2 TAB 2: PROJECT CHARACTERISTICS

Cintra ("the Proposer") presents this Competing Proposal to obtain a Comprehensive Agreement to use, develop, finance, design, construct, lease, operate and maintain the Dulles Toll Road and Dulles Connector for 50 years, and to collect and retain corresponding toll revenues, according to the terms expressed by the CA in case of award.

2.1 PROJECT DEFINITION

Provide a description of the transportation facility or facilities, including the conceptual design and all proposed interconnections with other transportation facilities. Describe the project in sufficient detail so the type and intent of the project, the location, and the communities that may be affected are clearly identified. Describe the assumptions used in developing the project. The project description should be prepared in a way that fully recognizes any federal and/or Commonwealth requirements to analyze other project alignments and alternatives.

2.1.1 Description of Existing Facility

The Dulles Toll Road runs along the Dulles Corridor through Fairfax and Loudoun counties, located in Northern Virginia. The DTR is an 8-lane, 14-mile, highway extending westerly from just inside the Capital Beltway (I-495), past the Dulles International Airport ("DIA"), terminating at the entrance to the Dulles Greenway. The Dulles Connector is a 4-lane, 2.5-mile (approximately) highway connecting Interstate 66 and the DTR.

In addition to the DTR and Dulles Connector, the Dulles Corridor contains the Dulles International Airport Access Highway ("DIAAH"), a 4-lane highway that runs "inside" the DTR along its median providing Dulles International Airport ("DIA") users access free of congestion. There are no general-access exits from the westbound lanes, and no general-access entrances to the eastbound lanes (with the exception of gated slip ramps to the DTR that buses and emergency vehicles can use).

The DTR is a limited access tollway providing an alternative to Route 7, an at-grade intersections roadway and the main free connection between Washington D.C. and northwest Virginia. The Dulles Connector provides access between the DTR and I-66, the main highway moving motorists eastward/westward to/from Washington D.C.

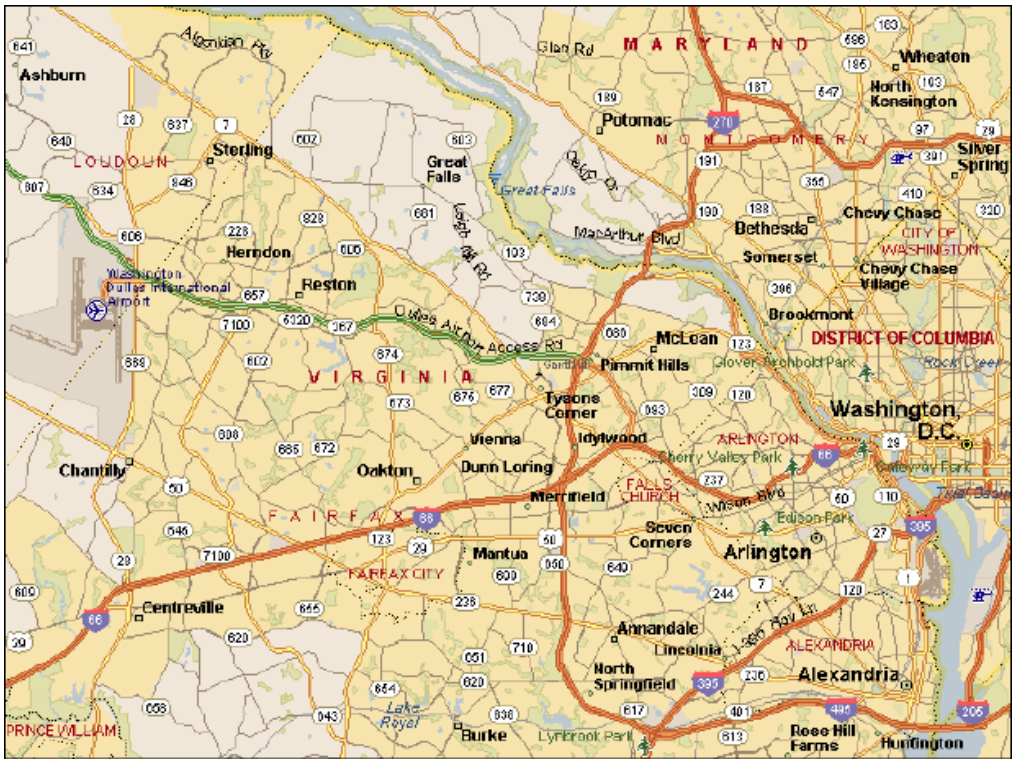

Figure 2.1 - Map of Existing Facility

Since DTR opening in 1984, Northern Virginia has seen very rapid growth, positively reflected in prosperous activity centers, but at the same time, negatively affecting the current transportation system. In a recent study[1] prepared by Wilbur Smith Associates, evidence of major congestion along the DTR, resulting in long delays, especially during peak hours, can be seen. The areas surrounding the DTR experiencing such growth and consequently impacting the efficiency of the tollway include Tysons Corner, the Reston-Herndon area, the DIA, and eastern Loudoun County.

2.1.2 Nature of the Proposal

The Proposer presents this Proposal as a competing proposal to the Dulles Corridor Mobility Initiative ("DCMI") presented as an Unsolicited Proposal by the Dulles Corridor Mobility Consortium ("DCMC"). The Proposer intends, through this Proposal, to provide sustainable evidence of the benefits that VDOT, the Commonwealth of Virginia, and its taxpayers and motorists can draw from a Public/Private Partnership with a Cintra-lead Consortium to operate and maintain the Dulles Toll Road and Dulles Connector for 50 years, and to collect and retain

[1] Dulles Toll Road Rate Adjustment Review, February 8, 2005.

corresponding toll revenues. The Proposal comprises the following list of Key Items:

1. **Construction and rehabilitation of capital improvements along the Corridor** to address the current needs of the DTR and Dulles Connector and its users and, accommodate future growth in the community. The Proposal allows VDOT to choose those improvements among, but not limited to, a list of improvements identified by the Proposer subject only to the revenues generated by the toll collection. Three options are presented: BASE, ENHANCED and PERSONALIZED.

   The above mentioned capital improvements include those identified in the DCMI plus additional ones identified by the Proposer which we think will add significant value to VDOT, the Commonwealth of Virginia, and its taxpayers and motorists.

2. **Modernization of the current toll infrastructure and system of the Dulles Toll Road** to optimize its overall efficiency.
3. **Operation and maintenance of the Corridor** facilities during the duration of the concession term taking advantage of Cintra's proven expertise and state of the art know-how in Operations and Maintenance.
4. The Proposal, as part of the effort to improve the experience along the Corridor, also includes as part of its Program, the **payment of the Virginia's DTR-supported share** of the cost of delivering the Dulles Corridor Metrorail Project ("the Dulles Metrorail") in its entirety – Phases 1 and 2 – thus speeding up the construction of this much needed facility.
5. In addition, Cintra proposes to extinguish the outstanding DTR debt and repay the existing Fairfax County Note.
6. An upfront payment to VDOT if it prefers direct funding to capital improvements directly performed by the Concessionaire.

2.1.2.1 Construction Improvements (Key Item 1)

The Program Approach is directed towards achieving the list of benefits presented above. The goal of Key Item #1 (construction of capital improvements) is to improve the mobility and safety along the Corridor. The Proposer, after having analyzed available information and current needs, envisions three approaches to the construction and rehabilitation of the Corridor depending on the scope of works to be performed: BASE Option, ENHANCED Option or PERSONALIZED Option. The proposed improvements included in the different options have been developed through the combined effort of the Consortium and those already identified in Virginia's 6-year plan and in County planning (like those outlined for Hunter Mill Road below).

A. BASE OPTION:

The BASE Option proposes construction improvements and rehabilitation activities along the Dulles Toll Road. In addition, a major modernization of the existing tolling infrastructure and IT systems, directed to the improvement of the existing partial "free-flow" open road scheme, is proposed.

The BASE Option is to be completed during a proposed 4-year construction schedule and coincides with the Base Program presented by the Dulles Toll Corridor Mobility Consortium in its unsolicited proposal.

Within the framework set by current toll levels and traffic characteristics, the Proposer foresees this approach as feasible.

B. ENHANCED OPTION:

The ENHANCED Option proposes, in comparison to the BASE Option, a more aggressive approach in terms of construction. The activities and improvements included are more complex in nature and require more time and funds for their completion.

The ENHANCED option includes the works of the Enhanced Program presented by the Dulles Toll Corridor Mobility Consortium in its unsolicited proposal plus additional capital improvements identified by the Proposer namely (see exhibits E1, E3-E5, E-9, E-11, E-13, E-15 and E-17).

If construction of the BASE Option and ENHANCED Option were to take place together, the proposed schedule would have a duration of 5 years.

C. PERSONALIZED OPTION:

As part of this Proposal, the Proposer fully understands VDOT's responsibility towards the community. The Proposer is also aware of the conditions governing a CA and the weight each party involved has. In response, the Proposer, as part of this PERSONALIZED Option, gives the VDOT the option to choose among the different improvements analyzed as part of the BASE and ENHANCED options, for development under a CA. Should there be remaining available funds after VDOT selection of Capital Improvements, the surplus of money will be paid to VDOT as an up-front payment or any other way agreed between the parties in the CA.

The ability of the project to generate enough revenues to fund any or some of the Works included in the above mentioned options depends on the final toll rate schedule adopted in the CA.

The present Proposal assumes the current existing toll rate schedule. According to the current traffic and revenue forecasts only the BASE Option will be

financially feasible if all the other listed key items of the proposal are to be met at the same time. Please refer to TAB 3: Project Financing for more information about the toll rate assumptions made by the Consortium

Nevertheless, there are a number of possible improvements to the financials of the project that could render the ENHANCED Option feasible. Among them are (i) a change in toll rate escalation mechanism and/or (ii) a betterment of financial terms once a full traffic and legal due diligence have been accomplished. The Consortium will analyze them in depth during the next phase of the procurement process and is confident in the tremendous upside the project has to generate funds apart from those currently considered.

The tables below list and summarize the construction improvements recommended by the Proposer.

Exhibit Name	Construction Improvement	Description
BASE OPTION		
B-1	I-495 Interchange	▪ Construction of Ramp A to connect the outer loop of I-495 and the DIAAH. ▪ Construction of Ramp C to connect eastbound (EB) DTR with southbound (SB) I-495.
B-2	Mainlane Toll Plaza	▪ Widening westbound (WB) DTR to add an ETC-only lane. ▪ Convert, in each direction of the DTR, a manual lane to ETC-only lane.
B-3	Hunter Mill Road Interchange	▪ Widening of EB entrance ramp to accommodate new ETC-only lane.
B-4	Wiehle Avenue Interchange	▪ Widening of EB entrance ramp to accommodate new ETC-only lane. ▪ Widening of WB exit ramp to accommodate new ETC-only lane.
B-5	Reston Parkway Interchange	▪ Widening of EB entrance ramp to accommodate new ETC-only lane. ▪ Widening of WB exit ramp to accommodate new ETC-only lane.
B-6	Fairfax County Parkway Interchange	▪ Widening of EB entrance ramp to accommodate new ETC-only lane.
B-7	Centreville Road Interchange	▪ Widening of EB entrance ramp to accommodate new ETC-only lane. ▪ Widening of WB exit ramp to accommodate new ETC-only lane. ▪ Construction of loop at SW of interchange to connect SB Centreville Road and EB DTR.
B-8	Route 28 Interchange	▪ Widening of ramps leading to NB Route 28 to accommodate a new ETC-only lane. ▪ Widening of ramps leading to SB Route 28 to accommodate a new ETC-only lane.

	Dulles Toll Road Rehabilitation	▪ Dulles Toll Road Resurfacing. ▪ Structure and noise barrier inspection and rehabilitation.
ENHANCED OPTION		
E-1	Dulles Toll Road Widening	▪ Widening of DTR to provide a 10-lane section (5 lanes in each direction. (See typical section)
	Dulles Connector Widening	
E-2	- Alternative A	▪ Widening along Dulles Connector to 6-lane section.
E-3-5	- Alternative B	▪ Widening along Dulles Connector to 8-lane section containing a 2+2 Managed Lanes section. (See typical section)
E-6	I-495 Interchange	▪ Construction of Ramp C to connect the Managed lanes of DTR with NB I-495.
E-7	Route 7 Interchange	▪ Widening of EB exist ramp to accommodate a new ETC-only lane. ▪ Widening along EB Route 7 from DTR WB exit to Lewinsville Road.
	Hunter Mill Interchange	
E-8	- Alternative A	▪ Widening of WB exit ramp to accommodate a new ETC-only lane. ▪ Widening of Hunter Mill Road from Sunset Hills Road to Sunrise Valley Drive. ▪ Construction of ultimate interchange as per VDOT's plans.
E-9	- Alternative B	▪ Shift of WB exit ramp to the north. ▪ Shift EB ramps to the south.
	Reston Parkway Interchange	
E-10	- Alternative A	▪ Construction of 6-lane ultimate Reston Pkwy configuration.
E-11	- Alternative B	▪ Construction of three fly-over ramps to provide access to the DTR Managed lanes.
	Fairfax County Parkway Interchange	
E-12	- Alternative A	▪ Widening of WB exit ramp to add a new ETC-only lane. ▪ Widening of Fairfax Co. Pkwy south of the DTR from Sunrise Valley Dr to West Ox Rd.
E-13	- Alternative B	▪ Construction of two fly-over ramps to provide access to the DTR Managed lanes.
	Centreville Road Interchange	
E-14	- Alternative A	▪ Construction of 6-lane ultimate Centreville Rd configuration.
E-15	- Alternative B	▪ Construction of two-flyover ramps to provide access to the DTR Managed lanes
E-16	Route 28 Interchange	▪ Widening of EB DTR to improve transition from Dulles Greenway.
E-17	Park and Ride Managed Lane Direct Access	▪ Construction of a fly-over ramp to provide access to the DTR Managed lanes.

Table 2.1 – Proposed Construction Improvements

Engineering design corresponding to the construction improvements recommended in the Program and the construction methods required for their completion shall be in accordance with current VDOT and AASHTO standards.

BASE OPTION

This section outlines the construction improvements to be designed and constructed as part of the BASE Option of the Program. Please refer to corresponding exhibits, found in Appendix C, for further detail.

I-495 Interchange (Exhibit B-1)

The existing I-495 – DTR interchange is a complicated web of ramps connecting the DTR to the Inner and Outer loops of the I-495 (Capital Beltway) and to the Dulles Connector. The BASE Option calls for the construction of two new ramps. Ramp A, an elevated ramp, will connect the Outer Loop of the Capital Beltway and the DIAAH. Ramp C will connect eastbound DTR traffic with southbound I-495.

Ramp A will alleviate the congested weave that must be negotiated by motorists attempting to travel from southbound I-495 to the DIAAH. This movement will eliminate delays especially during the afternoon rush hour. Ramp C will facilitate traffic heading from the DTR to southbound I-495. Ramp C will enter I-495 in the left lanes thus avoiding a weave through the I-495 traffic heading to Routes 123 and 7.

Mainline Toll Plaza (Exhibit B-2)

The Base Option provides for improvements to the mainline toll plaza located just to the west of Spring Hill Road. The existing toll facility consists of seven lanes in each direction with only two being used for high speed Smart Tag/EZ-Pass. The improved facility will include additional high-speed Smart Tag/EZ-Pass lanes which will greatly improve traffic flow through the toll plaza.

The westbound DTR is to be widened as part of the toll plaza improvements. Included in the westbound widening is the westbound bridge over Spring Hill Road. This widening will entail extending the bridge superstructure and substructure. The existing structural system permits an economic bridge widening. The new superstructure members can be supported by a widened substructure, which can be accomplished by casting an extension to the existing one. The superstructure can be widened by adding new girders and then casting a new deck slab. The widened portion will be virtually identical to the existing bridge.

Hunter Mill Road Interchange (Exhibit B-3)

The existing interchange is a tight diamond that experiences heavy traffic congestion. There is also a proposed future development along Hunter Mill Road that would exacerbate the traffic congestion. The BASE Option provides for

widening of the eastbound toll plaza at the entrance ramp from Hunter Mill Road to accommodate an additional Smart Tag/E-ZPass only lane. This widening will entail the reconstruction of the existing sound barrier that runs the full length of the entrance ramp.

Wiehle Avenue Interchange (Exhibit B-4)

The existing interchange is a diamond configuration. The surrounding area is commercial and congested with very little room for ramp improvements without substantial right-of-way impacts. The BASE Option provides for widened toll plazas for the eastbound entrance and westbound exit ramps for Wiehle Avenue to accommodate ETC-only lanes. The widening for the westbound exit extends onto the mainline for about 0.4 mile and will include a 15-20 foot high retaining wall. A high retaining wall will also be required along the eastbound entrance ramp that will also require right-of-way acquisitions from the parking lot below.

Reston Parkway Interchange (Exhibit B-5)

The existing interchange is a diamond interchange with one loop ramp in the southwest corner providing free flow access for southbound Reston Parkway traffic traveling to the eastbound DTR. Similar to the Wiehle Avenue interchange area, there is very little room for ramp improvements without substantial right-of-way impacts. The BASE Option again calls for the widening of the entrance and exit toll plazas to accommodate Smart Tag/E-ZPass lanes. This additional toll infrastructure is to alleviate the toll queue from backing-up onto the mainline of the DTR. The widening along the entrance ramp will have right-of-way impacts.

Fairfax County Parkway Interchange (Exhibit B-6)

The existing interchange is a full diamond configuration with traffic signals. Fairfax County Parkway is a wide structure over the DTR. The BASE Option calls for the addition of a Smart Tag/E-ZPass lane for the entrance toll plaza to the eastbound DTR. Depending upon the right-of-way, a retaining wall may be required along this widening.

Centreville Road Interchange (Exhibit B-7)

The existing Centreville Road interchange is a tight diamond located just to the east of the DIA. The BASE Option provides for additional Smart Tag/E-ZPass only lanes for both the eastbound entrance and westbound exit ramps of the DTR. The southwest quadrant of the interchange is to be reconstructed to include a loop and slip ramp configuration. The loop ramp is proposed to have a toll barrier at its midpoint. Approximately 3.7 acres of right-of-way acquisition will be necessary for these ramps.

Route 28 Interchange (Exhibit B-8)

The Route 28 Interchange is a large skewed interchange that also includes the DTR/Dulles Greenway Interchange and provides the connection for DIAAH traffic

exiting the airport to enter the DTR. The BASE Option will add Smart Tag/E-ZPass only lanes to the ramps leading to northbound and southbound Route 28. The addition of Smart Tag/E-ZPass lanes will smooth traffic flow and alleviate congestion.

Rehabilitation of existing structures

The DTR currently encompasses 39 structures maintained as bridges and over 40,000 linear feet of noise walls that will require inspection, maintenance and in some cases rehabilitation. The BASE Option will provide for the inspection, maintenance and upkeep of these vital roadway assets. In particular, there are significant sections of existing noise walls that require immediate attention to repair the areas of de-lamination that are not only unsightly but also acoustically inadequate. Some of the bridges have sections requiring routine maintenance like concrete spalling and expansion joint repair.

Resurfacing of the Dulles Toll Road

A significant item of routine roadway maintenance is the riding surface. The DTR experiences significant traffic volume that takes its toll on the pavement. The BASE Option will provide for the milling and resurfacing of the DTR to ensure a high quality and safe riding surface.

ENHANCED OPTION

This section outlines the construction improvements to be designed and constructed as part of the ENHANCED Option of the Program. Please refer to corresponding exhibits for further detail.

Dulles Toll Road Widening (Exhibit E-1)

The Proposer understands the on-going future consideration to add one lane in each direction along the DIAAH. As an alternative to this proposal, our enhanced program proposes to add one additional managed lane in each direction along the Dulles Toll Road. There is ample room to accommodate the additional lanes along the DIAAH and still have enough space to accommodate the rail extension to the airport. Two options are available, pending further discussions with VDOT. One option may involve substantial reconstruction of the bridges over the DTR (Reston Parkway, Wiehle Avenue, Fairfax County Parkway, etc). These bridge reconstructions would eventually be required to accommodate the future rail extension that would impact the center piers. The other option, if possible, would entail splitting the additional lane from the DTR to traverse around the piers of the overpass structures and thus avoid the construction and traffic impacts implicit in the reconstruction option (see DTR typical cross section).

Dulles Connector Widening

- **Alternative A (Exhibit E-2) :**

The Dulles Connector is a four-lane facility connecting Interstate 66 and the DTR and the DIAAH. The existing facility is two travel lanes and shoulders in each direction, all bituminous concrete pavement with a wide grass median. Our proposal involves the addition of one travel lane in each direction along the median of the Dulles Connector and including the widening of one bridge over a small stream just to the west of Idlywood Road.

The roadway widening is fairly straightforward as there is ample width available along the median to include the additional lanes and the proposed rail extension. The bridge widening will involve the construction of a new precast concrete section to be doweled into the existing bridge superstructure and the widening/lengthening of the existing substructure.

The additional lanes will help alleviate the congested traffic conditions encountered along the Dulles Connector, especially during rush hours.

- **Alternative B (Exhibit E-3-5):**

This alternative proposes a two-lane, in each direction, expansion to the existing configuration (2+2). This expansion will further improve the flow of traffic along the Connector and onto the DTR.

Alternative B will expand on the scope of the work for the Dulles Connector by providing for two managed lanes to be added in each direction along the Dulles Connector. We propose widening to both the medium side and the outside in order to accommodate the Dulles Metrorail Project (see Dulles Connector typical cross section). Bridge widening would be required for the structure over Magarity Road and over the stream to the west of Idylwood Road. The Idylwood Road bridge over the Dulles Connector would require more extensive reconstruction to accommodate the proposed cross section within the bridge's piers and abutments. Our proposal also includes additional structures to facilitate traffic flow to and from I-66.

I-495 Interchange Enhanced (Exhibit E-6)

This option provides for a future ramp, Ramp B, providing access from future DTR managed lanes directly to northbound I-495.

Route 7 (Leesburg Pike) Interchange (Exhibit E-7)

The existing interchange is three-quarters of a full cloverleaf. The interchange is missing ramps in the northwest quadrant. The missing movements are accounted for through signalized ramp intersections with Route 7. Should traffic demand warrant, the missing movements could be built but would entail significant right-of-way acquisitions in the Jarrett Valley Drive neighborhood.

The improvements include the widening of the eastbound exit ramp and toll plaza. The toll plaza improvements are to include widening to accommodate a Smart Tag/E-ZPass use only lane. A retaining wall will be needed for the entire length of the ramp/toll plaza widening. There are potential right-of-way impacts to the Sheraton and other commercial properties and there is a high pressure gas utility along Route 7 at the end of the ramp that will be impacted by any widening. We also propose widening along eastbound Route 7 from the westbound exit ramp to Lewinsville Road. Retaining walls will also be necessary along this stretch.

Hunter Mill Road Interchange Enhanced

- **Alternative A (Exhibit E-8):**

Enhancements include widening the westbound exit ramp toll plaza, similar to the eastbound entrance ramp widening recommended in the BASE Option, widening of Hunter Mill Road from Sunset Hills Road to Sunrise Valley Drive, and the construction of the ultimate interchange that was studied by VDOT but abandoned due to funding issues. A retaining wall approximately 8-10 feet high will be required along most of the westbound exit ramp widening.

- **Alternative B (Exhibit E-9):**

If the full interchange option discussed under Alternative A is precluded, we propose revising the existing tight diamond interchange to provide for better sight distance and improved traffic flow. We propose shifting the westbound exit ramp to the north to form a four-way signalized intersection with Hunter Mill Road and Sunset Hills Road. The slip ramp onto the westbound DTR will diverge from Sunset Hills Road. This is essentially Concept 8 from the VDOT Concept Development Phase. The eastbound ramps could also be shifted slightly to the south to improve sight distance for the traffic signal for traffic coming form the north along Hunter Mill Road. Right-of-way acquisitions will be necessary.

Reston Parkway Interchange Enhanced

- **Alternative A (Exhibit E-10):**

This improvement entails the construction of the 6-lane ultimate configuration of Reston Parkway from Sunset Hills Road to Sunrise Valley Drive. This widening will necessitate the reconfiguring of the intersections and traffic signal systems at the ramp intersections with Reston Parkway. The southbound widening along Reston Parkway and the northbound widening in the vicinity of existing buildings and parking lots will require retaining walls. Possible underpinning of existing foundations along portions of the northbound widening of Reston Parkway may also be required. The Reston Parkway bridge widening over the DTR will require additional stringers and deck and the extension of the existing substructure.

- **Alternative B (Exhibit E-11):**

This alternative for the Reston Parkway Interchange proposes to provide for direct access fly-over ramps to the DTR managed lanes. Two ramps are included for the eastbound direction and one for westbound. In the eastbound direction, one fly-over would take-off from a widened toll plaza along the slip ramp from northbound Reston Parkway and meet the managed lanes east of the Reston Parkway structure over the DTR. The other eastbound fly-over would originate from an extension of the existing loop ramp and tie-into the managed lanes just west of the overpass. The westbound structure would provide direct access to the exit toll plaza Smart Tag/E-ZPass lanes without having to weave across the DTR westbound lanes.

Fairfax County Parkway Interchange Enhanced

- **Alternative A (Exhibit E-12):**

Proposes to widen the westbound exit toll plaza and to lengthen the exit lane along the DTR. The exit toll plaza has three lanes at this location. The addition of the forth lane for Smart Tag/E-ZPass use only will provide for enhanced traffic flow through the plaza. This widening will require a retaining wall 15-20 feet in height.

In addition, the plan is to widen the Fairfax County Parkway south of the DTR from Sunrise Valley Drive to West Ox Road.

- **Alternative B (Exhibit E-13):**

Two fly-over ramps to facilitate direct access to and from the DTR managed lanes are proposed. The entrance ramp will originate from the widened toll plaza and meet the managed lanes for the eastbound DTR approximately 2200 feet east of the Fairfax County Parkway Bridge. The westbound exit fly-over structure will provide for direct access to the exit toll plaza Smart Tag/E-ZPass lanes without having to weave across the DTR westbound lanes.

Centreville Road Interchange Enhanced

- **Alternative A (Exhibit E-14):**

The enhanced approach is to widen existing Centreville Road to the ultimate 6-lane cross section between Sunrise Valley Drive and either Parcher Avenue or Herndon Parkway, at VDOT's discretion. The DTR structures over Centreville Road will thus require lengthening of approximately 12 feet.

- **Alternative B (Exhibit E-15):**

Two fly-over ramps to facilitate direct access to and from the DTR managed lanes are proposed. The flyover leading to the eastbound DTR would essentially be the start of the additional lanes and would occur just to the east of the slip ramp leading from the DIAAH to the DTR. The westbound ramp would be the termination point of the additional lane.

Route 28 Interchange Enhanced (Exhibit E-16)

Calls for widening the DTR eastbound from where the Dulles Greenway meets the DTR to Centreville Road to improve the merge condition. Providing a longer merger in this location will facilitate a smoother transition for traffic coming from the Dulles Greenway.

Park and Ride Managed Lane Direct Access (Exhibit E-17)

Just to the west of the Fairfax County Parkway overpass, is a Park & Ride facility. Option B will provide for direct access to the eastbound DTR managed lanes from the facility. For westbound access, motorists can use the managed lane exit described for Fairfax County Parkway described above and reach the park & ride facility via Sunrise Valley Drive.

PERSONALIZED OPTION

As part of the PERSONALIZED Option, VDOT can select among the construction improvements recommended above.

2.1.2.2 Modernization of Tolling System (Key Item 2)

Since its foundation, Cintra has been a front-runner in the application of cutting-edge technologies. A prime example is the 407 ETR in Toronto, which was the first all-electronic free-flow toll road in the world. Cintra extended over 40 miles and implemented a new back office system to manage more cost-effectively this innovative free-flow toll road. Cintra is also actively involved in the main international technological initiatives, such as PISTA (Pilot on Interoperable Systems for Tolling Applications) and RCI (Road Charging Interoperability), funded by the European Commission.

A modernization of the current tolling infrastructure and system to improve the functionality of the current partial “free-flow” open road scheme is recommended by the Proposer as part of the construction improvements. This implies that all toll plazas and ramps will have Open Road Tolling zones without barriers. This will speed up the toll collection operation, improving the throughput and collection efficiency through significant use of Electronic Toll Collection (ETC). Although it is proposed to keep barriers at toll locations where collection takes place manually or through the use of Automatic Coin Machines (“ACM”), Cintra proposes to maximize the usage of Smart Tag and E-ZPass ETC systems. Non ETC users (motorists without ETC transponders) that go through Open Road Tolling zones will be considered violators and processed accordingly.

In order to increase the performance of the Mainlane Toll Plazas, Cintra will install Variable Message Signs (VMS) close to these plazas. The functionality of these VMS will be to show the ETC users the path they must follow and also to

indicate the rest of the users the amount of money they must have available in order to reduce the transaction time.

After an initial modernization of the current toll collection system, the system will be updated following Cintra´s policy of capital improvements of the toll system every 10 years.

In addition to the collection system, the Customer Service and Back Office System (BOS) will be fully integrated. Furthermore, they will also be coordinated with other departments involved in the revenue control, such as the Financial Department.

The BOS will be designed to handle the information made available by the ETC system and transform it into transactions and revenue information. The elaborated data will be used to charge the ETC motorists accounts, and afterwards passed on to the financial department. It will also be used to enforce the violators and to keep user information updated.

The Proposer considers that interoperability with the present and future toll agencies in Virginia, and surrounding areas, will be a key factor for the success of the Project. The Proposer addresses the interoperability issues with a double perspective:

- Technical interoperability: the Concessionaire will install gantry and roadside equipment able to read tags currently in operation along the DTR (Smart Tag and E-ZPass). In the case of a new ETC pass entering the system, the Concessionaire will adhere to the electronic tolling standards of the VDOT.
- Business interoperability: the Concessionaire will honor current agreements with tag issuers and seek to sign new ones in order to accept ETC transactions related to these tag issuers. This will involve the sharing of ETC transactions' data, the reconciliation of funds with a certain periodicity, as well as the exchange of rejection lists regarding violators.

→ Free Flow Open Road Tolling

To maximize the efficiency of the facility, a total "free-flow" open road toll scheme would be critical. The Proposer, as shown above, has experience with the implementation of this concept and would carry a detailed analysis of possible "free-flow" development along the DTR if considered appropriate by VDOT.

In order to successfully promote and develop a "free-flow" toll system, the Proposer would have to clarify with the Grantor the legal guarantees with respect to the enforcement of violators since its cost can be significant.

2.1.2.3 **Operation and Maintenance (Key Item 3)**

The Proposer will, as part of the CA, if awarded, gain full responsibility for the Operation and Maintenance (O&M) of both the DTR and the Dulles Connector for the Concession term.

Cintra's approach to: Highway operation

The Concessionaire will retain responsibility for all Operation and Maintenance ("O&M") activities, as set forth in the CA, in case of award, in accordance with applicable standards. The Concessionaire must also ensure the return (transfer) of the facility to its Grantor, after the concession term, in serviceable condition.

This is a proven approach adopted by the seventeen toll road concession companies in which Cintra participates around the world. The Consortium has developed short and long term O&M strategies in accordance with applicable standards.

In Cintra's experience, this structure offers maximum value for money, as the PPP Company is able to estimate and manage its own risk directly without the undue burden of negotiating an often-inflexible standalone O&M Contract with a separate entity. Integration of the O&M ensures that the PPP Company does not pay a risk margin unnecessarily and ensures rapid decision making unobstructed by contractual constraints.

Moreover, the highway operation and maintenance will be a core activity since the marketing of the service is based on a high standard and good quality roadway, and a comfortable and safe travel. In addition to this, an appropriate maintenance strategy will guarantee a lower asset lifecycle cost.

→ Highway Operation and Maintenance

The excellent combination of preventive maintenance, routine maintenance and capital maintenance will be designed in order to incur the lowest project costs, and thus get the greatest value for money. The O&M team will also contribute to safe driving through a well-organized traffic operations team. This team will be ready 24/7 to respond to any emergency, including dealing with unusual traffic volumes during major area events or inclement weather, responding to major infrastructure damage from severe weather events, cleaning up after major hazardous material spills or responding to traffic accidents or vehicle breakdowns.

Most of the preventive and routine maintenance will be performed in-house by multiskilled and motivated personnel. However, whenever the local market offers competitive and well-qualified options for any maintenance activity, the O&M Chief will reconsider the personnel organization, and the subcontracting strategy.

Most capital maintenance and renewal activities (i.e. cyclical maintenance, major pavement maintenance, road asset renewal, etc.) will be wholly or partially

subcontracted to third parties. Nevertheless, the Concessionaire will be ultimately responsible for the subcontracted activities.

The Management Structure will comprise of a Technical Manager, Network Engineer, Operations Manager and Financial Controller all reporting to the General Manager. Adequate staffing will be employed to operate and manage the project road, minimize lane closures and provide a service to meet customer needs. The Concessionaire will implement the O&M strategy through a dedicated on-site O&M team allowing the Concessionaire to separate maintenance works from the day to day operation of the project road. The size of the workforce has been set to take into account the following conceptual maintenance plan and preliminary schedule:

- **Preventive Maintenance**: activities to prolong the life and slow deterioration of the facility (crack sealing, under drain inspection and cleaning, inspection and maintenance of noise barriers and retaining walls, inspection and maintenance of safety devices…)
- **Routine Roadway Maintenance**
  - Asset Preservation: activities directed to preserve the facility (potholes patching, repair of shoulder drop-offs, minor deck patching…)
  - Conservation of Safety/Functionality/Aesthetic: activities covering daily maintenance (mowing, litter pickup, tree trimming, storm drain cleaning...)
  - Weather Response (prevent snow accumulation, plowing…)
- **Facilities Maintenance**: activities to preserve the administration building, maintenance yard, toll plazas, toll booths, IT systems…)
- **Traffic Operations**: activities of emergency to preserve the safety and mobility of motorists.
- **Capital Maintenance**: activities directed to improve the service of the facility projected to the long term.

These activities, except Capital Maintenance, are assumed to take place often, therefore, the Proposer assumes a constant presence of O&M crews servicing the facility.

As part of the Capital Maintenance program, the Proposer proposes an initial rehabilitation of the DTR to take place at the start of the 50-years concession term, if a CA is awarded. Resurfacing of the DTR and rehabilitation of its structures would take place on year 1 of the concession. The Proposer assumes capital improvements of the toll system every 10 years. In addition, the Proposer assumes further rehabilitation services to be needed along the Corridor, but a more detailed analysis must be undertaken to define a schedule for these services.

2.2 WORK TO BE PERFORMED BY VDOT

Identify and fully describe any work to be performed by VDOT.

- VDOT will provide assistance in coordination with federal, state, and local governments and other interested agencies when necessary.
- VDOT will conduct coordination with the MWAA and obtain consent, and/or necessary permits, to proceed with the construction of the recommended improvements.
- VDOT will complete required environmental documents and submit them to corresponding public entities.
- VDOT will authorize the start of the permit procurement and assist in that effort.
- VDOT will support the ROW acquisition process to be undertaken by the Concessionaire.
- VDOT will be the owner and assume full responsibility of the facility after the concession term terminates.

2.3 PERMIT PROCUREMENT

Include a list of all federal, state and local permits and approvals required for the project and a schedule for obtaining such permits and approvals. Identify which, if any, permits or approvals are to be obtained by VDOT.

To avoid constraints against the construction schedule, permit requirements will be identified during the design phase and closely monitored and coordinated for procurement prior to entering identified work areas. At the present time, the Proposer has not identified negative impacts arising from problems encountered during the permit procurement process. The following table lists permits potentially required to pursue the Program:

Permit Name
Federal
Section 404 Permit (US Army Corps of Engineers)
Section 106 National Historic Preservation Act
Section 107 Endangered Species Act
Section 4(f) U.S. Department of Transportation
Metropolitan Washington Airports Authority

State
Water Protection (Department of Environmental Quality)
Subaqueous Bottoms Permit (Virginia Marine Resources Commission)
Local
Temporary Construction
Construction
Utility Relocations

Table 2.2 – Potential Permits needed

The Proposer considers the permit procurement and approval process a critical factor for the success of the Project. The Concessionaire, in case of CA award, will make the necessary efforts to conduct a successful permit approval process and minimize potential impacts on projected schedule. The Project Schedule presented in Section 2.6 implicitly allocates time for this process.

2.4 ANTICIPATED PROJECT IMPACTS

Without completing an Environmental Impact Statement, identify any anticipated adverse social, economic and environmental impacts of the project. Specify the strategies or actions to mitigate known impacts. Identify the projected positive social, economic and environmental impacts of the project.

2.4.1 Social Impacts

The Proposer currently identifies a potential social opposition to a public-private partnership between the VDOT and the Proposer due to the long term state ownership of the existing facility. The Proposer foresees mitigation of this potential public concern through public awareness programs to inform the public of the benefits of such a relationship:

- Prompt improvement of facility concentrated on safety and mobility/functionality.
- Expert maintenance of the facility.

2.4.2 Economic

The Proposer foresees negative economic impacts inherent to any construction process. In order to mitigate, as much as possible, these impacts, Proposer proposes, through the General Contractor, Ferrovial, an aggressive construction approach and schedule aimed to:

- Minimize traffic disruption during construction.
- Open the new improvements to traffic as quickly as possible.

Ultimately, this Proposal, by nature, offers possibilities for local and regional economic growth due to enhance safety and mobility along the Corridor. In addition, construction inherently creates employment opportunities generating new income benefiting the economic growth of the community.

2.4.3 Environmental

Due to the nature of the Project, an existing facility, the Proposer does not anticipate significant environmental impacts. Nevertheless, the Concessionaire, in case of award, will perform an extensive environmental review as an integral part of the project development process and develop a mitigation plan, when needed, coordinated with appropriate agencies. A key issue is that the VDOT continues its policy of active participation to cater for environmental issues both during the design and construction and during the operation stages of the project in order to speed up decision making processes, project delivery and dispute resolutions.

2.5 CRITICAL SUCCESS FACTORS

List the critical factors for the project's success.

The critical factors for the success of the Project are outlined below. These factors are to be considered and thoroughly analyzed by the Proposer during the Detailed Proposal Phase, in order to achieve the necessary level of comfort.

- Project support from affected agencies: VDOT, MWAA, Commonwealth Transportation Board.
- Project support from affected jurisdictions: Fairfax County, Loudoun County, the Commonwealth of Virginia.
- Project support from the public.
- VDOT support during the ROW acquisition process.
- Timely completion of ROW acquisition process
- Moreover, there are some other outstanding issues regarding Design and Construction that have also been identified:
  - collaboration between the Owner's representatives and the DBJV in order to guarantee the success of the project,
  - integration of designers and constructors,
  - minimization/mitigation of environmental impacts,

- timely completion of permit procurement and approval process,
- timely completion of utility relocations and adjustments,
- conflict resolution procedures among the different stakeholders (including the Owner),
- and extensive environmental review.

2.6 PROPOSED PROJECT SCHEDULE

Identify the proposed schedule for operator's work on the project, including the estimated time for completion.

The preliminary schedule corresponding to the BASE Option construction improvements is as follows:

Construction Activities/Improvements	1st Year		2nd Year		3rd Year		4th Year	
I-495 Interchange								
Mainlane Toll Plaza								
Hunter Mill Road Interchange								
Wiehle Interchange								
Reston Parkway Interchange								
Fairfax County Parkway Interchange								
Centreville Road Interchange								
Route 28 Interchange								
Dulles Toll Road Rehabilitation								

Table 2.3 – Proposed BASE Option Project Schedule

The preliminary schedule corresponding to the ENHANCED Option construction improvements is as follows:

Construction Activities/Improvements	1st Year	2nd Year	3rd Year	4th Year	5th Year
Dulles Toll Road Widening					
Dulles Connector					
I-495 Interchange					
Mainlane Toll Plaza					
Route 7					
Hunter Mill Road Interchange					
Wiehle Interchange					
Reston Parkway Interchange					
Fairfax County Parkway Interchange					
Centreville Road Interchange					
Route 28 Interchange					
Park and Ride Direct Access					
Dulles Toll Road Rehabilitation					

Table 2.4 – Proposed ENHANCED Option Project Schedule

2.7 RISK ALLOCATION

Propose allocation of risk and liability for past agreement work, and assurances for timely completion of the project.

The following table contains our suggested and assumed allocation of risks between the Grantor (VDOT) and the Concessionaire for the Project.

RISK ALLOCATION	GRANTOR	CONCESSIONAIRE
Project requirements/Preliminary design	■	
Right of way – Access to the Land	■	■
Environmental permits	■	
Setting the toll rates (initial/yearly update)	■	■
Changes in Law	■	
Force Majeure	■	■
Design		■
Geotechnical		■
Utilities		■
Archaeological	■	
Construction		■
Operation and Maintenance		■
Traffic		■
Financing Conditions (market)		■
Interest rates from tender to contract award	■	■
Financing structure		■
Termination for convenience	■	
Alternative competing routes	■	
Tolling Violators	■	■
Pre-existing Hazardous Materials	■	

Table 2.5 – Risk allocation between Grantor and Concessionaire

The Concessionaire will be responsible of the construction implementation in front of VDOT. In addition, as stated in Section 1.1.4, the Concessionaire will enter into a lump sum, fixed delay design & build agreement with the DBJV in which Ferrovial Agroman will be involved. Thus, under this standard business model all contractual responsibilities related to design and construction will be directly passed from the Concessionaire to Ferrovial, or the DBJV (if applicable), under a lump sum, back-to-back or mirror contract. The Concessionaire will add

appropriate clauses to the Tender Agreement with the DBJV to ensure timely completion of the construction activities.

2.8 LIST OF ASSUMPTIONS

Clearly state the assumptions related to ownership, legal liability, law enforcement and operation of the facility.

The following assumptions are made and relevant in case of the Proposer being awarded a Comprehensive Agreement for the operation and maintenance of the Dulles Toll Road and Dulles Connector during a 50-year concession term.

Project Ownership

- The Concessionaire will recognize the VDOT as the Grantor of the project.
- The Concessionaire will use, develop, finance, design, construct, lease and operate the Dulles Toll Road and Dulles Connector.
- The Concessionaire will use the existing ROW and ROW acquired associated to new construction improvements.
- At the end of the concession term, the Concessionaire will return (transfer) the facility to the Grantor.

Legal Liability

- The Concessionaire will be solely and entirely liable, before VDOT, for its obligations as expressed in the Comprehensive Agreement.
- The Concessionaire will be sole responsible, before VDOT, for the operation and maintenance services and the activities necessary to support them.

Law enforcement

- The Concessionaire will rely on the Virginia State Police to ensure law enforcement along the DTR during the concession term as per the Comprehensive Agreement.

Operation

- The Concessionaire will become entirely responsible, before VDOT, of all operation and maintenance services corresponding to the Dulles Toll Road and the Dulles Connector.
- The Concessionaire will be able to use the administration building and maintenance yard of the Dulles Toll Road, currently operated by VDOT, for operation purposes.

- The Operator will have the right to collect tolls corresponding to the Dulles Toll Road.
- The Concessionaire will return (transfer) the facility in a serviceable condition at the end of the concession term.

2.9 OTHER KEY CONSIDERATIONS

2.9.1 Right of Way

Due to the nature of the Proposal, the concession of an existing facility, the Proposer expects the recommended construction improvements to generally stay within the existing ROW. As a preliminary review, the Proposer has developed approximate necessary ROW acquisitions through field reconnaissance and aerial photography, i.e. locations of fence lines etc. Initially, the Prosper has identified 32 acres of ROW along the Corridor required to achieve the proposed construction approaches (roadway widening, retaining walls…). The table below summarizes the approximate area needed.

Location	Base (acres)	Enhanced (acres)	Total (acres)
I-495 Interchange	0	0	0
Route 7	N/A	1.35	1.35
Mainline Toll Plaza	0	N/A	0
Hunter Mill Road	0.275	4.38	4.66
Wiehle Avenue	0.275	N/A	0.28
Reston Parkway	0.61	1.96	2.57
Farifax Cty Parkway	0.275	2.05	2.33
Centreville Parkway	3.75	0.77	4.52
Route 28	0	0.41	0.41
Park & Ride Facility	N/A	12.4	12.4
Dulles Connector	N/A	3.6	3.6
DTR 5+5	N/A	N/A	0
TOTAL	**5.2**	**26.9**	**32.1**

Table 2.6 – Preliminary ROW needed

The Concessionaire, in case of award, will closely analyze and study the design and construction options to reduce the ROW impact as much as possible. In those cases where it is not achievable, the Concessionaire is responsible to obtain Regulatory Approvals to acquire ROW for the VDOT, and to provide relocation assistance when needed.

The Proposer assumes the VDOT will provide support during the ROW acquisition process to obtain those properties where eminent domain is necessary.

2.9.2 Proposed Phase Openings

Provide information on any phased (partial) openings proposed prior to final completion of the work.

The construction improvements recommended by the Proposer are independent in nature. Cintra foresees the possibility of two or more construction activities, at different locations along the Corridor, taking place concurrently. Whichever the case, new construction will be opened to traffic as soon as it is completed while never fully interrupting service in the road. At the present time, phased openings during construction have not been analyzed.

Ultimately, it is imperative to the Proposer, during construction, to minimize disruption to the motorists and adjacent areas.