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May 26, 2022

Attention: David Stark, Manager Priority Projects
dstark@ncdot.gov

RE: Request for Information (RFI) - Alternate Delivery Contract Option - Cape Fear Memorial Bridge

Dear Mr. Stark:

We appreciate NCDOT continuing to find innovative ways and utilizing industry best practices to maintain and improve the second largest roadway network in the country. The landmark Cape Fear Memorial Bridge is not unique, as many critical and similar structures of its era are in desperate need of replacement, but the dollars simply are not available to pay for it from traditional revenue sources. This has led public agencies around the country to explore alternative funding and financing options utilizing a combination of public and private investment, federal credit, and grant programs. These options accelerate the delivery of critical projects and provide a roadmap for what may be possible for the Cape Fear Memorial Bridge.

RS&H and Hardesty & Hanover (H&H) offer NCDOT/NCTA and the Wilmington Urban Area Metropolitan Planning Organization (WMPO) local and national expertise to help evaluate a range of alternative delivery options for consideration.

In this document, we discuss a series of alternative delivery and maintenance and operations models, potential funding options, and a list of example projects where these models were used across the country.

While we also highlight some of the pros and cons of the delivery models, **we feel that it is premature to recommend one specific delivery model**. Instead, we believe that the concurrent paths of (1) examining long lead time project development items; (2) performing value for money (VfM) analyses on multiple delivery models; (3) continued engagement of the MPO; and (4) the tolling analysis and sketch level traffic and revenue study by NCTA should all inform the decision as to delivery model.

Based on these evaluations, NCDOT may consider any possible revenue share and/or public subsidy options as needed. RS&H/H&H can support NCDOT/NCTA/WMPO in conducting these evaluations to provide the community a successful bridge replacement that will meet the needs of future traffic volumes and provide a safe, sustainable, landmark bridge.

RS&H is a NC leader in transportation solutions and specifically has the expertise in working with Division 3 on the award-winning Topsail Bridge Replacement, several interchange conversions, and multiple bridge replacement projects. H&H is a national leader in large transportation projects, complex structures, movable bridge design, maintenance, and asset management and provides 135 years of such national bridge experience.

Our team is complemented by **Alternative Delivery Experts** who can provide all Owner's Representative Services, including procurement and contract support, including: **Dusty Holcombe**; **Christopher Shaeffer, PE**; **Bryan Kendro**; **Phil Schwab, PE**; **Chad Critcher, PE, DBIA**; **Jim Avitabile, PE, DBIA**; **Mike Davis, PE, DBIA**; **Scott Cole, PE, CPM**; **David Deluca, PE, DBIA**; **Norman Schips, PE, DBIA**; **Elana Freedman, PE**; and **Marco Buyson, PE**. Each of the associates identified is committed to assisting NCDOT/NCTA/WMPO with project delivery analysis, tolling analysis, procurement, financial analysis, and risk assessment. These individuals have worked as owners and/or with owners to develop strategies to assess the most appropriate delivery method that is tailored to address each agency's goals. They understand the

project needs from funding, early planning and environmental approvals through construction as well as transitioning into operations and maintenance. More information regarding RS&H, H&H, and our relevant experts can be found in Appendix A of this document. The RS&H/H&H team offers the following intangibles:

- **Strong national experience in Alternative Project Delivery** with implementation of complex mega-projects using best practices in P3 project delivery methods, such as design-build-finance (DBF), design-build-operate-maintain (DBOM), and design-build-finance-operate-maintain (DBFOM) utilizing availability payment and revenue risk alternatives.
- **Thought leadership** with experience working for/with owner agencies, concessionaires, and developers.
- **Tolling experience** with all aspects of NC tolling and many tolling agencies across the country.
- **Senior leadership** with heavy involvement in industry support organizations, including the Design-Build Institute of America (DBIA); American Road and Transportation Builders Association (ARTBA); International Bridge, Tunnel, and Turnpike Association (IBTTA); and the Transportation Research Board.
- **National leader in complex bridge projects** with experience in complex bridge projects across the country, including Sarah Mildred Long Bridge, NH and the I-395 segmental bridges in Miami, FL.
- **Extensive municipal, MPO, and NCDOT experience** on a variety of projects, including long-range planning studies, feasibility studies, project development efforts, final designs, and alternative delivery.

Before determining the best project delivery method for any project, it is prudent to complete certain activities as discussed above to inform the decision. The advertised RFI that has been issued by NCDOT is an effective way to conduct this research, obtain innovative ideas to deliver the project and better understand potential project risks. Ideally, it will also help NCDOT identify the levels of interest from qualified firms willing to bid the project. We would anticipate that NCDOT will receive information from a variety of sources including investors, developers, contractors, operators, engineers, etc. that will provide some clarity regarding the scope and project delivery method that each respondent sees as the best bridge replacement solution. While some of these recommendations will provide sound advice, there will also be conflicting information and direction, and some recommendations may be promoted so as to better position themselves to design, construct, and/or operate the bridge. Our team is offering neutral ideas and we remain available to NCDOT/NCTA/WMPO for additional information or assistance.

It should be important to note that some respondents will be unwilling to share specific details and ideas, reserving them for the public procurement response. In such case, our team can assist in the acquisition of additional information, perhaps through NCDOT one-on-one market sounding meetings with interested teams and firms who are qualified in developing and delivering various elements of the project. These meetings are generally conducted in a confidential nature and include NCDOT's representatives and advisors who can help document the discussions without compromise to the any future procurement process. Once the responses received through these meetings, NCDOT can properly evaluate both the level of interest from qualified teams and any barriers, risks or challenges which may result in an ineffective procurement process. If NCDOT chooses to conduct meetings, our team is ready to meet, listen, and answer any questions. Please feel free to contact us if you have any questions or need additional information.

Respectfully submitted,
RS&H Architects-Engineers-Planners, Inc. / Hardesty & Hanover

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Cape Fear Memorial Bridge, Wilmington, North Carolina

Project Background/Understanding

Built in 1969, the Cape Fear Memorial Bridge is the only vertical lift bridge in North Carolina. The bridge is currently serving more than 60,000 vehicles per day and is projected to serve more than 80,000 vehicles per day within 20 years. Retrofits and rehabilitations are gaining in both frequency and complexity. With such high use, even routine lane closures for prompt action type repairs can impose notable disruption to the local traffic patterns. **Whichever delivery method that the NCDOT/NCTA/WMPO elect to employ for the replacement of this structure, the plan will likely need to be fluid, with multiple options and exit ramps to deliver an effective solution.**

Regardless of the delivery method, there are certain challenges that will be the most deserving of significant energy, analysis, and public involvement. Therefore, the first step in this replacement process should be the identification of these long lead time items. This approach worked well for NCDOT from its first designated "High Priority" project, the ***Yadkin River Bridge Replacement*** on I-85, to the most recent NCTA ***Complete 540*** project. The funds allocated to this early work are an investment that will inform the bridge replacement effort regardless of the delivery method. Such challenges include the determination of any direct or indirect impacts on surrounding historic districts, mitigation strategies, right-of-way needs, vertical and horizontal clearance requirements, and third-party permitting and regulatory agency coordination. It may also be prudent to begin consideration of the future disposition of the existing lift span, especially if there is interest in relocating a portion or all of the 50-year-old span for any reason. Tolling of the structure, if used in the financial plan to accelerate the replacement, would be carefully assessed by NCTA, establishing a tolling regime unique to this structure, citizenry, and environs. Tolling parameter options are discussed later in this document.

There should be a focus on keeping the bridge as low as possible while fulfilling the necessary navigational requirements. The application for US Coast Guard permits can be lengthy depending on the project readiness. A Preliminary Navigational Clearance Determination, following the necessary navigation impact report and underlying boating surveys, should be sought, leveraging the work already performed by the City of Wilmington for their Rail Re-alignment Project River Crossings. Maintaining a low profile on the bridge would enable a reduction in right-of-way needs and lessen impacts to other roadways and both interchanges surrounding the existing structure. Maintaining a low profile would also assist in the potential reassessment of a combined rail highway bridge.

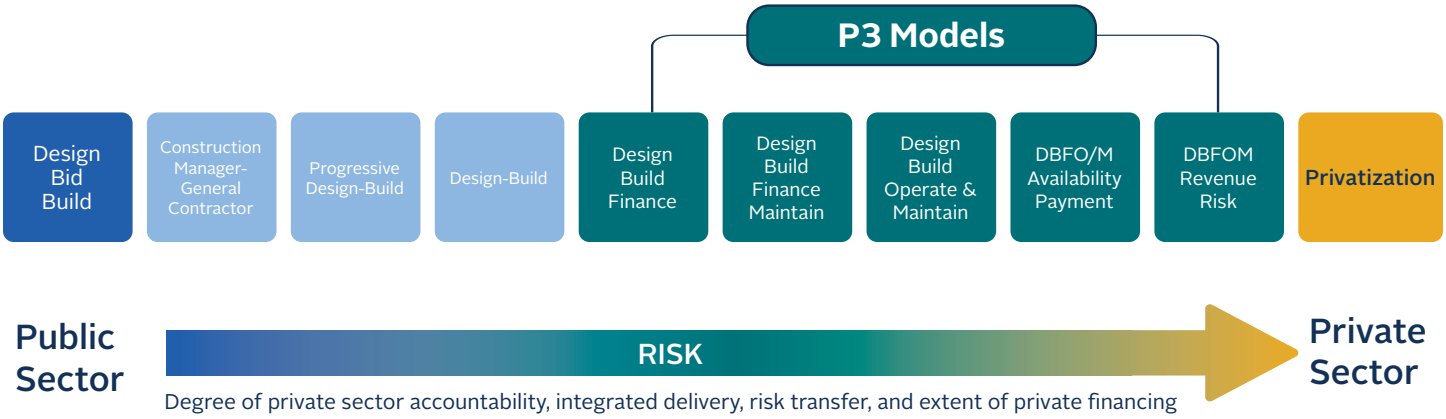
Since **Dr. John Alexander Low Waddell, founder of Hardesty and Hanover,** invented the modern design of vertical lift bridges in the 1890's, numerous enhancements in materials, as well as the structural and mechanical engineering disciplines, have resulted in lower vertical lift bridge maintenance costs, longer spans, and innovative multi-modal uses such as those implemented on the new ***Sarah Mildred Long Bridge*** crossing the Piscataqua River between Portsmouth, New Hampshire, and Kittery, Maine. While a version of this option was a part of the feasibility study (Option 4), it may be worth exploring in greater detail. It is possible to produce a synergy between the two projects, as the Rail-Realignment Project is anticipated to have a significant positive effect on local vehicular traffic mobility and safety. In addition, the inclusion of a rail component to the bridge replacement introduces new options for funding participation from both federal and state discretionary grant programs. In particular, the USDOT INFRA grant program emphasizes award selection for projects that not only improve vehicular mobility but also improve safety and freight movement. It is recognized that both projects are unfunded for construction at this time, but the availability of outside federal discretionary funding could be greatly enhanced for both projects through either their combination or a design of the bridge replacement that accommodates the addition of rail at a later date. **It should be noted that every dollar received in the form of a federal discretionary grant effectively reduces the cost of the project for the purpose of the STI priortization process, and increases the project "score" thereby enhancing the project's chances of receiving traditional STIP federal and state funding.**

It should not be discounted that the Cape Fear Memorial Bridge is iconic and an integral part of the Wilmington Riverfront landscape. Considerable effort should be expended on determining the appropriate type of structure that can be equally iconic for the next century. Towers of a new lift bridge can serve that purpose in a variety of ways. For a fixed bridge solution, a segmental concrete box structure like the Bonner Bridge should be considered. The elegant, haunched, long spans of a segmental concrete bridge could be constructed relatively quickly with exceptional navigational access and nearby casting yard options.

Lastly, an early investment on gathering critical data, such as geotechnical borings and utility conflict information can have a notable impact on the ultimate construction bids, regardless of alternative delivery method selected. With more public agencies utilizing alternative delivery models to deliver complex projects with design and construction costs exceeding $250 million, there is now significant market data that suggests contractors have too often underestimated the key projects risks that most frequently cause delay and lead to cost overruns during construction. These past challenges have led to greater scrutiny by developers, contractors and their surety's around anticipated contract terms and access to project data, including geotech and other testing information prior to expending any meaningful resources and effort in an RFP process. To ensure there is sufficient interest and competition for the project throughout the procurement, it is important to attract qualified firms and communicate to prospective bidders a rationale transfer of risk and sufficient access to project information and data early on and even prior to the procurement process beginning. A relatively small investment in this upfront work can significantly reduce the amount of contingency carried by the developer and contractor in their price and these upfront development costs incurred by the agency can ultimately be recovered at financial close as part of the overall financing of the project.

Alternative Financing and Operations and Maintenance Models

The following graphic represents the spectrum of alternative financing and operations and maintenance models for NCDOT's consideration:



A summary of each of the P3 Models along with their pros and cons most relevant to the Cape Fear Memorial Bridge is provided below.

Design-Build-Finance (DBF)

A DBF utilizes a design-build delivery model with short-term financing provided by the private sector. The repayment of the private financing is often 10 years or less and allows a public agency to spread out payments beyond the substantial completion of the project. Typically, this repayment term coincides with a warranty period for major items of work (e.g., roadway, structures, etc.). There is no private sector responsibility for operations and maintenance under this model. **This approach was successfully used to accelerate the completion of the Charlotte Outer Loop (I-485) and the I-485/I-85 turbine interchange north of Charlotte.**

Pros

- Allows for design and construction innovation to the same extent as other models;
- Can accelerate the project, without a long-term concession agreement, in the event that most of the money is available to fund construction and the remainder is available within 10 years after construction; and
- Can be explored if toll revenue supported debt is issued by NCTA for most of the funding with the remainder to be paid out over a longer term (e.g., GARVEE) to assist the project to score higher in upcoming STI prioritization processes.

Cons

- Does not fund long term operations and maintenance;
- Would require Local Government Commission approval; and
- May increase the bids depending on the size of the gap and whether the contractor could carry the short-term financing or whether they would seek bank debt.

Design-Build-Finance-Maintain (DBFM)

Under a DBFM, the private sector assumes maintenance responsibilities and provides long-term financing (a combination of debt and equity) for a term of typically 30 years or more. Under this model, the private sector assumes responsibility for the lifecycle risk of the asset until it is handed back to the public agency at the end of the term in accordance with the contractual performance requirements and predefined remaining useful life.

Pros

- The private sector can assume all debt and infuse private equity, greatly increasing the probability that the project will score high in the STI prioritization process;
- Maintenance risk is assigned to the private partner; and
- NCTA as operator would likely have more flexibility in terms of implementing innovative tolling discount programs.

Cons

- Private equity is patient money, but the cost of capital will be higher; and
- Clear lines of responsibility will be necessary to distinguish the roles between the toll operations and toll equipment and the routine maintenance of the bridge.

Design-Build-Finance-Operate-Maintain (DBFOM)

A DBFOM is similar to a DBFM, but also assigns operational responsibilities to the private sector. This could mean the private sector is responsible for all aspects of toll collections or a hybrid approach where the private sector installs the tolling equipment, processes the tolls, and relies on an existing public agency back office to collect tolls from customers. There are multiple options in the establishment of a tolling regime. Owners have the flexibility to set fixed toll rates, time of day toll rates, or dynamic toll rates. Under the latter alternative, owners can define toll ranges with minimum tolls, soft caps, and hard caps tied to key triggers such as traffic volumes and speeds.

The **I-77 Managed Lanes Project (Charlotte) is a DBFOM** that allows the developer to pay NCTA to process the toll transactions and invoice customers but allows the developer to develop their own back office should NCTA not perform per the contract standards. Similarly, the developer performs all routine maintenance, but NCDOT maintains the ability to take back the maintenance functions after 5 years or if the developer does not meet performance requirements. In addition, the I-77 P3 is a revenue risk project with certain limited assistance in case the developer cannot pay all debt payments and maintenance costs in a given year.

Pros

- The private sector can assume all debt and infuse private equity, greatly increasing the probability that the project will score high in the STI prioritization process;
- Maintenance risk is assigned to the private partner; and
- Operations risk and maintenance of toll equipment is assigned to the developer.

Cons

- Private equity is patient money but the cost of capital will be higher; and
- Potentially less control to establish toll discount programs, especially after the contract is executed.

Availability Payments

Under an availability payment DBFM or DBFOM, the public agency makes fixed payments over the term of the contract that are tied to the operational availability and performance of the facility in accordance with the contract. To the extent the facility is "unavailable" (partially or completely) or fails to meet performance requirements, these payments may be reduced or suspended until the unavailability/non-compliance is cured. In addition to the availability payments, additional contributions can come from federal, state, and local funds in the form of milestone payments during construction or a completion payment. These payments effectively lower the borrowing costs and interest paid over the term of the agreement. Under this model, the public agency retains all risk associated with traffic volumes and toll revenues but also keeps any upside if project revenues exceed forecasts.

Pros

- Budget certainty
- NCDOT retains upside of toll revenue, except that any excess revenue must be spent on the bridge in accordance with current statute
- Incentivizes private sector to complete the project quickly to initiate payments

Cons

- Long term financial commitment from NCDOT
- Financial commitment is binding even if revenues fall below projections
- Less optimal risk transfer and innovation than a DBFOM Revenue Risk deal (see below) as the developer is not incentivized to optimize revenue (and underlying customer service)

Revenue Risk

Contrary to Availability Payments, under a revenue risk model the private sector is taking some or all the risk associated with traffic volumes and toll revenues during the term of the contract, **up to 50 years per NC statute**. The private sector will take downside risk should revenues not meet the original forecasts. Conversely, they will also share in any upside, where revenues exceed expectations. This balance of risk and reward offers a public agency the ability to finance and fund some or all of the project costs. If forecasted revenues do not cover all of the project costs, a public subsidy of either the capital costs or of toll revenues (often referred to as shadow tolls) may be necessary. Capital cost contributions can come from federal, state, and local funds in the form of some combination of milestone payments during construction or a completion payment. Shadow tolls are public contributions made on a per driver/vehicle basis and is a form of risk sharing associated with forecasted versus actual traffic volumes during the term.

Pros

- Less or no financial commitment from NCDOT
- Optimal lifecycle risk transfer
- Promotes innovation
- NCDOT sheds revenue risk

Cons

- Less upside for increased traffic and revenue
- Less control of tolling parameters/limits if not included in original contract and bidding documents

P3 Considerations

The optimal delivery option ultimately depends on NCDOT's unique goals and objectives for the Cape Fear Memorial Bridge. Each project should be developed and procured to balance the contract provisions to:

1. accommodate local input;
2. establish an acceptable tolling regime;
3. increase competitive bidding; and
4. ensure a fiscally sustainable long-term solution.

For example, **NCDOT's first P3 project, the I-77 Managed Lanes Project (Charlotte)** extending 26 miles northward from Charlotte, had necessary restrictions in place that likely would not apply to this project. The intent of the Charlotte Project was to effectively manage the traffic volume in the managed lanes using dynamic pricing to ensure a guaranteed travel speed. Setting a maximum toll for the concessionaire was not practical. However, for the Cape Fear Memorial Bridge Project, a maximum toll provision could be inserted in the contract for a certain number of years, with gradual and limited increases over the term of the contract. Other provisions could be used that would allow for frequent user discounts, lower tolls for passenger vehicles, free passage for transit vehicles, discounted electronic tolls, or discounted tolls for local business employees. Tolls could also vary by time of day or day of the week. While some of these allowances may require statutory adjustments, all may be worthwhile considerations. These statutory adjustments may be needed whether the project is a concessionaire led P3 or NCTA toll project. However, a project run through NCTA would likely provide greater flexibility in implementing some of these tolling allowances.

It is important to note that P3 is a financing solution, not a funding solution. We understand that tolling the project is also under consideration. If tolling revenues are not anticipated to entirely fund the project, NCDOT potentially needs to secure additional funding sources, which we have summarized below. If tolling is under consideration, public involvement and input from WMPO and their constituent members must start early. Pulling the different levers available within a tolling regime will effect the Traffic and Revenue Study that will, in turn, inform lenders, prospective bondholders, and concessionaires and it is most efficient to establish the position of each of these levers very early in the development of any Plan of Finance.

Additionally, the amount and timing of **bonus allocation funding** will be a notable consideration, particularly from the WMPO perspective. The introduction of tolling, whether within a P3 or an NCTA operated bridge, would provide WMPO up to $100 Million in additional funding for other eligible projects in the region. The amount of the bonus allocation would be determined based on the final Plan of Finance and the amount of toll-supported bonds that are issued to replace the bridge. Privately secured debt, if secured by toll revenue is counted in the calculus of the bonus allocation, while private equity is not.

RS&H/H&H also recommends that NCDOT perform a **Value for Money (VfM)** analysis to compare a traditional delivery option with the selected P3 Model, considering risk adjustment and a whole-life view of the Project. This requires not only an understanding of the capital, operations and maintenance, lifecycle costs, and macroeconomic assumptions for each option, but also an understanding of risks and risk allocation between the public and private sectors. Under each of these procurement options, the construction, finance, and O&M costs must be evaluated and re-evaluated at each phase of the procurement to confirm that industry interest, competition, risk optimization, and VfM remains positive for

NCDOT. If risk is improperly assessed or if terms become too stringent such that competition is reduced, NCDOT will see this reflected in the price.

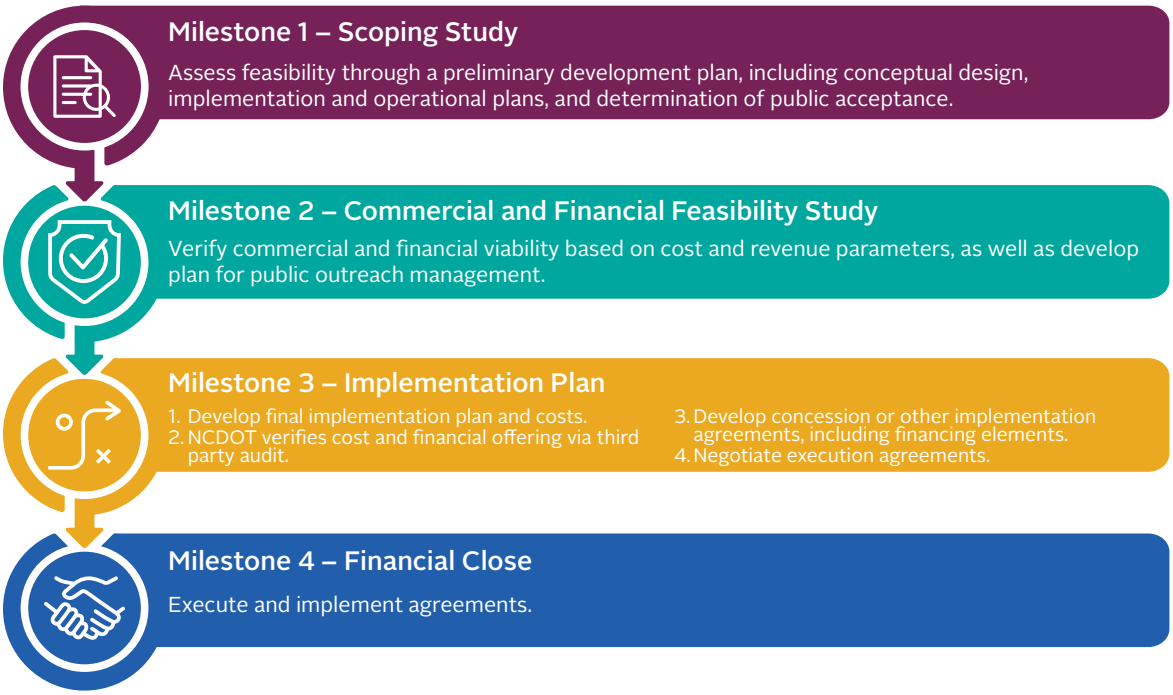
Any agency navigating the P3 procurement process will benefit from the advice of an experienced technical consultant. While the financial and legal advisory teams are equally important, the technical advisor who has the experience assessing each of the various procurement models can also support the identification of scope definition, schedule adherence, data collection, and assist NCDOT to think like a concessionaire throughout the procurement process. RS&H/H&H has successfully served as a technical advisor to public agencies using each of the above models and our staff of advisors has experience serving as DB team members and concessionaires. In addition, we have a background in tolling which will be helpful in assessing the traffic projections and revenue models. Our team of advisors has worked with most of the top advisors in both the legal and financial areas and regularly apply this experience to help agencies such as NCDOT decide how and when they will benefit from the other disciplines.

The delivery methods available to public agencies on mega projects can be restricted but with the right level of technical advice, a public agency can navigate the options available to them and come to a clear conclusion regarding how best to advance a P3 project or whether to advance it at all.

Project Development Agreement (PDA)/Progressive P3

Another way the alternative delivery market has addressed project risks and challenges is to begin embracing progressive P3 and progressive design-build models that allow the developer and/or contractor to work collaboratively with the agency as they advance design to address and help mitigate key project risks. This early engagement also allows the developer and/or contractor to work directly with third party stakeholders such as regulatory authorities and utilities before establishing a fixed price, with a much lower contingency to deliver the remaining design and construction work.

The PDA/Progressive P3 process would allow NCDOT and private entities to enter into a partnership to develop the P3, with both parties accepting various levels of risk in the development process. Typical milestones included in this approach are shown in the graphic below:



Each milestone phase is covered by a separate detailed agreement, including anticipated principal details of upcoming phases. The general idea is to limit expenses to only what is necessary to achieve the goals of each phase. If it is determined during one of the above phases that the project is not feasible, certain pre-agreed cost sharing mechanisms will apply. If the project is halted for reasons other than project feasibility, then NCDOT will remunerate the private partner according to pre-agreed terms.

The main purpose of pursuing a PDA/Progressive P3 model would be to predetermine all significant parameters of a contract, including technical and financial feasibility. NCDOT's ability to maintain its freedom in selecting the final contractual structure is perhaps the biggest benefit to the taxpayers.

At the end of a PDA/Progressive P3, NCDOT would be free to opt for many options; e.g., P3 with or without revenue risk, Design-Build with or without financing, a Construction Manager at risk approach, or even cancelling the process.

The disadvantage of a PDA/Progressive P3 is the perceived lack of competition in pricing during the project development process. Step 2 under Milestone 3 is designed to mitigate this perception. To offset this, an open book procedure could be used for the infrastructure construction where the P3 team prices the work in bid packages and buys down the contractor for any work that may wish to self-perform.

Funding Options

This section describes the eligibility requirements for the most relevant federal credit and grant programs that may benefit the Cape Fear Memorial Bridge as described by USDOT's website (https://www.transportation.gov/buildamerica/financing). It should be noted that special allocations by the NC General Assembly, and local share options are not discussed in this section as noted in the RFI.

Transportation Infrastructure Finance and Innovation Act (TIFIA) Credit Program

- **Secured (direct) loan** - Offers flexible repayment terms and provides combined construction and permanent financing of capital costs. Maximum term of 35 years from substantial completion. Repayments can start up to five years after substantial completion to allow time for facility construction and ramp-up.
- **Loan guarantee** - Provides full-faith-and-credit guarantees by the Federal Government and guarantees a borrower's repayments to non-Federal lender. Loan repayments to lender must commence no later than five years after substantial completion of project.
- **Standby line of credit** - Represents a secondary source of funding in the form of a contingent Federal loan to supplement project revenues, if needed, during the first 10 years of project operations, available up to 10 years after substantial completion of project.
- **TIFIA Lite Program** - Allows experienced borrowers with strong credit and small, shovel-ready projects access to an expedited application process. Eligible projects can receive up to a $100 million loan.

US DOT Private Activity Bonds

Tax exempt bonds issued for certain highway and freight transfer facility projects developed and/or operated by the private sector.

Qualified Highway or Surface Freight Transfer Facilities include:

- Any surface transportation project which receives Federal assistance under Title 23, United States Code (as in effect on August 10, 2005, the date of the enactment of section 142(m))

- Any project for an international bridge or tunnel for which an international entity authorized under Federal or State law is responsible, and which receives Federal assistance under Title 23, United States Code (as so in effect)
- Any facility for the transfer of freight from truck to rail or rail to truck (including any temporary storage facilities directly related to such transfers) which receives Federal assistance under Title 23 or Title 49.

Railroad Rehabilitation & Improvement Financing (RRIF)

Under this program the Department of Transportation is authorized to provide direct loans and loan guarantees up to $35 billion to finance development of railroad infrastructure. Not less than $7 billion is reserved for projects benefiting freight railroads other than Class I carriers.

The funding may be used to:

- Acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings, and shops, and including the installation of positive train control systems.
- Develop or establish new intermodal or railroad facilities.
- Reimburse planning and design expenses relating to activities listed above.
- Refinance outstanding debt incurred for the purposes listed above.
- Finance transit-oriented development.
- Direct loans can fund up to 100% of a railroad project with repayment periods of up to 35 years and interest rates equal to the cost of borrowing to the government.
- Eligible borrowers include railroads, state and local governments, government-sponsored authorities and corporations, limited option freight shippers that intend to construct a new rail connection, and joint ventures that include at least one of the preceding.

RAISE Grants Program

The Rebuilding American Infrastructure with Sustainability and Equity, or RAISE Discretionary Grant program, provides a unique opportunity for the DOT to invest in road, rail, transit, and port projects that promise to achieve national objectives. Previously known as the Better Utilizing Investments to Leverage Development (BUILD) and Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants, Congress has dedicated nearly $9.9 billion for thirteen rounds of National Infrastructure Investments to fund projects that have a significant local or regional impact.

INFRA Grants Program

INFRA (known statutorily as the Nationally Significant Multimodal Freight & Highway Projects) awards competitive grants for multimodal freight and highway projects of national or regional significance to improve the safety, efficiency, and reliability of the movement of freight and people in and across rural and urban areas.

- **Funding amount:** $7.25 billion (total available FY22-FY26)
- **Period of Availability:** 4 years
- **Eligible Uses:** Projects that improve safety, generate economic benefits, reduce congestion, enhance resiliency, and hold the greatest promise to eliminate freight bottlenecks and improve critical freight movements.

Value Capture

Value capture is an innovative revenue-generation tool that may be applied to the project that captures the general increase in the value of land due to improved accessibility from the project. Potential value capture mechanisms are summarized in the table below.

Mechanism	Main Points	Pros	Cons
Tax Increment Financing	» Diverts increases in property tax revenues above a defined base » Funds repayment of bonds for development-related costs	» Captures future real estate tax increment » Provides bonding authority for funds to pay project costs » Can be used in conjunction with sales tax financing, Special Assessment District financing, and Business District financing » Because there is a perception that projects "pay their own way," TIF districts are often relatively well- received by the public	» Requires a very specific "blight" finding » Requires a lengthy process involving public hearings, forming a joint review board, and notifying property owners » Requires the political will of the community and school districts
Special Assessment Districts	» Levies an additional property tax on an area to pay for added services and/or infrastructure » Funds repayment of bonds for development-related costs	» SAD tax is an additional real estate tax which is bondable » Funds are used for improvements in the Area » SAD can be created, and the tax imposed in a shorter time frame	» Higher property taxes » Consent of a majority of affected property owners and requires the vote of affected property owners
Business Districts	» Creates an additional sales or hotel tax to fund infrastructure improvements » Funds repayment of bonds for development-related costs	» Without BD, the authority of a municipality is limited to just a portion of local state sales tax to fund development projects on a pay-as- you-go basis – not by bonding » Does not require the consent of property owners	» More suited in situations where significant development of hotels or retail has already occurred
Joint Development	» Public and private partners share project costs, revenues, and financial risk » Can fund the repayment of bonds for development-related costs	» Well-received by the public because they are location-specific, and affected parties are relatively few	» More prevalent in transit-oriented developments; not highly applicable for roadway developments » Scale of funding size is relatively low compared to TIFs and SADs
Impact Fees	» Are one-time charges collected by local governments from developers	» These are fees that help to defray the cost of new or expanded infrastructure and services associated with new development, including capacity-increasing transportation investments » Generally, are considered politically and administratively feasible	» Revenues are less predictable; therefore, more difficult to garner support for bond financing
Limited Partnership Arrangements	» A sponsoring agency is granted an ownership percentage of cash flows	» Payments that provide revenue that service the bonds are made by the private sector	» The risk of the property values increasing is borne to the public sector

Value capture is dependent upon the community dedicating the taxes to support the project believing they receive a direct benefit from the reallocation.

While formation of Tax Increment Financing (TIF) districts, for example, could create pools of funds available in the future, most private developers and their lenders would assess substantial risk premiums due to the political nature of these tax funded sources; particularly if they are volatile and speculative. This potential risk will lead to increased project costs unless they are guaranteed by NCDOT.

Examples of where these methods have been implemented

Alternative Financing Method Used	Project Name/Location	Key/Relevant Facts
P3 DBFOM	I-77 Managed Lanes Charlotte, North Carolina	» Cost: $650 million » Procured as Revenue risk concession with a public subsidy (including TIFIA loan and PABs) » Open to traffic in 2019
P3 DBFOM	Belle Chasse Bridge and Tunnel Replacement New Orleans, Lousiana	» Cost: $148 million » Procured as revenue risk concession with a public subsidy (including federal Rebuilding America Grant and GARVEE Bond Proceeds) » Open to traffic anticipated in 2024
P3 DBFOM	I-595 Corridor Improvements Miami-Dade County, Florida	» Cost: $1.2 billion » Procured as availability payments » Open to traffic in March 2014
P3 DBFOM	I-4 Ultimate Orlando, Florida	» Cost: $2.3 billion » Procured through availability payments » Open to traffic in February 2022
P3 DBFOM	I-66 Corridor Transform P3 Procurement Prince William County and Fairfax County, Virginia	» Cost: $3.7 billion (TIFIA eligible project costs); $2.4 in direct construction costs » Procured as revenue risk concession » Open to traffic anticipated in 2024
P3 DBFM	Rapid Bridge Replacement Pennsylvania	» Cost: $1.1 billion » Procured as availability payments (including PABs) » Open to traffic in 2020
P3 DBFM	South Norfolk Jordan Bridge Chesapeake, Virginia	» Cost: $142 million » Privately owned toll facility » Open to traffic in October 2012
P3 DBFM	Dulles Geenway Virginia	» Cost: Unknown (privately owned and developed facility) » Privately owned toll facility » Open to traffic in 1995
TBD	I-10 Mobile River Bridge and Bayway Alabama	» Cost: $950 million per each procurement » Two parallel procurements (main cable-stayed bridge and interchanges/causeway) » Current proposals set max toll as $2.50 (for cars)

Appendix A

One Team
from start to future

Helping NCDOT achieve best-value solutions by working as one team from start to future

RS&H

With a tradition that began in 1941, RS&H provides fully integrated architecture, engineering, and consulting services to help clients realize their most complex facility and infrastructure projects for land, air, and space. We are consistently ranked among the nation's top 100 design firms and have worked in over 50 countries across the globe.

In North Carolina, we have been serving NCDOT, NC municipalities, and MPOs for over 20 years. Our services include long-range planning studies, project development efforts, final designs, construction inspection, alternative delivery, and owner representative services for small and large infrastructure projects.

RS&H BY THE NUMBERS

81 Years in Business

72 Office Locations

480 Professional Engineers

1,400 Associates

LOCALLY IN NORTH CAROLINA

23 Years in Charlotte

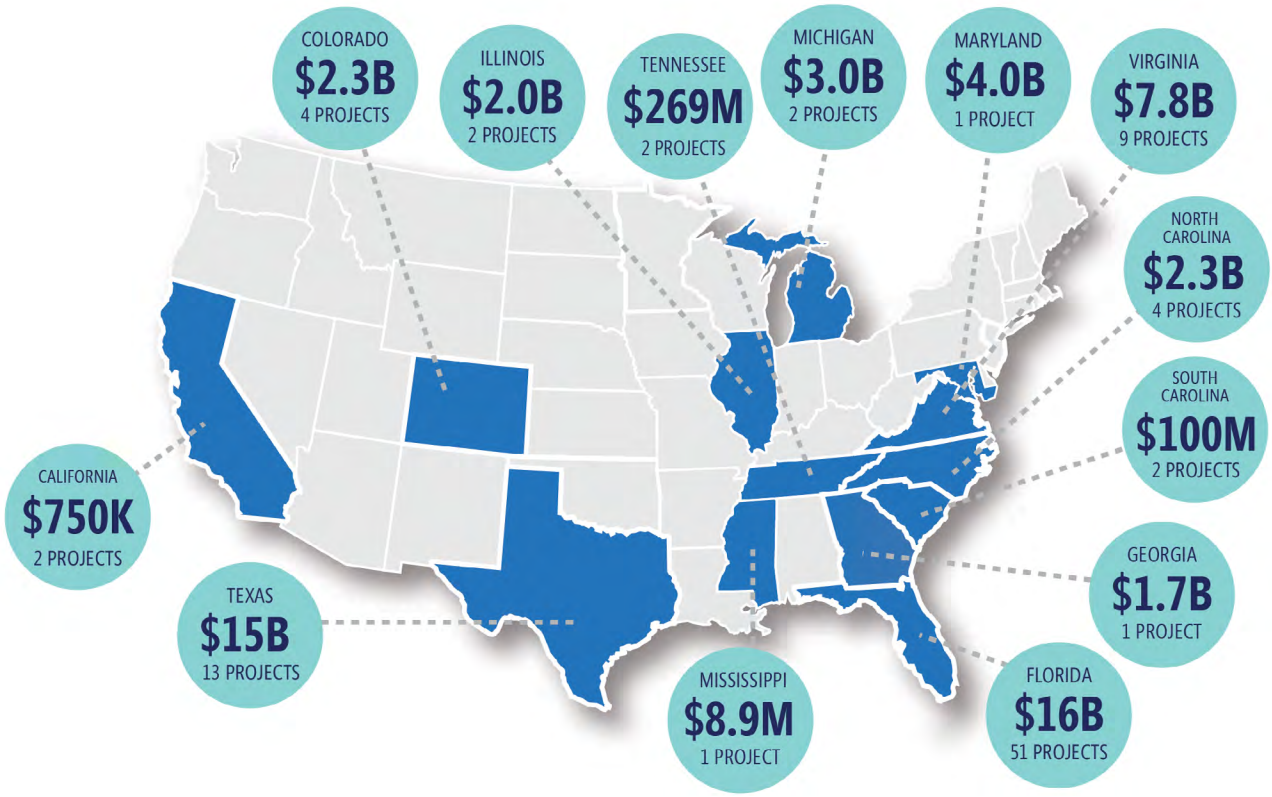
14 Years in Raleigh

140 Associates in NC

117 PEs in NC

RS&H's experience in alternative project delivery started in 1995 and has grown to be extensive, including working both for owners and developers in many facets of alternative delivery, including design-build, design-build-finance, design-build-operate and maintain, design-build-maintain, design-build-finance-operate-maintain and also construction management/general contractor.

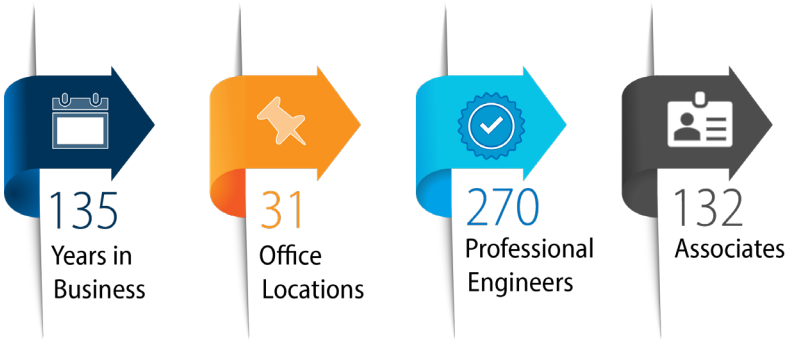
RS&H'S ALTERNATIVE PROJECT DELIVERY EXPERIENCE



Hardesty & Hanover

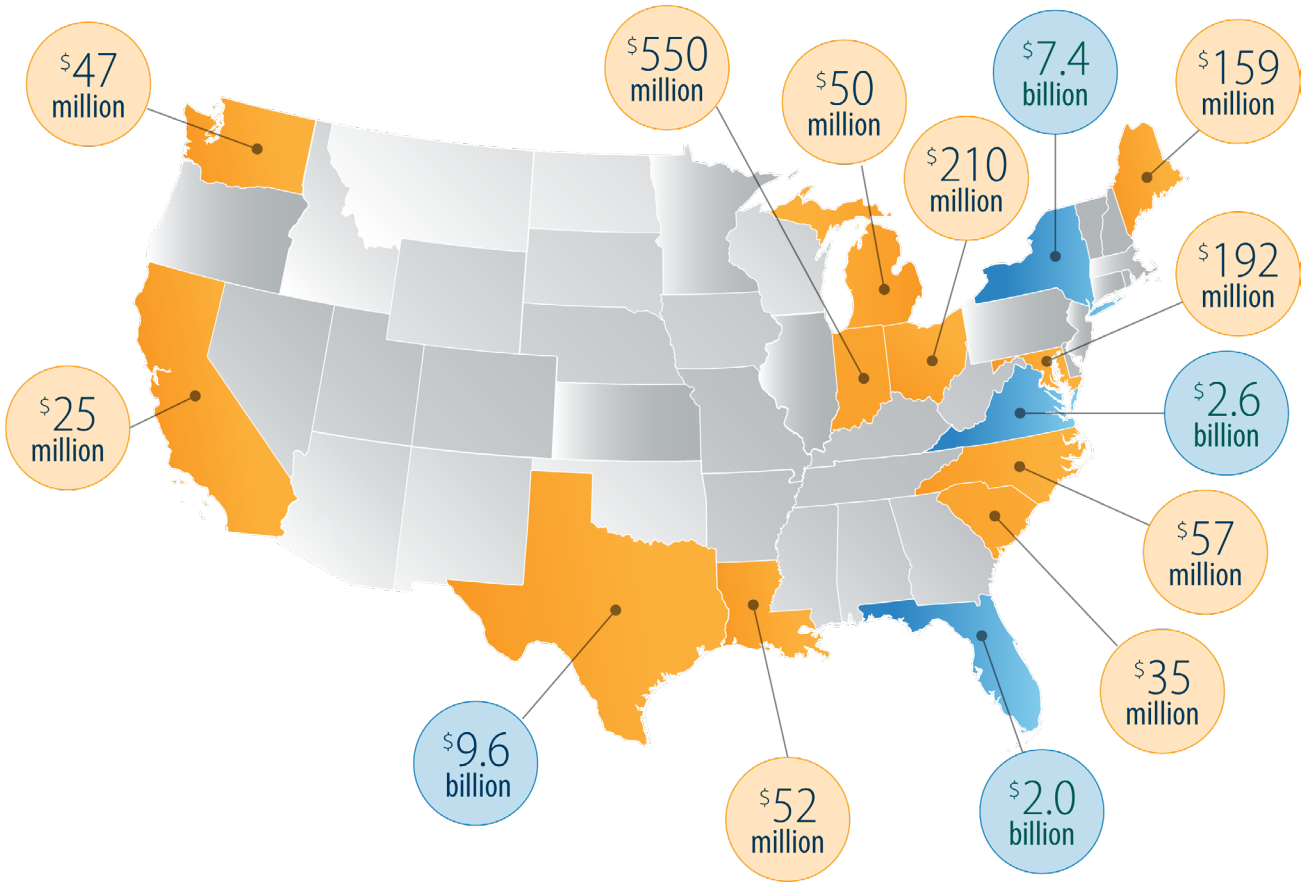
With 135 years of experience, Hardesty & Hanover (H&H) has been repeatedly trusted by state DOTs nationwide for a wide range of services including complex bridge and interchange designs, emergency repairs, specialized bridge inspection, construction services, and innovative design concepts. H&H remains a national leader in movable bridge design, maintenance, and asset management. H&H also performs significant owner's representative functions to a wide range of state, municipal and transit owners especially in the alternative delivery arena.

H&H By The Numbers



The recent addition of Mr. Rodger Rochelle to the team further strengthens the national expertise in alternative delivery, leveraging his 30 years of NCDOT and NCTA experience. The H&H focus on responsiveness, innovation, customer service, technical expertise, comprehensive management, and quality control has led H&H to be named an ENR Top 10 Bridge Engineering Company and the engineering service provider of choice for a wide range of owners.

H&H'S ALTERNATIVE PROJECT DELIVERY EXPERIENCE



Alternative Delivery Team

RS&H/H&H has a team of experts focused on the methods for alternative delivery. This team is available to help NCDOT/NCTA/WMPO with any questions that may arise throughout this process.

Dusty Holcombe

39 Years

VICE PRESIDENT
804-629-1989
Dusty.Holcombe@rsandh.com

Key highlights of Dusty's experience:

- Administered VDOT's P3 Program and successfully achieved financial close on numerous P3 projects
- Consultant Director of all GEC for Maryland DOT P3 Office and $4 billion Phase 1 I-495/I-270 project
- Assisted multiple state DOTs in the development and implementation of Alternative Project Delivery programs

Rodger Rochelle, PE

30 Years

DIRECTOR OF ALTERNATIVE DELIVERY
919-426-3075
rrochelle@hardestyhanover.com

Key highlights of Rodger's experience:

- Developed and implemented NCDOT DB and Express DB programs, with over $10 billion in projects
- Assisted other states and national programs in alternative delivery implementation, as well as TRB and NCHRP research steering committees
- Served as NCDOT Technical Services Administrator and NCTA Chief Engineer, implementing NCDOT's first DB Finance projects and first P3

Christopher Shaeffer, PE

20 Years

SENIOR PROGRAM MANAGER
215-292-5309
Chris.Shaeffer@rsandh.com

Key highlights of Chris's experience:

- Technical and commercial advisory services for the procurement of numerous alternative delivery projects
- Implementation of alternative delivery projects on behalf of owners through enforcement of contract compliance
- Overall program management services on large bundled-bridge projects in PA, KY, and MI

Bryan Kendro

20 Years

SENIOR PROGRAM MANAGER
267-758-7876
Bryan.Kendro@rsandh.com

Key highlights of Bryan's experience:

- Established and led PennDOT's P3 program, successfully procuring $1.3 billion in total project value, included the replacement of 558 bridges
- Working for a P3 developer, led pursuit and investment teams in analyzing, proposing, and delivering a variety of P3 projects
- Assisted multiple state DOTs with project screening, business case development, procurement strategy, and contract negotiation support

Norman Schips, PE, DBIA

37 Years

ALTERNATIVE DELIVERY LEADER
212-944-1150
nschips@hardestyhanover.com

Key highlights of Norman's experience:

- 37 years of Progressive DB Leadership, including serving as New York State DOT's Director of Alternate Project Delivery Bureau
- Currently serving the New York City Department of Design and Construction as the Procurement Manager
- Project Director on $4 billion DB projects

Chad Critcher, PE, DBIA

32 Years

SENIOR VICE PRESIDENT
704-940-4718
Chad.Critcher@rsandh.com

Key highlights of Chad's experience:

- An industry thought leader in DB, most recently served as co-chair of ARTBA's Risk Factors in DB and contributor to ACEC Research Institute's Design-Build State of Practice
- Market leader for contractor led DB pursuits
- Financial management of DB projects
- Alternative procurement expertise including Progressive DB experience

Alternative Delivery Team *(continued)*

Phil Schwab, PE

32 Years

ALTERNATIVE DELIVERY LEADER
954-236-7386
Phil.Schwab@rsandh.com

Key highlights of Phil's experience:

- PM from concept development through transitioning into the O&M period for FDOT's first P3; $1.2B I-595 Express Lanes
- Worked in multiple states on Alternative Project Delivery and Risk Programs including CO, MO, IL, GA, FL, TX, and MD providing delivery screening, evaluation support and strategies, and lessons learned
- NC I-77 P3 Senior Technical Advisor for negotiations, contract modifications, and facilitator of stakeholder meetings that assisted in finding resolutions to address issues with controversial project

Scott Cole, PE, CPM

32 Years

SENIOR TRANSPORTATION LEADER
704-940-4714
Scott.Cole@rsandh.com

Key highlights of Scott's experience:

- As former NCDOT Division 10 Engineer, leadership role as the owner over several DB projects
- NCDOT's authorized contract representative during construction and operations phases of NCDOT's first P3
- Leadership role as owner or with project development team in all toll expressway and toll managed express lane projects in the Charlotte area

Jim Avitabile, PE, DBIA

45 Years

VICE PRESIDENT
407-893-5855
James.Avitabile@rsandh.com

Key highlights of Jim's experience:

- DB Procement expertise as national transportation leader for DBIA and co-author of DB Best Practices in Transportation guidance
- P3 Advisor on the I-66 Transformation, I-4 Ultimate, and I-595 Express P3 projects
- Assisted several DOTs with development of DB guidance, legislative advocacy, and technical analysis of procurement methods and program initiatives nationally

Mike Davis, PE, DBIA

28 Years

VICE PRESIDENT, TOLLS
407-893-5835
Michael.Davis2@rsandh.com

Key highlights of Mike's experience:

- National tolls and technology expert serving as owner's representative on toll project delivery
- Led tolling-related service RFP development, toll policy development, development of new business processes and rules relative to P3 interfaces
- Served as Alternative Project Delivery Lead on the Florida Turnpike Enterprise's GEC contract focused on expediting toll system conversions

David Deluca, PE, DBIA

20 Years

DESIGN-BUILD PRACTICE LEADER
917-453-2699
ddeluca@hardestyhanover.com

Key highlights of David's experience:

- 20 years of combined experience in DB and large, complex and movable bridges
- Owner's representative providing technical oversight and DB procurement services for numerous owners along the East Coast
- PM for NYDOT Statewide DB Services agreement; procurement services for the $1.7B three-phase DB Expressway, and $1.5B Van Wyck Expressway Capacity and Access Improvements to the JFK Airport

Marco Buyson, PE

20 Years

PROJECT MANAGER
646.428.8267
mbuyson@hardestyhanover.com

Key highlights of Marco's experience:

- Design Manager for $3 billion Tappan Zee Bridge Replacement Project
- Leadership roles in multiple emergency bridge repairs and complex bridge rehabilitation projects
- Over 20 years of delivering transportation infrastructure projects

Elana Freedman, PE

14 Years

SENIOR BRIDGE ENGINEER
646-428-8530
efreedman@hardestyhanover.com

Key highlights of Elana's experience:

- Leadership roles for NY State DOT's largest DB project, the Hunts Point Interstate Access Improvement project
- Leadership roles for three miles of bridges and elevated roadways to improve access to LaGuardia Airport terminals
- DB procurement and quality assurance specialist

Radha Krishna Swayampakala, PE, PTOE

20 Years

VICE PRESIDENT
704-940-4788
Radhakrishna.Swayampakala@rsandh.com

Key highlights of Radha's experience:

- PM and/or Senior Technical Lead for all Charlotte area managed lane projects
- As owner's representative for I-77 P3, facilitated stakeholder meetings and assisted in development of Secretary's "Improve-Expand-Protect" Action Plan
- Experience in leading project development efforts for large and complex projects such as Topsail Island Bridge replacement and I-485 Express Lanes

RS&H Hardesty & Hanover

One Team

from start to future

Helping NCDOT achieve best-value solutions by working as one team from start to future