



# Interstate 66 Corridor Improvements



**DRAGADOS USA**

RESPONSE TO REQUEST FOR INFORMATION BY  
**ACS INFRASTRUCTURE DEVELOPMENT, INC  
& DRAGADOS USA**

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## Notice

The information and any analyses contained in this response to the Request for Information (“RFI”) are taken from, or based upon, information contained in the RFI for the I-66 Corridor Improvements from U.S. Route 15 in Prince William County to Interstate 495 in Fairfax County (the “Project”) or otherwise received from the Office of Transportation Public Private Partnerships (“OTPP”), the Virginia Department of Transportation (“VDOT”), the Virginia Department of Rail and Public Transportation (“DRPT”) or from publicly available sources. Neither ACS Infrastructure Development, Inc. (“ACS ID”) nor Dragados USA, Inc. (“DUSA”) have independently verified or investigated the completeness or accuracy of any such information. The information and any analyses in these materials reflect prevailing conditions and our views as of the date hereof, all of which are subject to change. Should ACS ID and DUSA participate in subsequent stages of the procurement process of the Project, further investigations and due diligence analyses will be required in order to more precisely define the overall approach to the Project. Additionally, the information contained herein, in particular, our ability to finance the Project, assumes a standard allocation of risk reflective of recent market precedents (including, without limitation, customary provisions regarding environmental permitting, geotechnical risks, right of way acquisition, maintenance, etc.).

## Table of Contents

A. General .....	1
B. Procurement Process.....	6
C. Technical Challenges and Alternative Solutions .....	8
D. Commercial and Financial Structure .....	11
E. Additional Considerations.....	15

## A. GENERAL

*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.)?*

ACS Infrastructure Development, Inc. (“ACS ID”) is pleased to submit this response to the Request for Information (“RFI”) for the I-66 Corridor Improvements from US Route 15 in Prince William County to I-495 in Fairfax County (the “Project”). ACS ID is a developer that provides equity investments, financing, operations and maintenance services for public-private partnerships (“P3” or “PPP”). We have prepared this response to the RFI in conjunction with Dragados USA, Inc. (“DUSA”), a general contractor that provides construction services for design-bid-build, design-build, and public-private partnership projects.

Member	Name	Role
	ACS Infrastructure Development, Inc. (“ACS ID”)	Equity Provider and Project Lead
	Dragados USA, Inc. (“DUSA”)	Lead Contractor / Member of the of the Design-Build Joint Venture

ACS ID and DUSA are firms within the ACS Group that have partnered successfully to become industry leaders in the North American P3 market. ACS ID and DUSA, through a significant portfolio of national and international experience, also have the technical and financial capabilities to make the Project a successful procurement and a sustainable asset for future generations. Our experience in the P3 market described in this section is a testament to ACS ID and DUSA’s leadership in this infrastructure class, and our keen interest in partnering with the Office of Transportation Public Private Partnerships (“OTPP”), the Virginia Department of Transportation (“VDOT”) and the Virginia Department of Rail and Public Transportation (“DRPT”) (together, the “Departments”).



**ACS Infrastructure Development, Inc.** is the United States subsidiary of Iridium Concesiones de Infraestructuras, S.A. (“Iridium”), the concession arm of Actividades de Construcciones y Servicios S.A. (“ACS Group”). ACS Group is ranked first in ENR’s “The Top 250 International Contractors” list and has over 162,000 employees, a presence in over 50 countries and annual net sales in 2012 of €38.4 billion (approximately \$50.1 billion). In addition, ACS Group has consistently been ranked first among the list of World Top Transportation Developers by Public Works Financing Magazine, ranking as the leading concession group in the world from 1994 through 2005 and from 2007 through 2012. ACS Group has over 40 years of experience in leading and developing concession projects around the world, and has successfully participated in over 150 public private partnerships to date. Its current infrastructure portfolio includes 27 highway projects, 7 railways and 14 public facilities, and includes bridges, transport hubs, airports, parking structures, social infrastructure and ports.

ACS Group began operating in the North American P3 market in 2006, and since then, it has been awarded seven unique and complex P3 projects: the Autoroute 30 (“A-30”) in Montreal, the South Fraser Perimeter Road in British

Columbia, the I-595 Corridor Improvements (“I-595”) Project in Florida, the Windsor Essex Parkway in Ontario, the Northeast Anthony Henday Drive in Alberta, the predevelopment agreement for the Mid-Currituck Bridge in North Carolina and the recently awarded Ottawa Light Rail Transit Project in Canada’s capital city, Ontario. These projects represent approximately \$9 billion in public private partnerships closed in North America since 2008. Additionally, ACS ID has been invited to submit proposals for four highway P3 projects currently under procurement in the US: SH-288 Toll Lanes Project in Texas, Project Neon in Nevada, Portsmouth Bypass in Ohio, and the I-77 HOT Lanes Project in North Carolina—together, these represent over \$2 billion in current highway P3 development across the United States.

## DRAGADOS USA

**Dragados USA, Inc.** is a wholly-owned subsidiary of Dragados, S.A. (“Dragados”), the construction arm of the ACS Group. Dragados has unmatched international experience in infrastructure, bridge, highway, tunnel, dam and marine projects, and is a leader in alternative project delivery, including design-build projects for public and private owners.

Founded in 1941, Dragados has built over 5,300 miles of highways, 3,100 miles of roads, 1,500 bridges, 810 miles of tunnels, 130 dams, 523 miles of railways, rail transit and numerous rail facilities, and airports. Dragados is one of the largest P3 contractors in the world and has completed the design-build portion of over 100 P3 projects to date. Dragados had a total revenue of \$5.34 billion in 2012 and currently employs over 16,000 people globally.

Dragados is a certified ISO 9000, ISO 14000 and OSHA 18000 company, and it is currently implementing ISO 31000. In addition to a research and development department that fosters the development and use of innovative construction methods and materials, Dragados has an in-house Technical/Engineering Services Division tasked with providing innovative solutions and incorporating lessons learned into our new projects. As a repository of more than seven decades of corporate experience and with the talent and experience of its current engineering staff, the Technical/Engineering Services Division provides technical support for the development of all types of infrastructure projects, including bridge, highway, heavy construction, civil, tunnel, marine, airport, and water projects.

Established in December 2005, Dragados USA has grown steadily over the last eight years, successfully performing a variety of transportation, mass transit, dams, building, and water projects. Today, the company has a backlog of over \$1.11 billion and had 2012 revenues of \$675 million. DUSA’s excellent financial position is highlighted by its aggregate \$4.25 billion surety capacity.

DUSA is presently working on major infrastructure, marine, and dam construction and reconstruction projects, including the \$1.2 billion East Side Access in New York, the \$61 million access road to the Marine Corp Base Camp Lejeune in North Carolina, the \$259.5 million Calaveras Dam in San Francisco, California, and the \$193.5 million Portuguese Dam, the \$53 million Rio Puerto Nuevo Flood Control project, and the \$35.4 million Bechara Channel in Puerto Rico. In addition, DUSA is currently at work on the \$1.2 billion design-build portion of the I-595 Corridor Improvement P3 (DBFOM) project, the \$1.09 billion SR-99 Bored Tunnel design-build project in Seattle (this massive highway tunnel is being bored with a 57.5’-diameter TBM, the largest in the world today), and the \$76.9 million SR 23 Replacement and I-75 Managed Lanes design-build projects in Florida.

ACS Group has developed several projects in recent years that exemplify its capacity to deliver the I-66 Corridor Improvements. The following table highlights some of the DBFOM highway and transportation projects for which ACS ID and Iridium have reached financial close in the last 10 years, as well as the payment method for each. As

demonstrated by these projects, we have both the experience and interest to participate in the Commonwealth's future procurement for this Project, regardless of the payment mechanism utilized.

Select ACS P3 Projects – 2003 to Present (DBFOM / DBFM)	Total Investment <sup>1</sup>	Financial Close	Payment Mechanism <sup>2</sup>
<b>Ottawa Light Rail Transit</b> , Ontario, Canada <i>Light rail, 7.8 miles, 13 stations, 1.5-mile tunnel</i>	\$2.0 B	Feb-13	AP
<b>Northeast Anthony Henday Drive</b> , Alberta, Canada <i>Ring road, 17 miles</i>	\$1.5 B	May-12	AP
<b>Right Honourable Herb Gray Parkway</b> , Ontario, Canada <i>Urban highway, 7 miles</i>	\$1.3 B	Dec-10	AP
<b>South Fraser Perimeter Road</b> , British Columbia, Canada <i>Urban highway, 21 miles</i>	\$692 M	Jul-10	AP
<b>I-595 Corridor Improvements</b> , Florida, USA <i>Limited access highway, 11 miles</i>	\$1.7 B	Mar-09	AP
<b>A-30 PPP Completion</b> , Quebec, Canada <i>Limited access highway, 46 miles</i>	\$1.8 B	Oct-08	RT + AP
<b>Algarve Litoral (Portugal)</b> <i>Limited access highway, 170 miles</i>	\$352 M	Mar-09	RT
<b>Eje Diagonal</b> , Spain <i>Urban highway, 67 miles</i>	\$523 M	Jan -09	ST
<b>Baixo Alentejo</b> , Portugal <i>Interurban highway, 217 miles</i>	\$699 M	Dec-08	ST + AP
<b>M7/M8 Portlaoise</b> , Ireland <i>Limited access highway, 26 miles</i>	\$426 M	Jun-07	RT + AP
<b>Central Greece</b> , Greece <i>Limited access highway, 144 miles</i>	\$2.2 B	May-07	RT
<b>NEA ODOS</b> , Greece <i>Limited access highway, 236 miles</i>	\$1.8 B	Dec-06	RT
<b>N25 Waterford Bypass</b> , Ireland <i>Limited access highway w/cable stayed bridge, 1 mile</i>	\$417 M	April-06	RT + AP
<b>Vespucio Norte</b> , Chile <i>Limited access highway, 18 miles</i>	\$903 M	May-05	RT
<b>Autopista Central Highway</b> , Chile <i>Limited access highway, 38 miles</i>	\$1.1 B	Dec-03	RT

<sup>1</sup> USD. Exchange Rate: December 2012 (EUR 1 = \$ 1.29657; CAD 1 = \$ 1.01336; CLP 1 = \$ 0.00210) Source: www.oanda.com

<sup>2</sup> AP = Availability Payment; RT = Real Toll; ST = Shadow Toll

*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.*

Due to the preliminary nature of the information that is available, including the RFI, the Detail-Level Project Screening Report and the DEIS, we do not have any particular concerns related to the information provided nor the solutions proposed for improving transportation along the Project corridor. Our expectation is that as the Departments advance the process, including the Tier 2 EIS (which will include consideration of tolling and a narrower focus on the most feasible and beneficial solutions outlined in the Tier 1 study), we may be able to provide more specific and helpful feedback.

However, we do note that the RFI contemplates the use of an availability payment (“AP”) structure in order to deliver all or part of the improvements along the corridor. In subsequent sections, we address the use of this payment mechanism in relation to the Project. We trust that the Departments are in the process of confirming legislative authority to enter into a long-term availability payment agreement, and we encourage the Departments to consider an AP arrangement only when and if the Commonwealth can enter into these arrangements with certainty.

*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 implementation of a long-term P3 contract (e.g. 35+ years) offers clear opportunities to achieve increased efficiency and cost reduction on a net present value basis. The allocation of **operations and maintenance (“O&M”) and lifecycle responsibility** to the private sector, in combination with other transferred risks including construction and O&M cost overruns and price escalation, for example, incentivize a cost-effective approach to the design, construction and long-term O&M considerations through the optimization of technical solutions, O&M plans and financing for the Project. Additionally, strict requirements for handing over the infrastructure at the end of the concession term ensure that the Commonwealth will receive an asset in an acceptable, and potentially rehabilitated, condition.

Under a toll concession where **traffic and revenue risk** is transferred to the private sector, there are additional opportunities to bring value under a P3 contract. Given sufficient flexibility, proposers will develop innovative concepts that aim to optimize the relationship between the revenue capacity of the project and the upfront capital costs of construction—access to and from the managed lanes (“MLs”), tolling segments, construction phasing and toll pricing strategies are just some of the variables that ACS ID would examine in order to achieve this. Toll revenues are inherently difficult to project and depend on highly interrelated but unique factors, from population and economic growth patterns to access to and from the facility and competing routes. Forecasting for managed lane facilities is even more challenging—there is relatively little precedence to model from and what information is available is not easily applied to the unique conditions of other corridors. In a recent report, Fitch observed that MLs experience multiples of growth and contraction compared to the corridor as whole, while drivers’ value of time and willingness to pay can vary significantly. As such, ML facilities are subject to greater volatility, making the task of forecasting more difficult. The Commonwealth may benefit from transferring all or part of this risk to the developer. However, the ability of the private sector to achieve an investment grade credit rating is likely to result in more conservative estimates for traffic and revenue than what was contemplated in projects awarded prior to the recent economic crisis.

The process of assessing the advantages of and value from the use of the P3 delivery method includes evaluating the whole-life costs and risks every element of the Project. As the procurement process advances, we devote substantial

time and resources in order identify the best opportunities for improving the value of a project—these concepts can potentially result in cost savings to the owner, and they may also improve the safety, accessibility and attractiveness of the facility to the public and minimize the impact of construction on the community and the environment, for example.

As a team, ACS and Dragados have demonstrated in past projects the value of the P3 delivery method. In the I-595 Corridor Roadway Improvements P3 project in Florida, the ACS ID/DUSA team brought savings of approximately 13% in comparison with Florida Department of Transportation estimate thanks to value engineering. On the A-30 P3 Completion in Quebec, the final value for money analysis conducted after financial close concluded that the net present value of all payments to be made by the Ministry of Transportation of Quebec (“MTQ”) to the concessionaire was 33% lower than the MTQ’s original estimate. The I-66 Corridor Improvements Project may similarly benefit from innovation and efficiencies that the private sector can provide based on extensive experience in projects of comparable size and scope.

The Departments may perceive advantages or disadvantages from the up-front public investment requirements of a revenue risk versus an AP project, as well as from the inherent incentives of the two delivery models. Revenue risk projects incentivize the developer to optimize revenues from the tolled facility. The early traffic and revenue performance of the adjacent I-495 express lanes provides insight toward the relative revenue potential—and the relative capacity of the proposed I-66 project to support investment grade debt—from which the Departments may estimate the amount of public investment necessary to support a revenue risk managed lanes project.

Depending on the HOV policy (e.g. HOV-2 or HOV-3), the expected revenues may be significantly lower than those experienced on the adjacent project. The initial public investment, as a result of these factors, may be substantially greater than anticipated for an availability payment project which is supported by annual payments for successful operation and maintenance of the facility. The Departments should consider those requirements and budget for them.

Availability payment projects may require specific legislative authority for the Commonwealth to obligate annual payments for a long-term contract. AP projects also offer an opportunity to incentivize system throughput versus revenue optimization. The developer’s long-term focus can be aligned contractually with the Departments’ goals for system optimization. Such contracts require the public agency to budget for annual payments that are not insignificant. As a result, these agreements may be best suited for high priority corridors that warrant long-term public financial obligations. AP projects do not require protection against future development of revenue impacting facilities. This factor enables the Departments to consider corridor and system throughput based solely on the relative costs and revenues of those future improvements.

## B. PROCUREMENT PROCESS

*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?*

The proposed milestone schedule in Section 3 of this RFI anticipates completion of the Tier 2 NEPA study after procurement has begun and teams are short-listed. Considering the broad spectrum of potential solutions being advanced, it may be premature to begin the procurement prior to selection of a preferred alternative. The outcome of the study will likely determine if transit is to be included in the corridor and whether an availability payment or traffic and revenue risk model will best suit the Project's goals—these aspects are important factors in building a team that has the necessary expertise, technical and equity capacity and risk appetite to provide a responsive proposal.

The equity requirements for a revenue risk project, for example, will be significantly higher than for an AP project, as required by the lenders to achieve an investment grade rating for the Project. A possible consequence is that a shortlisted team may no longer be interested in pursuing the Project once the final scope and project type is determined. The Departments' financial commitment, including the timing and size of payments (whether as an upfront investment or as milestones payments during construction), are inherently affected by the type of the project. Advancing the procurement too early in the environmental process is more likely to result in unwanted and increased uncertainty in the procurement for both the Departments and the private sector, and in subsequent delays in the procurement process.

Following this logic, we recommend that the Departments give 1 to 2 months following the definition of key project characteristics to allow interested parties to form teams. The proposed duration of 9 to 10 months between selection of short-listed proposers to issuance of the final RFP is reasonable, although a period of 5 to 6 months between the final RFP and commercial and financial close is ambitious. Following selection of a preferred proposer, we recommend the Departments assume between 1 and 2 months for commercial close followed by an additional 2 to 3 months to reach financial close. However, we would like to note that if TIFIA should be available or if the Project is advanced as a traffic and revenue risk concession, the time needed to reach financial close may be a few months longer.

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

As noted above, the Departments have several public policy, scope and project delivery decisions that should precede the procurement. Those include whether to pursue a competitive procurement leading to a firm, fixed price and schedule or a qualifications based selection leading to a PDA and a negotiated agreement. That decision may require the selection of a preferred alternative, definition of HOV and tolling policies (in the event of a solution that includes managed lanes), development of a feasible financial plan and allocation of funds; the decision whether to optimize revenues or throughput, or a combination thereof, etc. For either a hard bid or PDA procurement, a federal Record of Decision, certainty regarding the Project's financial feasibility and inclusion in Virginia's Six-Year Improvement Plan will be required before private debt can be raised. We note that the most timely procurements and project delivery (e.g. The Indiana East End Crossing), are achieved when the essential policy, scope and delivery decisions are addressed in advance.

The critical path items in the schedule once the procurement begins are the proposers' independent traffic and revenue studies (for toll risk concessions only), and the design and technical solution and due diligence process with lenders.

As the completion of these activities is dependent on the availability of relevant project documents (ROD, geotechnical baseline report, the final technical provisions, tolling policy, etc.), the Departments should carefully consider shaping the procurement schedule to ensure that these documents are made available as soon as possible after shortlisting, and in any case, before the Final RFP is released.

The PDA approach, should the Departments choose to consider it, provides the public owner with the opportunity to work closely with an experienced private developer to advance a project that is not mature enough for a formal bid process. Critical path items under a PDA are unique to each project, and furthermore, it is difficult to define what activities and milestones will drive the development schedule, particularly in the early stages of the process. We understand that VDOT and OTP3 have significant experience with the negotiated process, and as such, are able to assess the value of this process with respect to the I-66 Corridor Improvements Project and its impact on the Project's schedule.

*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?*

ACS ID and DUSA are interested in participating in the Project, and we do not have any concerns at this point in time that would prevent us from becoming engaged.

*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?*

We recommend 7 to 10 months following the release of a first draft RFP, with 4 to 5 months between the issuance of a final RFP and the proposal due date. Generally speaking, the amount of time required to develop a detailed proposal for a revenue risk concession is longer due to the need for proposers to conduct traffic studies.

We have successfully participated in procurements that adhered to a more aggressive timeline, however in our experience, the owner will sacrifice value if the procurement is advanced too quickly. To implement a schedule as suggested above allows the design-build joint venture to advance the design and construction plan in more detail. The outcome is a better value for both the technical quality and the financial package; it helps reduce contingencies because the contractors will have more certainty about the design, provides additional opportunity to develop innovative, cost saving solutions (through the ATC process, for example), and improves costs of financing by allowing time to optimize the financial package. With regard to the financing package, a more comprehensive evaluation of scope and schedule, as well as additional time to explain to the lenders the relative risks and risk management measures that we've applied to the particulars of the project may lead to better lending terms.

## C. TECHNICAL CHALLENGES AND ALTERNATIVE SOLUTIONS

*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.*

Each of the possible highway and transit improvements advanced in the Tier 1 DEIS, whether implemented separately or under a single procurement, present technical challenges in the design, construction and operations and maintenance phases of the Project. Below are several technical challenges that we view as common among the many concepts described in the DEIS.

- ***Mitigating impact of construction on traveling public.*** It is crucial that a minimum, acceptable level of service be maintained along I-66 and other connecting facilities during construction. *The owner and developer will need to work collaboratively to identify an optimum balance between maintaining throughput in the corridor and ensuring the Project is delivered expeditiously.* ACS ID and DUSA have valuable experience related to this challenge through our success in the I-595 Project, which involves the expansion and reconstruction of a major east-west corridor in Fort Lauderdale, Florida that carries more than 180,000 vehicles per day. Our team has maintained the availability of existing lanes throughout construction without reducing the posted speeds, significantly reducing the impact of construction on the community.
- ***Preserving a footprint for future transit expansion.*** A significant challenge will be working within the existing and reasonably attainable ROW while preserving the median transit envelope (if it is to be preserved for immediate or future expansion of transit options, including BRT, LRT, and the Orange Line). This is particularly true around major interchanges in the corridor, many of which are in need of significant improvements in addition to the construction of any direct connectors to managed lanes. *A clearly defined vertical and horizontal envelope is critical* for the developer to optimize these interchanges, direct connectors and any transit related structures through innovative design and construction solutions.
- ***Integration of new and existing transit options.*** In the event that transit improvements are made along the corridor, integrating these extensions and/or additional modes with existing and established transit options will be a challenge from both a design and operational standpoint. *Creating functional and convenient access to, from and between modes* will be critical to attracting ridership and improving overall mobility in the corridor. Substantial coordination among multiple entities is required to meet this need which will present significant challenges in our view.

*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.*

Two specific goals of the Project, as outlined in the RFI, are to (i) preserve the potential for rail extension and (ii) to focus improvements within the existing right of way. The RFI also indicates that peak period conditions, particularly in the eastern portion of the corridor, are expected to deteriorate in coming decades, affecting both vehicular operations as well as the reliability of bus transit services. Achieving these objectives concurrently will present a significant challenge in the development of the Project. A bifurcated highway using a tunnel or elevated portions may help the

Departments reach these goals, but at significant cost compared to at-grade highways, and elevated highways often result in higher noise levels and a visible “separation” that may be resisted by the local communities.

The SR-99 Bored Tunnel Project in Seattle, led by Dragados USA, eliminated noise and aesthetic concerns by tunneling along the corridor bordering Seattle’s waterfront, though we note that the cost per mile of this approach is significantly higher than concepts envisioned in the Tier 1 DEIS. The I-635 Managed Lanes Project in Dallas, Texas had a similar right of way restriction as the Project, in addition to a maximum roadway elevation restriction; our solution to these project constraints was a twin cut-and-cover tunnel that reduced the at-grade highway expansion while meeting the capacity needs of the corridor. Our I-595 Corridor P3 Project in Broward County, Florida, which features reversible managed lanes in the median area, is an excellent example of a potential solution the Departments may consider in order to limit ROW impact while reducing congestion along I-66. All options ought to be reviewed and discussed, and we believe that the Project would benefit from early engagement of the Developer and its design-build contractor.

*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?*

Project site access and traffic management are early cost drivers in the development of ML and BRT concepts. Reconstruction and expansion of interchanges along the corridor are also a significant cost driver when direct connectors for ML and BRT are considered in the design, evidenced by the \$1.1 to \$1.7 billion cost estimate provided in the Detail-Level Screening Report. The decision to preserve rail extension will necessarily require right of way acquisitions, complex interchanges and/or depressed or elevated segments of highway along the corridor that will increase the capital cost of the Project significantly. To help mitigate these costs, a clear definition of right of way restrictions and of the ultimate transit envelope should be provided to enable sound development of the design that best responds to the Project goals while allowing for the private sector to advance cost saving concepts for the design and construction of the Project.

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

We do not foresee any major or unmanageable interoperability issues with the current tolling system in place on I-495, and will be compatible with E-ZPass and VDOT requirements.

*What suggestions do you have for better coordination between this Project and other projects currently under design or construction along the I-66 corridor?*

Other projects currently under design or construction along the I-66 corridor do not pose any significant coordination issues that we identified at this preliminary stage in the development of the Project. Furthermore, based on the schedule of the projects under construction in the corridor, it is likely the developer will not be selected prior to completion of those projects. VDOT should continue to manage these projects as planned and develop their ROW plans and the preferred alternative for the Project assuming their completion before the start of the Project.

In the event additional projects are advanced along the I-66 corridor prior to or in conjunction with the Project, we would request that an organized schedule of coordination meetings among all project teams is implemented in order to find common solutions for the benefit of all the projects. We note, however, based on past experience, accommodation of several projects in the same vicinity may lead to additional costs.

*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?*

The construction, operations and maintenance costs for transit services, including LRT and Metrorail, are generally much higher than for roadway facilities (this is reflected for this corridor in particular in Table 3-4 of the Tier 1 DEIS). It is important that the projected benefits of such transit facilities justify the large upfront and long-term costs. However, it may be possible to achieve combined mass transit and managed lanes benefits at a lesser cost if local and regional commuter bus services are exempted from tolls in a managed lanes facility.

In order to effectively manage lifecycle costs, while meeting the corridor improvement goals of the Project, the Departments should advance improvement concepts that, when evaluated based on a net present value, deliver the greatest benefit at the least cost. We understand that both quantitative and qualitative factors must be considered as part of the Departments public policy decision for the best use of the limited space in the corridor.

Other factors that, in general, lead to challenges in managing the lifecycle costs in a P3 project include the condition of existing structures within the corridor that are to remain in the Project scope. This can be mitigated by completing a detailed and accurate report of the status of the existing facilities. Additionally, the developer should be protected against latent defects of existing structures through risk sharing mechanisms. Such risk allocation eliminates the costs of expensive contingencies and pre-proposal inspections by all of the shortlisted teams.

Other major risks are inflation and escalation of materials over the term of the project. Although we are able to take on inflation and escalation risks (and have done so in past projects), we would welcome an opportunity to work with the Departments to optimize the allocation of these risks, some of which are better suited to indexation. Certain materials offer opportunities for value in a risk sharing approach, including materials subject to price volatility such as asphalt. The key to reaching the best value for both parties is in establishing a transparent and predictable policy, including a clear baseline cost for each indexed cost factor.

*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?*

During the procurement process, ACS ID and DUSA, in collaboration with our concessionaire partners and the public sector, work diligently to understand the relationship between funding available, existing conditions in the corridor, revenue capacity of the facility, anticipated traffic use and growth, and various additional factors, allowing us to optimize the relationship between cost and revenue generation (in the case of toll projects) and maintenance and rehab costs (for both AP and toll projects). We view the Project as being too early in the planning process to recommend anything specific, though we would be pleased to evaluate the Project in more detail as additional information becomes available.

## D. COMMERCIAL AND FINANCIAL STRUCTURE

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

ACS ID and DUSA are interested in partnering with the Departments to deliver the improvement concepts outlined in the Tier 1 DEIS and, more specifically, the RFI. The optimal financing approach for each concept is highly dependent on the scope and terms ultimately included in the P3 arrangement (e.g. the long-term O&M responsibilities for the developer) and key characteristics of the Project (e.g. the revenue capacity of the facility). The private finance industry will seek to provide a cost effective solution regardless of the ultimate scope, though we note that certain concepts are more suitable to a revenue risk concession, including the ML concept (and in general, those that generate significant use at a relatively lower NPV cost, as shown in Table 3-4 of the DEIS).

As a developer of P3s in the US and globally, we are advocates of the DBFOM model and the benefits that it can deliver to the owner and the traveling public, whether procured as an AP or real toll concession. However, there are many factors that determine whether a particular project will generate sufficient added value as a P3—as the Departments advance the environmental and planning processes, the suitability of the Project for a P3 delivery model will become clearer, as will the magnitude of public investment needed to supplement user fees, and the value that such an investment can bring to the people of Virginia.

ACS ID has significant experience in organizing and securing financing with tools commonly used in the United States P3 market for this infrastructure class. Traditional private finance tools such as bank loans and taxable bonds are oftentimes used in combination with each other and with the low interest and tax-exempt bonds available for use in P3 scenarios (e.g. PABs and TIFIA). We recommend that the Departments allow sufficient flexibility for proposers to arrange financing in order to efficiently leverage public funds and deliver the most competitive financing package attainable.

*Please discuss your firm's interest in:*

- *Accepting traffic and revenue risk in a toll concession*
- *Accepting performance risk in an availability structure*

Through over 40 years of developing and managing concessions, ACS brings the necessary expertise and relationships to successfully deliver and manage revenue risk, availability payment, shadow toll, and “hybrid” concessions in the North American P3 market. As such, we are interested in participating in the procurement regardless of the payment mechanism implemented for the Project. As a general point of discussion, it is crucial that the payment mechanism be aligned with the contract to incentivize the developer to achieve the goals of the project. We have included within this section a brief discussion of some advantages and disadvantages of each approach, as well as some of the many project-specific characteristics that are impacted by the type of payment mechanism advanced for this project.

Type	Advantages	Disadvantages
<b>Traffic and Revenue Risk</b>	<ul style="list-style-type: none"> <li>▶ The private developer is incentivized to develop and implement innovative strategies to optimize toll revenues and provide greater value to the owner. The P3 contract may include toll setting rules and revenue sharing mechanisms to foster political support.</li> <li>▶ Independently of the tolling strategy, developers are generally able to leverage more project debt than a public authority would when issuing toll revenue bonds. This will help lower the cost of capital.</li> <li>▶ The Commonwealth, and its taxpayers, are not liable for long-term traffic and revenue projections and the State budget is isolated from downside scenarios.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Though developers are generally able to leverage more project debt than a public authority could when issuing toll revenue bonds, the overall cost of capital is generally higher when compared with an availability payment structure. This is because higher credit spreads and more equity is needed to mitigate the increased revenue risk compared to payments coming from a public authority.</li> <li>▶ Depending on the magnitude of the funding gap, a toll concession may require a significant upfront public investment in order to make the project feasible.</li> <li>▶ Revenue risk projects require protection against revenue loss in the event that future projects impact the anticipated revenue stream.</li> </ul>
<b>Availability Payment</b>	<ul style="list-style-type: none"> <li>▶ The lower risk profile in the revenue stream will allow greater leverage within the financial structure. The reduced amount of equity needed lowers the cost of capital and makes the project more affordable.</li> <li>▶ No additional subsidy is needed as financing may be raised to pay for design and construction costs. However, as a result, the availability payment will be higher.</li> <li>▶ AP projects enable full consideration of future expansion of the transportation network without consideration of revenue impacts on the developer.</li> </ul>	<ul style="list-style-type: none"> <li>▶ The owner is exposed to traffic risk if toll revenues are the main source of funding for the project. Regardless, in order to secure the most favorable lending terms, the Departments must have the legislative authority to be responsible for the long term payment obligations under one contract.</li> </ul>

Based on our experience in, and knowledge of, the P3 market the following characteristics of this project warrant consideration when determining the optimal concession type.

- **Future expansion of transit services:** Under a toll concession, the proposers will need to consider the impact of any future transit developments—including the Metro line, VRE, and enhancements to BRT (if implemented)—within the corridor on toll revenues. Uncertainty in the timing, type and scope of these improvements may lead to conservative revenue projections and a higher project cost. However, under an AP concession, the developer would not be assuming any demand risk for the corridor and thus any future expansion of transit services, regardless of the timing and mode, will not have a material effect on the risk profile of the project and/or concession agreement.
- **Allocation of O&M responsibilities:** The condition of the managed lanes will have a direct effect on the revenue. As such, if O&M responsibilities are allocated to the concessionaire beyond the MLs, performance specifications for these facilities will become an integral part of the long-term O&M agreement. Additionally, the owner may consider separate, performance driven maintenance payments to the concessionaire for these elements of the Project in order to further benefit from synergies between the design-build and O&M phases of the Project. Under an AP concession, performance and availability based payments for the entire facility, including any transit included in the scope, provides adequate incentive for meeting determined operations and maintenance standards within the corridor.

- **Availability of public funds:** In the event there are limited public monies available to fund the Project, the capital cost of the project could be financed in whole under an availability payment model. However, a lack of upfront, public contributions during or following the construction phase will necessitate higher payments over the life of the concession, and may increase the cost of financing the Project. With regard to a toll concession, an upfront contribution of public funds may be required to make the Project feasible. If a large funding gap is discovered following a more detailed analysis of the Project, this contribution could be significant.
- **Design flexibility:** Under a toll concession, the developer has a greater incentive to increase the revenue generating capacity of the facility. The private sector can bring significant value to the owner by designing the facility to optimize the capital costs against the future revenues for project elements. To fully recognize this value, the procuring authority should allow for a high degree of flexibility related to the configuration of managed lanes and access to and from these lanes (for example). The influence of design on the revenue is not a primary concern for the developer because, again, the demand risk is allocated to the procuring authority—the Departments will determine the configuration of the MLs and connections to and from these lanes based on factors potentially outside of their impact on the revenue. However, some flexibility will allow the proposers to incorporate creative and innovative solutions that can result in significant savings to the public.

*Travel demand models and toll rate studies provide important insight when weighing the goals of a project against the payment mechanism used.* In the I-595 Corridor Improvements Project, the Florida DOT (“FDOT”) conducted a study to compare the effect of the toll rates on the revenue and traffic flow for the managed and general purpose lanes and found that the revenue maximizing toll rate was much greater than the throughput maximizing toll rate. FDOT opted to utilize an availability payment structure after determining that this approach more closely aligned with their *primary goal for the project of maximizing corridor throughput*. Additionally, FDOT’s desire to include the operations and maintenance of the general purpose lanes is better suited to an availability payment contract. Though the findings of this study related to the I-595 corridor were instrumental in helping FDOT achieve its goals for the project, they are not necessarily typical of every corridor. A comparable study would allow the Departments to advance the project procurement by structuring the Project scope and agreement based on similar, valuable information.

Lastly, the Departments may wish to consider a hybrid of payment methods, combining availability payments with revenue risk. We have seen the success of this type of hybrid model for highway projects of similar size and scope to the Project, including our recently completed the A-30 P3 Completion Project in Quebec, Canada. The A-30 project is uses a combination of toll revenue and availability payments, and two other ACS projects, the M7/M8 Portlaoise and the N25 Waterford Bypass, both in Ireland, were delivered with this payment mechanism hybrid model as well. The key advantage is in relieving the potential risks and stresses of using either availability payments or tolling as a singular payment mechanism, allowing for the parties to tune the payment mechanism in order to optimize the risk profile of the Project between the owner and concessionaire and reducing many of the disadvantages identified in the above table (as compared to either mechanism used exclusively). We recommend this hybrid structure in the case that toll revenue is likely to be moderate, but (a) is not adequate enough to reliably fund the full payment stream and (b) the owner does not have enough funds available to pay for the portion of the construction costs that cannot be financed against future toll revenues.

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

A term of 35 to 55 years is a common range for design, build, finance, operate and maintain contract concession term for transportation infrastructure. Typically, the period is longer for a project where the private partner is taking on revenue risk, to mitigate risks including the ramp-up period and market fluctuations over the life of the concession. Another aspect to be considered when determining the concession period is the lifecycle of the project elements, including existing and rehabilitated structures in the corridor in addition to any new construction. The owner will realize the best value from the DBFOM contract if the period is longer than the life-cycle of most of the structural elements of the project. This will encourage innovation by requiring the private partner to plan and perform the design, construction and maintenance activities under an integrated approach that is aimed at whole-life cost optimization and long-term efficiency (e.g. design for maintenance). However, if the period is too long, the owner will likely see diminishing value in the partnership as later cash flows are heavily discounted.

For the ML concept, BRT concept, or a combination of the two, the Departments may wish to consider a concession period of 35 to 40 years under an availability payment structure and 45 to 55 years under a revenue risk concession. However, we anticipate that the parties would mutually evaluate the particular needs for this project and the optimal length of the concession term when more reliable cost and revenue cash flows can be estimated and the amount and terms of any public contribution is defined.

## E. ADDITIONAL CONSIDERATIONS

*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.*

This issue is best evaluated and managed by the public authority. ACS ID is prepared to comply with OTP3 and VDOT's decision related to this topic, and will work with the both to make the project technically and commercially feasible regardless of the high-occupant vehicle threshold.

*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.?*

We note that the amount of ROW required for the project varies substantially based on the various improvement concepts. This could represent a significant risk related to the cost and schedule of the Project (and private sector will be reluctant to accept this risk because we are not in the best position to manage it). Related to this issue, we recommend that (i) the Departments develop a project scope that utilizes existing ROW as efficiently as possible, while still achieving the goal of improving transportation in the corridor for the short and long-term, and (ii) the Departments advance any additional ROW acquisition as soon as possible, concurrent with the procurement process, which will help facilitate earlier completion.

### *Closing*

Thank you for your consideration of our response to your Request for Information. We appreciate the opportunity to share our thoughts and hope that our input will be beneficial to the Departments in advancing the Project. Please contact us if you have any further questions or would like for clarification of any of the points we have raised in this response.