

CASE STUDY

# Washington Metro Purple Line

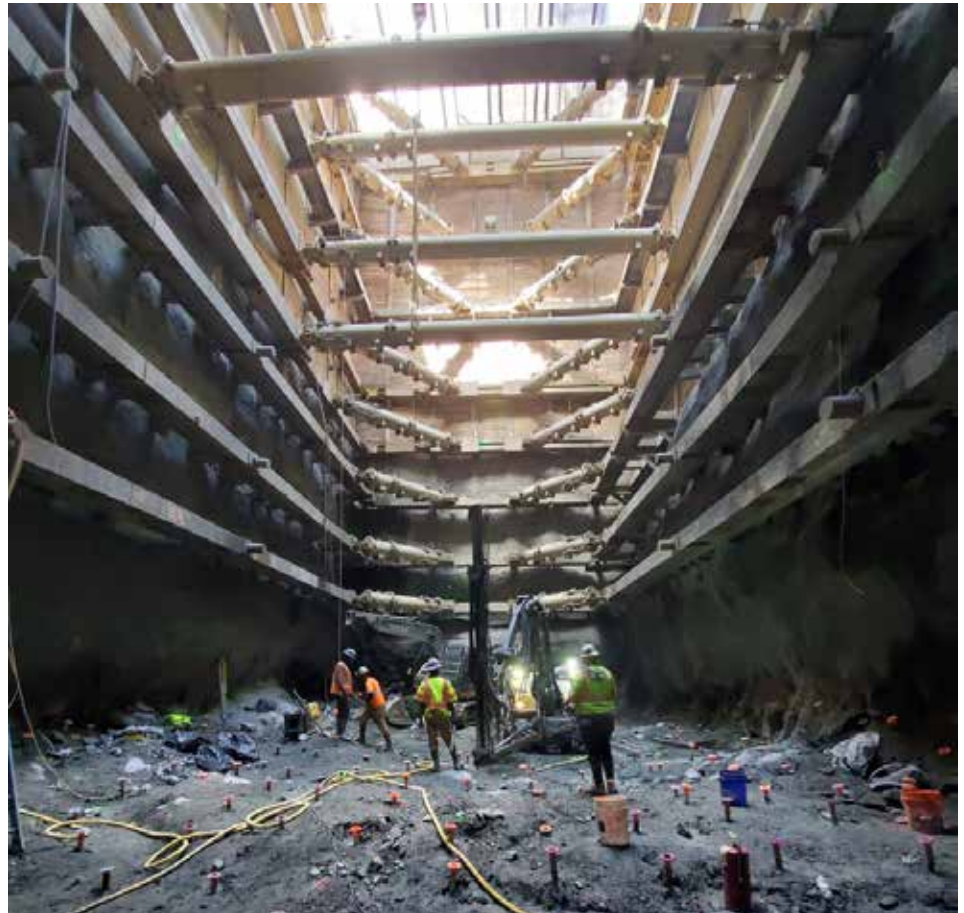
Silver Springs, Maryland

## HISTORY

Many of the suburbs of Washington, D.C. trace their roots to summer homes of the politicians of the time. The Blair, Lee, Jalloh and Barrie families were all very politically active, and are tied to the Silver Springs, MD area where the Blair family built their summer mansion that would stand for over 100 years.

The suburbs grew over the years, and by the 1950s, Silver Springs was the second busiest retail market between Baltimore and Richmond. In 1961, a two-mile segment of I-495, known as the Capital Beltway, was opened to traffic, with the final 64-mile segment open in 1964.

The Washington Metro Red Line rail service into Washington, D.C. opened a station in Silver Springs in 1978, running between the B&O Metropolitan's eastbound and westbound lines. Silver Springs is also serviced by the Brunswick Line of the Maryland Area Regional Commuter (MARC) train, Metrobus, and RideOn. Furthermore, the bus terminal at the Silver Spring Rail Station is the busiest in the entire Washington Metro Area, with nearly 60,000 passengers daily.



## PROBLEM

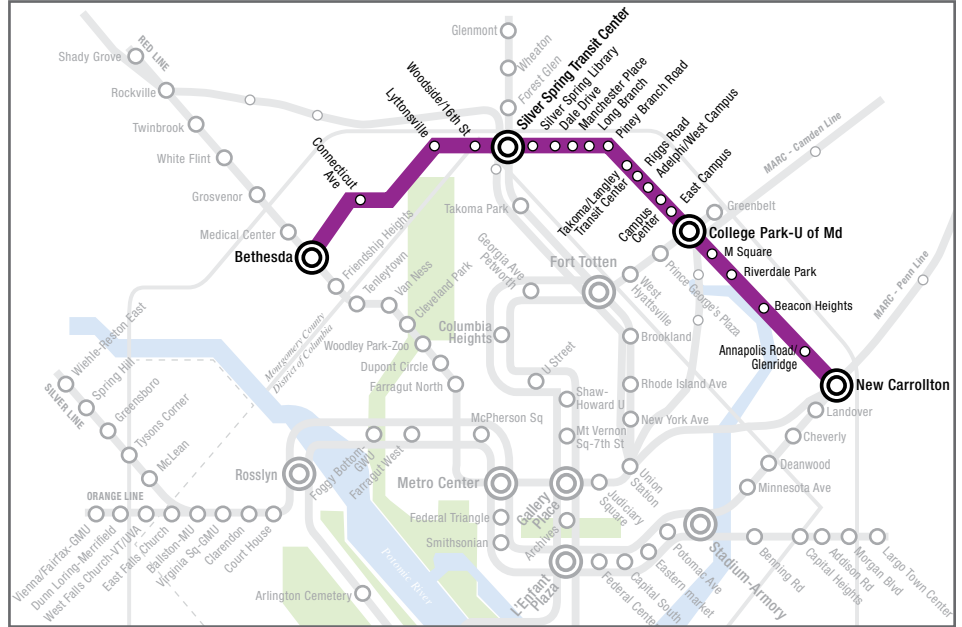
With suburban sprawl comes transportation issues, and the cities around the Washington, D.C. area were no different. Silver Springs, Bethesda, New Carrollton, and College Park were all in need of reliable, high speed transportation to and from D.C.

A new transit line, the Purple Line, was proposed. The line will run along the streets, with some portions either elevated or below grade, as needed depending on the topography of the surrounding areas. Because the line will cut through many cities, disruption



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Washington Transit Map

of normal traffic flow during excavation had to be kept to a minimum. One of the excavation sites required a depth of 150 feet.

## SOLUTION

The Purple Line Transit Constructors (PLTC), made up of Flour, Lane, and Traylor Bros, Inc. partnered with Nucor Skyline for their expertise in deep excavation shoring with wide flange beams. To date, PLTC has purchased over 2,000 tons of wide flange beams, all produced in Nucor-Yamato's Blytheville, AR mill. These beams, ranging in size from W14x109 through W27x258, are being used in many different capacities. The versatility of wide flange beams is what makes this a great product in projects of this magnitude.

Nucor Skyline wide flange beams were used as soldier beam support to connect a passenger transfer walkway to the elevators in the Purple

Line lobby entrance in the site that required the deepest excavation. The beams, many of which were supplied with fabricated tie points, were also used as soldier beam support in the entrance and exit of the tunneling operation. Throughout the 16.2 mile project site, wide flange beams are being used as retaining walls, some with shear studs attached for cast-in-place concrete facing.

The Purple Line will allow travelers to move between the Maryland branches of the Red, Green, and Orange lines of the Washington Metro without needing to ride into central Washington, D.C. and will also offer transfers to all three lines of the MARC commuter rail system.

## PROJECT PARTNERS

### Owner

Maryland Transit Administration

### General Contractor

Purple Line Transit Constructors – Riverdale, MD

## PRODUCT

Wide Flange Beams: W14x109 through W27x258 (2,000 tons)

## PROJECT TIME FRAME

2017 and continuing