Overview

1. Setting the Context (pp. 3-10)
   • Benefits of Growth and Investment in MARC Service
   • Objectives
   • Existing Service
   • Major Assumptions

2. Phased Growth and Investment Plan (pp. 11-27)

3. Implementing the Plan (pp. 28-32)
Benefits of Investment in MARC

- Better service for current riders
  - Addresses existing problems with capacity, frequency and reliability
- Provide framework for mobility in Central Maryland
  - Provides fast, reliable transportation in key corridors
  - Strengthens economic and social ties between Baltimore and Washington
  - Serves BRAC-related travel markets
  - Offers mobility choice for commuters and regional travelers
  - Efficient and environmentally sustainable (air, water, energy) transportation investment
  - Reduces need to expand highways in areas with limited/expensive construction opportunities
  - Encourages efficient regional land use development and transit-oriented development
  - Provides backbone for integrated Baltimore region transit system
  - Supports more efficient rail freight movement
Objectives

- **Ridership**
  - Increase passenger-carrying capacity threefold
  - Increase share of trips by MARC during peak travel periods

- **Service**
  - Increase peak service:
    - 15-minute headways on Penn Line
    - 20-minute headways on Camden and Brunswick lines
  - Increase off-peak service:
    - 30-minute headways on Penn Line
    - Increased mid-day service on Camden and Brunswick lines
  - Provide express and limited stop service
  - Provide late evening service
  - Provide weekend service
  - Improve reliability to 95% on-time or better
Existing Service
## Existing System Description

<table>
<thead>
<tr>
<th></th>
<th>Penn Line</th>
<th>Camden Line</th>
<th>Brunswick Line</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Owner/operator</strong></td>
<td>Amtrak</td>
<td>CSX</td>
<td>CSX</td>
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<td><strong>Stations</strong></td>
<td>12</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td><strong>Route-miles</strong></td>
<td>75</td>
<td>40</td>
<td>75</td>
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<tr>
<td><strong>Weekday trains</strong></td>
<td>47</td>
<td>18</td>
<td>19</td>
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<tr>
<td><strong>Train sets</strong></td>
<td>6</td>
<td>5</td>
<td>9</td>
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<tr>
<td><strong>Frequency</strong></td>
<td></td>
<td></td>
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<tr>
<td>• Weekday peak</td>
<td>25 mins (Wash-Balt)</td>
<td>30 mins</td>
<td>30 mins (Brunswick)</td>
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<tr>
<td></td>
<td>45 mins (Perryville)</td>
<td></td>
<td>60 mins (Frederick)</td>
</tr>
<tr>
<td>• Weekday off-peak</td>
<td>Hourly (Wash-Balt)</td>
<td>None</td>
<td>One mid-day train</td>
</tr>
<tr>
<td></td>
<td>None (Perryville)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Weekend</td>
<td>None</td>
<td>None</td>
<td>None</td>
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<tr>
<td><strong>Daily passenger trips</strong></td>
<td>19,000</td>
<td>4,500</td>
<td>7,000</td>
</tr>
<tr>
<td><strong>On-time performance (FY 07)</strong></td>
<td>89%</td>
<td>91%</td>
<td>89%</td>
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</table>
Ridership Trends

● Ridership is at an all-time record level: 30,000+ daily trips
  – Recent growth has been at over 6% per year during past decade
  – Ridership now exceeds peak period system capacity of approx. 27,000 daily trips

● Ridership demand expected to continue to grow
  – Baltimore City residential revitalization
  – Suburban population growth
  – Strong employment growth in corridors served by rail – including BRAC-related effects
  – Continuing regional highway congestion
  – Expanded federal fare subsidy programs

High cost of gasoline
MARC is Running Near Capacity

- Capacity constraints threaten the ability of the MARC system to meet this demand with acceptable level and quality of service
- Parking lots at or near capacity
  - Perryville, Aberdeen, Edgewood, Martin Airport, Penn Station, West Baltimore, Halethorpe, Odenton, Brunswick, Point of Rocks, Germantown, Laurel
- Existing trains are crowded; standees on 60% of Penn Line trains in peak 2 hrs.
- Insufficient spare equipment
- Insufficient train storage
  - Overnight at Penn Station (no room to expand)
  - Mid-day at Washington (currently exceeds MTA-Amtrak agreement)
- Equipment maintenance shops are at capacity – cannot accommodate a larger commuter rail fleet
- MARC scheduling flexibility and ability to expand service constrained by infrastructure and presence of other operators (Amtrak service & freight)
### Major Programmed Investments

<table>
<thead>
<tr>
<th>Project</th>
<th>Completion Date</th>
<th>Cost ($M)</th>
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<tbody>
<tr>
<td>Washington Mid-Day Storage</td>
<td>2012</td>
<td>$47</td>
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<tr>
<td>Track Capacity (all 3 lines)</td>
<td>2011</td>
<td>$30</td>
</tr>
<tr>
<td>Mid-Life Overhaul of MARC II Coaches</td>
<td>2012</td>
<td>$25</td>
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<tr>
<td>Mid-Life Overhaul of GP40/AEM7 Locomotives and/or Procurement of New Diesel Locomotives</td>
<td>2012</td>
<td>$61</td>
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<tr>
<td>Riverside Shops – Acquire from CST for Maintenance Facility</td>
<td>2012</td>
<td>$25</td>
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<tr>
<td>Paul Sarbanes Transit Center (Silver Spring)</td>
<td>2010</td>
<td>$66</td>
</tr>
<tr>
<td>Edgewood Station Improvements</td>
<td>2009</td>
<td>$3</td>
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<tr>
<td>Halethorpe Station Improvements</td>
<td>2011</td>
<td>$11</td>
</tr>
<tr>
<td>Misc. Other Improvements</td>
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<td>$94</td>
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<tr>
<td><strong>FY 08 – 13 TOTAL</strong></td>
<td></td>
<td><strong>$369</strong></td>
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</table>

**Note:** This level of investment maintains the existing MARC level of service; it is not sufficient to meet or drive future growth.
Major Assumptions

● CSX or Amtrak cooperation required, since MTA doesn’t own or control:
  – Right-of-way
  – Washington Union Station, Baltimore Penn Station, and other major stations
  – Train dispatching and operations
  – Equipment maintenance priorities

● Investment will need to comprehensively address system capacity needs in multiple areas
  – Rail infrastructure upgrades and expansion
    ▶ Additional main line tracks
    ▶ Improved crossovers and track connections
    ▶ Upgraded signaling and Penn Line electrification systems
  – Train storage and maintenance facilities
  – Rail cars
  – Station parking
Phased Growth and Investment Plan

● Timeframes
  ► Immediate (within 9 months)
  ► 2010
  ► 2015
  ► 2020
  ► Long-range (2035)
Immediate Improvements

To be initiated or completed within 9 months

- Rail Service Improvements
  - Add one PM peak train on Penn Line
  - Add late evening train on Penn Line
  - Initiate weekend service on Penn Line
  - Add mid-day train on Camden Line
  - Purchase additional seating capacity on Amtrak off-peak trains for MARC passengers

- Customer Service Initiatives
  - Passenger information systems – fast track existing program to upgrade P.A. system and signage
  - Aesthetic improvements at stations
  - Replace seats in MARC bi-level coaches
  - Washington Union Station improvements
  - Enhancements to MARC Tracker and customer e-mail systems
  - On-line Trip Planner
  - On-board Wi-Fi

- Other
  - Initiate acquisition of new environmentally-friendly diesel locomotives
  - Complete parking expansion at Point of Rocks, Brunswick; initiate Aberdeen
  - Increased car cleaning

- Adds capacity equivalent to approx. 1,500 daily seats

- Cost impact
  - Capital: approximately $10m
  - Operations & maintenance: approximately $6m/yr.
2010 Plan – Penn Line

- **Incremental Seating Capacity**
  - +3,400 daily seats

- **Rail Service Improvements**
  - Lengthen existing trains to accommodate growing ridership demand
  - Additional peak and reverse-peak service
  - Late evening & weekend service

- **Incremental Capital Investments** – ~$83m
  - Procure new coaches
  - Expand Baltimore area overnight train storage
  - Station platform lengthening, as required
  - Station parking expansion: West Baltimore, Martin Airport, Perryville

- **Incremental Operating Cost** – ~$7m/yr.
2015 Plan – Penn Line

- Incremental Seating Capacity
  +12,000 daily seats
- Rail Service Improvements-Washington-Baltimore
  - Increased peak and reverse-peak service (15-20 minute headways)
  - 30-minute headway off-peak service
- Rail Service Improvements North of Baltimore
  - Aberdeen: expansion of peak service and introduction of limited off-peak service
  - Martin Airport: expansion of peak service and introduction of hourly off-peak service
  - MARC peak service extended to Elkton, Newark
- More reliable service, with additional capacity and increased MARC-Amtrak separation
- Significant rail service provided for BRAC markets – enhanced service at Odenton and Aberdeen
- Transit-oriented development opportunities at several stations
- Connectivity with Baltimore region transit
  - Red Line at West Baltimore
  - Red Line at Bayview
- Improved reliability
  - 93% on-time performance
- Benefits associated with freight improvements
- Incremental Capital Investments – ~$990m
  - 4 main tracks, West Baltimore-to-BWI Airport
  - Reconstruct BWI Airport Station
  - Relocate West Baltimore Station
  - New crossovers, BWI Airport-to-New Carrollton
  - Additional island platform at New Carrollton Sta.
  - Relocate Aberdeen Station
  - New Bayview Station and associated track improvements
  - Martin Airport Station improvements
  - Track A upgrade, Baltimore-to-Gunpowder River
  - New Elkton Station and associated track improvements
  - Odenton Station improvements
  - Station parking expansion
  - Additional rail cars
  - New overnight storage & maintenance facility
  - Aberdeen: CSX track connection for freight
- Incremental Operating Cost – ~$20m/yr.
GROWTH & INVESTMENT PLAN

2020 Plan – Penn Line

- Incremental Seating Capacity
  - +16,000 daily seats

- Rail Service Improvements
  - BRAC and BWI Airport Access Markets
    - Provides expanded service aimed at BRAC, airport and regional business travel markets, e.g. limited-stop trains at 30-minute headways
    - Washington-Baltimore
      - Expanded peak and reverse-peak service
      - Additional peak express service
      - Off-peak local and limited stop service
    - North of Baltimore
      - Extension of core Penn Line service to Aberdeen, with 20-30-minute peak headways and hourly off-peak service
  - MARC service extended to L’Enfant Plaza and Northern Virginia
    - Implementation and cost-sharing partnership with other rail constituents

- Additional transit-oriented development opportunities

- Incremental Capital Investments – ~$1,320m
  - New Gunpowder River crossing (total of 4 main tracks, enables increased MARC service to Aberdeen)
  - 4 main tracks through Edgewood Station
  - 4 main tracks, BWI Airport-to-New Carrollton
  - Station modifications to support 4 main tracks: Odenton, Bowie State, Seabrook, New Carrollton
  - Amtrak B&P Tunnel replacement (by Amtrak, approx. cost $1B); Rehab of existing tunnel for MARC use
  - Additional station parking expansion at Odenton, Halethorpe, Baltimore Penn Station, Martin Airport and Edgewood
  - Additional rail cars and locomotives
  - Freight corridor improvements, Baltimore-to-Perryville

- Incremental Operating Cost – ~$14m/yr.
GROWTH & INVESTMENT PLAN

2035 Plan – Penn Line

- Incremental Seating Capacity
  - +13,000 daily seats
- Rail Service Improvements
  - Full 4-track railroad provides MARC with flexibility to optimize service to meet and anticipate demand
  - Enables "transit-like" service through Baltimore
- Achieves high degree of reliability
  - 95% on-time performance
- Connectivity with Baltimore region transit
  - METRO Green Line at Madison Square
  - METRO Green Line at Upton
- Additional service extensions possible (not included in cost estimates)

- Incremental Capital Investments – ~$570m+
  - Union Tunnel expansion – complete 4-track railroad through Baltimore City
  - New Bush River crossing (total of 4 main tracks)
  - New Susquehanna River crossing (total of 4 main tracks)
  - Extend 4 track railroad through Perryville
  - 3 main tracks, New Carrollton-to-Washington
  - New Madison Square and Upton Stations, with convenient transfers to/from Baltimore Metro
  - Additional station parking expansion
  - Additional rail cars and locomotives

- Incremental Operating Cost – ~$20m/yr.
# Penn Line Plan Summary

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2035</th>
</tr>
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<tbody>
<tr>
<td><strong>Additional Daily Seats</strong></td>
<td>3,400</td>
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<td>16,000</td>
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<tr>
<td><strong>Rail Service Improvements</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Lengthen trains</td>
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<tr>
<td>● Additional peak and reverse peak trains</td>
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<tr>
<td>● Late evening and weekend service</td>
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<td></td>
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<tr>
<td>● Additional peak and reverse peak trains</td>
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</tr>
<tr>
<td>● Increase frequencies to Aberdeen</td>
<td></td>
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</tr>
<tr>
<td>● Peak service to Elkton and Newark</td>
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<tr>
<td>● Connectivity to Baltimore Core services</td>
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</tr>
<tr>
<td>● Introduction of limited stop trains at 30-minute intervals</td>
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<tr>
<td>● Additional peak express service</td>
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<tr>
<td>● N. VA extension</td>
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</tr>
<tr>
<td>● Full 4-track railroad with “transit-like” service through Baltimore</td>
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<td></td>
<td></td>
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<tr>
<td>● Connectivity to Baltimore Subway</td>
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<tr>
<td><strong>Incremental Capital Investments</strong></td>
<td>$83 million</td>
<td>$990 million</td>
<td>$1.3 billion</td>
<td>$570 million</td>
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<td><strong>Incremental Operating Cost</strong></td>
<td>$7 million/yr</td>
<td>$20 million/yr</td>
<td>$14 million/yr</td>
<td>$20 million/yr</td>
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</table>
2010 Plan – Camden Line

- Incremental Seating Capacity
  - +400 daily seats

- Rail Service Improvements
  - Lengthen existing trains to accommodate growing ridership demand
  - Additional mid-day afternoon train

- Improved reliability – 93% on-time performance

- Incremental Capital Investments – ~$53m
  - Procure new coaches
  - 3 main tracks plus yard siding, Savage-to-Jessup
  - Aesthetic improvements and upgrades to stations
  - Station parking expansion

- Incremental Operating Cost – <$1m/yr.
2015 Plan – Camden Line

- **Incremental Seating Capacity**
  - +2,200 daily seats

- **Rail Service Improvements**
  - Additional peak and reverse peak trains
  - Improved rail-bus transfers and connecting bus service to Ft. Meade area from Savage Station

- **Continued reliability improvement**
  - Major failure avoidance, improved incident response

- **Incremental Capital Investments – ~$125m**
  - 3 main tracks, Greenbelt-to-Riverdale
  - Camden Station – new station building
  - Muirkirk Station – ADA access and station improvements tied to ICC completion
  - Savage Station – improved rail-bus transfer facilities
  - Additional station parking expansion at Savage, Muirkirk
  - Additional rail cars

- **Incremental Operating Cost – ~$5m/yr.**
2020 Plan – Camden Line

- **Incremental Seating Capacity**
  - +6,600 daily seats

- **Rail Service Improvements**
  - Peak headways reduced to 20 mins.
  - Limited mid-day service
  - Extension of service to L’Enfant Plaza and Northern Virginia

- **Continued reliability improvement**
  - Major failure avoidance, improved incident response

- **Improve running times by consolidating stations**

- **Incremental Capital Investments – ~$120m**
  - Signal system upgrade
  - 3 main tracks, Riverdale-to-Washington
  - Station improvements and parking expansion at Laurel Racetrack
  - Additional station parking at Dorsey
  - Additional rail cars and locomotives

- **Incremental Operating Cost – ~$3m/yr.**
2035 Plan – Camden Line

- **Incremental Seating Capacity**
  - +4,000 daily seats

- **Rail Service Improvements**
  - Increased peak and off-peak service
  - Weekend service
  - Extension of service through Baltimore City to Bayview (requires prior relocation of CSX freight traffic to new tunnel)

- **Continued reliability improvement** – 95% on-time performance

- **Incremental Capital Investments** – ~$110m+
  - Additional triple tracking
  - Investments to support service extension to Bayview, including new lower level platform at Camden Station, Howard Street Tunnel infrastructure & life safety upgrades, new stations, train storage facilities
  - Additional station parking expansion
  - Additional rail cars and locomotives

- **Incremental Operating Cost** – ~$5m/yr.+
## Camden Line Plan Summary

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2035</th>
</tr>
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<tbody>
<tr>
<td><strong>Additional Daily Seats</strong></td>
<td>400</td>
<td>2,200</td>
<td>6,600</td>
<td>4,000</td>
</tr>
</tbody>
</table>
| **Rail Service Improvements** | ● Lengthen trains  
● Additional mid-day train  
● Additional peak, reverse peak trains  
● Connecting BRAC buses  
● Peak headways reduced to 20 min.  
● Limited mid-day service  
● Northern VA extension  
● Increased peak and off peak trains  
● Weekend service  
● Bayview extension | | | |
| **Incremental Capital Investments** | $53 million | $125 million | $120 million | $110 million |
| **Incremental Operating Cost** | <$1 million/yr | $5 million/yr | $3 million/yr | $5 million/yr |
2010 Plan – Brunswick Line

- Incremental Seating Capacity
  - +200 daily seats
- Rail Service Improvements
  - Lengthen existing trains to accommodate growing ridership demand
- Improved reliability – 93% on-time performance

- Incremental Capital Investments – ~$63m
  - Procure new rail cars
  - Aesthetic improvements and upgrades to stations
  - Complete station parking expansion at Point of Rocks
- Incremental Operating Cost – <$1m
2015 Plan – Brunswick Line

- **Incremental Seating Capacity**
  - +3,800 daily seats

- **Rail Service Improvements**
  - Improve Frederick Branch service – 30 min. peak headways (increase number of trains from 3 to 6)
  - Increased limited stop and express service

- **Continued reliability improvement**
  - Major failure avoidance, improved incident response

- **Improved car cleaning capability**

- **Incremental Capital Investments** – ~$140m
  - 3 main tracks, Rockville area
  - 2 main tracks, Old Main Line / Frederick Branch
  - Point of Rocks: new platform on Frederick Branch
  - Germantown Station parking garage
  - Brunswick Station parking expansion
  - Brunswick maintenance facility expansion
  - Additional rail cars

- **Incremental Operating Cost** – ~$8m/yr.
2020 Plan – Brunswick Line

- Incremental Seating Capacity
  - +8,400 daily seats
- Rail Service Improvements
  - Reduce peak headways to 15-20 minute range
  - Limited reverse-peak service
  - Limited expansion of off-peak service
  - Extension of service to L’Enfant Plaza and Northern VA
- Continued reliability improvement
  - Major failure avoidance, improved incident response
- Improve running times by consolidating stations

- Incremental Capital Investments – ~$140m
  - 3 main tracks, Barnesville Hill
  - Outer Montgomery station
  - Additional station parking expansion at Metropolitan Grove, Rockville, Kensington
  - Additional rail cars and locomotives
- Incremental Operating Cost – ~$5m/yr.
2035 Plan – Brunswick Line

- Incremental Seating Capacity
  - +7,000 daily seats
- Rail Service Improvements
  - Increased peak and off-peak service
  - Reverse-commute service
  - Weekend service
- Continued reliability improvement – 95% on-time performance

- Incremental Capital Investments – ~$190m+
  - Additional triple tracking
  - Additional station parking expansion at Brunswick, Germantown, Gaithersburg
  - Additional rail cars and locomotives
- Incremental Operating Cost – $5m/yr.+
# Brunswick Line Plan Summary

<table>
<thead>
<tr>
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<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2035</th>
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</thead>
<tbody>
<tr>
<td><strong>Additional Daily Seats</strong></td>
<td>200</td>
<td>3,800</td>
<td>8,400</td>
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<td><strong>Rail Service Improvements</strong></td>
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<td></td>
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</tr>
<tr>
<td>● Lengthen trains</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>● Increase Frederick trains from 3 to 6</td>
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<tr>
<td>● Increase limited stop and express trains</td>
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<tr>
<td>● Reduce peak headways to 15-20 minutes</td>
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<tr>
<td>● Introduce limited reverse-peak</td>
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<tr>
<td>● Expansion of off-peak</td>
<td></td>
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</tr>
<tr>
<td>● Northern VA extension</td>
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<tr>
<td>● Increased peak and off-peak</td>
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<tr>
<td>● Expanded reverse-peak</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>● Weekend service</td>
<td></td>
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</table>

| **Incremental Capital Investments** | $63 million | $140 million | $140 million | $190 million |
| **Incremental Operating Cost**     | <$1 million/yr | $8 million/yr | $5 million/yr | $5 million/yr |
## Projected Daily Seating Capacity

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<thead>
<tr>
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<tr>
<td>Penn</td>
<td>16,000</td>
<td>19,400</td>
<td>31,000</td>
<td>47,000</td>
<td>60,000</td>
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<tr>
<td>Camden</td>
<td>4,000</td>
<td>4,400</td>
<td>6,600</td>
<td>13,200</td>
<td>17,000</td>
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<tr>
<td>Brunswick</td>
<td>7,000</td>
<td>7,200</td>
<td>11,000</td>
<td>19,400</td>
<td>26,000</td>
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<td>Total</td>
<td>27,000</td>
<td>31,000</td>
<td>48,600</td>
<td>79,600</td>
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## Capital Cost Summary

### Capital Cost by Phase

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<tbody>
<tr>
<td><strong>PENN LINE</strong></td>
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</tr>
<tr>
<td>Stations and Parking</td>
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<td>$368</td>
<td>$197</td>
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<td>$579</td>
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<tr>
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<td>$-</td>
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<td>$280</td>
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## Operations & Maintenance Cost Summary

**Annual Operations and Maintenance Costs**

Cumulative Increment Above Existing
(millions of 2007 dollars/year)

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Implementation Action Plan

- **Immediate**
  - Present MARC Growth and Investment Plan to Amtrak and CSX and solicit their support and cooperation
  - Present to Delegation and key staff, key State and local officials
  - Negotiate near term service improvements with Amtrak (additional peak trains, weekend service)
  - Negotiate additional mid-day Camden Line train with CSX
  - Identify funding for additional operating costs associated with near term improvements
  - Seek temporary source for immediate expansion of rail car fleet
  - Expedite delivery of projects and initiatives in progress (e.g., passenger info systems, parking expansion)

- **Within 9 months**
  - Initiate seat replacement on MARC bi-level coaches
  - Develop spec for new rail car procurement
  - Acquire rail cars from temporary source
  - Identify low-cost aesthetic improvements at existing stations
  - Identify near-term improvements at Washington Union Station
  - Review parking expansion plans with Counties
  - Design near-term Baltimore train storage improvements
  - Develop plan to improve car cleaning capability
  - Establish magnitude and source of required funding (2008 legislative session)

- **Within 15 months**
  - Place order for new rail car procurement
  - Initiate design of 2010 rail infrastructure improvements
  - Initiate planning & design of 2015 improvements with long lead times (e.g., track capacity improvements, station parking expansion entailing property acquisition)
  - Implement low-cost aesthetic improvements at existing stations, car cleaning improvements
  - Augment MTA resource capacity as necessary to implement program