tr>
<td>Reporting methods</td>
<td>• Land Use Template (Quantitative)</td>
</tr>
<tr>
<td></td>
<td>• Table of quantitative data on land use characteristics</td>
</tr>
<tr>
<td></td>
<td>• Supporting documentation to substantiate statements made in the template.</td>
</tr>
</tbody>
</table>
Benefits of Investments in Public Transit

**Direct Benefits**
- Mobility improvements
- Travel time savings
- Cost savings
- Transportation system efficiency
- Accident reduction
- Energy savings
- Environmental quality improves

**Indirect Benefits**
- Increased economic activity
- Increased competitiveness
- Productivity improvements
- Land-use patterns change
- Property values increase
- Residual impacts
- Residual community amenity
Summary Evaluation

- **Alternative B**
  - DMU option is not cost-effective.
  - HRT option provides significant mobility benefits.
  - HRT option *medium* rating for cost-effectiveness without right-of-way costs.
  - HRT costs twice as much as the BRT options and is less cost effective.

- **Alternative E**
  - Rapid+ option is not cost effective.
  - BRT option has fewer mobility benefits than Alternative B.
  - BRT option would qualify for a *medium* rating for cost-effectiveness.
  - Satisfies statutory requirement for dedicated transit lanes.
  - Future "transit village" development.

- **Alternative G**
  - Rapid+ option is not cost effective.
  - BRT option has fewer mobility benefits than Alternative B.
  - BRT option would qualify for a *medium* rating for cost-effectiveness.
  - Does NOT currently satisfy statutory requirement for dedicated transit lanes.
  - Future "transit village" development.
Thank you!