

Section 1

Study Purpose and Approach

Issues

A mainline railroad carries freight trains through the Monumental Core of Washington, DC. The rail line's location and configuration cause significant problems:

- Proximity to the seat of the federal government and national symbolic sites creates serious security concerns because of the transport of hazardous materials.
- Outdated railroad infrastructure impairs railroad operations and constrains the movement of goods and people along the East Coast.
- Alignment of the railroad within historic street rights-of-way and through parks, employment areas, and neighborhoods disrupts the fabric of the nation's capital.

The rail line's location in the heart of Washington is shown in Figure 1-1. The line slices through the Southwest Federal Center, the location of twelve federal-agency headquarters buildings; runs within four blocks of the United States Capitol; and travels through densely populated residential neighborhoods.

The line's location raises security concerns because railroads carry hazardous materials. Railroads are a safe method of transport, but hazardous materials on this rail line would be a tempting target for attack because the line is in the Monumental Core. An attack here could have dramatic effects:

- Significant loss of life. An attack would jeopardize the lives of many federal employees, elected officials, and nearby residents—more than 100,000 federal employees work within a half-mile of the line, and more than 54,000 people live in this same area within Washington, DC.
- Large economic losses. An attack could damage not only the rail line but also adjacent government offices and public facilities. Crippling the rail line would inhibit regional commerce, and wrecking buildings would interfere with the operation of government.
- Damage to national iconic structures. An attack would strike at Washington's Monumental Core, the symbolic center of the nation's governance.

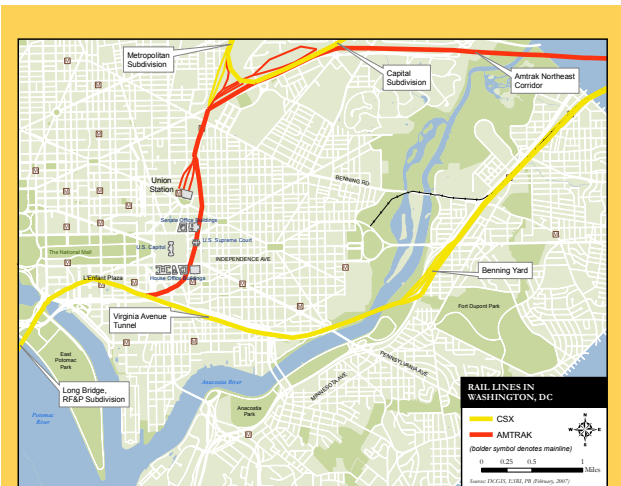


Figure 1-1. Washington, DC Railroads

Hazardous materials could provide the means for an attack, but it is the line's location that could make an attack effective.



Figure 1-2. Freight Tanker Car in front of U.S. Capitol (Sierra Club)

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The result would register powerfully in the public consciousness.

Substantial efforts have been expended over the past few years to increase security in Washington, DC. Barriers have been installed to reduce the threat of intrusion on buildings and public places. Truck movements and parking have been restricted. Monitoring and public awareness have increased. Yet this rail line continues to carry freight through the Monumental Core, where hazardous materials could provide the means for an attack.

The outdated design of the rail line hampers interstate commerce and regional mobility because it is a bottleneck in railroad operations along the East Coast. The Long Bridge, the only rail crossing of the Potomac River within 70 miles of Washington, DC, is a major choke point because it carries only two tracks. The Virginia Avenue tunnel has only a single-track, and its limited clearance prevents the operation of double-stack container trains, which carry high-value, time-sensitive commodities elsewhere in the nation's rail system. The line is single-tracked in places, requiring trains to idle while waiting for clearance, not only reducing their efficiency but also increasing opportunities for trains to be attacked. South and west of Union Station, this line also carries Amtrak and Virginia Railway Express service, so freight and passenger trains must share limited track capacity, creating more delays and reducing reliability for freight and passenger service alike. These problems are not the only ones that affect railroad operations along the East Coast, but they must be solved to allow the railroad system to meet increasing demands for freight and passenger service.

Finally, the line intrudes upon Washington's civic spaces, parks, and neighborhoods. In the Monumental Core and through the Capitol Hill neighborhood, the rail line breaks the city's street grid by occupying rights-of-way designated for Maryland and Virginia Avenues in the historic L'Enfant Plan for the Capital City. Bridge structures that carry the rail line block vistas of the Capitol. The rail line bisects

Anacostia Park, the focus of restoration efforts by the National Park Service and others through the Anacostia Waterfront Initiative. In short, the rail line is an industrial land use that is incompatible with the activities and development that surround it. Its effects harm not only the region's residents but also visitors because it degrades their experience of the nation's capital.

Study Objectives

In response to these issues, the National Capital Planning Commission and the District of Columbia Department of Transportation partnered to conduct this study to determine the feasibility of relocating the freight rail line as a long-term solution to rail-related security issues. The identification and analysis of alternative railroad alignments in the study were guided by these objectives:

1. Mitigate security concerns related to the proximity of the current system to the Monumental Core of Washington, DC and the U.S. Capitol.
2. Eliminate the impediments to public access of the Anacostia River created by the current alignment.
3. Accommodate state-of-the-art railroad infrastructure.
4. Accommodate the expansion of the passenger and freight capacity within Washington, DC region of the East Coast rail corridor.

Historic and Planning Context

Development of the rail line in this study began in the 19th Century. The existing rail line combines segments of earlier lines built by several companies at different times.

Railroads first came to Washington in 1835 when The Baltimore & Ohio Railroad (B&O) opened a line from Baltimore. The planned but mostly unbuilt L'Enfant Plan street system offered railroad companies attractive opportunities for straight rights-of-way to carry the new tracks.

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The B&O had exclusive rights to provide service to Washington, but the B&O's archrival, the Pennsylvania Railroad (PRR), was able to reach Washington by acquiring the Baltimore and Potomac Railroad (B&P) in 1867. The B&P had been chartered in 1853 with the intention of linking the port and industry of Baltimore with the agricultural lands in southern Charles County, Maryland. The B&P line was to be built from Baltimore to the southwest as far as Bowie, then along the alignment of what is now the Pope's Creek Branch rail line, parallel to what is now U.S. 301, until it reached Pope's Creek near the mouth of the Potomac.

Taking advantage of a provision in the B&P charter that allowed the railroad to build branch lines up to 20 miles long in any direction from the main line, the B&P's new owners immediately started construction of a "branch line" from Bowie to Washington. This alignment was basically the same as what is now the Amtrak main line as far as Landover. From there south, the alignment was part of the rail line in this study, swinging around the east side of the city through the Benning area, crossing the Anacostia River, and approaching the city center from the southeast. The line opened for passenger and freight service in July 1872.

In 1862 tracks had been laid on the all-wood Long Bridge across the Potomac River, near the site of the present Long Bridge. Congress gave the PRR the rights to use the Long Bridge in 1870. To remain competitive, the B&O built a branch line from Hyattsville to connect with the PRR at Benning, creating another segment of the rail line in this study, and negotiated with the PRR for use of the Long Bridge. In 1904 the present double-track, 13-span steel Long Bridge replaced the single-track wooden bridge.

The railroad main lines have not changed much in the past hundred years, but the corporate structures that operate the railroads have changed considerably. In 1963 the Chesapeake and Ohio took control of the B&O, eventually becoming CSX Transportation. The PRR merged with the New York Central in



Figure 1-3. Vision for the Monumental Core

The basic strategy is to replace obsolete structures with improvements that benefit large areas of the District, coordinating these efforts whenever possible to coincide with the District's plans for rebuilding neighborhoods or reclaiming the waterfront. The goal is not only to improve movement through the city, but also to allow the city to grow from within.

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1968, but by 1970 the newly formed Penn Central was in bankruptcy. The Railroad Revitalization and Regulatory Reform Act of 1976 folded the Penn Central and five other bankrupt railroads into a new corporation, the Consolidated Rail Corporation (Conrail). In 1999 CSX Transportation and Norfolk Southern Corporation acquired the Conrail lines and absorbed them into their systems. CSX Transportation now owns the rail line in this study, including a segment acquired from Conrail.

Several current plans and recent studies address the rail line and its surroundings:

The most specific proposal for modifying the rail line is in *Extending the Legacy, Planning America's Capital for the 21st Century*, the National Capital Planning Commission's 1997 vision plan for accommodating growth and change in the nation's capital. The plan's central theme is a redefinition of Washington's Monumental Core to refocus on the Capitol, encompass nearby areas, and connect to the city's waterfront. The plan envisions placing the rail line in a tunnel as part of an effort to reduce the barriers in the Monumental Core:

Removing the antiquated rail line along Maryland and Virginia Avenues and relocating freight and passenger trains to a new tunnel under the Potomac River will eliminate many disruptive barriers, including the aging rail bridge over the Anacostia. This new tunnel would run from just south of National Airport to Anacostia, with a passenger spur continuing on to Union Station.

The basic strategy is to replace obsolete structures with improvements that benefit large areas of the District, coordinating these efforts whenever possible to coincide with the District's plans for rebuilding neighborhoods or reclaiming the waterfront. The goal is not only to improve movement through the city, but also to allow the city to grow from within. Relocating antiquated rail lines and burying divisive freeways will create hundreds of acres of developable land that the District needs

to compete with the suburbs. Having choice building sites in the heart of the city—near public transit and within walking distance of museums, stores and restaurants—could be the urban opportunity that many corporations and government agencies are looking for.

-NCPC, *Extending The Legacy*

The *Anacostia Waterfront Initiative Framework Plan*, published in September 2003, is a guide to reclaiming the river, the waterfront, and its surrounding neighborhoods. The Anacostia Waterfront Initiative is a joint effort of 20 federal and local agencies to unify diverse waterfront areas in the District of Columbia into a cohesive and attractive mixture of recreational, residential, and commercial uses. The Anacostia Waterfront Initiative seeks to create environmental, transportation, parks, cultural, and neighborhood improvements across 4.4 square miles along the Anacostia River.

The Framework Plan cites with approval NCPC's recommendation to relocate the railroad, noting, "The Legacy Plan of the National Capital Planning Commission (NCPC) recommends that the main line be relocated, providing a valuable corridor for alternative modes of local transportation, eliminating substantial barriers to the river, and opening up potential development sites."

The Mid-Atlantic Rail Operations Study (MAROPS) was undertaken because growth in transportation volumes is causing capacity and congestion problems that are eroding the productivity of the transportation system. The study also addressed the need for closely controlled commodity flows and redundant transportation infrastructure to ensure national security and public safety. MAROPS was the joint effort of five states: New Jersey, Pennsylvania, Delaware, Maryland, and Virginia; the I-95 Corridor Coalition; and three railroads: Amtrak, CSX Transportation, and Norfolk Southern. The first study phase was completed in April 2002, and a second phase is now underway.

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MAROPS examined the deteriorating performance of the mid-Atlantic highway, aviation, and rail systems, and focused on improvements to the rail system. The study identified opportunities to better utilize the region's existing rail assets, formulated a program of systemwide rail investments, and recommended a public-private partnership to fund and implement the improvements. MAROPS found the mid-Atlantic rail system to be constrained by significant choke points and recommended 71 railroad infrastructure and information system improvements to relieve them, at a cost of \$6.2 billion.

Within Washington, DC, MAROPS identified the Virginia Avenue tunnel as a choke point and proposed reconstructing it as part of a near-term improvement program. The study recommended construction of additional tracks to eliminate conflicts between CSX and passenger trains. Because of the need for increased bridge capacity across the Potomac River, MAROPS recommended the construction of a new rail bridge over the Potomac River adjacent to the existing CSX Long Bridge and the addition of third and fourth mainline tracks feeding into the new bridge.

MAROPS identified significant public benefits from the proposed improvements across the mid-Atlantic region, including expanded capacity for passenger rail services; improved freight services at competitive rates for shippers; reduced pressure on highway capacity by shifting some growth in goods movement to rail; enhanced safety, reliability, and emergency response; greater ability to recover from freight service disruptions; and improved capability to support military mobilization.


As in Washington, freight and passenger rail operations in Baltimore are constrained by antiquated infrastructure, including a series of tunnels built in the late 1800s that reduce speed and capacity for CSX, Amtrak, MARC, and NS. In 2001, a CSX train carrying chemicals derailed and ignited a fire within the Howard Street Tunnel that raged for six days. The fire snarled East Coast freight and passenger rail

traffic and highlighted the vulnerability of Baltimore's aged infrastructure to safety and security incidents. Recognizing the need to upgrade rail facilities in the region, the Maryland Department of Transportation (MDOT) and the Federal Railroad Administration (FRA) commissioned a major study to identify alternative rail alignments through Baltimore. The Baltimore Regional Rail Corridor Study (BRRCS) suggested improvements that included new tunnels beneath the City of Baltimore and alternate alignments that would bypass the city. Improvements would enhance rail operations on the entire East Coast rail network by increasing speed, safety, and capacity, including adequate clearance for double-stack containers. The State of Maryland continues to examine the Baltimore alternatives and is moving forward with additional study activities leading to a final alignment selection and construction.

Study Approach and Methods

Addressing the security concerns related to transporting hazardous materials through the Monumental Core requires a new freight railroad alignment. In search of locations for a new alignment, the study collected and reviewed extensive information on existing rail lines, highways, and utility rights-of-way. Data on environmental characteristics, land uses, and locations of population and employment were compiled. Railroad facilities, operations, commodity flows, and freight customer locations were reviewed to create an understanding of the possibilities for modifying railroad services. Security factors were considered, including the locations and capabilities of present first responders. A geographic information system database was created to organize this information and to allow its evaluation.

Relocating this freight rail line to an alternative alignment away from the Monumental Core would allow the present right-of-way to be redeveloped in ways compatible with the surrounding areas. Redevelopment would heal the tear in the urban fabric the railroad now creates, create new development opportunities and open space, and produce revenue.



The potential for such redevelopment was assessed through both a technical analysis and a review by a panel organized by the Urban Land Institute.

Potential alternative alignments were defined and general construction costs and railroad operating characteristics were estimated for each. Through the comparison of the characteristics of the alignments three were determined to be viable alternatives.

A benefit-cost analysis was performed on the three viable alternatives to compare their advantages and disadvantages. The results, along with other security and environmental considerations, were used to rank the alternatives, indicating their relative merits. Finally, the next steps in the development of a new alignment were listed as a guide to moving forward.

Study Management and Coordination

The study was managed jointly by the District of Columbia Department of Transportation and the National Capital Planning Commission. Funding for the study was provided by an Urban Area Security Initiative grant from the U.S. Department of Homeland Security. Letters from stakeholder agencies in support of the grant application are in Appendix A, which is in a separate report volume.

The conduct of the study was coordinated through three groups that represented the broad set of interests that would be affected by a new

railroad alignment:

- The NCPC Interagency Security Task Force, a subset of the National Capital Planning Commission, reviewed the study's security implications.
- The Railroad Working Group, created specifically for the purpose of this study, included representatives of federal, state, regional, and local government agencies with responsibilities that would be affected by a new railroad alignment:
 - ◇ Federal Railroad Administration
 - ◇ Transportation Security Administration
 - ◇ Maryland Department of Transportation
 - ◇ Virginia Department of Rail and Public Transportation
 - ◇ Virginia Railway Express
 - ◇ District of Columbia Office of Planning
 - ◇ District Department of Transportation
 - ◇ Metropolitan Washington Council of Governments
- The Railroad Owner/Operators Group included CSX Transportation, which owns the existing rail line, Norfolk Southern Railroad, and Amtrak, all of whose operations would be affected.

A consultant team of PB, Cambridge Systematics, and Basile Baumann Prost performed the technical analysis.