

# Forest Avenue over Ravine Bridge Replacement



## PROJECT DESCRIPTION

Ciorba Group, Inc. was selected by the City of Highland Park to provide final design and construction engineering services for the replacement of a four span bridge. Forest Avenue is a local road carrying residential traffic in Highland Park and is on a horizontally curved alignment over the Ravine.

Previous bridge inspections indicated that the existing precast prestressed concrete (PPC) deck beam bridge had deteriorated significantly and required full replacement. The preliminary engineering report prepared by another consultant indicated that the bridge be replaced with a three span curved bridge on a new alignment to improve the roadway geometrics. At the beginning of the final design stage, Ciorba reviewed the preliminary engineering report and discovered a utility conflict with the proposed abutments and an 18" transmission water main.

Ciorba worked with IDOT to gain the additional funding necessary to relocate the water main and maintain the proposed alignment. Further coordination was also performed with the IDOT Bridge Office to revise the bridge layout proposed in the preliminary engineering report to a more efficient radial substructure which improved constructability.

The proposed bridge is a three span weathering steel plate girder on a 600' radius

horizontal curve. The bridge measured 181'-6" long at back to back abutments with span lengths of 54'-67'6"-54'. The proposed substructure are reinforced concrete hammerhead piers with heights up to 33' tall and reinforced concrete abutments on spread footings.

The 18" water main was relocated to the opposite side of the proposed bridge so it could be constructed without disrupting service. The water main was replaced between the closest valve vaults and was approximately 970' in length. As a part of this project, the steep slopes of the ravine were stabilized with gabions.

Construction engineering services involved attending a preconstruction meeting, coordinating with utility companies for any required adjustments to their facilities and observing the contractor's work for conformance with the plans and specifications. Other services included quantity measurements and documentation, preparation of any change orders and monthly pay estimates and project closeout. The Resident Engineer also interacted with local residents and City Officials to address any issues or concerns raised during construction.

The improvement was designed using LRFD code and was funded with STP-Bridge funding.

### LOCATION

Highland Park, IL

### CLIENT

City of Highland Park, IL

### CONTACT

Emmanuel Gomez, PE  
City Engineer  
847-926-1145

### CONSTRUCTION COST

\$2.8 Million

### PROJECT TEAM

Project Manager  
Brett Sauter, PE, SE  
Project Engineer  
Eric Spina, PE  
Lead Structural Engineer  
Alex Durbak, PE, SE  
Lead Water Resources Engineer  
Tony Wolff, PE, CFM  
Water Main Engineer  
Luke Mattson, PE  
Construction Manager  
Duane O'Laughlin, PE  
Resident Engineer  
Michael Kowalski, PE

### SCOPE OF SERVICE

- ▶ Final Design
- ▶ Construction Observation

### AWARDS

Outstanding Civil Engineering Achievement (under \$10 Million), American Society of Civil Engineers, Illinois Chapter

