The Purple Line
Transit Connecting Bethesda, New Carrollton, and the Washington Metro

Presented by-
Nick Flanders
Rose Ryan
Anupam Srivastava
Washington, DC and the Metro System

District of Columbia area: **61 square miles**
District of Columbia population: **550,521**

*The DC Metro System:*

11\(^{th}\) highest historical Metrorail weekday ridership (7/16/2009): **834,997**

Average combined bus and rail ridership in the transit system: **1.2 million trips/weekday**
Purple Line Route

(Source: MTA, DEIS Executive Summary)
Populations of cities to be served

Important municipalities along the Purple Line:

Bethesda: 55,277 people
Chevy Chase: 9,381 people
Silver Spring: 76,540 people
Takoma Park: 18,540 people
Langley Park: 16,214 people
College Park: 25,171 people
Riverdale: 6,630 people
New Carrollton: 12,818 people
Total: 220,571 people

The Locally Preferred Alternative

Specifications for the Purple Line submitted to the FTA for funding consideration by the Maryland Transit Administration (MTA):

• Light Rail Transit Line
• 16.3 miles long, mostly at grade
• Linked to Metrorail Red, Green, and Orange Lines
• Linked to Amtrak and MARC commuter rail lines
• 21 Stations
• One-way trip duration = 56 minutes
• Estimated ridership = 64,800 trips/day in 2030, replacing 19,200 vehicle trips/day (Treat these projections with caution)
• Estimated Capital Cost = $1.517 billion
• Intended to run along the Capital Crescent Trail between Bethesda and Silver Springs
• Intended to pass through the University of Maryland, along Campus Drive
Alternatives

No Build

TSM
(Transportation Systems Management)

BRT
- Low Investment
- Medium Investment
- High Investment

LRT
- Low Investment
- Medium Investment
- High Investment
# Capital Costs

<table>
<thead>
<tr>
<th>Description</th>
<th>TSM</th>
<th>BRT Low Investment</th>
<th>BRT Medium Investment</th>
<th>BRT High Investment</th>
<th>LRT Low Investment</th>
<th>LRT Medium Investment</th>
<th>LRT High Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (miles):</td>
<td>Length</td>
<td>16</td>
<td>169</td>
<td>168</td>
<td>168</td>
<td>162</td>
<td>164</td>
</tr>
<tr>
<td>Number of Stations</td>
<td>Number</td>
<td>21</td>
<td>22</td>
<td>22</td>
<td>21</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Number of Revenue Vehicles</td>
<td>Number</td>
<td>68</td>
<td>60</td>
<td>49</td>
<td>42</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>Guideway and Track Elements</td>
<td>Cost</td>
<td>$105.4</td>
<td>$76.06</td>
<td>$150.57</td>
<td>$473.02</td>
<td>$307.52</td>
<td>$311.01</td>
</tr>
<tr>
<td>Stations, Stops, Terminals, Intermodal</td>
<td>Cost</td>
<td>$6.23</td>
<td>$49.04</td>
<td>$82.32</td>
<td>$126.73</td>
<td>$103.12</td>
<td>$101.62</td>
</tr>
<tr>
<td>Support Facilities: Yards, Shops, Admin. Buildings</td>
<td>Cost</td>
<td>$0.00</td>
<td>$21.60</td>
<td>$176.4</td>
<td>$15.12</td>
<td>$82.29</td>
<td>$82.29</td>
</tr>
<tr>
<td>Site work and Special Conditions</td>
<td>Cost</td>
<td>$3.20</td>
<td>$48.88</td>
<td>$92.81</td>
<td>$95.72</td>
<td>$86.98</td>
<td>$94.56</td>
</tr>
<tr>
<td>Systems</td>
<td>Cost</td>
<td>$1.42</td>
<td>$29.06</td>
<td>$246.65</td>
<td>$21.23</td>
<td>$127.04</td>
<td>$126.59</td>
</tr>
<tr>
<td>Construction Subtotal</td>
<td>Cost</td>
<td>$21.40</td>
<td>$224.63</td>
<td>$367.99</td>
<td>$731.82</td>
<td>$706.95</td>
<td>$716.08</td>
</tr>
<tr>
<td>Right-of-Way, Land, Existing Improvements*</td>
<td>Cost</td>
<td>$3.21</td>
<td>$33.10</td>
<td>$37.10</td>
<td>$49.90</td>
<td>$58.30</td>
<td>$59.70</td>
</tr>
<tr>
<td>Vehicles</td>
<td>Cost</td>
<td>$48.27</td>
<td>$42.59</td>
<td>$34.78</td>
<td>$29.81</td>
<td>$170.23</td>
<td>$170.23</td>
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<tr>
<td>Professional Services</td>
<td>Cost</td>
<td>$6.85</td>
<td>$71.88</td>
<td>$111.76</td>
<td>$234.18</td>
<td>$226.22</td>
<td>$229.15</td>
</tr>
<tr>
<td>Unallocated Contingency</td>
<td>Cost</td>
<td>$2.24</td>
<td>$14.18</td>
<td>$22.19</td>
<td>$42.87</td>
<td>$44.44</td>
<td>$44.09</td>
</tr>
<tr>
<td>Total Project Cost</td>
<td>Cost</td>
<td>$81.96</td>
<td>$386.39</td>
<td>$579.82</td>
<td>$1,088.48</td>
<td>$1,206.15</td>
<td>$1,220.15</td>
</tr>
</tbody>
</table>

All dollar figures in millions

## Capital Cost Totals

**TSM Option:** $81.96 Mill  
**BRT Options**  
- Low Inv: $386.39 Mill  
- Med Inv: $579.82 Mill  
- High Inv: $1,088.48 Mill  

**LRT Options**  
- Low Inv: $1,206.15 Mill  
- Med Inv: $1,220.15 Mill  
- High Inv: $1,634.84 Mill
# Operational Costs

## Table B: Total Annual Operating and Maintenance Costs (2007 dollars in millions)

<table>
<thead>
<tr>
<th>Description</th>
<th>TSM</th>
<th>BRT</th>
<th>LRT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low Investment</td>
<td>Medium Investment</td>
<td>High Investment</td>
</tr>
<tr>
<td>Incremental Annual Bus and BRT O&amp;M, (including BRT Service, Station)</td>
<td>146</td>
<td>173</td>
<td>15.8</td>
</tr>
<tr>
<td>Incremental Annual LRT O&amp;M, Service, Station and Guideway Costs</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Annual O&amp;M Cost Increase over No Build</td>
<td>146</td>
<td>173</td>
<td>15.8</td>
</tr>
<tr>
<td>Annual Change in Systemwide Farebox Revenue</td>
<td>2.4</td>
<td>33</td>
<td>5.2</td>
</tr>
<tr>
<td>Annual Operating and Maintenance Subsidy</td>
<td>122</td>
<td>14</td>
<td>128</td>
</tr>
</tbody>
</table>

All dollar figures in millions

## Operational Cost Totals (annual)

**TSM Option** : $14.6 Mill  
**BRT Options**  
- Low Inv : $17.3 Mill  
- Med Inv : $17.3 Mill  
- High Inv : $15.8 Mill  
**LRT Options**  
- Low Inv : $26.4 Mill  
- Med Inv : $25.0 Mill  
- High Inv : $22.8 Mill
Funding Sources

FTA (Federal Transit Administration)
  • New Starts Fund

MTA / WMATA / Counties

Private Funding
  • Organizations
  • Developers
  • Businesses
Traffic Impact

✓ Reduces VMT
  • Increasing traffic in the region due to various development projects planned

✓ Intersections with major radial roads

✗ Temporary disruption in service at certain intersections possible
<table>
<thead>
<tr>
<th></th>
<th>Daily Vehicle Trips</th>
<th>Daily VMT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Build</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25,806,975</td>
<td>261,054,037</td>
</tr>
<tr>
<td><strong>TSM</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change over no Build</td>
<td>-3,421</td>
<td>-13,592</td>
</tr>
<tr>
<td>% Change over no Build</td>
<td>-0.013%</td>
<td>-0.005%</td>
</tr>
<tr>
<td><strong>BRT: Low</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change over no Build</td>
<td>-11,005</td>
<td>-52,199</td>
</tr>
<tr>
<td>% Change over no Build</td>
<td>-0.043%</td>
<td>-0.020%</td>
</tr>
<tr>
<td><strong>BRT: Med</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change over no Build</td>
<td>-14,137</td>
<td>-113,562</td>
</tr>
<tr>
<td>% Change over no Build</td>
<td>-0.055%</td>
<td>-0.044%</td>
</tr>
<tr>
<td><strong>BRT: High</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change over no Build</td>
<td>-16,016</td>
<td>-175,090</td>
</tr>
<tr>
<td>% Change over no Build</td>
<td>-0.062%</td>
<td>-0.067%</td>
</tr>
<tr>
<td><strong>LRT: Low</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change over no Build</td>
<td>-16,470</td>
<td>-167,456</td>
</tr>
<tr>
<td>% Change over no Build</td>
<td>-0.064%</td>
<td>-0.064%</td>
</tr>
<tr>
<td><strong>LRT: Med</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change over no Build</td>
<td>-3,421</td>
<td>-183,603</td>
</tr>
<tr>
<td>% Change over no Build</td>
<td>-0.013%</td>
<td>-0.070%</td>
</tr>
<tr>
<td><strong>LRT: High</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change over no Build</td>
<td>-18,753</td>
<td>-186,400</td>
</tr>
<tr>
<td>% Change over no Build</td>
<td>-0.073%</td>
<td>-0.071%</td>
</tr>
</tbody>
</table>
• Public Opinion
  – Prince George’s County – supports
  – Montgomery County – some concerns

• Public Hearings and Open Houses
Who would the Purple Line Serve?
Potential Effects on Low-Income Communities

- MTA estimates employment on the corridor will increase 32% from 2000 to 2030
- Reliable transit for low-income workers to access better jobs on west side of Purple Line
- Worry that bus routes will be cut, forcing transit riders to pay higher LRT/BRT fare
- Concern that an increase in property values would push low-income, transit-dependent residents out of Purple Line Corridor
Capital Crescent Trail

- Last train ran in 1985
- Railbanked trail
- Used for commuting, recreation
MTA design for integration of LRT and Capital Crescent Trail
Opinions on trail to rail conversion

• Coalition for the Capital Crescent Trail
  – Grass between track, increasing 10 ft gap between tracks and trail, increasing trail width to 12-16 ft

• Greater Bethesda – Chevy Chase Coalition
  – Worries 4,500 trees would be cut
  – 1.5 million annual trail users
  – Concerned about safety – families and children use the trail
  – 18,000 signatures collected on petition to change alignment or put LRT in tunnel

• City of Chevy Chase
  – Trail would have to be rerouted because of narrow right of way in downtown Bethesda
CCT route through Bethesda

- Worry about safety of on-street route of trail and safety and appeal of trail in tunnel.

Figure 4: MTA-recommended on-street detour for Capital Crescent Trail through Bethesda

Figure 5: Squeezing the trail under the Air Rights Building is expensive and complex. It is questionable if it can be engineered and made safe.
As of 2000, there are 61 active rails-with-trails corridors. The average distance between tracks and trails is 33 feet, but 30% of trails have a 12 ft or smaller separation. In 36 years studied, only 1 incident between a trail user and train.
The Purple Line