



Metrorail on Track

Hand Mining: One of the Toughest Jobs on Silver Line Phase 2

As work on the Dulles Corridor Metrorail Project (DCMP) progresses and Phase 2 of Metro's Silver Line begins to take shape, some of the toughest work on the project is conducted underground, out of public sight. About 1,400 people currently are working on the project, which extends the Silver Line from the Wiehle-Reston East Station westward through Dulles International Airport and on to Ashburn.

To supply the rail line with needed utilities, such as water and electricity, project workers must tunnel beneath the Dulles Toll Road and Dulles Greenway to access the rail line in the median of those roads.

All along the project, dense rock known as diabase (granite) has challenged Capital Rail Constructors (CRC) crews attempting to dig out those tunnels. CRC is the group contracted to build the bulk of the project. The diabase is much denser than anticipated before work began. Project workers

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A CRC worker kneels in the tunnel where he is hand mining to carry utilities to and from the Silver Line Phase 2. (Photo courtesy of Capital Rail Constructors)

Did you know?

- Loudoun and Fairfax counties are footing the bills for parking garages for rail users in their respective counties.
- The largest rail yard in the Metro system is part of Phase 2. It is being built on a 90-acre site owned by the Metropolitan Washington Airports Authority near Route 606 and Mercure Business Park.
- Parking at Herndon Station will handle 3,500 cars (including the 1,950 spaces in the existing garage).
- Bike racks are located at each station except for Dulles Airport.



The first span for the pedestrian bridge has been delivered to Innovation Center south. (Photo courtesy of Capital Rail Constructors)

A Big Piece of the Action

The arrival of the first segment of one of many to be built, connecting Phase 2 rail stations to both sides of the Dulles Toll Road corridor, signaled major progress in construction in late October.

This large section arrived on the south side of the site where the Innovation Center Station is being built in the shadow of the Center for Innovative Technology

near Route 28 and the toll road. The bridges will be assembled on site and erected over the east and westbound lanes of the Dulles corridor using complex construction procedures that will demand major lane closings and shifts at each station site. Details of those erections will be announced well in advance.



Numbers Tell Story of Progress

Impressive numbers now tell the story of progress along the alignment of Phase 2 of the Dulles Corridor Metrorail Project, also known as the Silver Line.

Here's an update on the aerial work that has been done at Dulles Airport:

- All 197 drilled shafts have been completed.
- All 197 columns have been poured.
- 98 percent (182) of pier caps have been poured.
- 183 (62 percent) deck slabs have been poured.
- Crews continue to drill and set anchor bolts and bearings on the pier caps for girders on the guideway columns.
- Crews completed drilling Secant Piles for the Reston Land Bridge and completed pouring columns on the S-1 Guideway east of the future Dulles Airport Station. All Aerial Guideway Columns have been poured.
- The precaster continues to cast girders and prepare the girders for shipment to the site from the Coastal Precast facility.

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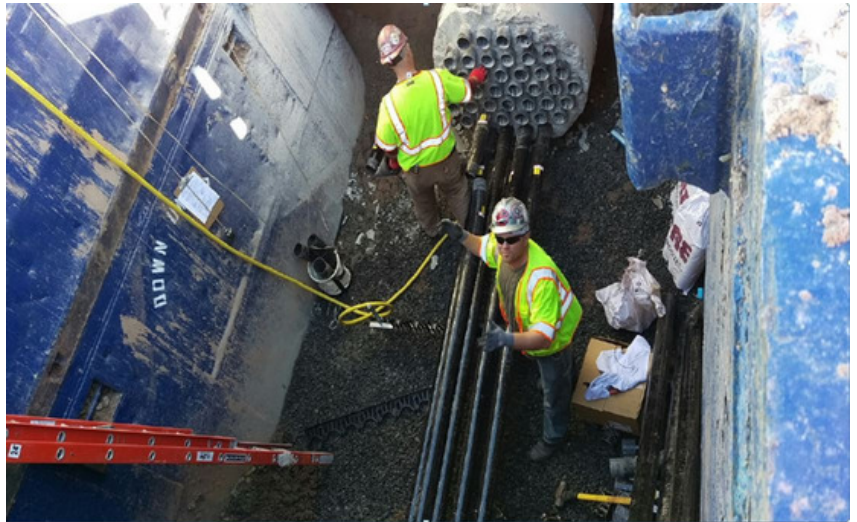
first began digging by a method called "jack and bore" using a large piece of equipment that drills horizontally through the earth without disturbing roadways. However, that process was not adequate to break through the hard rock along the rail line.

For many of the tunnels built roughly every mile along the Dulles Toll Road, CRC resorted to hand mining, an intensive process that requires workers to crawl into the tunnels and break out the rock bit by bit.

"That's all basically on their knees," said DCMP senior project manager Stephen Barna.

John Kearney, another DCMP senior project manager, emphasized that hand miners perform some of the most strenuous work on the job.

"Imagine crawling under your desk and digging through solid rock in that tight space on your knees



These CRC workers are near a completed utility duct tunnel along the Silver Line Phase 2 route. (Photo courtesy of Capital Rail Constructors)



This equipment, similar to a jackhammer, is used by construction crew to break through the incredibly dense rock along the Silver Line Phase 2 route.

for eight or more hours every day," Kearney said. Further, it's a job the public cannot see and therefore cannot appreciate.

"It's an unseen and thankless piece of work," he said. "No one understands what those miners go through. They work in more difficult conditions than most of the other trades and they have to work harder to complete these tunnels and get through their days."

Digging the tunnels is but one part of the process. As the workers push forward – some shifts making up to 8 feet of progress, others making only 3 inches per shift –

metal supports called liner panels are bolted around the tunnel and grout is used to fill in the gaps between the liner panels and rough, rocky walls. Once the tunneling is complete, utility lines or ducts are fed through the tunnel to supply the rail line with power, water and any other needed utility.

Next, utility line ducts are fed through the tunnel to supply the rail line with power, water and any other needed utility.

Finally, grout is poured to fill the spaces between and around the utility ducts.



Want to know more or set up a briefing? Visit www.dullesmetro.com, or call (703) 572-0506. To set up a briefing for your HOA, civic group or business, email outreach@dullesmetro.com. To report construction concerns, call our hotline: 1-844-385-7245