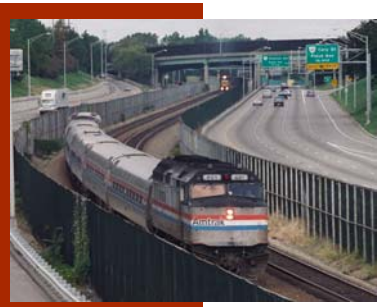
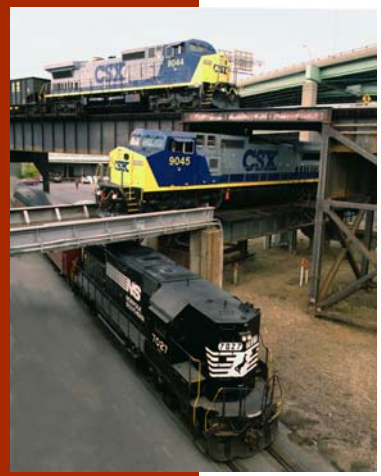
DRPT
Virginia Department of Rail and Public Transportation








# Draft Statewide Rail Plan

**July 2008**

www.drpt.virginia.gov

# Overview

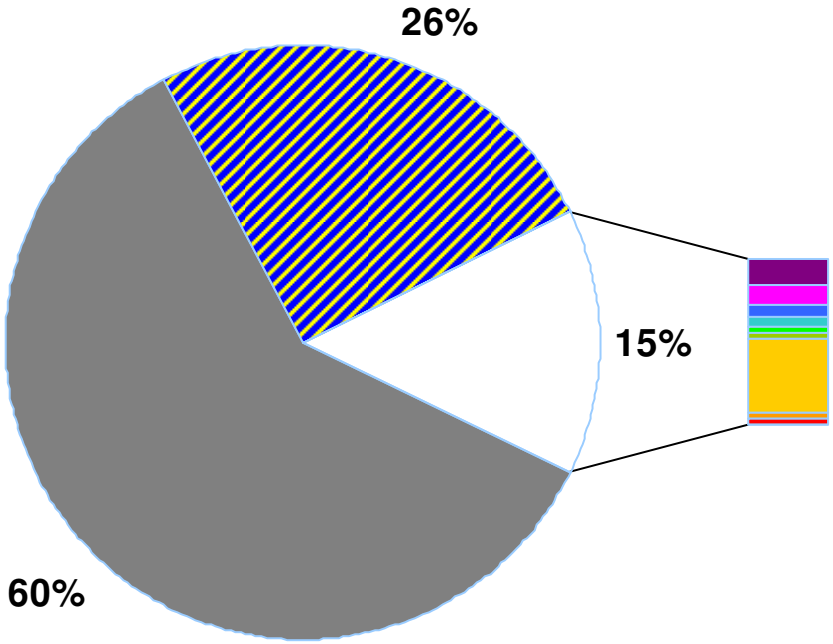
- Virginia Rail System
- Setting the Stage
- Rail Benefits
- Proposed Improvements
- Cost Assumptions
- Class I and Shortline Railroads
- Port Projects
- Passenger Rail Initiatives
- High Speed Rail
- Total Project Benefits
- Funding
- Next Steps

# Virginia Rail System

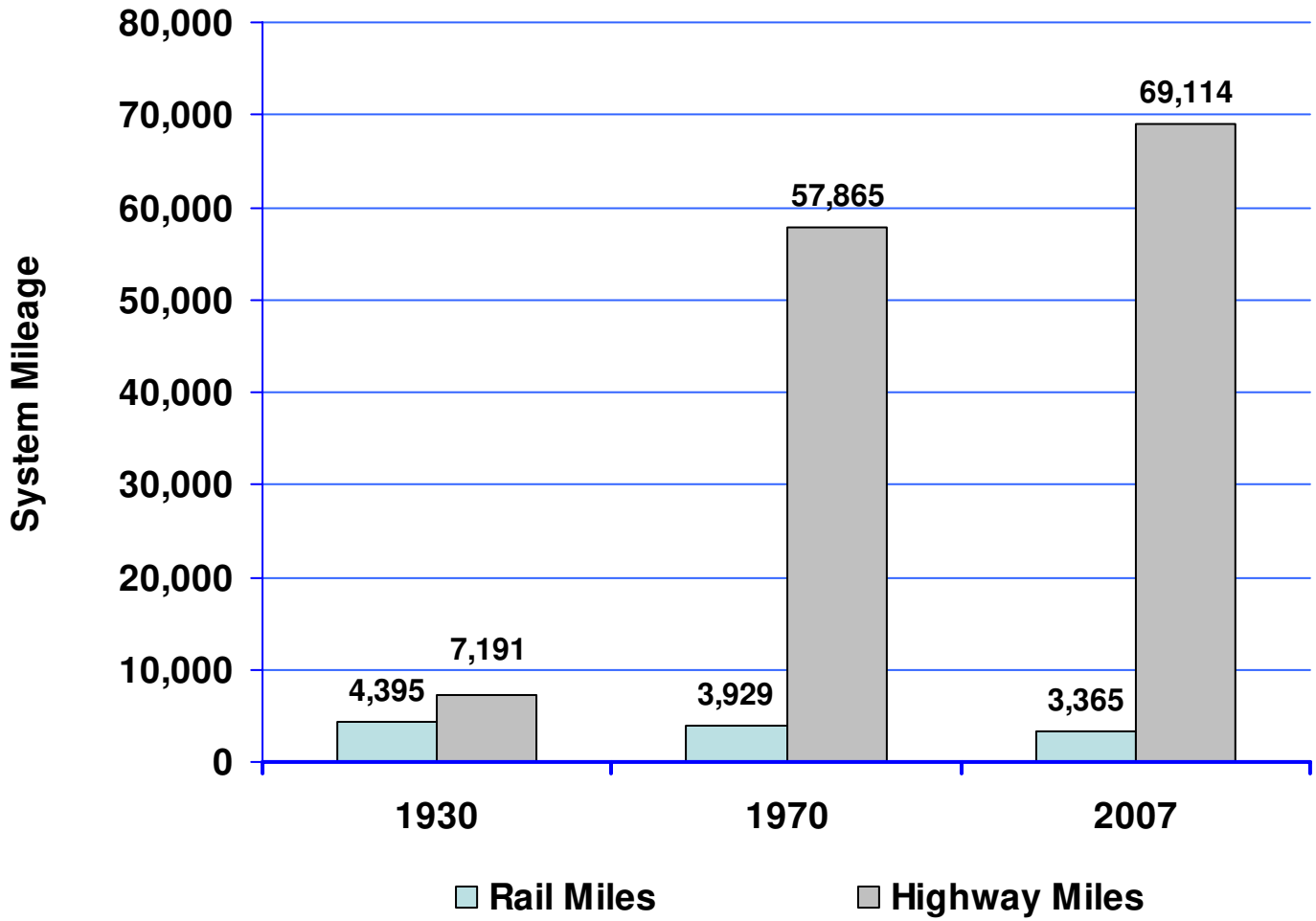



- **Two passenger rail operators – Amtrak and Virginia Railway Express**
- **Twelve freight railroads –**
  - **Two national Class I Railroads: Norfolk Southern and CSX**
  - **Ten local shortline railroads**

# Virginia's Current Rail System
## Privately-Owned by Freight Railroads

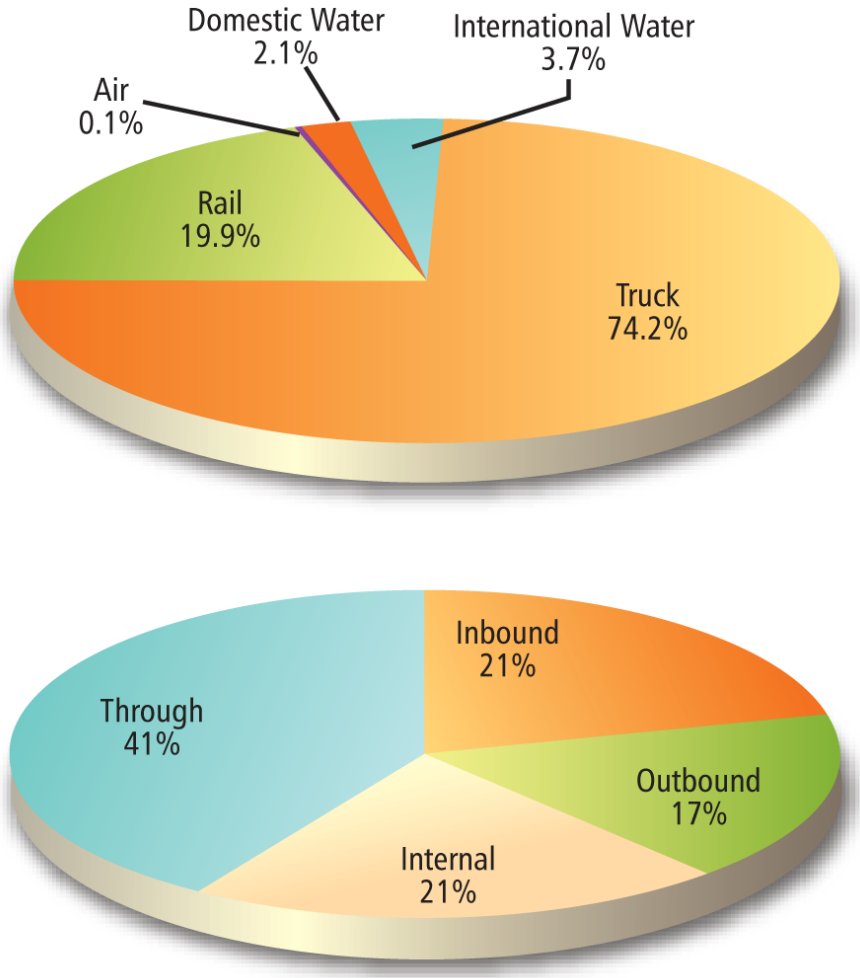


# Virginia Highway and Rail Miles

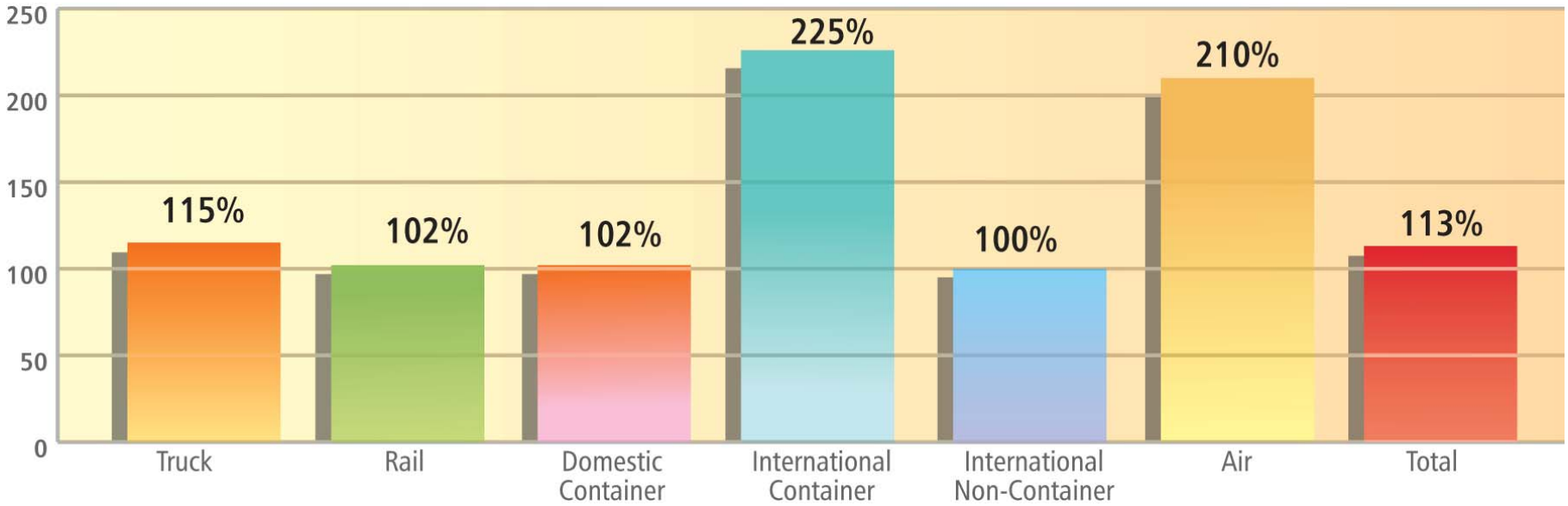



Forecast Year:

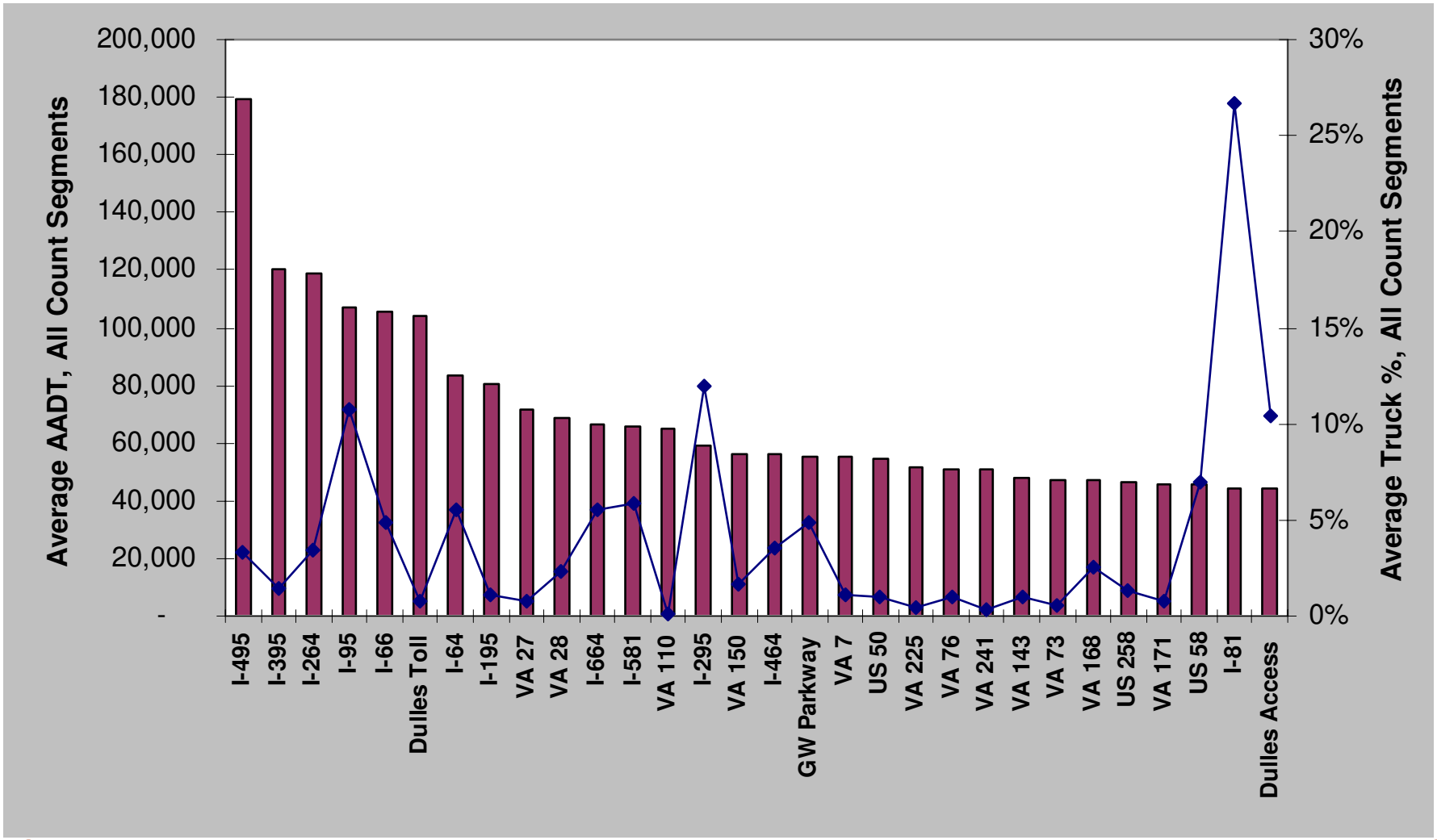
# Virginia Freight Tonnage by Mode and Direction (2004)



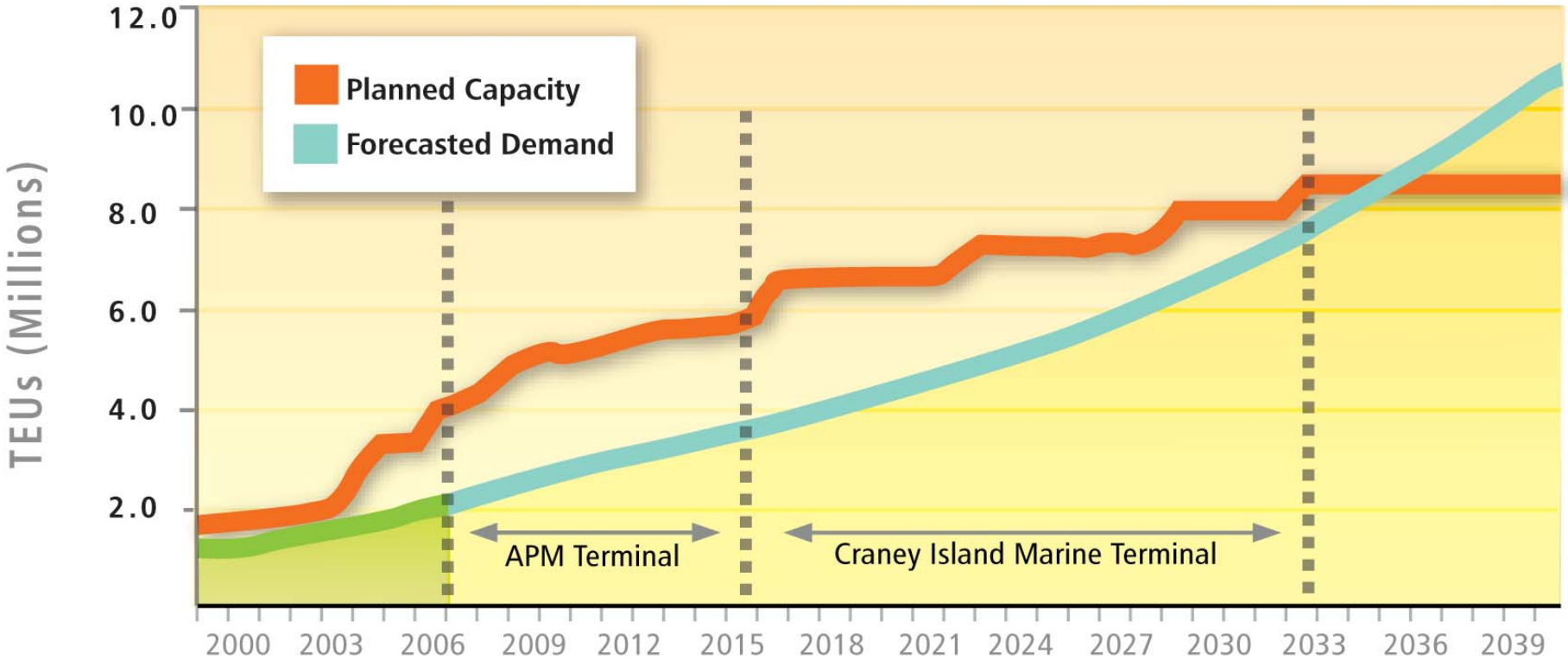
# Projected Virginia Freight by Mode (2035)



# Average Total AADT and Truck Percentages All count Segments – top 30 Routes (2005)

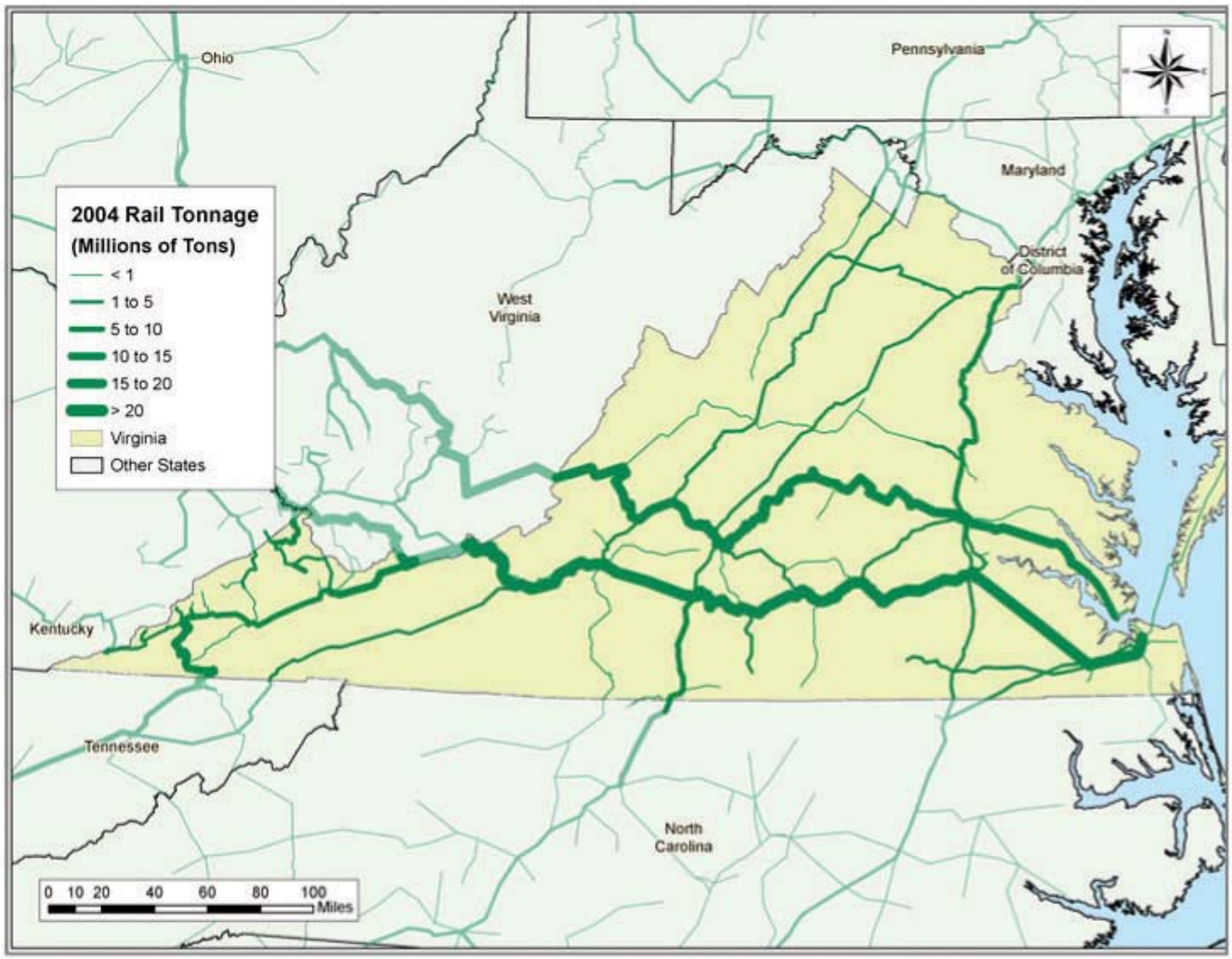


# Increase of Containerized Cargo (TEUs) Virginia Ports



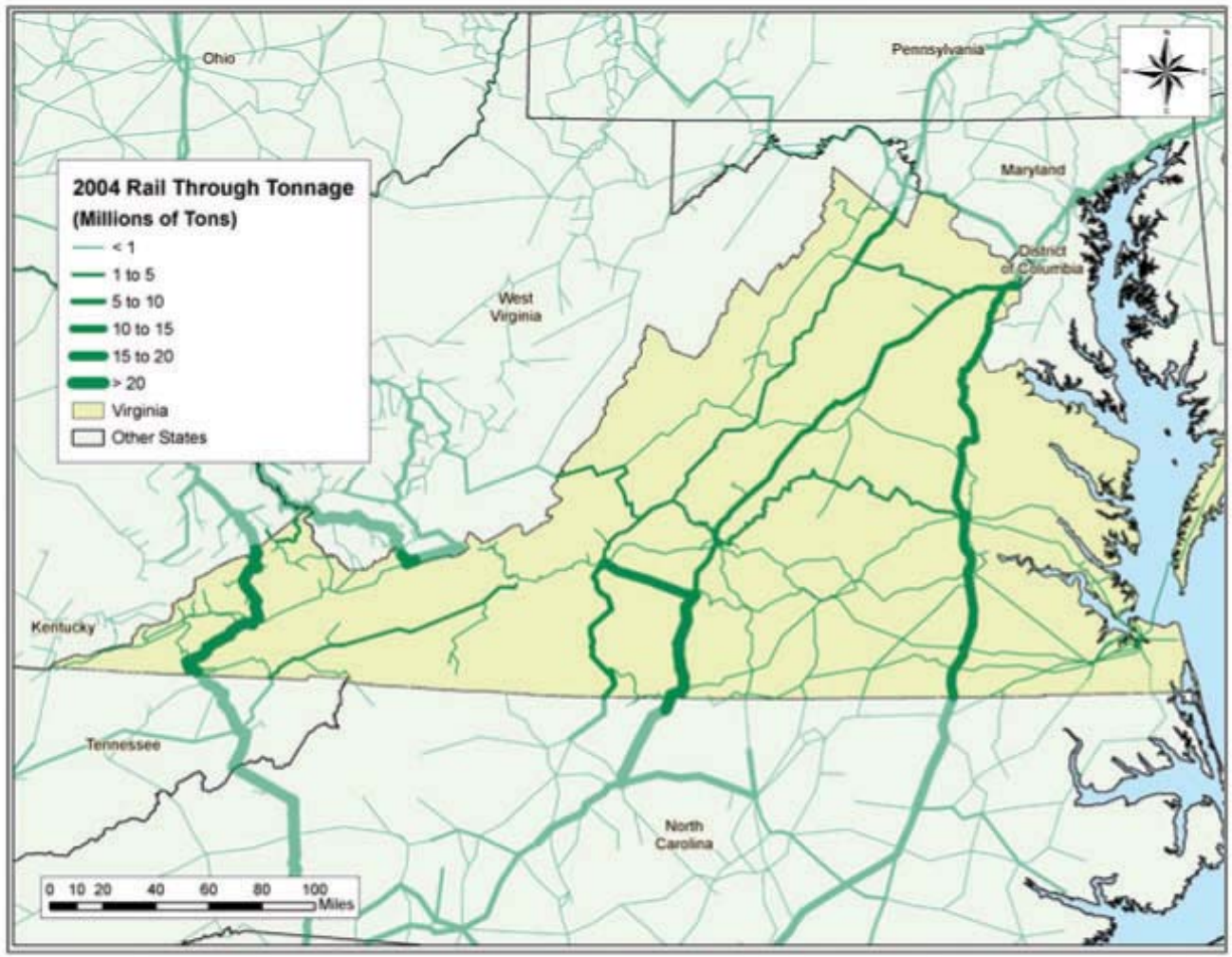

Forecast Year: 2006

# Virginia Rail Tonnage (2004)



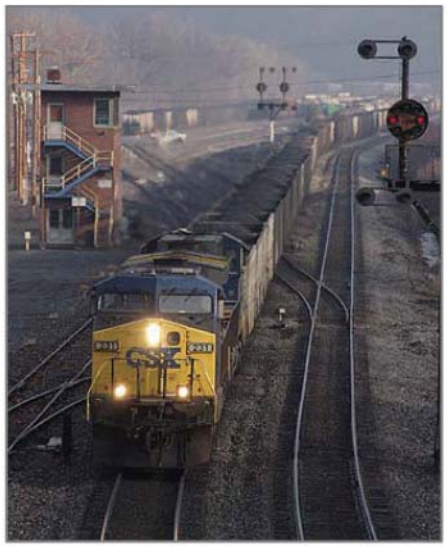

7-14-08

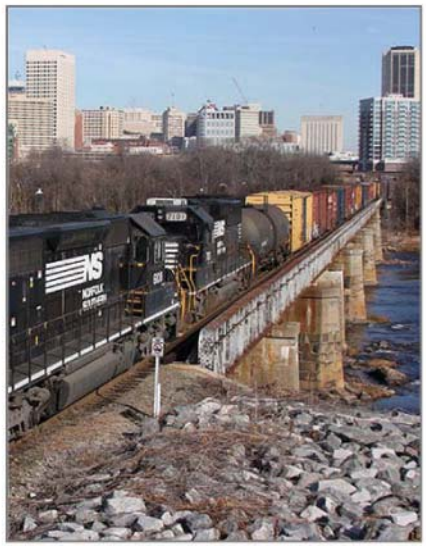
# Rail Tonnage Passing Through Virginia (2004)




7-14-08

# Percentage of Freight Rail Tonnage (2005)







**Unit Train 60%**

**Long trains of a single railcar type and product, like coal -- mostly east-west**

**Carload 24%**

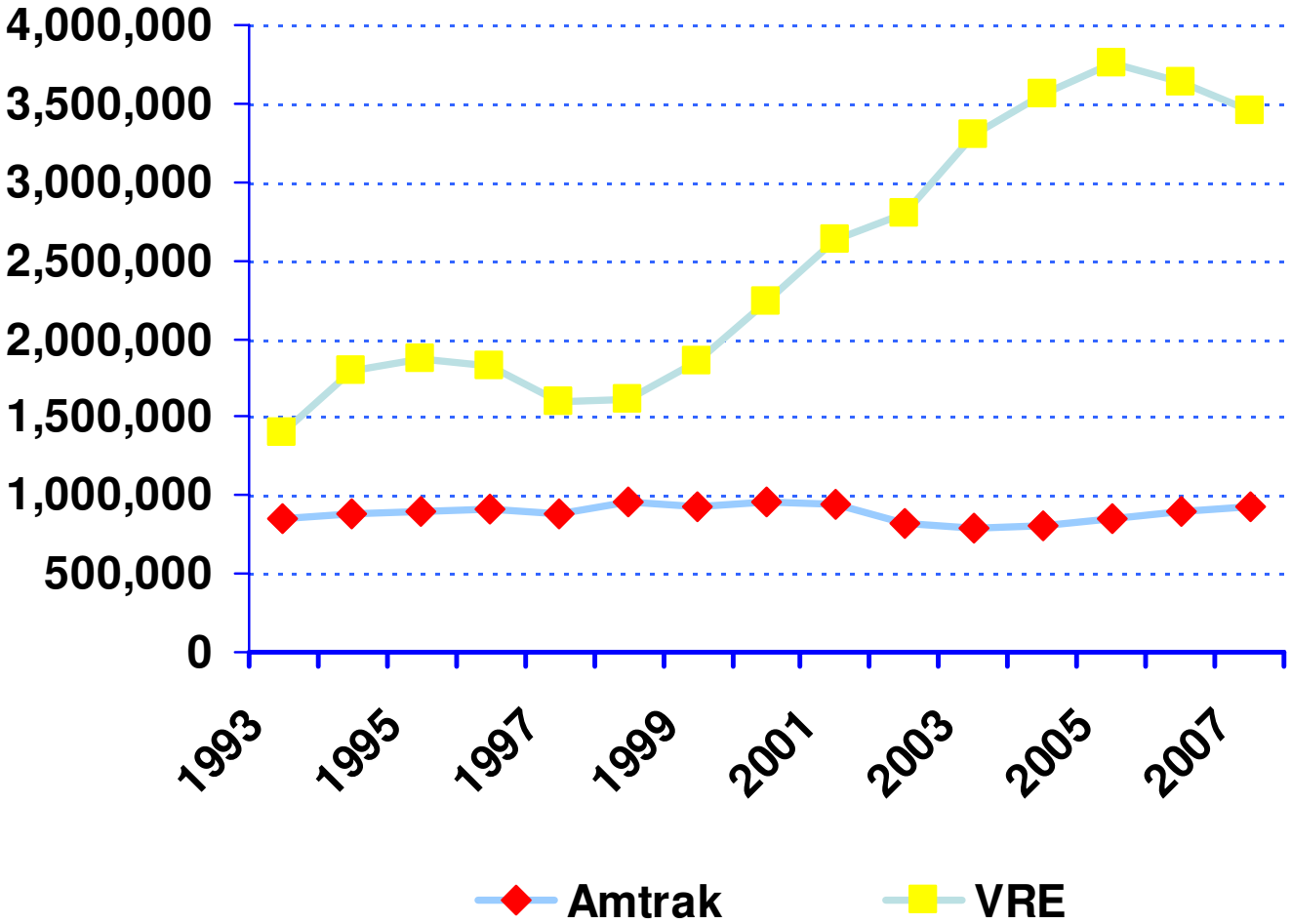
**Mixed trains with different railcar types and products --**

**mostly north-south**

**Intermodal/Auto 16%**

**Containers, autos, other on railcars -- a future north-south opportunity**

# Annual Passenger Traffic (FY 1993-2007)




7-14-08

# Setting the Stage

- The draft statewide rail plan builds on past successes to develop multimodal transportation corridors
- It is consistent with Commonwealth Transportation Policy Goals:
  - Providing a safe transportation system for Virginians
  - Maintaining existing transportation assets
  - Efficient and cost effective movement of people and goods
  - Stewardship of the environment
- It also supports the VTrans 2035 statewide transportation plan update

# Setting the Stage

- Virginia rail funding
  - The Rail Enhancement Fund provides approximately $24 million for rail capital improvements annually
  - Rail Enhancement funding was supplemented in 2007 by a 10-year, $124.7 million bond program
  - Rail Preservation funding for shortline railroads is available at approximately $3 million annually
  - Rail Industrial Access funding is available for businesses to connect to freight rail shipping through a shared fund at approximately $5 million annually
  - One-time funding for the I-95 and I-81 rail corridors has provided more than $130 million to improve rail capacity and service reliability



Virginia has participated in the Heartland Corridor Project, a project of national significance that will support and enhance domestic and international trade, and remove 150,000 trucks from Virginia highways.

*Four tunnels in Virginia are being cleared to accommodate double-stack rail traffic.*



Virginia has allocated over $151.55 million to help increase rail capacity and divert trucks to rail in the I-95 and I-81 corridors.

*The new two-track Quantico Creek Bridge opened on Feb. 17, 2007 in the I-95 corridor.*

7-14-08




Virginia has participated in the construction of an on-dock rail yard to support the first privately developed marine terminal in North America, APM Terminals Virginia, to move 128,500 containers annually in 2010.

*A train carries double-stack rail containers from the port.*

# Setting the Stage

- Virginia faces a number of challenges:
  - Population growth
    - Outpacing the national average
  - Highway congestion
    - Northern Virginia is part of the second worst region in the country
  - Airline industry limitations
    - No direct connections between Virginia regions and cities
    - Cost prohibitive for travel within the state
  - Passenger and freight rail capacity/demand
    - Rail transportation is approaching the limits of capacity
    - Demand continues to rise
  - Port growth
    - One of the most significant economic engines of Virginia
    - More access to freight rail shipping is needed to accommodate the demand for imports and exports

# Setting the Stage

- Understanding the freight rail business:
  - The US is an international leader in freight rail, but lags behind in passenger rail.
  - Freight rail is a very capital intensive industry. From 1995-2004, rail capital expenditures represented 18% of rail revenue compared to 4% for the average manufacturing company.
  - Rail tracks in Virginia are privately owned by freight companies with a responsibility to return shareholder value.
  - Freight rail is at least five times more profitable than passenger rail.
  - Capacity is a commodity for private railroads, and railroads typically focus on capacity replacement (additional tracks) in exchange for access by commuter rail.
  - Private railroads have the power to condemn property for necessary right of way.

# Setting the Stage

- Understanding the passenger rail business:
  - Passenger rail typically requires a subsidy.
  - Amtrak, through federal statute, has the right to operate on freight rail lines.
  - Commuter rail operators like VRE do not have that right, and must negotiate with private railroads.
  - The cost of right of way is expensive.
    - VDOT estimates that the cost of acquiring right of way between Washington, DC and Richmond in the I-95 corridor would cost at least $2 billion
  - Passenger rail operators have consistently chosen to access private rail lines rather than building dedicated passenger tracks.

7-14-08

# Rail Benefits

- VRE service provides the equivalent capacity of one highway lane on I-95 and I-66 during peak periods.
- One intermodal train can carry up to 280 truck trailers.
- Train travel is 17% more energy efficient than domestic airline travel and 21% more energy efficient than auto travel.
- Traveling by rail contributes fewer greenhouse gas emissions than either cars or airplanes. Passenger rail emits only 0.2% of the travel industry's total greenhouse gases.

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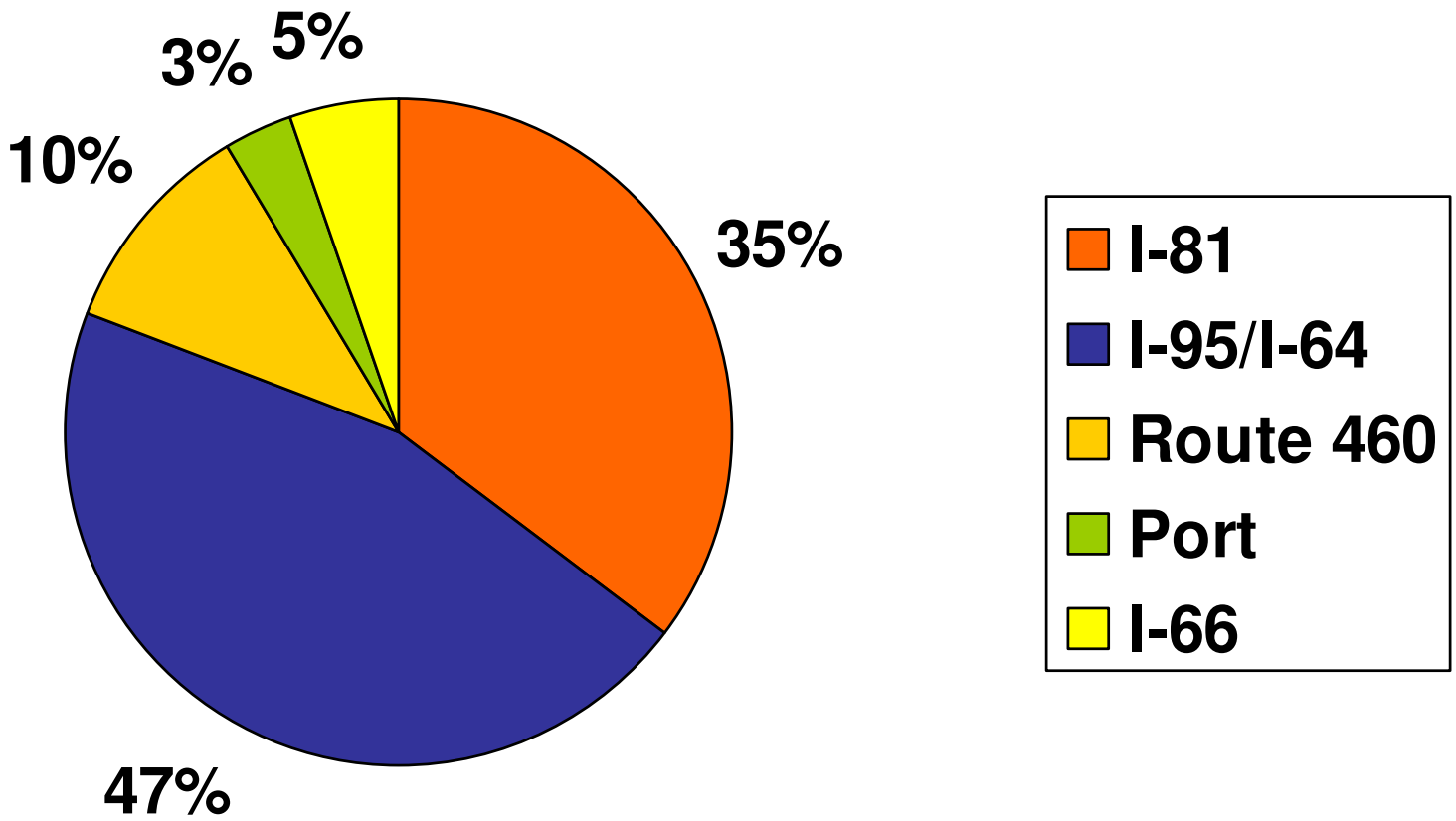
# Potential Improvements

- Potential projects identified in the draft Statewide Rail Plan will:
  - Focus on corridor management to support diverse needs
  - Provide improvements throughout the state
  - Position Virginia for future growth
  - Support growth at the Ports of Hampton Roads

# Cost Assumptions

- Project cost estimates include capital costs only
- All costs are stated in 2008 dollars, without escalation to potential year of expenditure
- No operating or equipment costs are included- these will be identified in the Rail Action Plan
- The Rail Action Plan will include all costs and will have costs escalated based on year of expenditure

# Rail Needs by Major Corridor




**More than $4.9 billion in needs statewide**

7-14-08

RAIL PROJECT OVERVIEW

# Potential Improvements to the Rail System

*Project Cost: $5 billion*




## Summary of Rail Projects

### Class I and Shortline Railroad Project Costs

| Project | Costs |
|---|---|
| NS Class I | $ 1.7 billion |
| CSX Class I | $ 48.0 million |
| Shortline Railroad | $ 68.0 million |
| **Total Costs** | **$ 1.8 billion** |

### Ports of Hampton Roads Project Costs

| Project | Costs |
|---|---|
| NIT Central Rail Yard Expansion | $ 40.15 million |
| Craney Island Rail Connection | $ 130.00 million |
| Norfolk/Portsmouth Beltline Railroad | $ 8.75 million |
| **Total Costs** | **$ 178.90 million** |

### Passenger Rail Project Costs

| Project | Costs |
|---|---|
| Commuter Alexandria to Manassas | $ 8.25 million |
| Commuter Gainesville to Haymarket | $ 281.00 million |
| Commuter Fredericksburg to Washington, DC | $ 470.00 million |
| Intercity Urban Crescent | $757.00 million |
| Intercity TransDominion Express | $206.00 million |
| **Total Costs** | **$ 1.7 billion** |

### High Speed Rail Initiative Costs

| Project | Costs |
|---|---|
| Southeast High Speed Rail | $ 1.2 billion |

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# Class I and Shortline Railroad Projects

| Class I and Shortline Railroad Project Costs | |
|---|---|
| **Project** | **Costs** |
| National Gateway | $48 million |
| Crescent Corridor | $1.6 billion |
| Heartland Corridor | $66.01 million |
| Coal Corridor | $12.1 million |
| Shortline Railroads | $68 million |
| **Total Costs** | **$ 1.8 billion** |

7-14-08

CLASS I AND SHORTLINE RAILROADS

# CSX National Gateway Corridor (I-95, I-295, I-495)

*Project Cost: $48 million*




## At a Glance

:: Parallels I-95 through Virginia

:: Improves efficiency of freight rail shipping from ports of MD, VA and NC and to markets in PA, WV and OH

:: Virginia improvements:

- Kilby Rail Yard
- Double-stack train clearances

:: Freight benefit: Expands capacity

:: Passenger benefit: Improves on-time performance

**CSX National Gateway Corridor Development Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | 2008 |
| Preliminary Engineering | 2009 |
| Final Design | 2010 |
| Construction | 2013 |
| Operation | 2013 |

## Annual Benefits



Removes 130,000 trucks from I-95 Corridor



Saves over 31.9 million gallons of fuel



Saves 61,705 tons of $CO_2$ emissions

7-14-08

CLASS I AND SHORTLINE RAILROADS

# Norfolk Southern Crescent Corridor (I-81)

*Project Cost: $1.6 billion*




## At a Glance

:: Improves freight rail shipping along I-20, I-40, I-75, I-85 and I-81

:: Freight benefit: Expands capacity, diverting trucks from congested roadways

:: Passenger benefit: Could expand Amtrak to serve Charlottesville, Lynchburg, Roanoke and Bristol and expand VRE service from Manassas to Haymarket

**Norfolk Southern Crescent Corridor Development Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | 2008 |
| Preliminary Engineering | 2008 |
| Final Design | 2009 |
| Construction | 2010 |
| Operation | 2020 |

## Annual Benefits



Removes 1.6 million trucks (base estimate) from I-81 Corridor by 2035



Saves over 227 million gallons of fuel



Saves 674,000 tons of $CO_2$ emissions

7-14-08

CLASS I AND SHORTLINE RAILROADS

# Norfolk Southern Heartland Corridor (Route 460) (Phase 1)

*Project Cost: $66.01 million*




**Norfolk Souther Heartland Corridor Development Status - Phase 1**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | 2006 |
| Preliminary Engineering | 2007 |
| Final Design | 2007 |
| Construction | 2009 |
| Operation | 2009 |

## Annual Benefits



Removes 150,000 trucks from Virginia highways



Saves over 20.06 million gallons of fuel



Saves 55,804 tons of $CO_2$ emissions

## At a Glance

:: Doubles freight capacity parallel to Route 460

:: Freight benefit: Cuts 1.5 days of shipping time between Hampton Roads and Chicago

:: Passenger benefit: Could support expanded Amtrak service between Washington, DC and Bristol

:: Planning has begun on Phase 2

7-14-08

CLASS I AND SHORTLINE RAILROADS

# Norfolk Southern Coal Corridor (Route 460)

*Project Cost: $12.1 million*




**Norfolk Southern Coal Corridor Development Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | 2006 |
| Preliminary Engineering | 2007 |
| Final Design | 2007 |
| Construction | 2009 |
| Operation | 2009 |

## At a Glance

:: Adds additional track capacity parallel to Route 460 between Andover and Green Bay to support projected increases in coal shipments

:: Freight benefit: Improves capacity to move coal from coal fields to Hampton Roads and to generating stations in TN, NC, SC and GA

:: Passenger benefit: Could support expanded Amtrak service between Washington, DC and Bristol

:: As most coal is already carried by rail, no calculations of truck diversion, fuel savings or reduced emissions have been conducted

7-14-08

CLASS I AND SHORTLINE RAILROADS

# Shortline Railroad Preservation (statewide)

*Project Cost: $68 million*




## At a Glance

:: Brings all shortline rail systems in Virginia up to Federal freight and passenger standards

:: Freight benefit: Improves capacity to handle larger shipments, providing critical business-to-business link

:: Passenger benefit: Improves Amtrak service between Orange and Clifton Forge

**Shortline Railroad Preservation**

| Shortline Railroad | Amount ($) |
|---|---|
| Bay Coast | $ 5,107,000 |
| Buckingham Branch | 34,534,000 |
| Chesapeake & Albemarle | 5,702,000 |
| Chesapeake Western | 3,294,000 |
| Commonwealth Railway Inc. | 1,622,000 |
| Deepwater Terminal | 491,000 |
| Norfolk & Portsmouth Belt Line | 3,321,000 |
| North Carolina & Virginia | 338,000 |
| Shenandoah Valley | 2,110,000 |
| Virginia Southern | 7,490,000 |
| Winchester & Western Railroad Co. | 3,819,000 |
| **TOTAL** | **$ 67,828,000** |

7-14-08

# Class I and Shortline Project Results

- Improves freight rail shipping and diverts truck traffic to rail along Virginia highways: I-81, I-95, I-64, I-66, I-85, I-295, I-495 and Route 460, and outside Virginia along major routes such as I-20, I-40 and I-75
- Multistate agreements needed to maximize truck diversion
- Includes construction of rail yards and increases capacity
- Improves shortline rail systems in Virginia to accommodate heavier freight shipments and faster passenger rail service

7-14-08

# Port Projects

- NIT Central Rail Yard Expansion
- Craney Island Rail Connection
- Norfolk/Portsmouth Beltline Railroad Improvements

| Ports of Hampton Roads Project Costs | |
|---|---|
| Project | Costs |
| NIT Central Rail Yard Expansion | $40.15 million |
| Craney Island Rail Connection | $130 million |
| Norfolk Portsmouth Belt Line Railroad | $8.75 million |
| **Total Costs** | **$178.9 million** |

7-14-08

PORT PROJECTS

# Norfolk International Terminal (NIT) Central Rail Yard Expansion (Route 460)

*Project Cost: $40.15 million*




## At a Glance

:: Diverts port shipments from truck to rail

:: Nearly doubles today's on-terminal rail handling capacity

**NIT Central Rail Yard Expansion Development Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | complete |
| Preliminary Engineering | complete |
| Final Design | Summer 2009 |
| Construction | Summer 2009 |
| Operation | Fall 2010 |

## Annual Benefits



Removes 180,310 trucks from Virginia highways



Saves over 24.3 million gallons of fuel



Saves 47,072 tons of $CO_2$ emissions

7-14-08

PORT PROJECTS

# Craney Island Rail Connection (Route 460)

*Project Cost: $130 million*




## At a Glance

:: Three-phase project that builds on I-664/Route 164 Median Rail Safety Relocation Project

:: Adds rail capacity to major new port facility

:: Supports transport of approximately 50 percent of projected 1.43 million containers through this facility

**Craney Island Rail Connection Development Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | 2010 |
| Preliminary Engineering | 2010 |
| Final Design | 2011 |
| Construction | 2013 |
| Operation | 2017 |

## Annual Benefits



Removes 848,571 trucks from Virginia highways



Saves over 114 million gallons of fuel



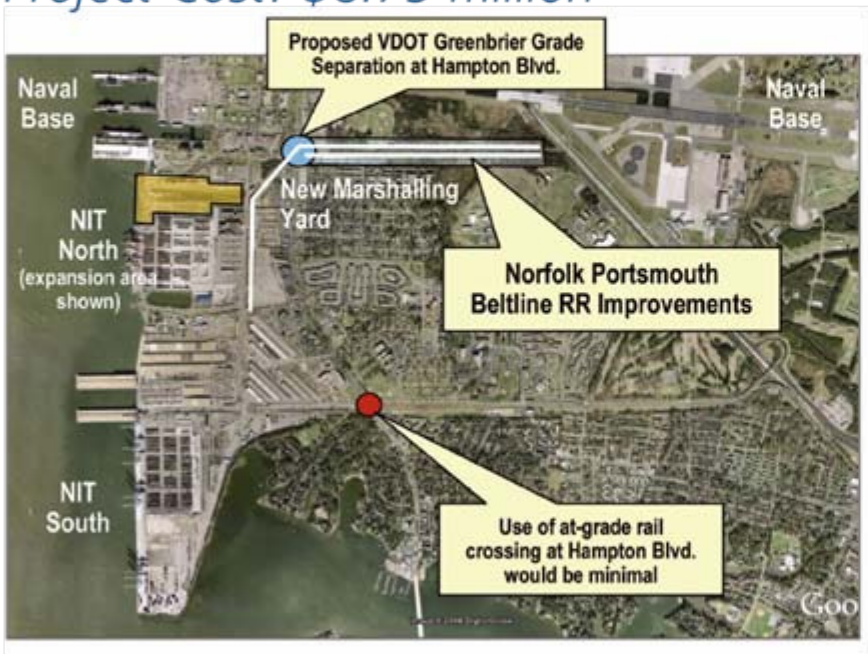
Saves 221,528 tons of $CO_2$ emissions

7-14-08

PORT PROJECTS

# Norfolk Portsmouth Belt Line Railroad Improvements (Route 460)

*Project Cost: $8.75 million*




## At a Glance

:: Complementary to the NIT Central Rail Yard Expansion

:: Adds off-site marshalling yard, separating highway traffic from train movements

:: Improves operating efficiency of trains traveling to and from on-terminal railyard

**Norfolk Portsmouth Belt Line Railroad Development Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | Summer 2008 |
| Preliminary Engineering | Fall 2008 |
| Final Design | Summer 2009 |
| Construction | Fall 2010 |
| Operation | 2011 |

## Annual Benefits



Eliminates 12,852 hours per year of delays (based on 18 train crossings per day) at an existing at-grade crossing at NIT and Hampton Boulevard

7-14-08

# Port Project Results

- Increases rail capacity and provides competitive port shipping services
- Diverts more port shipments from truck to rail to help manage highway congestion
- Supports the transport of up to 50% of projected containers at Craney Island
- Nearly doubles today's on-terminal rail handling capacity at Norfolk International Terminal
- Improves rail crossing safety

7-14-08

# Passenger Rail Projects

| Passenger Rail Project Costs | |
|---|---|
| Project | Costs |
| Commuter Rail Alexandria to Manassas | $8.25 million |
| Commuter Rail Gainesville to Haymarket | $281 million |
| Commuter Rail Fredericksburg to Washington, DC | $470 million |
| Intercity Rail Urban Crescent | $757 million |
| Intercity Rail TransDominion Express | $206 million |
| **Total Costs** | **$ 1.7 billion** |

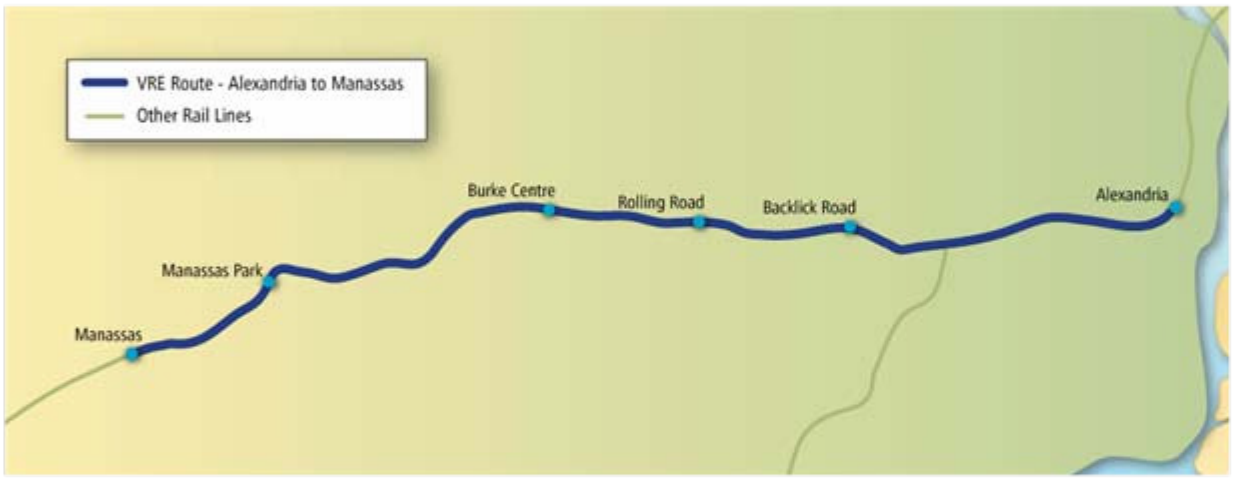
- Commuter Rail Improvements (I-66 and I-95):
  - VRE Alexandria to Manassas (I-66)
  - VRE Manassas to Gainesville/ Haymarket Expansion (I-66)
  - VRE Fredericksburg to Washington, DC (third track)
- Intercity Rail:
  - Urban Crescent Express (I-64 and I-95)
  - TransDominion Express (TDX) (I-81 and Routes 29/460)

7-14-08

PASSENGER RAIL PROJECTS

# VRE Alexandria to Manassas (I-66)

*Project Cost: $8.25 million*




**Alexandria to Manassas Route Development Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | N/A |
| Preliminary Engineering | N/A |
| Final Design | N/A |
| Construction | 2009 |
| Operation | 2014 |

## Annual Benefits



Removes 53,091 cars from Virginia highways



Saves over 24.3 million gallons of fuel



Saves 47,072 tons of $CO_2$ emissions

## At a Glance

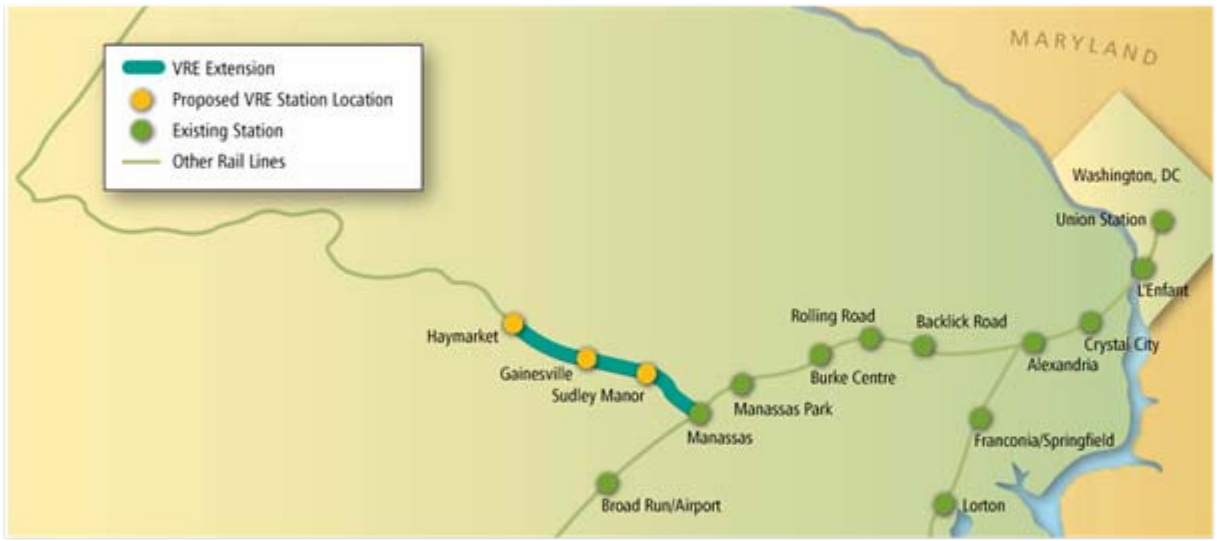
:: Upgrades track and improves the reliability of VRE operations by enabling increased train speed

7-14-08

PASSENGER RAIL PROJECTS

# VRE Gainesville to Haymarket Expansion (I-66)

*Project Cost: $281 million*




**Gainesville to Haymarket VRE Expansion Development Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | Winter 2011 |
| Preliminary Engineering | Fall 2011 |
| Final Design | TBD |
| Construction | TBD |
| Operation | TBD |

## Annual Benefits



Removes 430,556 cars from Virginia highways



Saves 1.7 million gallons of fuel



Saves 7,756 tons of $CO_2$ emissions

## At a Glance

:: Studies viability and potential locations of future passenger rail stations between Manassas and Gainesville/Haymarket

:: Requires extensive upgrading of existing freight line for passenger rail service

:: Next steps are additional environmental review and preliminary design

7-14-08

PASSENGER RAIL PROJECTS

# VRE Fredericksburg to Washington, DC Improvements (I-95, I-395, I-495)

*Project Cost: $470 million*




## At a Glance

:: Expands rail service and improves existing service through signalization, station and rail infrastructure improvements, including:

- Automatic train control cab signalization
- VRE second platforms at Woodbridge, Lorton and Rippon Stations
- Arkendale to Powell's Creek third track and station
- Capacity improvements between Franconia/Springfield and Fredericksburg, excluding major bridges

**Fredericksburg to Washington, DC Rail Improvement Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | 2008 |
| Preliminary Engineering | 2009 |
| Final Design | TBD |
| Construction | TBD |
| Operation | TBD |

## Annual Benefits



Removes over 1.4 million cars from I-95 Corridor



Saves over 7.9 million gallons of fuel



Saves 46,877 tons of $CO_2$ emissions

7-14-08

PASSENGER RAIL PROJECTS

# Urban Crescent Express (I-64, I-95, I-295, Route 460)

*Project Cost: $757 million*




## At a Glance

:: Freight and passenger rail improvements between Fredericksburg, Richmond and Newport News

:: Station improvements, including the facilitation of transit-oriented development near stations

:: Best passenger rail ridership increase opportunity in Commonwealth, potentially doubling Amtrak corridor ridership by 2015

**Urban Crescent Express Project Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | 2008 |
| Preliminary Engineering | 2009 |
| Final Design | TBD |
| Construction | TBD |
| Operation | TBD |

## Annual Benefits



Removes over 1.3 million cars from Virginia highways



Saves over 9.5 million gallons of fuel



Saves 62,072 tons of $CO_2$ emissions

7-14-08

PASSENGER RAIL PROJECTS

# TransDominion Express (TDX) (I-81 and Routes 29/460)

*Project Cost: $206 million*




## At a Glance

:: Enhances mobility along the Route 29, I-81 and Route 460 corridors by improving infrastructure to support higher speeds for passenger rail

:: Phase I: Washington, DC to Lynchburg

:: Phase II: Lynchburg to Roanoke

:: Phase III: Roanoke to Bristol

:: Phase IV: Lynchburg to Richmond

**TransDominion Express Project Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | 2008 |
| Preliminary Engineering | 2009 |
| Final Design | 2009 |
| Construction | 2010 |
| Operation | 2010 |

## Annual Benefits (Phase I Only)



Removes 53,091 cars from I-81 and Route 29 Corridors



Saves over 164,637 gallons of fuel



Saves 983 tons of $CO_2$ emissions

7-14-08

# Passenger Rail Project Results

- Supports more frequent service in the Urban Crescent between Washington, DC, Richmond and Newport News
- Supports more frequent service in the Route 29 corridor between Lynchburg and Washington, DC, and implementation of Phase 1 of the TransDominion Express
- Supports expansion of VRE service between Manassas and Gainesville/Haymarket
- Supports new service, station improvements, travel time improvements and more frequent service along existing routes
- Upgrades track and other facilities/infrastructure for higher speed service

# High Speed Rail Project (I-95, I-295, I-495, I-85, I-64, Route 460)

| High Speed Rail Project Costs | |
|---|---|
| Project | Costs |
| Southeast High Speed Rail Project | $1.2 billion |
| **Total Costs** | **$1.2 billion** |

- High speed rail service between Washington, DC and Raleigh, NC
- Total cost does not include the cost of major river and stream crossings
- Total cost does not include the cost of electrification and improvements between Richmond and Washington, DC

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HIGH SPEED RAIL PROJECT

# Southeast High Speed Rail Project (I-95, I-295, I-495, I-85, I-64, Route 460)

*Project Cost: $1.2 billion*




## At a Glance

:: Studies higher speed rail connections between Hampton Roads and Richmond's Main Street Station to Washington, DC

:: Also studies creating high speed rail corridor between Washington, DC and Raleigh, NC

:: Pending legislation in U.S. Congress could impact feasibility of program

**Southeast High Speed Rail Project Status**

| Task | Proposed Completion Dates |
|---|---|
| Planning and Analysis | 2011 |
| Preliminary Engineering | 2011 |
| Final Design | TBD |
| Construction | TBD |
| Operation | TBD |

## Annual Benefits



Removes over 1.1 million cars from Virginia and North Carolina highways



Saves over 5.6 million gallons of fuel



Saves 33,713 tons of $CO_2$ emissions

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# Total Project Benefits

- Total public benefits of the potential projects are as follows:
  - 7.3 million cars and trucks removed from highways
  - 445 million gallons of fuel saved
  - 1.2 million tons of carbon emissions saved

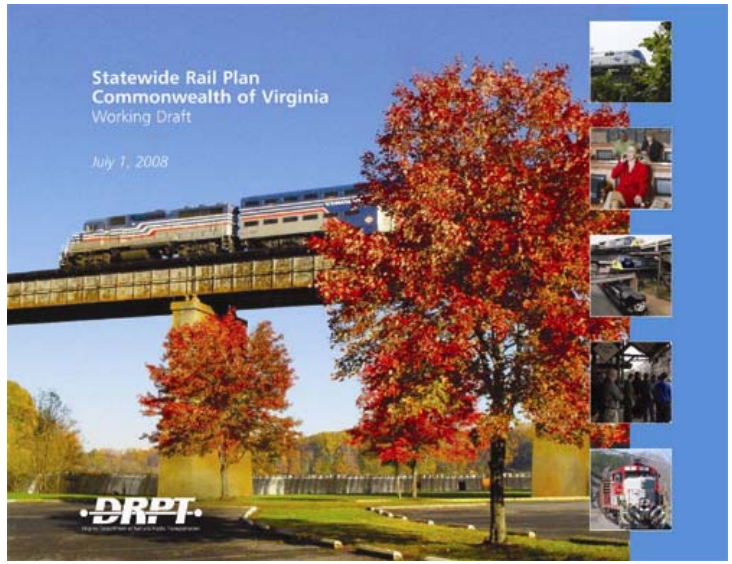
# Project Funding

- The capital cost of all proposed projects is approximately $5 billion, and current estimated available state funding from 2009 to 2035 is $1.3 billion
- Commonwealth's rail programs foster the sharing of costs and benefits
- Potential sources of funds:
  - Railroads
  - Commonwealth of Virginia, from dedicated funding sources as well as special allocations
  - Local jurisdictions, including current Northern Virginia contribution of 13 percent of VRE operating costs
  - Federal funding, including potential Amtrak bills that include state grants for intercity rail improvements
- Operating costs and other funding elements will be identified in the Rail Action Plan

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# Next Steps

- Key Actions
  - Draft Plan released for public comment in July 2008
    - Five public meetings statewide
    - Available online: http://www.drpt.virginia.gov
  - Rail Action Plan issued in September 2008
    - Includes funding strategies, proposed allocation of resources and project implementation schedules
    - Public comments accepted
  - Statewide Rail Plan finalized in November 2008




- Future Rail Plan Updates:
  - Six Year Improvement Program yearly update
  - Comprehensive update on a five-year basis as a part of VTrans

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