Submission in Response to Request for Information Regarding Proposed Development of

Interstate 66 Corridor Improvements

From US Route 15 in Prince William County
To Interstate 495 in Fairfax County

November 2013
November 4, 2013

Mr. Morteza Farajian
Office of Transportation Public-Private Partnerships
600 E. Main Street, Suite 2120
Richmond, VA 23219

Bechtel Response to Request for Information Regarding the Interstate 66 Corridor Improvements (From US Route 15 in Prince William County To Interstate 495 in Fairfax County)

Dear Mr. Farajian:

Bechtel Infrastructure Corporation, a member of the Bechtel group of companies, with its North American headquarters in Reston, VA is pleased to submit our response to the subject Request for Information (RFI) regarding the development and procurement process for the vital Interstate 66 Corridor Improvements. Due to the breadth of the questions presented we are honored to have collaborated in our response with URS Corporation who brings a great understanding and depth of knowledge of the I-66 Corridor and Virginia Department of Transportation (VDOT) requirements. The response by Bechtel represents the involvement from a combined team of multidisciplinary industry experts assembled from both companies.

Though Bechtel and URS worked jointly on the response to this RFI, any decision to work together in response to a future solicitation is not to be implied and will be dependent on the project scope, delivery approach, and each company’s strategic interests. Our objective in collaborating was to provide a more detailed and thorough response to VDOT’s RFI using the combined talents of Bechtel and URS. We recognize that VDOT, in partnership with the Federal Highway Administration and the local governments and stakeholders, has made great progress in advancing this critically important project. Bechtel looks forward to the opportunity to share with VDOT our significant world-wide experience as detailed herein, and lessons learned in the development and delivery of major transportation projects.

URS Corporation is an integrated engineering, construction, and technical services firm with 60,000 employees in offices throughout the US and in 50 countries providing services to the US Federal and foreign governments, state and local government agencies, and multinational corporations. Engineering News-Record ranks URS as the second largest transportation engineering firm in the world. The firm has significant experience in corridors similar to the I-66, including planning and design skills for managed lanes, bus and rail rapid transit systems,
bridge and tunnel structures, and traffic management. It provides services to VDOT from its offices in Herndon, Virginia Beach, and Richmond, VA.

Enclosed as Attachment 1 are our answers to the specific questions presented in the subject RFI, including a brief on Bechtel’s relevant experience and capabilities in response to Question 1.

The Bechtel point of contact for this response is:

    James W. Dell  
    Vice President  
    Bechtel Infrastructure Corporation  
    12011 Sunset Hills Road  
    Reston, VA 20190

I hope that our responses are useful to you. We look forward to the opportunity to assist VDOT as you move forward with developing an implementation approach and financial plan for these much needed transportation infrastructure improvements.

Sincerely,

[Signature]

James W. Dell  
Vice President

Attachment 1: Bechtel Response to RFI
Attachment 1

Bechtel Response to Request for Information Regarding Interstate 66 Corridor Improvements (from US Route 15 in Prince William County to Interstate 495 in Fairfax County)

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GENERAL

1. Please describe your firm, its experience in relation to public-private partnership projects, and its potential interest in relation to the Project (e.g., design/engineering firm, construction firm, operations and maintenance firm, lender, equity investor, etc.)?

Bechtel is a global leader in engineering, construction, and project management services with more than a century of experience building and delivering some of the most complex projects in the world. Founded in 1898, the privately held company has its roots in large transportation projects, with extensive experience in rail, highway, and related intermodal transportation infrastructure.

For the past 15 consecutive years, Bechtel has been ranked by Engineering News-Record (ENR) as the #1 Overall Contractor in the Top 400 Contractors list (see Figure 1), and in 2013 #1 US firm in Combined Industry Revenue, #1 in Transportation, #1 in Construction Management, and #2 in Design-Build.

Today, we employ more than 53,000 people worldwide in 40 offices and job sites located in 25 countries. Our presence in the Washington, DC area spans nearly 70 years with the establishment of the first Bechtel office in the nation’s capital in 1943. One of our principal corporate offices and resource centers is located in Reston, VA.

Locally and globally our work speaks for itself: we adhere to the highest standards of engineering, procurement, and construction services. Over the past 5 years, we have had average annual revenues of $27 billion.

Bechtel has extensive experience acting as a developer, investor, and contractor on public-private partnership (P3) projects. Bechtel would propose to lead or co-lead the I-66 Corridor Improvement project as a Design-Build (DB) contractor, a Design-Build-Finance-Maintain (DBFM) contractor, or a Design-Build-Finance-Operate-Maintain (DBFOM) contractor.

We are very proud of our four generations of family ownership and leadership, and its longstanding history of financial strength and stability. With this reputation comes credibility with the financial community, helping to ensure the viability of financing and successful implementation of major infrastructure projects.

With in-house project development, financial, environmental, design, and construction expertise and capabilities, we have assisted customers in commercial and government sectors in developing and delivering large and complex infrastructure projects, including:

- $4.4 billion London Tube Lines Upgrade P3; United Kingdom (DBFM)
- $126 million Portland Light Rail Airport Extension P3; US, Oregon (Develop, DB)
- $615 million Southern New Jersey Light Rail Transit System; US, New Jersey (DBOM)
- $1.8 billion Dulles Corridor Metrorail Extension Phase 1; US, Northern Virginia (Develop, DB)
- $627 million Tacoma Narrows Bridge; US, Washington (Develop, DB)
- $690 million Springfield Interchange Project; US, Northern Virginia (Construction Maintenance [CM])
- $1.0 billion Kosovo Route 7 Motorway (DB)

Some of our more recent transportation system projects are briefly summarized in Figure 2.

![Figure 1. ENR Ratings demonstrate Bechtel’s capability to deliver complex infrastructure projects.](image)
### Example Projects and Significant Highlights

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<td>- Groundbreaking P3 contract to modernize the Jubilee, Northern, and Piccadilly lines—nearly 40% of the London Underground’s 222 miles.</td>
<td>- Selected partners and formed concession company, Tube Lines, during development.</td>
<td>- Structured and negotiated concession agreement.</td>
<td>- Arranged a £135 ($240) million mezzanine loan from a group of private investors and £1.8 ($3.2) billion of senior debt from commercial banks and the European Investment Bank.</td>
<td>- Scope encompassed refurbishment, enhancement, and replacement of trains, tracks, civil infrastructure, stations, and power, signaling, and communications—while the railway remained in service.</td>
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<td>- Managed over 400 discrete projects ranging in value from $100,000 to more than $600 million.</td>
<td>- Included reconstruction of 100 stations, 187 miles of track, 2,395 bridges and other structures, and new signaling system.</td>
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<td>- Extension of MAX Red Line to Portland International Airport, including rail line construction, road construction, and real estate development.</td>
<td>- Alignment running in the median of one of Oregon’s busiest freeways, included 5.5 miles of trackway, four at-grade stations, three major LRT bridges, and a pedestrian footbridge over an interstate highway.</td>
<td>- Received 2004 Public-Private Partnership Award of Excellence from US Conference of Mayors; 2001 American Public Works Association project of the year; and OSHA’s Voluntary Protection Program (VPP) Merit and Star recognitions for safety excellence.</td>
<td>- Financing included innovative land-lease arrangement accelerating project completion by 5 years.</td>
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<tr>
<th>Project: Dulles Corridor Metrorail Project (Virginia), Phase 1</th>
<th>Client: Metropolitan Washington Airports Authority (MWAA)</th>
<th>Value: $1.8 Billion</th>
<th>Services Provided: Design-build</th>
<th>Contract Duration: 2004-2013</th>
</tr>
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<tr>
<td>- Joint Venture Design-Build of an 11.6-mile extension of the existing Washington D.C. Metrorail system</td>
<td>- Maintenance of Traffic in heavily congested business and residential areas</td>
<td>- Bechtel erected 6 miles of complex bridge systems using four distinct and unique methods: span-by-span using an overhead gantry, balanced cantilevers, precast segmental girders, and more traditional methods such as steel plate girder and large AASHTO beam erection.</td>
<td>- The project also features 1,700 feet of mined tunnels with two cut-and-cover sections.</td>
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<tr>
<th>Project: Riverside County Transportation Improvement Program (California)</th>
<th>Client: Riverside County Transportation Commission</th>
<th>Value: $2+ Billion</th>
<th>Services Provided: Program, Project and Construction Management, Preliminary Engineering, Overall Program Controls, Coordination, Monitoring</th>
<th>Contract Duration: 1988-present</th>
</tr>
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<tr>
<td>- Elements of work include highway, freeway, interchange, bridge, commuter rail, and other projects for overall transportation improvement.</td>
<td>- Responsibility for more than $600 million of work on highways, freeways, interchanges, and bridge projects varying widely in size and scope.</td>
<td>- Acting as client’s representative in consultant contract administration, agency coordination, and community relations efforts.</td>
<td>- Providing overall program controls, coordination, and monitoring for multiple contracts and MOT planning and coordination.</td>
<td>- Providing PM/CM services for both highway and rail projects supporting the Commission and Caltrans; interfacing with multiple regulatory agencies.</td>
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**Figure 2. Examples of Bechtel Transportation Projects and Significant Highlights**
### Example Projects and Significant Highlights (Continued)

#### Project: Eastern European Motorways (Turkey, Croatia, Kosovo, Albania)
- **Client:** Various ministries of transport
- **Value:** Ranging from $990 million to $1.6 billion per project
- **Services Provided:** Design Management, Procurement, Construction
- **Contract Duration:** 1998-2013
- Combined 343 miles of 4- to 8-lane modern highway including tolling systems.
- More than 100 bridges, 130 over/underpasses, 50 interchanges, hundreds of utility crossings, and a 3.4-mile twin-bore tunnel.
- Some of the largest earthwork cuts and fills in the world requiring excavation of hundreds of millions of cubic yards of earth and rock.
- Innovative processes used to stabilize areas prone to caverns, sinkholes, and seismic activity in geologically complex terrain.
- Fast-track, design-build approach with multiple work fronts.

#### Project: Springfield Interchange Project (Virginia)
- **Client:** Virginia Department of Transportation (VDOT)
- **Value:** $690 Million
- **Services Provided:** Construction Management
- **Contract Duration:** 1999-2009
- Springfield Interchange is located at the confluence of three major interstate highways (I-95, I-395 and the Capital Beltway), with daily pass-through traffic of more than 475,000 vehicles.
- This multi-phase, multi-contract project entailed rebuilding the interchange to improve regional traffic flow and accommodate projected future daily vehicle volumes of 525,000 by 2020.
- VDOT awarded each phase of the overall project under a separate contract, and Bechtel’s role was to manage, coordinate, and administer the construction contracts.
- At the time one of the largest infrastructure projects in the US, the work scope included 135 lane miles consisting of 24 lanes, 30 ramps, and 50 bridges and flyovers.

#### Project: Tacoma Narrows Bridge (Washington)
- **Client:** Washington State Department of Transportation (WSDOT)
- **Value:** $627 Million
- **Services Provided:** Development, Design-Build
- **Contract Duration:** 2002-2007
- At 5,413 feet, the longest suspension bridge built in the US since 1964, with three lanes, shoulders on both sides, and a bicycle/pedestrian path.
- Other construction included a toll plaza, access lanes, and a new interchange on the west shore.
- Partnering with stakeholders and contractors early in the process defined shared cost and schedule goals.
- Work package development identified cost drivers to focus engineering and development money effectively and to minimize risk.
- Environmental concerns of stakeholders and the local community defined the environmental scope.

#### Project: Southern New Jersey Light Rail Transit System (New Jersey)
- **Client:** New Jersey Transit Corporation
- **Value:** $615 million
- **Services Provided:** Design-Build-Operate-Maintain
- **Contract Duration:** 2000-2004
- Landmark effort to improve commuter transportation and spur economic development, involving conversion of existing freight rail line to the first shared-track diesel light rail transit system in the U.S.
- Joint Venture project spanning 34-mile route between Camden and Trenton, NJ with more than 50 grade crossings, 20 station stops, and 23 rail bridges.
- Elements of work included infrastructure design, engineering, and construction from general civil and trackwork to stations and bridges, design and construction of the yard and shop/control center complex, and installation of wayside signal and traffic control equipment.
- Innovative geotechnical design included lightweight cellular concrete in lieu of deep foundations for station stops, vibrated concrete columns, geogrid-reinforced load transfer platform, and precast retaining walls for a bridge approach through wetlands.
Bechtel is a leader and innovator in partnering with public sector entities worldwide to help develop and arrange financing for major infrastructure programs. We offer:

- **Full Breadth of Project Experience:** From feasibility studies through design, construction, start-up, and operations, Bechtel has hands-on experience in every phase of project development and execution, as owners, managers, designers, and contractors.

- **Unique Development Experience:** Through Bechtel Enterprises, we were the first US engineering-construction company to offer financing services to industry partners and clients, starting in 1969. Bechtel has developed, together with its joint development companies, more than 85 projects, representing $43 billion in project costs and closed over $34 billion in financing for Bechtel projects since 1990.

- **A “Design-to-Build” Approach:** Experienced in all facets of design and design management, Bechtel understands the benefits that can be gained from integrating the construction team into the design process early in a project.

- **Successful Construction Strategies:** As a leader in construction, Bechtel continuously applies lessons learned and best practices to develop successful strategies for mitigating risks, improving efficiency, accelerating schedules, achieving quality, constructing to budget, and achieving industry-leading standards for safety.

**Figure 3.** Bechtel’s involvement in development projects and equity investments spans the globe. Bechtel Enterprises has developed and invested in more than 85 projects, representing $43 billion in project costs.
2. Are there any particular concerns with any of the information that has been provided in this RFI, the Detail-Level Project Screening Report or the DEIS? Please explain any concerns and provide any proposed solutions or mitigations to address those concerns.

The following concerns have been identified in reviewing the Tier 1 Draft Environmental Impact Statement (DEIS) and other materials available on the Virginia Department of Transportation (VDOT) website related to responding to the RFI:

- The configurations of the corridor differ greatly between the DEIS and the Detail-Level Screening Report. This raises concerns about the ultimate scope of the project, because it impairs the developer’s ability to define the cost side of the return-on-investment decision. In contrast to the Detail-Level Screening Report, the Tier 1 DEIS includes options beyond managed lanes (MLs) and bus rapid transit (BRT). The screening report does not explain if both options will be employed, and if those individual or combined options will include additional General Purpose (GP) lanes. Constructing both a dedicated BRT corridor (which may not generate revenue for the developer) with MLs (that do generate revenue) places the BRT corridor in conflict with the MLs.

- The P3 delivery method (Concession or Availability Payment) is not yet defined. A defined delivery method and clear scope definition are essential to generating interest from the investing community. Those portions of the project that are to be included in this solicitation require further definition. Maximizing revenue can best be achieved with MLs that do not impose vehicle occupancy (i.e., high occupancy vehicle [HOV]) requirements. However, if an Availability-Payment construct is determined, then revenue generation is not a concern to the investor. Our view is that the project’s purpose and need can best be achieved by encouraging the use of BRT extending along the entire corridor from Route 15 to the District of Columbia with buses running on MLs. BRT is the only mode that can maximize the single-seat ride from home to work and back and thereby make BRT an able competitor to the single-occupant vehicle.

- The reliability of the funding stream under the availability-payment scenario also raises questions about the financing risk to the developer. The reliability of the funding stream must be defined in the RFP. Statements to the effect that availability payments are dependent on annual legislative appropriations transfer risks to the developer that he is ill-equipped to manage. This appropriation risk may not be accepted by the equity and debt providers.

- Clearly define what provisions need to be included in the proposal for future rail, if it is in fact determined to be a future requirement.

- Within the structure of a DBFOM for ML and BRT, we recommend the procurement of buses and operations for the BRT not be included in the operations concession. This will allow the maximum in flexibility for both private and public buses to operate as part of the BRT system and tolling/fee decisions decided solely by VDOT. Operations would be limited to tolling and Intelligent Transportation Systems (ITS) infrastructure.

- If the Virginia Office of Transportation Public-Private Partnerships (OTP3) wishes to maximize revenue generation with MLs to fund this project, this goal may conflict with goals to improve levels of service within the GP lanes and promote BRT ridership. The improved level of service on GP lanes likely will reduce the incentive for traffic to use MLs. Levels of service within the GP lanes will likely be improved by adding at least one GP lane in each direction and improving traffic operations at ramps and between ramps (i.e., constructing continuous service drives that separate interchange traffic from the GP lanes).
• Additionally, the I-495 Express lanes appear to attract less traffic than anticipated. The proposed I-66 MLs are in the same area and offer similar advantages; therefore, they may generate similar lower than expected revenue streams.

• OTP3 may want to consider tolling all of the I-66 lanes to align the goals of the project into one general performance goal, which is to improve I-66 levels of service while generating enough revenue to fund improvements to the entire corridor. The advantages of this approach include higher and more dependable revenue streams and simple and aligned performance requirements within the P3 contract, which provide the opportunity to comprehensively manage all of the I-66 Corridor traffic, promote the use of transit such as the proposed BRT, and promote off-peak driving if tolls are variable.

• Consideration should be given to a two-tier tolling structure with a higher tier applied to Express lanes and a lower tier applied to GP lanes. The tolling of GP lanes will require special action by the Federal Highway Administration (FHWA) to gain approval for this approach, but the benefits offer a compelling case for that approval.

3. What, if any, advantages will the Commonwealth potentially gain by entering into an agreement in which operations and maintenance, lifecycle responsibility, and/or traffic and revenue risk are transferred to the private sector? How do you assess the likely magnitude of such advantages? What are the potentially offsetting disadvantages?

The Commonwealth would benefit from lower lifecycle costs and efficient risk allocation under a P3 structure such as a DBFOM model. A DBFOM model would allocate project risks and responsibilities among the parties best positioned to take them on, while minimizing project lifecycle costs. (Life-cycle costs include capital and operations & maintenance [O&M] costs.) DBFOM bidders are incentivized to optimize for low lifecycle costs by considering project engineering, procurement, and construction objectives in tandem with financing, operations, and maintenance solutions in the same competitive proposal. The bundling of these activities into one contract motivates bidders to take a holistic approach to the project and aids the Commonwealth by delivering lower lifecycle costs for the project and improving the predictability of project O&M.

In addition to optimizing lifecycle costs and build quality, a DBFOM model also removes funding risk for operations as these costs become part of the approved financing at financial close, thereby mitigating annual appropriations risk and improving road conditions for the Commonwealth.

A DBFOM contract would provide the greatest transfer of risk to the private sector, the lowest interface risk for VDOT, and an inherent incentive for a lifecycle costing approach to design, construction, and maintenance. VDOT would, of course, still have funding obligations under an availability-payment agreement. However, these funding requirements would be spread out over the duration of the DBFOM agreement. The DBFOM contractor would be obliged to secure the financing, though typically at a higher cost of capital than State-backed financing.

One potential disadvantage for a DBFOM contract is that commercial arrangements for long-term DBFOM contracts are inherently more complex and time-consuming to conclude than they are for simple design-build contracts that do not include O&M. By definition, the sponsor agency is transferring control of an asset for a period of 15 to 30 (or more) years. Thus, the terms of the contract have to be clear upfront and foresee changes during the life of the project. In order to transfer construction and operations of the asset to the private sector, the sponsor agency is required to prepare well-founded performance metrics that will appropriately reward and penalize the private entity for the duration of the contract. Agencies need to draft and negotiate a DBFOM with a sound balance of incentives and risk transfer between the private operator and the agency, ensuring that both parties are aligned.
Furthermore, if certain O&M services were not included in the main DBFOM contract and VDOT wished to have those services provided by the private sector, then this gap would create the need for additional procurement activities for the sponsor agencies and additional interfaces among the public and private sector parties.

Thus, although a design-build contract could provide an improved schedule from RFP to Financial Close and a more streamlined contract negotiation process compared to a DBFOM contract, it would not provide an inherent incentive to optimize lifecycle costing nor would a DB agreement relieve VDOT from O&M funding obligations.

In the end, the choice of the best delivery approach will depend on the following factors:

- The degree of control that VDOT would like over the design, construction, operation, and maintenance of the project
- The integration with adjoining systems or facilities
- The value that VDOT places on risk transferred to the DBFOM contractor
- The potential cost savings proposed and deemed achievable by the DBFOM contractor, especially in the areas of design, construction schedule, performance, operations, and maintenance
- The relative cost of private versus public financing.

A value-for-money analysis would help to quantify these factors and serve as a baseline to evaluate proposals.

PROCUREMENT PROCESS

4. Do you have any particular concerns with or major observations about the milestone schedule provided in this RFI? Please provide your views on proposed solutions to address these concerns?

Although we believe that the total length of time for the milestone schedule as provided in the RFI is adequate, we offer a few concerns with the milestones as presented:

- **Request for Qualifications (RFQ) issuance and short-listing**: The provided milestone schedule shows a potential RFQ issued in March 2014, followed by short-listing of proposers in May 2014, for a total of approximately 2 months. In our experience, 2 months is an adequate timeframe for the preparation of a Statement of Qualifications (SOQ), provided that the information requested in the RFQ is typical. If more detailed information is required during the RFQ process, we would recommend a total of 3 months, to allow ample time for team formation and compliance with Disadvantaged Business Enterprise (DBE) or Small, Women-owned, and Minority-owned Business (SWaM) requirements.

- **Length of time between short-listing and RFP issuance**: The provided milestone schedule shows May 2014 as the expected date to announce short-listed proposers, followed by potential final RFP issuance in February 2015, for a total of approximately 9 months. The milestone schedule, however, does not indicate whether a series of drafts for the RFP documents will be issued between short-listing and potential final RFP issuance. We would expect draft RFP documents to be available, because releasing drafts of the RFP to obtain input from short-listed proposers is typical, in which case there are no concerns with this timeframe. If, on the other hand, the OTP3 was contemplating issuing final RFP documents 9 months after short-listing, without issuing drafts in the interim, 9 months of inactivity could pose problems for the integrity of the short-listed teams.
The issuance of RFP drafts would also allow proposing teams to start work on their proposed concepts and allow more time for the proposers to develop and refine the proposals and for VDOT and OTP3 to review Alternative Technical Concepts (ATCs), which would greatly benefit the procurement process.

- **Length of time from RFP issuance to bid submittal:** The provided milestone schedule indicates issuance of the RFP in February 2015 and submittal in summer 2015. We believe that 7 to 8 months from issuance of RFP to submittal is an ideal period of time as it allows enough time to respond to the RFP and allows for an ATC process that can be incorporated into the final submittal.

- **Tier 2 Environmental Impact Statement (EIS):** The provided milestone schedule indicates that the expected completion of the Tier 2 EIS is to be February 2015, at around the same time as final RFP issuance. It is not clear whether “Completion of Tier 2” indicates that a Record of Decision (ROD) will be in place by RFP issuance, or just completion of the Tier 2 EIS, ROD pending. While it is typical of P3 transactions to have a ROD in place by final RFP issuance, there are precedents in which the Final EIS and Recommended Actions are not ready by RFP issuance, in which case, the DEIS could be issued to short-listed proposers so that they can start to assess potential environmental impacts. It is advisable, however, to have a ROD in place 3 months before the proposal submission date, to allow for proposal revisions addressing environmental commitments.

5. **What are the critical path items for the procurement of this Project and why?**

Our involvement in a wide array of P3 transactions has enabled us to identify certain prerequisites, often critical path items, that are necessary to facilitate the feasibility of a P3 procurement project. Most of these items relate to the due diligence phase of the project and should be made available to short-listed proposers with the issuance of the RFP documents. The availability of these critical path items makes for an efficient transaction by allowing the bidders to assemble a bid submission that will bring value to VDOT and the OTP3. The following is a list of these critical path items that we have found to be necessary for a successful P3 transaction:

**By RFQ issuance**

- **Well-defined Scope of Work:** The Scope of Work for the Project, as well as the method of procurement, should be well defined. Understanding all potential technical aspects of the Project and whether it will include a Financial, Operational, and/or Maintenance component will be vital to the formation of a proposing team that will satisfy the requirements of the RFP.

**By RFP issuance**

- **Tier 2 EIS and Tier 2 ROD:** In order for the project to move into a detailed design and pricing phase, these two elements must be complete. They provide certainty with the project scope and the required mitigation effort.

- **Land acquisition and right-of-way (ROW) issues:** Short-listed proposers will require a clear understanding of the status of land acquisition or required additional ROW for the Project, and who will carry this responsibility if additional ROW is required. Our experience dictates that typically ROW acquisition is the responsibility of the owner, although the selected proposers could act as an intermediary agent in identifying and acquiring land for the Project on behalf of VDOT.

- **Required permits and potential utility conflicts:** Obtaining the necessary permits and identifying potential utility conflicts early in the process greatly help in the mitigation of those risks, facilitating an efficient procurement process and better design and construction pricing.

- **Detailed traffic studies along the I-66 Corridor:** A Traffic & Revenue Study provided by VDOT and OTP3 to short-listed proposers with the RFP documents helps establish a baseline against which the
proposers can bid, making the transaction more transparent, efficient, and equitable. If the transaction construct is based on Availability Payments, the Traffic & Revenue Study does not need to be investment grade, but it has to have enough level of detail to allow proposers to make informed O&M projections.

- **Advanced draft of the Project Agreement**: Issuing a draft of the Project Agreement with the RFP documents allows proposers to understand Project terms early on, allowing for a more robust negotiation process throughout the in-market period.

- **Clear set of performance specifications and provisions for work**: Performance specifications are typically an attachment to the Project Agreement and should detail the outcomes of the DB process, O&M, and hand-back or end-of-term requirements for the asset. Releasing a clear set of performance specifications with the RFP documents allows bidders to produce a design that adheres to VDOT’s and OTP3’s vision. The performance specifications should also be flexible enough to allow the proposers to bring true innovation and efficiencies to the design and construction process through the submission of ATCs. The benefit of ATCs is typically reflected as better bids for the DB process, as well as more efficient construction schedules.

- **Clear funding strategy**: Proposers need clarity on whether VDOT has applied for government grants or financing programs, such as a Private Activity Bond allocation or TIFIA (Transportation Infrastructure Finance and Innovation Act). Certainty about VDOT’s funding strategy will allow the proposers to develop their financing plan accordingly.

**During the RFP response phase**

- **Answers to questions**: Timely responses to written questions and questions raised during one-on-one ATC meetings enable the proposers to better and more quickly understand the requirements of the Project and effectively incorporate project requirements in the proposal resulting in more cost-effective proposals.

- **ATC process**: A critical issue in submitting Best Value proposals is enabling proposers to include innovative technical concepts in the proposal. In order to take full advantage of the innovative concept, the proposers need a fair and timely review period to provide sufficient time to incorporate innovative concepts.

- **Mandatory ROD provisions**: Explicitly defining ROD provisions that are mandatory requirements of the RFP allows proposers to more fully develop the Project design by reducing time spent on developing alternate designs that will not be approved. This allows the proposers to settle on final design concepts and more effectively develop the RFP design.

6. **Looking ahead over the next two to three years, do you believe your firm will be interested in submitting a committed proposal for the development of the Project (any or all of the build concepts)? Are there any particular concerns that may prevent your firm from getting engaged in the project development? How might those concerns be resolved?**

Bechtel confirms its interest in working with the OTP3 and VDOT to submit a proposal for this Project. We submit the following list of preferences and concerns regarding our participation:

**Preferences**

- One large Project that allows the successful bidder to efficiently sequence design, construction, and maintenance of traffic, among other critical items, while allowing the bidder to make an efficient utilization of economies of scale while reducing or eliminating costly and complex interfaces with other parties
• A P3 construct utilizing a DB, Design/Build/Finance (DBF), DBFM, or DBFOM, with an Availability-Payment structure rather than a revenue-based deal
• A short-list limited to no more than four proposers, with an ideal number of three to justify the investment required to bid the project
• A well-defined and transparent selection process
• Provide an industry standard stipend to unsuccessful proposers.

Concerns that would prevent our firm from bidding on the Project
• Extended concession term in excess of 40 years
• An unclear evaluation process would be a major deterrent for our participation
• Multiple small projects along corridor with complex interfaces and sequencing issues.

7. What is the minimum amount of time that your firm requires to develop and submit a committed detailed proposal for the Project after issuance of potential RFP?

Depending on the proposal evaluation criteria and the amount of data required of the proposers, the RFP or in-market phase should last a minimum of 6 months. We have found, however, that an in-market duration of 7 to 8 months is typically preferred, as it allows for more competitive proposals by allowing sufficient time for the ATC process.

TECHNICAL CHALLENGES AND ALTERNATIVE SOLUTIONS

8. Based on your experience in the development of similar projects and characteristics of the I-66 corridor, please explain the technical challenges that may be encountered with the highway and transit improvement concepts described in the Tier 1 DEIS. Please provide recommendations for mitigating or overcoming those challenges.

Please refer to the following table for our response to this question.

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<th>Technical Challenges</th>
<th>Mitigation for OTP3 Highway and Transit Improvement Concepts</th>
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<tbody>
<tr>
<td>Width constraints based on current ROW</td>
<td>• Use efficient interchange concepts to limit cross-section width</td>
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<td>• Consider elevated service drives and only use ramp connections to GP lanes in areas where ROW acquisition is more feasible</td>
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<td>• Consider collector-distributor along both bounds of corridor that may save width by allowing for more efficient interchange concepts</td>
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<td>• Vertical bifurcation of the MLs and GP lanes (this is discussed in more detail in our response to Question 9)</td>
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<td>• Use separation that is width-efficient between MLs and GP lanes</td>
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<td>• Allow narrow shoulders where practical (i.e., interior ML shoulder, areas with highly developed real estate, etc.)</td>
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<td>• Purchase ROW to a width that does not require building takes</td>
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<td>• Fit corridor to the most constrained ROW width but maximize that width</td>
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Table 1. (continued)

- Prioritize the long-term importance of full-width corridor and move forward with ROW acquisition
- Implement local transit options to reduce traffic and limit GP lanes
- Allow reduced width, such as 11', for MLs and GP lanes
- Use retaining walls to limit ROW width
- Use an enclosed drainage system to limit ROW width
- Implement reversible MLs to reduce cross-section width
- Minimize median width allowance for Metrorail
- Consider installing Metrorail on raised guideway instead of surface running
- Consider installing Metrorail in a tunnel instead of surface running
- Do not use separate BRT guideways and, instead, run the BRT on MLs
- BRT stations use existing ROW at interchanges or easily acquired excess ROW along corridor instead of areas with constrained ROW
- BRT stations installed in the median where future rail stations are proposed or even within median rail corridor if they can fit

**ROW acquisition difficulties.** Many businesses, residences, and adjacent roadways will be impacted or need to be taken.

- Public interaction that promotes positive affect of congestion relief
- Transparent negotiations and forthright presentation of the future corridor
- Relocation assistance
- Fair pricing for those directly impacted
- Fair pricing for those indirectly impacted such as adjacent properties
- Install appealing noise mitigation for the property owners
- Start process early so as not to delay project
- Utilize public outreach program
- Budget acquisition costs conservatively

**How extensive are the improvements to the north and south of the corridor?**

- Assist communities with planning north-south (N-S) corridors for future condition in the vicinity of I-66 Corridor
- Include within project budget upgrades to N-S corridors for future conditions in the area of I-66
- Require interchanges that can be revised to fit future conditions of N-S corridors
- Allow innovative interchange designs (such as SPUIs, diverging diamonds, etc.)
- Install BRT infrastructure that will adapt to future condition
### Table 1. (continued)

| Widening roadway - subsurface conditions | - Implement a subsurface drilling program that will provide a comprehensive subsurface characterization along the entire corridor that extends to the outermost limits possible and conduct this before the RFP is issued  
- Provide as-builts that include subsurface information for both roads, bridges, and other elements  
- Provide construction records for any foundation installations along the corridor  
- Identify and characterize unstable soils prior to RFP  
- Perform preliminary bearing and slope stability analyses that indicate potential subsurface capacities and stability |
| Widening roadway - retaining walls and lengthening existing overpass structures | - For retaining walls, use aesthetic treatments of walls or plantings to minimize visual impact  
- Use ABC methods to construct bridges such as SPMT’s, sliding existing bridge out and new bridge in, or prefabricated elements to minimize disruption to traffic  
- Consider constructing new structures parallel to existing (offline) to minimize traffic impacts, or use temporary bridges (offline)  
- Reconfigure interchanges to allow bridge reconstruction without impacting traffic |
| Widening roadway - noise mitigation | - Perform preliminary noise analyses along the corridor for the preferred alternate and other alternates  
- Provide proposed mitigation locations in the RFP  
- Provide developer with all background data used to contemplate noise mitigation  
- Perform public outreach showing potential noise mitigation measures, receive feedback, and secure buy-in from affected property owners and communities  
- Consider an allowance for developer to address noise mitigation, with increases and decreases treated as relief for developer or owner, respectively  
- Consider incentives for appealing (either aesthetic or performance) deviation from proposed mitigation locations if property owners and communities accept deviation |
| Drainage concerns and stormwater management | - Provide allowable stormwater metering into existing systems adjacent to the corridor and into natural streams and rivers passing through the corridor  
- Improve deficiencies in the existing stormwater management infrastructure  
- Enhance regional facilities to accommodate project inputs  
- Identify general need for detention basins prior to releasing the RFP  
- Use innovative stormwater management (SWM) approaches (bioretention, infiltration, or retrofits) for quantity/quality control within corridor |
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<tr>
<td></td>
<td>Allow for detention and retention basins within existing interchange footprints</td>
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<td>Allow for underground storage in areas with limited green space</td>
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<td><strong>Utility impacts within dense urban corridor with many utilities</strong></td>
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<td>Perform utility investigation that identifies horizontal location, utility owner, and contact information</td>
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<td>Perform subsurface utility exploration (i.e., test pits) that identifies utility facility, depth, size and shape, and material</td>
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<td>Coordinate with private utility owners in advance of project, with intent to relocate or have them prepare to relocate</td>
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<td>Relocate those utilities that will be in conflict with any I-66 Corridor solution</td>
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<td><strong>Expanding Metrorail ridership is constrained by system limitations east of the corridor.</strong></td>
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<td>Expand Metrorail system within the Beltway</td>
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<td><strong>MOT during construction on a very congested corridor</strong></td>
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<td>Provide performance requirements to developers and let them determine how to achieve the performance</td>
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<td>Establish a confidential protocol for interaction during procurement with the local agencies that control the surrounding and parallel roads and transit systems</td>
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<td>Restrict lane closures to off-peak (and perhaps to overnight) hours</td>
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<td>Require nighttime work and use prefabricated elements to shorten lane closures</td>
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<td>Improve parallel alternate routes (US 29, US 50, and VA 236) at key intersections</td>
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<td>Provide additional transit/ridesharing options during construction</td>
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<td>Open the MLs to traffic as early as possible during construction</td>
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<td>Reconfigure interchanges to facilitate reconstruction without impacting traffic</td>
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<td><strong>Access points for the MLs…where are these located and how many are there?</strong></td>
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<td>Do not detail location and number of access points, instead allow for market-based solutions that locate access points</td>
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<td>Evaluate demand for ML access, as costs/lack of demand may dictate skipping access at select interchanges and locations</td>
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<td>Consider &quot;slip ramps&quot; from GP lanes at selected locations</td>
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<td><strong>Access to BRT and rail park and ride stations…where are these located and how many are there?</strong></td>
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<td>Do not detail location and number, instead allow for market-based solutions that locate these facilities</td>
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<td>Direct access from I-66 would minimize disruption to surface streets (and improve attractiveness of transit)</td>
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| Locating storage, maintenance, and support facilities for operations |  ▪ Consider provisions for locating these facilities on excess land and excess green space within interchanges  
  ▪ Consider this a developer function and let the developer determine their preferred location  
  ▪ Create options and real estate/utility costs for those options to eliminate potential multiple concurrent negotiations by developers and property owners |
| (transit/highway)                                                    |                                                                                                                                                                                                      |
| Sequencing implementation of corridor capacity improvements and determining scope of the capacity improvements |  ▪ Start improvements from the east and work to the west to improve chokepoints at the east end before improving access and throughput west of any chokepoint  
  ▪ Start from the east where MLs will join I-495 Express Toll Lanes and I-66 HOV lanes inside the Beltway, as this helps build a system rather than having discontinuous components  
  ▪ Provide level of service (LOS) performance criteria and let the developer propose sequence and scope of capital improvements  
  ▪ Consider hand-back criteria that will maximize owner benefit (i.e., capacity improvements) and minimize owner costs (i.e., capital requirements)  
  ▪ Consider RFP criteria that produce market- and behavior-driven solutions that maximize return on investment, which are LOS improvements for the lowest cost |
| Environmental impacts - Section 4(f)/6(f) properties                |  ▪ Minimize impacts to public-use areas  
  ▪ Identify parkland mitigation (visual/noise screening/design elements)  
  ▪ Identify replacement properties (size, value, and function)  
  ▪ Use retaining walls to minimize extent of impacts  
  ▪ Incorporate enhancements/amenities to existing park features (drainage/SWM as appropriate) |
| Environmental impacts - waterways, wetlands, and floodplains        |  ▪ Span over to minimize impacts  
  ▪ Use retaining walls to minimize impacts  
  ▪ Steepen slopes to avoid filling of wetlands and floodplains  
  ▪ Restore/enhance waterways, wetlands, and floodplains affected by project or within Potomac watershed  
  ▪ Purchase credits from mitigation banks in service area to satisfy compensatory mitigation requirements |
| Maintaining sufficient median width for future Metrorail stations   |  ▪ Provide technical criteria for future station locations and geometry to developers  
  ▪ Bifurcation, either for existing or future Metrorail |
| Managing safety and quality of life during construction             |  ▪ Provide performance criteria for developers (i.e., using predetermined locations with pre-construction baselines, intermittent owner audit, and incentive/disincentive system; establish desirable noise decibel levels, dust levels, travel time delay levels, and other construction impacts that can be controlled by developer)  
  ▪ Minimize reduction in current capacity during peak hours |
| Timely acquisition of water quality permits/regulatory review | Provide staff funding to VDEQ/VMRC/USACE for dedicated reviewers  
| Regular coordination at Inter Agency Coordination Meetings  
| Coordinate review/milestone schedule with agency representatives at project kick-off |
| Toll equity | Clearly communicate pricing to the public  
| Communicate improvements to interchanges and GP lanes concurrent with installation of toll lanes |
9. **Do you believe a bifurcated highway system along the I-66 corridor is technically feasible?** Please provide any experience and supportive information that you may be able to share from similar projects.

Our understanding of what is meant by a bifurcated highway system is a divided highway with two separate roadways with independent horizontal and vertical alignments. The separate or bifurcated roadways can be for the same direction of travel or for opposing direction of travel.

It is our opinion that a bifurcated highway system is technically feasible from the perspectives of roadway design, construction, and O&M. For some locations along the corridor, with already limited ROW and high impact ROW property acquisitions, it may be the only viable solution for adding additional ML, BRT, and/or rail. A significant technical challenge to overcome is the connection of a proposed bifurcated system into the I-495 interchange and into the existing I-66 Corridor east of the I-495 interchange. The distances required to move the bifurcated systems up and down and side to side may be of such a length that any width reductions associated with the bifurcated system are eliminated through much of Vienna, one of the more congested sections of the corridor. Two recent projects that added MLs along a constrained corridor are the LBJ Express Project in Dallas, TX, and the Selmon Expressway in Tampa, FL, with each offering examples of horizontal and vertical freeway bifurcation.

A bifurcated highway system, in the case of a depressed or elevated system, can be used to minimize expensive ROW acquisition costs and significant community impacts and may be used to avoid significant project delays due to public opposition to certain ROW “takings.” The reduced width of the bifurcated system may also reduce or eliminate significant utility conflicts and relocations. As the narrower bifurcated system travels through interchanges, the current interchange footprints may better fit into a bifurcated system that closely matches the current I-66 width. This may reduce proposed interchange footprints and impacts to adjacent infrastructure, therefore reducing scope of work and costs. A well designed bifurcated system could potentially facilitate or provide the space for future rail expansion without future ROW acquisitions. Some of the technical challenges that must be overcome are fire life-safety concerns with a depressed system, emergency access and maintenance of traffic (MOT) after accidents, reconfiguring interchanges to accommodate traffic flow from the bifurcated roadways, and construction of elevated structures within constrained ROW and immediately adjacent to traffic that is already at or exceeding roadway capacity.

The latter challenge may require segmental concrete structures using either a launching gantry or balanced cantilever method. Using prefabricated bridge elements will speed up construction and work well in a constrained environment. Construction of a depressed system could be accomplished using top-down construction techniques (soldier beam and lagging or secant piles).

This approach would minimize excavation. A significant concern with bifurcation is the high cost of depressed or elevated roadways. Another significant cost driver for a bifurcated system is facilitating construction access and maintenance of traffic during construction. The design of the bifurcated highway system must consider how traffic will be maintained during construction and how the contractor will be able to safely and efficiently access the work area. In addition, due to the additional geotechnical and structural requirements, we would expect to see increased near-term construction costs and long-term maintenance costs, therefore leading to higher availability payments.

In general terms, if the bifurcation involves construction of a depressed ML or BRT facility between the two directions of GP lanes, construction of the ultimate GP lanes would probably be executed first. This would then allow construction of the MLs/BRT to proceed “in the clear,” with the least effect on operations of the GP lanes. Construction of the walls between the GP lanes and MLs/BRT would be built “from the top down” from the median. Construction of an elevated roadway (probably the MLs or BRT) over the top of the existing GP
lanes would probably require temporary widening of the GP lanes, in order to allow all existing lanes to remain open during construction.

With a bifurcated system, interchange design is more complex than in a traditional non-bifurcated system. Ramps to/from the MLs/BRT would require greater distances to reach the grade of the ML/BRT facility; for closely spaced interchanges, this may mean that not all interchanges can be served by ML/BRT ramps.

10. What are the most significant cost drivers in the development and operation of the ML and BRT concepts along the I-66 corridor? How can these concepts be implemented in such a way as to preserve the potential for rail extension?

a) What are the most significant cost drivers in the development and operation of the ML and BRT concepts along the I-66 corridor?

Development Cost Drivers

For the ML concept, a decision to separate these MLs from the GP lanes and the type of separation applied will drive development costs. Subsequently, ML access decisions will drive development costs. The most significant cost drivers for the latter include, but are not limited to, the following:

- The number and location of ML access points from either the GP lanes or from crossing roads at interchanges
- Interchange reconfiguration costs with ramps servicing both the GP lanes and the MLs separately
- Use of free-flowing or signalized ramps connecting the crossing roads and the MLs.

Managed lane development, regardless of the ML configuration, may require significant widening of the I-66 Corridor cross-section. Widening of the cross-section may drive the following costs:

- ROW acquisition
- Utility relocation
- Enclosed drainage system, which may reduce certain ROW acquisition and utility relocation costs
- Retaining wall construction, which may reduce certain ROW acquisition and utility relocation costs
- Bifurcation of the MLs will cause significant retaining wall and/or structure requirements, which may reduce certain ROW acquisition and utility relocation costs
- Noise mitigation, which likely will include noise walls along the widened areas of the corridor
- Subsurface improvements (i.e., soil mixing)
- Longer bridge structures and span lengths within those bridge structures
- Intrusion into the existing I-66 Corridor creates the need to maintain traffic and provide alternate commuting options during construction, which may include the following requirements:
  - Construction easements for temporary widening
  - Temporary pavement
  - Operation of reversible lanes
  - Improvements to traffic operations on local parallel roads, thereby reducing I-66 traffic
  - Maintaining and improving access to existing transit options
  - Providing additional transit options.

For the BRT concept, a decision to provide a separate BRT guideway or operate the BRT on MLs will drive costs to varying degrees. The former will drive costs significantly more than the latter. The separate BRT guideway may use the future dedicated Metrorail median, which will not cause additional cross-section widening and therefore invoke the cross-section widening cost drivers discussed in the previous paragraph.
However, the infrastructure required for guideways within the median and the associated separate BRT access are significant cost drivers. This separate BRT guideway access will cascade into much larger interchange footprints to accommodate the BRT ramps and additional retaining walls and structures to accommodate grade separation for the BRT ramps over both the GP lanes and MLs. Additional cost drivers for BRT would include dedicated bus station stops, related access and acceleration lanes, and size and type of parking facilities.

Bechtel envisions a BRT that operates on MLs, which is a more cost-effective solution. The development of stations, priority access to the stations, and commuter parking will drive the BRT development costs under this scenario. The primary cost drivers include, but are not limited to, the following:

- ROW acquisition
- Utility relocation
- Priority traffic signalization
- Drainage systems
- Equipment costs.

**Operation Cost Drivers**

For the ML concept, operation costs are driven by the operation and maintenance performance criteria. The criteria should be reasonable and similar to the performance expectation applied to the current maintenance operations to mitigate this cost driver. The ML tolling regime may also be a significant cost driver. The type of tolling regime will dictate the costs because of the impact that determination will have on the “backroom” toll collection and dissemination operations.

For the BRT concept, the most significant cost drivers include, but are not limited to, the following:

- Dictating the primary goal of the BRT service along the I-66 Corridor as only focused on congestion relief or also providing comprehensive local transit services
- Proposed type of BRT service: in other words, whether the BRT service is express (i.e., Fairfax to Washington, DC), local (i.e., interchange to interchange), or a combination of the two
- Proposed BRT route frequency; i.e., the time intervals between BRT services at each station. Frequency is variable per time of day and per day of the week. The decisions dictating the frequency of off-peak service will significantly impact this cost driver.
- Proposed scope of BRT express and local routes
- Designation of the BRT system operator. This has a lesser impact on the total costs to the owner of the BRT but a significant impact to the total costs of a proposed I-66 Corridor public-private partnership.

**b) How can these concepts be implemented in such a way as to preserve the potential for rail extension?**

We anticipate that the project requirements will include a designated corridor for rail extension. This corridor may be established in the median of the I-66 Corridor, similar to the existing rail residing in the median and ending west of Nutley Street. The project requirements should include specific rail extension corridor criteria such as subgrade, width, barrier protection, and station locations (including additional width and station access requirements).

The infrastructure for the MLs must be built to accommodate a rail extension. If the rail extension is proposed for the median and will sit between the MLs, the eastbound and westbound ML access ramps may be constructed separately from each other and bridges will be designed and constructed around the rail corridor.
Rail stations may require I-66 geometric solutions in order to accommodate the additional median width requirements at the stations.

As stated earlier within this Question #10 response, we envision a BRT system that operates on the MLs. Opportunities for cost efficiencies exist if the BRT system is coordinated with the future rail extension. These include the following:

- In order to maximize the efficiency of the BRT system along the I-66 Corridor, BRT stations may be installed within the median at future rail station locations. These stations can be quickly accessed by the buses through slip ramps from the MLs into the median (the median area is preserved for future rail extension and associated stations).
- These median BRT stations may be accessed by BRT riders through pedestrian bridges or tunnels that are installed in such a way as to work with the future rail stations.
- These median BRT stations will include adjacent parking surface lots or parking ramps that can service future rail stations.

The project requirements may include a baseline cost for the rail extension. This baseline will assume a surface running Metrorail system similar to the existing one residing in the median. This baseline can be used to incorporate any increase to that baseline cost within the concession. For example, if a developer proposes a raised or lowered Metrorail guideway to construct an ML solution that reduces cross-section widening (i.e., reversible lanes), the future increased cost of the raised or lowered guideway is reflected in the concession.

11. What, if any interoperability issues do you foresee with the current tolling system on I-495 Express Lanes.

Achieving technological interoperability between the tolling system on the contemplated I-66 MLs and the I-495 Express lanes does not represent significant interoperability risk to the project.

Looking at tolling system interoperability on a larger scale, regional tolled facilities interoperability currently exists through agreements administered under the E-ZPass Group coalition. Bechtel anticipates that nationwide interoperability for all Federal-Aid tolled facilities will be in place by 2016 because of mandates in MAP-21. In order to take maximum advantage of national interoperability on the I-66 Corridor, we suggest that interoperability requirements be included in the project scope. This interoperability requirement may be satisfied by specifying an RFID (radiofrequency identification) system that supports the multiple transponder protocols in use throughout the country and/or by requiring that the system is capable of interfacing with an interoperability hub such as that being implemented by the Alliance for Toll Interoperability.

We suggest that the following goals addressing the interface between I-66 MLs and the I-495 Express lanes are included or are considered for inclusion in an RFP:

- The Video Billing System/Violation Enforcement System (VBS/VES) used on the I-66 MLs should be compatible with the VBS/VES used on the I-495 Express lanes.
- Business rules regarding surcharges for video toll use, penalties for non-payment, time allowed for payment following notification, and more should be as similar to the I-495 Express lanes business rules as possible.
- The toll rate per mile charged for the I-66 MLs should be similar to that for the I-495 Express lanes.
- The operational strategies for the two facilities (such as the target operating speed and the times of day that rates change) should be identical.
12. What suggestions do you have for better coordination between this Project and other projects currently under design or construction along the I-66 corridor?

The following recently completed studies, plans, or active projects (as of October 2013) are identified in the Tier 1 DEIS. A few of these contemplate direct infrastructure improvements within the limits of the I-66 Corridor from US 15 to I-495 discussed in the RFI.

- **I-66 Multimodal Study I-495 to DC Line** is completed with a final report published in June of 2012: The study looked at multimodal and corridor management solutions (operational, transit, bike, and pedestrian, in addition to highway improvements) that can be implemented to reduce highway and transit congestion and improve overall mobility within the I-66 Corridor and along major arterial roadways and bus routes within the study area. The I-66 Corridor west of I-495 is significantly impacted by the I-66 infrastructure and traffic management applied east of I-495. Coordination considerations should include the following:
  - Approximately one-third of traffic on I-66 at I-495 continues east on I-66. Anything that occurs on I-66 east of I-495 will impact I-66 west of I-495.
  - The I-66 HOV+2 or HOV+3 policy and the tolling structure on each side of I-495 must be coordinated. The planned HOV policy and tolling structure east of I-495, and the schedule for changes or implementation of either of these, should be provided in the RFP.
  - BRT solutions applied to the corridor west of I-495, particularly those that accommodate Washington, DC commuters, will rely upon infrastructure and traffic operations on I-66 and other arterials east of I-495 to complete the solution. Consideration should be given to expanding the scope of BRT solutions to areas east of I-495 and providing reliable data and forecasts for transit solutions east of I-495.
  - The Metrorail Orange Line that extends 2.6 miles west of I-495 has capacity constraints east of I-495 that limit any expansion of that service within the I-66 Corridor west of I-495. Any changes to the Metrorail system east of I-495 will likely impact service west of I-66 and may impact any proposed solutions.
  - The I-66 Corridor solution immediately west of I-495 should be constructed so that it will appropriately transition into the anticipated future condition of the I-66 Corridor east of I-495.
  - Pedestrian and non-motorized solutions on each side of I-495 should be coordinated. Reliable data and forecasts of the present and future pedestrian and non-motorized plans east of I-495 should be provided.

- **Virginia Department of Rail and Public Transportation (DRPT) Super NOVA Vision Plan:** Published in November of 2012, this vision plan represents a comprehensive approach to enhancing regional mobility through transit and Transportation Demand Management (TDM). The recommendations include:
  - Expansive commuter bus network throughout the region
  - Interconnected network of high-capacity transit services in the region’s urban areas
  - Network of hubs to connect people to transportation services and programs
  - Coordination of local transit services across jurisdictional boundaries
  - Pedestrian and bicycle facilities to improve connections to transit services and facilities
  - Comprehensive regional TDM strategy and programs
  - Leveraging technology to enable people to make informed decisions about travel.

Each of these recommendations will impact proposed I-66 Corridor solutions. We suggest that I-66 Corridor RFP goals and criteria remain consistent with this vision plan and its recommendations. Any
solution that we propose for the I-66 Corridor will be analyzed against these recommendations so that our solutions fit within the comprehensive approach to regional mobility.

- **Washington Metropolitan Area Transit Authority plans, established in their 1999 Transit Services Expansion Plan, including Metrorail expansion from Vienna to Centreville:** The DRPT Super NOVA Vision Plan includes discussion of the future urban area extending out along the I-66 Corridor into Prince William County and recommends an interconnected and high-capacity transit service in the region’s urban areas. Therefore, the expectation is that rail expansion along I-66 from Vienna to Centreville will become a reality. The rail expansion and station locations should be planned with clarity prior to release of the RFP, and specified within the RFP, so that any I-66 Corridor solutions will accurately account for the proposed rail expansion and future stations.

- **Metrorail Silver Line is being extended to Loudoun County:** The Phase 1 extension to Wiehle-Reston East is anticipated to open in early 2014. Once the Silver Line Phase 1 is open, the Orange Line operations within the I-66 Corridor west of I-495 may be impacted. Daily boarding counts should be updated after the Silver Line Phase 1 is operational, and these counts should be provided within the RFP. Updated capacity projections, using data after the Silver Line Phase 1 is open, for the Orange Line west of I-495 should be provided within the RFP so that the developer can determine what role the Orange Line will play in I-66 Corridor short-term and long-term solutions.

  In addition to the Silver Line Phase 1 impacts that can be assessed by actual data, the Silver Line Phase 2 impacts should be accounted for. Phase 2 is anticipated to open in 2018. Capacity projections, derived by assuming that Silver Line Phase 2 is open, for the Orange Line west of I-495 should be provided within the RFP so that the developer can determine what changes to anticipate in Orange Line operations after the Silver Line Phase 2 is open.

- **I-495 Express lanes are complete as of late 2012:** The Fairfax County Parkway was widened across I-66, and the intersection with Fair Lakes Parkway just to the north of the I-66 Corridor is now grade-separated after the recent completion of the $69 million construction project. Additional Route 28 southbound left turn lanes to I-66 were added this year. The traffic analysis data used to prepare the DEIS for this I-66 Corridor was collected in the fall of 2011 and spring of 2012. We suggest that traffic analysis data in all areas of I-66 be collected again to reflect traffic operation changes caused by the opening of the I-495 Express lanes and any other recently completed traffic operation improvements.

- **Tri-County Parkway (now known as the Bi-County Parkway) to extend Bypass Route 234 north from I-66 to Route 50:** This parkway will relocate the current Business Route 234 that travels through the Manassas National Battlefield Park 2.5 miles west. The Final Environmental Impact Statement (FEIS) is being prepared for this project. If the project is constructed, traffic patterns and the as-built infrastructure along I-66 in the vicinity of the project will change significantly. The infrastructure changes and revised traffic data or projections should be provided to the developer within the RFP.

- **I-66 widening from US-15 Haymarket to US-29 Gainesville, projected for 2014 construction:** This estimated $66 million construction project will widen I-66 from two lanes in each direction to four lanes in each direction. This will apply to the westernmost 2.6-mile stretch of freeway within the I-66 Corridor improvements proposed in the RFI. This infrastructure revision will likely impact the traffic operations along I-66. The proposed construction start date may mean that this construction project is ongoing while the I-66 Corridor improvements from US 15 to I-495 are being procured. Certain traffic data at the western end of the project may need to be treated as projected instead of actual, assuming that traffic patterns may change after construction of the widening is complete.

- **I-66/US 15 Interchange Reconstruction:** This effort will improve interchange traffic operations by constructing a flyover ramp from US 15 southbound to I-66 eastbound, a wider bridge over I-66, and
other interchange geometric improvements. The schedule for this project calls for advertisement of a DB project in the fall of 2013 with construction beginning in 2014. This project will impact traffic operations at the interchange and along I-66. The proposed construction start date may mean that this construction project is ongoing while the I-66 Corridor improvements from US 15 to I-495 are being procured. Certain traffic data at the western end of the project may need to be treated as projected instead of actual, assuming that traffic patterns may change after construction of this interchange is complete.

- **Route 29/Linton Hall Interchange Improvements just south of I-66 in Gainesville:** This project is scheduled for construction completion in the summer of 2015. This project will impact the Route 29 traffic operations in the vicinity of I-66, and the I-66/Route 29 interchange. Certain traffic data at this interchange may need to be treated as projected instead of actual, assuming that traffic patterns may change after construction of this interchange is complete.

- **The I-66 Active Traffic Management (ATM) Design-Build Project:** This project will install technology along I-66 to improve communications for traffic management from the DC line to US 29 into Gainesville with the addition of ATM technology. The $34 million project also includes six new emergency pull-offs. ATM technology will be extended into Haymarket as that section of I-66 is widened from two lanes in each direction to four lanes. ATM technology includes gantry or overhead sign structures, lane and shoulder control displays, queue and incident detectors, cameras, and responsive incident management. VDOT anticipates that the work for this project will progress east to west. Construction is expected to start soon and complete in the spring of 2015. The project construction may be ongoing while the I-66 Corridor improvements from US 15 to I-495 are being procured. Bechtel will incorporate the as-built ATM technology into any proposed corridor solutions where possible.

- **I-66 Vienna Metrorail Access Ramp near Vaden Drive, where the access ramp from the HOV lanes west of Vaden Drive is proposed as bus-only:** This project proposes to construct a flyover ramp from the I-66 HOV lane to Vaden Drive, to provide direct access for mass transit buses to and from the HOV lanes and the Vienna Metrorail station. The project goal is to improve peak-hour mass transit accessibility and enhance Metrorail ridership. The schedule for this project contemplates design approval in December 2013, advertising for construction in spring 2014, and beginning of construction in late 2014. We recommend that this estimated $55 million project not move forward if the I-66 Corridor improvements from US 15 to I-495 are procured separately. Existing Vaden Drive over I-66 and the proposed ramp infrastructure connecting into existing Vaden Drive will likely conflict with any proposed I-66 Corridor solution.

13. **What challenges are associated with managing the lifecycle costs for the improvement concepts as described in the Tier 1 DEIS? What measures would you suggest to mitigate these risks?**

a) **What challenges are associated with managing the lifecycle costs for the improvement concepts as described in the Tier 1 DEIS?**

In our experience, managing the Project lifecycle costs starts with reducing the initial capital costs for the improvement concepts listed in the Tier 1 DEIS. The corridor improvements will have significant impacts on intersecting and nearby infrastructure. The management of the existing infrastructure that must be replaced, modified, or upgraded along with the extent of such modifications will have a significant impact on the corridor capital costs. The design should minimize the extent of construction scope impacts outside of the Corridor, such as efficient interchange reconfigurations, limited rerouting and revisions to existing roads, and minimizing replacement of existing bridges and overpasses.
Requiring extended service for critical elements of the Project can also reduce lifecycle costs by reducing maintenance costs. The increased capital costs of the extended service life requirements must be evaluated against the maintenance costs to determine if the lifecycle costs are reduced. How the extended service life requirements and evaluation of service life are specified in the RFP for a DB or DBF procurement is an important consideration to ensure that all bidders provide a comparable end product. Within the structure of a DBFM or DBFOM, requiring extended service life may not be necessary if the condition of the assets at hand-back is clearly specified and the combination of concession agreement term and residual service life at hand-back provides the total desired service life. The concession term and hand-back criteria should be calibrated to optimize the initial engineering/procurement/construction as well as future maintenance events as a means of minimizing the lifecycle costs.

An additional challenge is anticipating appropriate future improvements (i.e., future rail expansion, additional GP lanes, future vehicular, or transit innovations) and incorporating the possibility of those improvements into the original project design. The capital costs associated with building in the possibility for future improvements must be balanced against the cost savings associated with building in, and the anticipated schedule for, the future improvements.

b) What measures would you suggest to mitigate these risks?

Future expansion or modifications needed for the addition of rail service should be built-in to the Project. Adding capacity for future rail service after the Project is completed will increase cost and have significant construction impacts on the existing ML, BRT, and GP traffic. Build in the ability to add future capacity to existing roadways, bridges, and interchanges with minimal modification to existing roadways, bridges, and interchanges. Add in capacity for future ITS and smart vehicle technology such as Advanced V2I Safety Applications, so that minimal modifications of existing facilities will be required to incorporate these future technologies. Well designed maintenance intervention plans for the various elements (e.g., pavements and bridge decks) can significantly reduce the Project lifecycle costs. In addition, the remaining useful life of asset at hand-back should be considered when determining the concession term.

14. What adjustments to the Project scope, or development strategies (including potential phasing of project elements) would you consider/recommend to reduce the upfront capital costs and/or the lifecycle costs of the overall project costs?

To reduce upfront capital costs we recommend constructing the project in usable segments. Specifically improve capacity at the east end of the Project and move towards the west with early toll revenues starting as each segment is completed. Incorporating BRT operation into the MLs in lieu of building a separate BRT guideway will also significantly reduce upfront capital costs by allowing more efficient use of the ML. Additionally consider introducing tolling on the existing HOV facility immediately as a means of funding the anticipated improvements to the Project. Consider allowing the use of high-performance materials to improve lifecycle costs. Allow for planned routine maintenance interventions to preserve pavement and structure assets such as removing and replacing overlays on a planned schedule. Specify that capacity for future rail is incorporated in the project improvements. This will reduce future long-term capital costs by ensuring that only minimal modifications to the Project are required in order to incorporate the addition of the future rail.

A development approach to consider for this project is specifying a single performance requirement, such as improved level of service for the I-66 Corridor during peak travel that allows for expansive brainstorming and promotes creative solutions from each team. This approach may significantly limit the upfront capital costs while giving OTP3 and the public the corridor performance that they want. Another approach to consider is having the scope include defined developer control over certain elements of the I-66 Corridor east of I-495 to provide vehicle and transit solutions that improve levels of service on I-66 through the I-495 interchange and to the east and offer transit riders a single seat solution from origination to destination.
Another capital cost reduction alternative to consider: intra-corridor traffic operations improvements may cause I-66 level of service improvements because of the significant volumes of traffic that only travel within (not through and out of) the I-66 Corridor. Redistribution or redirection of local traffic from certain high volume interchanges to other lower volume interchanges or to alternate routes may improve operations. Targeted separation of local traffic using I-66 from I-66 GP lanes traffic (i.e., service drives) or targeted I-66 on-ramp merge improvements may offer a significant level of service improvement opportunities without high capital cost expenditures.

The western end of the proposed corridor has significantly lower traffic volumes than the middle and eastern end of the proposed corridor. The western end of the corridor has two active DB projects, one improving the US 15 interchange and the other widening I-66 from US 15 to US 29 from two lanes in each direction to four lanes in each direction. Consideration should be given to shortening the I-66 Corridor slated for improvements and therefore reduce upfront capital costs and long-term operation and maintenance costs within this concession.

15. Please explain in detail any alternative technical solutions that may enhance the development of the Project. Identify the risks associated with the alternative technical solutions and discuss the potential cost of each technical solution.

a) Please explain in detail any alternative technical solutions that may enhance the development of the Project.

Specific ATCs can best be developed once the Project improvement concept is selected. However, we suggest the improvement concept of dedicated guideways for BRT traffic be eliminated. Integrating BRT traffic with the vehicle ML traffic will more efficiently utilize the ML capacity. We also suggest that VDOT and FHWA consider eliminating GP lanes and provide only MLs as a means of increasing revenue for the project, aligning project goals (reduced congestion in all lanes and increasing transit ridership), and offering improved traffic management and transit promotion opportunities.

With the rapidly improving technology for semi-autonomous and autonomous vehicles as the traffic efficiencies these types of systems offer, VDOT and FHWA should consider providing provisions for incorporating this technology in the improvements for the Project. Use of ITS allows for more efficient traffic management and should be included in the project improvement scope. VDOT and local jurisdictions should set up a better Ride Sharing/TDM to allow for transportation efficiencies. As a means of generating additional revenues from the project VDOT should consider allowing private developer rights for parking facilities and joint development above the roadway (air rights).

b) Identify the risks associated with the alternative technical solutions and discuss the potential cost of each technical solution.

ATCs usually require the contractor to accept significant risk associated with gaining supplemental approvals post contract award. These risks are:

- ATC impact on FEIS/ROD requiring supplemental EIS process – uncertainty with results of supplemental EIS process, potential schedule delays, and loss of ATC costs savings if approval is achieved.
- ATC risks for additional ROW and utility relocation costs – additional costs, schedule duration, and uncertainties associated with ROW acquisition and additional costs, schedule duration, and uncertainties associated with coordinating additional utility relocations.
COMMERCIAL AND FINANCIAL STRUCTURE

16. Please explain your firm’s interest in the improvement concepts discussed in the Tier 1DEIS. What is your recommended approach for financing the capital cost of each concept?

We see a combination of MLs, BRT, and potentially Virginia Railway Express (VRE) in the longer term providing a solution to the I-66 service improvement goals. Initially, we would pursue a more detailed analysis of project economics to determine how the implementation and monetization of MLs and other aspects of the I-66 asset could be leveraged to cover the capital expenditure (CAPEX) and operations of other service-enhancing elements such as BRT.

We support the following strategic initiatives along the corridor:

- Single-seat rides (BRT, carpools)
- Easing chokepoints and improving other strategic locations along the corridor
- Supporting intermodal connectivity
- Implementing safety improvements
- Utilizing innovations in transportation communication and technology to ease congestion
- Balancing value pricing and service improvements.

Individual Improvement Concepts and Financing

- **Managed Lanes:** From a financial standpoint, when operating under an optimized value pricing structure, MLs are cash-flow-positive, thus they are a preferred solution among the improvement concepts. P3-financed implementation of MLs could generate the cash flow to support BRT improvements and contracted roadway maintenance. A well-calibrated HOV system could also ease congestion on the system without negatively impacting ML revenue.

- **BRT:** The Tier 1 EIS provides very little information about the proposed BRT alternative other than suggesting a separate guideway for BRT operations. It would be our expectation that this BRT system would be designed to complement the existing bus services provided by the individual jurisdictions along the corridor. The BRT system would be planned to serve the needs of the corridor without regard for jurisdictional boundaries. This comprehensive solution may entail pursuing an innovative operating strategy for the corridor with service provided by a regional organization or an independent operator rather than by individual jurisdictions.

We would propose sizing the availability payments to cover the costs of the BRT. These costs would be minimal additional design and construction costs and more significant annual funding to cover the net operating shortfalls that are inherent in BRT service. Depending on the economics of the MLs, positive net revenue from the toll revenue on the MLs could cover part of the BRT costs.

We would expect a BRT operation to consist of a fleet of buses originating at various locations in the western portion of the corridor, accessing the MLs to I-66. The operational plan would need to specify the destinations of these buses, but the plan would likely consist of direct-to-DC buses to the Vienna Metrorail station and buses to major employment destinations along the corridor, such as Tysons Corner. The BRT system would likely include a number of station stops along the corridor providing multimodal connections to park and ride as well as local circulator service. The BRT service might consist of both express service between major origins and destinations as well as station to station service for trips within the corridor.

Currently, I-66 carries a maximum of 33 buses per hour. This level of bus volume would not warrant a separate bus lane and would not be expected to significantly reduce the level of congestion in the I-66 Corridor. Conceptually, one could target moving 35,000 people on buses by 2040. This target would...
require on the order of 500 articulated buses or an average of 100 to 200 buses per hour during peak periods.

If MLs are operated to maintain a minimum operating speed of 50 MPH, accommodating 100 to 200 buses in two MLs would be feasible. Similarly, if independent access to the MLs is provided, BRT vehicles could use those same access points to/from the MLs. It is unclear what type or scale of BRT operations is being contemplated that would warrant a separate BRT guideway.

The principles that would guide the development of a BRT system plan would include:

- Providing a one-seat ride
- Convenient access between origins and high density destinations, beginning with including park and ride facilities at key locations facilitating access to mass transit
- Providing multiple types of service (circulator, express, and station to station)
- System design to achieve a transit travel time advantage over general purpose travel
- Optimize system design while recognizing that BRT is a negative net revenue business.

Other Improvement Concepts

- **VRE Extension**: Rail service could be a major component of the overall strategy to accommodate the forecast travel demand in the I-66 Corridor; it should be procured independently of this contract and, due to its long return-on-investment horizon, with public financing.

- **General Purpose Lanes**: GP lanes will have a negative impact on ML revenue. We anticipate that the P3 procurement will use the proceeds from MLs to fund GP lane improvements and GP lane O&M, with the sponsoring agency providing funding via an annual availability payment comprising the ML revenue and additional public funding to cover the difference.

- **Metrorail Extension**: Expanding metro ridership is probably the most logical way to reduce congestion in the corridor. It is the most expensive option, however. Metrorail expansion is also constrained by system limitations related to headway near the Rosslyn Station east of the corridor. Metrorail can be expanded in the future when the current system limitations to the east are reduced.

- **Light Rail Transit**: It is unclear how a light rail transit (LRT) service would be configured to address the purpose and need for transportation improvements in the corridor. Although it would provide additional travel mode choices, LRT would likely serve a much smaller number of potential origins and destinations than a BRT system. It would probably focus on providing service to the Vienna Metrorail system where passengers would be forced to transfer, missing the single-seat ride target. Although it would extend the reach of transit into the corridor, we believe LRT would be a less effective way of serving travel demand than extending the Metrorail system, but it would still have significant capital and operating cost. Placing LRT in the corridor would furthermore likely preclude future extension of Metrorail.

Financing Proposed Improvement Concepts

The following considerations would inform our specific recommendations for financing the CAPEX for these improvement concepts:

- The level of toll revenues and operating profit from the MLs
- The trade-off between VDOT-sponsored debt and privately sponsored debt. Publicly sponsored debt is usually cheaper, but you give up the value of risk transfer to the private sector.
- Ability to access federal and state funding grants
- Ability to use TIFIA and Private Activity Bonds if the project is procured as DBFOM
- Ability to fund availability payments to cover BRT service beyond toll revenue from the MLs
• Evaluation of Tax Increment Financing along the corridor
• Capture of early revenue benefits from air rights development and other roadway facilities.

17. Please discuss your firm’s interest in:
   a. Accepting traffic and revenue risk in a toll concession
   b. Accepting performance risk in an availability structure.

a) Accepting traffic and revenue risk in a toll concession

We are not interested in taking revenue risk. Moreover, in the past 6 years, the marketplace has seen a significant reduction of private equity firms and lenders willing to finance these types of revenue- or traffic-risk transactions. The deals are also expensive; rating agencies severely discount even conservative traffic and revenue projections to protect themselves against revenue risks particularly in the early years of highway concessions.

If traffic and revenue risk are part of a competitive bid, the winning bidder would win on the basis of having made the most aggressive traffic and revenue projections and layer perhaps too much debt on the project and introduce a financing plan that contemplates a refinancing or multiple refinancings. Ultimately the asset would be at risk if the resulting traffic and revenue figures could not support debt service. In addition, introducing revenue risk takes the focus away from the design, build, operate, and maintain aspects of the project and shifts the focus to more of a financial nature.

b) Accepting performance risk in an availability structure

We would be interested in an availability-payment concession, which would lower financing costs compared to a revenue risk structure. We see this structure as one where the private party would enter into an availability-based DBFOM contract. The MLs would still be tolled, but the revenue would accrue to VDOT and VDOT would take the revenue risk. The DBFOM contract could collect the tolls at the option of VDOT, but the toll revenue would be for the account of VDOT. We would consider investing in a DBFOM or DBFM model.

An availability-payment-based concession structure would be advantageous for the following reasons:

• Increasing the financeability of the project
• Lowering the cost of finance compared to a revenue risk project
• Allowing the public sector to continue to set and collect the variable tolls, as well as interface with the public on toll rates. This arrangement would enable the sponsoring agency to retain political control of a major aspect of the roadway
• Allowing VDOT to defer the upfront construction costs and spread out payments over many years
• Enabling O&M risk transfer to the private sector. O&M costs, including major maintenance costs, would not be subject to traditional annual appropriation risk. Instead O&M costs would be part of the original bid and at most partially supported by annual availability payments instead of being scrutinized in annual government budget reviews.

An availability-payment structure could also lead to Financial Close faster, because parties wouldn’t need to complete an investment-grade, traffic-and-revenue study. Lenders’ due diligence would be simpler as well.

18. What is a reasonable concession term for a ML or a BRT concept? Why?

We believe a concession term of around 30 years would be appropriate, considering the following factors:

• Selecting a period that is long enough to include some significant lifecycle maintenance (e.g., resurfacing roadways or adopting latest signage technology), to optimize lifecycle costs considered in the design and construction.
• Selecting a period that is a few years longer than the repayment period of the longest-term tranche of debt that might be available for the project, so as to spread out the costs over the longest possible period. A tail after scheduled debt repayment is also usually a lender requirement.

• Selecting a period not any longer than that implied by the above conditions, given the impossibility of contemplating future requirements for the infrastructure and constraints on flexibility of VDOT to modify its plans for transport systems to adapt to changing requirements.

Concession periods that are substantially longer than the term of project debt might encourage (a) repeated refinancings that could potentially result in extraordinary returns for shareholders, or (b) collapse of the project company, if a necessary refinancing failed. Extraordinary returns from refinancing, however, can also be shared with the public sector partner and addressed in the DBFM or DBFOM contract. A shorter concession period would allow for greater predictability in returns and more stable business dynamics with potential or actual partners.

Concession periods that include replacement of major items might lead to high upfront costs, increasing availability payments that must be financed.

Given the uncertainty of travel modes and needs far out in the future as well as typical debt repayment terms, it seems unlikely that the contract period should be much longer than 30 to 35 years. It would make much more sense for VDOT to re-tender the concession after an initial period of operation.

ADDITIONAL CONSIDERATIONS

19. If your firm is a Disadvantaged Business Enterprise ("DBE") or a Small, Women-owned, and Minority-owned Business ("SWaM"), please provide any suggestions or comments on how OTP3, VDOT or DRPT can help to develop teaming opportunities with prime contractors.

Although Bechtel is not a DBE or a SWaM, our corporate policies underpin our commitment that DBEs and SWaMs have fair and reasonable opportunities to compete for meaningful and substantial participation on projects. Historically, Bechtel has consistently met or exceeded the DBE and small business goals on domestic projects. Phase 1 of the Dulles Corridor Metrorail Project is an example our success in exceeding the DBE goals. The project utilized hundreds of local companies, including more than 185 small, disadvantaged, and minority-owned businesses. Bechtel achieved 14% DBE participation—over $240 million—exceeding the 10% contract goal by 40%. This success was a result of several factors, including a devoted DBE compliance team that worked closely with DBE and SWaM firms, internal personnel, and the client; a comprehensive outreach plan beginning in the pre-award phase and continuing throughout the life of the project; and a monitoring and reporting system to ensure that DBE and SWaM firms were successfully completing work on the project and that all goals were on track to meet or exceed the contract requirement.

Based upon our extensive participations in DBE programs at the Federal, State, and local levels, our firms offer the following suggestions that will assist VDOT/OTP3 to develop teaming opportunities between DBE/SWaM businesses and the potential prime contractors.

VDOT should establish specific DBE and SWaM participation goals for the project and require all proposers to submit a comprehensive DBE plan with their bid detailing how the goals will be reached over the life of the project. The plan would be updated annually. This plan should include a list of identified scopes of work for DBE and SWaM businesses; a communications and outreach plan; and a DBE/SWaM compliance management, monitoring, and reporting procedure.

To assist in facilitating involvement by DBE and SWaM businesses early in the project, VDOT should provide a project overview presentation highlighting the contracting and procurement opportunities, and how to become certified as a DBE firm. VDOT may also host at least one pre-proposal outreach event at which all
proposers are in attendance or host a separate event for each proposer to enable ample time and opportunity for the inclusion of DBE and SWaM businesses. These events will enable interested businesses within the DBE and SWaM community to meet and engage with all potential prime contractors prior to the bid due date. Additionally, VDOT’s project website should have a link to each proposer’s website where point of contact is listed and detailed information provided on how to submit a letter of interest and subsequent bid.

In addition to DBE and SWaM outreach events, DBE and SWaM businesses can greatly benefit from workshops or training sessions sponsored by VDOT on other DBE/SWaM-relevant topics and issues such as understanding regulatory procedures (49 CFR Part 26); insurance, bonding, and certification assistance; certified payroll; and joint venture opportunities. This will ensure that DBE/SWaM businesses are prepared for opportunities to successfully bid and participate in the project with prime contractors.

20. Based on characteristics of the I-66 corridor, suggest the number of persons per vehicle that should be required to qualify as a high-occupant vehicle. Explain why selecting this number may be in public interest and beneficial to comply with the federal Clean Air Act of 1990? Please provide quantitative and qualitative evidence to supports your arguments.

The Metropolitan Washington Council of Governments, through the Transportation Planning Board, has established in the current Constrained Long Range Plan (CLRP) that all HOV facilities in Northern Virginia will become HOV-3+ after 2020. This is in response to the forecasted increase in households and jobs, which will result in increased congestion in the region. Although this has been endorsed by VDOT, circumstances may warrant earlier consideration including:

- Accelerated growth in the region
- Uniform regulation of all HOV facilities in Northern Virginia
- The construction of “Express lanes” on I-66.

In September 1995, the I-66 HOV Advisory Committee established thresholds for implementing HOV-3+ inside the beltway. Thresholds for speed and volume over a given duration were identified, which triggered changing HOV-2 to HOV-3. At the time, Congress controlled the HOV regulation on I-66. Congress eventually transferred the responsibility to Virginia, which has maintained the HOV-2+ since that time. Given the forecasted growth and the acknowledgement of the need to implement HOV-3+ on I-66 by 2020, the combination of these factors may warrant revisiting the earlier efforts of the I-66 HOV Advisory Committee to justify going to HOV-3+ sooner than 2020.

The introduction of “Express lanes” on I-66 also provides an opportunity to implement HOV-3+ regulations. The introduction of “Express lanes” on the Capital Beltway provides an excellent example where enhancing the operational performance of the facility enabled the support of the local constituencies for the project and implementation of HOV-3+ regulations. The same would likely be true for I-66. In addition, it would establish uniform HOV facilities in Northern Virginia making it easier for public understanding and enforcement. The implementation of HOV-3+ on I-66 also achieves the goal of the CLRP.

In the context of the proposed procurement method, the advantage of a DBFOM availability-payment mode is that the system would be designed to manage congestion and maintain economic feasibility of the project. The capacity solutions include the price structure, the HOV threshold, and the ML/BRT design. Given the notion of maximizing the HOV lane utilization, managing congestion, while generating as much revenue as possible (i.e., congestion pricing), is a salient aspect necessary to successfully implement the I-66 Corridor improvements; thus, making implementation of the HOV threshold component a HOV-3+ on I-66 a likely imperative.

Regarding the Clean Air Act of 1990, to ensure federal approval and/or funding participation of highways and rail projects, the State must examine long-term air quality impacts of their proposed transportation systems
and ensure compatibility with the area’s clean air goals and compliance with the Clean Air Act. Despite the comprehensive approach to reducing pollution from automobiles, the fact remains that more cars driving more miles has only somewhat improved air pollution. Decisions by the State on how to manage the transportation growth needs and to reduce the growth in air pollution will help derive the best-fit transportation scopes to be undertaken. The HOV-2/3 threshold component will be a key element in the quantitative and qualitative evidence developed during the Tier 2 NEPA (National Environmental Protection Agency) process for the VDOT/OTP3 decision making. Nevertheless, implementing an HOV-3 mandate on I-66 will force a paradigm shift with the public that will encourage more alternative commuting practices, thus supporting the environment.

21. What additional challenges or risks should OTP3, VDOT, DRPT or CTB be aware of in regard to Project’s scope, procurement process, delivery method, term of contract, technical and financial feasibility, etc.?

Expedited Design Review and Development
We recognize that a DB project requires a flexible, fast-track, and dynamic process as design is finalized concurrent with construction activities. Owner-Agency early review and endorsement of the scope design basis, design criteria and standards, standard specifications, code application, and code compliance strategies for all design disciplines, systems, and facilities are critically important. We recognize that effective design delivery in a DB context depends upon providing the design reviewers with visibility of evolving designs, and with verifiable evidence that design submittals are fully coordinated with interfacing disciplines and wider stakeholder interests. To expedite the design development and review process, we suggest a structure to conduct regular over-the-shoulder reviews and presentations with the Owner-Agency to discuss evolving final designs and confirm compliance with the design intent and technical requirements. These measures will expedite the design development process, thus allowing some critical construction elements to commence early and swiftly, at risk, prior to completing a fully developed final design.

RFP Scope and Evaluation Process
In order for VDOT to realize the most cost-effective project, provisions must be provided in the RFP and review process to allow ATCs or technical innovations, which result in an equal or better final project. The DB process will evolve to show how roads, rails, and bridges are constructed, and ATCs should not be rejected simply because things have always been done a particular way even though the ATC results in an improvement and efficiency with the associated costs savings to VDOT. Innovative solutions that accelerate the project delivery and reduce construction durations and costs should be allowed.

We understand that certain aspects of the project, however, will be required by VDOT and FHWA, and cannot be modified. These elements, which cannot be deviated from, must be clearly defined so that all bidders are given an equal competitive opportunity. The evaluation process for determining the best-value proposal, which should include provisions for scoring advantages for innovative designs, must be clearly defined and entirely transparent.

Stipend
We recommend a substantive stipend, which represents on the order of 50% of the bid costs, to cover the value of the design product provided in the proposal, which will become the intellectual property of VDOT.
22. Other than the answers that you have already provided, what information would help your firm to make the business decision to engage in the development of the Project?

Review of Draft RFP

Give pre-qualified firms an opportunity to comment on a draft RFP. The draft RFP should include the following documents:

- Draft Comprehensive Agreement (the Contract)
- Performance specifications instead of prescriptive specifications. Technical and operational performance requirements would save time and invite more innovation, and prescriptive specifications would result in time-consuming ATC proposals.
- Other contract documentation (geotechnical report, traffic studies, etc.)
- Clarify which documents are contractual and which documents are reference documents. When there are contractual requirements requiring bidders to rely on documents, then the reliability of those documents should be unconditional.

Stakeholder Outreach Division of Responsibility (DOR)

Based on past experience and successes, we know that large complex projects require focused, consistent, and proactive stakeholder involvement and outreach efforts. The role of communicating on behalf of a high-profile transportation infrastructure project comes with great responsibility. It’s not just about using communications to minimize negative impacts to cost and schedule, it’s about keeping commitments to the stakeholders and the public and managing and protecting the reputation of the project. Failure to do so may result in public backlash, public safety threats, fines, legal action, and/or risks of project delays. VDOT/OTP3 should maintain the front-line communication responsibilities and manage stakeholder outreach matters. Prime contractor support can be dedicated to help the VDOT/OTP3 successfully deliver on its commitments to those who have an interest in or may be affected by the construction.

Procurement Schedule

As shown by the Anticipated Milestones table in the RFI, issuance of the Final RFP occurs upon the completion of the Tier 2 NEPA process, which assumes that a ROD is in place and all public comments are resolved. This is a desirable timeline that allows issuance of a ROD in advance of the RPF process, thus enabling bidders to assess project constructability based upon the NEPA constraints.

One-Project Procurement

Bechtel undertakes large complex infrastructure projects worldwide that have inherent risks. Our rigorous risk management processes help us to identify and mitigate the key risks associated with the Project and to avoid impacts to safety, quality, and the environment. Procuring the I-66 Corridor Improvements as one large project that comprises the entire 25-mile corridor under a single contract would allow the successful bidder to competitively price, efficiently plan, and swiftly execute a world-class highway project in a manner that captures economies of scale and eliminates or reduces complex risks and costly interfaces. A one-project approach would attract only the best of the best highly qualified firms/teams to competitively engage resources in the development of such a very complex highway project.

The proposed I-66 Corridor work is linear in nature, which intuitively lends itself to a one-project scope that allows strategic innovation in the design and procurement deliveries and flexibility in the construction execution strategy to stage and sequence the work on multiple fronts along the entire corridor and to optimize best-practices for MOT control measures. The one-project concept also allows proven execution methodologies to consistently be employed to minimize traffic disruptions, maximize work zones, and to ensure public and worker safety. In addition to attracting a world-class firm/team with best-in-class capabilities, the overarching benefit of a one-project scope will realize a significantly improved probability of delivering portions of the
corridor early and delivering the overall project with expediency, thus exceeding the expectations of agencies, stakeholders, and the public.

**Operation and Maintenance DOR**

From review of the provided documents it is difficult to determine if, under a concession solution, the Operator would be responsible for maintaining the GP lanes and areas of the ROW that are outside of the ML/BRT improvements. If there are to be different entities responsible for performing maintenance within the corridor, consideration should be given to demarcation points that will exist between the maintainers. Alternatively, consideration should be given to having all routine operations services (with the exception of the existing Orange Line Metro) be included in the scope. We believe this approach may provide overall operational and cost efficiency and lessen the potential for the asset being maintained to significantly different standards. One approach may be to include the broader operations/maintenance to the RFP as an option that would facilitate the cost-benefit analysis.