



## Silver Spring Transit Center

- **Location:** Silver Spring, MD
- **Completion Date:** July 2015
- **Contract Amount:** \$5,139,915

**Description:** The three-level, 259,000 SF Silver Spring Transit Center is built to serve over 30,000 commuters and includes access for vehicular traffic, terminals for bus services, passenger drop-off/pick-up, and pedestrian access to the rail station. Significant design and construction deficiencies were discovered. The composition of the concrete beams did not meet structural strength requirements and severe cracking posed concerns for the building's safety, long-term durability, and maintenance costs.

STRUCTURAL, recommended by KCE Structural Engineers, P.C. (KCE), was brought on to provide specialty contracting services to repair and strengthen the garage. Before remediation began, experts from STRUCTURAL TECHNOLOGIES worked with STRUCTURAL to provide preliminary investigations to review the scope of work.

Mockups of the girder cap tie and strut beam installations were completed and lessons learned from the mockups were incorporated into the work plan to ensure the proper installation practices during production.

Once the project began, the substrate over the girder was demolished and crews saw cut the perimeter edges. The ends of the existing beams were chipped and prepped to install the end dowels and to build rebar cages. Over 3,000 dowels and 2,000 cap ties were installed.

In total, 272 supplemental strut beams were required to strengthen the structure. Extensive scaffolding and shoring support was required to access the garage and perform the work. Crews installed formwork and pumped each beam with self-consolidating concrete (SCC). Epoxy injections were also used to repair cracks in the existing beams, girders, and columns along with slab cracks that extended from the roadway area to the sidewalk area.

One of the unique challenges of the project was getting the SCC up onto the scaffolding to pump the beams. Crews used a smaller pumping system with wide valves and shutoffs in order to complete the work. Working through winter months, temporary heating systems were used to ensure proper curing.

A quality control and assurance plan was developed specifically for each of the strut beams and included individual checklists for each beam. Crews did not move onto the next beam without each checklist milestone also being reviewed and approved by KCE and Robert B. Balter Company, the third-party inspector. STRUCTURAL's crews successfully completed the remediation ahead of schedule and under the original budgeted amount.



### PROJECT INFORMATION

- **Owner:**  
Washington Metropolitan Area Transit Authority (WMATA)
- **General Contractor:**  
Foulger-Pratt Contracting, LLC
- **Engineer-of-Record:**  
KCE Structural Engineers, P.C.
- **Specialty Contractor:**  
STRUCTURAL