MAJOR REHABILATION OF THE PULASKI SKYWAY CORRIDOR BEGINS

Construction to replace the deck on the 3.5-mile-long Pulaski Skyway is expected to begin Winter 2014. The New Jersey Department of Transportation has begun the design of major rehabilitation work of the Pulaski Skyway with the goal of keeping the structure operational for at least another 75 years. Rehabilitation of the Pulaski Skyway will include replacement of the entire bridge deck; repairs to structural steel, concrete columns, ramps, piers and abutments; and strengthening of the substructure components as part of a seismic retrofit. Construction is expected to be completed in 2018. A paint contract to repaint the entire Skyway is expected to start in 2017 and be completed in 2020. Additional rehabilitation projects in the corridor include work on Hoboken and Conrail viaducts.

NJDOT investigated several alternatives for the long-term future of the Pulaski Skyway Corridor. A Feasibility Assessment study (FA) to compare alternatives for the Skyway concluded that rehabilitating the structure is the preferred alternative. Other options, such as building a new structure parallel to the Skyway, would involve very significant costs for right of way acquisition and construction. The "no build" alternative—doing nothing and allowing continued deterioration of the Skyway—would ultimately result in a need to close the bridge. Other area roadways and bridges do not have enough capacity to permanently accommodate the traffic from a closed Skyway.

The Pulaski Skyway looking northeast over the Passaic River.

REHABILITATION CONTRACTS

Concrete Encasement Removal – Contract 1

When the Skyway was built in 1932, the steel was encased in concrete to protect it from the weather. Over time, the encasement has fallen away in some areas and water has become trapped inside in some sections, causing the steel underneath to deteriorate. Therefore, all remaining encasement needs to be removed so that engineers can inspect the underlying structural steel, determine the extent of steel damage and plan the steel repair or replacement. The information gathered during this removal is vital to develop accurate estimates of the cost and time frame for the Skyway's rehabilitation.

Showing removed concrete on front right column; concrete still encases column in middle

Work to remove concrete encasement on the superstructure members east of Pier 44 (near Charlotte Avenue in Jersey City) began summer 2012. All work occurs on the underside of the structure in Jersey City; traffic on the Skyway is not affected.

East Appraoch (Route 139) Improvements – Contract 2

This rehabilitation of the Hoboken and Conrail viaducts will begin in late 2013. At the Conrail Viaduct, work includes deck replacement, steel repairs, and bearing replacements. The Hoboken Viaduct portion includes deck replacement, repaving of the lower roadway and upper westbound roadway, a realignment of the upper eastbound roadway to better align with the South Ramp, wall and pier repairs, and a replacement of balustrades with Jersey barrier.

Traffic impacts include a detour of Upper Roadway eastbound traffic and a reduction of Lower Roadway to two lanes in the peak hour direction and one lane in opposite direction. The remaining capacity on the Lower Roadway is adequate to service demand. Most important, this detour does not conflict with Skyway construction. Two lanes of traffic will be maintained in the southbound direction (outbound from New York) at all times for both contracts and the bridge will be closed to northbound traffic for both contracts.

Precast concrete panels similar to what will be installed on the skyway

Deck Replacement – Contracts 3 and 4

The deck replacement work will be accomplished in two separate construction contracts, Contract 3 for the northbound side of the bridge and Contract 4 for the southbound side, beginning in 2014. New precast concrete deck panels with stainless steel reinforcement will be installed to speed construction. Other features include:

- Replacement of existing substandard concrete and steel railings with a new steel crash tested railing system in front of them. The railings will be replaced with a lighter weight aluminum railing designed to closely resemble the existing one. The concrete railing at the north end will be replaced in kind.
- Light poles resembling period lighting from the time of the original construction developed for Route 1&9T will be installed
- The existing median barrier will be replaced with a similar, lighter weight aluminum barrier.

Transportation Management Plan

The deck replacement of the Skyway will reduce the roadway capacity during construction. Given the amount of traffic that utilizes this important corridor in the northern part of the state, traffic impacts are expected. NJDOT is committed to improving the Skyway and its eastern approach while managing the impacts of congestion during the construction process. As such, NJDOT is developing a Transportation Management Plan (TMP). The purpose of a TMP is to manage and/or reduce impacts with anticipated added traffic congestion during the Pulaski Skyway Deck Replacement Project. This plan is formed during the final design stage and is monitored and refined during construction as necessary.

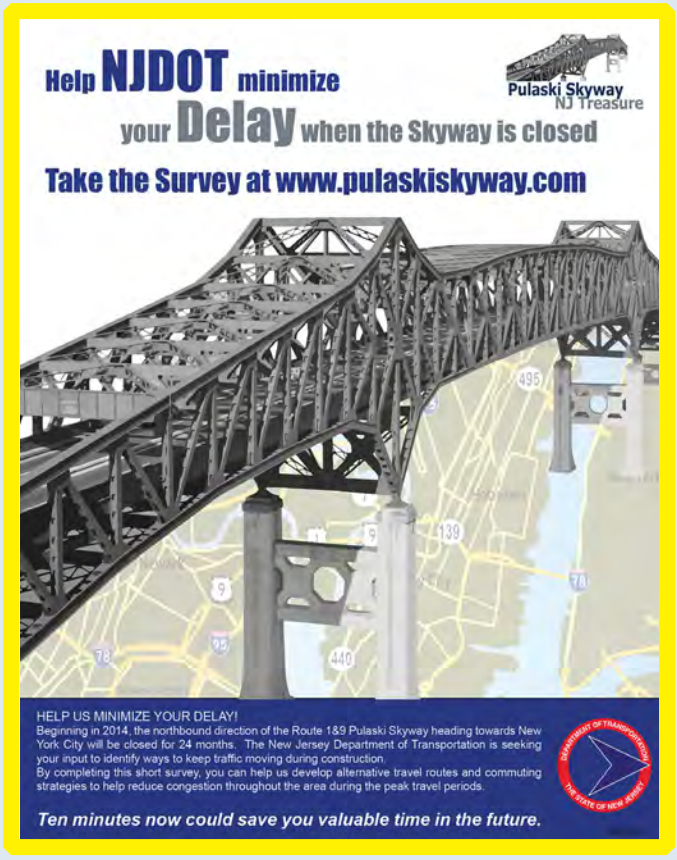
Transporation Management (TM) strategies can improve the flow of traffic through the construction area minimizing the disruption to motorists and businesses. TM strategies can educate the public about the purpose of and plans for construction projects, and can also encourage motorists to use transit and other alternate modes and educate travelers about the benefits of these modes. Some strategies support efficient and timely completion of construction projects, to minimize the duration of disruption for motorists. Finally, TM strategies may reduce the number of crashes in the construction corridor by quickly detecting and clearing incidents.

Some examples of TM strategies that are being investigated include utilization of shoulder lanes as travel lanes, signal optimization at critical intersections, transit service enhancements, advance motorist information and real time travel information via Variable Message Signs (VMS) or 511nj.org, and temporary Park and Ride lots.

Complex Regional Coordination

The Pulaski Skyway and the East Approach (Route 139) Rehabilitation begins after years of planning and coordination among NJDOT and other agencies that have other roadwork planned in the region. The TMP represents a comprehensive planning effort to minimize traffic impacts to the region.

The TMP seeks to minimize traffic impacts to the region



THE SKYWAY'S HISTORIC SIGNIFICANCE

The Pulaski Skyway's historic significance is a unique example of early highway engineering[1]. Considered America's first superhighway, it was built in several stages as part of an effort to extend Route 1 to connect with the new Holland Tunnel. An Advisory Board outlined several key points that defined the construction approach, including the elimination of grade crossings to reduce traffic delay, and the elimination of drawbridges and curvature. Sections of the Route 1 Extension over the Hackensack and Passaic rivers were connected using a high level viaduct and bridge system with fixed spans high enough to allow passage of masted vessels. This section, which comprises the majority of the current Pulaski Skyway, was officially opened on Thanksgiving Day in 1932.

One of the first roads designed specifically for high speed traffic using the new concept of limited access, the Route 1 Extension was also the first roadway project in which public time-saving was used to justify a large capital expenditure. Eliminating grade crossings by elevating the roadway was central to achieving this goal. The viaduct type construction used to support the elevated roadway gave the highway a distinctive profile more typical of the railroads of the period.

Another major design innovation was the use of ramps for access. With little precedent for such work, the designers placed the ramps at the middle of the highway, which was widened and divided at these entry points. The system of ramps is significant as one of the first examples of a coherent elevated highway network.

The design of the curbs and railings was also novel. A high curb was constructed to keep errant drivers from leaving the road, and substantial railings were designed to withstand the impact of any vehicle that might mount the curb. On the high-level portion of the Skyway, engineers took special precautions to "allay the fear of such nervous drivers as are not able to look down from great heights without a qualm."[2] For this purpose they used a higher curb and railing, with closely spaced railing balusters that would appear solid as drivers looked forward. This solution was far more substantial than the typical guard rails of the period.

The Skyway is included in the National Register of Historic Places because of its age, length, and unique design features. The proposed rehabilitation project, being developed in coordination with the New Jersey State Historic Preservation Office, will maintain the historic character of the roadway.

Pulaski Skyway during original construction

Steel Railing

FOR MORE INFORMATION

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http://www.state.nj.us/transportation/works/studies/pulaski

[1] Adapted from "Preservation Plan for the Route 1/9 Corridor," TAMS Consultants, Inc., 1998.

[2] Sigvald Johannesson, "Lincoln Highway from Jersey City to Elizabeth, NJ," American Society of Civil