

# SOUTHERN AVENUE BRIDGE REPLACEMENT

WASHINGTON, DC



**CLIENT:**

Federal Highway Administration  
(FHWA-EFLHD/DDOT)

**CONTRACT AMOUNT:**

\$7.7 million

**DELIVERY METHOD:**

Design-Build

**CONTRACTOR:**

Shirley Contracting Company

**DESIGNER:**

Wilbur-Smith Associates

**COMPLETION DATE:**

2007

The Design-Build team composed of Shirley Contracting Company, LLC, serving as the Design Manager and Contractor, and Wilbur-Smith Associates, serving as the Lead Designer, was selected by FHWA-EFLHD / DDOT team to design and construct the Southern Avenue Bridge Replacement Project in Washington, DC. This project required the replacement of the existing 390 foot steel bridge structure with a three span, 413 foot Cast-In-Place, Post Tensioned Box Girder bridge structure with parabolic arches, while maintaining two lanes of traffic at all times.

The Design-Build Team was responsible for all aspects of the design including demolition of the existing structure, maintenance of traffic plans, new bridge structure and relocation of existing utilities. The Team was also responsible for engineering and implementing all required scaffolding and false-work structures to support the box-girder superstructure during construction of the cast-in-place bottom slabs, walls and top slabs. The design included installation of 342 steel cables that were pushed through ducts that were cast into the box girder walls. Each cable was tensioned with over 9000 pounds of force until each strand was elongated over 34 inches giving the structure the strength it needed to span the 164 feet across Suitland Parkway. Once all post-tension cables were installed and tensioned, the false work structure and scaffolding could be removed. Because of the cast-in-place, box-girder design, this project took an immense amount of planning, engineering and hard work with the on-site Project Management team and Field Crews and close communication with the Engineers, Owner, On-site Inspectors and Subcontractors.

The Shirley Team managed all aspects of this project from start to finish including the Contractor Quality Control Program which was responsible for all on-site inspections, material testing and shop drawing/submittal reviews. All required documentation was delivered to FHWA and DDOT during and at the end of the Project to meet the requirements of the Contract Documents and Specifications. The project was extremely successful and was the winner of the 2007 ABC Excellence in Construction Award in the Heavy/Industrial/Transportation Construction category for the Washington DC Metro region.