

ROUTE 7 BRIDGE
(Belleville Turnpike Bridge)
Route 7 (1AG) over the Passaic River
Belleville
Essex County
New Jersey

HAER No. NJ-127

HAER
NJ
7-BELVI,
8-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
U. S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

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Location:

Route 7 (1AG) over the Passaic River
Belleville
Essex County
New Jersey

UTM Coordinates: 18.571920.4515180
USGS Quad: Orange, New Jersey, 1:24,000

Date of Construction:

1914

Engineer, etc.:

Strauss Bascule Bridge Company

Present Owner:

New Jersey Department of Transportation

Present Use:

Vehicular and pedestrian bridge

Significance:

The bridge has been determined eligible for the National Register of Historic Places due to its well-preserved state and its significance as an example of an uncommon bascule bridge type built by a prominent bridge company.

Project Information Statement:

A proposed transportation project will result in demolition of the bridge. To mitigate the adverse effect, the State Historic Preservation Office stipulated documentation of the Belleville Turnpike Bridge. This documentation was undertaken to fulfill this stipulation.

Nancy Van Dolsen
Archaeological and Historical Consultants, Inc.
101 N. Pennsylvania Avenue, P.O. Box 482
Centre Hall, PA 16828

Summary Description of Bridge and Setting

This bridge carries Route 7 over the Passaic River, the boundary between Essex, Bergen, and Hudson Counties. The bridge is also at the junction of the boundaries among the three municipalities of Belleville (Essex County), North Arlington (Bergen County), and Kearny (Hudson County). The bridge carries the historic Belleville Turnpike over the river. The turnpike still serves as the major east/west artery through Belleville, North Arlington, and Kearny. The bridge joins the three municipalities and is located in a densely developed area. The land on either side of the bridge is relatively flat, with a rise on the east bank. The Passaic River at this location is wide, calm and placid. The McCarter Highway (Route 21) is on an elevated structure at this site (to carry the highway over the Belleville Turnpike) and runs along the west bank of the Passaic River.

The Route 7 bridge is a heel trunnion single-leaf bascule bridge with a riveted Warren through-truss main span and riveted Warren pony-truss approach spans. The bridge is approximately 356 feet long, with a main span of 110 feet, a 40-foot approach span on the west side, and a 206-foot span on the east side. The original decorative metal balustrade remains intact. The two-lane bridge is supported on a poured concrete-substructure. The grid metal deck of the main span dates to 1972. The operator's house was replaced in 1990.

History of the Bridge

The first bridge at this location was constructed in 1790 by Anthony Rutgers. The wooden structure operated as a toll bridge until it was destroyed by a flood in 1841. A second structure was erected in 1843. The second bridge (also built of wood) also operated as a toll bridge until it was purchased by Bergen, Essex, and Hudson Counties in 1851 and converted to a free bridge. The three counties constructed a third bridge, an iron truss bridge, at this location in 1879.

In 1914 the three counties erected the fourth and present bridge, a bascule bridge. Bascule bridges open to allow large vessels to pass through, can be built with a minimum of space, and the approaches are easily built.¹ The main deck can be raised; the forerunner of the bascule bridge is the drawbridge.

The Belleville Turnpike Bridge is the fourth bridge constructed at this location, which has been a significant crossing since 1790. The Belleville Turnpike connected the interior of New Jersey with coastal towns such as Jersey City. The crossing was also important to local development, providing the only roadway link between Belleville and North Arlington.

¹Otis Ellis Hovey, *Movable Bridges*, vol. I (New York: John Wiley & Sons, Inc., 1926) 22.

The present structure is a Strauss bascule bridge. The first Strauss bascule bridge was constructed in 1905 under the patent of Mr. Joseph B. Strauss for the Strauss Bascule Bridge Company, of Chicago. As of 1926, more bascule bridges have been constructed from Strauss designs than from any other type.² The first Strauss bascule bridge was constructed over the Cuyahoga River in Cleveland for the Wheeling and Lake Erie Railroad. The first bridge was a vertical overhead counterweight type, which means that when the leaf opens, the counterweight is held parallel to its original position and a balance is maintained as the bridge revolves. The vertical overhead counterweight type is one of three Strauss bascule bridge forms, the other two being the underneath counterweight type and the heel trunnion type.

The Route 7 bridge is a heel trunnion Strauss bascule bridge type. In the heel trunnion type, the counterweight is lowered in an arc. The weight of the counterweight and span are inversely proportionate to their lever arms and maintain this relation throughout the movement of the span and thus retain a balance. This design divides the weight of the long span and the counterweight between two piers, unlike other types, which need only one pier.

In New Jersey, moveable historic bridges in general, and overhead counterweight bascule bridges in particular, are endangered property types, as many have been replaced during the past few decades.

²Hovey, 116.

Bibliography

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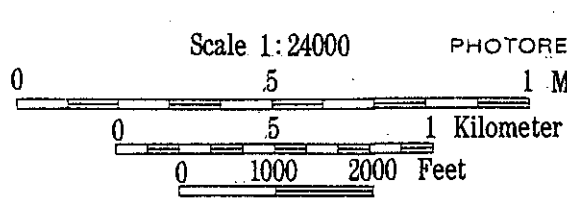
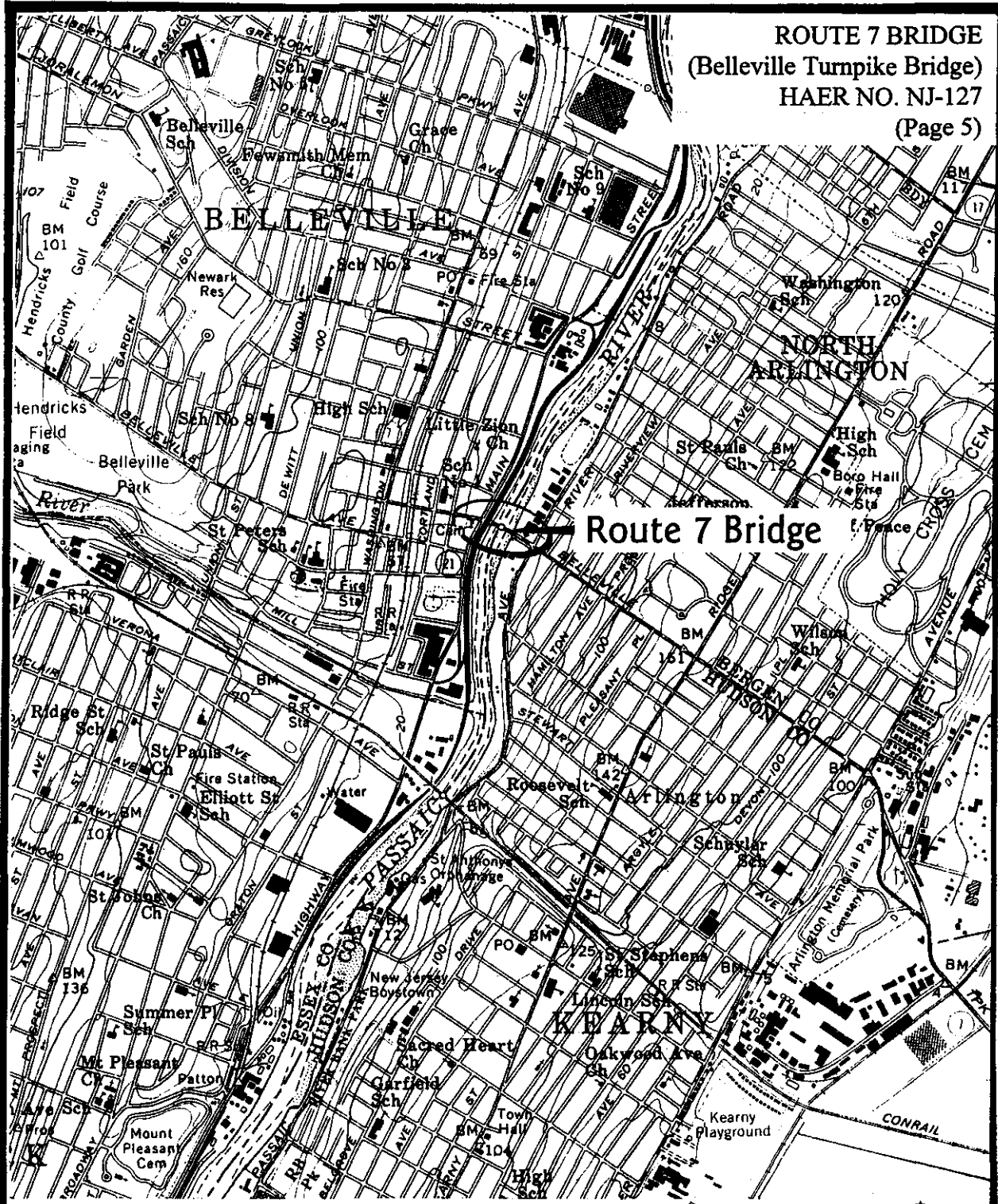
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1955
 PHOTOREVISED 1981

NEW JERSEY
 QUADRANGLE LOCATION
 ORANGE, N. J.

