MARC

Taking Stock and Rolling Forward

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Growth and Investment Plan Update 2013 to 2050

September 9, 2013

MTA Maryland

Overview

- Introduction
  - Update Process
  - Stakeholder Outreach
- Background
  - Existing Service Map, Description and Trends
  - Objectives
  - Accomplishments
  - Major Programmed Investments
  - Benefits of Investment in MARC Service
  - Challenges
- Phased Growth and Investment Plan
  - Penn Line
  - Camden Line
  - Brunswick Line
- Next Steps

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Introduction

- **MTA operates MARC Train Service, a commuter rail system whose service areas include Baltimore and Washington and surrounding areas, as well as Martinsburg, West Virginia. MARC service operates on the Penn, Camden, and Brunswick Lines with an average of 36,000 daily trips.**
- **Why update the MARC Growth and Investment Plan (MGIP)?**
  - Re-align agency priorities with current economic climate and federal policy, with a focus on State of Good Repair
  - Establish bold, new objectives for MARC service
  - To get feedback and suggestions from stakeholders to improve MARC service
- **How is this plan different than the September 2007 MGIP?**
  - Presents a MARC program that ties together future ridership increases, rolling stock investments, and facility/parking expansions
  - Identifies accomplishments and benefits of targeted investment in MARC service over the last 6 years
  - Enhanced focus on Sustainability and Transit Oriented Development

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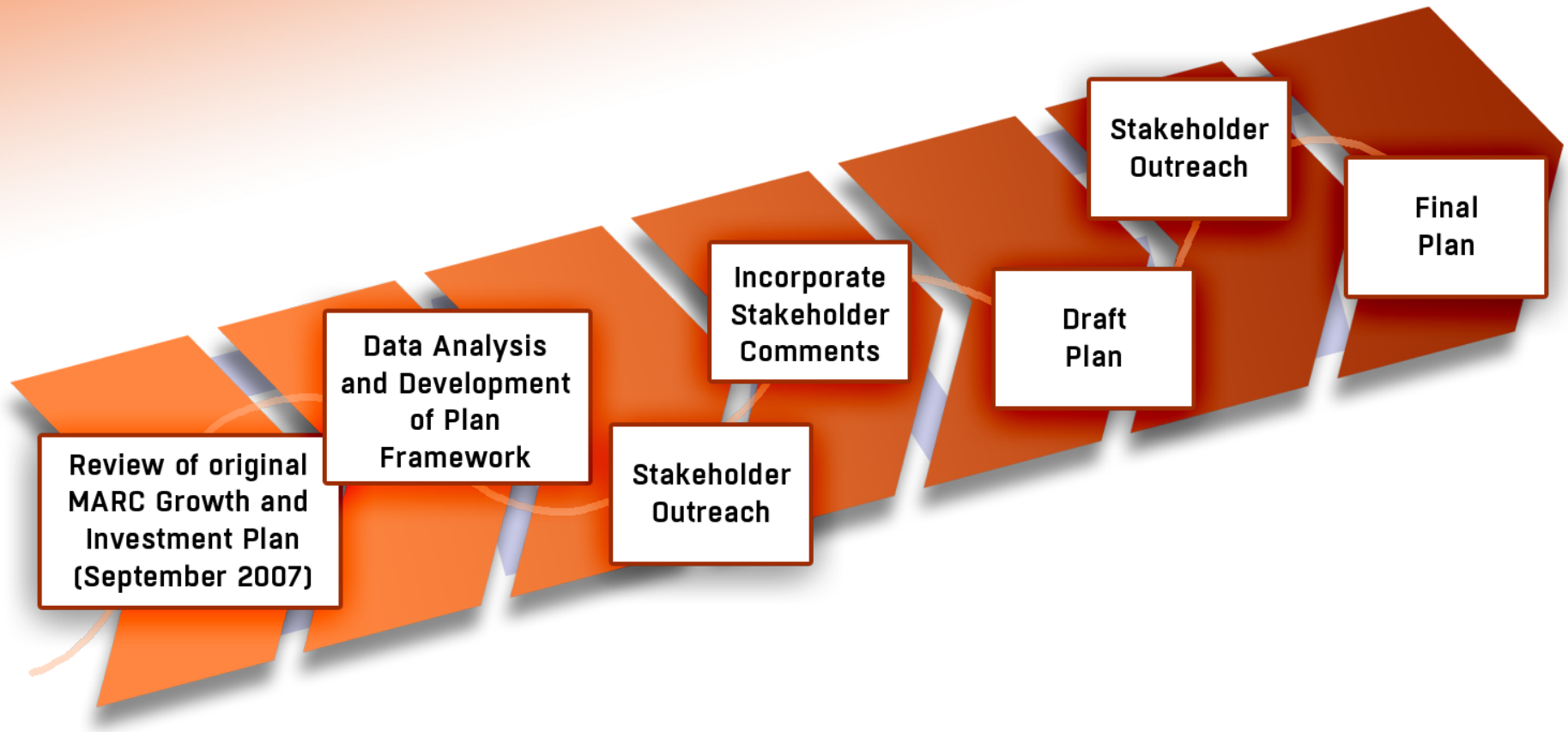
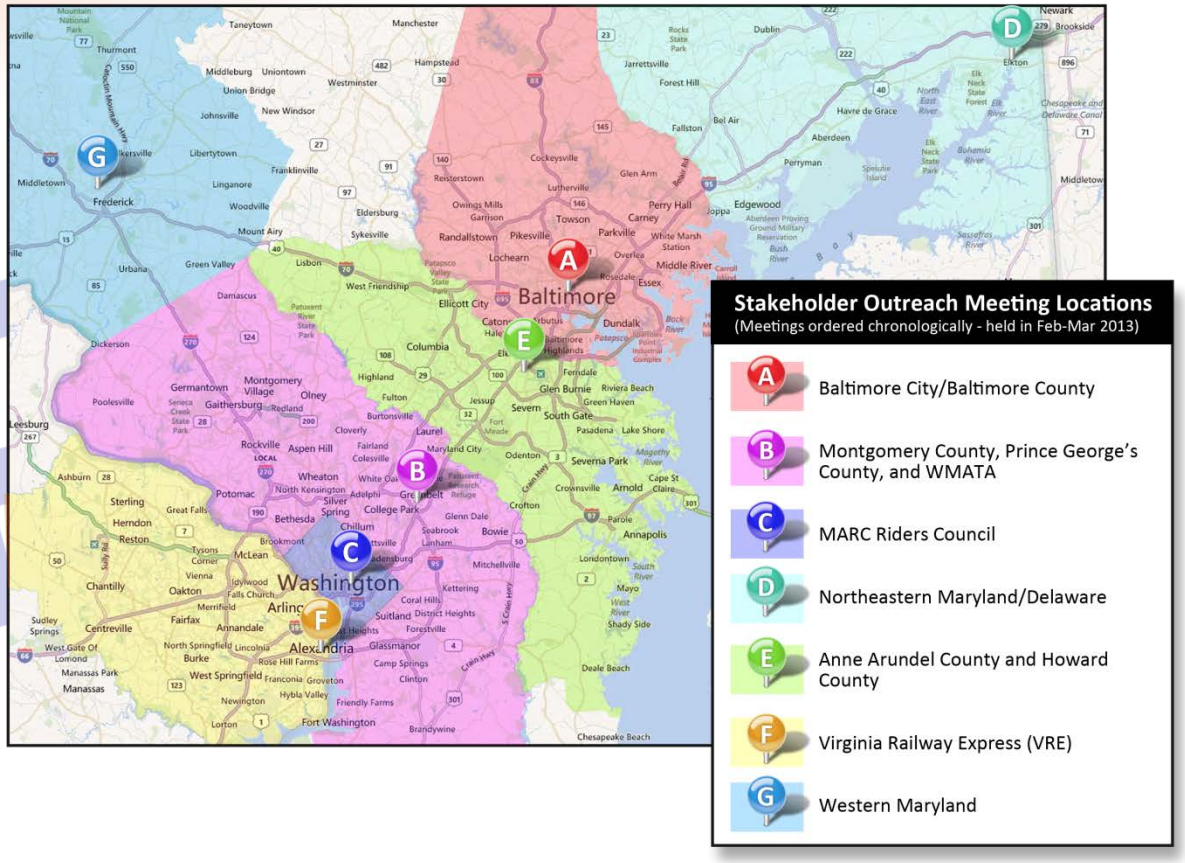
Update Process

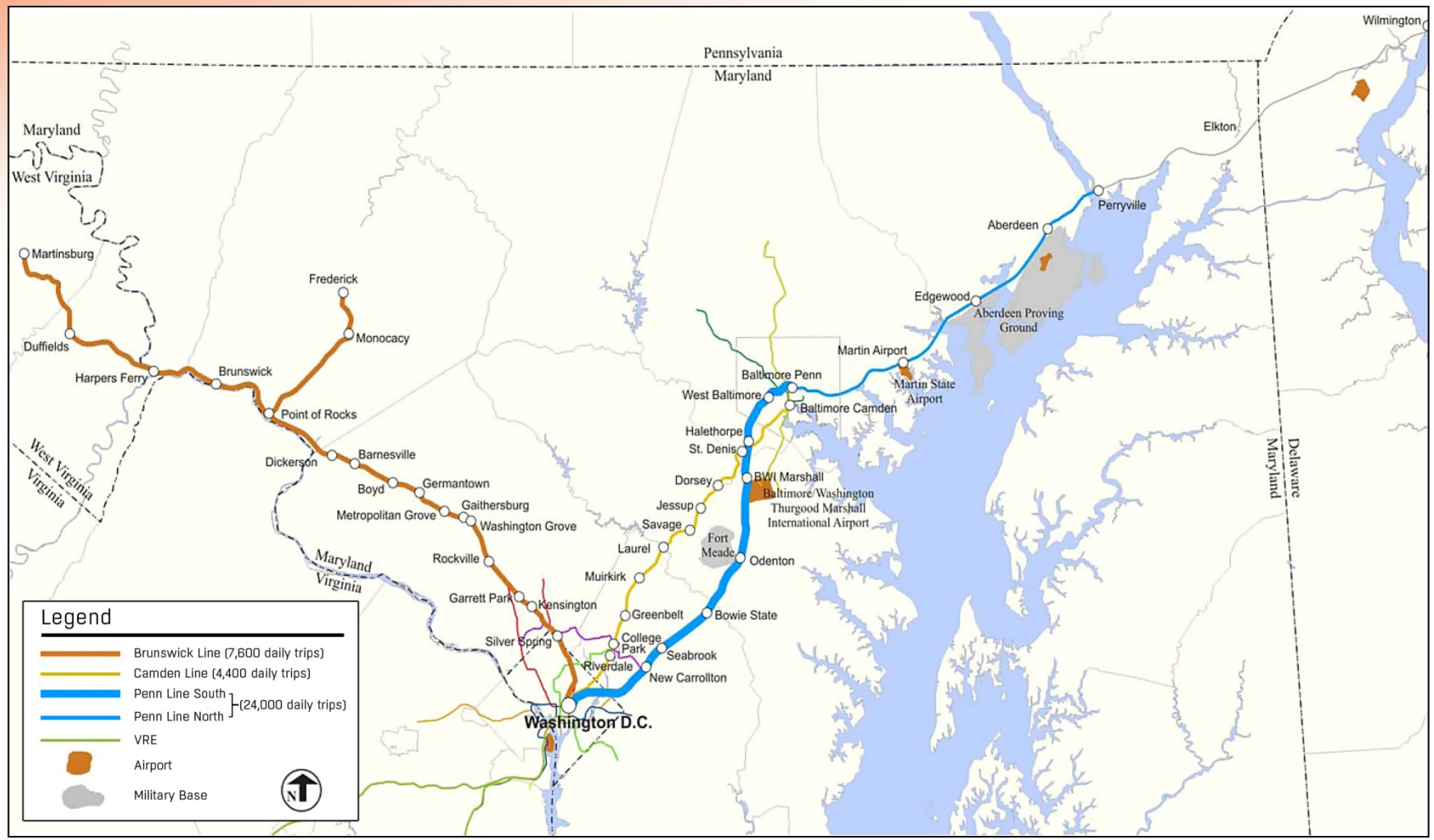


Stakeholder Outreach

- Reviewed 2007 MARC Growth and Investment Plan.
- Discussed current MARC service, trends, and issues.
- Reviewed major programmed investments, including operating and capital projects.
- Received feedback on proposed Objectives and Timeframes.



Existing Service



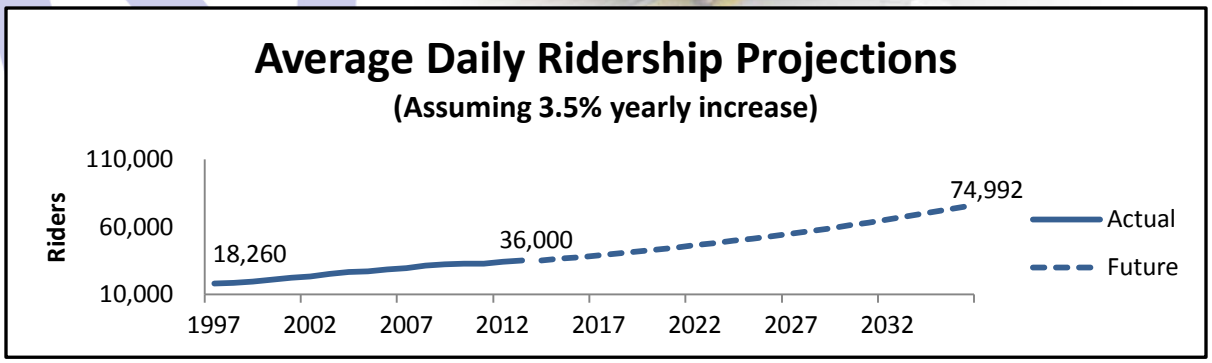
Existing Service Description

*2012 Statistics

	Penn Line	Camden Line	Brunswick Line
Owner/Operator	Amtrak/Amtrak	CSX/Bombardier	CSX/Bombardier
Stations	12	11	18
Route-miles	76.6	36.6	85
Weekday trains	57	18	19
Train sets	8	5	9
Frequency			
• Weekday Peak	30 min (Wash-Balt) 70 min (Wash/Balt – Perryville) 60 min (Wash/Balt-Martins)	45 min	40 min (Wash-Brunswick) 50 min (Wash-Martinsburg) 75 min (Wash – Frederick)
• Weekday Off-Peak	Hourly (Wash-Balt) 1 mid-day train in each direction (Perryville)	None	One mid-day train (Fri. only)
• Weekend	None	None	None
Daily Passenger Trips	24,000	4,400	7,600
On-Time Performance	93%	96%	90%

Trends: Ridership

- All time record level: 36,000+ daily trips
  - Ridership has increased 3.5% annually over the past 15 years
- Average annual growth from 2007 to 2012:
  - Penn Line: 3.5%
  - Camden Line: 0.5%
  - Brunswick Line: 1.7%
- Ridership demand is expected to continue to grow at historical rates



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Trends: Parking

Existing Conditions

- Parking is at capacity at many stations
- Penn Line: 8 of 11 stations are at or near capacity
  - Even with current parking expansions, 9 of 11 stations will be at or near capacity by 2015
- Camden Line: Laurel is at full capacity
- Brunswick Line: Several stations will be at capacity by near term

Long Term Outlook

- Over 70% of all MARC stations will be at capacity by 2025, requiring a targeted and phased approach to station access and parking facility management and expansion

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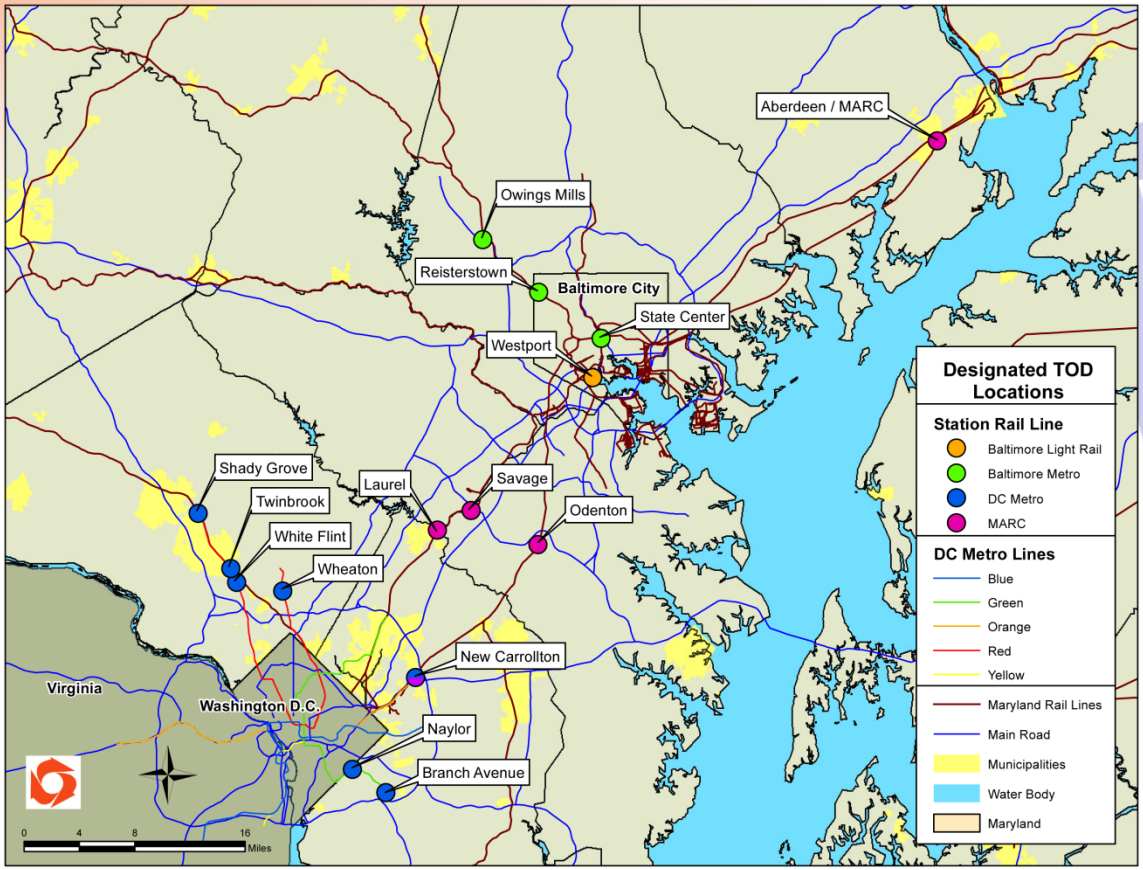
Trends: Sustainability



Goals

- Support Multi-modal Transportation
- Purchase environmentally friendly locomotives
- Design and build sustainable facilities (new and rehab)

Current Activities

- Providing enhanced bike and pedestrian access
- Alternative energy – EV Charger installations at many stations
- Green facilities (new stations and rehabs)

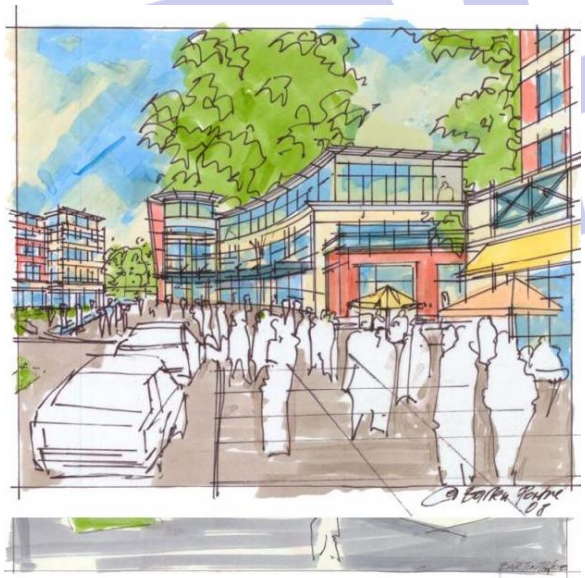
Long-Term Projects

- Tier IV Locomotive Fleet (zero emissions)

Trends: Transit Oriented Development (TOD)

- Increase the number of riders that are able to walk or bicycle to stations while reducing auto trips and sprawl development.
- Create high density mixed use (residential, office, retail) communities on existing surface parking lots within walking distance to MARC stations.

Source: Grimm + Parker, 2007.



Source: BartonPartners, 2008

- Design MARC stations that support sustainable communities and contribute to the economic health of the neighborhoods in which they are located.
- Evaluate each MARC station to determine appropriate level of TOD. As service changes, ensure that TOD addresses not only commuter needs but also permanent resident needs.

Objectives

- **Maintain a State of Good Repair**
  - Preserve current and future rolling stock
  - Maintain existing and new facilities
  - Update and enhance rail infrastructure
- **Increase Ridership**
  - Meet ridership demand
  - Increase seats available during peak travel periods
- **Improve Service**
  - Increase peak service and off-peak service
  - Maintain reliability at 95% on-time or better
  - Provide express and limited stop service
  - Provide late evening and weekend service
- **Enhance the Customer Experience**
  - Improve communication with riders
  - Increase customer system ease-of-use

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Accomplishments: Maintain a State of Good Repair

Objectives

- ☑ Preserve current and future rolling stock
- ☑ Maintain existing and new facilities
- ☑ Update and enhance rail infrastructure

Accomplishments: 2007-2012

- Purchase of 26 diesel locomotives
- Purchase of 13 VRE bi-level rail cars
- MARC IIB Railcar overhaul (34)
- AEM - 7 Locomotive Overhaul (4)
- BWI 4th track Preliminary Engineering (PE)/National Environmental Protection Act (NEPA)
- Odenton, Germantown, Kensington, Edgewood, Aberdeen, and Point of Rocks parking expansions
- Complete rehab of Laurel platform
- Storage at Martin's Facility
- Interlockings on Brunswick Line
- New Stations at Halethorpe and Edgewood
- Various station platform improvements including Germantown, Gaithersburg, Metro Grove and BWI
- Brunswick and Martinsburg service facility improvements
- Frederick Maintenance Fuel Shed construction

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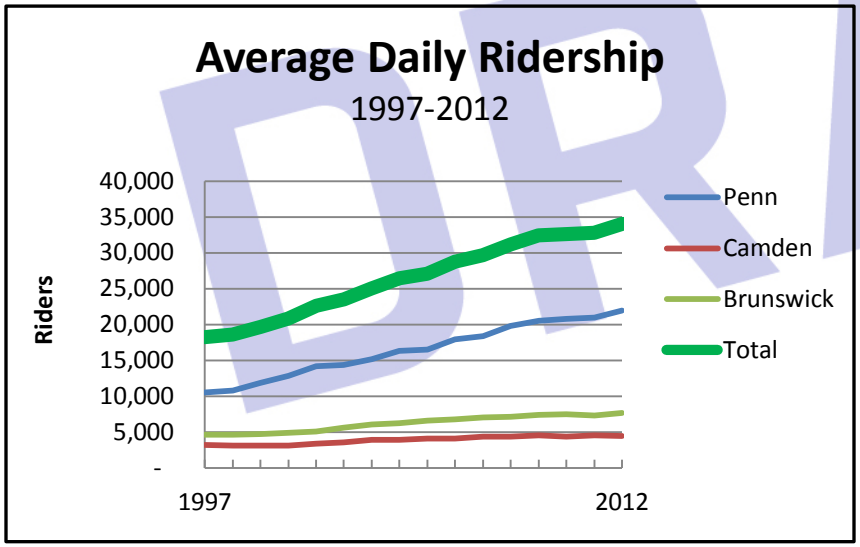
Accomplishments: Increase Ridership

Objectives

- ☑ Meet ridership demands
- ☑ Increase available seats during peak travel periods



Accomplishments: 2007-2012

- **Systemwide**
  - Procurement of 54 new multi-level passenger vehicles will increase fleet by 16 railcars and allow for more capacity across all lines
- **Penn Line** – 3.5% increase in ridership
  - Expanded Martins Airport storage facility to hold an additional set of cars which allows for increased revenue frequencies
- **Camden Line** – 0.5% increase in ridership
  - CSX has completed the installation of the signaling and power switch at Dorsey which will allow MARC to expand service by operating turn back service utilizing existing equipment
  - Added 2 multi-level railcars to service
- **Brunswick Line** – 1.7% increase in ridership
  - Improved and expanded the storage facility at Martinsburg enabling the reassignment of a train set from Brunswick. This allowed MARC to provide a new frequency in the morning for the West Virginia riders and eliminate deadhead moves.

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Accomplishments: Improve Service

Objectives

- ☑ Increase peak and off-peak service
- ☑ Maintain reliability at 95% on-time or better
- ☑ Provide express and limited stop service
- ☑ Provide late evening and weekend service

Accomplishments: 2007-2012

- **Systemwide**
  - Implemented schedule changes on all 3 lines
- **Penn Line**
  - Added 10 revenue frequencies; 2 for BRAC Baltimore to Perryville and 8 for the Baltimore-Washington market by reducing the shop count and better utilization of equipment
  - BRAC - Reverse Commute service added
- **Brunswick Line**
  - Contracted with the local bus operator Pan Trans to meet two MARC trains at Brunswick which provide additional options for West Virginia riders
  - Added Germantown shuttle to alleviate crowding
  - CSX has completed the installation of 3 interlockings which provide additional train dispatching options, reducing freight train interference
- **Camden Line**
  - CSX has completed the installation of the signaling and power switch at Dorsey which will allow MARC to expand service by operating turn back service utilizing existing equipment

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Accomplishments: Enhance the Customer Experience

Objectives

- ☑ Improve communication with riders
- ☑ Increase customer system ease-of-use

Accomplishments: 2007-2012

- Improved On-Time Performance: 95% in Aug 2012
- ADA-compliant public address system and LED signs completed on Brunswick line; other lines currently under construction
- Quick Trak – Installed ticket vending machines at 16 stations
- Increased MARC Rider's Council/Meet the Managers Meetings
- MARC Newsletter
- Installed bike racks and lockers at several stations
- Installed Electric Vehicle (EV) chargers at BWI garage
- Improved MARC Tracker online interface and accuracy
- Improved subscriber e-mail alert system and Twitter
- On-line ticketing
- New Public Information System (PIDS/PA) at Washington Union Station

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Major Programmed Investments

(Greater than $5m)

Operating	Completion Date (FY)	Cost ($M)
Weekend Service between Washington and Baltimore	Ongoing	$8/year

Capital	Completion Date (FY)	Cost ($M)
MARC IV Multi-Level Railcar Procurement (54)	2015	$159
Track Improvements on CSX lines	2015	$51
Washington Mid-Day Storage Facility (Wedge Yard)	2014	$48
New Diesel Locomotive Procurement (10)	2015	$40
MARC III Coaches Overhaul (63)	2017	$34
Halethorpe Station	2013	$30
ADA-Compliant Public Address/LED Station Signage	2013	$17
Procurement of Riverside Maintenance Facility	2018	$17
Positive Train Control	2015	$15
Diesel Locomotive Repowering (6)	2015	$12
Hanson Interlocking	2016	$10

Benefits of Investment in MARC

- **Improves service for current riders**
  - Addresses existing problems with capacity, frequency, and reliability
  - Provides fast, reliable transportation in key corridors including I-95 and I-270
- **Provides framework for mobility across Maryland**
  - Strengthens economic and social ties between Baltimore and Washington
  - Serves BRAC-related travel markets (Aberdeen and Fort Meade)
  - 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 (TOD)
- **Connects the region's transportation network**
  - Provides backbone for integrated Maryland region transit system
  - Supports more efficient rail freight movement
  - Offers mobility choice for commuters and regional travelers
  - Connectivity with Commuter Bus, Locally Operated Transit Systems (LOTS) and future Red/Purple Lines

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Challenges

Challenges to future growth

- Acquisition of property and development of Penn Line Maintenance Facility
- Capacity constraints for overnight and midday storage at Martins, Baltimore and Washington Union Terminal
- Balancing MARC growth with the demand for improvements and potential state investment in the Northeast Corridor
- Insufficient track capacity on all three lines
- Available Parking at many stations is maxed out
- Minimal growth on Camden and Brunswick Lines
- Trains are crowded during rush hour
- Insufficient spare equipment
- MARC scheduling flexibility and ability to expand service constrained by infrastructure and presence of other operators (Amtrak and freight)
- Dated technological resources
- Inability to react and be flexible to changing markets

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Phased Growth and Investment Plan

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Timeframes

- Near-Term – Programmed investments between 2013 and 2019
- Long-Term – Potential investments between 2020 and 2029
- Future – Potential investments between 2030 and 2050

Penn Line: Near-Term 2013-2019 (Planned)

Maintain a State of Good Repair - $56 million*

- Halethorpe – New station and platforms
- Penn Station improvements (Bathrooms and Maintenance's office area)
- Hanson Interlocking
- Positive Train Control
- West Baltimore parking expansion

Systemwide - $254 million*

- Procure 54 MARC IV multi-level railcars to replace plus increase number of seats - $180 million
- Procure 10 new diesel locomotives to replace electric locomotives - $40 million
- Overhaul 63 MARC III railcars - $34 million

**Certain additional costs yet to be determined.*

Increase Ridership - $10 million*

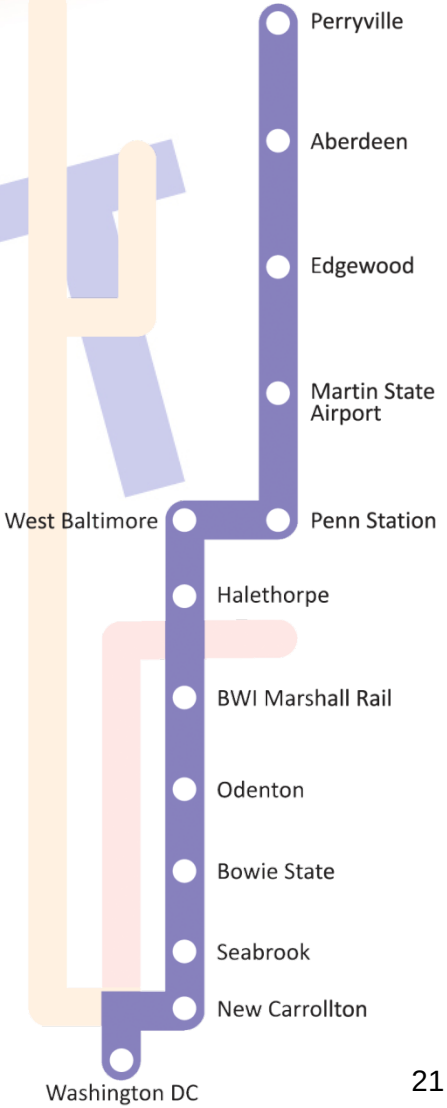
- Weekend service between Baltimore-Washington
- Expanding utilization of Commuter Bus and LOTS systems to increase connectivity

Improve Service - $40 million*

- Washington Mid-Day Storage Facility (Wedge Yard)
- Maintain 94-95% on-time performance

Enhance the Customer Experience - $27 million*

- ADA-Compliant Public Address System and LED signage
- Develop system uniformity standards (aesthetics, signage, brand)
- Closed Circuit Television System through Homeland Security Grants
- Install additional bike racks/lockers at stations
- Increase EV chargers available to riders



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Penn Line: Long-Term 2020 to 2029 (Potential)

Maintain a State of Good Repair - $707 million*

- Platform Construction at New Carrollton #1 Track
- Parking Facility Expansions:
  - Aberdeen, Halethorpe, Seabrook, and Bowie State
- Odenton - TOD, parking garage, and platform extension
- Penn Station improvements
- Station upgrade/construction for Elkton station
- Upgrade Perryville station to handle NB trains
- New stations at West Baltimore and Bayview

Increase Ridership - $93 million*

- Washington-Baltimore:
  - Expanded peak and reverse peak hours
  - 30-minute headway off-peak service
- New Bayview station
- Penn North Shuttle – Link with SEPTA

Improve Service - $480 million*

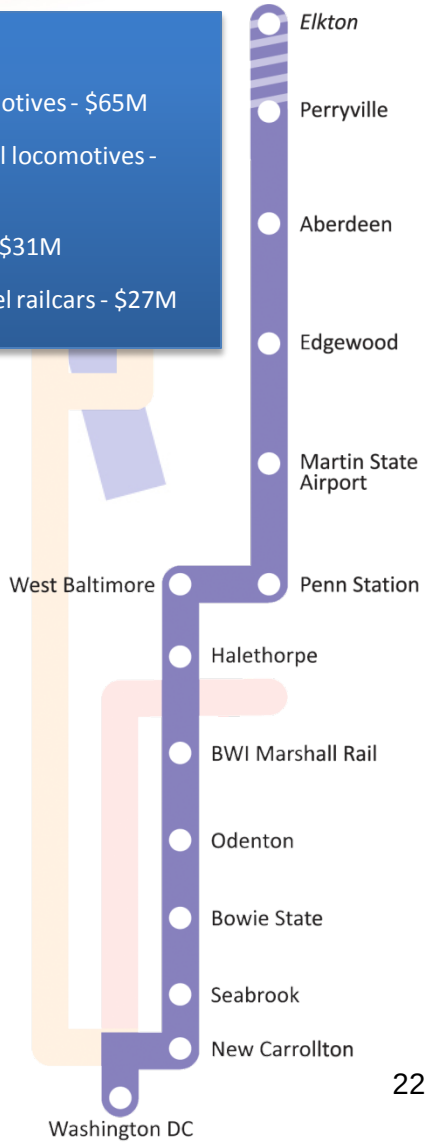
- New BWI Station
- Semi-express trains between Baltimore-Washington
- Expand and enhance Martins maintenance capacity
- Connectivity with Red Line at West Baltimore and new Bayview Stations
- Overnight Storage and Maintenance Facility-Penn Line north
- Washington Terminal planned expansion
- Maintain 94-95% on-time performance

Enhance the Customer Experience - $19 million*

- Pedestrian overpass at Odenton
- E-Ticketing
- EV charger installations
- Install additional bike racks/lockers at stations

Systemwide- $138 million*

- Overhaul 26 MP36 diesel locomotives - $65M
- GP39 (6) Repower 6 GP39 diesel locomotives - $15M
- Overhaul 34 MARC IIB railcars - $31M
- Overhaul 54 MARC IV multi-level railcars - $27M



Certain additional costs yet to be determined.

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Penn Line: Future 2030 to 2050 (Potential)

Maintain a State of Good Repair

- Parking facility expansion and platform rehabilitation (locations to be determined)
- 4 track additions
  - Penn Station to Perryville
  - BWI Airport to New Carrollton
  - Union Tunnel – complete 4 track railroad through Baltimore city
- New Bush River crossing - total of 4 main tracks (Amtrak funded)
- New Susquehanna River crossing - total of 4 main tracks (Amtrak funded)
- Amtrak B&P Tunnel replacement and rehab of existing tunnel for MARC use (Amtrak funded)
- Station modifications to support 4 main tracks at BWI, Odenton, Bowie State, Seabrook, and New Carrollton
- Canopy construction at Seabrook, Odenton, Bowie State, Martin Airport, and Perryville

Increase Ridership

- Washington-Baltimore:
  - Expanded peak and reverse peak service
  - Additional peak express service
  - Off-peak local and limited stop service
- North of Baltimore:
  - Aberdeen: Expansion of peak and introduction of limited peak service
- MARC service extended to L'Enfant Plaza and Northern Virginia

Improve Service

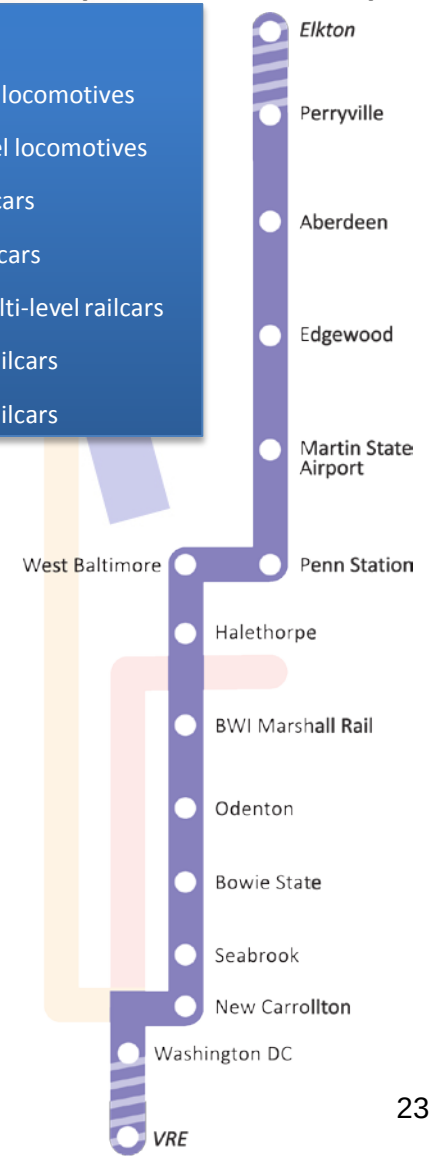
- Full 4-track railroad provides MARC with flexibility to optimize service to meet and anticipate demand
- Connectivity with Baltimore regional transit
- Washington Union Station Master Plan
- Maintain 94-95% on-time performance

Enhance the Customer Experience

- Expanded TOD presence
- EV charger installations
- Installation of bike racks/lockers at stations

Systemwide

- Overhaul 26 MP36 diesel locomotives
- Purchase expansion diesel locomotives
- Replace 34 MARC IIB railcars
- Overhaul 63 MARC III railcars
- Overhaul 54 MARC IV multi-level railcars
- Overhaul 50 expansion railcars
- Purchase 50 expansion railcars



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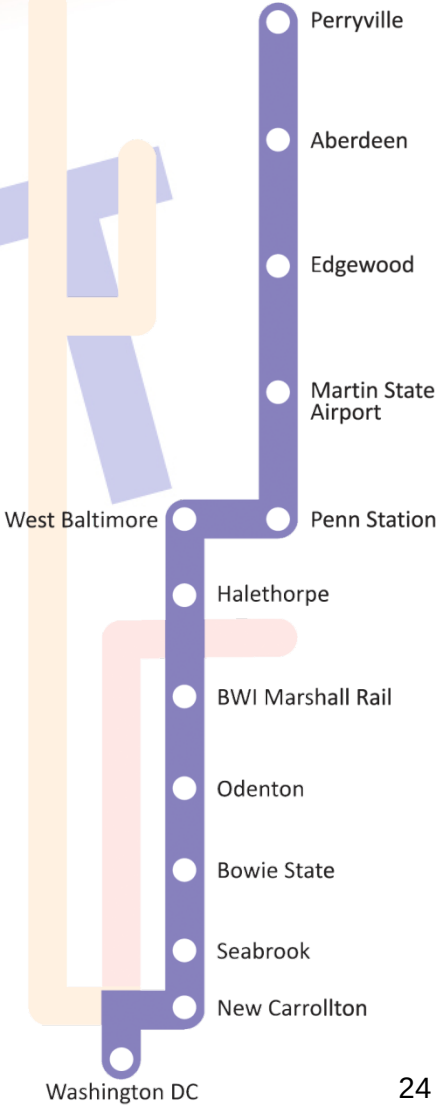
Penn Line – Summary

Penn Line Capital Improvements	Near-Term Cost ($M)	Long-Term Cost ($M)	Total Cost ($M)
Maintain a State of Good Repair	$56*	$707*	**$763***
Increase Ridership	$0*	$90*	**$90***
Improve Service	$40*	$480*	**$520***
Enhance the Customer Experience	$27*	$19*	**$46***
TOTAL	**$123***	**$1,296***	**$1,419***

Penn Line Operating Improvements	Near-Term Cost ($M)	Long-Term Cost ($M)
Incremental Operating Costs	$10/year*	$6/year*



*Certain additional costs yet to be determined.

Camden Line: Near-Term 2013 to 2019 (Planned)

Maintain a State of Good Repair - $16 million*

- College Park platform construction and shelter addition
- Positive train control

Increase Ridership - $10 million*

- Lengthen existing trains to accommodate growing ridership
- Savage TOD project/garage and pedestrian crossover

Improve Service - $2 million*

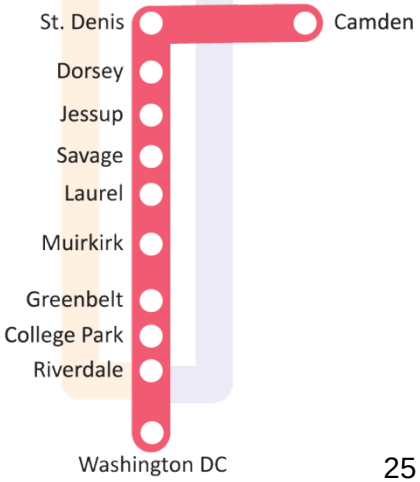
- Add two more roundtrips
- Turn back service between Washington-Dorsey
- Maintain reliability at 95%

Enhance the Customer Experience - $7 million*

- ADA-Compliant Public Address System and LED signage
- Develop system uniformity standards (aesthetics, signage, brand)
- Closed Circuit Television System through Homeland Security Grants
- Install additional bike racks/lockers at stations
- Increase EV chargers available to riders

Systemwide - $254 million*

- Procure 54 MARC IV multi-level railcars to replace plus increase number of seats - $180 million
- Procure 10 new diesel locomotives to replace electric locomotives - $40 million
- Overhaul 63 MARC III railcars - $34 million



Certain additional costs yet to be determined.

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Camden Line: Long-Term 2020 to 2029 (Potential)

Systemwide- $138 million*

- Overhaul 26 MP36 diesel locomotives - $65M
- GP39 (6) Repower 6 GP39 diesel locomotives - $15M
- Overhaul 34 MARC IIB railcars - $31M
- Overhaul 54 MARC IV multi-level railcars - $27M

Maintain a State of Good Repair – $126 million*

- Parking facility expansions
  - Laurel
  - Muirkirk
  - Laurel Park Raceway
- Extend 3rd main track Savage-Laurel to reduce congestion
- Muirkirk Station – Canopy and station improvements tied to ICC completion
- Dorsey platform rehabilitation
- New Station at Camden

Certain additional costs yet to be determined.

Increase Ridership - $3 million*

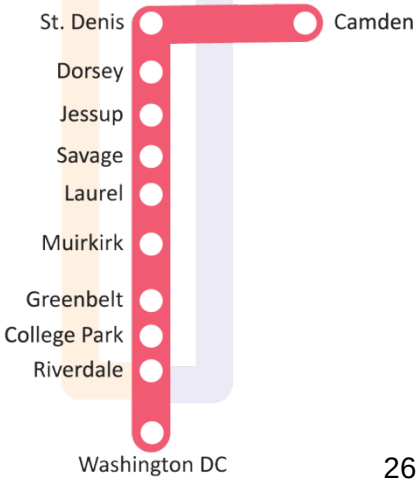
- Additional peak and reverse peak trains
- Improved rail-bus transfers and connecting bus service to Ft. Meade area from Savage
- Additional mid-day afternoon train

Improve Service - $51 million*

- One additional reverse peak service
- Washington Terminal planned expansion
- Maintain reliability at 95%

Enhance the Customer Experience - $9 million*

- E-Ticketing
- Install additional bike racks/lockers at stations
- Increase EV chargers available to riders



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Camden Line: Future 2030 to 2050 (Potential)

Systemwide

- Overhaul 26 MP36 diesel locomotives
- Purchase expansion diesel locomotives
- Replace 34 MARC IIB railcars
- Overhaul 63 MARC III railcars
- Overhaul 54 MARC IV multi-level railcars
- Overhaul 50 expansion railcars
- Purchase 50 expansion railcars

Maintain a State of Good Repair

- Parking facility expansions as needed
- Investments to support service extension from Camden through Baltimore terminal
- Continued expansion to 3 main tracks between Baltimore-Washington

Increase Ridership

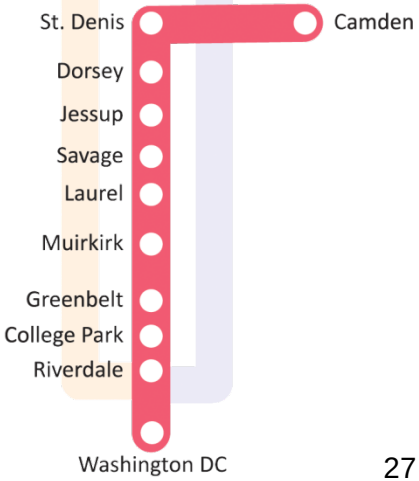
- Peak headways reduced to 20 minutes

Improve Service

- Limited mid-day service
- Weekend service
- Washington Union Station Master Plan
- Maintain 95% on-time performance

Enhance the Customer Experience

- Expanded TOD presence
- Install additional bike racks/lockers at stations
- Increase EV chargers available to riders



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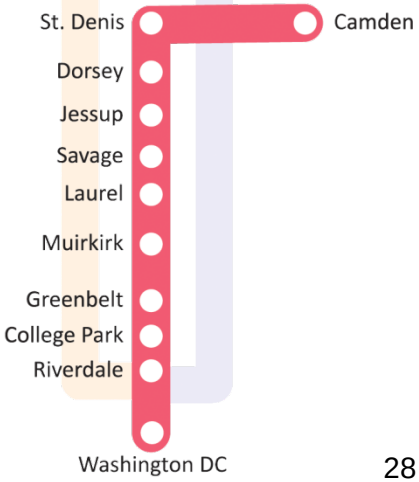
Camden Line – Summary

Camden Line Capital Improvements	Near-Term Cost ($M)	Long-Term Cost ($M)	Total Cost ($M)
Maintain a State of Good Repair	$16*	$126*	**$142***
Increase Ridership	$10*	$0*	**$10***
Improve Service	$0*	$51*	**$51***
Enhance the Customer Experience	$7*	$9*	**$16***
TOTAL	**$33***	**$186***	**$219***

Camden Line Operating Improvements	Near-Term Cost ($M)	Long-Term Cost ($M)
Incremental Operating Costs	$2/year*	$4/year*



*Certain additional costs yet to be determined.

Brunswick Line: Near-Term 2013 to 2019 (Planned)

Maintain a State of Good Repair - $50 million*

- Explore parking facility expansions
- Positive train control

Increase Ridership - $1 million*

- Lengthen existing trains to accommodate growing ridership
- Expand "Meet the MARC" connecting services

Systemwide - $254 million*

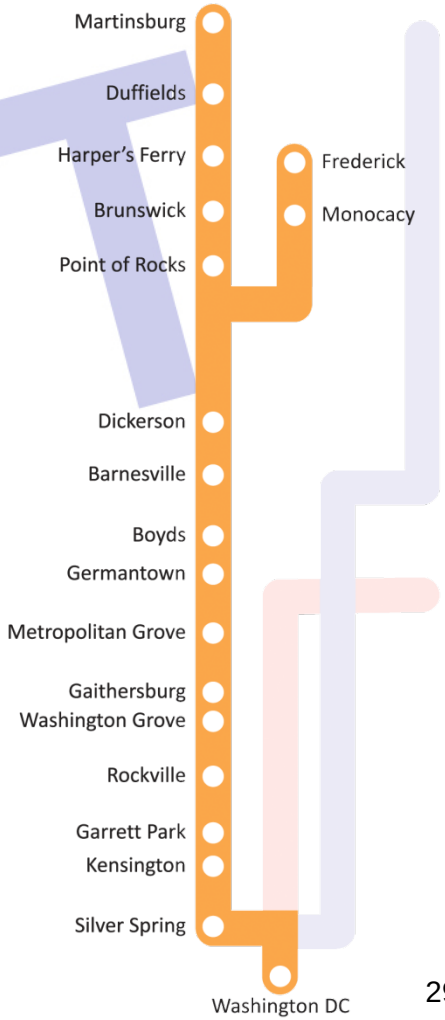
- Procure 54 MARC IV multi-level railcars to replace plus increase number of seats - $180 million
- Procure 10 new diesel locomotives to replace electric locomotives - $40 million
- Overhaul 63 MARC III railcars - $34 million

Improve Service – $1 million*

- Expanding utilization of LOTS systems to increase connectivity
- Maintain 94-95% on-time performance

Enhance the Customer Experience - $7 million*

- ADA-Compliant Public Address System and LED signage
- Develop system uniformity standards (aesthetics, signage, brand)
- Closed Circuit Television System through Homeland Security Grants
- Install additional bike racks/lockers at stations
- Increase EV chargers available to riders



Certain additional costs yet to be determined.

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Brunswick Line: Long-Term 2020 to 2029 (Potential)

Maintain a State of Good Repair - $176 million*

- 3 main tracks, Barnesville Hill
- Add another new Montgomery County station or expand an existing station
- Point of Rocks platform expansion providing access to Frederick branch and improved facilities
- Parking facility expansions as deemed necessary
  - Germantown Parking Garage
- Brunswick parking lot – additional access point
- Duffields – potential new station at Northport
- Brunswick Maintenance service facility expansion

Systemwide- $138 million*

- Overhaul 26 MP36 diesel locomotives - $65M
- GP39 (6) Repower 6 GP39 diesel locomotives - $15M
- Overhaul 34 MARC IIB railcars - $31M
- Overhaul 54 MARC IV multi-level railcars - $27M

Increase Ridership - $26 million*

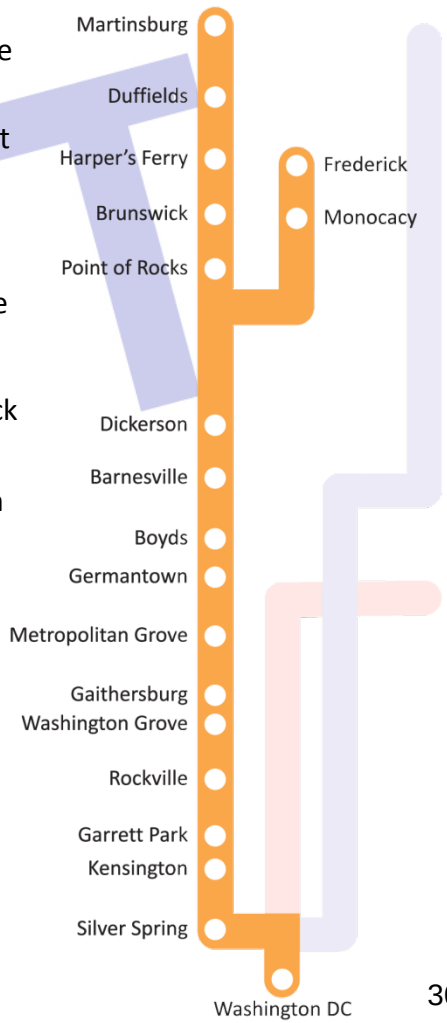
- Lengthen existing trains to accommodate growing ridership
- New Corridor Cities Transitway Station at Metropolitan Grove

Improve Service - $55 million*

- Increase limited stop and express service
- One reverse peak service to Brunswick
- One additional round trip from Brunswick to DC
- Washington Terminal planned expansion
- Maintain 94-95% on-time performance

Enhance the Customer Experience - $8 million*

- E-Ticketing
- Harpers Ferry ADA improvements
- Install additional bike racks/lockers at stations
- Increase EV chargers available to riders



Certain additional costs yet to be determined.

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Brunswick Line: Future 2030 to 2050 (Potential)

Maintain a State of Good Repair

- Additional triple tracking
- Parking facility expansions to be determined

Increase Ridership

- Lengthen existing trains to accommodate growing ridership

Improve Service

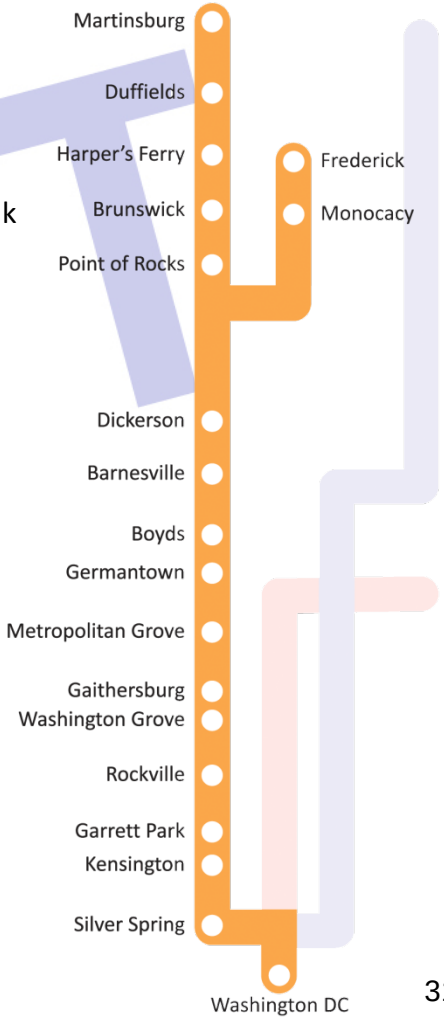
- Increased peak and off-peak service
- Reverse commute service
- Improve Frederick branch service – 30 minute peak headway, increase number of trains from 3 to 6
- Limited reverse-peak service
- Washington Union Station Master Plan
- Maintain 94-95% on-time performance

Enhance the Customer Experience

- Expanded TOD presence
- Install additional bike racks/lockers at stations
- Increase EV chargers available to riders

Systemwide

- Overhaul 26 MP36 diesel locomotives
- Purchase expansion diesel locomotives
- Replace 34 MARC IIB railcars
- Overhaul 63 MARC III railcars
- Overhaul 54 MARC IV multi-level railcars
- Overhaul 50 expansion railcars
- Purchase 50 expansion railcars



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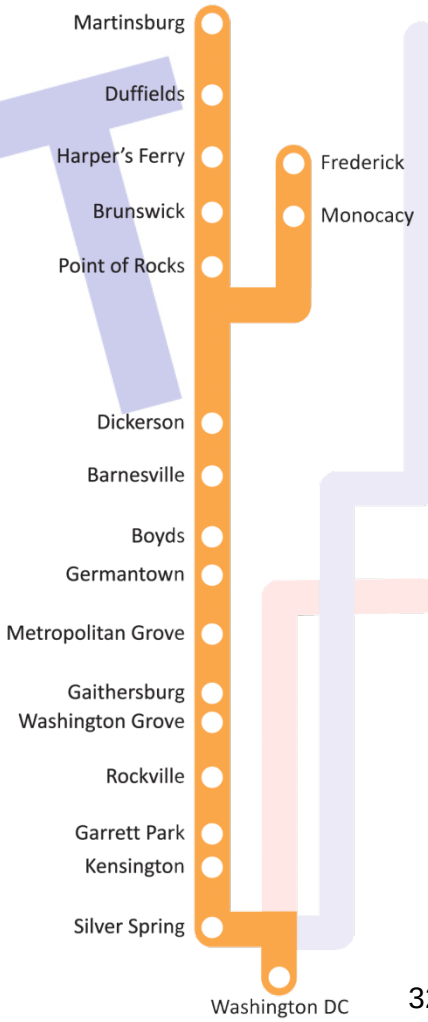
Brunswick Line – Summary

Brunswick Line Capital Improvements	Near-Term Cost ($M)	Long-Term Cost ($M)	Total Cost ($M)
Maintain a State of Good Repair	$50*	$176*	**$226***
Increase Ridership	$0*	$25*	**$25***
Improve Service	$0*	$55*	**$55***
Enhance the Customer Experience	$7*	$8*	**$15***
TOTAL	**$57***	**$264***	**$321***

Brunswick Line Operating Improvements	Near-Term Cost ($M)	Long-Term Cost ($M)
Incremental Operating Costs	$2/year*	$6/year*



*Certain additional costs yet to be determined.

Overall Summary

All Capital Improvements	Near-Term Cost ($M)	Long-Term Cost ($M)	Total Cost ($M)
Systemwide	$254	$138	**$392**
Penn Line	$123	$1,296	**$1,419**
Camden Line	$33	$186	**$219**
Brunswick Line	$57	$264	**$321**
TOTAL	**$467**	**$1,884**	**$2,351**

All Operating Improvements	Near-Term Cost ($M)	Long-Term Cost ($M)
Incremental Operating Costs	$14/year	$16/year

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Please provide your comments on the
Draft MARC Growth and Investment Plan Update at:

MGIP@mta.maryland.gov

Or mail your comments to:

Maryland Transit Administration
Office of Planning and Programming
6 St. Paul Street, Room 923
Baltimore, Maryland 21202

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