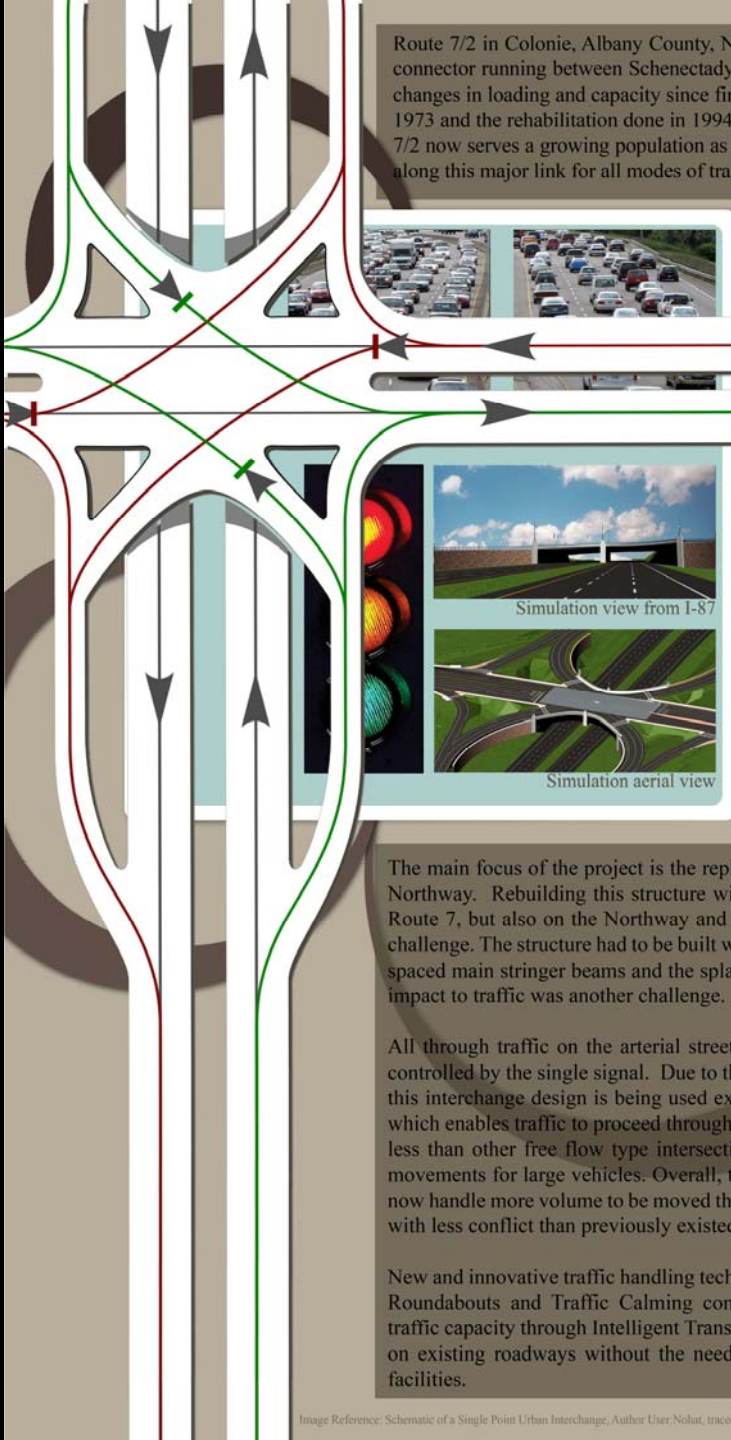


Route 7/2 in Colonie, Albany County, NY has come a long way from its beginnings as a 16-foot wide macadam rural connector running between Schenectady and Troy. The bridge crossing of the Northway (Interstate 87) has seen great changes in loading and capacity since first construction in 1959. The changes overwhelmed the widening completed in 1973 and the rehabilitation done in 1994, as well as choked the dual signal system controlling the ramps to I-87. Route 7/2 now serves a growing population as a hub between Albany, Troy, Schenectady and Saratoga. Maintaining mobility along this major link for all modes of transportation is vital to the economic well-being of the area.



Simulation view from I-87

Simulation aerial view

## Route 7/2 SPUI

The key innovation of this project is that it will produce a new and unique concept in traffic control, the Single Point Urban Interchange (SPUI). As one of the first in the country it is also notably one of the first elevated SPUI. The Single Point Urban Interchange is similar in form to a diamond interchange, but has the advantage of allowing opposing left turns to proceed simultaneously by compressing the two (2) intersections of a diamond into one (1) single intersection over or under a free flowing roadway.

## Single Point Urban Interchange

Aerial view during construction

The main focus of the project is the replacement of the 50-year old structure carrying Route 7 over Interstate 87, The Northway. Rebuilding this structure with a new bridge of greater complexity, while maintaining traffic not only on Route 7, but also on the Northway and its ramps - all while making a change in grade of up to two feet - is a major challenge. The structure had to be built with as much attention to the esthetic features as to the placement of the variably spaced main stringer beams and the splayed approach beams. Working in a tight urban/commercial area with minimal impact to traffic was another challenge.

All through traffic on the arterial street, as well as traffic turning left onto or off of the free flow roadway can be controlled by the single signal. Due to the space efficiencies of the SPUI relative to the volume of traffic it can handle, this interchange design is being used extensively in dense urban areas. The single signal has fewer phases to satisfy which enables traffic to proceed through the intersection more efficiently. Right-of-way requirements are significantly less than other free flow type intersections. The SPUI also permits for wider turning radii and consequently easier movements for large vehicles. Overall, the inclusion of this intersection type will now handle more volume to be moved through faster with increased efficiency and with less conflict than previously existed.

New and innovative traffic handling techniques such as Single Point Interchanges, Roundabouts and Traffic Calming combined with new methods of managing traffic capacity through Intelligent Transportation Systems allows greater capacity on existing roadways without the need to construct costly widenings and new facilities.

Interstate 87/7 (exit 6)  
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