

## North Broadway Avenue Bridge Design East Providence, RI

### Project Description:

#### Location

East Providence, RI

#### Owner

RIDOT  
David Fish  
2 Capitol Hill,  
Providence, RI 02903  
(401) 222-2053

#### Duration

2000 – Present

#### Prime/Sub

Sub

Bridge No. 479 is a one Span structure that carries North Broadway Ave. (Route 114) over the Ten Mile River in East Providence, Rhode Island. It has been determined by the Rhode Island Department of Transportation that the structure is structurally deficient. AI Engineers, Inc. performed the design services for the reconstruction of the above-mentioned bridge.

The existing horizontal and vertical alignment of the roadway will be maintained. However, the sidewalks north and south of the bridge will be reconstructed, existing granite curbing will be removed and reset, and the roadway pavement from approximately 35 feet south and 50 feet north of the bridge will be replaced. Given the short distance on the same alignment between the two Ten Mile River bridges (Bridge No 478 and Bridge No 479), the approach slabs of the two bridges will be linked with a pavement structure that has an 8-inch concrete base, thus eliminating the risk of roadway settlement behind the approach slabs .

It is anticipated that the construction of the bridge will be performed using a detour plan to detour the traffic and complete closure of the bridge during construction.

The abutments will be retrofitted to support the new super structure. Temporary supports will have to be provided for the telephone ducts under the east sidewalk, and for the 8-inch gas main line on the west side of the bridge. Also the overhead power lines located right above the west sidewalk will have to be relocated during construction, to allow sufficient clearance for the safe crane operation during girder replacement.

The existing super structure of the bridge will be replaced with AASHTO Voided butted precast prestressed concrete slab sections, which represents the most economical technical solution.

There are two coordinated designs, One for Bridge no. 479 and one for Bridge No. 478, approximately 70 feet south on the same alignment. Both bridges will be included in one construction contract as already defined in the RIDOT Scope of Work.



### Salient Features

- Superstructure Replacement
- Abutment Modifications
- Reconstruction of approaches
- Existing Utility Relocations