

## **Appendix A: Project Planning and Development**

A-1 White Paper on Transit and the Tappan Zee Hudson River Crossing Project

## **White Paper on Transit and the Tappan Zee Hudson River Crossing Project**

### **Purpose of White Paper**

The current Tappan Zee Hudson River Crossing Project is being advanced to address the needs of the Tappan Zee Bridge. This Project has a different scope and termini than a previous project that included transportation improvements to a 30-mile corridor from Suffern NY to Port Chester NY. The previous Tappan Zee/I-287 Corridor Study components included Highway, Bridge and Transit improvements while the current project addresses the Tappan Zee Hudson River Crossing and ensuring that the crossing addresses structural and operational deficiencies of the present bridge while maximizing the public investment. The previous corridor project has been rescinded and the State Sponsors do not intend on advancing it in the foreseeable future. This paper documents the reasons for rescinding the previous Tappan Zee/I-287 Corridor Study and advancing the current Tappan Zee Hudson River Crossing Project.

### **Project History**

The Tappan Zee Bridge opened to traffic in 1955 as part of the New York State Thruway extension between Suffern, New York and Yonkers, New York. Over the years, the bridge and its highway connections have been the subject of numerous studies and subsequent transportation improvements. Despite these improvements, congestion has grown steadily over the years and the aging bridge structure has reached the point where major reconstruction and extensive measures are needed to sustain this vital link in the transportation system.

In April 2000, a Long Term Needs Assessment and Alternatives Analysis was completed by the New York State Governor's I-287 Task Force. The report concluded that while there was no single preferred solution for addressing the transportation needs in the Tappan Zee Bridge/I-287 Corridor, both a short-term aggressive Transportation Demand Management (TDM) program and longer-term capital improvements were needed. The long-term alternatives evaluated by the Task Force called for replacement of the existing Tappan Zee Bridge because it was concluded that rehabilitation of the existing bridge to current standards would be highly disruptive, and as costly, and not nearly as beneficial in mobility enhancement or meaningful congestion relief as a replacement bridge.

Since 2000, the NYSTA has implemented TDM measures on the Tappan Zee Bridge including a commuter carpool incentive programs for vehicles with 3 or more passenger and E-ZPass at a reduced toll rate of \$0.50 as compared to \$5.00 for cash tolls. The Thruway Authority also has an incentive toll rate program for commercial vehicles with E-ZPass during the off-peak period

at both Spring Valley Toll and Tappan Zee Bridge Toll barriers. There are also car pool/vanpool programs sponsored by NYSDOT to encourage the use of those programs. The Thruway Authority has worked with Rockland County and NYSDOT to expand the use of the park and ride lots along the TZB/I-287 corridor and at Exit 14 in Spring Valley and at Exit 18 in New Paltz. These TDM measures have helped to improve mobility along the TZB/I-287 corridor.

In November 2000, the New York State Thruway Authority (NYSTA) and the Metropolitan Transportation Authority Metro-North Commuter Railroad (MNR) announced that an EIS would be undertaken to identify and evaluate alternatives to address the mobility needs of the I-287 Corridor, as well as the structural and safety needs of the Tappan Zee Bridge. The alternatives contained in the I-287 Task Force report, as well as those suggested by elected officials, transportation and environmental groups, community groups, and the public, were considered and an approach to evaluating and advancing alternatives was established. On December 23, 2002, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) published a Notice of Intent (NOI) to prepare an Alternatives Analysis (AA) and EIS for the Tappan Zee Bridge/I-287 Corridor Project in the Federal Register.

Over the next few years, project development continued with increasing involvement by the New York State Department of Transportation (NYSDOT). Alternatives for transit modes along the corridor were identified, as were a set of highway and bridge improvements. Also, in 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was enacted, which incorporated changes in the metropolitan planning and environmental review processes for transportation projects. FHWA and FTA determined that a revised NOI should be published to update the public and interested agencies on the alternatives development, to identify NYSDOT as the Project Director, and to incorporate the provisions of SAFETEA-LU. The revised NOI was published on February 14, 2008.

Four alternatives were to be considered in the EIS for the Tappan Zee Bridge/I-287 Corridor Project. These alternatives would have included the following elements:

- **Bridge:** The four alternatives included replacement of the Tappan Zee Bridge with two, new single-level or dual-level structures north of the existing bridge.
- **Highway:** The four alternatives included highway improvements on Interstate 87/287 in Rockland County as follows:
  - Construction of new truck climbing lanes on eastbound Interstate 87/287 between Interchange 12 (NY Route 303-Palisades Center Drive) and Interchange 11 (Route 9W) and on westbound Interstate 87/287 between Interchange 11 (Route 9W) and the Spring Valley Toll Plaza;
  - Construction of an eastbound auxiliary lane between Interchange 14 (NY Route 59) and Interchange 14A (Garden State Parkway);

- Construction of new collector and distributor roads at Interchange 13 (Palisades Interstate Parkway) in Rockland County;
  - Reconstruction of Interchanges 10 (Route 9W) and 11 (Route 9W);
  - Reconfiguration of highway features to accommodate future bus rapid transit and commuter rail infrastructure; and
  - Two project alternatives also included High Occupancy Vehicle/High Occupancy Toll (HOV/HOT) lanes in the center median of a widened Interstate 87/287 right-of-way, extending from Interchange 9 (Route 9) in Westchester County to Interchange 15 (NJ Route 17 South) in Rockland County.
- **Transit:** The four alternatives included new commuter rail (CRT) and Bus Rapid Transit (BRT) service. The commuter rail service would extend from Suffern across the replacement Tappan Zee Bridge to Tarrytown with a direct connection to MNRRT's Hudson Line. The proposed bus rapid transit service would extend from Hillburn to Port Chester within shared BRT and HOV lanes on Interstate 87/287. BRT and CRT Stations along with ancillary facilities (e.g. parking lots) would be required throughout the corridor.

#### **Recent Financial Cost Estimates for the Tappan Zee Bridge/I-287 Corridor Project**

In 2011, while advancing financial analyses, it was determined that funding for the \$16 billion (in 2012 dollars) Tappan Zee Bridge/I-287 Corridor Project (components including: bridge replacement, highway improvements, and new transit service) was not financially feasible at the time. It is instructive to understand the most recent cost estimates for the transit components. These costs were developed based on the fuller development of the design and operating plans for the proposed BRT and CRT systems. These costs have not been published, as the previous study was terminated before that information was available to the public.

Implementation of any BRT system is highly dependent upon and tied very closely to the highway and/or local street system. Any new BRT system must be integrated into the existing roadway network, and in the previous study that interaction was extensive over the 30 mile corridor. Therefore, highway modifications must be advanced hand-in-hand with BRT improvements.

The original BRT estimate was predicated on only one concept, in which the BRT would run in the HOV lanes in Rockland, and in local streets (with some new dedicated sections) in Westchester. That scenario indicated an estimate of \$1 billion for the BRT and \$2 billion for the HOV, or approximately \$3 billion for the operating BRT system. This was the 2005 design concept and cost estimate which was escalated to 2012 dollars in 2007.

Since 2007, the development of BRT options has evolved. Most significantly, a dedicated bus way BRT option was added to the analysis. This would be used in Rockland in lieu of an HOV facility. It was also introduced for the entire Westchester route as an alternative to the original integrated street system.

By 2010, four BRT scenarios had been identified, with bus-way and bus-lane components paired in each of the two Counties:

**Alt B:** Rockland Bus way / Westchester Bus way

Rockland = \$1.0B Highway; \$2.5B BRT / Westchester = \$1.7 BRT = \$1.0B Highway; \$4.2B **Total = \$5.2B**

**Alt C:** Rockland Bus way / Westchester Bus lane

Rockland = \$1.0B Highway; \$2.5B BRT / Westchester = \$1.0B BRT = \$1.0B Highway; \$3.5B **Total = \$4.5B**

**Alt D:** Rockland HOV / Westchester Bus way

Rockland = \$3.1B Highway; \$0.5B BRT / Westchester = \$1.7B BRT = \$3.1B Highway; \$2.2B **Total = \$5.3B**

**Alt E:** Rockland HOV / Westchester Bus lane

Rockland = \$3.1B Highway; \$0.5 BRT / Westchester = \$1.0 B BRT = \$3.1B Highway; \$1.5B **Total = \$4.6B**

Based on these four alternatives, the designs and cost estimates are significantly higher than the 2007 estimate. These costs have not been published, as the previous study was terminated before that information was available to the public... As indicated, when accounting for any of the configuration combinations across the 30 mile corridor, the total cost for an operating BRT system ranges from \$4.5 to \$5.3 billion. This does not include an estimated \$75M for vehicles and equipment and \$80M annual cost for operating the system.

In terms of CRT, the updated designs and cost estimate indicate \$4.4B to \$4.6B for the CRT infrastructure, plus an additional \$340M to \$620M for modifications to the bridge, or approximately \$5.0B for the operable CRT system. This does not include an estimated \$585M for vehicles and equipment and \$190M annual cost for operating the system. Furthermore, all of the above referenced costs are presented in 2012 dollars, and must be escalated to the actual future time frame of implementation to account for true future costs.

### **NYMTC 2035 Regional Transportation Plan - "A Shared Vision for a Shared Future"**

The New York Metropolitan Transportation Council (NYMTC) is the metropolitan planning organization required by federal transportation regulations for the region, which covers a ten-county region (five boroughs of NYC, Nassau and Suffolk Counties on Long Island, plus

Westchester, Rockland and Putnam Counties in the Lower Hudson region). NYMTC adopted a Regional Transportation Plan on September 24, 2009.

The Planning period covered by the Plan is 2010-2035. Page 1-22 states: “The region's most pressing need will be finding ways to comprehensively stabilize funding for the day-to-day operations and maintenance of the transportation system and obtain sufficient Federal, State and local capital resources to achieve and maintain a State-of-Good-Repair for the system in the long-term. The second most pressing need will be to complete the four foundation projects and to identify resources to design and implement the strategic transportation improvements beyond the foundation projects.”

The construction/reconstruction of the previous Tappan Zee Bridge/I-287 Corridor Project was not included in the financially constrained portion of the Plan (Chapter 6) because sufficient finances for that improvement were not identified at the time the Plan was approved.

### **Transportation Plan Needs**

The Plan categorizes transportation needs (highways and transit) according to

- State-of-Good-Repair and Normal Replacement (SOGR/NR) needs include vehicle fleets and infrastructure components such as tracks, maintenance facilities, stops, stations.
- Operating and Maintenance section
- System enhancements

Table 7-4 of the RTP summarizes the 25 year needs for both highways and transit:

- SOGR & Normal Replacement        \$289.8
- Operations & Maintenance    \$661.1
- Plus system enhancements     \$35.4

Total \$986.3 Billion (Year of Expenditure)

### **Federal, State, Local and Other Funding Resources**

Resource estimates in the Plan were based on April 1, 2005 New York State DOT allocation tables for transportation resources. The forecasts of likely resources available during the long-range planning period were developed using a number of assumptions about various funding categories and programs, together with assumptions of future Federal transportation legislation. Using these assumptions and forecasting methodologies, forecasts of resources anticipated to accrue to the region have been developed for the 2010-2035 planning period.

### **Transportation Plan Summary**

The Plan estimates that a total of \$969.5 billion from existing resources will be available during the period of the Plan. The Plan notes that this level of funding is sufficient to support the

operations and day-to-day maintenance of the highway and transit systems. It will also be sufficient to support all SOGR/NR needs of the transit system and most, but not all, of the SOGR/NR needs of the highway system. With an estimate of \$986.3 billion in transportation needs, roughly \$16 billion in new funding will need to be identified to accommodate all of the highway system's SOGR/NR needs during the twenty-five year period. This would be in addition to the additional funding needed to support Tappan Zee Bridge/I-287 Corridor Project alternatives.

### **New Project Direction**

Based upon the information in the recent cost estimates and the current funding levels both from federal and state sources and systematic review of the financial analysis in the various transportation plans, it was determined that funding for the Tappan Zee Bridge/I-287 Corridor Project (components including bridge replacement, highway improvements, and new transit service) was not financially feasible at this time.

In light of the difficult balancing necessary when current and future needs exceed available resources both present and future, it was determined that remedying the structural and operational deficiencies, it was imperative to address the critical infrastructure needs while not precluding transit options in the future. Therefore, it was determined that the scope of the project should be limited, and efforts to replace this Hudson River crossing independent of the transit and highway elements should be advanced.

On October 12, 2011, FHWA and FTA published an NOI to rescind the Tappan Zee Bridge/I-287 Corridor Project, thereby concluding the environmental review process for the combined study of bridge, highway, and transit elements. On that same date, FHWA published an NOI for the Tappan Zee Hudson River Crossing Project to examine alternatives for an improved Hudson River crossing between Rockland and Westchester Counties. As described in the NOI, FHWA, as the federal lead agency, and NYSDOT and NYSTA, as joint lead agencies, are preparing an EIS to identify alternatives for an improved Hudson River crossing and to document the potential environmental impacts of the alternatives. Although the Tappan Zee Hudson River Crossing Project is undertaking an independent environmental review, the EIS relies on previous relevant documents prepared for the Tappan Zee Bridge/I-287 Corridor Project.

### **Status of previous studies**

The previous studies for the Highway and Transit components of the Tappan Zee Bridge/I-287 Corridor Project will not be advanced further at this time. However, the documentation to date from the previous study is available to inform any future planning studies or environmental studies as they may be related to any component of the previous project.

## **New Project Purpose-Need and Goals-Objectives**

The Purpose and Need Statement and Goals and Objectives for the new Tappan Zee Hudson River Crossing Project have two statements that address how transit is considered as part of the project. The statements are 1) a goal of this project is to not preclude future transit and 2) a goal of this project is to maximize the public investment in a new Hudson River Crossing by providing a cost-effective crossing that maximizes value over the lifespan of the structure.

“Not to preclude Transit”: “Not to preclude” transit for this project is defined broadly as not to foreclose, prevent, exclude or prohibit the planning, design, construction or consideration of future transit alternatives. Future transit alternatives are presently not considered reasonably foreseeable transportation improvements. (FHWA defines reasonably foreseeable as being part of the fiscally constrained portion of the Metropolitan Planning Organization’s long range plan). Although these improvements are not presently considered reasonably foreseeable, it is possible that transit may be considered in this corridor during the structural lifespan of the new crossing. Therefore, it is the projects goal not to foreclose or preclude transit options and leave enough flexibility so that environmental requirements can be satisfied for future studies for these improvements. The “Not to preclude transit” goal can be satisfied for any of the present alternatives because any future transit improvement could be advanced along this corridor or any other corridor across the Hudson River, if it was deemed appropriate. Furthermore, a separate transit bridge could be feasibly built at any location including along the alignment of the new crossing. Any future project would require the necessary environmental review, studies and permits.

“Maximizing the Public Investment”: Given that the desired lifespan for a new critically important river crossing is 150 years, it is prudent to maximize the public investment of any new crossing. As stated above, the previous project identified highway improvements and transit improvements for the 30-mile corridor. Even though these improvements are not considered reasonably foreseeable at the present time, over the 150 year lifespan of a new crossing many improvements may be considered and needed in the corridor and hence, may need to be incorporated into the crossing. Potential improvements may include HOV lanes or Bus lanes for Bus Rapid Transit (BRT) and Commuter Rail Transit (CRT). Given the importance of this crossing and the size of the investment currently under consideration for the new crossing, it is a prudent and practical decision to design the new bridge to optimize the flexibility for potential future transportation modes that are not foreseeable now, but may be over the lifespan for the crossing. In the preliminary design process for the current crossing, the following provisions are being added to optimize the flexibility of future modes and maximize the public investment.



**BRT Provisions:**

- Additional width on new crossing— the additional width of the crossing is needed for operational redundancy of the highway lanes in the event that one structure is closed. The additional width also has immediate utility as an emergency access area to help improve operations and accident response times on a new crossing. The additional width, however, could be converted to HOV or BRT lanes in the future if appropriate studies deemed this corridor and alignment appropriate. If this conversion did take place in the future, emergency access could revert back to the use of the full shoulders.

**CRT Provisions:**

- The width of a gap between the two structures is proposed to be approximately 40 feet to facilitate potential future transit modes to operate on a new deck that may span the gap at a later date.
- The proposed design for the new highway bridge foundations and substructures must provide for a robust structure that meets the standard highway loadings and seismic criteria. The design for the foundations and substructures will also include provisions for additional strengthening so they could support potential future CRT loadings.
- The proposed design will provide a vertical profile that improves safety and operations on the bridge. This profile would also meet the required grades of CRT.

The additional current cost for strengthening the replacement bridge to allow for any future transit service within the gap between structures, would be approximately \$200 to \$300 million. Should implementation of transit occur in the future, an additional approximate \$500 to \$700 million (in 2012 dollars) would be required to implement the future transit infrastructure across the bridge. In total, the cost for transit service within the gap would be \$700 million to \$1 billion. In comparison, a new, exclusive transit bridge across the river would cost between \$2 billion and \$3 billion. In short, including some provisions for CRT has the potential to save between \$1 billion and \$2 billion, for the bridge alone. Even if transit was not implemented in the future, the investment of strengthening the replacement bridge would have immediate and long term public benefits by providing an increased factor of safety in the structural design for the foundations and substructures and increasing the ability of the structures to withstand significant natural events. Therefore, based upon the above information, additional strengthening and a gap between the two new structures are considered prudent at this time. (It should be noted from the discussion above that any option for future transit service would require an additional \$3B to \$6B in funds (in 2012 dollars) as well as land for construction of upland transit infrastructure (i.e., right-of-way, stations, parking, and ancillary facilities)).

Any investment at the present time, as described above, should not and cannot bias future studies of any transportation improvement. Any future study must examine a full range of alternatives and cannot use the investments proposed by this project to bias the decision making in choosing any alternatives.

**Conclusion**

The above serves as the basis to advance the Tappan Zee Hudson River Crossing Project.