Baltimore's Railway Tunnels

A long overdue, in depth study of functionally obsolete, but critically important railway infrastructure

Baltimore Chapter of LAI – October Meeting

On October 28, 2015 Jacqueline Thorne of the Maryland Dept. of Transportation gave the Baltimore Chapter of LAI an overview of Baltimore's existing railway tunnels, together with an overview of the current efforts to study how to upgrade the "Baltimore Bottleneck".

At present, the City of Baltimore has two significant train tunnels running beneath it – the Baltimore & Potomac (B&P) Tunnel and the Howard Street Tunnel. The B&P Tunnel is 1.4 miles long, was built in 1873, contains only 2 tracks, and is owned by Amtrak. Currently over 140 trains pass through this ancient piece of infrastructure daily, including 85 Amtrak trains, 57 MARC commuter trains, and 1 or 2 Southern freight trains. The B&P tunnel is a part of the "Northeast Corridor", a busy rail corridor that runs from Washington, DC to Boston. Trains that pass through this portion of the NE Corridor must slow significantly, hence the unfortunate moniker of the Baltimore Bottleneck appears justified. Train traffic on the NE Corridor is projected to continue increasing, making an upgrade to Baltimore's tunnel infrastructure increasingly critical.

As part of the American Recovery and Reinvestment Act of 2009, MDOT received a High-Speed Intercity Passenger Rail Program (HSIPR) grant of $60 million to complete a study on how best to alleviate the constipation caused by this troubled portion of the NE Corridor. The stated goals of the study are to complete an Environmental Impact Statement (EIS) and to complete 30% of the requisite engineering by June 30, 2017. Ms. Thorne and MDOT are now deep into the details of this effort. The HSIPR study has identified a potential new routes for the B&P Tunnel which would accommodate a 4 track tunnel as well as improving freight moving capacity by allowing for double stacked trains. Assuming this proposed new route eventually comes to fruition, the old, existing B&P Tunnel will be studied (as part of the HSIPR grant) for its potential to improve the capacity for freight, commuter and intercity passenger service (maybe a part of a much needed expansion of Bmore's anemic subway system?) Ms. Thorne opined that the cost of replacing the B&P Tunnel would be in the range of $4 billion. Such a staggering amount will obviously necessitate a cooperative effort using Federal, State and Amtrak's funding. It was suggested by someone at our meeting (who shall remain nameless) that the probable funding proportions would be 80% Fed, 10% State and 10% Amtrak.

Further complicating an already complex infrastructure situation, the aforementioned Howard Street Tunnel is also quite old and in need of upgrading (although it is not a part of the HSIPR study). The Howard Street Tunnel is 1.7 miles long, was built in 1895, also contains only 2 tracks, and is owned by CSX. This tunnel also suffers from slow speeds and capacity issues, like the B&P Tunnel. Maximum allowable safe speeds are 25 mph while the allowable speeds on other portions of CSX's Main Line are 55 mph. And traffic through the Howard Street Tunnel is projected to increase by a whopping 80% by 2050. This tunnel made national news in July, 2001 when a 60 car CSX freight train derailed inside it and caught fire, causing dense black smoke to spew forth for days. Despite what appears to be ample impetus to upgrade this dated infrastructure, CSX's position is that it is satisfied operating through the

tunnel in its current condition and has no plans to replace it. So, it appears the "ostrich" approach to ignoring our country's aging infrastructure isn't limited to just the political class in DC. – it includes some notable elements of the private sector as well.

As a long-time resident of Baltimore City, the writer was completely oblivious to these significant infrastructure issues existing right under my nose, or maybe more appropriately, my feet. I was quite shocked that someone who considers himself a reasonably well informed urbanite could be totally ignorant of a major transportation problem of this magnitude in my own city. Perhaps the periodic hew & cry about this country's infrastructure "crisis" isn't so much hyperbole after all. This situation made the crisis much more real to me. But at least we're now spending real money studying the Baltimore Tunnel problem, which means we'll get around to fixing it soon, right?

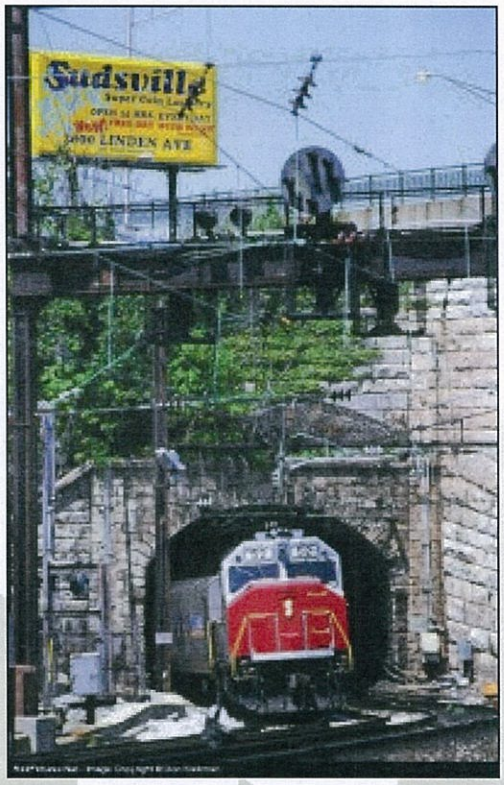
Winding up her presentation, Ms. Thorne advised the LAI audience that Amtrak's #1 priority is rebuilding the (also ancient) tunnels connecting New Jersey to NYC under the Hudson River. So any relief to the Baltimore Bottleneck would be secondary to upgrading the constantly overcrowded commuter infrastructure for the Big Apple. That is a thoroughly depressing realization for a Baltimorean, knowing there's not likely to be any resolution to an acute transportation problem in my City in my lifetime. So it goes in a country that's $19 Trillion in debt and will struggle to barely maintain its existing infrastructure status quo– but that's a subject for another time and place....

The Baltimore LAI chapter is grateful to Ms. Thorne and MDOT for her excellent presentation of such a significant issue.

A few of Ms. Thorne's key slides are attached for the reader's further edification.

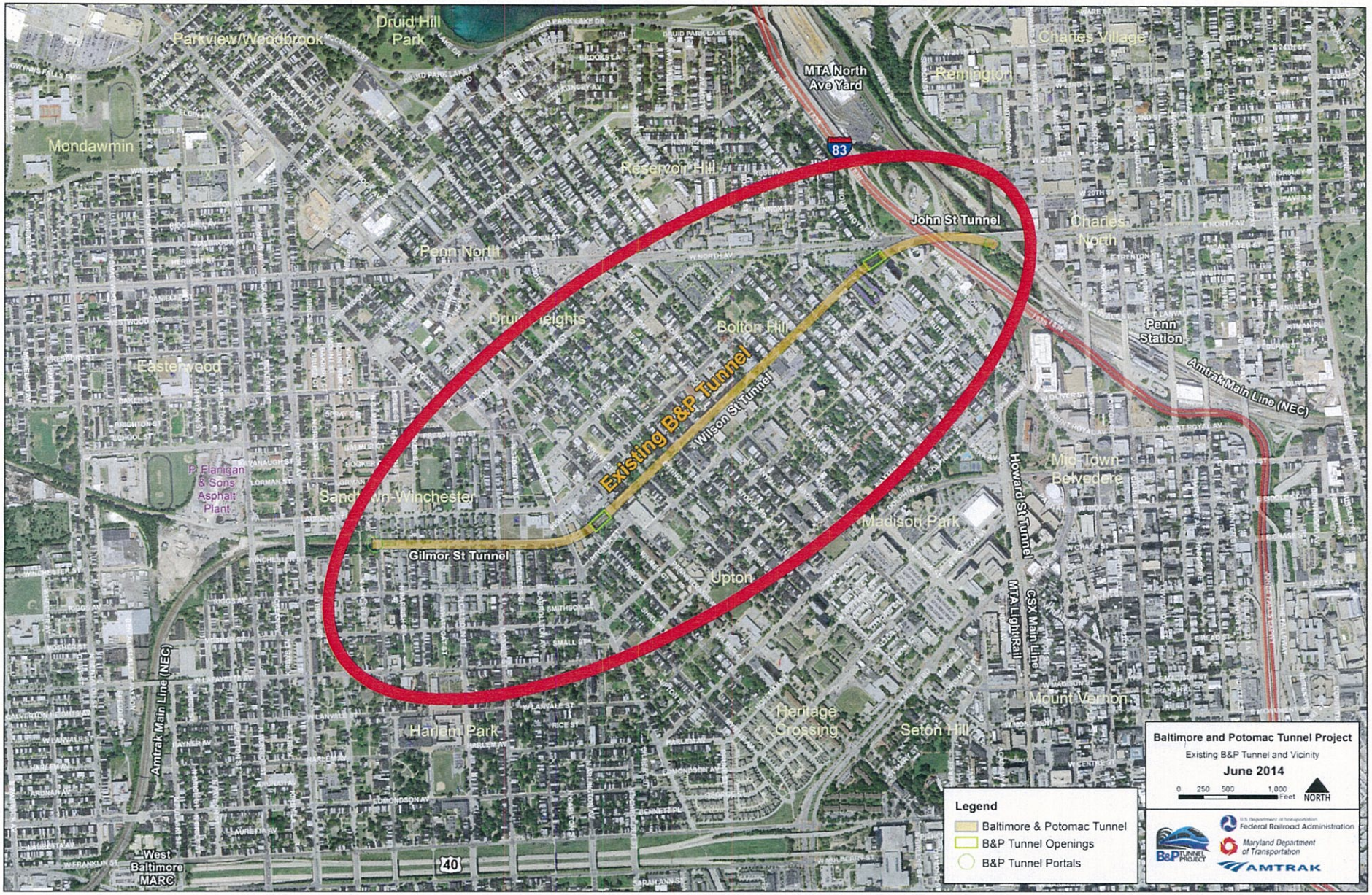
Amtrak's B&P Tunnel Today

- Amtrak's Baltimore and Potomac (B&P) Tunnel:
  - A 1.4 mile two-track rail tunnel,
  - Built in 1873,
  - Under the City of Baltimore,
  - Owned by Amtrak and currently used by over 140 trains per day
    - 85 Amtrak trains
    - 57 MARC commuter trains
    - 1 to 2 Norfolk Southern freight trains
  - Located on the Northeast Corridor (NEC), a busy rail corridor between Washington, DC and Boston, MA, known locally as the MARC Penn Line between Washington, DC and Perryville, MD.

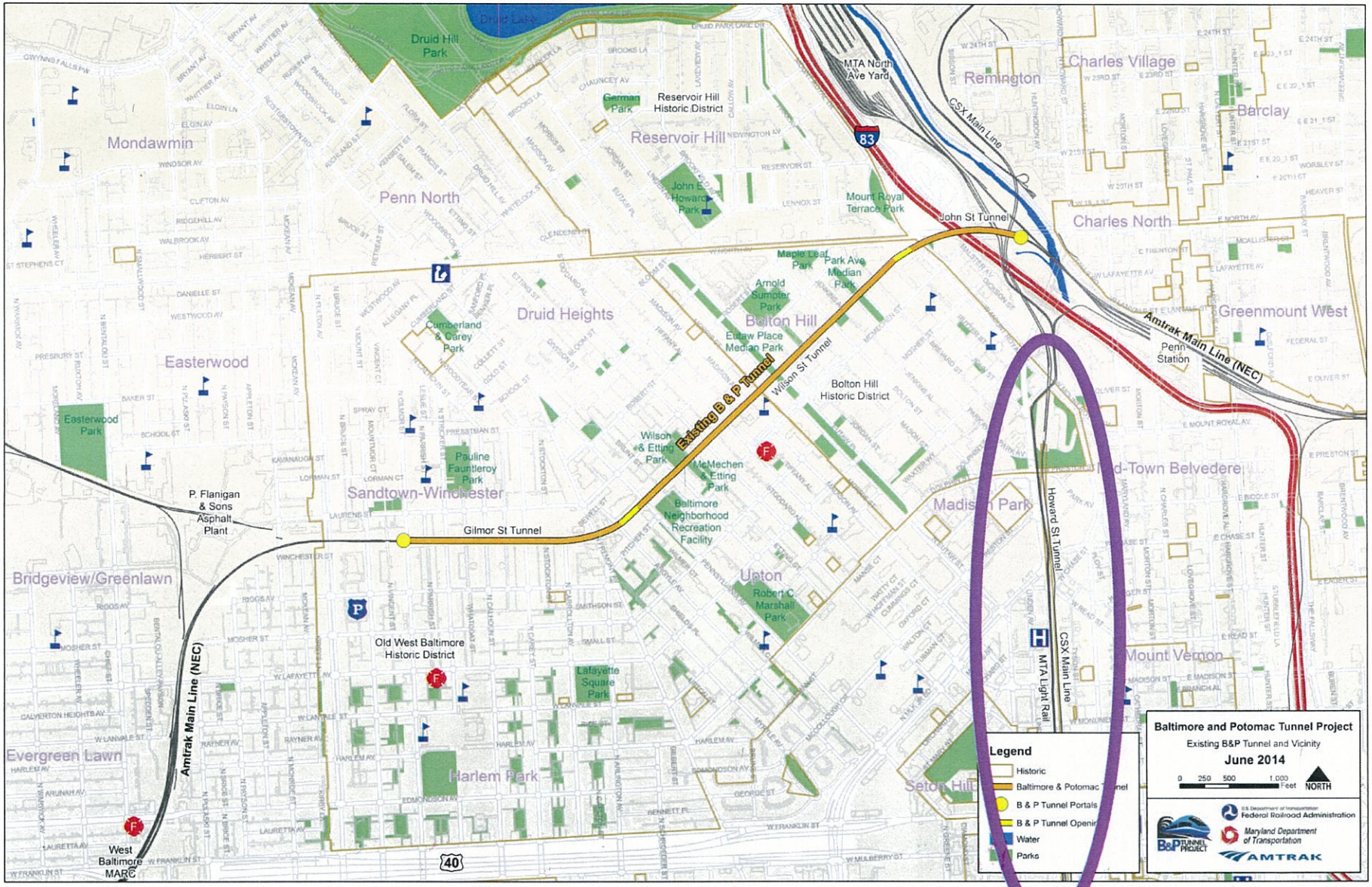


Maryland Department of Transportation

Amtrak's B&P Tunnel Today



CSX's Howard Street Tunnel



CSX's Howard Street Tunnel

- Owned and operated by CSX (East-West Alignment).
- A 1.7 mile tunnel through the heart of the City of Baltimore.
- Built in 1895.
- Suffers from similar speed, reliability and capacity constraints as Amtrak's B&P Tunnel.
- Maximum allowable speeds (freight): 25 mph
  - Other segments on CSX's Main Line: 55 mph
- Train traffic through the Howard Street Tunnel is anticipated to increase by 80% between 2008 and 2050:
  - 2008: 51 trains per day recorded
  - 2050: 92 trains per day anticipated

CSX's Howard Street Tunnel

- July 18, 2001 – 60-car CSX freight train derailment.
- CSX is satisfied operating through the tunnel in its current condition.
- CSX currently has no plans to replace its Howard Street Tunnel.

Maryland Department of Transportation

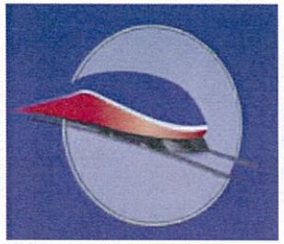
Addressing Freight Needs in the New B&P Tunnel

- Neither B&P nor Howard Street Tunnels can accommodate double-stack trains today.
- Currently, through Baltimore, NS operates on the NEC, and thus the B&P Tunnel, while CSX operates on its own rail network parallel to the NEC.
- CSX has rights to operate on the NEC between Washington, DC and New York (including through the B&P Tunnel) but does not exercise them, utilizing their Howard Street Tunnel.
- CSX and NS have both expressed an interest in being involved in the PE/NEPA study for the replacement B&P Tunnel.

Maryland Department of Transportation

The B&P Tunnel Project

U.S. Department of Transportation
Federal Railroad Administration



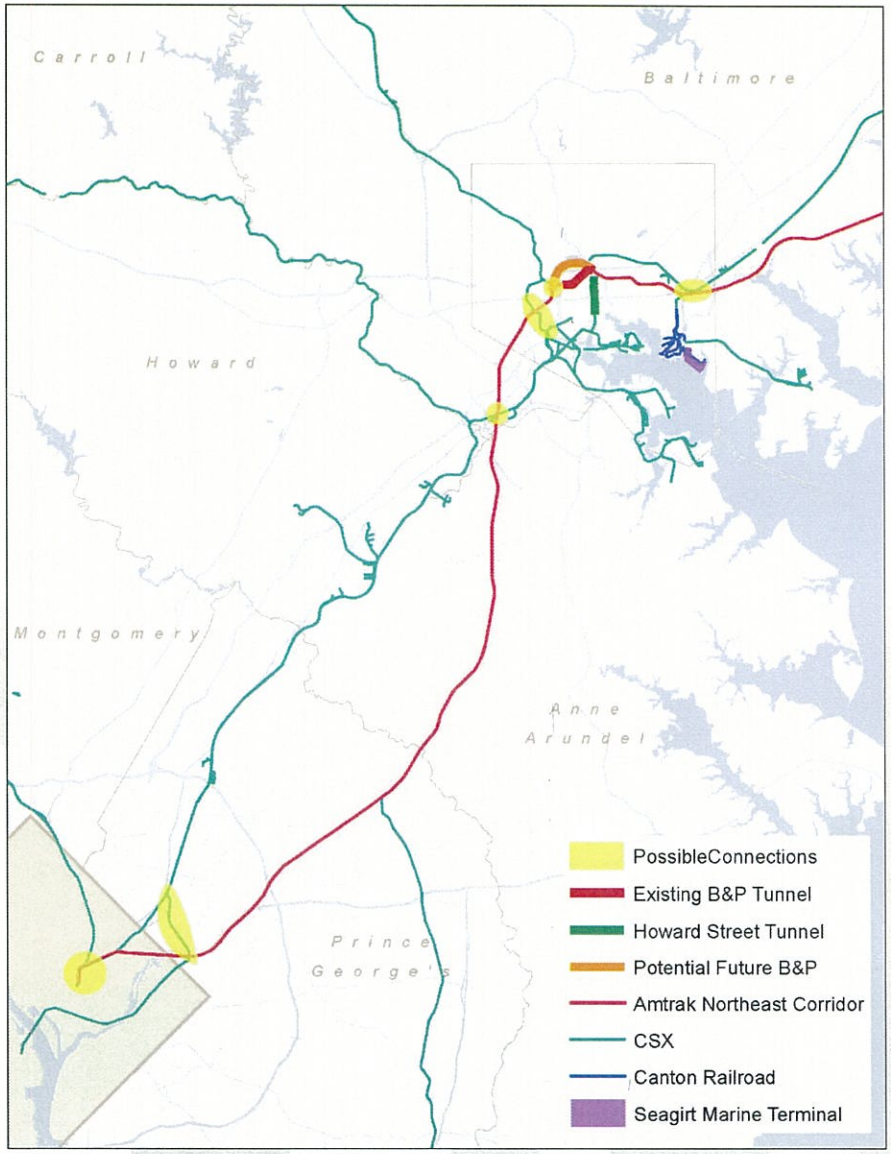
- MDOT received a $60 Million grant from the American Recovery and Reinvestment Act of 2009 (ARRA) to complete preliminary engineering (PE) and National Environmental Policy Act (NEPA) documentation for a new B&P Tunnel.
- PROJECT GOAL: Complete an Environmental Impact Statement (EIS) & 30 Percent Engineering / Design by June 30, 2017.
- PROJECT ELEMENTS:
  - New Tunnel – Alleviate short-term rehabilitation and maintenance costs, and allow for higher speed trains on up to four new tracks which will help meet the growing demands on the NEC.
  - Old Tunnel – Inspection and assessment of the existing tunnel for rehabilitation after the new tunnel construction to provide existing capacity for freight, commuter, and intercity passenger service.

Maryland Department of Transportation

Double Stack Capacity in the New B&P Tunnel

- Accommodating double-stack intermodal trains in the new B&P Tunnel is a long-term solution to the current lack of capacity.

- Challenges to overcome:
  - ARRA Timeline: June 30, 2017
  - Project Limits: West Baltimore MARC Station to Penn Station
    - Additional Clearance Projects
    - Freight Connections



Maryland Department of Transportation