

1998 Award of Merit: Highway Project

West Fordham Road Bridges Over Metro North Railroad And The Major Deegan Expressway

John - Congratulations
AM/1/98

DEVELOPMENT TEAM

GENERAL CONTRACTOR:
 DeFoe Corp., Mount Vernon, N.Y.

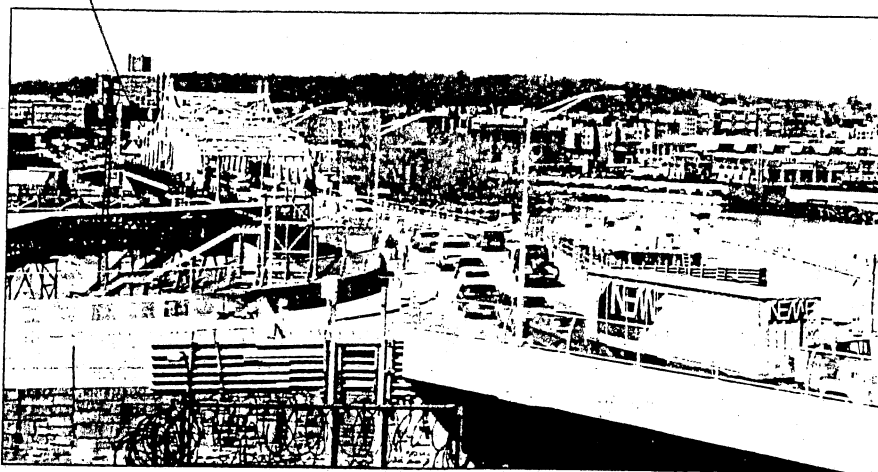
ENGINEER-OF-RECORD:
 Bettigole Andrews & Clark Inc., NYC

DESIGN ENGINEER:
 Gandhi Engineering Inc., NYC

INSPECTION CONSULTANT:
 Edwards & Kelcey Engineers, NYC

CO-OWNER:
 New York State Department
 of Transportation, Region 11,
 Long Island City, N.Y.

CO-OWNER:
 New York City Department of
 Transportation, NYC



This \$18 million project is located a few feet north of Metro North Railroad's University Heights station and 400-ft. east of the University Heights swing bridge over the Harlem River. Working closely in this heavily trafficked corridor, the development team's biggest challenge was to engineer and build three rebuild three bridges within a constricted urban site where traffic had to be maintained at all times. Movements to be maintained included about 600 trains daily, 30,000 vehicles on West Fordham Road, 80,000 vehicles on the Major Deegan Expressway and 500 daily pedestrian trips to access the railroad station. For the owners, the challenge was to ensure the development of a reconstructed facility to serve the public 30 years to 50 years after completion. Solutions developed to meet these challenges included the generation of design documents providing for the incorporation of advanced design standards and project phasing. To resolve the problem of a deficient clearance on the new bridge structures, the stringer depth for the replacement bridges was made uniform. The depth was pinched in over the railroad tracks to meet the railroad's requirement for an improved vertical clearance. A new substructure system was also developed. The system consists of four cantilever-type abutments built for the original bridges and modified to receive the new superstructures. This required intermediate supports of two new solid-shaft piers made of reinforced concrete constructed within the railroad track area and two solid-shaft piers of earlier vintage, which were modified to accommodate the new bridge decks after repairs were made. Modifications were also made to West Fordham Road's approach roadways and sidewalks. Four ramp terminals of the Major Deegan Expressway Interchange were reconstructed, and an elevator structure and bypass stairs joining the bridge deck with the passenger platform of the University Heights railroad station were constructed. The jury recognized this project for the development team's "mitigation of adverse impacts on public priorities," and for bringing the project in on time and under the estimates by both the co-owners and engineers.