

# **APPENDIX H**

## **VDOT Design-Build Preliminary Engineering Guide**

## PURPOSE

The purpose of this appendix is to provide preliminary engineering guidance to project managers, designers, and L&D technical leads assigned to projects being designed and constructed under VDOT's Design-Build Program. Projects under development in the Preliminary Engineering phase should follow the **project development**\* process until a determination is made that the project shall be delivered via design-build project delivery. After this determination is made, this appendix provides guidance for preliminary engineering and plan development until the release of the Request for Proposal (RFP).

## INTRODUCTION

The development of a VDOT Design-Build project differs significantly from the development of a Design-Bid-Build project. The documentation necessary for the advertisement of a Request for Proposal (RFP) includes preliminary plans comprised of the basic geometric configuration for the project. The development of final design plans and construction plans are the responsibility of the Design-Builder.

The Offerors participating in the Design-Build procurement process rely on the preliminary plans and the information in the RFP to develop the technical proposal and to determine their price proposal for design and construction of the project. The Design-Builder is responsible for the development of final engineering plans, design details and in many cases environmental commitments. This is different than a typical Design-Bid-Build procurement, wherein VDOT would complete these requirements prior to advertisement of the project. The Design-Build preliminary plan development process should include completion of the public involvement process (willingness or public hearing), design approval and completion of the NEPA process.

The preliminary plan development and detailed project requirements are important to the success of the procurement process for Design-Build projects. Each requirement, element of the scope of work, restriction, and specification must be sufficiently narrated in the RFP. The preliminary plans included in the RFP Information Package aid the Department in communicating aspects of the scope of work, such as general project and right-of-way limits and boundaries, preliminary alignments and concepts, location of existing assets such as bridges, culverts, traffic signals, signage and known utilities within the project limits. The language within the RFP should adequately define the project parameters, right of way and easements for the project footprint, and the associated environmental requirements and impacts. The preliminary plan development will also enable preparation of a detailed project cost estimate.

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\* Rev. 1/12

## DESIGN-BUILD DEFINITIONS

**Alternate Project Delivery Project Manager (PM-APD)** – APD representative who leads the contract document development from project inception to completion. This individual shall interact extensively with the PM-D and CO POC's. The CM-APD is responsible for procurement of the Design-Build contract.\*

**Central Office Project Team (Central Office Points of Contact (CO POCs))** – Representatives from key project disciplines that assist with development of the Request for Qualifications (RFQ) and Request for Proposals (RFP), evaluation and review of project related documentation as necessary. CO POCs work with their District counterparts throughout the pre-award process. CO POCs also assist with Quality Assurance/Quality Control (QA/QC) review of preliminary plans and documentation provided in the RFQ and RFP Information Packages. CO POCs include representatives from L&D, S&B, Environmental, Right of Way and Materials Division.

**Design-Bid-Build** – The traditional method of project delivery in which the Virginia Department of Transportation (VDOT) contracts with separate entities for the design and construction of a project.

**Design-Build** – An alternative method of project delivery where design and construction aspects of a project are performed under a single contract with VDOT.

**Design-Builder** – Any company, firm, partnership, corporation, association, joint venture, or other entity permitted by law to practice engineering, architecture and construction contracting in the Commonwealth of Virginia. For the purposes of this document, Design-Builder refers to the Offeror who successfully develops the highest ranked proposal and is awarded a contract for a Design-Build project.

**“Design-Builder’s Proposal” or “Proposal”** – The offer of a Bidder, submitted in response to a Request for Proposal (RFP), to perform the work and furnish the materials and labor at the price set forth therein; valid only when properly signed and guaranteed. The documentation includes the Statement of Qualifications (SOQ), Technical and Price Proposals required by the RFP. The offer of a prospective Design-Builder, “Design-Builder’s Proposal”, should be considered a “Bid”, in reference to Section 100 of VDOT Road and Bridge Specifications.

**District Development Team (DDT)** – Individuals representing various disciplines at the District, who play an essential supporting role in the development of contract documents, specifically the RFQ and the technical requirements of the RFP. The DDT includes representatives, Points of Contact (POCs), and preliminary plan designers from L&D, S&B, Environmental, Right of Way, and Materials disciplines. If federal funds are involved, FHWA shall be part of the review process.

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\* Rev. 1/12

**District Project Manager (PM-D)** – Representative of the District who is responsible for project management of the preliminary plan development, contract administration, and project communication with the Innovative Project Delivery Contract Manager (CM-IPD). Ideally, the individual performing this job function should have extensive experience in both preliminary engineering and construction. However, two individuals can perform this role together, one from preliminary engineering (supporting the CM-IPD during the procurement phase of project delivery) and one from construction (the lead during the post award phase of project delivery). This individual(s) should be involved in project development from beginning to end and should be an integral part of development of the technical requirements of the RFP and other contract documents.

**Major Items Detailed Estimate** – Project estimation of major items (earthwork, bridges, detours, retaining walls etc.) utilizing a spreadsheet approach and incorporating the pricing data available in the TransPort program or other comparable alternative database. Minor items (drainage, incidental, E&S etc.) can be estimated by category as a lump sum or individually at the project estimator's discretion.

**Offeror or Bidder** – Any individual, partnership, corporation, or joint venture that formally submits a Statement of Qualification and/or Design-Build Proposal in response to the solicitation for the work contemplated, or for any portion thereof, acting directly or through a duly authorized representative. Typically "Offeror" and/or "Bidder" terms are used prior to the award of a contract.

**Preliminary Plans** – Plans developed by the Department or Department's consultant to provide potential Offerors with the general project configuration and right of way footprint for bidding purposes.

**Request for Proposals (RFP)** – All documents, whether attached or incorporated by reference, utilized for soliciting proposals. The RFP is the only solicitation in a single-phase selection process. The RFP is the second phase in a two-phase selection process (RFQ/RFP) where VDOT issues a written request to those Offerors, which have been short-listed to submit both technical and price proposals.

**Request for Qualifications (RFQ)** – All documents, whether attached or incorporated by reference, utilized for soliciting Statements of Qualifications from Offerors. The RFQ is the first phase of a two-phase selection process for the purpose of inviting interested Offerors to submit qualifications for a project. Qualified Offerors shortlisted in the RFQ phase are then asked to respond to the project RFP.

**Statement of Qualifications (SOQ)** – The documents submitted by an Offeror in response to an RFQ. SOQ's contain information that allows VDOT to short list qualified Design-Builders for the RFP phase of procurement.

## **GENERAL**

All design aspects of preliminary engineering shall be in accordance with the most current editions of all applicable AASHTO, Federal Highway Administration (FHWA) and VDOT references including (but not limited to) the following : AASHTO's "A Policy on Geometric Design of Highways and Streets", AASHTO's "Roadside Design Guide, AASHTO's "A Policy on Design Standards Interstate System", the Manual on Uniform Traffic Control Devices, the Virginia Supplement to the Manual on Uniform Traffic Control Devices, VDOT's Road Design Manual, VDOT's Road and Bridge Standards, VDOT's Road and Bridge Specifications, VDOT's Drainage Manual, VDOT's Survey Manual and VDOT's Traffic Engineering Design Manual and the Virginia Work Area Protection Manual.

The current SAFETEA-LU Program Efficiencies Agreement (FHWA/VDOT Efficiencies Agreement) shall be followed on all projects. A copy of this agreement should be provided by VDOT to the Design-Builder.

## **PROJECT MANAGEMENT - PM-D and PM-IPD**

The PM-D is responsible for coordinating the plan development process and the preliminary engineering efforts necessary to develop solicitation documents, scope of work, cost estimates, RFP technical requirements and the RFP Information Package content. It is essential that an individual in this role has extensive familiarity with Design-Build concepts, preliminary plan development, the public involvement process, and coordination with the NEPA process.

The PM-D must work with the PM-IPD to coordinate preliminary engineering efforts with the overall procurement schedule. Due to the expedited nature of the Design-Build project delivery process, additional coordination efforts may be required concurrently to ensure the project can be delivered in accordance with expedited timelines.

Prior to RFQ Advertisement, the PM-D shall work with the DDT to develop the Project Cost Estimating System (PCES) estimate. Prior to RFP Advertisement and to the extent possible considering the preliminary nature of the Design-Build candidate project, a Major Items detailed estimate should be developed. Both estimates shall be based on information found within the plan design and are preliminary in nature.

The PM-IPD is responsible for the development of procurement documents and synthesis of information into a complete and comprehensive package for bidding purposes. The PM-IPD shall ensure the procurement schedule is maintained, provide guidance on Design-Build related costs to be included in the estimates, ensure the requisite procurement meetings are scheduled and delivered, and work with Central Office Programming and Scheduling and Contract Division to ensure the authorization of funding and timely notification of FHWA with respect to advertisement process.

## SCOPING

A scoping meeting shall be held in accordance with the concurrent engineering plan development process and documented on the [PM-100](#) Form (Field Review and Scoping Report).

## DESIGN

The preliminary engineering and design completed in advance of RFP advertisement for a Design-Build project include plan detail as shown in the Design-Build portion of the [LD-436](#).

There may be instances wherein a greater level of preliminary engineering and design are necessary to develop the RFP.(i.e. high risk project elements and/or desire to be more prescriptive in RFP) or in some cases a lesser level of plan development is required (i.e. low risk project elements or expedited schedule). Regardless, the level of preliminary engineering and design should be sufficient to ensure that the project scope of work and limits are well defined, that major risks have been identified, that preliminary cost estimates can be confirmed, and that technical requirements are defined. Unlike Design-Bid-Build, the project scope of work, limits and technical requirements must be thoroughly narrated in the Design-Build RFP; the PM-D cannot rely exclusively on the drawings included in the RFP Information Package to convey scope of work, limits and technical requirements.

Additional design work above and beyond the preliminary plan level is typically unnecessary and may result in the following negative consequences:

- Constrained innovation with regard to the design and construction processes. The goal of the Design-Build solicitation documents is to promote innovation, not constrain or limit means and methods.
- Decreasing potential Offerors from the bidding pool by inadvertently catering to a specific design/construction methodology
- Excessive preliminary engineering and plan development efforts will increase project costs due to replicated design efforts and analyses performed by the Design-Builder.

## VALUE ENGINEERING

A Value Engineering study shall be completed for all Design-Build projects with an estimated cost of \$5 million or greater, unless a waiver is granted by the VDOT Commissioner. The Value Engineering study shall be in accordance with the Value Engineering Administration Manual.

The Value Engineering study and all design revisions that result from the study should be completed prior to the public involvement phase of the project. If the Design-Build preliminary plan development doesn't include a public involvement phase, then the Value Engineering study and associated design revisions shall be completed prior to advertisement of the RFP.

## **PUBLIC INVOLVEMENT**

The public involvement process shall follow VDOT's Policy Manual for Public Participation in Transportation Projects. At conclusion of the public involvement phase, the PM-D will request design approval from the State Location and Design Engineer. Design approval should be obtained before RFP advertisement.

## **DEVELOPMENT OF DESIGN**

### **Data Acquisition**

For Design-Build projects there are specific items that pose substantially greater risk than others. The high risk items include, but are not limited to: utility relocation, unknown subsurface conditions, hazardous materials, endangered species, construction on or adjacent to rail-road Right of Way, and structurally deficient bridges, walls and culverts. The PM-D, DDT, and PM-IPD should collectively determine the need for additional investigations necessary to expose these high-risk items, identify mitigation strategies for each and sufficiently apportion these risks in the solicitation documents.

### **Survey**

The topographic survey needs for the preliminary design of the project, based on present and anticipated improvements, should be identified at an early phase in the project development process. In order to provide sufficient information to develop a preliminary design and to determine the Right of Way requirements associated with the project, the PM-D should assume the need for photogrammetry and a detailed field survey, including utility location and designation of all pertinent utilities (underground and overhead).

Unless the project is anticipated to be constructed entirely within the existing right of way, property lines, including easements and property owner information shall be included in the topographic survey. The survey shall be secured under the direct control and supervision of a land surveyor licensed by the Commonwealth of Virginia.

### **Pavement Design**

In order to develop the pavement section(s) for the project, the PM-D needs to coordinate with the District Materials Engineer and Materials CO POC with regard to the pavement requirements for the project. The pavement section(s) shall be provided for development of the preliminary plans and estimate.

## **Design – Roadway**

The road designer shall establish the preliminary line and grade for anticipated road improvements. Horizontal baselines, vertical profiles and typical sections shall be developed for the mainline and all connecting/intersecting roadways. Mainline and connection geometrics are to be developed in order to establish the grading limits, right of way limits, environmental impacts and the potential impacts to utilities.

Potential Offerors may use the preliminary alignment established by VDOT, or they may consider a new alignment consistent with VDOT and AASHTO standards. The RFP should describe any restrictions on horizontal/vertical deviations and what ramifications there may be with regard to the Environmental document and Right of Way requirements if they choose to deviate from the alignment shown in the preliminary plans. Proposed alignment changes will only be allowed if approved by VDOT.

Preliminary cross sections shall be developed in order to establish construction and right-of-way limits, preliminary costs, determine drainage patterns and develop a general concept for the Transportation Management Plan (TMP). Preliminary cross sections shall be used to determine right of way requirements and anticipated earthwork quantities to assist in the development of the PCES and detailed estimate.

## **Design – Structure and Bridge (S&B)**

The PM-D needs to coordinate with the Structure & Bridge Design Manager and Central Office Structure and Bridge POC with regard to the geometrics of the roadway and for the structural requirements of the project. Preliminary bridge plans shall be provided for the purpose of developing the Major Items detailed estimate.

## **Design – Drainage**

The hydraulics designer shall establish the preliminary ditch, culvert, and storm sewer design for anticipated road improvements. Potential stream relocation, restoration, or enhancements shall be identified. The preliminary layout provides necessary information to assess the impacts to utilities, proposed drainage patterns, tie-ins, right of way and or temporary/permanent easement needs, environmental permits, and estimate preparation.

Pipe and inlet/manhole sizing and detailed pipe profiles are not developed during the preliminary design. The Design-Builder shall be responsible for detailed drainage design and computations.



## **Design – Hydraulics**

A draft Hydraulic and Hydrologic Analysis (H&HA) report is required for culverts and bridges that have a combined 100 year discharge in excess of 500 cfs. The report shall provide evidence that proposed construction shall not increase the existing 100-year flood level beyond established limits described below. It is the Department's policy not to allow any increase in the level of the 1 percent (100-year) flood for delineated floodplains established under the NFIP or other officially delineated Floodplains. An increase is permitted in FEMA Zones determined by Approximate Methods of up to 1.0 foot provided that coordination with the community shows that the cumulative impact requirements have been addressed and the increase doesn't impact upstream development. For areas not covered by an existing mapped flood zone the increases are not to exceed one foot during the passage of the 1 percent flood and the increase does not impact upstream development. The draft H&HA report and model analysis shall be completed prior to the RFP advertisement.

## **Design – Stormwater Management**

The development of a preliminary stormwater management plan is necessary to establish right-of-way and easement requirements and demonstrate that stormwater management needs can be provided within the existing and proposed right of way and project area limits. A preliminary stormwater management plan shall be developed by VDOT and potential locations for stormwater management facilities shall be identified during preliminary plan development. The preliminary storm water management plan shall be developed in accordance with VDOT's erosion and sediment control and stormwater management standards and specifications. The Design-Builder shall be responsible for developing the final stormwater management plan and obtaining the requisite approvals from VDOT.

## **Design – Erosion and Sediment Control**

VDOT is not responsible for developing the erosion and sediment control phased plans; this responsibility is assigned to the Design-Builder. However, VDOT should carefully consider the conceptual Transportation Management Plan (TMP) and Construction Phasing to assess easements along the project in order to provide sufficient space for the Design-Builder to design, construct, and maintain erosion and sediment control measures. Careful consideration should be taken to evaluate space in urban areas, where right of way costs are typically higher. The Design-Builder is responsible for developing the detailed erosion and sediment control plan and obtaining the required approvals from VDOT.

## **Design – Transportation Management Plan (TMP) and Construction Phasing**

VDOT shall not develop TMP's for Design-Build projects. However, construction phasing and the preliminary TMP concept should be considered when developing preliminary plans and estimates.

The PM-D shall coordinate with Regional Operations to define constraints on the mainline and connections. These include time of day work restrictions, lane width and lane closure restrictions, phasing requirements and right of way needs. These items shall be captured in the technical requirements of the RFP. TMP signing, layout of channelizing devices and sub-phases (minor) should not be detailed.

Certain projects may require the construction of temporary detour roads requiring right of way or easements. The preliminary plans should include adequate right of way for these situations. If traffic is to be detoured onto existing roadways, then the PM-D should coordinate with Regional Operations and localities to determine which local roads are and are not acceptable routes for detour. Restrictions for the detour need to be clearly identified in the RFP technical requirements.

The Design-Builder shall be responsible for the development of the TMP as well as the Temporary Traffic Control Plans for VDOT review and approval. VDOT shall determine the Type of TMP for each project and include that information in the RFP. The Design-Builder shall be responsible for any necessary traffic analyses for Maintenance of Traffic. The IIM on Transportation Management Plans (current [IIM-LD-241](#)) shall be followed to determine the level of traffic analyses required for assessing work zones. The Design-Builder shall also be responsible for temporary drainage design for each phase of the TMP. VDOT should work to achieve the greatest degree of flexibility with regard to site access, work hour restrictions and Temporary Traffic Control.

## **Analysis – Traffic**

The PM-D shall coordinate with Regional Operations to ensure current and projected traffic data is available for preliminary plan development. This generally includes AM & PM peak hour and average daily traffic volumes for existing and design year traffic, directional splits, and truck percentages. The PM-D in coordination with the road designer shall request from Regional Operations any traffic analyses needed to identify the number of turn lanes with the recommended storage and taper lengths, acceleration/deceleration lane lengths, merging taper distances, shifting distances, type(s) of channelization, other operational characteristics, location of signalized intersections, signal removals, and any additional treatments to achieve safety and operational requirements.

## **Design – Traffic**

The applicable Traffic Control Device questionnaires (Signals, Signing, Pavement Markings, and Lighting) shall be completed by the maintaining agency prior to the development of preliminary plans and the RFP technical requirements. These questionnaires provide the DDT insight into the maintaining agency's preferences and design requirements. The DDT should use the questionnaires when developing the technical requirements of the RFP.

The traffic designer shall review the proposed roadway design to ensure adequate right of way is provided for the installation and maintenance of all traffic control devices and to determine potential impacts to utilities. As part of this review, the traffic designer shall also conceptually determine if there will be any traffic control device installation, removals, and/or relocations beyond the project limits. Additional right of way required for traffic control devices, potential utility conflicts, and potential work beyond the project limits shall be reported to the roadway designer for further discussion and incorporation into the roadway design plans and/or RFP technical requirements.

For freeway projects, projects involving complex guide signing, projects including the installation of ITS/TMS devices, or projects including the installation of signalized intersections, the traffic designer should consider preparing conceptual traffic control device plans showing the location of existing traffic control devices as well as major equipment installations such as, but not limited to, overhead or cantilever signs, signal poles, controller cabinets, DMS, and CCTV Cameras. These conceptual plans can be used in reviewing for right of way and utility conflicts, developing the RFP technical requirements and in completion of the Traffic worksheet in PCES.

## **Utility Preliminary Investigation**

Preliminary plans which include utility designation and locations of underground facilities should be distributed by the VDOT District Utilities Engineer (DUE) to those utility owners, agencies and municipalities that are impacted by the project. The distribution should include notification to parties that the project is proposed as a Design-Build project and that preliminary plans are ready for review. An estimate shall be developed and entered in PCES for the anticipated utility relocations identified in the preliminary plans. Plans shall not be advanced beyond this stage until after award of the project. The Design-Builder shall be responsible for confirming all utility facilities and utility owners located within the project limits.

The DUE should conduct a preliminary field meeting to review the project parameters and discuss the relocation process. It should be clearly noted that the completion of right of way requirements depends on relocation identification. Local utility owners should be encouraged to incorporate their relocations as part of the RFP where feasible. This can assist with the development of a project schedule and a coordination of conceptual drainage to assist with the minimization of utility relocations.

### **Contextual Design – Planting Plans/Aesthetics**

Detailed Planting Plans shall not be developed by VDOT for inclusion in the preliminary plan set. The L&D Landscape Architecture Section shall review subject roadway plans and develop a preliminary concept plan or document addressing project impacts and possible mitigation strategies to enable development of the technical requirements of the RFP as well as development of preliminary costs. The technical requirements shall provide for the composition and density for planting or other aesthetic mitigation where applicable and appropriate to the context.

Plan Graphics and/or Photo-simulations illustrating project impacts, footprint, etc. shall be provided for the Public Involvement process on an “as needed” basis as determined by the PM-D.

Aesthetic details including specifications and anticipated locations (specialty medians/sidewalks, decorative railing, wall treatments, specialty lighting, specialty signal poles, etc.) should be included in the RFP. It is also recommended that a note be placed on the preliminary plans delineating the anticipated location for aesthetic features.

### **Design – Right of Way**

Preliminary plans should include a conservative right of way footprint for the project. The PM-D and DM need to coordinate with District Right of Way to identify an early inventory of residential and commercial parcels. The District Right of Way POC shall complete the PCES R/W worksheets for inclusion in the overall estimate. A determination regarding the party best suited to acquire the right of way for the project shall be determined and documented in the RFP.

One of the key items that must be identified through the plan development process is the total number of right of way takes and parcels impacted. Increases in the number of parcels impacted may warrant the adjustment of the estimated contract value identified in the RFP.

## **Design – Environmental**

The PM-D shall provide the preliminary plan right of way footprint to the District Environmental POC. The PM-D needs to coordinate early and often with the District Environmental POC in order to determine the status of the NEPA document as well as additional environmental requirements. The NEPA document (whether Programmatic Categorical Exclusion, Categorical Exclusion or Environmental Assessment/Finding of No Significant Impact) and all supporting environmental coordination must be completed prior to the public hearing and prior to release of the RFP.

Cost estimates for any mitigation must be provided by the District Environmental POC for the Major Items detailed estimate. Technical reports, Special Provisions or other pertinent documentation the Offeror would need for bidding purposes shall also be included in the RFP Information Package.

## **Design Exceptions/Waivers**

Design exceptions and waivers based on the preliminary plans shall be obtained by VDOT prior to advertisement of the RFP and shall be provided in the RFP Information Package. For items resulting from changes to the preliminary design by the Design-Builder, the Design-Builder shall be responsible for obtaining all design exceptions and waivers in accordance with the Department's Policies and Procedures outlined in [IIM-LD-227](#).

## **PRELIMINARY PLANS FOR THE RFP INFORMATION PACKAGE**

The preliminary design and engineering development process shall be expedited from the typical Design-Bid-Build process. Preliminary plans and analyses are developed in order to define the desired scope of work and, technical requirements, establish a conservative right of way footprint and capture the information required to establish the project's budget. Both preliminary and incomplete plans shall be identified as such and shall not be sealed, signed or dated in accordance with [18VAC10-20-760](#).

Hard copies of the preliminary plans are not provided to potential Offerors. Any available information at the time of the RFP release shall be provided on an RFP Information Package which shall be in electronic format (CD-ROM). This shall typically include, but is not limited to: preliminary plans, survey information, Microstation files (dgn's), pdf's, the NEPA document, Geotechnical Data Report, Special Provisions and any other information necessary for the Design-Build teams to develop a Proposal. Further information regarding the Information Package is provided in the technical requirements of the RFP.

## **CONTRACT DOCUMENTS**

The PM-D is responsible for the selection of special provision copied notes, special provisions, and supplemental specifications (for both the design and construction of the project) included in the RFP Information Package or by reference in the body of the RFP. The DDT and PM-IPD will provide assistance.

## **PROJECT COST ESTIMATE**

The PM-D shall work with the DDT to develop a PCES estimate prior to RFQ advertisement and a Major Items detailed estimate prior to RFP advertisement.

The PCES cost estimate shall establish the overall estimate for the project inclusive of construction costs, preliminary engineering costs, construction engineering and inspection costs, VDOT oversight costs, and contingency reserves. Due to the limited detail available during the preliminary plan development, it is prudent that additional effort go into identifying and estimating any high risk items with appropriate levels of contingency reserves and any unusual and extraordinary costs.

The Major Items detailed estimate shall establish the overall estimate prior to RFP advertisement. This estimate can be a spreadsheet based estimate which might include major items such as pavement, earthwork, bridge removal, new bridge, retaining wall removal, new retaining wall, major drainage items, concrete barrier, curb and gutter, signalized intersections, environmental mitigation, hazardous materials remediation, and utilities. The estimate shall utilize pricing data available in the TransPort program or other comparable alternative database. Minor items (drainage, incidental, E&S etc.) can be estimated on a lump sum basis by category or individually at the project estimator's discretion. The Major Items detailed estimate dollar value should be inserted in the manual tab within PCES.

It is critical to remember that the Design-Build project delivery process includes both design and construction. Consequently, estimates should account for the fact that design reviews shall transpire post award. VDOT shall also assist, in an oversight capacity, with right of way reviews where applicable and construction independent verification/independent assurance testing. (See "Minimum Requirements for Quality Assurance & Quality Control on Design Build & Public-Private Transportation Act Projects") Subsequently, the overall project estimate should account for the Design-Builders bid along with VDOT oversight.