Beyond the Tracks: Economic Development in the Purple Line Corridor

Makeover Montgomery 4 Conference
- The Purple Line and Economic Growth

National Center for Smart Growth
May 11, 2018
Purpose of this study

- An overview of current conditions in the Purple Line Corridor, including demographics, economics, and land use conditions.

- An analysis of the economic impacts of the Purple Line on the economy of the Purple Line Corridor, and the economies Montgomery and Prince George’s Counties.

- Develop recommendations for changes in land use and economic development policies, to maximize the impacts of anticipated and potential economic growth
  - subject to the Purple Line Corridor Community Development Agreement
Purple Line Corridor Goals

From the Purple Line Corridor Coalition’s Community Development Agreement:

• Support and Grow Local Businesses
• Build a Thriving Labor Market
• Ensure Housing Choices for All
• Support Vibrant, Sustainable Communities
The Purple Line Corridor

5 subareas

- Bethesda-Chevy Chase
- Silver Spring
- International Corridor (Langley Park)
- University of Maryland (College Park)
- Riverdale – New Carrollton

Census block groups, within a half mile radius of all stops
• Current conditions in the Purple Line Corridor
  – Demographics and socioeconomics
  – Employment trends
  – Transportation mode share
  – Land use and zoning
• Purple Line Corridor Employment Forecast
  – Analysis framework
  – Long-run employment forecast
    • county level
    • corridor level
    • subarea level
• Land use capacity
• Future work
Corridor Demographics

Current population, by race, 2011-2015

- Riverdale-New Carrollton: 35,917
- UMD: 20,667
- International Corridor: 59,622
- Silver Spring: 31,573
- Bethesda-Chevy Chase: 22,292
- Entire Corridor: 170,071

Percent population growth by race, 2000 to 2011-2015

Current Demographics

- 26,000 Hispanic residents moved into the Corridor in 15 years
- 11,000 non-Hispanic residents added
- Corridor is now more than 1/3 Hispanic

**Corridor Socioeconomics**

- Economically diverse neighborhoods
- Income disparity has increased over time on west side
- Changes in household income has paralleled changes in educational attainment
- Housing affordability issues

### Exhibit 6: Real Median Household Income, 2015 dollars

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bethesda-Chevy Chase</td>
<td>$125,843</td>
<td>$127,290</td>
<td>$138,219</td>
<td>9.8%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Silver Spring</td>
<td>$75,022</td>
<td>$78,662</td>
<td>$85,416</td>
<td>13.9%</td>
<td>1.0%</td>
</tr>
<tr>
<td>International Corridor</td>
<td>$66,138</td>
<td>$62,694</td>
<td>$68,077</td>
<td>2.9%</td>
<td>0.2%</td>
</tr>
<tr>
<td>University of Maryland</td>
<td>$72,690</td>
<td>$50,710</td>
<td>$55,064</td>
<td>-24.2%</td>
<td>-2.1%</td>
</tr>
<tr>
<td>Riverdale - New Carrollton</td>
<td>$66,369</td>
<td>$60,961</td>
<td>$66,195</td>
<td>-0.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Entire Corridor</strong></td>
<td>$78,154</td>
<td>$76,125</td>
<td>$82,661</td>
<td>5.8%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

Note: Values reported here are the average of the median household incomes for block groups composing the subareas.

Corridor Employment

- Corridor is industrially diverse
- Major industries
  - Educational services
  - Professional, scientific, and technical services
  - Public administration
- Employment is not evenly distributed
  - Concentrated in Bethesda – Chevy Chase and Silver Spring

<table>
<thead>
<tr>
<th>Industry</th>
<th>Bethesda-Cherry Chase</th>
<th>Silver Spring</th>
<th>International Corridor</th>
<th>UMD</th>
<th>Riverdale-New Carrollton</th>
<th>The Corridor</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Services</td>
<td>994</td>
<td>2,326</td>
<td>1,113</td>
<td>18,815</td>
<td>1,092</td>
<td>24,340</td>
<td>19.0%</td>
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<tr>
<td>Professional, Scientific, and Technical Services</td>
<td>8,035</td>
<td>6,776</td>
<td>215</td>
<td>729</td>
<td>2,514</td>
<td>18,269</td>
<td>14.3%</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>4,854</td>
<td>3,023</td>
<td>2,109</td>
<td>181</td>
<td>574</td>
<td>10,741</td>
<td>8.4%</td>
</tr>
<tr>
<td>Public Administration</td>
<td>580</td>
<td>445</td>
<td>17</td>
<td>1,250</td>
<td>8,068</td>
<td>10,360</td>
<td>8.1%</td>
</tr>
<tr>
<td>Administrative, Support, Waste Management</td>
<td>5,601</td>
<td>3,139</td>
<td>320</td>
<td>385</td>
<td>914</td>
<td>10,359</td>
<td>8.1%</td>
</tr>
<tr>
<td>All other employment</td>
<td>21,889</td>
<td>14,149</td>
<td>3,780</td>
<td>2,490</td>
<td>11,601</td>
<td>53,909</td>
<td>42.1%</td>
</tr>
<tr>
<td>Total</td>
<td>41,953</td>
<td>29,858</td>
<td>7,554</td>
<td>23,850</td>
<td>24,763</td>
<td>127,978</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: NCSG with data from the U.S. Census, LEHD 2013. Detailed industry table available in Appendix.
Location Quotient

- A measure of employment specialization
- If the ratio is greater than 1, the region has a specialization
- Corridor/Entire State
- Subareas/Two Counties

\[
\frac{\text{regional employment in industry}_i}{\text{total regional employment}} \quad \frac{\text{national employment in industry}_i}{\text{total national employment}}
\]
### Corridor Industry Specialization

**Exhibit 8: Location Quotient**

<table>
<thead>
<tr>
<th>Location Quotient</th>
<th>Bethesda-Chevy Chase</th>
<th>Silver Spring</th>
<th>International Corridor</th>
<th>UMD</th>
<th>Riverdale-New Carrollton</th>
<th>The Corridor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry, Fishing and Hunting</td>
<td>0.34</td>
<td>0.00</td>
<td>0.00</td>
<td>0.44</td>
<td>0.00</td>
<td>0.05</td>
</tr>
<tr>
<td>Mining, Quarrying, and Oil and Gas Extraction</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Utilities</td>
<td>0.61</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.09</td>
</tr>
<tr>
<td>Construction</td>
<td>0.87</td>
<td>0.92</td>
<td>0.56</td>
<td>0.21</td>
<td>0.29</td>
<td>0.67</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.27</td>
<td>0.44</td>
<td>0.30</td>
<td>0.01</td>
<td>0.86</td>
<td>0.22</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>0.43</td>
<td>0.58</td>
<td>0.59</td>
<td>0.03</td>
<td>0.84</td>
<td>0.36</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>0.62</td>
<td>0.60</td>
<td>1.83</td>
<td>0.15</td>
<td>0.48</td>
<td>0.54</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>0.12</td>
<td>0.31</td>
<td>0.26</td>
<td>0.01</td>
<td>9.82</td>
<td>1.79</td>
</tr>
<tr>
<td>Information</td>
<td>1.44</td>
<td>3.24</td>
<td>0.06</td>
<td>0.27</td>
<td>0.26</td>
<td>1.61</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>2.93</td>
<td>0.65</td>
<td>0.88</td>
<td>0.11</td>
<td>0.36</td>
<td>1.09</td>
</tr>
<tr>
<td>Real Estate and Rental and Leasing</td>
<td>2.41</td>
<td>1.45</td>
<td>2.06</td>
<td>0.30</td>
<td>0.40</td>
<td>1.67</td>
</tr>
<tr>
<td>Professional, Scientific, and Technical Services</td>
<td>1.53</td>
<td>1.81</td>
<td>0.23</td>
<td>0.24</td>
<td>0.81</td>
<td>1.45</td>
</tr>
<tr>
<td>Management of Companies and Enterprises</td>
<td>1.30</td>
<td>0.63</td>
<td>0.04</td>
<td>0.11</td>
<td>0.07</td>
<td>0.72</td>
</tr>
<tr>
<td>Administrative, Support, Waste Management</td>
<td>2.02</td>
<td>1.59</td>
<td>0.64</td>
<td>0.24</td>
<td>0.56</td>
<td>1.30</td>
</tr>
<tr>
<td>Educational Services</td>
<td>0.21</td>
<td>0.70</td>
<td>1.32</td>
<td>7.08</td>
<td>0.40</td>
<td>1.74</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>0.99</td>
<td>0.86</td>
<td>2.38</td>
<td>0.06</td>
<td>0.20</td>
<td>0.61</td>
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<tr>
<td>Arts, Entertainment, and Recreation</td>
<td>1.74</td>
<td>0.48</td>
<td>0.19</td>
<td>0.07</td>
<td>0.17</td>
<td>0.63</td>
</tr>
<tr>
<td>Accommodation and Food Services</td>
<td>1.24</td>
<td>1.29</td>
<td>1.47</td>
<td>0.60</td>
<td>0.34</td>
<td>0.89</td>
</tr>
<tr>
<td>Other Services [except Public Administration]</td>
<td>1.51</td>
<td>1.94</td>
<td>1.22</td>
<td>0.25</td>
<td>0.76</td>
<td>1.39</td>
</tr>
<tr>
<td>Public Administration</td>
<td>0.13</td>
<td>0.14</td>
<td>0.02</td>
<td>0.48</td>
<td>2.95</td>
<td>0.96</td>
</tr>
</tbody>
</table>

- **Corridor specializations**
  - Transportation, Information, Real estate, Professional service, Administrative, Education
- **Subarea specializations**
  - Bethesda-Chevy Chase
    - Finance, real estate, administration
  - Silver Spring
    - Information, real estate, professional services
  - International Corridor
    - Real estate, health care and social assistance
  - UMD
    - Education
  - Riverdale-New Carrollton
    - Transportation and warehousing, public administration

Source: NCSG with Data from the U.S. Census, LEHD 2013
• Riverdale – New Carrollton  
  – Employment \approx resident

• University of Maryland  
  – Employment >> residents

• International Corridor  
  – Employment << residents

• Silver Spring  
  – Employment < residents

• Bethesda – Chevy Chase  
  – Employment > residents

West side of corridor significantly more highly educated

Since 2000, trends:
- More non-motorized travel
- More work from home (3% to 5%)

Facts:
- More SOV at the east and west ends of the corridor
- High carpooling in International Corridor
- Data on rideshare (Uber, Lyft) not yet available
Land Use and Zoning

- Tax-exempt land concentrated around UMD
- Industrial land in New Carrollton
- Dominance of lower-density residential use
Employment Forecast

- Scenario analysis framework
  - Maryland Statewide Transportation Models
  - TREDIS
Travel Characteristics (driving)

- Growth in vehicle trips, VMT, and VHT
- More crowded roadways and extending driving time
- Population growth, employment growth, and suburbanization
Travel Characteristics (transit)

Growth in transit passenger trips, passenger miles traveled, and passenger hours traveled

Transit utility growth is prominent in Prince George’s County
  • 33% growth in transit passenger trips in Montgomery County
  • 66% growth in transit passenger trips in Prince George’s County
Travel Characteristics in 2040

- An increase in business and commute vehicle trips, but a decrease in personal trips
- A decrease in VMT

- A decline in vehicle trips for all purposes
- A decline in VMT for all purpose (except for personal trips)

Source: NCSG analysis of MSTM model run, version v.1.0.8.5
- Increases in passenger trips (5.1% in Montgomery and 24.6% in Prince George’s County)
- Increases in passenger miles traveled in Prince George’s county but decreases in Montgomery County
- Passenger travel faster in Montgomery County than in Prince George’s County
Employment growth in both counties with 27.8% in Montgomery County and 10.3% in Prince George’s County.
Employment Growth (corridor level) 2001-2040

- Two counties will add about 250,000 jobs
- The corridor will capture 43,000 of those jobs
- Growth will be in:
  - Construction
  - Finance and insurance
  - Professional and technical services
  - Administrative support
  - Health care

### Exhibit 18: Employment Forecast by Industry at the two-county and Corridor levels

<table>
<thead>
<tr>
<th>Industry</th>
<th>Montgomery &amp; Prince George's</th>
<th>The Corridor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016</td>
<td>2040</td>
</tr>
<tr>
<td>Agriculture, Forestry, Fishing and Hunting</td>
<td>1,380</td>
<td>1,675</td>
</tr>
<tr>
<td>Mining, Quarrying, and Oil and Gas Extraction</td>
<td>884</td>
<td>1,263</td>
</tr>
<tr>
<td>Utilities</td>
<td>1,707</td>
<td>1,653</td>
</tr>
<tr>
<td>Construction</td>
<td>95,110</td>
<td>131,377</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>20,002</td>
<td>17,827</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>22,668</td>
<td>25,299</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>99,768</td>
<td>107,090</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>33,650</td>
<td>33,531</td>
</tr>
<tr>
<td>Information</td>
<td>24,991</td>
<td>26,561</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>51,284</td>
<td>82,453</td>
</tr>
<tr>
<td>Real Estate and Rental and Leasing</td>
<td>62,833</td>
<td>70,217</td>
</tr>
<tr>
<td>Professional, Scientific, and Technical Services</td>
<td>147,746</td>
<td>168,256</td>
</tr>
<tr>
<td>Management of Companies and Enterprises</td>
<td>9,388</td>
<td>9,273</td>
</tr>
<tr>
<td>Administrative and Support and Waste Management and Remediation Services</td>
<td>77,948</td>
<td>133,175</td>
</tr>
<tr>
<td>Educational Services</td>
<td>24,668</td>
<td>27,221</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>126,287</td>
<td>166,121</td>
</tr>
<tr>
<td>Arts, Entertainment, and Recreation</td>
<td>20,281</td>
<td>27,432</td>
</tr>
<tr>
<td>Accommodation and Food Services</td>
<td>74,503</td>
<td>98,046</td>
</tr>
<tr>
<td>Other Services [except Public Administration]</td>
<td>84,263</td>
<td>100,541</td>
</tr>
<tr>
<td>Public Administration</td>
<td>189,000</td>
<td>193,217</td>
</tr>
</tbody>
</table>

Total                                               | 1,174,561| 1,422,201| 247,640 | 184,663| 227,517| 42,854 |

Source: TREDIS Projection
Employment growth will likely to occur in all the subareas:

- Bethesda-Chevy Chase
- Silver Spring
- International Corridor
- University of Maryland
- Riverdale – New Carrollton
Conclusions

• The corridor will continue the diversity and disparity
• Subareas of the corridor have clear industrial specializations
• Increasing traffic in the region and more transit riders
Next steps

- More in-depth analysis of the populations and economics of each subarea
- Community engagement
Thanks and Questions?

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Economic Profile

Purple Line Subareas
Industrial Composition

Corridor – Industry Structure

- Total 121,671 jobs in the PLC
- Five largest sectors
  1) Educational Services
  2) Professional, Scientific, Tech Services
  3) Accommodation, Food Services
  4) Public Administration
  5) Admin, Waste Services
- These five sectors account for 58% of regional employment

Sources: Census LEHD 2014
• Professional, scientific, tech services has been consistently the largest sector.
• Finance, insurance and real estate, rental, leasing are highly concentrated compared to MoCo and PG economies.
Silver Spring Subarea

Subarea (2) Silver Spring

- Professional, scientific, tech services has been consistently the largest sector.
- Information, professional, scientific, tech services, other services are highly concentrated compared to MoCo and PG economies.
Despite the largest loss, Health care, social assistance has been consistently the largest sector.

Health care, social assistance, and real estate, rental, leasing are highly concentrated compared to MoCo and PG economies.
Subarea (4) University of Maryland

- Education services has been a dominating sector in terms of employment and the share of regional economy compared to MoCo and PG.
Subarea (5) Riverdale-New Carrollton

- The gap in employment growth between public administration and transportation, warehousing has shrunk.
- Transportation, warehousing is a dominating sector in terms of the share of regional economy compared to MoCo and PG.
Overall Economic Impacts and Benefits
Total job growth

Total Employment, Montgomery and Prince George's (2016-2040)

Source: TREDIS Purple Line Test v0.3
Job growth for top 10 sectors
County level

Job Growth for Largest 10 Sectors, County level (2016-2040)

- Public Administration
- Professional, Scientific, and Technical Services
- Health Care and Social Assistance
- Administrative and Support and Waste Management and Remediation Services
- Construction
- Other Services [except Gov]
- Accommodation and Food Services
- Finance and Insurance
- Real Estate and Rental and Leasing
- Transportation and Warehousing

Source: TREDIS Purple Line Test v0.3
### Job Growth for Largest 10 Sectors, Purple Line Corridor (2016-2040)

<table>
<thead>
<tr>
<th>Sector</th>
<th>2016</th>
<th>2023</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, Scientific, Tech Services</td>
<td>5000</td>
<td>10000</td>
<td>15000</td>
</tr>
<tr>
<td>Public Administration</td>
<td>15000</td>
<td>20000</td>
<td>25000</td>
</tr>
<tr>
<td>Other Services (excl Gov)</td>
<td>10000</td>
<td>15000</td>
<td>20000</td>
</tr>
<tr>
<td>Admin, Waste Services</td>
<td>5000</td>
<td>10000</td>
<td>15000</td>
</tr>
<tr>
<td>Real Estate, Rental, Leasing</td>
<td>25000</td>
<td>30000</td>
<td>35000</td>
</tr>
<tr>
<td>Accommodation, Food Services</td>
<td>15000</td>
<td>20000</td>
<td>25000</td>
</tr>
<tr>
<td>Health Care, Social Assistance</td>
<td>10000</td>
<td>15000</td>
<td>20000</td>
</tr>
<tr>
<td>Construction</td>
<td>20000</td>
<td>25000</td>
<td>30000</td>
</tr>
<tr>
<td>Finance, Insurance</td>
<td>5000</td>
<td>10000</td>
<td>15000</td>
</tr>
<tr>
<td>Transportation, Warehousing</td>
<td>0</td>
<td>5000</td>
<td>10000</td>
</tr>
</tbody>
</table>

Source: TREDIS Purple Line Test v0.3
Land use capacity

Purple Line Multifamily Housing Tool
## Compare with other sources

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>.5 mile buffer along the PL corridor</td>
<td>MWCOG + BMC</td>
<td>Montgomery &amp; Prince George's</td>
<td></td>
</tr>
</tbody>
</table>

### Horizon

| 2010 - 2040 | 30 year after construction | Construction: 2017 - 2022; Operation: 2023 - 2040 |

### MODEL

| Regional Input-Output Model System (RIMS II) | TEMS-Economic Rent (productivity increase & new businesses) | Economic Adjustment + Market Access + Travel Benefit |

### Capital Expenditure

| Construction | 4,800 | - | Construction Phase: PG 1,038 |
| Professional, Scientific, and Technical Services | 1,500 | - | Construction Phase: Montgomery 1,237 |
| Total | 6,300 | - | Total 2,275 |

### Operation & Maintenance

| Regional Total (permanent increase)* | Regional Total 27,183 (0.5%) | Study Area Total 2,652 |
| Montgomery | 10,335 (1.9%) | Montgomery 1,520 |
| PG | 4,962 (1.4%) | PG 1,132 |
| DC | 7,736 (0.9%) |

### Job Creation Estimates

<table>
<thead>
<tr>
<th>Low</th>
<th>High</th>
<th>Moderate</th>
</tr>
</thead>
</table>

Updated cost factors:
  - Total construction cost: $1.99 billion
  - Annual operating and maintenance cost: $150 million

Study Areas: Montgomery County and Prince George’s County

Milestones

2002-2008  MTA studies a range of alignments and different transit modes (light rail and bus rapid transit) for the Purple Line project area
2009      Light rail selected as the mode of transit; alignment identified
2009-2014 Conceptual and Preliminary Engineering Phase
2013      MTA decides to use a Public-Private Partnership (P3) to design, build, finance, operate and maintain
2013      FTA accepts the Final Environmental Impact Statement
2014      FTA issues the Record of Decision
2014      MTA issues Request for Proposals for Purple Line P3
2016      Concessionaire selected to complete design, build, operate and maintain the Purple Line

2016-2022 Final Design and Construction
2023      Purple Line service begins
2040      Future year (horizon year)

Source: http://www.purplelinemd.com/en/
Cost estimates and schedule

- **2016-2022 Construction Phase** - $1.99 billion total ($284 million per year)
  
  On an annual basis:
  - $85 million for engineering and design
  - $57 million in right away acquisition
  - $57 million in transportation structure costs
  - $28 million in terminal construction costs
  - $57 million in vehicle acquisition costs

- **2023-2040 Operations Phase** - $150 million per year
  
  On an annual basis:
  - $108 million for ongoing operations
  - $42 million for maintenance and rehabilitation

The TREDIS model considers annual expenditure of capital costs to estimate employment annually during the construction phase. We assume construction costs are spent equally over the construction period.