

**New York State Department of Transportation  
New York State Thruway Authority  
Metropolitan Transportation Authority/Metro-North Railroad**

# **Financial Plan Development**

## **STEP 1:**

### **Develop Core Strategies**

## **Preliminary Alternatives Review**



**Tappan Zee Bridge/I-287 Corridor  
Financing Study**

**As of November 24, 2009**

**TABLE OF CONTENTS**

<b>1. INTRODUCTION</b> .....	4
<b>2. COST AND RISK CONTROL</b> .....	6
A. Introduction.....	6
B. Understanding Different Risk Types .....	7
C. Risk Mitigation Techniques.....	12
D. Conclusion .....	14
<b>3. PROCUREMENT STRUCTURES</b> .....	15
<b>4. STRUCTURAL ALTERNATIVES</b> .....	20
A. Introduction.....	20
B. Existing Public Authority Model (Status Quo).....	22
C. New Public Authority Model.....	24
D. Operating Lease Arrangement or Service/Management Contract.	26
E. Long-Term Concession/Lease .....	27
F. Availability/Shadow Payment .....	29
G. Trade Sale .....	31
H. Initial Public Offering .....	32
I. Not-for-Dividend Company ("Trust") .....	34
J. "63-20" Non-Profit Corporation.....	35
<b>5. FEDERAL CONSIDERATIONS</b> .....	38
A. Introduction.....	38
B. Transportation Infrastructure and Innovation Act ("TIFIA").....	38
C. National Infrastructure Bank.....	40

D. Grant Anticipation Revenue Vehicles (“GARVEEs”) .....	41
E. Private Activity Bonds (PABs).....	42
F. Federal Transit Administration Full Funding Grant Agreement ...	43
<b>6. TOLLING RELATED FUNDING OPTIONS .....</b>	<b>45</b>
A. Introduction.....	45
B. Toll Adjustments on the Tappan Zee Bridge.....	46
C. Tolling Adjustments over a Wider Geography on the NYSTA ....	47
D. Tolling Currently Untolled Off-NYSTA Facilities .....	48
E. Innovative Tolling Strategies, Mileage-Based Fee, & Cordon Tolling.	50
F. Federal Tolling and Pricing Programs .....	52
G. Conclusion .....	54
<b>7. NON TOLLING FUNDING OPTIONS.....</b>	<b>55</b>
A. Existing State Financing Sources .....	55
B. New State, Local and Regional Financing Sources & Frameworks .....	56
<b>8. INCREMENTAL NON-TRADITIONAL FUNDING OPTIONS .....</b>	<b>61</b>
A. Transit Oriented Development (TOD).....	61
B. Initial Public Offering (IPOs) .....	64
C. Naming Rights .....	66
<b>9. CONCLUSION.....</b>	<b>68</b>

## **APPENDICES**

A-1. Description of Currently Untolled Interstate Facilities .....	70
A-2. Description of Federal Tolling Programs .....	71
A-3 Legal Implications Of Alternatives Memorandum.....	76

## 1. INTRODUCTION

This Preliminary Alternatives Review provides detailed analysis of the various funding, ownership and operating models under review for the consideration of New York State Department of Transportation (NYSDOT) and its Project Partners in connection with the financing of the Tappan Zee Bridge / I-287 Corridor (the “Corridor” or “Project”). Our report examines the pros and cons and the financial effects of each different option considered. The purpose of this discussion is two-fold: to dictate the type of analysis necessary to complete Step 1 as well as to better define the limits of the scope of the legal team’s determination of the statutory or regulatory changes needed in order to build an adequate legal framework for the alternatives chosen.

All funding, structural and financing alternatives have been reviewed in the context of a phased Project with a transit-ready bridge as the first component, to be followed by Bus Rapid Transit (“BRT”) and Commuter Rail Transit (“CRT”) options. As such, each element in the financing of the transit-ready bridge is examined for its functionality and potential interplay with subsequent transit elements to ensure to the best of the team’s abilities that no decisions are made with respect to the replacement of the Tappan Zee Bridge that will later prejudice efficient execution of the transit options.

Although tolling sources reviewed herein were considered only with respect to the transit ready bridge portion of the project, all non-tolling options should be considered as applicable to both the transit ready bridge as well as subsequent transit options. Empirical observations indicate that many tolling projects are net revenue generators whereas transit projects typically require subsidies.

While the transit components are unlikely to be self-supporting from fares, they generate a host of benefits that inure to the benefit of the region as a whole including congestion mitigation, productivity gains and environmental benefits.

In Section 2, we examine risk and cost controls that should govern financing of the Project through a review of the different types of risk inherent in a project financing of this size and lay out recommended techniques to mitigate those risks.

In Section 3, we review the various procurement structures and project delivery methods available for use and contrast those structures to the existing model required under New York State law. Should a consensus be formed around the value of modifying the New York model, we discuss the issues involved in achieving such a modification of current law and existing practice.

In Section 4, we examine the full range of alternative ownership models and operating structures under which financing for the Project can be achieved including the current Public Authority model, a newly created Public Authority, operating leases and management contracts, concession sales, availability and shadow payments, trade sales, initial public offerings, not-for-dividend companies, and 63-20 corporations.

In Section 5 we examine federal considerations including the reauthorization of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), current and proposed federal credit programs, the use and application of innovative financing tools such as GARVEE’s and Private Activity Bonds.

In Sections 6 and 7, we look at funding options; tolling options in section 6 which explores other New York State Thruway tolling options and the use of tolls from currently un-tolled facilities under various toll pricing scenarios and, in section 7, non-tolling options including existing state bond financing options and local and regional tax options, always with an eye to which streams might fund both the bridge and the transit components, and which might be better suited for one or the other from a policy or structural standpoint. Finally, in Section 8, we examine incremental non-traditional funding and financing ideas including transit-oriented development, infrastructure IPOs and the sale of transit naming rights.

A summary and conclusion section is presented at the end of this report that sets forth our expected outcome, which is that certain options

will be identified for financial analysis while others will be eliminated for legal or policy reasons. We expect that NYSDOT and its Project Partners will find that the financial benefits of certain options discussed herein do not outweigh either the challenges presented by the required changes to settled policy, established practice, current law or project configuration; the likelihood of strong political or stakeholder opposition or the magnitude of the collateral impact such option may pose. We expect the process of identifying those core strategies that can serve as substantial funding sources and are achievable in the relevant time frame to be iterative in nature. As this analysis proceeds, options will continue to narrow from a policy, procedural and legal perspective. The surviving alternatives will then be subject to rigorous financial analysis.

## 2. COST AND RISK CONTROL

### A. Introduction

In an infrastructure construction project of the magnitude of the Project, risk identification, assessment and management, including both mitigation and appropriate allocation, are of paramount importance. The Federal Highway Administration (“FHWA”) notes two basic categories of risk: “technical risk denotes the risk that a project will fail to meet its performance criteria” and “programmatic risk has the two major subcomponents of cost overrun and schedule delay.”<sup>1</sup>

The Financial Advisor (“FA”) team has further delineated six specific types of risk, which it is critical to understand and mitigate. The allocation of these risks varies depending on the business model or structure ultimately chosen for the construction, funding, operations, maintenance and pricing of the Project. As delineated in this section, these risks include construction/cap-ex, usage, commercial, operation and maintenance, financial and management. For the purposes of the FA team’s work, we limit our discussion to those elements of these highlighted risks that can be mitigated in some way by model choice, financing structures, contracting relationship or procurement techniques. What is clear from available research, however, is that proactive management of all forms of identifiable risk cannot be an isolated function. Rather it requires broad-based team support early in the planning and development process as a core project management discussion in order to

succeed. Such proactive risk management drives appropriate allocation among the ultimate parties to the funding, management and construction of the Corridor, which should align the interests of all members of the construction and financing team. Allocating risks in an optimal manner to those best able to manage them should safeguard policy goals, reduce construction delays and minimize both the funding and the life-cycle costs of the Corridor. From the perspective of the FA team, robust, comprehensive and credible risk management will drive rating outcomes on many of the various credits that may be used to finance the Corridor and therefore, will bear directly on financing costs and the ability to maximize funding sources.

The Final Report of the New York State Commission on State Asset Maximization (“NYSAM”) articulated the problem and the opportunities very clearly: “The size and complexity of this project dwarf all the other infrastructure needs currently under review in New York State, and it is one of the largest ground transportation projects under development in the country. As such, funding, design, construction, operation and maintenance of the TZ Project through traditional mechanisms would be extremely challenging. At the same time, the very order of magnitude of the asset, its multi-jurisdictional nature, and its vital function in the economy of the State suggest that only the State has the ability to bring it to fruition.”<sup>2</sup>

The magnitude of the Project is also nodded at in Moody’s most recent report on the New

<sup>1</sup> Pennock, M, and Haimes, Y. (2001). “Principles and Guidelines for Project Risk Management.” Systems Engineering. 5(2): 89-109. Quoted in FHWA, Risk Assessment and Allocation for Highway Construction Management (October 2006).  
[http://www.international.fhwa.dot.gov/riskassess/risk\\_hcm06\\_01.cfm#s12](http://www.international.fhwa.dot.gov/riskassess/risk_hcm06_01.cfm#s12)

<sup>2</sup> New York State Commission on State Asset Maximization, Final Report (June 1, 2009): 44



York State Thruway Authority: “The rating could improve if ... the Tappan Zee Bridge project does not require the Authority to increase its debt substantially. The rating could face negative pressure if ... the financing plans for the Tappan Zee Bridge require significant additional debt issuance.”<sup>3</sup>

The FHWA notes that “The contract is the vehicle for risk allocation. Whether the contract is for construction, construction engineering and inspection, design, design-build, or some other aspect of highway construction management, it defines the roles and responsibilities for the risks. Risk allocation in any contract affects cost, time, quality, and the

<sup>3</sup> *Moody’s Investor Service. “Moody’s Assigns MIG-1 Rating to New York State Thruway Authority Bond Anticipation Notes.” Global Credit Research New Issue (June 26, 2009): 3*

potential for disputes, delays and claims. In fact, contractual misallocation of risk has been found to be a leading cause of construction disputes in the United States.”<sup>4</sup> NYSAM adds, with particular reference to the Project, “hybrid solutions mixing the best of public and private procurement and financing should be examined openly, with rigorous public involvement, as possible pragmatic solutions to the complex needs of the project.”<sup>5</sup>

With these parameters and guidelines in mind, we review the individual risks themselves, as well as model, financing and procurement techniques that may be employed to manage such risks.

<sup>4</sup> *FHWA, Risk Assessment and Allocation for Highway Construction Management, Op.Cit.*

<sup>5</sup> *NYSAM Final Report, Op. Cit: 45*

## **B. Understanding Different Risk Types**

### **Construction Risk.**

Construction risk is the risk that the cost, completion quality or construction and timing of expenditures will exceed budgeted funding or time-frame. Standard and Poor’s notes in its somewhat dated comprehensive review of risk in the context of public-private partnerships that “exposure to construction risk remains highly contingent on the specific characteristics of a project, its contractual provisions, and its associated transaction structuring.”<sup>6</sup> There are several mitigation techniques that can be used to off-lay some components of construction risk of the Project. Procurement mechanisms, discussed in Section 3 address these mitigation techniques. We believe that Construction risks would be greater for the transit-ready bridge phase of the Project than for delivering the transit components. Within the transit components, CRT is likely to have broader

<sup>6</sup> *Standard & Poor’s, “The Anatomy of Construction Risk: Lessons from A Millenium of PPP Experience.” Standard & Poor’s RatingsDirect. (April 5, 2007): 2*

construction risks than BRT based on the greater footprint of the fixed-rail system versus the simpler fixed-guideway of the BRT.

### **Usage Risk**

Usage risk is defined as the risk of the number of transactions, traffic composition, pricing and elasticity failing to meet expectations. The transit ready portion of the Project has relatively lower usage risk compared with many substantial transportation infrastructure construction projects given its robust history of capacity traffic flow and relative toll inelasticity. This risk is not, however, eliminated by such history. The risk still exists as the connections, competing traffic patterns and development patterns of local communities could alter traffic performance over time. Additionally, the substantial tolling increases being analyzed would add to such risk. Given the regional importance and State-wide economic significance of the Project, there are likely to be additional supporting funding sources which could be isolated from such risk and also

serve to reduce the pressure of relying on tolls for funding. (see Section 7 regarding non-tolling funding sources).

From a transit standpoint, usage risk is considerable. There are currently no East-West transit options in the corridor, and therefore no history to guide projections. At the same time, other Hudson River transit crossings are under review including most importantly the capacity expansion envisioned by the ARC tunnel from New Jersey to midtown NYC which while not competing directly will be an incremental transit crossing. In this environment, transit usage and therefore fare box revenues might be unpredictable and challenging to finance against.

As we review structuring and financing options, the State and the Project Partners should make a thoughtful allocation of usage risk to ensure it is isolated and managed. For example, the State should avoid making non-toll funding sources contingent upon performance of the relevant phase of the Project, thereby spreading the usage risk beyond toll or fare-box funding. An example of a funding source which is dependent on performance and therefore subject to usage risk would be a second barrel pledge of a limited tax to supplement tolls. Such a funding source would be drawn on only when traffic and revenues underperformed.

We discuss the phasing of both the Project and the funding sources below in subsection C. One of the advantages of phasing funding is that the State can opt to create funding sources for the Project upfront that are isolated and not subject to usage and traffic risk. The State also needs to choose whether to bear the usage risk itself, or to transfer some or all of that risk to the market which can be done in a myriad of ways. By contributing tolls to a State-controlled fund such as the Capital Improvement Fund as discussed in Section 7, and providing a tax or

fee-based backing for the fund, usage risk is effectively isolated and borne entirely by the State. Alternatively, the stream of toll revenues can be packaged and sold to bond holders in the form of revenue bonds isolating the State from such risk. Fare-box revenues are significantly harder to leverage and may not be leverageable at all until several years of ridership history is established. In a concession or other more private-sector oriented solution, such risk is often fully transferred to a private contractor, by contracting that their return be paid from Net revenues. While a private-sector oriented solution might reduce risk for the transit-ready bridge phase, it might increase management and other risks for the transit phases. There have been recent concession contracts whereby traffic risk is completely housed with the public sponsor of the project. In turn, the public sponsor enjoys the toll revenues as a means of defraying the annual availability payment that is made to the concessionaire. An Availability Payment is one that is paid if the asset is available for use even if it is not used as expected. This structure reduces the risk to the private sector and in turn the risk they pass to the financial markets, allowing funding to be at more efficient rates.

What is of paramount importance is to remain cognizant of the location and components of this risk to optimally structure, fund, finance and effectively manage the various phases of the Project.

### **Commercial Risk**

Commercial risk is defined as the economic and business risks of competition, alternative businesses or economic cycles. Such risk is well-defined in a recent Moody's report on overall traffic patterns on US toll roads which comments, "U.S. toll roads have suffered the global economic downturn that began in earnest last year, with traffic volumes declining noticeably in the second half of 2008 and continuing to decline in first quarter of 2009. While the industry has



proven reasonably resilient so far, further economic deterioration could place downward pressure on credit ratings. While we do not expect to see widespread ratings downgrades across the sector, pricing power could diminish if the recession is deeper than currently expected, or if gasoline prices return to and remain at the peak levels seen in mid-2008.”<sup>7</sup>

Commercial risk normally manifests for transportation assets as usage risk, i.e. the risk that some exogenous event will cause micro or macro economic events which in turn will cause traffic and/or ridership in the Corridor to diminish temporarily or permanently. While the existing Corridor operates at capacity during rush hour, and congestion is a more visible problem than potential revenue shortfalls, the long life of the new bridge and the potential for economic shifts must always be considered in the medium and long term. This risk is compounded by the addition of the transit components which will add new options that are by their nature designed to reduce traffic on the bridge. Commercial risk is often segregated from usage risk so that it can be separately allocated. For example a concessionaire may bear the burden of traffic usage risk for elasticity but may not do so for competing facilities or State controlled access limitation. The first would be a usage risk and the second commercial risk.

Mitigants for commercial risk include certain model options including long-term concession and trade-sale as well as long-term management contracts where the traffic risk is specifically allocated to the contractor. Another example of commercial risk mitigation is the indexing of payments to inflation within a long-term concession contract in order to buy-down the risk borne by the contractor for long-term

inflation impact. In many cases, the public sponsor enters into a commensurate inflation hedge to offset its long-term risk of increased payments. Again, any structural solution to commercial as well as usage risks must be undertaken with a view to its impact on transit risks in subsequent phases.

### **Operation and Maintenance**

Operation and Maintenance risk is defined as the group of risks related to the day-to-day running of the facility including expenses due to changes in price of materials or labor, timing of needs or unforeseen events. This category of risks also includes significant technology risks related to tolling methodology and other construction and management choices. Electronic tolling for example brings with it a group of sub-risks related to the time and capital necessary for installation, creation and effectiveness of enforcement programs and the technology and trained staff necessary to enact them, etc. In the following procurement section, we discuss a family of DB models that include the Operations and Maintenance within the contractual scope of work. (Design-Build-Operate-Maintain or “DBOM”), or a simple Operations and Maintenance contract once the Project is built, both of which allocate some of the operation and maintenance risks to the contractor by fixing a portion of the compensation. In addition to a DBOM or an O&M contract, other ways to manage this risk include an availability payment structure, where a small upfront payment is augmented with a long tail of periodic payments made based on the availability of the asset regardless of its financial performance, as discussed above.

Labor issues both for contracting and for operations also fall into this category. The expenses of running the new Corridor are subject to many variations including technology, labor costs and labor regulations within the State. Financial risks related to operations and

---

<sup>7</sup> *Moody's Investors Service. "Industry Outlook, U.S. Government-Owned Toll Roads". Moody's Global Infrastructure Finance. (June 2009):2*

maintenance can be priced in or out of contracts including operations and maintenance. Absent such a contract, the Project retains all operations and maintenance risks. Identification of these risk and their component parts is critical to determining how to allocate them and how State or federal actions might influence them. One example of such influence is the requirement that federal projects comply with Davis Bacon rules or Buy American guidelines etc.

Operating risks retained by the Project will be priced into any direct borrowing against Project revenues, as discussed above. It is particularly important to manage such risk with respect to technology where a balance must always be drawn between money saving technology and the increased value or loss in revenue the technology provides. Technology risks have been around as long as there have been substantial construction projects, the caissons used to build the Brooklyn Bridge being a useful New York example from the 1870s, and the slurry walls of the Big Dig in Boston another, more recent, regional example. Unknown or relatively untried technology can cause rating agencies to significantly haircut project projections thereby materially increasing the cost of financing.

For example, in an open road tolling study for the CTRMA in Texas, CTRMA would have saved \$12 million by using open road tolling, but the rating agencies felt that, in 2005, such technology was sufficiently untested that they planned to reduce base case project projections by 20% to determine coverage ratios and perform financial stress tests. The financing impact was to knock \$60 million off the revenue stream with the predictable effects on financing costs. In the end, CTRMA opted for electronic and cash collection as it was, all things considered, the less costly option. The North Carolina Turnpike Authority is building

the first toll road in North Carolina with an entirely cashless system, but they saw it as a policy decision, and chose transportation efficiency and congestion mitigation over financial efficiency when faced with a similar tradeoff.

### **Financial Risk**

Financial risks are defined as the risks of changes in currency, interest rates, market conditions which adversely affect the Project, credit and counter-party exposure, and financial rollover risks. Changes in currency and interest rates may be mitigated through financial hedging techniques. Such hedging carries its own set of risks and therefore must be balanced with overall NYSDOT and State financing policy to ensure comprehensive exposure management. Such risks may also be managed through certain aspects of the procurement process discussed in Section 3 below in which a contractor or supplier assumes them as part of their contractual obligations.

In terms of market risk, beyond the ebbs and flows of normal market cycles, there is currently an elevated level of systemic risk related to the global financial system which has curtailed liquidity and disrupted historic norms in market relationships and indices such as LIBOR, Treasury bonds, and Municipal bond indices as well as between the cash and derivative markets. In such an environment, the best risk mitigant from an issuer standpoint is to maintain flexibility and to diversify funding sources. Being adaptive and flexible in issuance and ready to take advantage of windows of opportunity offered by the market during the most volatile periods can provide a tremendous strategic advantage.

Credit and counter-party risks relate to the parties including contractors, suppliers and finance providers failing to meet their obligations or, in a worst case scenario, going out of business prior



to the fulfillment of their contractual commitments. The most effective risk mitigant for this family of risks is good due diligence on the financial stability of potential partners, but there are multiple enhancements that can be added to individual contracts to provide incremental security. Such enhancements might include surety bonds or performance and payment bonds, as discussed in Section 3.below.

Financial rollover risk is an additional factor that must always be considered for any financing entity. While these risks may be more extreme in the concession model where much of the acquisition financing is often in the form of short-term bank debt that must be refinanced for the project to remain viable, the same risks adhere in the more conventional world of municipal borrowings where early stage financing may need to be replaced within a specific time frame, bringing with it market timing risks. The concession model has been strongly affected by the market disruptions which began in August of 2007, and committed long-term financing for the concession or long term lease model went from being readily accessible to completely inaccessible. The Florida I-595 lease completed in 2009 was the first such project to be financed since the financial crisis began, and was financed largely with shorter-term bank debt. In addition, potential equity participants are demanding a much higher risk premium, raising the overall weighted average cost of capital and making such transactions much less attractive than they have been in the past.

Financial risks may be mitigated to some extent by the same principles we have echoed throughout, flexibility and a broad array of markets and options so that failing a global market seizure, some or another market is always available to refinance. Such risks must also be mitigated however through a thoughtful

and conservative modeling of construction draws and financing time frames to try to create a margin of safety both in dollars required and timing for refinancing, so that the Project can take maximum advantage of market windows while being relatively insulated from market downturns or disruptions.

### **Management Risk**

Management risk is defined as managerial and executive staffing decisions as they affect the Project as well as the risk inherent in the implementation of the strategic plan by management. Standard and Poor's notes in its report on construction risk cited above that while major failures by private sector partners garner the lion's share of the headlines, in the combined experience of public and private sector participants in infrastructure PPPs, by far the largest cause of unmanageable construction risk springs from unexpected management challenges to the public sector which are particularly acute with a project of this magnitude.<sup>8</sup> Management risks for transit include labor negotiations and the history of union agreements in New York State transit operations.

These issues, combined with the relative lack of partnership experience with the private sector in New York State, are to be borne in mind as the Project proceeds, as this class of issues was cited by 25% of the S&P survey participants as the single greatest obstacle to effective risk management. Closely behind bureaucracy as a source of construction phase distress was over-aggressive budgeting, driven by competitive bidding. Such strategically under-priced winning bids gave rise in various projects to "insufficient liquidity, reserves, and contingency funds; and an inability to absorb (sometimes relatively minor) cost overruns."<sup>9</sup> Management risks may be mitigated by choice of structure, as laid out in

---

<sup>8</sup> *Standard & Poor's. Op. Cit. 3*

<sup>9</sup> *Ibid: 9*



Section 4 below. Risk mitigation by structure is not a simplistic choice between public and private. An excellent example of a public sector entity that has successfully mitigated management risk is the Bay Area Toll Authority (“BATA”), created to administer the seismic retrofit dollars in the San Francisco Bay area. The de-politicized tolling regime BATA enjoys has allowed it to evolve organizationally from its initial charge into a highly efficient funding mechanism for evolving regional transportation needs, and may be an interesting model for the Project to study.

Management risks can also be mitigated by contracts for maintenance, construction, toll-collection or any other component of the project, or by financial contracts which lay off these risks to bond-holders or private sector buyers, again, with the need to balance laying off risks for the transit-ready bridge with the impact of doing so on transit components. The State can also retain much of the management risk by using primarily a tax or fee-based credit to finance the Project while allowing tolling revenues to flow into a State-controlled fund (See Section 7).

### **C. Risk Mitigation Techniques**

#### **Project Phasing**

The design and construction of the Project in phases will allow for staging of project delivery as funding becomes available. While complexity of phasing is sometimes cited as increasing the overall risk of a project it can also reduce the funding costs of the project by allowing for phased financings. In this case the Project Team has already defined a modular approach that should have a positive effect. By separating the Project into three discrete phases: 1) the transit ready bridge along with highway improvements through the corridor, 2) the BRT component, and 3) the CRT component, most transit-specific risks are carved out of the initial build project, leaving only the necessity to ensure structural underpinnings and approach routes of sufficient capacity to support the intended transit options. The Project team has further identified incremental phasing within the transit-ready bridge phase so that highway improvements can be completed in discrete, more manageable components. NYSAM concurs, noting with respect to the TZB/I-287 Corridor, “the State should ... consider appropriate staging of

project elements as part of any financing methodology.”<sup>10</sup>

Financial Phasing, including early implementation of certain revenue sources should support and enhance project phasing. This was the case in the New Jersey Hudson Bergen Line Light Rail project, a 20.6 mile light rail system connecting urban communities in Northern New Jersey that was financed by members of the FA team. An overall cost of \$2.2 bn makes it the largest ever public works project in NJ, and it received Federal funding of \$1.2 bn from the FTA. Initial funding included State backing, and the rating process included first time consideration of Federal Appropriation Risk. Subsequently, the first ever Full Funding Grant Agreement (“FFGA”) “naked” Grant Anticipation Revenue Vehicle or GARVEE Bonds (bonds secured only by future FFGA receipts; also known as Godiva bonds, see discussion in Section 5 below) were used to release the State pledge to return their debt capacity. This phased process showed that transitional financings can be used effectively to bridge the gap to innovative finance, with a later phase release of an early State pledge. It also

<sup>10</sup> NYSAM Final Report, Op. Cit.: 45





showed that Federal funding is a securitizable funding source if properly evaluated, and that multiple funding sources can address varied project elements.

The rolling stock for this project was funded with vendor finance, demonstrating that vendor and contractor financing can provide initial capital on projects. Vendor financing can reduce early outlays by the entity building the Project, enabling it to proceed more quickly than Project revenue sources might permit. As discussed in Section 5 below in the description of GARVEES, such speed of execution can not only reduce risks related to construction cost inflation, but also minimize financial risks by eliminating rollover risk of short term construction financings.

Thoughtful and well-managed project phasing was a key part of the successful risk management program undertaken by BATA that has garnered praise from rating agencies and investors alike. BATA has the highest rating of a toll supported facility in the country, with only TBTA at the same level of rating, and the rating agencies place great emphasis on their risk management in this context. This high rating in turn contributes to a lower cost of funding, other things being equal. The overall seismic replacement project BATA was created to undertake was split into 21 phased contracts, and the total estimated project cost is \$8.7 bn of which \$5.2 bn has been spent to date. BATA's active risk management process includes an uncommitted contingency of \$0.7bn, or 22% of the remaining project expenditures.

In support of phasing the funding element, existing NYSTA documentation allows for the implementation of a surcharge on the Tappan Zee Bridge, and such a surcharge on users of the existing bridge would have an excellent nexus to the new bridge as well as a substantial history of toll inelasticity to support it as a

credit. Such a surcharge could be applied prior to the beginning of construction so that it could be available to borrow against early on in the construction schedule. BATA was established to administer just such a surcharge on the seven San Francisco bay area bridges to enable a costly seismic retrofit to proceed in the most cost-efficient manner possible.

To the extent that there is an imposition of taxes or other non-tolling funding sources as discussed in Section 7 below, the State should consider phasing such funding sources in early to take pressure off timing to completion for the new facility. This allows financing against a funding source that does not bear construction or revenue risk. The State has a choice as to whether it makes the Corridor or components thereof a project financing or not, and thereby choosing whether to expose bondholders to construction and completion risks and usage risks or not. One way to retain these risks is to roll tolls into a fund such as the Capital Improvement Fund (discussed in Section 7 below) which also has other funding sources, thereby removing most or all project risk from the bond holders.

### **Structural Solutions**

Please see Section 4 for a discussion on the relative risk profiles of the various models under review and how such models address the various risks identified above.

### **Financial Solutions**

Financing techniques which address various risks are reviewed throughout this report. A very relevant example that suggests some of the risk tradeoffs in financing decisions is the recent North Carolina Turnpike Authority inaugural toll road project. Here the Authority, advised by members of the FA Team, worked to identify and evaluate potential third party credit assistance, including (1) an annual subsidy from the State of \$25 million a year, (2) credit support from the



State DOT in the form of backstopping annual Operations and Maintenance expenses, Repair and Rehabilitation expenses, and a Construction Completion Guaranty, and (3) a TIFIA loan from the federal government that is deeply subordinated in the flow of funds.

After significant quantitative work and lengthy negotiations, the Authority secured a \$25 million annual contribution from the State's Highway Fund for the life of the bond issue. Given the highly rated nature (AA category) of the state revenue stream, rigorous analysis was done to assess the value of these monies as either being contributed in the broader toll revenue flow of funds, or being leveraged as a stand-alone credit. Ultimately, there was much more project value in leveraging these funds as a AA rated State credit than buying down the cost of the BBB rated toll revenue credit. Additionally, the State DOT agreed to replenish shortfalls in the Operating Reserve Fund if the Reserve Fund was needed to pay annual Operation and Maintenance expenses due to toll revenue underperformance. This guaranty allows the use of a true gross revenue pledge on the bonds, resulting in lower required annual

debt service coverage and improved financial feasibility.

As the challenging financial markets hampered the Authority's ability to fully fund the project, the State DOT further supported the Authority by offering to backstop annual Renewal and Replacement expenses if the Authority experienced cash flow shortfalls related to the traffic and revenues. Finally, the State DOT bolstered the underlying credit by offering a Construction Completion Guaranty for the delivery of the project. While any cost overruns are expected to be fulfilled by the design-build firms pursuant to underlying fixed priced contracts, the additional support from DOT protects bondholders from the dilutive impact of any project Completion Bonds.

Lastly, the Authority's financing team has spent considerable time securing and structuring a \$400 million TIFIA secured loan, which will be secured by a deeply subordinated pledge of surplus toll revenues. With Treasury rates currently at very low levels, there is considerable financial benefit of incorporating the maximum amount of a TIFIA loan in the funding plan.

#### **D. Conclusion**

The only thing one can safely say about how all of the risks highlighted above will play out in the financing of the Project is that the reality in 2013 and beyond will be different than can be imagined from our purview today, and that, as was stated earlier, the best protection for any issuer is to maintain, to the greatest extent possible, flexibility in financing techniques coupled with the greatest possible diversity in funding sources. Again, from NYSAM, "The Commission believes that the size and scope of the TZ Project require that the State embark on a thoughtful process to openly and fairly

examine every possible financing and procurement method possible to deliver the project. The process must begin without any preconceived solutions and keep pace with radically changing capital markets and Federal funding opportunities."<sup>11</sup> A nimble and efficient model and financing structure coupled with a robust management team equipped to be responsive to changing markets will be essential elements of programmatic risk management.

<sup>11</sup> NYSAM Final Report, Op.Cit.: 44-45





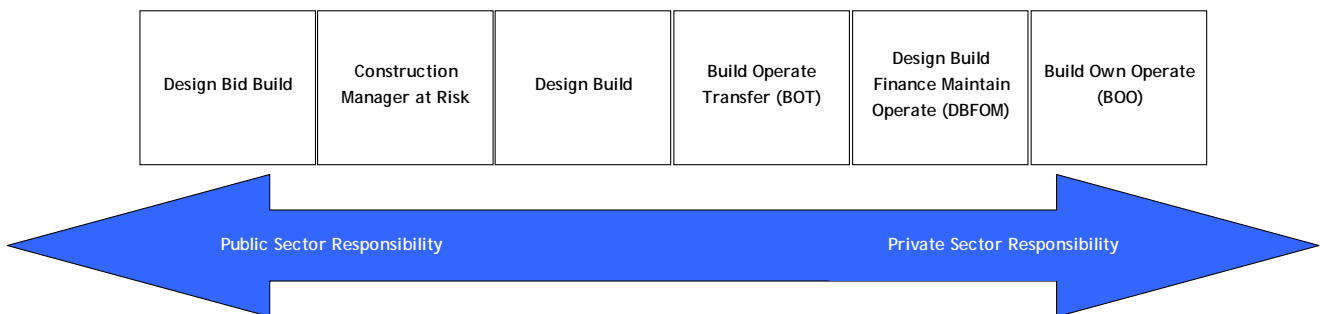
### 3. PROCUREMENT STRUCTURES

Currently available project delivery methods have moved beyond the traditional Design-Bid-Build (“DBB”) model. The process of project delivery (a) begins with the definition of the project scope, (b) involves a framework of designers, construction firms and numerous other professional consultants who work towards (i) sequencing the design and construction operations and (ii) executing the design and construction with the ultimate goal of project closeout and start-up. The method of project delivery should be selected based on each project’s unique characteristics. Various project delivery methods are available to developers of public projects in the U.S. While traditional DBB delivery remains the most common approach, given the growing demands of expanding project size, costs, complexity and delivery period, there is considerable interest in alternative delivery methods which offer potential money and time savings. These methods are used to incorporate lifecycle cost issues related to efficiency in project maintenance and operations.

Across the nation, there have been many changes in procurement laws, with public

agencies now typically granted similar flexibility as the private sector to acquire construction services by way of alternative project delivery methods, e.g., Construction Manager at Risk (“CMR”) and Design-Build (“DB”). These methods include opportunities to let contracts for the delivery of operations and maintenance by the private sector as well as purchasing long-term warranties. It should be noted that the Construction Industry Institute maintains there are truly only three fundamental project delivery methods: DBB, DB, and CMR.

Essentially the various delivery methods can be categorized along a continuum of control/risk ranging from complete public sector control and retention of all project delivery risks under a conventional DBB to complete private sector control in a Build-Own-Operate (“BOO”) delivery method. The FA team agrees with the Construction Institute’s assessment of delivery methods, but notes the there is still a fair amount of discussion on the topic. While there are numerous permutations, the following graphic identifies the core delivery methods that are typically considered.



Generally in a DBB project the owner hires a construction manager who functions as agent of the owner and will coordinate and manage the separate civil engineering and systems contracts associated with complex projects such as the Corridor. In DBB, there are separate contracts for design and construction and all design documents are 100% complete before construction begins. The owner's responsibility for cost and timely delivery is subject to risk transfer provisions contained in its design and construction contracts.

In a variation of a standard DBB procurement, or when a Project does not lend itself to a DB procurement structure, some States and their transportation authorities have turned to Guaranteed Maximum Price (“GMP”) contracts. Such contracts are commonly used and provide price certainty up front. In return for price certainty, there is a negotiation between the parties as to the allocation of all non-cost risks. GMP contracts are typically structured in a manner to preserve some level of flexibility, create both incentives and penalties for performance under the contract, and prudently address dispute resolution and litigation. An example of flexibility would include fixed-price with economic adjustments such as movement in the cost of labor, fuel, asphalt or materials during the contract period. Milestone incentive payments and liquidated damage penalties are standard tools within these contracts to balance the risk and provide for performance reward. Lastly the legal structure of the contracts is of paramount importance as it will govern inevitable change order provisions, dispute resolution and litigation matters.

Alternatively, a Construction Manager at Risk does not function as an agent of the owner, but will provide the coordination and management of the integration of the civil and systems contracts. The CMR is ‘at-risk’ for the final cost and on-time delivery. The premise for CMR is to bring professional management to all phases of project

life to the owner whose organization may not have the necessary capabilities. The owner will authorize the CMR to handle the construction and provide inputs to the design phase – the owner is typically responsible for design.

The CMR contract will usually be let with a guaranteed maximum price (“GMP”) contract whereby the owner is not liable for cost in excess of the established ceiling and there are incentive and penalty clauses related to CMR performance risk; that is the “performance risk” for cost and time is transferred to the CMR. In summary, in a CMR, there are (1) separate contracts for design and construction, (2) selection of the CMR is typically based on qualifications and past performance, (3) schedule typically provides for overlapping design and construction and (4) the owner expects the CMR to commit to a GMP contract, a delivery schedule, and accept performance risk.

In the various iterations of the DB method, the DB contractor typically subcontracts the various civil and systems contracts or, alternatively, forms a joint venture with key specialized partners. DB has become a fairly common procurement structure used to allocate risks more efficiently between States and private sector contracting partners. Design and construction run concurrently. DB contracts are typically guaranteed fixed-price, date certain contracts whereby the DB contractor is typically responsible for quality, budget, schedule and performance of the completed project.

According to the United States Department of Transportation (USDOT), the DB procurement technique is used by a majority of states to enhance their infrastructure delivery.<sup>12</sup> In the 2006 USDOT study, the use of DB procurement in US states or in similar legislative and operating environments showed significant

---

<sup>12</sup> US DOT. *Federal Highway Administration, Design Build Effectiveness Study (January 2006)*.

decrease in construction time when delivered by DB versus the traditional DBB, and less substantial but still meaningful decreases in overall project cost. The study observed that speed of delivery is the most significant factor motivating project sponsors to try DB with cost control as the next most frequently cited reason for using this approach. We would observe that given the recent run up in commodity prices and volatility of construction material prices that negatively impacted NYSDOT's general construction budget, time savings are most likely to result in amplified cost savings in the current environment.

Similarly, in a 2007 consulting study regarding DB procurement prepared for Infrastructure Partnerships Australia ("IPA"), comprehensive procurement in which a single entity is offered an opportunity to design, construction manage and deliver a project had superior cost efficiency, significantly lower cost over-run and was generally delivered ahead of time<sup>13</sup>. Of interest for the Project, the Study also concluded that such private sector procurement provides "superior performance in both the cost and time dimensions, and that the [procurement] advantage increases (in absolute terms) with the size and complexity of projects."

The IPA study evaluated \$10 billion in total project value and revealed the following success in managing construction risks through design-build procurement<sup>14</sup>:

- Superior cost efficiency over traditional procurement, ranging from 30.8% when measured from project inception to 11.4% when measured from contractual commitment to final outcome.
- On \$4.9 billion of P3 projects the net cost over-run was only \$58 million – not statistically different from zero. For \$4.5

billion of traditional procurement projects, the net cost over-run amounted to \$673 million."

- "Between the signing of the final contract and project completion, P3's were found to be completed 3.4 percent ahead of time on average, while Traditional projects were completed 23.5 percent behind time."

In addition to time and cost savings, well-constructed DB contracts allocate risks to the parties best suited to bear them. DB substantially shifts responsibility and transferable risks from the owner of the infrastructure to the contractor in comparison to a traditional DBB procurement. With the DB model, the public authority owner is responsible for reviewing plans, implementing quality control measures, ensuring that project specifications are met, and holding the DB contractor accountable for overruns, delays and/or defects.

In a properly constructed DB contract, incentives between the public authority and the contractor are aligned, and the contractor is compensated for on-time and on-budget delivery and penalized for deviations. Since the cost and completion timeline may be difficult to estimate under DB, the contractor assumes a higher degree of risk in comparison to a DBB. The level of cost and completion timeline uncertainty is influenced by the amount of preliminary design work that may have been undertaken prior to initiating the DB process for the infrastructure project. If the project specifications end up being more costly or difficult to complete than the contractor has estimated, the Design-Build Contractor will incur a loss on the project. The professional reputation and financial strength of the DB contractor therefore become particularly important considerations; along with performance guarantees in the form of payment and performance bonds, or similar types of collateral (see Counter-Party Risk in Section 2 above).

<sup>13</sup> The Allen Consulting Group "Performance of PPPs and Traditional Procurement In Australia. Final Report" (November 30, 2007)

<sup>14</sup> *ibid*

A typical benefit offered by DB is exemplified by the North Carolina Turnpike Authority, which sold its inaugural bond issue in July 2009, whose DB team proposed a change in the Authority's initial phasing plan so that it could do the earth-moving differently, in the process saving the Authority several million dollars.

Adding operations and maintenance responsibility to a simple DB contract changes it to a Design Build Operate and Maintain ("DBOM") contract. If the developer is responsible for sourcing the capital to build and operate the project, the method is referred to a Design Build Finance Operate and Maintain ("DBFOM"). For Greenfield projects in the United States, the DBFOM is typically referred to as the PPP Concession model, whereby the public sector owner retains the title ownership and regains possession of the project at the end of the contract term. Thus, the public sector still has an ongoing involvement with the private sector developer. The project delivery mechanism whereby the public sector does not have any involvement or control in any of the project development or operations activities is known as Build-Own-Operate ("BOO") model. This, therefore, is a complete private sector infrastructure project.

As noted earlier, there are several alternatives to the pure DB which vary in the extent and longevity of the arrangements, e.g., DBOM and DBFOM. While in any procurement process there is always some risk that a contractor will use low-quality construction methods or provide insufficient attention to critical project issues in order to retain a larger profit, these issues can be overcome by a further extension of the DB contract into a DBOM, or by setting performance criteria over the medium and long term that drive eventual profitability for the contractor and take into account actual performance of the asset in terms of required maintenance and usability. Contracts with these sorts of tails, designed to align not just short and medium term incentives

but with long-term consequences as well, are becoming more common and driving improving outcomes for all forms of DB procurement.

While these contracts are often criticized for limiting opportunities for public sector engineers and employees by transferring responsibility from State DOT's to private engineers, this would appear to be more perception than reality. In fact, for many years New York has outsourced significant portions of road design and inspection work. There is evidence from examples in other states suggesting that DB may actually represent increased opportunities for public sector engineers due to the necessity of increased oversight of the contractor engaged by the relevant public authority. In addition, both traditional and DB procurement techniques rely on private sector construction, so that wage and employment prospects for construction workers are likely to change very little between the two models.

New York State has limited experience with DB, but it has been used on an ad-hoc basis for projects including the Federally-funded Belt Parkway Bridge over Ocean Parkway in Brooklyn, the JFK Air Train, and the joint school construction projections in the Cities of Buffalo and Syracuse. While comprehensive DB legislation does not currently exist in New York State, legislation with limited applicability has been approached on more than one occasion without success. It is our understanding that the New York MTA has used DB on several of its projects in the past. These include the rehabilitation of nine (9) train stations including the Yonkers station and eight (8) Hudson line stations, development of an alternate storage yard and facilities to perform critical maintenance activities for MNR trains that would be affected by the Long Island Railroad East Side Access Project, and development of a new coach and locomotive wash shop.

The FA team believes the magnitude and complexity of the Project warrant serious consideration of a revised procurement structure allowing for enhanced flexibility to take advantage of some of the techniques mentioned. The current financially constrained environment may also be a propitious window of opportunity to implement some form of more flexible procurement legislation. As FHWA notes, "... fiscal and national crises have often been the driving forces behind efforts to permit government to innovate and become more cost-effective. Design-build is viewed by many as one of the most promising 'innovative' approaches to build highway infrastructure faster and cheaper without sacrificing product quality."<sup>15</sup>

Often, state or Federal laws can restrict efficient contracting or the use of new procurement techniques in unexpected ways. In 2007 and 2008, the State of Missouri was working to innovatively procure the replacement or rehabilitation of 802 bridges in a five year period through a single Design-Build-Finance-Maintain contract with the contractor to be paid through an availability payment. The contract was structured to provide a small amount of milestone payments, but full availability payments were to begin only upon completion of the bridges. All bridges would revert to Missouri Department of Transportation (MoDOT) at the end of 30 years subject to negotiated hand-back standards, including National Bridge Inspection Standard of 6 or higher. To keep the process moving, MoDOT retained key risks that enabled bidders to get comfortable with the DB requirements.

---

<sup>15</sup> FHWA. *Risk Assessment and Allocation, Op. Cit.*

A key issue was the challenge of providing the statutorily required surety bonds for such contracts. This project was delayed over an issue of the existing statute that governed the required size of the surety bond. The statutory requirement looked to the overall value of the contract, but did not contemplate a 40-year DBFM contract valued at well over \$1 billion. As written, the statute would have required a surety bond so large that it became too cost prohibitive for the bidders to proceed without a legislative fix. Ultimately, the Governor convened a special session and the existing statute was altered to envision long-term DBFM, not just DB, contracts.

In construction capital expense control, surety bonds are often required but may not be possible given the magnitude of the Project. It is important that the State and the Project Partners recognize and manage this issue early on, changing procurement laws if necessary. Even if the State opts for traditional DBB procurement, the surety bond provisions and other statutory aspects of concessions of the procurement laws may need to be changed, or the Project specifically exempted from their provisions. For instance, in California one of the essential drivers of creating the Bay Area Toll Authority, the operator of all the bridges in the San-Francisco-Oakland area except the Golden Gate Bridge, as a stand-alone entity was the exemption from state procurement constraints that the California DOT is required to operate under.



## 4. STRUCTURAL ALTERNATIVES

### A. Introduction

In the domestic and international markets, there are several models that have been successfully implemented to fund and manage infrastructure assets. The various models differ in several ways. They alter the extent of the relationship among parties, varying along a spectrum from minor involvement in maintenance or operations to transfer of full and permanent ownership to the private sector. Most of these models would be appropriate for the Bridge portion or the Transit portion of the project. Some of the alternatives could be used in combination for the two modes. Given that

most transit related projects expect to function as subsidized systems, the models (such as IPO, Trade Sale and Concession/Lease) which rely on a profit motivation for some discipline are less appropriate candidates. The following pages present several generic descriptions of models in order to characterize the major distinctions in terms of roles, responsibilities and risks. There are many potential variations to these basic models. Our analysis introduces a variety of structures for consideration and summarizes the salient features of several of the market methodologies including:

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>▪ Public Authority Model (Existing &amp; New)</li> <li>▪ Operating Lease Arrangement/Service or Management Contract</li> <li>▪ Long-Term Concession/Lease</li> <li>▪ Availability/Shadow Payment</li> </ul> | <ul style="list-style-type: none"> <li>▪ Trade Sale</li> <li>▪ Initial Public Offering (IPO)</li> <li>▪ Not-for-Dividend Company</li> <li>▪ "63-20" Non-Profit Corporation</li> </ul> |
|--|---|

One of the key elements considered for each method is risk allocation. See our discussion of Risk and its management in Section 2 above for

a full discussion of the following six key risks and their allocation:

#### Type of Risk

<b>Construction/CapEx</b>	<ul style="list-style-type: none"> <li>▪ Risks associated with the cost, successful completion and delivery of construction and timing of expenditures, as well as the financing cost of such future investments</li> </ul>
<b>Usage</b>	<ul style="list-style-type: none"> <li>▪ Risks associated with the number of transactions, traffic risk, price/elasticity risk</li> </ul>
<b>Commercial</b>	<ul style="list-style-type: none"> <li>▪ Commercial risks of competition, alternative businesses, or economic cycles</li> </ul>
<b>Operation and Maintenance</b>	<ul style="list-style-type: none"> <li>▪ Risks related to operations and maintenance expenses due to changes in prices, timing of needs or unforeseen events</li> </ul>
<b>Financial</b>	<ul style="list-style-type: none"> <li>▪ Risks associated with currency, interest rates, market conditions and credit exposure</li> </ul>
<b>Management</b>	<ul style="list-style-type: none"> <li>▪ Risks related to managerial decisions and executive staffing decisions</li> <li>▪ Risks inherent in the strategic plan and its implementation by management</li> </ul>



The key documents of each transaction (e.g., statute, regulations, contracts, loan agreements, concession agreement, lease, etc.) will define the allocation of these risks among the parties to the transaction. The parties to the transaction may include the State, the State DOT, the US DOT, a Public Authority (the New York State Thruway Authority NYSTA, the MTA, or any newly created Authority), private investors, operators, etc. It should be noted that all of the structural alternatives we consider, other than

using the existing NYSTA structure, are likely to require defeasance of some or all of NYSTA's outstanding debt. Legal ramifications of each structure below are reviewed in greater detail in the Legal Implications of Alternatives attached as Appendix A-3.

Summarized below is a simplified matrix showing the expected risk allocation for each of the structures:

<u>Type of Risk</u>	<u>Public Authority Model</u>	<u>Operating Lease Arrangement or Service/Management Contract</u>	<u>Long Term Concession or Lease</u>	<u>Availability/Shadow Payment</u>	<u>Trade Sale</u>	<u>IPO</u>	<u>Not-for-Dividend Company</u>	<u>63-20 Non-Profit Corp.</u>
<b>Construction/CapEx</b>	State/ Authority	State/ Authority	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector
<b>Usage/Traffic</b>	State/ Authority	State/ Authority and Private Sector	Private Sector	State/ Authority (availability) Private Sector (shadow)	Private Sector	Private Sector	Private Sector	Private Sector
<b>Commercial</b>	State/ Authority	State/ Authority and Private Sector	Private Sector	State/ Authority (availability) Private Sector (shadow)	Private Sector	Private Sector	Private Sector	Private Sector
<b>Operation</b>	State/ Authority	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector
<b>Maintenance</b>	State/ Authority	State/ Authority	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector
<b>Financial</b>	State/ Authority	State/ Authority	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector	State/ Authority
<b>Management</b>	State/ Authority	State/ Authority and Private Sector	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector

**Project Specific Terms**

After considering each of these basic models, NYSDOT can develop unique variations on these models in order to accomplish New York State's goals for the Project. There is no template for project specific terms to be universally applied; instead, these terms can be uniquely crafted to accomplish the policy goals of the State and the Project. Approaches which NYSDOT may consider include the provision

for competition for difficult aspects of the overall construction program on design, safety, timing, traffic management, etc. and the implementation of partial or modified structures with features that uniquely address the Project's interests. As the specific requirements of the policy surrounding the Project are determined, each structure can be customized efficiently to address the market's and the Project's requirements.

## B. Existing Public Authority Model (Status Quo)

### Introduction

The NYSTA is empowered to construct, operate, and maintain a toll facility, and to improve and reconstruct the New York State Thruway (a 570-mile superhighway system), subject to certain statutory limitations on NYSTA's right to impose tolls on parts of the Thruway, including I-84 and the Cross-Westchester Expressway.

In addition to maintaining the Thruway in a safe and operable manner, NYSTA is also responsible for the Tappan Zee Bridge, Grand Island Bridge, and Castleton-On-Hudson Bridge. The Authority is not currently empowered for transit but might be able to subcontract its responsibilities to another transit property such as MTA. The Act provides that NYSTA consist of a Board of seven members appointed by the Governor, with the advice and consent of the Senate of the State, to serve for terms of nine years each.

NYSTA shall continue its corporate existence and operate and maintain the Thruway so long as it shall have bonds or other obligations outstanding and until its existence shall be terminated by law. Upon termination of the existence of NYSTA, all its rights and properties shall pass to the State of New York. NYSTA has authorization to issue negotiable bonds and notes for any corporate purpose secured by tolls, revenues, rates, fees, charges, rents and other earned income of NYSTA. The bonds are a direct general obligation of NYSTA - shall not be a debt of the State - secured by a lien on net Thruway revenues.

NYSTA has covenanted at all times to fix, alter, charge and collect such tolls, fees and charges for the use of the facilities as are required in order that, in each fiscal year, net revenues shall at least equal the Net Revenue Requirement – the greater of 1.0x the sum of all payment obligations or 1.20x Aggregate Debt Service. NYSTA does not require approval from any to governmental entity to implement tolls.

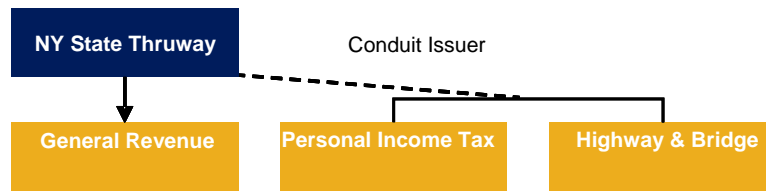
Toll revenues of NYSTA in excess of revenues needed for debt service and actual costs of operation and maintenance may be used for (i) the Reserve Maintenance Fund (ii) any transportation project eligible for assistance under Title 23, or (iii) costs associated with other transportation facilities under the jurisdiction of NYSTA.

NYSTA is eligible and historically has received Federal funds in connection with the funding of various resurfacing, restoration and rehabilitation projects on certain designated portions of the Thruway. NYSTA has received nearly \$731.5 million in Federal highway funding from 1982-2008.

As described above, a model such as this has all of the risk for the Project, its cost and performance retained by NYSTA. The implementation of funding of the Project under this model would be subject to restrictions of the current statute and Bond documents as discussed under Legal Implications of Alternatives, Appendix A-3.



## Description of Authority's Credits



### Risk Transfer

Under this model, all risks are retained by the State / Authority.

### Implementation Time

- Possible Legislative action required, in particular to address transit elements; see discussion of Legal Matters for potential statutory changes related to procurement methods which may be required for transaction preparation
- Transaction preparation – isolation of revenue and cost estimates prior to funding.

### Benefits

- No preparation for a transaction is required
- Because of the ability to issue tax-exempt debt, the cost of debt financing is generally lower than that it would be for a private sector owner
- This credit model is widely acceptable to bondholders, the public, State government, and other stakeholders
- State/NYSTA maintains full operational control
- State/NYSTA maintains control of service level and service delivery
- State/NYSTA maintains control of user fees and other pricing

- NYSTA has the existing capacity to impose a surcharge on the existing bridge which could be used to finance a portion of the construction costs of the new transit-ready bridge
- Capacity is available for junior lien bonds or other subordinated indebtedness under the existing indenture.
- If the existing Authority is considered, several distinctions from the existing regulations and statutes of the Authority could be created, including:
  - distinct contracting/procurement regulations allowing for design/build or other contracting methodologies
  - additional revenue/capital/expense funding via allocation of taxes fees or other revenues to the Authority
  - powers to privately contract for operations, equipment maintenance or other services
  - controls on pricing
  - ability to lease or concession the project
  - a separated pool of funds for construction would need to be created to ensure Thruway funds are not being used to finance construction of the incremental structural components of the bridge



that are connected with transit, or a change to the enabling statute would be required.

**Issues**

- Will have to replace, amend or comply with the existing Bond Documents, which may limit proceeds for the Project at a given price/toll scenario
- State/NYSTA retains revenue, traffic, economic, financing risk and political pricing risk
- State/NYSTA retains significant construction / capital expenditure, traffic, maintenance, commercial, and management risks

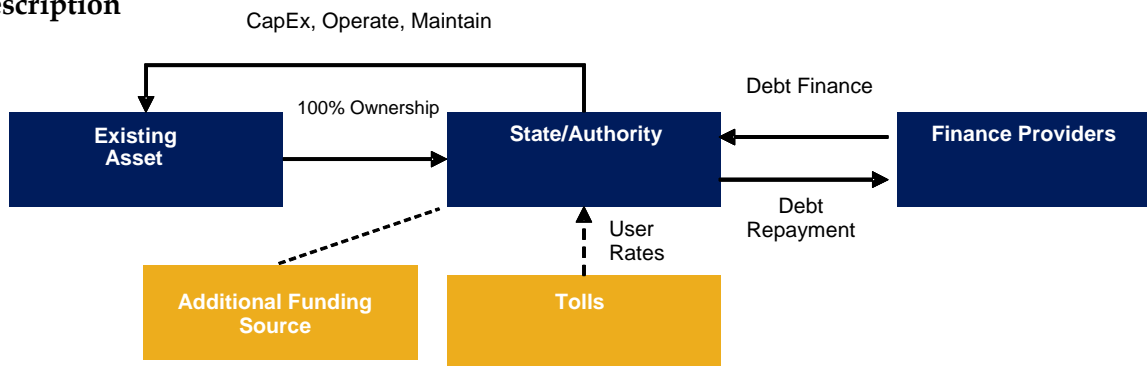
- State/NYSTA remains responsible for financing and related tasks (legal, credit rating, bond insurance, etc.)
- Limited efficiencies from private sector involvement
- If the existing NYSTA structure is utilized, the credit of the Project and the rest of the Thruway roadway may or may not be blended as policy dictates
- Any issuer can be over-leveraged by large projects if careful consideration is not given to the effect on any associated assets such as the Mainline for the Thruway.

**C. New Public Authority Model**

The New Public Authority model preserves public ownership of infrastructure and is consistent with the prevailing model used in the U.S. for the development, financing, management, operation and maintenance of Federal, state and interstate road networks and other revenue generating infrastructure assets. Under this structure, a new Authority (“the New Authority”) would be created pursuant to new State legislation and authorized to develop,

finance, manage, and operate the Project. The New Authority collects tolls or other fees to cover debt service, operating expenses, and major maintenance and rehabilitation costs. The assets are generally managed by the New Authority’s staff, including a board of directors appointed by the State (or regional or local municipal entity)

**Description**



Full ownership of the asset and responsibility for operating, maintaining, investing and

financing the asset can remain with the State/ New Authority, which has full power and

autonomy to set rates and charges. Authorizing legislation to create the New Authority will need to set forth its powers including whether the transit functions are performed by the New Authority or contracted out to another party. Even if contracted out, the legislation would also need to address which entity has responsibility for setting fares.

Funding of the New Authority would be from a combination of sources potentially including tolls and fares. Additionally, the State or a local municipal entity may provide a subsidy or other external funding to the New Authority in excess of revenues generated by the asset. In addition to being empowered to collect tolls, the New Authority could be named as recipient of fees and taxes levied by the State or local municipal entities to be used for capital funding or operating purposes.

Infrastructure projects are generally financed with 100% debt. Nominal equity from the State or Federal Agencies can be added via grants, in kind donations or transfer of work product. This type of contribution typically relate to the purchase of land, upfront design and development expenses, and environmental studies. There are no true equity investors in the New Authority and no dividend or profit distributions; surplus funds are retained by the New Authority for additional projects or could be shared with the State or other projects.

The distinction of this model from the existing NYSTA structure relate to the isolation of the single Project as an asset. NYSTA has an extensive facility traversing several regional economies and presenting a large number of potential transportation movements. The Project is likely to be a multimodal link between two regions with limited movements at a single price. A single link facility like this presents a different traffic risk exposure than

the larger statewide facility and therefore may require different covenants, liquidity levels etc.

If a separate Public Authority is considered, several distinctions from the existing NYSTA structure could be created, including:

- Distinct contracting and procurement regulations allowing for design/build or other contracting methodologies
- Additional revenue/capital/expense funding via allocation of taxes fees or other revenues to the New Authority
- Powers to privately contract for operations, equipment maintenance or other services
- Controls on pricing
- Ability to lease or concession the Project
- As the State and NYSDOT develop policy guidelines for the Project, a more detailed understanding of the possible Public Authority model could be compiled

### **Risk Transfer**

Under this model, all risks are retained by the State / Authority.

### **Implementation Time**

- Implementation of a New Statute forming the Authority
- Legislative; see discussion of Legal Matters for potential statutory changes required
- Feasibility, forecast of revenue and cost estimates prior to funding

### **Benefits**

- Because of the ability to issue tax-exempt debt, the cost of debt financing is generally lower than that it would be for a private sector owner

- This credit can be structured to be highly accepted in the market
- State/Authority maintains full operational control
- State/Authority maintains control of service level and service delivery
- State/Authority maintains control of user fees and other pricing

- State/Authority retains revenue, traffic, economic, financing risk and political pricing risk
- State/Authority retains significant construction/CapEx, traffic, maintenance, commercial, and management risks
- State/Authority remains responsible for financing and related tasks (legal, credit rating, bond insurance, etc.)
- Limited efficiencies from private sector involvement
- The ability of the Project to benefit from the stability of income on the Mainline facility is eliminated

**Issues**

- Lead time will include legislation, Bond Documents, Contracts, Hiring etc.
- Creation of a new Authority with its own staffing and operating costs may be viewed as duplicative

**D. Operating Lease Arrangement or Service/Management Contract**

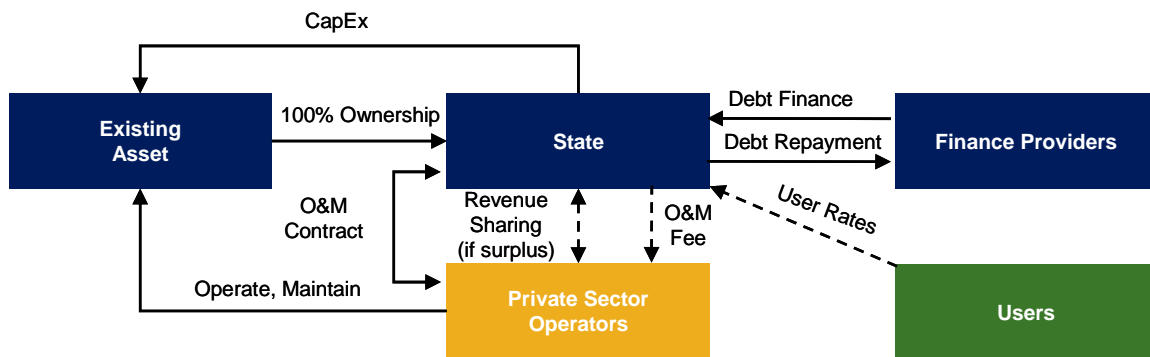
This is a variation of the previous model with the distinction that the authority, existing or new, outsources specific asset management and operational services, with the objective to achieve higher operational efficiencies (i.e. lower cost or higher usage) by contracting out to the private sector a discrete and defined scope of services over the medium term.

Incentives for efficient operations may be included in the contract and result in surplus revenue sharing.

In the U.S., this model is used extensively for individual components of services requested in complex infrastructure assets that require coordination and delivery of different type of services, such as ports and to lesser extent airports. . It would be a possible model for the transit component in combination with the bridge component being funded publicly or privately.

The State / Authority retains responsibility for revenue collection and project construction while the private sector assumes an operating and/or management role and in exchange it receives an operating or management fee.

**Description**





Full ownership of the asset remains with the State /Authority while the responsibility for operating and maintaining all or portions of the asset is transferred to the private sector.

The State / authority remains responsible for the financing of the asset and maintains control on the level of rates/charges and on the service and safety standards. A management fee is paid to the private operator by the State/Authority and the parties may share (within limits set by the tax law) income or revenue from customers if surplus.

Typically, the operator pays the State or relevant authority an amount that can vary according to performance and rates and retains the remaining revenue. The private operator's profits may depend on the performance of the asset, which typically gives the operator incentive to improve operating efficiency and increase revenues. When this is used in a setting that does not generate net revenues, the flow of funds is reversed and the project is subsidized to create a reasonable private sector return for services performed.

The length of these contracts is usually between 1 and 5 years, but may be as long as 15 years under tax law.

### **Risk Transfer**

Under this model, Construction/CapEx and Financial risks are retained by the State / Authority while Operation and Maintenance risks are assumed by the private sector. The remaining risks of Usage/Traffic, Commercial and Management are shared by the State/Authority and the private sector.

### **Implementation Time**

- 3–6 months after any potential legislation or legislative amendments required

### **Benefits**

- The State/Authority transfers part or all of the maintenance and/or operational risk to the private sector
- Effective at introducing private sector efficiency and technical capability relatively quickly
- Can incorporate ongoing efficiency incentives contractually via risk/reward mechanism
- Can be an effective first step to greater private sector involvement
- Generally widely accepted by users
- Pricing control remains with the State/Authority
- The State/Authority retains the ability to use tax exempt financing

### **Issues**

- Does not provide external capital/generates no upfront proceeds for the Project
- The State/Authority retains construction/ CapEx risk and, to a lesser extent, commercial risk
- The State/authority remains responsible for the financing
- Setting outputs/targets in contrasts to create appropriate motivations can be very difficult
- Efficiency in operations create modest annual savings

## **E. Long-Term Concession/Lease**



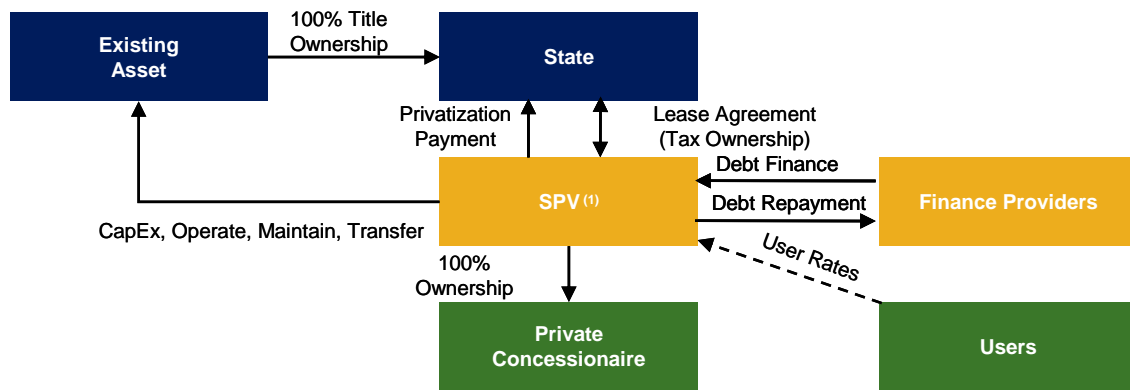
**Introduction**

The long-term concession (sometimes referred to as the "Concession and Lease" or just the "Lease") is the most commonly used method outside of the US for implementing a public-private partnership arrangement in the infrastructure sector. Under a Lease arrangement, the State/Authority assigns (or grants) the right to set, collect and manage user fees in exchange for (i) monetary payments by the private sector (lump-sum or annually as a fee to the State or the Authority for the Project) and (ii) acceptance by the private sector of a pre-agreed set of obligations and

responsibilities over the term of the Lease. The term of the Lease can range from long-term (30 to 40 years) to very long-term (50 to 99 years).

In the U.S., examples of the implementation of this methodology include: Chicago Skyway, Indiana Toll Road, Pocahontas Parkway (Richmond VA), SR 125 (San Diego, CA), TTC – 35 (Texas), Dulles Greenway, Route 495 HOT Lanes in Virginia. International examples are numerous, including the ETR 407 in Canada, Australian airports and Portuguese roads.

**Description**



(1) Note: SPV: Special Purpose Vehicle.

Title to assets remains with the State/ Authority while tax ownership and depreciation benefits transfer to the private sector and responsibility for operating, maintaining, investing and financing the asset during the life of the Lease is transferred to the private sector.

Under this structure, a private concessionaire generally establishes a Special Purpose Vehicle for the purpose of operating, financing etc the asset and that the SPV offers both the private party and the State certain protections by isolating the project from the parent company of the concessionaire.

The original asset along with any additional assets created during the life of the Lease reverts to public sector ownership at the end of the Lease at a pre-agreed valuation. The length of these contracts outside the U.S. is usually around 30 years, although U.S. tax law would suggest longer term (at least 50 years) to allow for tax ownership to transfer

The responsibility for setting rates/charges is controlled by the State / Authority via the contract but can be varied within contractual constraints by the private party. The private

operator's profits depend on the performance of the asset, which typically gives the operator incentive to improve operating efficiency and increase net revenues.

State/Authority may retain a right to revenue sharing from inception of the Lease or in excess of defined thresholds, and may offer financial incentives in addition to tolls (a subsidy, guarantee etc.) if the Project is not funding sufficient.

### Risk Transfer

Under this model, all risks are transferred to the Private sector.

### Implementation Time

- 12 – 24 months after Legislation allowing implementation is passed. Accomplished only when Project Cost/Revenue studies are complete

### Benefits

- Significant proceeds for the Project are raised upfront off the State's or the Authority's balance sheet
- The private sector raises and repays debt with no recourse to the State, allowing for aggressive capitalization with low ratings
- The State / Authority transfers revenue, construction/CapEx, operational and maintenance risk to the private sector
- Integrated CapEx and OpEx planning by lessee may allow for further efficiencies
- May be more acceptable to some stakeholders than a pure divestment (i.e., sale)

- Assets remain in public sector ownership, revert to State / Authority control at the end of the contract
- Failure to perform by lessee can be addressed by State / Authority re-asserting control or exercising contractual rights to intercede or impose financial penalties

### Issues

- The complex arrangements are long term in nature, require complex negotiations initially and, generally, modifications of transaction documentation over the life of the project
- High procurement costs for initial lease and time-consuming implementation process can create public criticism
- Requires continuous monitoring of service and quality standards (can be contracted to third parties)
- Suitable mainly for stand-alone, revenue-generating assets like the toll-bridge portion of the overall Corridor
- Projects which are not obviously self sufficient may require continued State involvement
- Limited upside potential to the State from project success unless sharing arrangements negotiated
- These structures have generally been lesser rated, highly leveraged structures. Current credit markets have made it difficult for aggressive use of this structure.

## F. Availability/Shadow Payment

### Introduction

This structure is suitable for assets with a weak revenue base or assets where the State for policy reasons does not want to move to full

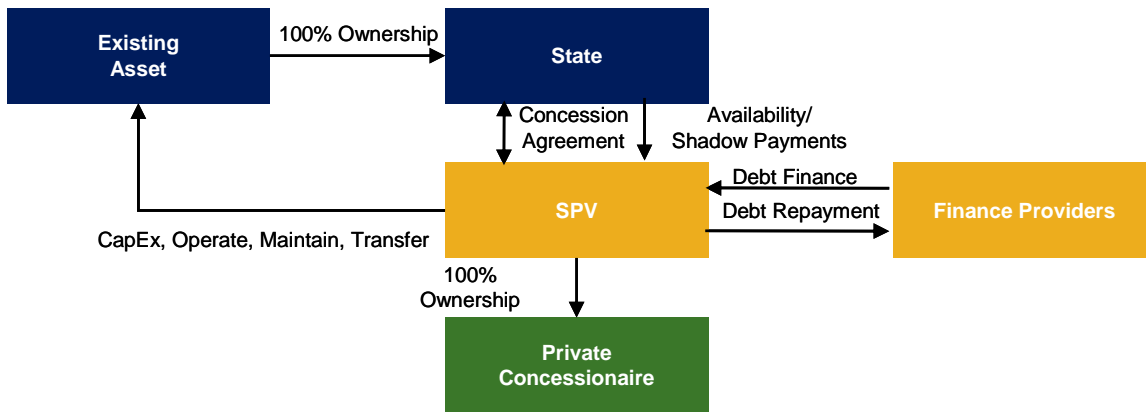
market pricing. In the U.S., this model is being explored in Texas, Virginia and Oregon. International examples include: UK, Portugal, Eastern Europe, Asia and Israel road programs. This is a frequently implemented model in



Europe. We believe it may be an appropriate model for the transit component where it would pay shadow fares or an availability payment

base on a measure such as total seat miles traveled.

**Description**



Availability/shadow payment is a variation on a Lease methodology; it is commonly used for construction projects. It is a type of contract usually between the State and the private sector which allows projects which are not financially self sustaining to be considered as PPP projects for the private and financial participants, however payments could inure to the benefit of the Thruway Authority, a new Authority, or a private sector entity.

The security provided to the lessee is an obligation of the State from its general resources. The difference between availability and a shadow payment is subtle, and is related to the cause and sizing of the payment.

**Availability Payments:** the State agrees to pay the private operator a set amount if certain pre-agreed operating criteria such as service quality and/or safety are met. Measurement and penalty systems are introduced to quantify any variation from the agreed standards and result in an adjustment to the State payment accordingly for toll projects. Generally the State accepts receipt of tolls and the private

sector receives an availability payment instead. The State retains traffic risk under this approach. If tolls are insufficient to make the availability payment the State is obligated to make the payment from other revenues. Source of State’s payment may be taxes or fees.

**Shadow Payments:** the State agrees to pay the private sector a set amount based on volume of traffic. Source of State’s payment may be taxes or some user fees, but not exclusively user fees.

**Risk Transfer**

Under this model, Construction/Cap Ex, Operation, Maintenance, Financial and Management Risks are transferred to the Private sector, while Usage/Traffic and Commercial Risks are held with the State. The contractor and its financing partners or bond holders ultimately are exposed to the risk that the State doesn’t pay. It is likely that an availability/shadow payment would be subject to appropriation.

**Implementation Time**

- Financing is accomplished after all agreements are negotiated for shadow payments, traffic feasibility is required

**Benefits**

- Permits procurement or maintenance of significant assets by the State, using a deferred payment stream (availability/shadow payment)
- The private sector assumes life-cycle costing risks
- The private sector raises and repays debt, assuming financing risk
- Payments from the State allow the private sector to secure better financing terms than with real user fees

- The State transfers construction/CapEx operations and maintenance risk to the private sector
- Can be used to minimize tolls through State subsidy of discounts. Generally subject to public debate because some payments are from non Project use revenues.

**Issues**

- Ongoing payments from the State to the private sector
- Requires continuous monitoring of service and quality standards (can be contracted to third parties)
- Limited risk transfer if the State continues to retain the responsibility for and risks of collecting real user fees

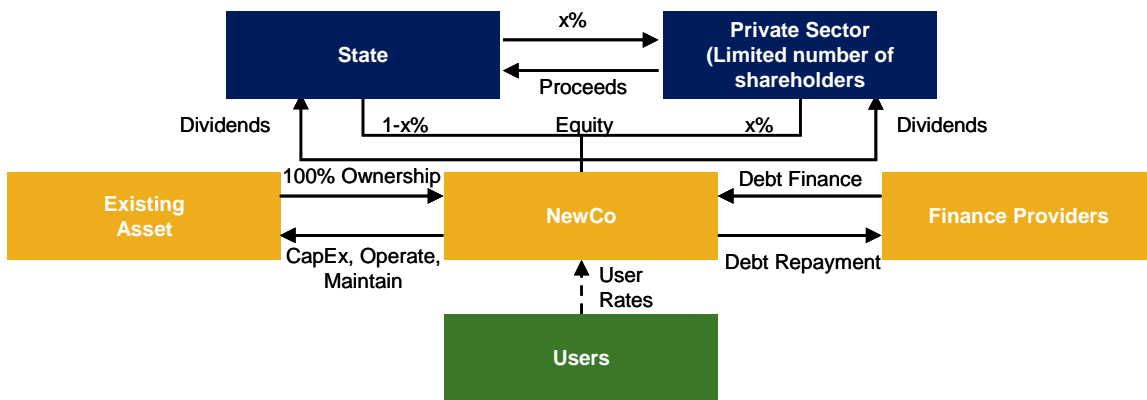
**G. Trade Sale**

**Introduction**

This is similar to a long-term Lease, but without reversion of ownership. A contract establishes the private sector entity's

obligations, responsibilities and financial awards. Ownership is limited to the State and a limited number of private sector shareholders.

**Description**



A newly created company ("NewCo") has 100% ownership of the asset from the transfer of the title of assets into NewCo, or of

concession ownership into NewCo. The State sells total or partial equity ownership in NewCo to the private sector, such as a financial or strategic investor or infrastructure fund. No

publicly traded shares are sold. As opposed to a Lease, ownership is actually sold for an indefinite period of time and does not automatically revert to the State.

The State may regulate user fees for public policy purposes. NewCo is responsible for the construction/CapEx, maintenance, operation and financing of the asset.

### **Risk Transfer**

Under this model, all risks are transferred to the Private sector.

### **Implementation Time**

- 12-24 months after implementation of Legislation. Implementation requires Project feasibility information.

### **Benefits**

- May carry a premium price over long-term Lease due to indefinite ownership but this is untested in the U.S.
- Significant proceeds for the Project
- NewCo raises and repays debt; no recourse to the State, allowing for aggressive capitalization

- The State transfers revenue, construction/CapEx, operational and maintenance risk to the private sector
- Integrated CapEx and OpEx planning may allow for further efficiencies
- The State can retain some control by only selling a portion of the asset
- The State can retain minority board representation

### **Issues**

- Regulatory framework required to ensure private sector maintains asset and service quality
- Corporatization process (creation of NewCo) prior to the transaction
- State retains risks commensurate with its ownership stake
- Asset does not revert to the State
- This can be implemented similarly to private utilities with regulated or unregulated pricing

## **H. Initial Public Offering**

### **Introduction**

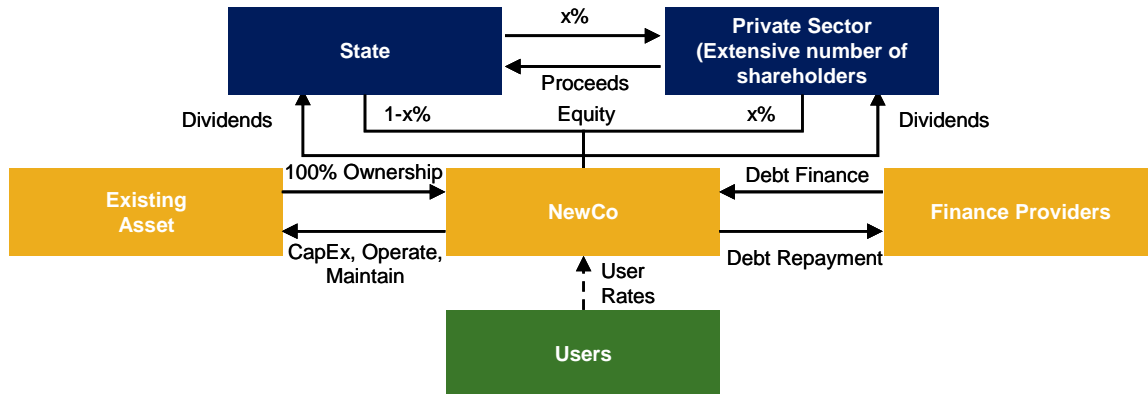
Similar to the Trade Sale except that a partial public equity offering in NewCo is made, and NewCo becomes a publicly traded entity through the initial public offering (IPO). Private sector ownership is diffused across a broader investor base.

This methodology is the French model for privatizing roads. International examples include: ASF (France), SANEF (France), Autostrade (Italy), MTRC (Hong Kong), SMRT (Singapore), Japan Rail (Japan). (See discussion under Section 7 below)





**Description**



NewCo has 100% ownership of the Asset or the Concession, and the State sells partial ownership in NewCo to the private sector, through a listing on a stock exchange where the shares are traded.

Only a portion of the State’s interests are sold for several reasons: The market will want to see some performance risk retained by the State to ensure non interference from relevant regulatory bodies and to insulate against what is perceived as political risk; and low cash flow in the initial years will not allow value of a full sale to maximize the State’s return.

As opposed to a Lease, ownership is actually sold and does not automatically return to the State after a set period of time. Capital is raised through the equity offering and through the debt markets in a highly leveraged corporate structure, and NewCo is responsible for the construction/CapEx, maintenance, operation and financing of the asset.

**Risk Transfer**

Under this model, all risks are transferred in part to the Private sector while the State retains the risks to the extent of its retained ownership position.

**Implementation Time**

- 12–18 months after passage of Legislation and preparation of all project cost and feasibility work

**Benefits**

- Significant proceeds to the State upfront
- NewCo raises and repays debt
- The construction/CapEx, operational and maintenance risk is transferred to NewCo
- The State can exercise some influence in the asset through control and governance mechanisms including board representation, regulation, company by-laws, or veto rights
- State can retain control through holding a majority stake (reducing funds raised)
- Shares are publicly traded with no single investor in control, unless such investor accumulates or the State retains a majority stake
- State would be able to generate additional proceeds in the future by reducing its ownership stake once operations have improved, and, subject to market conditions, valuations has increased

**Issues**

- IPOs normally carry a discount over trade sale prices so less capital is raised initially

- Regulatory framework required to ensure private sector maintains asset serviceability
- Complex corporatization process (creation of NewCo) must be completed prior to the transaction
- There are additional regulatory requirements for a listed company (e.g., reporting, governance, Sarbanes-Oxley, etc.)
- Given the equity market prices on income and growth, highly leveraged, price regulated facilities are only viable offerings when they become mature cash producers
- State retains risks commensurate with its ownership stake
- Asset does not revert to the State
- Entity will be subject to Federal Income Tax

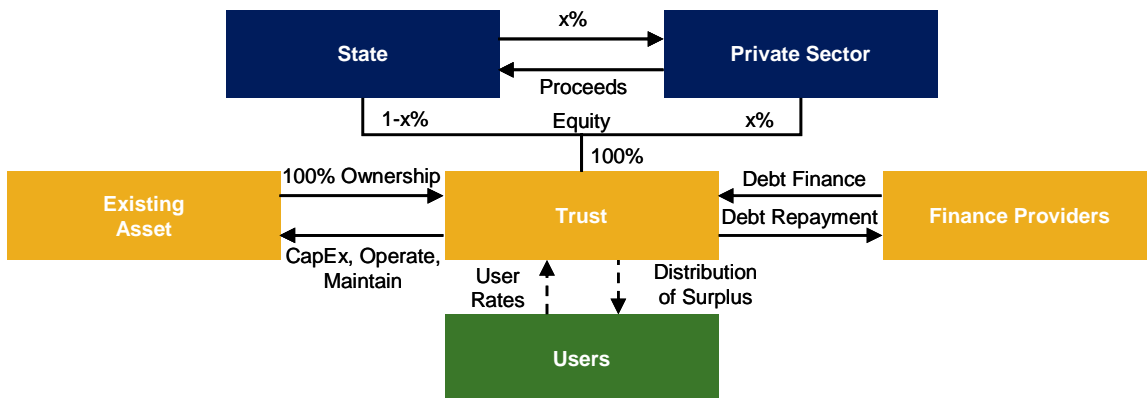
**I. Not-for-Dividend Company ("Trust")**

**Introduction**

This model is pursued for large, complex infrastructure assets where the policy objective is not to have private sector profit making and is particularly suitable where subsidies exist or

are required. Surpluses (dividends) are reinvested in the company or used to reduce charges. International examples include: NATS (UK), and NetworkRail (UK).

**Description**



Full ownership and operation of the asset is transferred from the State to an entity that does not distribute dividends (Trust), and that entity is subject to economic regulation by the State.

Financial surpluses generated from the asset are retained for the benefit of customers/users instead of being distributed to shareholders as dividends. The surplus can be transferred to the customer/user through a reduction in rates/charges or retained by the Trust for future investment.

Potential structures for this entity include a company limited by guarantee, a cooperative, or a trust. Consideration payable to the State for the sale would be provided by the raising of debt capital by the not-for-dividend entity, however, in order to ensure that the entity has sufficient reserves against losses, no consideration for the equity value of the company is likely to be achievable. The entity is thus a 100% debt funded entity with no dividend distributions.

In order to incentivise effective performance and efficiency, a management incentive package is typically designed to align management incentives with performance and efficiency outputs.

### **Risk Transfer**

Under this model, all risks are transferred to the Private sector.

### **Implementation Time**

- 12-24 months

### **Benefits**

- Designed to facilitate raising of long-term, low cost private finance
- Allows for 100% leverage
- Significant proceeds to the State

- Acceptability to stakeholders due to no dividends pay-out to the private sector

### **Issues**

- Requires more supportive regulatory framework than in the previous methodologies
- Incentivization of management unproven
- Asset does not revert to the State
- Likely to require higher cost taxable funding than the 63-20 structure discussed below but under less restrictive rules regarding executive compensation and management contracts
- Entity will be subject to Federal Income Tax

## **J. "63-20" Non-Profit Corporation**

### **Introduction**

The use of "63-20" Non-Profit Corporations or other similar entities in structuring public-private infrastructure financings preserve the ability for a project to be financed with tax-exempt bonds, on behalf of private sector developers, through either established conduit issuers or creation of non-profit corporations pursuant to Internal IRS Revenue Ruling 63-20.

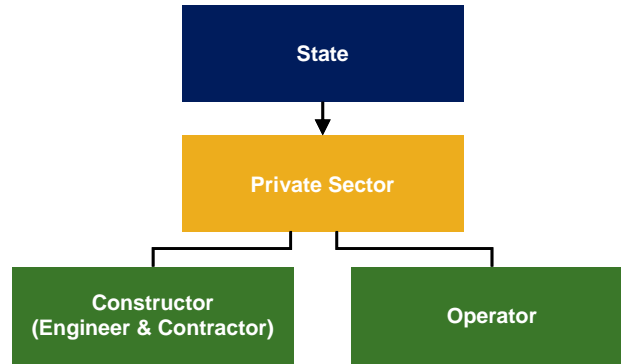
The "63-20" Non-Profit Corporation, not the private sector developer, will be the owner and

operator of the project, retaining the rights to develop the project.

In the U.S. examples of the implementation of this structure include: Virginia's Pocahontas Parkway, South Carolina's Southern Connector, Massachusetts Route 3 North and the Las Vegas Monorail.

---

### **Description**



In order for a Non-Profit Corporation to issue tax-exempt debt, it must satisfy the following criteria established by the IRS Revenue Ruling 63-20:

- The corporation must engage in activities which are essentially public in nature
- The corporation must be one which is not organized for profit
- The corporate income must not inure to any private person
- The State or political subdivision must have a beneficial interest in the corporation while the indebtedness remains outstanding
- The corporation must be approved by the State or the political subdivision, which must also approve the specific obligations issued by the corporation
- Unencumbered legal title in the financed facilities must vest in the governmental unit after the bonds are paid

The "63-20" Corporation can finance a privately developed project, by leveraging future revenue and then entering into an agreement with a private sector developer to design and/or build and operate and maintain the project for a pre-determined period of time. Projects are generally financed with 100% debt with no equity contribution

### Risk Transfer

Under this model, all risks are transferred to the Private sector except for Financial risk which stays with the State/Authority.

### Implementation Time

- 12-24 months after passage of Legislation and preparation of all project cost and feasibility work

### Benefits

- Because of the ability to issue tax-exempt debt, the cost of debt financing is generally lower than it would be for a private sector owner
- Efficiencies from private sector involvement through value added efficiency and innovation in ideas
- Facilitating the transfer to the private sector of significant project and operational risk while preserving the ability to finance the project through the issuance of tax-exempt debt
- Allows for 100% leverage as there is no long-term equity interest in the project
- The formation of a "63-20" requires neither special legislation nor a referendum in the local or sponsoring jurisdiction, but certain legislation would be required

### Issues

- State/Authority remains responsible for financings and related tasks (legal, credit rating, bond insurance, etc.)
- IRS restrictions applicable to debt issuances of "63-20" Corporations have to be

considered (see Legal Memorandum, at Appendix A-3).

- Requires continuous monitoring of service and quality standards (can be contracted to third parties)
- Requires formation of "63-20" Non-Profit Corporation



## 5. FEDERAL CONSIDERATIONS

### A. Introduction

The preliminary financial strategies will consider all relevant Federal tools that are available under the then-existing Surface Transportation Act (“STA”). We are currently less than three months away from the expiration of Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (“SAFETEA-LU”), and there is intense debate in Washington over the size and programmatic overhaul of the successor program going forward.

On June 18, 2009, the U. S. House Committee on Transportation and Infrastructure, on behalf of Chairman Jim Oberstar and ranking minority member Representative John Mica, released “A Blueprint for Investment and Reform”, that would, according to the summary, restructure and transform Federal transportation policy away from multiple “prescriptive programs” into a “performance-based framework” “designed to achieve specific national objectives.” The proposed \$450 billion bill would be a 57 percent increase over the current program, and proposes significant termination and consolidation of existing programs. The bill does not identify funding sources to accomplish these suggested increases and changes. Transportation Secretary Ray LaHood countered this proposal with a recommendation to extend the existing STA by 18 months in order to allow more time to review and debate proposed changes to any successor program. It appears that an extension is the more likely

outcome, so there is currently very little guidance as to the funding size and critical changes to the next STA. That said, we would expect many of the existing Federal funding and loan programs to survive in some form into the next STA, and we are hopeful that restrictive elements of these current funding programs are addressed and improved upon going forward. There is a strong movement afoot to proffer innovative ideas toward the next STA that will help public and private entities advance critical projects that address among other issues mobility, safety, environmental, and aging infrastructure issues.

Members of the FA Team are active participants in tracking and commenting on proposed changes to the STA. A high priority for this team will be proactively addressing how new or changed programs within the next STA can be beneficial toward the Project. It appears at this stage that there could be significant changes made to the existing STA through consolidation and development of new offices and programs. While premature to speculate what these changes will ultimately be and how they affect funding opportunities for the Project, we outline below some important existing Federal Funding tools that have significance for our continued work on developing financing alternatives.

### B. Transportation Infrastructure and Innovation Act (“TIFIA”)

TIFIA established a Federal credit program for eligible transportation projects of national or regional significance under which the USDOT may provide three forms of credit assistance: (i) direct loans, (ii) loan guarantees, and (iii)

standby lines of credit. The assistance is intended to leverage Federal funds by attracting private capital and other non-Federal co-investment in surface transportation projects.



The TIFIA credit programs offer long term (up to 35 years) credit solutions at favorable fixed interest rates based on US Treasury Rates and provide program participants with substantial flexibility with respect to payment terms and program design. The debt incurred under TIFIA credit programs is subordinate to the senior debt obtained to finance the project. In addition, TIFIA credit programs can be used in conjunction with private activity bonds (“PABs”) and other Federal funding programs.

In order to qualify for a TIFIA credit program, the anticipated costs of a project must exceed \$50 million and the TIFIA portion of the overall financing may not exceed 33% of the anticipated eligible project costs. Furthermore, the senior debt obtained to finance the project must receive an investment grade rating from a nationally recognized credit rating agency. The project must also include a dedicated revenue source, such as tolls, special tax districts, state funding or lease revenue, which will be pledged to secure payments due with respect to the senior debt and TIFIA funding. The project must also be included in the state’s transportation planning and programming cycle. Below is summary of the basic TIFIA guidelines:

- Facilities must be eligible for Title 23 Assistance
- Project eligible cost of at least \$50mm
- Maximum TIFIA contribution of 33% of project eligible cost
- Projects must be included in State's long-range transportation plan
- Loan must be repayable from same source as senior project obligation
- Senior debt must be investment grade
- TIFIA must allocate capital in the form of budget authority to cover losses

To date, TIFIA has made loans or other credit assistance of over \$6.6 billion which in turn has helped States and other project sponsors leverage over \$24.4 billion of overall project investment. Members of the FA Team are very familiar with the TIFIA programs and have worked on projects that have negotiated TIFIA loans to close project funding gaps.

The financial benefits of TIFIA are a function of market conditions and terms of the TIFIA loan agreement. When market credit spreads between lower rated entities are wide, as they have been since credit crisis that began in summer 2007, the value of a TIFIA loan that is pegged to US Treasury rates can be substantial. As an example, lower rated toll revenue bond credits in the BBB category would be borrowing today at an interest cost of more than 7%. Contrast that with a TIFIA loan that would currently cost approximately 4.30% for a 30 year, subordinate, flexible term obligation. The value of several hundred basis points of saved borrowing costs can have substantial impact on the financial viability and overall size/scope of a project.

As it relates to the Project, we would expect aggressive pursuit of a TIFIA loan (or similar funding under the next STA) at the maximum available amount, whether the financing package was a public, private or hybrid based approach. Further, we would expect significant competition from other states and project sponsors for Federal credit assistance given the assumed financial advantage that will likely still exist in the markets at the time of the Project financing. TIFIA currently ranks projects against established criteria to determine which projects will be afforded limited contract authority for the loan program. Demonstrating the importance of this loan in the funding plan and scoring well on the TIFIA criteria will be of paramount importance. In addition to the base eligibility criteria

mentioned above, USDOT has scoring criteria used as a guideline when approving applications:

Significance	20.0%
Private Participation	20.0%
Environment	20.0%
Project Acceleration	12.5%
Creditworthiness	12.5%
Use of Technology	5.0%
Consumption of Budget Authority	5.0%
Reduced Federal Grant Assistance	5.0%
<b>Total</b>	<b>100%</b>

These criteria, criteria weighting, and the process of application approval may change with the next STA. However, we anticipate the basic principals and goals of TIFIA to remain.

### **C. National Infrastructure Bank**

There has been discussion at the Federal level of the development of a National Infrastructure Bank (“NIB”). As excerpted from a recent USDOT memo to congressional subcommittees:

“The purpose of the Infrastructure Bank is to establish a new direction in Federal infrastructure investment: one that supports regionally and nationally significant, high-value projects funded through a merit-based selection process. The Bank would fund relatively large and transformative projects currently underfunded by the allocation process, including:

- Projects that cross state and local jurisdictions, such as freight and passenger rail;
- Projects that integrate sectors and policy goals, such as highway projects that consider land use and economic development; and
- Projects that cross transportation silos, such as bridge construction that includes a rail line and harbor dredging.

- Merit-based project selection would be a fundamental principle of the National Infrastructure Bank. The Bank would compare projects of different modes, incorporating cost effectiveness and equity considerations into its decisions
- Financing mechanisms: Combination of grants and credit products. A flexible set of financing tools would allow the Bank to provide the most appropriate form of financing to a given project. The Administration would allow the Bank to offer a combination of grants and credit products like direct loans and loan guarantees. The Administration does not support Bank authority to borrow independently from private capital markets, since Treasury is the sole entity that borrows on behalf of the Federal government and can do so more cheaply and efficiently than any other entity.”

While still under discussion, the National Infrastructure Bank program as outlined could compete with, or essentially replace, the existing TIFIA program given that its charge

will be to offer credit products such as loans and loan guarantees. Depending on the terms and conditions of the NIB credit products, the Project could benefit in many of the same ways that we described above related to TIFIA. While still another form of debt, we would

recommend the Project Team track the development of the program and potential utilization of the NIB, at the appropriate stage, as a means of reducing overall capital funding costs.

#### **D. Grant Anticipation Revenue Vehicles (“GARVEEs”)**

Over 30 states have issued in excess of \$9 billion of GARVEE bonds to date. While not specifically authorized as a program under current and past Surface Transportation Acts, GARVEEs were created and are viable given 1) the NHS Act of 1995 that made bond principal and interest eligible for Federal reimbursement, and 2) the budgetary firewall that is in place protecting the monies in the Highway Trust Fund from being diverted away from transportation programs. GARVEEs are a debt instrument that allows States to advance projects through the issuance of bonds today that are repaid over time from Federal reimbursements.

The project must be approved as a Federal-aid debt-financed (bond, certificate, note, or other debt instrument) project in order to receive payments for eligible debt-related costs under section 122 of Title 23, United States Code. Once a project is selected for bond financing, the project is submitted to the responsible FHWA Division Office for approval as an advance construction (AC) project under section 115 of Title 23. The AC designation will ensure that the project follows Federal-aid procedures and will preserve the eligibility to reimburse debt-related costs with future Federal-aid funds.

At the time the project agreement is signed, the State will make an election to seek reimbursement for debt service and/or related issuance costs in lieu of reimbursement for construction costs. FHWA prefers that each project be reimbursed either on the basis of

debt-related costs or on invoice costs, not both. However, FHWA will consider exceptions to this either/or provision if the State provides assurance that the project costs being reimbursed from bond proceeds can be identified and tracked. For example, bond proceeds may be used to fund a project phase or a specific activity, or be limited to a dollar amount per project. If a State elects to receive debt-service reimbursements, a debt service schedule will be included in the project agreement.

The benefit of GARVEEs centers around the use of debt to accelerate the delivery of a project, or projects, versus funding larger projects overtime using Pay-as-you-Go financing from Federal reimbursements. The effect of a) construction costs inflation indices that had been escalating at staggering rates with b) the relatively low cost of municipal financing, has made the argument for GARVEEs even more compelling to many States. GARVEEs have become a complementary financing tool for states who have leveraged Federal reimbursements in the same manner as State Gas Tax Bond programs.

As it relates to the Project, GARVEEs should be explored as a potential financing component given the significant GARVEE bond capacity that exists for the State. We will explore various GARVEE bond structures and analyze their financial and credit implications as relates to financing costs and its impact on state-supported debt ratios. Lastly, Winston & Strawn will review what would be required by

the State to development and implement GARVEEs from a legal and statutory standpoint. Typically, authorizing legislation is kept broad enough to include many projects, including substitution, while limiting the amount of issued GARVEEs. This can be in

the form of a hard dollar cap on par amount issued, or a maximum debt service as a ratio of past years' reimbursements. Alternatively, we have seen many GARVEE programs whose bonding limits are defined by the new bond resolution rather than statutorily.

### **E. Private Activity Bonds (PABs)**

Tax-exempt bonds can be issued to finance the Project in conjunction with a PPP arrangement for a private sector investment in or a private sector use of the Project, provided the bonds are "exempt facility" PABs under the Internal Revenue Code ("IRC") such as the Qualified Highway or Surface Freight Transfer Facilities Bonds.

#### **Qualified Highway or Surface Freight Facilities Bonds ("Qualified H/SF Bonds"):**

To qualify as Qualified H/SF Bonds, at least 95% of the "net proceeds" (i.e., proceeds net of any proceeds used to pay bond issuance costs or to make a deposit to debt service reserve fund) must be used for one or more of certain qualified purposes, including any surface transportation project which receives Federal assistance under Title 23 (Federal-Aid Highways) of the United States Code. The Project will be eligible for Federal aid in a variety of ways, e.g, either as a replacement toll road bridge or through waivers of Title 23 restrictions pursuant to special FHWA programs. The Federal aid can take the form of grants, or TIFIA secured loans, loan guarantees or lines of credit. There is a \$15 billion nationwide limit on the amount of Qualified H/SF Bonds that can be issued. The allocation of the cap is made on a project by project basis by the Secretary of Transportation. As of the end of December 2008, \$4.9 billion of this cap has been allocated. An allocation of cap to a project will be treated by the IRS as conclusive that the project is receiving the required Federal aid.

Qualified H/SF Bonds enable tax-exempt financing to be used in a PPP structure where the private entity uses the project pursuant to a concession agreement, lease, license or other arrangement, but does not claim the tax ownership of the project.

Qualified H/SF Bonds can also be used for a PPP concession agreement, lease or license structure where the concessionaire or lessee/licensee assumes all risks of operation for a term sufficient to transfer tax ownership to the private entity. The bonds could be issued as project revenue bonds of the issuer as described in the preceding paragraph or as conduit loan bonds where the proceeds are loaned to the private entity.

Qualified H/SF Bonds offer the benefit of mixing private use/private funding with the lower cost of tax-exempt funding levels. These private activity bonds would be sold subject to the alternative minimum tax (AMT) and appeal to a more narrow buyer base than the broader non-AMT, municipal market. Due to the effects of the stressed credit markets, selling AMT bonds (such as PABs) has proven to be very challenging and quite costly versus non-AMT bonds. As such, we have seen several PPP projects that had been approved and allocated Qualified H/SF bond authority, actually return their allocation to USDOT because market conditions were too cost prohibitive. As the credit markets normalize, we would expect the value of PABs versus other private financing alternatives to improve accordingly.



It should be noted that beyond current market access, there are limitations regarding the use of PABs. Section 142 of the Internal Revenue Code (Title 26 of the US Code) provides for the issuance of tax-exempt PABs to finance qualified highway or surface freight transfer facilities. In order to qualify for this designation, 95% of the proceeds of the bond issuance must be used for the qualified highway or surface freight transfer facility. Section 103 of the IRC states that proceeds of a bond issue include imputed proceeds. Imputed proceeds include interest that accretes on zero coupon bonds. Taken together, these 2 sections of the IRC, effectively prevent the issuance of zero coupon Highway PABs, a commonly used

financing tool for leveraged toll facilities. There are also limitations with PABs regarding the ability to use PABs bond proceeds to acquire right of way. Additionally, PABs become restrictive in bond structures that rely on the use of tax-exempt capitalized interest, as no capitalized interest can be funded with proceeds beyond the "in-service" date of the project. Further, PABs are restrictive in the potential use of interim financing, as such structures cannot be advance refunded by PABs. Lastly, there are more restrictive elements of PABs as it relates to the financing of "bad money costs" of a project. These are all things to consider as the financing structures are considered and before applying for any Federal PAB allocation.

#### **F. Federal Transit Administration Full Funding Grant Agreement**

A Federal Transit Administration ("FTA") Full Funding Grant Agreement ("FFGA") is a special type of grant agreement FTA uses for making a major investment in a new fixed guideway system (e.g., rapid rail, light rail, commuter rail, exclusive bus/high occupancy vehicle lanes, or ferry service) or an extension to an existing fixed guideway system. In exchange for FTA's commitment to provide \$25 million or more in Federal funds over a multi-year construction schedule, pursuant to the Title 49 U.S.C. Section 5309 Major Capital Investment Program, the grantee commits to complete its "new starts" project on time, within budget, and in compliance with all applicable Federal requirements, and to bear any cost increases that might occur subsequent to the award and execution of an FFGA.

An FFGA contains a set of standardized contractual terms and conditions applicable to all "new starts" projects, including definitions, obligations of completion and local share, cost eligibility, project management oversight, and labor protection. The attachments to an FFGA are tailored to each specific project. The

attachments address the scope of work, project description, baseline cost estimate, baseline construction schedule, prior grants and related documents for the project, schedule of Federal funds, environmental mitigation, studies to measure the project's success after it has opened to revenue service, and any special conditions applicable to the project. In return for its investment, the FTA maintains significant control and oversight over the progress and administration of the project.

Early dialogue with the FTA will be important toward understanding how much of the "transit ready bridge" capital costs can qualify under existing FTA programs. In the past, qualifying transit projects have received 50-80% of the overall project costs as FFGA funds. These approved FFGA monies are then distributed to the Transit project sponsors over the course of many years. Typically, the annual FFGA payments extend beyond the construction period of the project. Some transit agencies have been able to increase the percentage amount that is funded through FFGA by negotiating a longer payment period from FTA.



While this helps to lower the impact on the annual Federal budget outlays, it can create a mis-match in timing of available FFGA funds versus required construction proceeds. This cash flow mis-match has been addressed in unique funding structures by transit agencies around the country. Some agencies have borrowed on an interim financing basis with variable rate debt and then paid down the variable rate debt as the FFGA dollars were received post construction. Interest on the bonds were paid from and backstopped by

other available revenues, while principal was paid down from FFGA funds as received. Other agencies have utilized a structure whereby the bonds are issued today against future FFGA receipts with the only payment and security source for bondholders has been the FFGA monies, known as naked GARVEEs or Godiva bonds. This allowed the transit agencies to essentially do a form of off balance sheet financing that did not encumber other existing revenue streams.

## 6. TOLLING RELATED FUNDING OPTIONS

This section sets forth a wide-range of toll-related funding options with respect to the financing of the Tappan Zee Bridge/I-287 Corridor Project. Overall, we classify the toll-related funding options into the following main categories: tolling adjustments on the Tappan Zee Bridge; tolling adjustments over a wider geography on the NYSTA; tolling of currently un-tolled off-NYSTA facilities; and innovative tolling strategies and mileage-based user fees.

Each of these categories is discussed along with the advantages and considerations involved in implementing specific toll schemes. Finally, this section considers the federal tolling and pricing programs currently available. Federal law generally prohibits tolling on federally funded facilities. Consequently, an understanding of federal tolling provisions is important while exploring and evaluating any toll-related funding options.

### A. Introduction

Most roads and bridges in the US are currently funded by Federal and state fuel taxes that are proving inadequate to meet the country's surface transportation needs. According to a February 2009 report released by the bipartisan National Surface Transportation Infrastructure Financing Commission, without changes to current policy, it is estimated that revenues raised by all levels of government for capital investment will total only about one-third of the roughly \$200 billion necessary each year to maintain and improve the nation's highways and transit systems. Currently, as per the 2007 Highway Statistics developed by the FHWA, motor-fuel and vehicle taxes generate around \$89 billion whereas tolls generate about \$9 billion in revenues nationwide at all levels.

The gas tax based funding system simply does not provide enough revenue to make the investments needed, though this revenue source is still necessary for funding surface transportation projects. The fuel tax based funding approach has lost 33% of its purchasing power since 1993 when the last gas tax increase was implemented. The sustainability of fuel taxes is eroding quickly and unlikely to follow a consistent trend with technology advancement, volatile gas prices, and mandates for more fuel efficient vehicles.

States and regions around the United States have turned to user fees to supplement existing sources of Federal, state, and local highway funds to build and maintain new roadway capacity. While direct tolling has been the most common form of user fees, mileage based tolling, an innovative form of user fee application, is being widely considered by policy makers.

Tolling can also make the road, bridge or tunnel financially self-sufficient, allowing states and municipalities to devote their limited resources to build and maintain other important transportation facilities. In addition to the traditional use of tolling to fund capital intensive bridges, tunnels, and highways; tolling is now also being used to manage congestion on facilities with limited capacity. In recent years the advent of new technologies has led to experimentation with different tolling concepts around the world. While High-Occupancy Toll ("HOT") lanes/Managed Lanes and Express Toll Lanes have been implemented in the US, other innovative concepts such as cordon tolling (congestion pricing used in London, UK), and mileage-based pricing (Netherlands, Switzerland, and Germany) are the subject of proposed legislation and ongoing policy discussion.



Tolls on Federally funded facilities (e.g., interstate highways) are generally prohibited by Federal law, although there are some exceptions, such as for “HOT lanes” and reconstruction of existing bridges. Also, Congress has established various programs (including specific demonstration programs) that enable tolling of certain types of projects proposed by states and selected by the FHWA.

Historically, many of the nation’s toll roads were developed using tax-exempt revenue bonds, which meant that toll roads had to generate enough revenue to support the debt service. This was generally challenging in the early years of operations while motorists got familiar with the new facility and traffic demand ramped. However, once they got through these early years, toll roads typically generated revenues in excess of operating costs and debt service. Depending on the enabling legislation or bond covenants, this excess revenue from the existing system often could be used to subsidize system extensions, build entirely new toll facilities or subsidize other transportation modes such as transit.. Among the most notable examples of new toll projects being developed using system financing or guarantees are in Houston and Dallas where financing for new facilities has been backed by revenue streams from the existing systems.

Stand-alone toll facilities on the other hand, struggle, especially in early years, without

some kind of back-stop arrangement or financial commitment. Various factors contribute to this reality including high development costs, projects being built in anticipation of or to induce future development, unreliable demand projections, and capital structures with 100% traditional tax-exempt revenue bond financing providing little room for flexibility in demand growth profile. Flexible debt structures that give projects time to mature are likely to be critical for most projects to be acceptable to investors.

The use of tolling as a source of funding for delivering new or upgraded highway facilities involves a myriad of financial, policy, political and legal considerations. This section of the Preliminary Alternatives Review explores the tolling related funding strategies that are possible for the Tappan Zee Bridge/I-287 Corridor financing. The strategies can be classified into four categories:

<b>Tolling Adjustments on the Tappan Zee Bridge</b>	<b>Tolling Adjustments Over a Wider Geography on the NYSTA</b>
<b>Tolling of Currently Untolled Off-NYSTA Facilities</b>	<b>Innovative Tolling Strategies, Mileage Based User Fees, and Cordon Tolling</b>

We describe each of these strategies in detail below.

**B. Toll Adjustments on the Tappan Zee Bridge**

The Tappan Zee Bridge has a barrier toll located to the east of the Hudson River. Tolls are collected in the southbound direction only since August 12, 1970; northbound traffic travels toll-free. Currently, passenger car cash and EZ-Pass tolls are \$5.00 and \$4.75, respectively; the commuter toll rate is \$3.00 per trip (20 monthly trips). For commercial vehicles, time-of-day pricing is in effect to discourage commercial vehicles from traveling

during weekday peak hours. In fiscal 2008, tolls on Tappan Zee Bridge generated \$106.6 million or around 18% of New York State Thruway Authority (NYSTA) system-wide toll revenues. A toll adjustment at the Tappan Zee Bridge either through a rate increase or changing the tolling configuration to bi-directional tolling could be a potential source of funding for the Project. If the Tappan Zee Bridge continues to be part of the NYSTA as it is currently organized, among the several steps

necessary to accomplish a toll adjustment would be to obtain a certification from an independent consultant as per the General Revenue Bond Resolution. Section 609(1) (b) of the Bond Resolution requires that an independent consultant review the schedule of tolls to insure that they provide sufficient Net Revenues to comply with the section's revenue covenant. Therefore, if a rate adjustment is implemented under the current ownership and governance structure of NYSTA, a certification for net revenue adequacy would be required from an independent traffic consultant. Bi-directional tolling could materially impact the traffic patterns in the corridor so any such action would have to be carefully studied by engineers before implementation. If the new Tappan Zee Bridge is separated from the NYSTA, the tolling scheme for the Bridge and the bond indenture provisions could be customized to serve the needs of the Project. However, such a separation would likely require defeasance of NYSTA's outstanding debt.

The extent of additional revenues generated would depend on factors such as the rate levels, the price elasticity of travelers, income levels, etc. The maximum passenger car toll rate currently charged for bridge/tunnel crossing in

the New York metro area is \$8.00 dollars by the Port Authority of New York and New Jersey (PANYNJ) while entering New York during peak hours (George Washington Bridge, Lincoln Tunnel, Holland Tunnel, Goethals Bridge, Outerbridge Crossing, and Bayonne Bridge). One should note though that these PANYNJ facilities cater to a different market and have different supply-demand and willingness-to-pay characteristics.

**Benefits:** Depending on the level of toll adjustment, increased toll revenue could provide meaningful financing capacity. Bridge crossings typically have less elastic demand and well-understood traffic patterns and user profile.

**Issues:** Even a significant toll increase is unlikely to fully fund the Project capital costs, and could pose potentially adverse traffic demand response. Toll increases require significant efforts to gain stakeholder support. In order to attain an aggressive rate escalation scheme required for the Project, a new ownership and governance structure may be considered and would establish the bridge as a separate entity. Current bond resolution limits the application of toll revenues to NYSTA facilities.

### **C. Tolling Adjustments over a Wider Geography on the NYSTA**

This strategy encompasses several potential scenarios for generating tolling based funding as enumerated below:

#### **A System-Wide Toll Rate Adjustment**

The NYSTA consists of a 570-mile toll road system (excluding I-84 maintained by the Authority, under contract with DOT system) – the longest in the U.S. The System employs both barrier and ticket based tolling configurations. Overall, on a through-trip basis, the per-mile passenger car toll rate is one of the lowest in the nation among comparable facilities. The latest general toll rate increase of

5% went into effect in January 2009. Another 5% rate increase is programmed for implementation in January 2010. Following a 10% cash toll rate adjustment in 2008 among other toll schedule modifications, system-wide toll revenues were \$584.4 million.

**Benefits:** Depending on the level of toll adjustment, this approach could provide substantial financing capacity and it would be possible to implement this strategy without major structural changes in ownership and governance.



**Issues:** There is potential for adverse credit impact as capacity to further raise rates to counter declining revenues due to economic shocks would be diminished. There might be significant stakeholder resistance to raising tolls. The current bond resolution limits the application of toll revenues to NYSTA facilities.

### **Toll adjustment on the New York State Bridge Authority (NYSBA) bridges**

The New York State Bridge Authority (NYSBA) owns and operates five bridges across the Hudson River – the Bear Mountain, Newburgh Beacon, MidHudson, Kingston Rhinecliff, and Rip Van Winkle bridges. All these bridges are located north of the Tappan Zee Bridge. The operation and maintenance costs of NYSBA bridges are paid for by tolls collected from the users. Tolls are only collected eastbound and the toll for a passenger vehicle is \$1.00 although NYSBA offers some discount plans. Commercial vehicle tolls vary and are generally \$1.50 per axle. The five bridges handle over 58 million crossings per year. The Newburgh Beacon Bridge had the highest total at just over 25 million, followed by the MidHudson Bridge at more than 14 million.

The governance structure of the NYSBA includes a Board of Commissioners. The Board consists of seven members appointed by the Governor of the State and confirmed by the NY State Senate. The Authority generated \$37.8 million in toll revenues in 2008 and incurred operating expenses of \$34.5 million resulting in an operating income of \$3.3 million. This compared favorably to an operating loss of \$0.66 million for the previous year. Net income in 2008 was \$2.1 million. The Authority has \$53.2 million of debt outstanding.

Using proceeds of the toll adjustment on the NYSBA facilities to fund the capital costs of the Tappan Zee Bridge may require new legislation or amendment to existing legislation as well as potential defeasance of NYSBA outstanding debt

**Benefits:** It is relatively easier to adjust tolls than institute tolls on free facilities. Moreover, NYSBA tolls are among the lowest nationwide for bridges. Bridge crossings typically have less elastic demand.

**Issues:** This approach is unlikely to fund the project capital costs by itself. There is potential for adverse traffic demand response from users. This approach is likely to entail significant efforts to gain stakeholder support.

### **D. Tolling Currently Untolled Off-NYSTA Facilities**

While evaluating the implementation of tolls on an existing toll-free road, it is important to clearly articulate the policy rationale. One objective might be to simply provide a funding source to upgrade, extend, or maintain the facility. Another might be to provide a congestion-free alternative in places where technological limitations make it impossible to build your way out of congestion. Leveraging an existing toll-free facility to generate funding for another project or entity would be both innovative and controversial as witnessed in the

case of the tolling proposal submitted by the Pennsylvania Turnpike Commission (“PTC”) and the Pennsylvania Department of Transportation (“PennDOT”) to FHWA for tolling Interstate-80 in Pennsylvania under the Interstate System Reconstruction and Rehabilitation Pilot Program. The program allows up to three Interstate facilities in separate states to be tolled to generate funding for reconstruction or rehabilitation on Interstate highway corridors that could not otherwise be

adequately maintained or functionally improved without the collection of tolls.

Under the proposal, PennDOT would transfer Interstate-80 to the PTC. The Commission would use toll revenues from Interstate-80 to pay annual lease payments to PennDOT. The FHWA said that the Commonwealth's application did not meet legal requirements for the correct use of toll revenue. The Federal agency noted that while under the program toll revenue can be used for lease payments; the amount of the payment is required to be based on an objective market valuation. According to FHWA, the Commission's application, however, included no information or data justifying the proposed amount for the annual toll payment or establishing that the level was based on an objective market valuation. In summary, whatever the objective of tolling, it must be clearly articulated and justified to all stakeholders in order generate support for new tolls.

In additional to the policy issues, instituting new tolls requires understanding of economic issues such as supply/demand of highway capacity and user demographics as well as operational issues such as number of lanes, location of toll plazas, provision of electronic tolling, static versus dynamic pricing to name a few. Typically, a preliminary traffic and revenue study is commissioned to explore the potential of the tolling approach and the evaluation of various scenarios. Subsequently, if the project demonstrates potential under a particular scenario, a more comprehensive "investment grade" study is conducted with enough details and field data to support project financing. Tolling Federally funded facilities requires Federal approval. Congress has created a number of programs under which States can obtain authority to use tolling and pricing on Federal-aid routes. Eligibility varies depending on type of route (Interstate, non-Interstate),

HOV lane status, past and current Federal funding, and other factors. In some cases, states may not need Federal authorization to implement a tolling or pricing project. In all cases, however, states or other project sponsors will need to have or obtain the state legal authority to levy tolls. Project sponsors may also need to obtain the power to issue bonds, obtain loans or other forms of financing, and engage in partnerships with the private sector. With respect to generating funding for the Tappan-Zee/I-287 Corridor project, we identified several candidates for instituting tolls.

### **Taconic Parkway**

The Taconic State Parkway is a north-south highway running east of the Hudson River. The highway is part of the New York State Highway System. Tolling this highway would require approval from the NY legislature.

For most of its route, the Parkway has four lanes while some sections are six-laned. According to NYSDOT 2007 count data, the highway segment has an average daily traffic between 26,000 and 70,000.

**Benefits:** Since not an Interstate, tolling might be implemented through U.S.C. Section 129 Toll Agreements rather than exclusively through Federal pilot programs for tolling

**Issues:** Limited potential for revenue generation, need state legislative approval and Federal approval if Federal-aid was used for the Parkway.

### **Interstate Facilities:**

- I-684;
- I-84;
- Adirondack Northway (I-87);
- I-81; and
- Cross Westchester Expressway (I-287)

Highways constructed with Federal aid under Title 23 of the U.S. Code (23 U.S.C.) are generally required to be free of tolls. Statutory exceptions have been created for, among other things, initial construction of toll highways and reconstruction of a free Federal-aid highway (except on the Interstate system) and converting it to a toll facility. With respect to the above-mentioned Interstate highway facilities, tolling may be possible under certain special “pilot” programs authorized by Federal legislation. More specifically, the Interstate System Reconstruction and Rehabilitation Pilot Program that is directed at reconstruction and rehabilitation of interstate corridors might be available. In addition, for Interstate 684 and Cross Westchester Expressway-both commuter-oriented facilities with relatively high usage levels throughout the route- the Value Pricing Pilot Program and the Express Lane Demonstration Program may be applicable. These programs are discussed in greater detail in the subsequent section.

Generally, there are limitations on uses of toll revenues generated though instituting tolls under the pilot programs. For example, the Interstate System Reconstruction & Rehabilitation Pilot Program (TEA § 1216 (b))

requires that toll revenues be used only for debt service, reasonable return on investment of private entity, and operation and maintenance costs. The Value Pricing (SAFETEA-LU § 1604(a)) and Express Lane Demonstration Pilot Programs (SAFETEA-LU § 1604(b)) on the other hand allow excess revenues after debt service, reasonable return and operation and maintenance costs on the facility to be used for any eligible title 23 or 49 project, e.g. , within a corridor.

**Benefits:** The advantages of this approach include better network demand management, congestion mitigation and positive environmental impact

**Issues:** HOT/Express Lanes typically have modest revenue potential. Tolling requires Federal approval to participate in pilot program. The Federal priority under Value Pricing Pilot Program is for projects with more comprehensive area-wide or region-wide approach for reducing congestion and changing driver behavior. Instituting tolls would result in loss of Federal assistance money.

A brief description of each of the interstate facilities considered is provided in Appendix. A-1.

## **E. Innovative Tolling Strategies, Mileage-Based Fee, & Cordon Tolling**

In addition to previously described strategies of adjusting toll rates on NYSTA facilities and implementing tolls on currently toll-free capacity, new but proven technology-based tolling strategies can be used to optimize toll rates and/or maximize traffic throughput. These strategies have the potential to generate additional toll revenues. We also discuss an entirely different concept of direct user charges through mileage-based user fees that has garnered significant attention.

### **Variable Pricing/Time of Day Pricing**

With this type of pricing, flat toll rates on more congested segments of NYSTA are changed to a variable toll schedule by time of day so that the toll is higher during peak travel hours and lower during off-peak or shoulder hours. This encourages motorists to use the roadway during less-congested periods and allows traffic to flow more freely during peak times, increasing throughput. When traffic flow collapses under congested conditions, capacity is lost. By preventing congestion, pricing recovers this daily waste of capacity on congested segments. The peak toll rates may be high enough to guarantee that traffic flow will not break down,



thus offering motorists a reliable and congestion-free trip in exchange for the higher peak toll.

**Benefits:** This approach would result in better travel demand management, congestion mitigation, and enhanced safety.

**Issues:** Value pricing entails complexity in setting and understanding of user charges and generally has a limited revenue yield.

### Free Flow Tolling

Free-Flow or Open Road Tolling is the collection of tolls on toll roads without the use of toll booths.

**Benefits:** The major advantage to this type of tolling is that users are able to drive through the toll plaza at highway speeds without having to slow down to pay the toll. Free-flow tolling may reduce congestion at the plazas and allow more vehicles per hour/per lane to pass through. Other benefits include improving travel times and reliability, increasing safety and enhancing communication for motorists through the introduction of real time roadside information

**Issues:** There is possibility of leakage; that is, violators who do not pay or are not captured by the cameras at toll point. Such leakage is diminishing as technology improves.

### Mileage-Based User Fees

Recently, there has been a lot of interest in exploring a transition from current gas-tax based funding of transportation infrastructure to a system more directly tied to road use. The central element of this approach is a vehicle miles travelled (VMT) user fee. A VMT fee would charge motorists a fee based on the number of miles driven rather than on fuel consumption. VMT based fees requires installation of a Global Positioning System

(GPS) receiver in vehicles to identify the locations where vehicles travel. The GPS receiver is connected to a Geographic Information Systems (GIS) database that records the number of miles travelled within delineated jurisdictions. Each jurisdiction would have a fee schedule based on functional road class, vehicle type or other factors which would be used to calculate the amount of tax the vehicle owner owes for mileage traveled. Some European countries including Germany, Netherlands, and Switzerland are using variations of this approach- primarily for trucks. The State of Oregon has already tested a pricing scheme involving per-mile charges, as a potential replacement for fuel taxes in the future.

In New York, a state-wide mileage-based fee revenue system can be implemented to address the State's transportation funding shortfalls. All users can be charged a state VMT fee as a supplement to and perhaps eventual replacement for state motor fuel taxes. To address more localized peak period congestion, a local VMT fee could also be implemented. The additional fee may cause some users to divert their trips to less congested routes, less congested times, or different modes of transit, moderating the need for additional highway capacity.

The state VMT fee would reflect the average cost of providing the basic unit of highway service - a vehicle mile travelled - and could be applied to the total annual VMT accrued by each vehicle operated in the state. The fee could vary by jurisdiction, vehicle classification, fuel type and consumption, environmental impact, highway system, or geography.

A VMT based fee does pose significant challenges- related to both technology and public acceptance. As alluded to earlier in the

Risk section, technological issues include interoperability with existing and forthcoming systems, region-wide integration, obsolescence, and reliability of measurement systems. Development of technology standards is necessary to guide system development and ensure interoperability as opposed to a collection of independent systems. Moreover, we anticipate major logistical issues such as how to deal with out-of-state- and cross-border trips.

On the public acceptance front one of the major public concerns is over what data would be collected to assess a mileage fee. System design would have to ultimately address privacy concerns. Moreover, the current funding process does not inspire public trust, and presents a challenge for garnering support for a new, potentially costly fee collection system.

**Benefits:** This approach would reduce dependence on gas tax. It would be easier to implement congestion pricing under this approach.

**Issues:** This approach raises significant privacy concerns as well as technological and implementation challenges. In addition, there

might be high initial technology costs as well as substantial ongoing administrative costs.

### Cordon Tolling

Cordon Tolling is a charge for vehicles entering a highly congested area. The primary objective is to manage congestion by reducing the number of vehicles entering the area. Every entry point to the cordoned area is equipped with means of identifying vehicles and ensuring payment. For cordon tolling to be effective, the public must be convinced that benefits (improved mobility, lower pollution, etc.) would be substantial and realized fairly quickly. An efficient and extensive public transportation system with adequate capacity that can provide an alternative to driving is essential for this strategy to be effective.

The performance of any cordon tolling program is critically dependent on cordon design. Developing cordon tolling design involves trade-offs between simplicity/acceptability and generating the greatest economic benefit. While evaluating such a program, the State needs to consider the level of congestion, availability of alternative modes of transportation, as well as current and future socio-economic and demographic patterns.

## F. Federal Tolling and Pricing Programs

Title 23 of the United States Code (23 U.S.C.) outlines the role of highways with Chapter 1 under the Title relating to the Federal-aid highways. Federal-aid highways are defined under this title as the Interstate System and the National Highway System. The Federal-aid highway program, when created in 1916, allowed no use of Federal-aid funds on toll facilities. This position remained unchanged until 1927 when Congress enacted legislation that permitted Federal-aid highway funding to be used to construct toll bridges and approaches. Subsequent legislation provided

more flexibility on using Federal-aid highway funds for improvements to toll facilities with the last significant changes being made in 1991 with passage of the Intermodal Surface Transportation Efficiency Act of 1991. Section 129 of Title 23 (23 U.S.C. 129) relates to “Toll roads, bridges, tunnels, and ferries”.

Listed below are the tolling and pricing programs and provisions currently available under 23 U.S.C., following the enactment of the Safe, Accountable, Flexible, and Efficient



Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

- Value Pricing Pilot Program (Section 1604(a) of SAFETEA-LU)
- Express Lanes Demonstration Program (Section 1604(b) of SAFETEA-LU)
- Interstate System Construction Toll Pilot Program (Section 1604(c) of SAFETEA-LU)
- HOV Facilities (1121 of SAFETEA-LU)
- Interstate System Reconstruction & Rehabilitation Pilot Program (Section 1216 (b) of TEA-21)
- Title 23 United States Code Section 129 Toll Agreements

With the SAFETEA-LU legislation, Congress enabled three new exceptions, and modified one existing exception, to Title 23 of the United States Code, Section 301, which otherwise generally prohibits the imposition of tolls on facilities that have used Federal funds. The legislation provided more opportunities to enact tolls as a means of financing various operating, construction, or reconstruction projects, or of addressing debt reduction. Along with the three new programs and the one modification, two other exceptions to Federal authority to enact tolls already existed, all which are outlined below.

The new exceptions included Section 1121, which amended 23 U.S.C. 166 to permit the conversion of HOV lanes into HOT lanes. Both Sections 1604 (b), the Express Lanes Demonstration program, and 1604 (c), the Interstate System Construction Toll Pilot program, provide tolling authority opportunities. The Express Lanes Demonstration program permits tolling authority for up to fifteen demonstration

projects for existing HOV facilities or where toll capacity is added. The Interstate System Construction Toll Pilot program authorizes up to three toll pilot facilities on the Interstate system for the purpose of constructing new Interstate highways. Section 1604 (a), the Value Pricing Program, modifies and extends an existing program that was first enacted as the "Congestion Pricing Pilot" program by Section 1012 (b) of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and amended by 1216 (a) of the Transportation Equity Act for the 21st Century (TEA-21).

In addition to the abovementioned SAFETEA-LU provisions enacted in 2005, two other pre-existing provisions permit the tolling of Federally funded highways: (i) 23 U.S.C. 129 agreements permit the imposition of tolls on free non-Interstate highways, bridges, and tunnels and on free Interstate bridges and tunnels. (ii) the Interstate System Reconstruction and Rehabilitation Pilot Program, Section 1216 (b) of TEA-21, permits the collection of tolls on three Interstate facilities for the purpose of reconstruction and rehabilitation.

Of these programs, only two have deadlines stipulated in the legislation. The Interstate System Construction Toll Pilot Program has a deadline for applications of August 10, 2015, and the Express Lanes Demonstration Program has a window of fiscal years 2005 to 2009. For the other programs, there are no annual or recurring submittal deadlines to request authority for tolling Federally funded public highway facilities. However, some of the programs have a finite number of available slots.

The current bill will expire on September 30, 2009 and Congress is considering a reauthorization governing what role the Federal



government will play in transportation over the next several years. A more comprehensive

description of each of the currently available Federal programs is provided in Appendix A-2

## **G. Conclusion**

We explored the following four main strategies for generating toll-related funding for the proposed project: (1) Tolling Adjustments on the Tappan Zee Bridge, (2) Tolling Adjustments over a Wider Geography on the NYSTA, (3) Tolling of Currently Un-tolled Off-NYSTA Facilities, and (4) Innovative Tolling Strategies and Mileage-Based User Fees. These strategies are in no way mutually exclusive and the final solution might very well involve a combination of one or more of these strategies.

An important consideration related to tolling is the Federal provision limiting the implementation of tolls on Federal-aid highways. However, Title 23 of the United States Code offers States and/or other public entities a variety of opportunities through various programs to toll motor vehicles to

finance Interstate construction and reconstruction, promote efficiency in the use of highways, reduce traffic congestion and/or improve air quality. We discussed the following tolling and pricing programs:

- Title 23 United States Code Section 129 Toll Agreements
- Express Lanes Demonstration (EDL) Program -Section 1604(b) of SAFETEA-LU
- Interstate System Reconstruction & Rehabilitation Pilot Program - Section 1216 (b) of TEA-21
- Interstate System Construction Toll Pilot Program-Section 1604 (c) of SAFETEA-LU
- Value Pricing Pilot Program-Section 1604(a) of SAFETEA-LU
- HOV Facilities-Section 1121 of SAFETEA-LU



## 7. NON TOLLING FUNDING OPTIONS

Most transportation mega-projects have relied on a mix of revenues to finance construction – including state, local, Federal and project sources. Below is a discussion of a broad menu of non-tolling options that will be evaluated for the Tappan Zee Project. As non-toll revenue, all of the sources reviewed below could be dedicated to any phase of the project, from the transit-ready bridge through the implementation of BRT and, ultimately, CRT.

Given that a portion of the construction costs of the new bridge are directly related to the transit component, it is important to identify funding sources that can support both highway and transit, particularly given existing prohibition on the use of NYSTA funds to finance transit facilities. Where appropriate, sources with a closer nexus to transit are highlighted below.

### A. Existing State Financing Sources

The State currently provides funding for transportation projects through General Obligation bonds, Personal Income Tax bonds and bonds backed by revenues deposited in the Dedicated Highway Bridge Trust Fund (DTF).

**General Obligation Bonds.** In New York State, General Obligation Bonds must be authorized by voter approval. The last GO Bond referendum approved by the voters for transportation purposes was in November 2005. A similar effort to authorize General Obligation bonds for transportation funding, particularly the MTA, failed in 2000. The 2005 initiative provided an even split between transit and statewide highway projects to build broad based support.

**Personal Income Tax Bonds.** The State uses its Personal Income Tax credit to finance all major capital projects for education, economic development, housing, transportation and the environment. Under current tax collections, this credit has additional capacity of approximately \$42 billion before reaching the limit imposed by the 2.0x Additional Bonds Test established in the bond documents. Any portion of this capacity carved out for the Tappan Zee would affect funding for other major State projects, many of which do not have the Tappan Zee's ability to set user charges. In addition, New York's tax burden is

the second highest in the nation, and increasing personal income taxes state-wide to cover project costs may not be favored by policymakers at this time.

**Dedicated Highway and Bridge Trust Fund (DTF) Bonds.** The fees and taxes statutorily earmarked for deposit into the DTF – petroleum business taxes, motor fuels tax, motor vehicle fees, highway use tax, auto rental tax, transmission and transportation tax, among others – are mostly paid by highway users or consumers of fuel for transportation purposes. It should be clearly noted that certain of the existing taxes credited to the DTF are also statutorily dedicated to the MTA and MNRR, and contractually dedicated to their bond holders and the MTA's capital program. For the purposes of this analysis, we examine increments in these potential revenue sources. Given the nature of the fees and their traditional dedication to transit operations in the State, they are a natural candidate to finance the transit components of the new bridge as well as for BRT and CRT construction in later phases.

The Petroleum Business Tax, as imposed by the State of New York, is adjusted for price changes up to a 5% annual cap. This tax is imposed on petroleum products refined, sold or imported into the State, including automotive,



aviation and railroad fuels. Motor vehicle fees constitute the second largest funding source for DTF after the PBT and consist mainly of registration and licensing fees. The Highway Use Tax is an amalgam of fees levied on commercial vehicles in the form of a truck mileage tax, a fuel use tax and registration fees.

Currently, the General Fund of the State of New York heavily subsidizes the Trust Fund as dedicated revenues are not sufficient to meet Fund expenses (debt service on DTF bonds and capital and operating expense of the Department of Motor Vehicles and the

Department of Transportation of the State of New York.) In State Fiscal Year 08-09, the General Fund transferred \$237 million to support DTF expenses. Should policy makers decide to support the Project through the DTF, a significant increase in dedicated taxes would be required in order to avoid an increase in the General Fund subsidy by a like amount. While New York State has one of the highest gas taxes in the country, it ranks in the middle for total costs of fees and taxes for motor vehicles when taking into account all types of charges on motorists.

**B. New State, Local and Regional Financing Sources & Frameworks**

While of great regional, state, and national significance, the Tappan Zee Project most directly benefits the residents of the lower Hudson Valley and of Passaic and Bergen County, New Jersey. Therefore, this section focuses on both statewide and regional funding alternatives. For purposes of defining a region or “Tappan Zee Bridge and Corridor Transportation District” we include Orange, Rockland and Westchester Counties, which are in closest proximity to the Project. It should be noted that many of the currently authorized taxes below are already committed and/or pledged to MTA and other State transportation bonds by law, bond resolution, and capital planning processes. The discussion below purports to assess the potential for incremental taxes to provide funding for the Project. It is assumed that any statute drafted to implement such proposals would take into consideration such existing pledges and/or commitments.

**New Statewide Transportation User Fees.** The DTF statute lays out a fairly complicated methodology for the sharing of transportation revenues among different accounts, including the Mass Transportation Operating Assistance Trust and the Dedicated Mass Transportation

Trust Fund, which largely benefit the MTA. For purposes of this analysis, we set these statutory flows aside under the presumption that any new, incremental taxes not pledged to existing bondholders could be directed to the Project as specified by the legislation imposing such taxes. The table below lays out bond proceeds, the repayment of which could be secured by increases in certain fees and charges used to fund transportation projects within the State. The PBT charge is analyzed as an increment to aggregate receipts deposited in the Dedicated Funds Pool as various fuels are assessed at different rates and collections are reported in the aggregate for all fuel categories.

Statewide Tax or Charge	PV Funding Capacity <sup>16</sup> (\$M)
10% Increase in PBT Revenues <sup>17</sup>	610
1 Cent Gasoline Motor Fuels Tax	339

<sup>16</sup> Based on 2008-09 receipts. Assumes 2.0x ABT, 30 year bond term and an interest cost of 7%.

<sup>17</sup> Based on State Fiscal Year 2009-10 estimates of PBT revenues to be deposited in Dedicated Funds Pool.

1 Cent Diesel Motor Fuels Tax	51
25% Increase in License Fees	233
1 Percent Auto Rental Tax	58

A motor fuels tax links road users to this significant Project, encourages conservation, and is compatible with the transit feature of the project. It should be noted that unless assessed as a percent of the price of Motor Fuel as is the case with the PBT, receipts will not be automatically adjusted for inflation. Motor vehicle taxes and license fees may become regressive if established as flat fees but can be assessed on a percentage of vehicle value or as a sales tax on automobile insurance premiums to partially offset this issue. Proponents of auto rental taxes point out that they are paid by out-of-state users and have little impact on in-state residents. However, these taxes may discourage out-of-state leisure travelers and affect tourism activity outside major metropolitan areas. In addition, increase in auto rental taxes, even if established on a statewide basis, would not generate a significant amount of funding for the Project.

**Statewide Sales Tax.** Sales taxes constitute a proven and highly ratable revenue source which can provide significant upfront funding for the Project. Massachusetts recently imposed a new sales tax increment to fund its transportation initiatives and has long dedicated a portion of its sales tax to fund the Metropolitan Bay Transportation Authority’s capital program and operating costs. Sales taxes, however, are considered to be regressive and could divert purchases to adjoining states with lower sales taxes. Currently, sales taxes are 6% and 7% in Connecticut and New Jersey respectively. Combined State and local sales taxes in New York can be as high as 8.625% in certain areas which are also members of the

Metropolitan Commuter Transportation District (see description below.)

Sales taxes in New York have been widely imposed to support transportation improvements and operations. At the state level, New York imposes a 4 percent tax on sales and use of services. Sales tax collections in State Fiscal Year 08-09 attributable to a 1% sales tax totaled \$2 billion. A statewide sales tax equal to ¼ percent dedicated to the Project and leveraged under an indenture with a 2.0x ABT could produce \$3.9 billion in proceeds upfront<sup>1</sup>. The State sales tax base includes taxes on telephone and other utility use. Taxes on these services are sometimes earmarked to support transportation, as is the case with respect to the MTA Surcharge on telephone services. Policymakers will evaluate to what extent it is desirable to restrict sales tax increases dedicated to the Project to particular services or industries, motor vehicle sales and parts, or any other sector.

**Regional Transportation Districts.** The Metropolitan Commuter Transportation District (“MCTD”), the nation’s largest transportation district, consists of Dutchess County, Nassau County, Orange County, Putnam County, Rockland County, Suffolk County, Westchester County and New York City. In addition to statewide taxes such as the PBT and motor fuel taxes, the State imposes taxes in the district to support the operations of all transit systems in the region, and MTA’s capital program. These taxes include a district sales and compensating use tax, a business tax surcharge, mortgage recording taxes, a supplemental registration and license fee imposed on motorists living in the MCTD and a supplemental tax of 5 percent imposed on passenger car rentals within the area. These taxes are amended from time to time to help defray the MTA’s and the Counties’ costs of providing service. In 2005, the State legislature raised the sales and

compensating use tax imposed in the MCTD from ¼ to 3/8%. Most recently, the State legislature enacted a Mobility Tax on employers and individuals doing business within the MDTC of .34% of payroll expenses. It is worth considering whether any and all of the charges discussed previously could be imposed within a Tappan Zee Bridge and Corridor Transportation District created for the purpose of financing the Project. The table below outlines the taxes imposed in the MCTD.

**Taxes and Fees Imposed in the MCTD (\$M)**

Type	(\$M)
District Sales Tax (3/8%)	\$711.2 (SFY 09)
Temporary Franchise Surcharges	\$851.8 (SFY 09)
Supplemental Registration and License Fee	\$120.7 (Projections for SFY 2010)
Supplemental 5% Car Rental Tax	\$26.3 (Projections for SFY 2010)
Urban Tax (NYC)	\$523 (Year Ended 12/31/08)
Mortgage Recording Tax	\$395.5 (2008 Receipts)

Payroll tax projections are currently not available.

**District Sales Tax.** A district sales tax would be highly correlated with business and residential activity taking place within the project area. During State Fiscal Year 2006-07, the last year for which such information was published by the Department of Taxation and Finance, State taxable sales and purchases in Orange County, Rockland County and Westchester County totaled \$23 billion.<sup>18</sup> A half percent district sales tax on that base

<sup>18</sup> Source: Annual Statistical Report, Taxable Sales and Purchases, County and Industry Data for March 2006-February 2007, published December 2008 by the New York State Department of Taxation and Finance.

imposed in those counties for the benefit of the Project could produce \$700 million upfront.<sup>19</sup> As discussed below, sales tax revenues levied to secure a bond financing will be collected in excess of debt service requirements, and consideration should be given to using those revenues to finance project costs during the construction period and operating expenses thereafter. In this case, almost \$60 million in annual sales tax revenues will flow from the indenture unencumbered after the payment of debt service.

**Mortgage Recording Taxes.** As discussed previously, Counties within the Metropolitan Commuter Transportation District are authorized by the State to impose Mortgage Recording Taxes, most of which inure to the benefit of the MTA. The same could be done for the benefit of the Project, although Mortgage Recording Tax revenues are highly volatile and it is not possible to leverage them on a stand-alone basis with any kind of efficiency.

**Tax Increment Financings (TIFs).** This financing technique is designed to capture property value increases resulting from infrastructure investments and dedicates those revenues to such investments. A tax increment financing is secured solely by the increase in taxes due to changes in valuations above a base line established before project completion. Because property taxes and assessments are under the sole jurisdiction of local governments, the subject cities or counties would have to be fully supportive of a TIF as an appropriate way to defray a portion of Project costs. Under this structure, only residents of the subject counties within New York State would be taxed. Another challenge with TIFs is that they do not provide upfront funds as ratings agencies usually require four

<sup>19</sup> Assumes a 7% rate of interest, 2.0x coverage and 30 year amortization.



years of history before allowing a stand-alone financing. Additionally, the area in which the Project is sited is relatively well developed, with little undeveloped acreage potential and therefore limited upside. Finally, property taxes are seldom dedicated to transportation projects, although impact fees are often imposed for general infrastructure improvements. From 2003 to 2007, full valuation<sup>20</sup> in Orange, Rockland and Westchester Counties increased by \$16 billion annually or approximately 12% per annum. Recognizing that this was a period of time in which real estate values escalated drastically, any assumption of future growth leveraged under a TIF structure would have to be greatly discounted. Assuming 1.5% growth on property values in these three counties taxed at a rate of one mil and an indenture providing for a 1:2 leverage ratio, \$23 million in bond proceeds would be produced in the near term. Given the challenges of raising bonds backed by TIF revenues at the outset, this source of funds seems better allocated to the later phases of transit construction, once the new bridge is in use and tangible improvements to transportation in the corridor from which the incremental property values arise.

**Special Assessment.** A special assessment financing is secured by a new, additional millage on existing and new property in the region. Unlike TIFs, Special Assessments are able to be leveraged upfront as charges are imposed on an existing base and do not rely on future growth. According to the Office of the State Comptroller, the full value of property in 2007 for the Counties of Orange, Rockland and Westchester totaled \$256 billion.<sup>25</sup> A one mil assessment on that base would produce upfront bond funds of \$1.5 billion.<sup>24</sup>

---

<sup>20</sup> Counties do not assess property taxes based on full valuation. Full valuation is calculated by the State for the purpose of applying certain State aid formulas based on wealth factors. For purposes of this analysis, we have used full valuation as calculated by the State.

**District Personal Income Tax.** According to the New York State Department of Taxation and Finance<sup>21</sup>, the taxable adjusted gross income of residents of Orange, Rockland and Westchester Counties totaled \$73.5 billion in 2006, with 77% of that income coming from residents of Westchester County. A personal income tax surcharge in each of those counties of ¼ percent would yield \$1.1 billion in bond proceeds for the Project.<sup>24</sup>

**District Commuter Personal Income Tax.** The Department of Taxation and Finance does not report adjusted gross income figures for non-residents of the State of New York who earn income within the Orange-Rockland-Westchester County areas. A District Commuter Personal Income Tax could be a way to raise revenues from individuals which travel into a Tappan Zee District to work from other Counties in the State or any other State. It is estimated that 35% of Tappan Zee Bridge eastbound users travel from Passaic County, Bergen County and the rest of New Jersey<sup>22</sup> into New York State. According to the Division of the Budget, a payroll tax such as the one recently implemented for the benefit of the MTA would be easier to administer and would certainly capture income earned by out-of-state residents working in the subject area.

**Parking Fees.** Parking fees and taxes have long been used to pay for transportation infrastructure projects. While revenues from these sources are not likely to provide a meaningful amount of funding for the Project, the ability to impose a district tax on parking in the Tappan Zee District or to establish user fees for parking near BRT and CRT stops should be explored. At this time, without the benefit of a feasibility consultant report, it is difficult to

---

<sup>21</sup> Source: New York Adjusted Gross Income and Tax Liability, Annual Statistical Report, April 2009.

<sup>22</sup> Based on Eastbound Average Weekday Person Trips (Vehicular and Transit) from 2004 O&D Study.





quantify the amount of revenue that may be available from parking users for existing or new facilities. As such parking would likely not begin generating revenue until transit facilities are available to generate park and ride revenues. As such, parking fee revenue can be considered a suitable source of revenue to support the later transit phases of the Project. One approach could be to establish a Public-Private-Partnership for parking.

### **Payments from Other States**

The MTA entered into a Service Agreement with the Connecticut Department of Transportation (“CDOT”) whereby it recovers from the State of Connecticut the portion of Metro-North’s operating deficit relating to the New Haven line. Specifically, the Service Agreement provides that Connecticut defray the cost of 100% of the net operating deficit of Metro-North’s branch lines in Connecticut, 65% of the New Haven mainline operating deficit, a fixed fee for the New Haven line’s share of the net operating deficit of Grand Central Terminal, 100% of nonmovable capital assets located in Connecticut, 100% of the movable capital assets used primarily on the Connecticut branch lines and 65% of the cost of other movable capital assets allocated to the New Haven line. The Service Agreement provides for automatic five year renewals unless a notice of termination has been provided. CDOT retains ownership of any capital assets it completely funds.<sup>23</sup> Operating

<sup>23</sup> *Metropolitan Transportation Authority, Independent Auditors’ Report, Consolidated Financial Statements for the Years Ended December 31, 2008 and 2007.*

subsidies provided by CDOT totaled \$64 million for the year ended December 31, 2008. A similar agreement should be pursued with the State of New Jersey or New Jersey Transit with respect to the Project.

### **Use of Excess Coverage from Non-Toll Funding Sources**

Because rating agencies require significant levels of over collateralization from funds collected, after the payment of debt service on bonds issued for capital costs of the Project, there will remain significant funds available to pay for operating expenses or fund capital costs on a subordinated or pay-go basis while the Project comes online.

The State could consider establishing a Capital Improvement Fund with the excess. A Capital Improvement Fund capitalized with revenues in excess of debt service would constitute a sustainable revenue stream to support transportation projects statewide, including the Tappan Zee Bridge / I-287 Corridor project. The portfolio of revenues dedicated to transportation funding would be consistent with State socioeconomic and environmental policies and provide a sustainable revenue stream in perpetuity. With this objective in mind, the concept of a Capital Improvement Fund modeled after the State Revolving Funds could be utilized. Any and all of the taxes and fees discussed in this section are candidates for inclusion into a corpus used to fund statewide projects at a low cost.

## 8. INCREMENTAL NON-TRADITIONAL FUNDING OPTIONS

### A. Transit Oriented Development (TOD)

#### Background

In recognition of the relationship between transportation improvements and land use consequences and seeking to influence future land use development by encouraging “smart growth”, the Project recommendations include new and enhanced transit service that will serve both the cross-corridor and the New York City markets. The transit element of the Project proposes Commuter Rail Transit (CRT) service from Suffern in Rockland County to Grand Central Terminal in Manhattan as well as full-corridor Bus Rapid Transit (BRT) service between Suffern and Port Chester in Westchester County. CRT would begin in Suffern with a direct connection to the Port Jervis Line and connect into the Hudson Line for a one-seat ride to Grand Central. BRT service would begin in Suffern across Rockland County along I-287 and continue through Westchester County to Port Chester with transfer capability to the Harlem and New Haven Lines. The proposed transit service and new stations are expected to provide opportunities to advance smart-growth options including transit oriented development along the corridor and in the region.

TOD refers to mixed-use residential and commercial projects designed to leverage transit infrastructure to promote economic development and smart growth by increasing location efficiency where people can walk, bike and take transit. Features include design that encourages walking and cycling, streets that have good connectivity and traffic-calming features to control speeds, mixed-use development that includes housing of various types and prices, shops, schools and other public services within each neighborhood and parking management to reduce the amount of land devoted to parking. They also include

transit stops and stations that are convenient, comfortable and secure, with features such as comfortable waiting areas, real-time bus or train arrival information, vendors selling refreshments and periodicals, washrooms and information.

In order to address the Project’s impact on TOD issues raised by many county and local planners and stakeholders, the Project Partners have launched a new TOD technical assistance program called Building Quality Communities around Transit. This initiative will provide TOD training resources to municipalities along the 30-mile I-287 corridor designed to assist these communities with comprehensive planning and land use efforts around the Project’s transportation improvements. The TOD program follows the State’s Lower Hudson Valley Smart Growth initiative with its aim to assist communities in planning for economic growth and development. According to published reports, the Project Partners have retained a consortium of renowned TOD experts to provide the training and other resources to the corridor communities. The consulting group reportedly includes veteran smart growth and TOD experts from Reconnecting America, the Project for Public Spaces (PPS) and the Regional Plan Association.

The joint development of property along the I-287 corridor for both transit and non-transit purposes through partnerships with private developers to incorporate mixed-use development in, above, adjacent to or surrounding the new transit facilities can serve as a source of funding for the proposed transit facilities through private investment, the generation of tax and non-tax income from the developments and Federal funding. The



recognition of this potential was incorporated in the Project's transit mode selection process as set forth in the Transit Mode Selection Report released in May 2009. The Report included a review of the TOD potential of each transit mode alternative and rated each option in terms of minor, moderate or major potential for generating TOD and can provide substantial benefits to the Project. By taking an early and holistic approach to the evaluation of TOD in the transit corridor on a regional scale, rather than just on a local station area or neighborhood level, the Project Partners are building a foundation for the successful implementation of this important development financing and land use planning approach.

### **Private Investment**

While TOD can be more complicated and resource intensive than traditional real estate development, as it engages multiple real estate disciplines (residential, commercial, retail, etc.), and often requires higher upfront costs for planning, infrastructure and building materials, private developers are attracted to TOD by the higher returns they can realize on their investments over other real estate developments. Several studies have documented that developers can achieve premium rental rates and sales prices for housing, retail and office space at TODs. The Center for Transit-Oriented Development recently completed a study that revealed that the demand for housing within walking distance of transit will more than double by 2025. In its study, the Center noted that at the time, properties within a five- to 10-minute walk to a transit station were selling for 20 to 25 percent more than comparable properties further away. In addition, according to the Urban Land Institute (ULI), residential properties for sale near commuter rail stops in California have consistently enjoyed price premiums, including a 17 percent advantage for such properties in the San Diego region.

Further, a study completed by California State University at Fullerton indicates that there are premiums of 4 to 30 percent for office, retail and industrial buildings located near rail transit in Santa Clara, Dallas, Atlanta, San Francisco and Washington, D.C.

Although possible station locations have been considered as part of the Project's transit service plans, they have not yet been finalized at this stage of the Project. Joint development with private developers through the disposition of publicly owned land, ROW and/or air rights adjacent to these station locations via outright sales or long-term lease arrangements can potentially generate upfront revenue or an ongoing revenue stream to subsidize the costs of the Project's transit components. Similar public-private joint development projects in the region include Hudson Yards in New York City where the MTA is building the # 7 subway line extension to introduce subway service to an emerging mixed-use community in Midtown West, fostering transit oriented development in one of Manhattan's most underserved and underdeveloped areas and the redevelopment of the 16-acre World Trade Center site by the Port Authority of NY and NJ around a new WTC transportation hub that will include a PATH station, 200,000 square feet of retail space and a massive East-West Corridor that provides underground access to 13 subway lines through the Fulton Street Transit Station. The Hudson Yards project, which is described in detail below, is a good example of utilizing TOD to finance integral transit improvements.

### **Hudson Yards**

The extension of the IRT Flushing Subway Line, which carries the Number 7 train service, westward from its current terminus at Times Square, and adding initially one new station at Eleventh Avenue–34th Street, is being managed by the MTA and funded by the City of New York. The Number 7 line extension is

the lynchpin of the Hudson Yards development project that is slated to transform the area of Manhattan bounded by West 42nd and 43rd Streets, 7th and 8th Avenues, West 28th and 30th Streets, and Hudson River Park into a vibrant, pedestrian-friendly, transit-oriented mixed-use district that will accommodate a major expansion of the Midtown central business district as well as job growth and new housing for the City's growing population. When completed, the subway line extension will place nearly all points in Hudson Yards within less than a 10-minute walk to a subway station. A series of revenue streams have been created that will be generated from the new development.

The City created a local development corporation as a single purpose financing entity, the Hudson Yards Infrastructure Corporation, which issued \$2 billion in 40 year bonds in FY 2007 to finance the subway line extension and surrounding infrastructure. The bonds are to be repaid from HYIC revenues derived from development within the project area and consisting of a mix of major recurring sources and other one-time revenues. The recurring revenues include payments in lieu of taxes (PILOTs) within the district and future tax equivalency payments (TEP), which are property taxes paid to the City and assigned to the Corporation from new development within the district. Non-recurring revenues include payments in lieu of mortgage recording taxes levied on mortgage financing associated with new construction or major redevelopments within the district; density bonus payments (DIB); and certain future development revenue derived from the development potential of the western and eastern rail yards owned by the MTA (HYIC has purchased half of the air rights over the eastern rail yards). The bonds were structured as interest only obligations until a conversion date when PILOTs and property taxes from new development are

determined to be sufficient to pay debt service. Until such time, to the extent that available project revenues are insufficient to pay interest, the City is obligated to make such payments up to \$3 billion, subject to annual appropriation.

In February of this year the MTA announced that its real estate deal, expected to bring in anywhere from \$700 million to \$1.05 billion for capital spending, with a partnership between developer Related Cos. and Goldman Sachs to develop the western and eastern rail yards under a 99-year lease. The transaction is being placed on hold for a period of up to one year due to the economic downturn and credit crunch. The MTA retained a \$8.6 million penalty payment from the developers. This deal followed the collapse of an earlier agreement between the MTA and developer Tishman Speyer.

### **Federal Funding**

Although TOD is not a discreetly Federally funded program, the Federal Transit Administration is encouraging transit systems to undertake TODs by using FTA financial assistance for joint development activities that incorporate private investment or enhance economic development. Such projects may include transferring land for nearby real estate development; preparing land for development; providing enhanced access; and developing on-site community services such as dependent care, health care, public safety, or commercial conveniences. Common joint development arrangements are ground leases and operation-cost sharing. Most often, joint development occurs at rail stations surrounded by a mix of office, commercial, and institutional land uses. Proximity to rail transit has been shown to enhance property values and can increase the opportunity for fostering community and development partnerships. Examples of public-private joint ventures can be found among bus-only systems as well, in the form of



joint intermodal transfer facilities and commercial-retail space at public bus terminals.

In evaluating New Starts projects, for example, the FTA explicitly considers existing land use and transit supportive plans and policies including growth management; transit supportive corridor policies; supportive zoning regulations near transit stations; and tools to implement land use policies. The factors that determine the eligibility of joint development improvements for FTA funds include the following statutory criteria:

**Economic Link:** enhances economic development or incorporates private investment;

**Public Transportation Benefit:** Enhances the effectiveness of a public transportation project and relates physically or functionally to public transportation, or establishes new or enhanced coordination between public transportation and public transportation;

**Revenue for Public Transportation:** Provides a fair share of revenue for public transportation that will be used for public transportation; and

**Reasonable Share of Costs: (if applicable)** occupants to pay a reasonable share of the costs of the facility through rental payments and other means. In addition, there are a host of non-transit Federal funding programs directly related to TODs that are available from the following agencies that focus primarily on real estate development:

- U.S. Department of Housing and Urban Development (HUD)
- U.S. Department of the Treasury
- Federal Housing Administration (FHA)
- Fannie Mae
- Freddie Mac
- Federal Home Loan Bank

### Benefits

- An incremental source of additional financing for transit improvements and enhancements
- FTA grant eligibility has factored in TOD and smart growth initiatives
- Planned and sustainable regional growth and development

### Issues

- While TOD–transit friendly development is an important planning tool, it presents a limited funding opportunity except around transit station development.
- The Project will not likely be able to capture value from any TOD in a timely fashion.
- TOD financing can be expensive and difficult to obtain
- Land costs tend to rise once transit locations have been identified and well before there is a viable market for the dense development that will be built.

## B. Initial Public Offering (IPOs)

An IPO is a well established asset privatization method that involves the creation of a new company (NewCo) as a separate operating entity, with independent governance and often

a professional management team. 100% ownership of the Project would be conveyed to the newly formed company. The State sells partial (or total) ownership in NewCo to the





private sector, through a listing in a stock exchange where the shares are traded. NewCo becomes responsible for the financing, construction/CapEx, maintenance, and operation of the Project. The State typically retains control by holding a majority stake in NewCo. Through the public offering, private sector ownership is diffused across a broader investor base than through a concession agreement or asset sale. NewCo is then responsible for the financing, construction/CapEx, maintenance, and operation of the asset.

Investors in the IPO market generally seek financial returns from capital appreciation of the purchased stock and/or dividends paid by the company. An IPO transaction is a formal and transparent process regulated by the Securities and Exchange Commission (SEC). An IPO requires that a company prepare and file a registration statement to register the company's securities with the SEC. A syndicate of underwriters then typically sells an IPO to a geographically diverse mix of institutional and individual investors. These investors review the investment merits of the company and compare its potential with that of many alternative investments. Therefore, the price in an IPO, by its nature, represents a broadly based market valuation of the business. The asset privatization IPO is known as the "French model" for privatizing roads, international examples of which include ASF (France), SANEF (France), Autostrade (Italy), MTRC (Hong Kong), SMRT (Singapore) and Japan Rail (Japan), case studies for a few of which are provided below.

**SANEF (Autoroutes du Nord et de l'Est de la France)** (Northern and Eastern French Highways Corporation) - Sanef, a French toll roads operator that operates motorways in the North and East of France as a result of concessions given by the French Government,

brought a successful IPO to market in 2005. The French government retained over 74% stake in the company after the IPO. Initial estimates indicated that over 80 percent of Sanef employees took advantage of an employee stock offer. In 2006, the French government privatized 100% of Sanef as part of its broader plan to privatize state-owned industries.

**ASF** - The privatization IPO of Autoroutes du Sud de France S. A. (ASF), the country's leading toll road concessionaire and operator of Europe's second largest toll-road network, took place in 2002 with a EU2.6 billion public offering to be listed on the Paris Stock Exchange. The company was founded by the French government as a form of state-owned enterprise in 1957. The IPO resulted in divestiture by the French government of 49% of its stake in the toll road operator and was accompanied by a capital injection by ASF of EU800 million. The IPO was 19 times oversubscribed on the institutional side and rose 8% in the first week trading despite being priced near the top of the book-building range. Thereafter, the concessions and construction group, VINCI, gradually acquired a 23% stake in the company and gained full control in 2006 when the French government decided to sell its remaining interest.

**MTRC** - The Hong Kong government sold 20% of Mass Transit Railway Corporation (MTRC), the state rapid transit railway system, in a privatization IPO in 2000. In advance of the IPO, the Hong Kong government negotiated an operating agreement with the new company created to partially privatize MTRC, that made provision for the imposition of railway performance and safety standards, a fare-consultation process, guidelines regarding investments and for the payment of compensation by the government to company



in the event of termination or revocation of its franchise.

**Benefits:**

- State may realize significant proceeds from the partial sale of its interest
- NewCo raises and repays debt as a private entity
- Capital expenditure, operational and maintenance risks are transferred to NewCo
- The State’s ongoing governance control is established by its continuing ownership interest in NewCo
- The State can exercise additional influence over the asset through ongoing regulatory mechanisms and other rights established prior to the IPO
- The State’s ongoing stake in NewCo represents a market-established value which can be used to generate additional proceeds through future sales

**Issues:**

- IPO pricing normally occurs at a discount relative to the valuation that the State might receive in a trade sale
- The transaction as well as the proceeds received by the State through an IPO

will be subject to market conditions which will not be under the control of the State

- Similarly, the value of the State’s ongoing ownership interest will be subject to market fluctuation over which it will have no control
- Regulatory framework required to ensure private sector maintains asset serviceability
- The corporatization process that creates NewCo and all requisite corporate functions may require near-term financial commitment
- As a listed company, NewCo will be subject to Federal, state and exchange related regulatory requirements
- The State will not be able to subsequently claim ownership or full control of NewCo assets without a commitment to purchase the asset – a transaction that may be in competition with proposals from other potential bidders
- Perceived level of control exercised by the State may impact private sector interest and continuing value, particularly if State and investor interests are not properly aligned

**C. Naming Rights**

Another non-traditional means of financing that could be implemented in connection with the transit element of the Project is the sale of naming rights to the new station areas along the corridor. The MTA recently sold the right to rename the Atlantic Avenue subway station in Brooklyn, New York to Forest City Ratner, the developer of the Barclays Center sports arena planned as the focal point of the Atlantic Yards project for \$4 million, to be paid in the amount of \$200,000 a year for the next 20 years. Other examples of the sale of naming

rights for transit projects are the payment by Tampa Electric Co. of \$1 million over 10 years for naming rights to Tampa's streetcar system and Nextel Communications’ payment of \$50 million over 12 years to sponsor a train and the Convention Center Station of the Las Vegas Monorail System.

In addition, Miami-Dade Transit has retained the company that sold the naming rights to Tampa’s streetcar system, the Philadelphia-based Front Row Marketing Services, to study

the market and explore selling naming rights to stations or the whole downtown mover system.

In conclusion, although there may be an incremental amount of funding available from the implementation of such non-traditional financing ideas as TOD, infrastructure IPOs and the sale of transit related naming rights, it does not appear that any of these ideas are capable of generating sufficient value to make a significant impact on defraying the expected costs of the Project. Both TOD and naming rights are transit-oriented and therefore not available to finance the initial Project costs related to the construction of the transit-ready bridge. In addition, infrastructure IPOs have not been utilized in this country to date with any measure of success.

## 9. CONCLUSION

This Preliminary Alternatives Review Report serves as one of the initial critical steps towards accomplishing the objective of “STEP 1: Developing Core Strategies” - to extract from a very wide range of possible ideas a meaningful and manageable core group of strategies that offer the best prospects of successful financing of the Project.

In this report, a wide range of possible “Alternatives” that merit further analysis were explored including potential sources of funding; cost and risk reduction opportunities as well as related trade-offs; procurement mechanisms; ownership models and organizational considerations that may offer efficiencies; and relevant financing tools offered by the Federal government under the existing Surface Transportation Act.

The array of funding sources considered included those based on some form of user charges, various Federal government opportunities, state and local taxes and fees as well some non-traditional funding sources such as naming rights and transit-oriented-development.

The report also includes the Legal Implications of Alternatives memorandum in the appendices. This memorandum outlines the opportunities, hurdles, and impediments associated with pursuing various alternatives. Some of the issues mentioned therein might affect the financing potential, while others might severely limit the practicability of a

particular alternative to the extent that it warrants elimination, and still others might mean that a major policy decision must be made prior to moving ahead with further analysis.

The alternatives considered were assessed from a number of perspectives including public policy, legal, statutory, financial, anticipated market response, and necessary steps for implementation. Wherever appropriate, the report highlights the advantages and issues associated with the option being discussed.

As indicated in the Project Management Plan, this report sets the stage for narrowing the range of alternatives towards Core Strategies. The process of narrowing the options will, among other things, heavily depend on the policy guidance provided by the NYSDOT and the Project Partners. Such guidance will provide insight into the priorities especially in those cases where combinations of alternatives offer tough policy choices.

As the Project team moves forward, combinations of promising alternatives will start to emerge as “strategies” that provide context and communicate how multiple actions are actually related and consistent. Over time, combinations of best ideas will emerge as “Core Strategies” that will address project delivery and cost, revenue generation, and long term considerations such as ownership and operation of the facilities.



## Appendix-A1

### Description of Currently Untolled Interstate Facilities

**Cross Westchester Expressway (I-287)** is the name given to the part of Interstate 287 which runs from the Interstate 87/287 interchange in the town of Greenburgh located just east of the Tappan Zee Bridge to I-287's eastern terminus at Interstate 95 near the Rye-Port Chester boundary. The total length of the Expressway is around 10 miles. The Cross Westchester Expressway is owned by the NYSDOT, but is maintained and patrolled by NYSTA from Exit 1 to Exit 10. It provides a critical link in the Federal interstate highway system. The Expressway passes through pockets of more dense urban development predominantly in the White Plains area. The Expressway serves as a major route for traffic traveling between New England and areas to the south and west. According to NYSDOT, the 2007 average daily traffic was around 125,000.

**Interstate 684:** Interstate 684 is a north-south limited-access highway through eastern Westchester County. The highway connects Interstate 84 with Interstate 287 and the Hutchinson River Parkway, primarily serving commuter traffic to/from the northern suburbs of the New York metropolitan area. According to NYSDOT 2007 data report, the average daily traffic varies between 70,000 and 85,000. The total mileage of the route is 28 miles.

**Interstate 84:** Interstate 84 is a 72-mile section in New York State and is the main vehicular route between Southern New England and Pennsylvania and points west. I-84 passes through three counties in New York - Orange, Dutchess, and Putnam. Currently, maintenance

on the highway is performed by the NYSTA, under yearly contract with the New York State Department of Transportation. According to NYSDOT 2007 data report, the average daily traffic varies between 32,000 and 77,000.

**Adirondack Northway (Interstate 87 between Albany and the Canadian Border):** Interstate 87 is a 333.49-mile interstate highway located entirely within New York, United States. Its southern end is at the Bronx approach to the Robert F. Kennedy Memorial Bridge in New York City. The northern end is at the Canada – United States border in Champlain, where it continues into Quebec as Autoroute 15. The southern portion of I-87 between the New York City line and Albany is part of the NYSTA. North of Albany, the 176 mile stretch of I-87 is named the Adirondack Northway. The portion of the Northway through Colonie and Saratoga County is now a heavily traveled commuter route. Overall, the 2007 average daily traffic varies between 20,000 and 85,000.

**Interstate 81:** Within New York State, Interstate 81 spans 183 miles from the Pennsylvania state line to the south to the Canadian border in the north. The route enters New York near Kirkwood, southeast of Binghamton, and heads north through Binghamton, Syracuse, and Watertown before crossing into Ontario, Canada in the Thousand Islands near Fishers Landing. Interstate 81 has relatively lower traffic volumes with 2007 average daily traffic varying between 7,000 and 40,000.



## Appendix-A2

### Description of Federal Tolling Programs

#### 23 U.S.C. Section 129 Toll Agreements

Under 23 U.S.C. 129, Federal participation is allowed in the following five types of toll activities.

1. Initial construction (except on the Interstate System) of toll highways, bridges, and tunnels, including the approaches to these facilities;
2. Reconstructing, resurfacing, restoring, and rehabilitating of any existing toll facility;
3. Reconstruction or replacement of free bridges or tunnels and conversion to toll facilities;
4. Reconstruction of a free Federal-aid highway (except on the Interstate system) and conversion to a toll facility; and
5. Preliminary studies to determine the feasibility of the above toll construction activities.

If Federal-aid funds are used for construction of or improvements to a toll facility or the approach to a toll facility or if a State plans to reconstruct and convert a free highway, bridge or tunnel previously constructed with Federal-aid funds to a toll facility, a toll agreement under Section 129(a)(3) must be executed. There is no limit to the number of agreements that may be executed. Therefore, a 23 U.S.C. 129 agreement does not provide for tolling of currently untolled Interstate highways. Among the currently untolled New York State highways we listed as candidates for tolling; only the Taconic Parkway (which is not

designated as an Interstate Highway) would qualify through a 23 U.S.C. 129 agreement. Tolling on other highways listed might be considered only through the Value Pricing and Express Lane Demonstration Pilot programs.

A 23 U.S.C. 129 agreement requires all toll revenues are first used for any of the following: debt service, reasonable return on private investment, and operation and maintenance, including reconstructing, resurfacing, restoring, and rehabilitating work. The agreement may also include a provision regarding toll revenues in excess of those needed for the required uses outlined above. This provision would allow these excess revenues to be used for highway and transit purposes authorized under Title 23 if the State certifies annually that the toll facility is being adequately maintained.

The issue of whether a toll facility is to become free when debt is retired or at some other future point in time or whether tolls are to be continued indefinitely is a matter to be determined by the State. Decisions regarding toll rates to be charged are made by the toll authority subject to requirements under State and local laws and regulations. These decisions require no review or input from the Federal Highway Administration (FHWA).

#### **Express Lanes Demonstration (EDL) Program -Section 1604(b) of SAFETEA-LU**

The EDL Program permits tolling on selected facilities to manage high levels of congestion, reduce emissions in a non-attainment or maintenance area under the Clean Air Act



Amendments, or finance added Interstate lanes for the purpose of reducing congestion.

The US Secretary of Transportation is authorized to carry out 15 demonstration projects through 2009 to allow States, public authorities, or public or private entities designated by States to collect a toll from motor vehicles at an eligible toll facility for any highway, bridge, or tunnel, including on the Interstate.

The ELD program permits tolling on any newly constructed Interstate or non-Interstate lanes. In addition, existing Interstate or non-Interstate facilities that are modified or constructed to create toll lanes are eligible to collect tolls on the entire facility. Additionally, existing Interstate or non-Interstate HOV facilities are eligible to collect tolls on the entire facility. Eligible toll facilities fall under four broad categories of new and existing highway capacity. Specifically, section 1604(b)(1)(A) of SAFETEA-LU lists the following four types of eligible toll facilities:

1. A facility in existence on August 10, 2005 (date of enactment of SAFETEA-LU), that collects tolls;
2. A facility in existence on August 10, 2005, that serves high occupancy vehicles (HOV);
3. A facility modified or constructed after August 10, 2005, to create additional tolled lane capacity, including a facility constructed by a private entity or using private funds; and
4. In the case of a new lane added to a previously non-tolled facility, only the new lane.

There are two ways that existing non-tolled capacity may be tolled under this pilot program. First, section 1604(b)(1)(A)(ii) of SAFETEA-LU allows a State to toll a facility in existence on August 10, 2005, that serves

high occupancy vehicles. As stated in the definitions, these facilities are those that provide any preferential treatment to buses, vanpools, carpools, or HOVs. One example of a facility eligible for tolling under this provision is one with a designated HOV lane. Another example of a facility that is eligible for tolling under this provision is one with designated commuter parking or is served by bus rapid transit.

Second, section 1604(b)(1)(A)(iii) allows a State to toll a facility that is modified or constructed after August 10, 2005, to create additional tolled lane capacity. This provision would allow States to toll the existing non-tolled lanes when a new toll-lane is created and the existing lanes are modified or constructed (note that section 1604(b)(1)(A)(iv) would only allow the new lane to be tolled if the existing lanes are not modified or constructed). While the existing lanes must be modified or constructed, improvements do not need to be made throughout the entire length of the project. Tolling will be permitted on the existing lanes if the improvements are expected to improve or benefit, directly or indirectly, the operational performance of the entire length of the facility proposed to be tolled. The State must demonstrate these benefits to the FHWA in the required application.

Qualified Demonstration Projects may consist of:

- Variable pricing by time of day or level of traffic, as appropriate to manage congestion or improve air quality, is required if an HOV facility is tolled; for a non-HOV facility, variable pricing is optional;
- Motor vehicles with fewer than 2 occupants may be permitted to use HOV lanes as part of a variable toll pricing program;



- Automatic toll collection is required in express lanes to optimize free flow of traffic; and
- Toll revenue may only be used for debt service, reasonable rate of return on private financing, operation and maintenance costs, or any eligible title 23 or 49 project if the facility is being adequately maintained.

For purposes of tracking the fifteen slots allowed, each agreement executed between an authority and the FHWA will constitute one "demonstration project." Either one facility, or, at the FHWA's discretion, a group of interrelated facilities in a region (so long as they are all operated under the auspices of the same oversight agency or agencies) may constitute one demonstration project, provided that all candidate facilities meet program criteria at the time of the agreement. Facilities located elsewhere in the State would require new and separate agreements. The agreement must be executed between the FHWA and all relevant entities prior to September 30, 2009.

**Interstate System Reconstruction & Rehabilitation Pilot Program - Section 1216 (b) of TEA-21**

This program allows up to three existing Interstate facilities (highway, bridge, or tunnel) to be tolled to fund needed reconstruction or rehabilitation on Interstate highway corridors that could not otherwise be adequately maintained or functionally improved without the collection of tolls. Interstate maintenance funds may not be used on a facility for which tolls are being collected under this program. An Interstate reconstruction/rehabilitation project may qualify for credit assistance under 23 U.S.C. 181-189. Each project selected must be in a different State. Two of the three available slots have been reserved under this pilot program: Virginia, I-81 - Approval granted on

March 28, 2003 and Missouri, I-70 - Approval granted on July 26, 2005

Toll collection must occur for at least 10 years. There is no maximum time limit concerning the duration of toll collection; however, tolls that are collected can only be used for the purposes set forth in the following paragraph. The FHWA was concerned that the initiation of toll collection on a facility that is being converted from free use to tolls should not occur until it is evident to the traveling public that tolls will result in improvements to the facility. Accordingly, the earliest that tolls may be imposed on a pilot project is the date of award of a contract for the physical construction to reconstruct or rehabilitate a significant portion of the proposed toll facility.

The candidate state must execute an agreement with the FHWA specifying that toll revenues received from operation of the facility will be used in only for (1) debt service, (2) reasonable return on investment of any private person financing the project, and (3) any costs necessary for the improvement of and the proper operation and maintenance of the toll facility. Additionally, the agreement must include a provision that the State will conduct regular (annual suggested) audits to ensure compliance with the provisions regarding use of toll revenues, and the results of these audits will be transmitted to the FHWA.

A pilot project, regardless of whether Federal-aid funds are to be used in subsequent reconstruction or rehabilitation activities, must satisfy the requirements of the NEPA process before final approval is given to the project. The analysis of the project must take into account not only the impacts of the proposed reconstruction or rehabilitation activities but also consider impacts associated with converting the free facility to a toll facility.

The law permits the pilot program to include highways, bridges and tunnels on the Interstate system

### **Interstate System Construction Toll Pilot Program-Section 1604 (c) of SAFETEA-LU**

This program authorizes up to three facilities on the Interstate System to toll for the purpose of financing the construction of new Interstate highways. A State or an interstate "compact of States" may submit a single candidate project under this program. There is no requirement that the facilities be in different States.

Each project would have to demonstrate that financing the construction of the facility with the collection of tolls is the most efficient and economical way to advance the project. Interstate maintenance funds may not be used on a facility for which tolls are being collected under this program.

Also this program also prevents the State from entering into a noncompete agreement with a private party under which the State is prevented from improving or expanding the capacity of public roads in the vicinity of the toll facility to address conditions resulting from traffic diverted to nearby roads from the toll facility. Other features of this program are:

- A facility management plan must be submitted;
- Automatic toll collection is required;
- Revenues may be used only for debt service, reasonable return on investment of private entity, and operation and maintenance costs; regular audits will be conducted; and
- Applications must be received by FHWA before August 10, 2015.

One of the three available slots has been reserved for new construction of I-73 in South Carolina. The reservation of a slot under this

program is not specific to South Carolina but applies to all of I-73. Thus, if additional States meet the program requirements and wish to construct their portion of I-73 as a toll project, they may apply under this slot.

### **Value Pricing Pilot Program-Section 1604(a) of SAFETEA-LU**

SAFETEA-LU authorized the creation of a Value Pricing Pilot program. Value pricing encompasses a variety of strategies to manage congestion on highways, including tolling of highway facilities, as well as other strategies that do not involve tolls, such as congestion pricing at port facilities, mileage-based vehicle taxes and leasing fees, parking pricing, and car sharing. The value pricing concept of assessing relatively higher prices for travel during peak periods is the same as that used in many other sectors of the economy to respond to peak-use demands.

The Value Pricing Pilot (VPP) program was initially authorized in the Intermodal Surface Transportation Efficiency Act (ISTEA) as the Congestion Pricing Pilot Program. This is the only program that provides funding to support studies and implementation aspects of a tolling or pricing project. The program is limited to 15 slots (which FHWA has reserved for "states") of which only one vacancy remains. Each state can have multiple projects.

SAFETEA-LU provides a total of \$59 million for fiscal years (FY) 2005-2009 for the VPP program. \$11 million was authorized for FY 2005 and \$12 million was authorized for each of FYs 2006 through 2009. Funds available for the VPP program can be used to support pre-implementation study activities and to pay for implementation costs of value pricing projects.

Toll revenues generated by any value pricing pilot project must be used for the project's operating costs and for projects that are eligible

for assistance under 23 U.S.C. Also, any revenues generated by a pilot project must be applied first to pay for pilot project operating costs. Any project revenues in excess of pilot project operating costs may be used for any projects eligible under 23 U.S.C.

**HOV Facilities-Section 1121 of SAFETEA-LU**

Section 1121 of SAFETEA-LU removed Section 102(a) of 23 U.S.C. and replaced it with a new Section 166 that clarifies the operation requirements of HOV facilities and provides more exceptions to their minimum vehicle occupancy requirements. Specific to tolling and the creation of HOT lanes, the new legislation allows States to charge tolls to vehicles that do not meet the established occupancy requirements to use an HOV lane, provided the agency meets certain criteria to enroll participants, collect fees electronically, manage demand by varying tolls, and enforce against violations. Toll under this section may be charged on both Interstate and non-Interstate facilities. There is no limit on the number of

projects or the number of States that can participate.

SAFETEA-LU gave operating agencies responsible for HOV facilities the option of allowing three specific vehicle classes to travel on such facilities exempt from the posted vehicle occupancy requirements: (1) public transportation vehicles ; (2) HOT vehicles (as defined in next paragraph); and (3) low emission and energy-efficient vehicles (such as hybrids). In addition, SAFETEA-LU provides the procedures that States must use to restrict motorcycle and bicycle operations on HOV facilities.

Title 23 U.S.C. 166 allows States to toll vehicles for access to HOV lanes only when (1) they do not meet the established occupancy requirements of the lane (e.g., HOV-2 on an HOV-3 facility) or (2) they are ILEV or low emission and energy-efficient vehicles. HOT vehicles must be tolled; the tolling of low emission and energy-efficient vehicles and SOV public transportation vehicles is optional. Motorcycles and bicycles may not be tolled.

**Appendix-A3**

**Legal Implications of Alternatives**

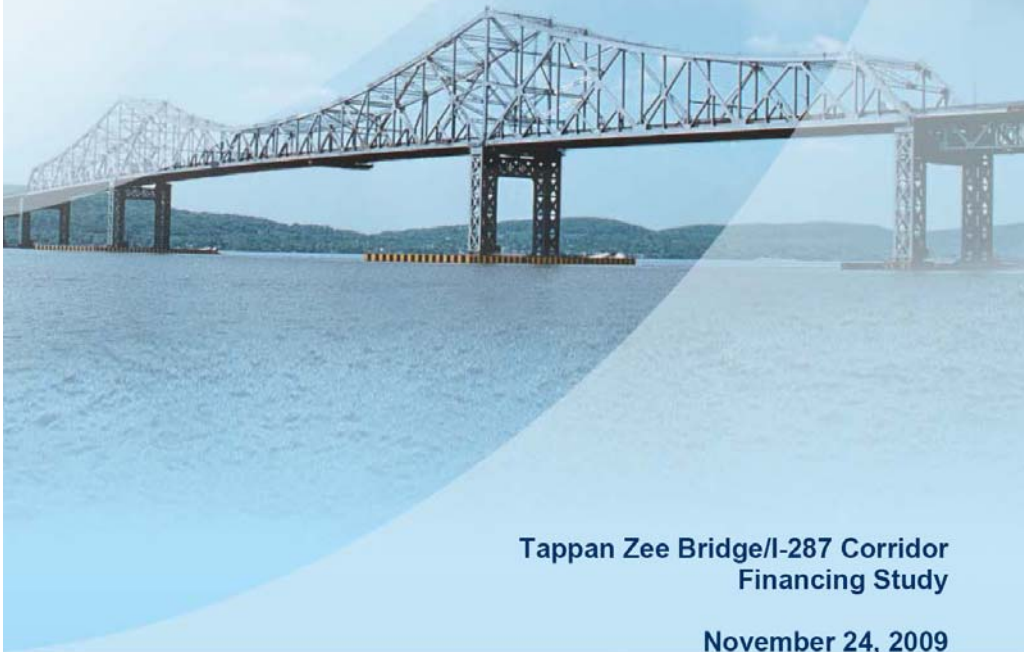
New York State Department of Transportation  
New York State Thruway Authority  
Metropolitan Transportation Authority/Metro-North Railroad

**Financial Plan Development**

**STEP 1:**

**Develop Core Strategies**

**Legal Implications of Alternatives**  
An Independent Legal Analysis of Winston & Strawn LLP



Tappan Zee Bridge/I-287 Corridor  
Financing Study

November 24, 2009