
Value For Money Analysis

THE HUDSON TUNNEL PROJECT

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1. THE HUDSON TUNNEL PROJECT

1.1. PROJECT OVERVIEW

The Hudson Tunnel Project (the Project) aims to construct two new tunnels under the Hudson River and repair the 113-year-old North River Tunnel operating between New Jersey and Penn Station New York on the Northeast Corridor (NEC).

The construction of the new tunnels will allow for the rehabilitation of the North River Tunnel without service interruptions and add additional capacity once all project work is complete.



The Project also includes relocation of the Long Island Railroad Emergency Services Building (ESB) utilities out of the future path of the Hudson Yards Concrete Casing (HYCC) – Section 3, the third and final concrete casing section for rail right-of-way preservation beneath the extensive overbuild project that is planned to be constructed on a platform above the rail complex in Manhattan immediately west of Pennsylvania Station in New York City (PSNY) known as “Hudson Yards.”

The Project is needed to preserve the current functionality of Amtrak’s NEC service and NJ TRANSIT’s commuter passenger rail service between New Jersey and PSNY by repairing the deteriorating North River Tunnel; and to strengthen the NEC’s resiliency to support reliable service by providing redundant capability under the Hudson River for Amtrak and NJ TRANSIT NEC trains between New Jersey and PSNY.

1.2. KEY PROJECT PARTIES

The Project is being developed principally by the states of New York and New Jersey with significant contributions from Amtrak, NJ TRANSIT and Port Authority of New York and New Jersey (PANYNJ).

GATEWAY DEVELOPMENT COMMISSION

Gateway Development Commission (GDC) is the Project sponsor. GDC was set up in July 2019 by the states of New York and New Jersey, each of which passed legislation (collectively, the GDC Act) creating GDC as a public authority with the ability to apply for and administer federal loans and grants.

GDC is a public authority and a government-sponsored authority empowered to develop the Project. GDC is led by a Board of seven commissioners from the two states, New York and New Jersey, and Amtrak. There are three appointees from New York, three appointees from New Jersey and one Amtrak appointee. There is also one elected co-chairperson from each New York and New Jersey. These co-chairpersons must be elected by a vote of a least two of the commissioners from each respective state. Furthermore, Board actions require the affirmative votes of at least two of the commissioners from New York and New Jersey as well as one Amtrak Commissioner. In November 2022, GDC Board of Commissioners approved a Project Development Agreement (“PDA”) between NY, NJ, Amtrak, and GDC that serves as a “constitution” for the project, with specific roles and responsibilities for each entity.

STATE OF NEW JERSEY

Apart from setting up and funding GDC, the State of New Jersey is a key local funding partner to the Project through the New Jersey Turnpike Authority (NJTA). NJTA will contribute toll revenue to repay the Railroad Rehabilitation and Improvement Financing (RRIF) loan being used by the GDC to finance the Project. NJ TRANSIT's role is described separately below.

STATE OF NEW YORK

Like New Jersey, the State of New York is also a key local funding partner to the Project. New York's contribution will also be in the form of appropriations to repay the RRIF loan proposed to finance part of the Project.

AMTRAK

Amtrak is a funding partner to the Project. It will also support the delivery of the tunnel systems work and will utilize the Project for its intercity rail service. Further, Amtrak has served as preliminary design project manager and is responsible for preliminary design for the new tunnels and rehabilitation of the North River Tunnel. Amtrak will also manage property acquisitions and regulatory permits for the Project.

PORT AUTHORITY OF NEW YORK AND NEW JERSEY

Port Authority of New York and New Jersey (PANYNJ) is also a key funding partner to the Project. It will also support the delivery of the tunneling and heavy civil works on the Project.

NJ TRANSIT

Like Amtrak, NJ TRANSIT will utilize the Project for its commuter rail service. NJ TRANSIT managed the environmental review of the new tunnels and also for the rehabilitation of the North River Tunnel and will also manage property acquisitions and regulatory permits for the Project. It will also support the delivery of the New Jersey surface alignment work. Further, as an operator/user of the new Project, NJ TRANSIT is New Jersey's intended designated representative in procurement documents, development of technical standards, and testing and commissioning, among other roles.

US DEPARTMENT OF TRANSPORTATION

Finally, the US Department of Transportation (USDOT) is a crucial partner for delivery of the Project through its modal agencies such as the Federal Transit Administration (FTA), the Federal Railroad Administration (FRA) and the Build America Bureau (BAB). GDC has applied for grant funding from the FTA and the FRA and for RRIF loans from BAB. FRA (supported by FTA) also led the environmental review for the Project and provides funding to Amtrak.

1.3. PROJECT CONTRACT PACKAGING & TIMELINE

Given the size and complexity of the Project, GDC plans on splitting the Project construction into multiple packages. Each package will be designed, procured and constructed separately. Preliminary packages are described below:

Package	Scope	Anticipated Timeline
Package 0	LIRR Emergency Services Building Utility Relocation	Spring 22-Spring 26
Package 1	Tunneling and heavy civil work for the new Hudson River Tunnel. Package 1 will be further split into several sub-packages: <ul style="list-style-type: none">• Hudson River Ground Stabilization• Palisades Tunnel• Manhattan Tunnel• Hudson River Tunnel	Spring 23-Spring 29
Package 2	Fit-out work for the new Hudson River Tunnel including the internal concrete for the ventilation shafts; concrete for the track bed, benches and ventilation duct walls in the tunnels; fan plant building structures and fit-outs; traction power, communications and signal systems; and track work along the entire alignment	Spring 23-Fall 34
Package 3	New Jersey surface alignment work including retaining walls, embankments, and viaducts to support the track bed	Spring 23-Winter 28
Package 4	Construction of a new highway tunnel bridge at Tonnelle Avenue	Summer 23- Summer 25
Package 5	Rehabilitation of the existing North River Tunnel	Winter 28-Spring 38

As the schedule demonstrates, while some of the packages will take longer to complete than others, most of the packages will begin construction in parallel. This means that procurement for these packages may also overlap.

1.4. PROJECT COST

Estimated Project capital cost is \$14,620M. The estimate does not include financing costs that could vary depending on the selected contracting method.

2. VALUE FOR MONEY ANALYSIS

GDC undertook a Value for Money (VFM) analysis that considered both Public-Private Partnership (P3) and a traditional approach for Project delivery. This chapter summarizes GDC's findings.

2.1. VALUE FOR MONEY: A PRIMER

A VFM analysis compares the whole-of-life impact of delivering a Project under the P3 Approach compared to the Traditional Approach.

- Under the **P3 Approach**, a project sponsor typically selects a developer to design, build, finance, operate and maintain the project for a fixed term following construction. The developer will finance the project using a combination of equity capital, debt, as well as grant funding (typically received by the sponsor and provided to the developer).
P3s can involve a range of different commercial structures. Some transfer revenue risk to the developer while other (such as availability payment structures) do not.
- Under the **Traditional Approach**, a project sponsor awards design and/or construction contracts to contractors under a Design-Build (DB) or a Design-Bid-Build (DBB) approach. The sponsor finances the project using a mix of grant, pay-go, and debt funding. The sponsor also operates and maintains the project once built.

2.2. VFM ANALYSIS FOR THE PROJECT: CONCLUSION

While a P3 Approach may offer some advantages in terms of better alignment of incentives and scope for innovation, the P3 Approach does not offer Value for Money for the Project. This is primarily because, given the Project's technical complexity and the complex ownership, operating and governance structure, GDC is unable to transfer some of the key risks to the private sector partner.

Further, some typical benefits of P3 such as access to private capital are also not as valuable for the Project since, while a P3 will increase the cost of capital (and, consequently, the overall Project cost), a P3 structure is unlikely to lead to higher revenues, lower costs, more reliable service, or effective transfer of risks to the private partner.

2.3. VFM ANALYSIS FOR THE PROJECT: DETAILED DISCUSSION

GDC has been working on developing the Project since 2019. Over this duration, GDC has undertaken, and continues to undertake due diligence – including risk, contract packaging, size, and delivery method analysis – comparing the relative advantages and disadvantages under different approaches including P3 as well as Traditional Approaches. In 2019, for instance, GDC conducted a comparative analysis of cost of capital under a P3 Approach as well as Traditional Delivery approach and its impact on GDC's local partners.

The Project has several unique characteristics, each of which was considered during this analysis. Key Project attributes, and suitability of a P3 or Traditional Approach to each of these attributes, are discussed below:

Project Complexity	<p>The Project is complex. It will require significant professional services, construction services, and railroad forces over a period of over fourteen years.</p> <p>The Project scope includes several inter-related construction packages ranging from relatively small (a few million) to very large (in billions). The contract packaging strategy described in Section 1.3 above was derived based on careful study of the Project scope, experience with comparative projects</p>
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elsewhere globally, and feedback from industry – GDC issued Requests for Information (RFI) in August 2017 and July 2018 and had several subsequent discussions with respondent firms. Each RFI attracted responses from numerous firms, including multinational, national and local contractors, designers and financial entities. GDC updated this market research through a market sounding event and one-on-one meetings with industry representatives in February 2023, followed by a series of industry days for specific packages in June 2023 (Hudson River Ground Stabilization) and July 2023 (Manhattan Tunnel Package) **The conclusion from the early 2018/2019 meetings was that traditional delivery approaches for HTP were preferred based on the projected funding sources and the risk transfer profile of HTP.**

- **On August 10, 2017, the HTP issued a Request for Information (RFI) to solicit private sector interest to deliver the proposed HTP and HYCC-Section 3. Response to the RFI was robust and in October 2017, the HTP invited respondents to one-on-one meetings to further discuss their responses to refine the Gateway Program’s financial strategy, procurement methodology, and approach to project delivery.**
- **On July 10, 2018, the HTP issued further questions based on the 2017 feedback, as a continuation of the RFI initiative. Response from the private sector continues to be robust. As part of this continued market engagement, the HTP hosted a successful Industry Information Session that attracted approximately 200 individuals from over 100 firms. Additional one-on-one meetings with RFI respondents to discuss their 2018 responses were held in late 2018 through early 2019. This feedback helped to inform the HTP’s risk allocation analysis, along with contract packaging and procurement methodology. In 2018, industry feedback supported a DB and DBB approach and the 2019 feedback further refined the delivery strategies to include Progressive DB and 100% Designed-Procurement in addition to DB and DBB.**

The Project’s packaging strategy, construction schedule and size will require GDC to run several procurements (some in parallel) to procure the different construction packages. Further, the different packages are also likely to require significant interfaces between multiple active construction contracts.

A complex procurement and packaging strategy with several interfaces makes this project less suitable for a P3 delivery approach. This is because:

- Given the multiple interfaces, even under a P3 approach, GDC may end up managing the multiple contracts (P3 or Traditional) and, therefore, is unlikely to be able to transfer this risk fully at a reasonable cost. One of the key benefits of a P3 Approach is the ability to transfer risk to the private sector. Inability to transfer this key risk in a manner that is financially viable, reduces the attractiveness of the P3 Approach.
- P3s are more time consuming, expensive and complex to procure compared to a Traditional Approach. Running several P3 procurements (or even a mix of Traditional and P3 delivery approaches) is likely to increase the risk that one (or more) procurements may fail leading to delays and consequent increase in costs. Even if all P3 procurements are successful, they are likely to take longer than Traditional procurement, potentially increasing the overall construction period. Given the size of the Project, even a relatively small increase in cost is

	<p>significantly expensive in absolute/dollar terms (e.g., a 5% increase in construction costs translates into an almost \$750 million increase in costs).</p>
<p>Project Ownership and Governance Structure</p>	<p>The Project is being developed jointly by the states of New York and New Jersey with support from PANYNJ, Amtrak and NJ Transit. Given that there are multiple Project sponsors and interested parties, the Project development involves consultations and approvals with all such parties.</p> <p>The PDA executed between GDC, NY, NJ and Amtrak documents the Project management approach. The GDC board (with representatives from NY, NJ and Amtrak) is responsible for development, design, and construction of the Project. Different agencies (e.g., NJ TRANSIT, Amtrak or PANYNJ) will be engaged to support delivery of different packages. GDC has executed separate Supporting or Executing Partner (SEP) agreement with each of these agencies.</p> <p>Given this institutional structure with multiple supporting partners with different assigned roles, the compliance and reporting structure under a P3 may be more complex, time consuming and expensive for the private sector partner reducing some of process efficiencies and risk transfer typically desired from P3s. Conversely, under the Traditional Approach, all partners (especially, the SEPs) are performing roles that they typically perform for their own projects (e.g., design, oversight of design-build contracts etc.) which will allow GDC to rely on these partners more effectively. Further, the Project Delivery Partner will help GDC where there is need for coordination.</p>
<p>Project Cost</p>	<p>At a total capital cost of \$14.620 billion, the Project is among the largest and most expensive projects in the nation (or globally). As mentioned in Section 1.1, the Project is intended to preserve the current functionality of Amtrak’s NEC service and NJ TRANSIT’s commuter rail service between New Jersey and PSNY by repairing the deteriorating North River Tunnel; and to strengthen the NEC’s resiliency and reliability. The Project is not expected to lead to an increase in revenues and, therefore, all costs (capital costs and cost of operations and maintenance) are borne by the States of NY and NJ.</p> <p>P3s typically bring in higher efficiency, better aligned incentives and risk transfer benefits. These benefits come at premium though – since private sector financing is more expensive than public sector cost of finance.</p> <p>A high-level exercise undertaken by GDC in 2019 showed that net present value of local partner contributions (i.e., NY, NJ, and PANYNJ’s contributions) was:</p> <ul style="list-style-type: none"> ▪ 36% higher in a P3 Approach which uses an Availability Payment approach when compared to the Traditional Approach ▪ 112% higher in a P3 Approach where revenue risk is transferred when compared to the Traditional Approach (<i>also note the next section that discusses the challenges with transferring revenue risk</i>) <p>While this analysis did not consider benefits of a P3 Approach, it indicated the extent to which benefits from a P3 need to exceed incremental costs to be able to generate Value for Money. In other words, this higher cost may be justified if GDC is able to transfer all (or most) key Project risks to the private sector or if the P3 Approach leads to other benefits that compensate for such increased costs. However, as discussed below, GDC may not be able to transfer some of the key Project risks to the private sector making the P3 Approach less viable.</p>

<p>Risk Transfer</p>	<p>As mentioned earlier in this section, one of the most critical benefits of a P3 Approach is the ability to transfer risks to the private sector partner. The Project’s construction scope, packaging approach and institutional structure does not provide the ability to transfer some of the key risks.</p> <ul style="list-style-type: none"> ▪ Revenue Risk: As mentioned above, the Project is not designed to increase revenues. Unlike other projects such as toll roads, where a sponsor can transfer revenue risk to the private sector partner, which is incentivized to maximize revenue, the Project does not have such similar opportunity and there is, therefore, no possibility to transfer revenue risk. ▪ Operations & Maintenance Risk: P3s enable public sector sponsors to transfer risk of inefficient Operations and inadequate Maintenance (O&M) to the private sector partner through an incentive/penalty mechanism that requires the partner to operate and maintain the project as per industry standards. Under the PDA, GDC and other Project sponsors have already agreed to transfer the maintenance responsibility to Amtrak which has been maintaining the tunnel since 1976. Further, Amtrak and NJ Transit will continue to operate the tunnels for intercity and commuter rail trains respectively. Given both Amtrak and NJ Transit’s long history and track record of operating and maintaining these tunnels, transferring O&M responsibility and risk to the private sector, therefore, may not yield additional benefits that could compensate for the higher cost of private sector expertise and capital. ▪ Interface Risk: As mentioned in the discussion on Project complexity above, GDC is also unlikely to be able to transfer interface risk between different packages—a key construction risk—to the private sector. ▪ Financing Risk: Another key benefit of a P3 Approach is the ability to transfer financing risk to the private sector. Given that the Project is not revenue-generating, the Project capex is being funded through a mix of federal grants and external financing that will be repaid by the local partners from other sources. Any financing (public or private) will need to be backstopped by these same sources. This means that the private sector would not need to assume any significant additional financing risk under a P3 Approach. This makes a P3 less attractive from this perspective as well. Private capital is more suited for projects where revenue risk is being transferred given that such projects also have higher risk and there is higher value is transferring this risk. <p>The above limitations indicate that a P3 Approach does not generate benefits commensurate with its higher costs, making it less suitable for the Project.</p>
<p>Access to Private Finance</p>	<p>The P3 Approach often allows the sponsor to better allocate its (often) limited financial resources and accelerate project delivery by accessing and leveraging private equity or debt capital. Access to private capital also helps better align incentives to ensure that the project is delivered on time and on budget and is operated and maintained appropriately.</p> <p>That said, P3s with availability payments where revenue risk is not transferred typically have relatively limited private capital for the reasons explained in the discussion on risk transfer above. Given that revenue risk is not being transferred on the Project, access to private capital, therefore, is less critical.</p>

	<p>More importantly, unlike some of the other sponsors which are not in a position to deliver their larger projects without access to additional capital, GDC does not have that constraint—the Project’s plan of finance assumes a mix of federal and local funding, all of which is in advanced stages of negotiation and are likely to be committed over the next 6 to 12 months. GDC, therefore, is not reliant on private capital to progress the Project.</p>
Innovation	<p>P3s are typically assumed to provide a greater incentive for innovation given that there is better alignment of incentives. Since bidders/developer under the P3 Approach stand to benefit financially from better quality of service and higher revenues, they are incentivized to make decisions based on the whole-life impact, and are more likely to optimize design, construction, and operations in a manner that will reduce cost and drive revenue. P3s also consequently could spur greater innovation in project design and construction.</p> <p>Design-Build procurements under the Traditional Approach can also be structured to incentivize innovation in the evaluation of design and construction aspects of the project. However, contractors have relatively limited incentive to submit concepts that might increase revenue, improve customer experience, or reduce operating costs.</p> <p>GDC recognizes this limitation. Given the wider discussion on the suitability of the P3 Approach for the Project, if the Project (fully or partially) is not procured through a P3, GDC will aim to incorporate incentives for innovation in its DB or DBB procurements to the best extent possible.</p>
Flexibility	<p>Given the complexity of the Project, and its long construction period with several inter-related packages, GDC may need to be flexible and make changes to the design or construction scope as the Project progresses to respond to unforeseen technical challenges, advancements in technology, or even impacts of climate change. This is also applicable for the Project operations and maintenance.</p> <p>The Traditional Approach provides more flexibility to GDC to react to unforeseen changes. Conversely, while a P3 Approach may provide some additional budget certainty by transferring some of the construction risks related to the Project to the developer, it will also be relatively inflexible and GDC will sacrifice the ability to seek scope or operational changes without compensating the developer for the impact of any such change. Admittedly, scope changes to a DB or a DBB contract will also lead to additional compensation but changes to DB or a DBB contract may be less onerous financially and administratively than changes to a P3 contract.</p>
Disputes and Compensation	<p>The Project is large and complex as discussed earlier. Contracts, therefore, are also accordingly expected to be complex with higher likelihood of disputes.</p> <p>DB and DBB contracts are less complex compared to P3 contracts and disputes, and if any, they would typically be restricted to construction matters and therefore concentrated over a relatively short duration.</p> <p>A P3 contract, conversely, is more complex, incorporating design, construction, financing, operational and maintenance aspects. While P3 agreements generally follow established precedents, contract provisions need to be tailored to the specific project and risk allocation. The long contract period and added complexity introduces greater potential for disputes and compensation events under a P3.</p>

	Additionally, compensation payable by GDC for some supervening events under a P3 may be higher than under a DB or a DBB contract, given the potential inclusion of private financing and potential to compensate for revenue impacts on the developer.
Project Legal Structure	According to the PDA, GDC will hand over the Project after construction to Amtrak and it will be integrated into Amtrak’s network. This handover presents challenges to pursuing a P3 strategy that incorporates O&M, whether as a standalone long-term O&M contract or as part of a DBOM (Design-Build-Operate-Maintain) or DBFOM (Design-Build-Finance-Operate-Maintain), which are typically 50-to-100-year leases. GDC’s current directive is to deliver the Project and any inclusion of the long-term O&M would need further stakeholder consideration and approvals and would delay the Project’s current timeline.

GDC’s view on the most appropriate Project delivery approach has been confirmed by the industry as well. In its market sounding exercise, GDC sought participants’ opinions on the pros and cons of several delivery methods. Firms tended to favor Design Bid Build and Design Build delivery methods for the Project.

This industry feedback as well as GDC’s own analysis that demonstrated significantly partner contributions under a P3 approach coupled with the inability of GDC to transfer key risks to the private sector, supports the conclusion that the utilization of the Traditional Approach for procuring the Project is the optimal strategy.