

2-1 Project Delivery Method

Not all projects can or should be delivered with the design-build project delivery method (PDM). Considering the time and resource investment required to properly execute a design-build procurement process, each project needs to be carefully scoped and scheduled, its project goals set, its staff and resource requirements considered, and an initial project risk assessment completed before the PDM is selected.

The Washington State Department of Transportation's (WSDOT) formal Project Delivery Method Selection Guidance (PDMSG) process should be employed as a best practice to identify the appropriate PDM. Several of the characteristics of design-build delivery noted by the (PDMSG) are provided below:

- Design-build can expedite the overall project delivery schedule or the construction schedule.
- Design-build can obtain aggressive project pricing with a process of innovation focused on cost-efficient solutions.
- Design-build is most effective when funding available for design and construction of the basic project is known and set.
- Design-build requires that the project scope of work and the desired performance be fully defined through a preliminary project design development and detailed Technical Requirements.
- Design-build requires the project team to have the resources (usually including potential consultant support) to preliminarily advance the design and execute a formalized and extensive procurement process.
- After the procurement phase, the project team (often including consultant support) must have the resources to oversee the implementation (design and construction) of the project, including possible co-location requirements.
- To be most effective, the project risks should be well understood, defined, and properly allocated between WSDOT and the Design-Builder.

Using the PDMSG methodology, these factors and more are considered in conjunction with other characteristics of traditional Design-Bid-Build (DBB) to identify the best PDM.

2-2 Initial Project Development

2-2.1 Project Development

Project development for design-build projects is a distinctly different process than for DBB projects. In the DBB format, WSDOT typically bears the majority of responsibility and risk for any design-related issues. The Engineer of Record (EOR) responsibility for design decisions and conformance to design requirements rests with the owner. In design-build, the Design-Builder is the EOR and is ultimately responsible for meeting all design requirements. WSDOT is still responsible for initial project development that establishes

the project scope, design criteria, conceptual plans, and the performance requirements in the procurement documents (Request for Qualifications (RFQ), Instructions to Proposers (ITP), General Provisions, Technical Requirements, and appendices. As the Design-Builder is ultimately responsible for the design, wherever possible, WSDOT project personnel should resist the temptation to insert their preferences or solutions into the RFP, as this tends to transfer the risk originally intended for the Design-Builder back to WSDOT.

The RFP should consist of design elements and requirements that WSDOT believes are absolutely necessary. In design-build projects, WSDOT does not have a direct contractual relationship with the EOR; however, successful design-build projects require continuous WSDOT collaboration and engagement throughout the procurement and the implementation phases of the project.

2-2.2 Identification of Funding and Schedule

WSDOT prioritizes projects through the development and ongoing maintenance of the Statewide Transportation Improvement Program (STIP) as required by Federal regulations. The Office of Financial Management manages the STIP.

In order to be included in the STIP, a project must be scoped and a total project estimate must be prepared. For design-build projects, it is especially important to include any anticipated stipend costs in your scoping estimate. One way to calculate this amount is to apply a typical percentage for stipends as a function of total estimated contract cost. Additionally, keep in mind that typical percentages used for estimating Construction Engineering and Mobilization will differ between DBB and design-build projects. Refer to the WSDOT [EBASE Users Guide](#) for guidance on calculating these typical percentages.

The scoping team creates a draft baseline schedule that identifies key project milestones and related activities, which is then reviewed by the WSDOT discipline managers and subsequently approved by the Region Management Team.

The project team should review the established project schedule and funding source(s) along with any associated requirements, as these may affect the PDM and the decision to use design-build.

2-2.2.1 Upset Amount Development and Usage

For some projects, the establishment of an Upset Amount may be necessary. The Upset Amount establishes the maximum proposal price WSDOT will accept in the Apparent Best Value Determination. Philosophically, this amount establishes the maximum amount WSDOT is willing to pay for the basic scope of the project as defined by the RFP plus Betterments that a Proposer may choose to include in their proposal. The decision to include an Upset Amount in the RFP should be carefully considered based on discussions with Region leadership and the Capital Program Development and Management (CPDM) office. The use of an Upset Amount must be approved by the Deputy State Construction Engineer. If included, the Upset Amount should not be adjusted or removed.

The Upset Amount is set as the project budget available for payments to the Design-Builder less sales tax. This amount is determined by reducing the total project budget

by the amounts expended and planned for engineering, Right of Way (ROW), utility relocations, any “below the line” items, State force work, owner supplied materials, contingencies, stipends, etc. In establishing the Upset Amount, the project team needs to be diligent in estimating the total budget needs and the amount remaining for the maximum proposal price.

On some projects there may be a significant difference in the engineer’s estimate and the budget for the project. When the engineer’s estimate exceeds the budget, the project team must either reduce the basic scope of the project or add funds until they are confident that the project can be designed and constructed within the budget. When the engineer’s estimate is significantly less than the budget, the Upset Amount could be set at the budget or at the probable greatest cost of the contract (including risk and Betterments) as determined by a Cost Estimate Validation Process (CEVP) or another objective tool.

The Upset Amount should never be used to artificially suppress proposal prices.

2-2.2.2 Stipends

WSDOT will pay a stipend to all Proposers submitting a responsive proposal to partially offset the proposal preparation cost. Best practice suggests that approximately one-half to one-third of the proposal preparation cost be covered by the stipend. The cost of preparing a responsive proposal is directly related to the requirements of the RFP documents and this effort must be recognized when determining the amount of the stipend. In lieu of estimating such costs or soliciting them from Proposers, a minimum stipend amount equal to 0.30 percent of the engineer’s estimate is recommended.

In addition to offsetting the proposal preparation costs, payment of the stipend to the Proposer allows WSDOT to use any ideas or information contained in the proposals without obligation to pay additional compensation to the Proposer. If a Proposer selects not to accept a stipend, WSDOT may not use the ideas or information in the proposal but the document is accessible by request in accordance with the Public Records Act. Refer to the ITP template for additional details.

2-2.3 *Scoping a Design-Build Project*

The scoping of a project should begin with the development and review of the project goals and risks. The identified goals and risks are then used to prepare the PDMSG Checklist and determine the best PDM.

When initially scoping a project for possible design-build project delivery, the project team should consider the project schedule and resources available to manage the process. Design-build projects place a unique demand on project team members in both the development and execution of the procurement process and in the oversight of the project implementation (design and construction). The project team must become knowledgeable in design-build delivery and have the commitment of resources necessary to perform its processes. If the project team members do not have prior experience implementing design-build delivery for a project of similar nature, then they must attend WSDOT developed training sessions.

The project team should review the project for elements that can be favorably addressed by the design-build PDM. These may include:

- The capability to provide a best value process that evaluates the technical merit, cost, and schedule in the selection of a Design-Builder for the project, with a focus on meeting and exceeding the project goals;
- The capability to expedite the overall delivery schedule of the project, particularly for large, complex projects;
- The capability to minimize the construction durations and construction impacts of the project;
- The promotion of innovation to provide an equal or better product that more efficiently utilizes project budget; and
- An effective means of addressing project risks by allocating them to the parties that are best able to manage them.

2-2.4 Office of Equal Opportunity (OEO) Involvement

See Section 26.51(d-g): Contract Goals of the OEO publication “Disadvantaged Business Enterprise Program Participation Plan”.

2-2.5 Risk Identification and Analysis

A risk is defined as an uncertain event or condition that, if it occurs, has a negative or positive effect on a project goals and objectives. Understanding which risks can and must be controlled by WSDOT and which risks can and should be shared with the Design-Builder results in an efficient and effective proposal package, a competitive bidding environment, and overall lower costs.

Risk management is discussed in more detail in [Chapter 3](#); however, a basic understanding of the risk characteristics relative to the different methods of project delivery is important in initial project scoping, goal setting, and selection of the appropriate PDM.

Traditional DBB delivery uses prescriptive provisions and fully completed designs that effectively assign most of the risk to WSDOT. When project risks are well defined, an advantage of the design-build PDM is that those risks can be properly assigned in the Technical Requirements.

An initial assessment of project risks needs to be performed by the project team at the time of project scoping to assist with the selection of the appropriate PDM. Project risks also need to be continually reviewed throughout the development of the RFP, the design development, and the construction phases of the project. The risk matrix diagrams the analysis and management process and generally includes these five steps:

- Identify the risk
- Assess and analyze the risk
- Mitigate and plan for the risk
- Allocate the risk
- Monitor and control the risk

Design investigations and development by WSDOT in design-build delivery is focused on minimizing and managing project risks. Elements of the design are advanced not blindly to an arbitrary level of completion but as necessary to manage their risks. Low-risk areas of the project may need to be advanced to only a very low level of development to adequately address the risks associated with the scope of work; however, high-risk areas of the project may need to be developed to a more significant level to address the risks and properly allocate them. The identification of risk and preparation of a risk management plan leads to the development of a Risk Based Estimating Self-Modeling Spreadsheet for the project, which is further explained in [Chapter 3](#).

2-3 Selecting the Project Delivery Method

The PDMSG is the method by which a project is comprehensively designed, procured, and constructed. The PDM generally begins with the development of a project design and continues through the administration of the construction. The choice of PDM influences many aspects of the project at different stages, including the:

- Project scope definition;
- Organization of contractors, designers, and various consultants;
- Sequencing of design and construction operations;
- Execution of design and construction;
- Environmental approvals;
- Testing, inspection, and acceptance; and
- Startup and close out procedures.

The different PDMs are distinguished by the manner in which contracts between WSDOT, designers, and contractors are formed and the technical relationships that evolve between each party as described in the contracts. The key contractual relationships of the primary methods of delivery are described in the following paragraphs.

In the DBB PDM, WSDOT is responsible for the details of design during construction; as a result, in DBB WSDOT is responsible for the cost of any errors or omissions encountered in construction.

Design-build is a PDM in which WSDOT procures both design and construction services in the same contract from a single, legal entity referred to as the Design-Builder. The method typically uses a two-phase selection process consisting of RFQ and RFP phases. The Design-Builder controls the details of design and the critical path for the project delivery life cycle and is responsible for the cost of any errors or omissions encountered in construction.

2-3.1 *Project Delivery Method Selection Guidance*

The evolution of innovative contracting PDMs such as design-build has made it important to evaluate projects early in their development to determine the most beneficial PDM. WSDOT has developed the PDMSG tool for assessing traditional DBB and design-build delivery for a given project in order to select the PDM most suitable for a project.

The PDMSG is available on the [Project Delivery Method Selection Guidance page](#) of the WSDOT website.

The PDMSG provides the detailed methodology and worksheets to use for the delivery selection process, summarized in the narrative of this manual.

The PDMSG is a formal, documented approach for WSDOT PDM selection. Forms and guidance documents are available for use by WSDOT staff and project team members. The primary objectives of the checklist (and matrix, for projects in excess of \$100M) are to:

- Present a structured approach to assist WSDOT in making project delivery decisions;
- Assist WSDOT in determining if there is a prevailing or an obvious choice of a PDM; and
- Provide documentation of the project delivery decision in a Project Delivery Approval Memo.

The PDMSG should not be used to justify a predetermined decision of PDM.

2-3.2 *Approval for Design-Build Delivery Method Use*

The PDMSG is integrated with the existing WSDOT Project Development process. All projects are evaluated in two steps:

The Probable PDM is established during the Scoping Phase prior to the approval of the Project Profile by Region Program Management Offices while collaborating with region subject experts and documented in the Capital Program Management System.

The Final PDM is determined once the Project Profile is approved, a Work Order is set up for the project, and the project is assigned to the Design Office. This Final PDM is determined at 10 percent to 30 percent design.

The use of the Probable PDM is a preliminary determination for project planning until the Regional Design Project Office, assigned to the project in the Final PDM, can approve the PDM. The Probable PDM is determined in the scoping phase of a project before the approval of the Project Profile/Summary. The Probable PDM process is to provide the PDM intent for the project as initial direction to the project office, with the basis for that Probable PDM selection.

Final PDM is the PDM determination submitted for approval in preliminary design. Final PDM selection occurs after assignment of the project to a Project Engineer's Office (approximately 10 percent to 30 percent design). The Project Engineer will determine the Final PDM using either the PDM Selection Checklist or the PDM Selection Matrix, or both.

Exhibit 2-1 Final Project Delivery Method Selection Process

Project Cost	Selection Document/ Tools	Authorizations
Less Than \$2 Million	Projects will be DBB	Programmatically Except
\$2 Million or Greater but Less than \$25 Million	Selection Checklist	<ul style="list-style-type: none"> • Signature by Project Engineer • PDE/EM Manager Approval
25 Million or Greater but Less than \$100 Million	Selection Checklist and Consider *Selection Matrix	<ul style="list-style-type: none"> • Signature by Project Engineer • PDE/EM Manager Endorsement • Regional Administrator Approval
\$100 Million or Greater	*Selection Matrix	<ul style="list-style-type: none"> • Signature by Project Engineer • PDE/EM Manager • Regional Administrator Approval
Exception or Change of Final PDM (regardless of Project Cost)	N/A	<ul style="list-style-type: none"> • PDE/EM Manager Endorsement • Regional Administrator Endorsement • Chief Engineer Approval for Projects greater than \$100 Million

Notes:

The Project Cost is the total of the Preliminary Engineering and Construction Costs. Projects under \$2 Million are programmatically exempt from PDMSG, do not require a Selection Checklist, and will be DBB. Preservation paving projects under \$10 Million are programmatically exempt from PDMSG, do not require a Selection Checklist, and will be DBB.

Design-build's most likely application would be for improvement projects in the mobility, economic initiatives, or environmental subprograms where there are opportunities for innovation, greater efficiencies, or significant savings in project delivery time.

*The Selection Matrix is developed using a workshop approach. The workshop should include the Project Engineer, PDE/EM, ASCE, ASDE, region and HQ support groups, subject matter experts, etc.

2-4 Developing the Project Management Plan

WSDOT is committed to project management best practices. The WSDOT Project Management Guide offers resources for best practices.

The Project Management Guide consists of five process groups: Initiating, Planning, Executing, Monitoring and Controlling, and Closing. A key deliverable to these processes is the Project Management Plan.

The Project Management Plan contains, at a minimum, the following elements:

- Initiate and Align Worksheet
- Project Performance Baseline
- Scope
- Schedule
- Budget
- Risk Management Plan
- Change Management Plan
- Quality Management Plan
- Communications Plan
- Transition and Closure Plan

2-5 Project Goal Setting

Project goals are observable, measurable end results having one or more objectives to be achieved during delivery of the project. Project goals should be based on the unique objectives, needs, and benefits of the project as well as capture stakeholder commitments. Project goals can provide a project team long-term vision and short-term motivation while helping the project team focus time and resources around what is important.

An understanding of project goals is essential to the selection of an appropriate PDM. The goals influence the project development, procurement, implementation, and administration of the contract. The goals communicate what WSDOT values for the project and become distinguishing factors between Proposers when determining which proposal provides the best value. Project goals are used to evaluate the strengths of the design-build teams and short list the three teams that provide the best fit. Design-build teams will put together their basic proposal strategy based on the goals in the RFQ. It is important to maintain the same goals from the RFQ to the RFP. If completely different goals are used in the RFP, the project team may miss an opportunity to utilize a design-build team that better aligns with the project needs than the three short listed design-build teams. These goals should provide guidance to contractors, consultants, and others in assembling their teams and preparing proposals for the project. The purpose of the goals is to ultimately guide the project throughout the design and construction phases.

Project goals are developed by the project team and vetted by the Project Development Engineer or Project Director. To maximize the usefulness of project goals for the life of the project, the project team and management should reach a consensus on the selection of said goals. Project risks, opportunities, and concerns should be examined when shaping project goals. The development of a position paper should specifically define the project's needs and objectives, its specific scope of work, the project goals, and ultimately the benefits of the selected PDM.

The project goals align the owner and Design-Builder and are an important aspect for managing change and influencing decision-making by reminding team members of established priorities.

The goals become the basis of the partnering charter and will ideally unify WSDOT and the Design-Builder into a collaborative design-build team, rather than each party guarding its own interests. Potential disputes are filtered through the lens of the project goals and decisions are made based on what best meets the project goals.

It is recommended that projects be limited to 2 to 4 goals. Having too many goals diffuses focus and defeats the purpose of focusing on priorities. The project goals must be specific for each project and remain consistent over the life of the project.

DBE participation, which must be a project goal for Federal-aid projects, is measured through evaluation of the DBE Performance Plan. Work with WSDOT's Office of Equal Opportunity in obtaining DBE participation goal (percentages). For more information, refer to [Chapter 10](#) of this manual.

Typical Generic Project Goals

The following are generic examples of transportation project goals:

Schedule

- Minimize the project delivery time
- Complete the project before a specified date
- Make the project operational prior to a specified date
- Accelerate the start of project revenue
- Minimize inconvenience to the traveling public during construction
- Maximize safety of workers and the traveling public during construction

Cost

- Maximize the project scope and improvements within the project budget
- Complete the project on budget

Quality

- Meet and exceed the project requirements
- Produce a high-quality design and construction that minimizes project risks
- Produce the most highly qualified organization to perform the work
- Produce an aesthetically pleasing project

Functional

- Maximize the life cycle performance of the project
- Maximize capacity and mobility improvements
- Provide innovative solutions to the complex project problems

Environmental

- Maximize Stewardship
- Maximize Collaboration

2-5.1 Project Goal Setting Workshop

Significant transportation projects should include a goal-setting workshop early in the project development, prior to selection of the PDM. The workshop can be conducted by the project team or by an outside expert. Facilitated goal setting workshops preferably include expertise in both goal setting for transportation projects and innovative contracting.

Oftentimes, transportation projects include significant stakeholder interests beyond the WSDOT project teams. In these cases, it is advantageous to include stakeholders in goal setting. This is best accomplished by including the stakeholders in the goal-setting workshop or by soliciting their input in one-on-one meetings prior to the workshop if their participation in the workshop is not feasible. In projects with multiple funding sources, it is particularly important to solicit input from funding partners in the development of the project goals.

Representation to consider in assembling the goal setting team:

- Assistant Regional Administrator (ARA) or Engineering Manager (EM)
- Regional Project Engineer or Project Manager
- Consultant Project Manager and key staff
- Specialty project staff (major contributors)
- Lead agency representation (Federal Highway Administration [FHWA], Federal Transit Administration [FTA], Federal Railroad Administration [FRA], Regional Transportation District [RTD])
- Entity funding partners (local government)
- Facilitator
- Other stakeholders

It is important for WSDOT Executive Management to support the project goals. Their support is usually attained through the approval of the project goals by the project Executive Oversight Committee. An example worksheet for the development of the initial project definition and goals is provided in [Initial Project Definition and Goal Setting Worksheet](#). When the worksheet is completed and the project goals are determined, it can provide the basis of a position paper that summarizes the initial project definition and goal setting.

Exhibit 2-2 Comparison of Primary Evaluation Factors for Delivery Methods

Factor	Design-Bid-Build	Design-Build
Delivery Schedule	<ul style="list-style-type: none"> • Requires time to perform sequential design and procurement • If design time is available, has the shortest procurement time after the design is complete 	<ul style="list-style-type: none"> • Can get a project phase under construction before completing total design for the project • Parallel process of design and construction can accelerate project delivery schedule • Procurement time can be lengthy due to the time necessary to develop an adequate RFP, evaluate proposals, and provide for a fair, transparent selection process
Complexity and Innovation	<ul style="list-style-type: none"> • Allows WSDOT to fully resolve complex design issues and qualitatively evaluate designs before construction bidding • Innovation provided by WSDOT/consultant expertise and through traditional WSDOT-directed processes such as value engineering (VE) studies and contractor bid alternatives 	<ul style="list-style-type: none"> • Incorporates Design-Builder input into the design process through: <ol style="list-style-type: none"> 1. Best value selection 2. Contractor-proposed ATCs • ATCs focus on innovative, cost-efficient solutions to complex problems • Requires that desired outcomes to complex projects be well defined through contract requirements

Exhibit 2-2 Comparison of Primary Evaluation Factors for Delivery Methods

Factor	Design-Bid-Build	Design-Build
Level of Design	<ul style="list-style-type: none"> 100 percent design by WSDOT, with WSDOT having complete control over the design 	<ul style="list-style-type: none"> Design advanced by WSDOT to the level necessary to precisely define contract requirements and properly allocate risk (typically 30 percent or less)
Project Cost	<ul style="list-style-type: none"> Competitive bidding provides a low-cost construction for a fully defined scope of work More cost change orders due to the contractor having no design responsibility 	<ul style="list-style-type: none"> It is possible that a given project will cost more when delivered using design-build versus DBB. Designer-Builder collaboration and ATC process can enhance the potential of increased value to WSDOT. Poor risk allocation can reduce cost efficiency or can jeopardize the success of the procurement
General Characteristics	<ul style="list-style-type: none"> Requires that most design-related risks and third-party risks be resolved prior to procurement to avoid costly contractor contingency pricing and change orders and claims 	<ul style="list-style-type: none"> Provides opportunity to properly allocate well-defined and known risks to the parties best able to manage them Risks allocated to Design-Builder must be well defined to minimize contractor contingency pricing of risks
Site Conditions and Investigations	<ul style="list-style-type: none"> Site condition risks are generally best identified and mitigated during the design process prior to procurement to minimize the potential for change orders and claims 	<ul style="list-style-type: none"> Certain site condition risks can be allocated to the Design-Builder provided they are well defined and associated third-party approval processes are well defined Unreasonable allocation of site condition risk results in high pricing due to risk Site investigations by WSDOT should include but are not limited to: <ol style="list-style-type: none"> Basic design surveys Hazardous Materials Geotechnical investigations Utilities investigations High seasonal groundwater surface elevation Existing soil infiltration rates Existing wetlands and sensitive areas
Utilities	<ul style="list-style-type: none"> Utilities risks are best allocated to WSDOT and are mostly addressed prior to bid to minimize potential for claims. 	<ul style="list-style-type: none"> Utilities responsibilities need to be clearly defined in the contract requirements and appropriately balanced between Design-Builder and WSDOT. Refer to Section 2.10, <i>Utilities and Relocation Agreements</i>, of the RFP for more information.

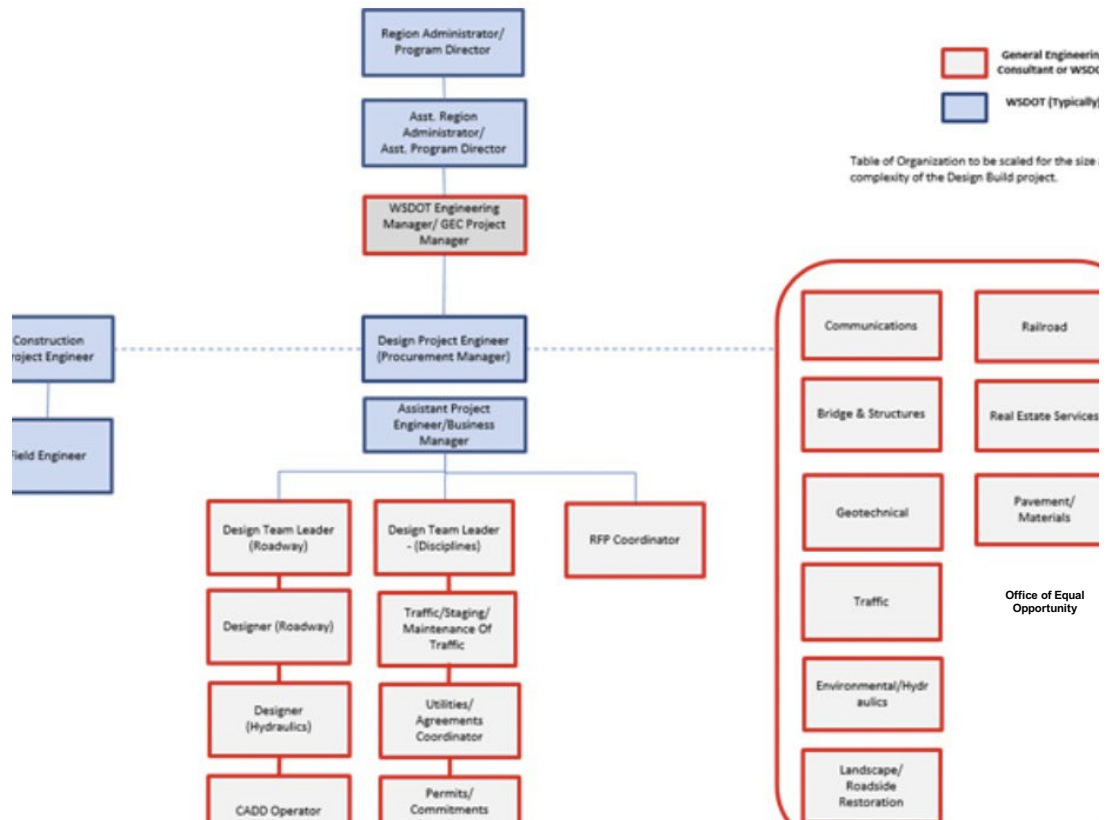
Exhibit 2-2 Comparison of Primary Evaluation Factors for Delivery Methods

Factor	Design-Bid-Build	Design-Build
Environmental	<ul style="list-style-type: none"> Risk is mitigated by completing all environmental documentation and obtaining all environmental permits and approvals prior to bid. 	<ul style="list-style-type: none"> WSDOT can minimize risk by completing all environmental documentation and obtaining the major environmental permits and approvals before accepting proposals. WSDOT may also need to develop agreements or memoranda of understanding (MOUs) with regulatory agencies and/or Tribes prior to procurement. Certain environmental permits and approvals can be delegated to the Design-Builder, as allowed per the law or our agreements.
Right of Way	<ul style="list-style-type: none"> ROW clearances are obtained before bid 	<ul style="list-style-type: none"> ROW clearance commitments can be defined to allow design-build before completing all acquisition ROW acquisition responsibilities and risks can be shared if well defined
Drainage and Water Quality	<ul style="list-style-type: none"> Drainage, water quality, and water quantity systems are designed prior to bid 	<ul style="list-style-type: none"> For design-build projects, drainage features are conceptually designed up to 30 percent. The Conceptual Designs are not guaranteed to be accurate nor constructible. The conceptual hydraulic designs provide Design-Builders with the minimum requirements determination, design guidelines, and standards that the Design-Builder must follow, any commitments made, and any other restrictions that we may have.
Third-Party Involvement (FHWA, railroads, funding partners, adjacent jurisdictions, etc.)	<ul style="list-style-type: none"> Third-party risk is best mitigated through the design process prior to bid to minimize potential for change orders and claims 	<ul style="list-style-type: none"> Third-party approvals and processes that can be fully defined can be allocated to the Design-Builder Agreements or MOUs with approval agencies prior to procurement should be obtained to minimize risks

2-6 Project Development Organizational Structure

Design-build projects are typically larger projects that involve multiple agencies and stakeholders and require large project teams, but design-build projects can also be smaller, less complex projects with proportionally smaller project teams. Regardless of the size of the project and for the projects to be executed efficiently, it is important to set up a formalized organizational structure that defines roles, responsibilities, and decision-making authority. The specific organization for a given project may vary however a typical structure maybe as shown in the Exhibit 2-3.

Exhibit 2-3



2-6.1 Project Development Team Composition

The composition of design-build project development teams (project team) can vary based on project size, scope, complexity, location, and available resources. On large design-build projects, all or the majority of the project team are assigned to work full-time on the project and may include co-located General Engineering Consultants (GECs) that report directly to the Project Engineer (PE). On small design-build projects only a core group of the project team work full-time while many team members work part-time, while remaining in their existing organizations or support groups, to support the development of procurement and contractual documents.

GEC tasks on a design-build project may include pre-award project development (preparation of environmental documents, design documentation (Conceptual Design Approval), conceptual geometric layout, preliminary bridge design, hydraulics, and stormwater, etc.), development of contract documents, and post-award contract administration support (submittal review, etc.). The GEC supporting the pre-award project development on a specific design-build project cannot be part of a design-build team (pre-award) or perform work on that design-build project for the selected Design-Builder (post-award).

The policies and procedures for A&E related consultant services acquisition including GEC are included in the WSDOT [Consultant Services Manual](#) M 27-50. Consultants can be procured either separately, for the procurement and implementation phases of the project, or under a single consultant agreement that issues separate consecutive task orders for the procurement and implementation phases of the project.

2-6.2 **Project Development Team Member Roles & Responsibilities**

Regional (or Program) Administrator: The Regional Administrator (RA) is ultimately responsible for the delivery of the project and provides guidance from a programmatic level. The RA or designee has the authority to remove any project team member for failure to comply with the confidentiality requirements of the project. On smaller design-build projects, the Assistant Regional Administrator (ARA) or designee may perform the responsibilities of the RA.

ARA/EM (or equivalent): The ARA or EM-level individual who directly supports the RA in leading the project, including development of procurement goals and schedule parameters, and serves as the liaison to WSDOT Headquarters (HQ) Design, Construction, and Contract Ad & Award.

Design Project Engineer: The Design PE is the procurement manager and leads the development of the Conceptual Design, RFQ, and RFP documents. The Design PE is the single point of contact responsible for the development and delivery of the project through procurement. After the project is awarded, the Design PE may also lead the design oversight activities of the design-build contract. The Design PE is responsible for coordinating with key stakeholders, FHWA, critical technical disciplines, and Local Agencies to ensure their organization's interests are fully considered in the development of the procurement documents.

The Design PE is generally responsible for the day-to-day management, coordination, and development of the project and the design-build procurement process. The Design PE oversees the activities of the technical teams and ensures their work products are appropriately incorporated in the procurement documents. The Design PE is also responsible to ensure all parties involved in the project are aware of and have signed [Confidentiality and Non-Disclosure Agreements and No-Conflicts of Interest Affidavits](#).

The Design PE is responsible for setting up the evaluation team and for scheduling the Statement of Qualifications (SOQ) evaluation, proposal evaluation, and debrief meetings, both internal and external. The Design PE is also responsible for scheduling and overseeing the one-on-one meetings with the short listed Proposers.

Construction Project Engineer/WSDOT Engineer: The Construction PE supports the Design PE during project development and procurement process through reviews of Conceptual Design and development of RFQ and RFP documents. The Construction PE ultimately serves as the WSDOT Engineer after procurement and is the single point of contact responsible for implementation and administration of the design-build contract.

The Construction PE or designee is responsible for attending the one-on-one meetings with the short listed Proposers.

Design Team Discipline Leads and/or Specialty Office Leads: The project team also includes the Office of Equal Opportunity and specialty office leads (Geotechnical, Bridge, Environmental, Traffic, etc.), who are responsible for defining technical design requirements and modifying their respective RFP template sections, including appendices, to ensure that the project's specific Technical Requirements are clearly communicated in the contract. They participate in the multi-disciplinary review of the RFP documents and assist in resolving any review comments. Specialty office leads are responsible for responding to questions and reviewing Alternative Technical Concepts (ATCs) (through the Design PE) during procurement and are also responsible for attending discipline specific Task Force Meetings and providing review and comment of Design-Builder submittals after the project is executed.

RFP Coordinator: The RFP coordinator plays a critical role during the procurement process and has the responsibility for developing or compiling various elements of the procurement documents (RFQ, RFP, and ITP) into the final product. RFP coordinator ensures technical discipline leads develop the Technical Requirements in accordance with RFP development schedule, process, and procedures. The RFP coordinator reviews Technical Requirements for clarity and consistency and facilitates multi-disciplinary Review and Comment resolution. The RFP coordinator may also coordinate with WSDOT Region and HQ Construction for final RFP approval and coordinate with Contract Ad & Award to issue final RFQ, RFP, and addenda for advertisement.

Every project team is different and will likely have additional members supporting the delivery efforts beyond the members listed above. The Project Management Plan should include all team members and their specific roles and responsibilities on that particular project.

2-6.3 WSDOT Headquarters Roles & Responsibilities

Assistant State Design Engineer: The Assistant State Design Engineer (ASDE) supports the project development team in practical design process and approves the Basis of Design and Design Analyses pertaining to Basic Configuration and Conceptual Design.

The ASDE coordinates with FHWA on any required design related approvals and engages with WSDOT project teams in assessing project risks during the development of Basic Configuration and project goals.

During the procurement phase, the ASDE may be involved in reviewing design related ATCs and approves all Design Analyses and Access Revision Report (ARR) revisions through final design. The ASDE will also be involved in review and approval of the final design documentation in accordance with WSDOT [Design Manual](#) Chapter 300.

Assistant State Construction Engineer: The Assistant State Construction Engineer (ASCE) supports the project development team in design-build procedures, reviews RFP documents for template changes including project specific language, and provides approval to issue the RFP. The ASCE acts as an official observer in procurement evaluations to ensure consistency and neutrality. The ASCE will also be involved with change approvals during contract administration.

Contract Ad & Award Office: The Contract Ad & Award (CAA) Office advertises the RFQ, and RFP and announces Apparent Best Value Proposer. CAA responsibilities also include verifying EBASE against the Price Proposal Form, posting addendums and other project information, reviewing Pass/Fail criteria for SOQ and proposal submittals, and responding to procurement protests. CAA compiles the design-build contract, including the Contract Form and Betterments, and manages contract award and execution.

2-7 Preliminary Engineering

Defining an appropriately detailed project scope requires a preliminary risk assessment. The WSDOT project team must weigh the project risks associated with the technical areas and determine the appropriate level of development to define and allocate these risks to the appropriate party (WSDOT or the Design-Builder). WSDOT [Project Risk Management Guide](#) provides guidance on identifying and analyzing risks and guidelines for performing risk assessment using tools such as Cost Risk Assessment (CRA) and CEVP.

Preliminary investigations needed to develop the design-build project are similar to those undertaken for a DBB project. Control surveys, preliminary surveys, ROW plans, environmental studies and permits, hydraulic analysis, geotechnical investigations, utility investigations, and required agreements must be completed for a typical design-build project. The information acquired as a result of these activities provides the base data required to develop the Conceptual Design, identify, assign and allocate risk, and provide other information necessary to develop design approval and prepare the RFP. WSDOT's Conceptual Design must display that the improvements can be reasonably constructed within the constraints and restrictions identified in the RFP. Consider utilizing the value engineering approach to help narrow and establish the Conceptual Design and Basic Configuration in order to maximize project value.

The detail and amount of data gathered will vary project by project dependent on the amount of information needed to concisely define the project scope and appropriate risk assignment, but usually will require less effort than for a DBB project. Focus should be on gathering data, while the analysis should be left up to the Design-Builder. In an ideal scenario, the amount of base data provided by WSDOT should be to the point at which Design-Builder can separate solutions (bridge types, walls vs. fills, alignments, etc.). Base maps, project geologic boring investigations, and generalized hydraulic basin evaluations can be completed without significantly impacting a specific solution.

The Preliminary Engineering (PE) effort should concentrate on adequately defining the elements of the project's Basic Configuration and the allowable limits for the following:

- Horizontal and vertical alignment
- Project limits and ROW
- Vertical clearances
- Horizontal clearances
- Locations of signal and Intelligent Transportation System (ITS) work
- Interchange types and locations
- Mitigation measures for environmental commitments (e.g. noise walls, wetland mitigation, historic/cultural resources mitigation)

Other PE efforts should focus on the following:

- Performance specifications, including defining any constraints
- Appropriate design requirements (what design criteria will the Design-Builder be required to meet)
- Locations of existing utilities
- Estimates
- Preliminary scheduling to define appropriate contract time limits
- Stakeholder desires and requirements
- WSDOT-secured permits
- Location of sensitive areas (e.g. known existing contamination, wetlands, trees, Endangered Species Act (ESA) habitat, historic/cultural resources)
- Location of existing fish barriers within the project limits
- For fish passage projects, bankfull width determination
- Wildlife collisions and connectivity opportunities

Additional considerations for the level of project development are discussed in the subsequent sections.

2-7.1 Practical Design, Conceptual Layout, and Basic Configuration

WSDOT is committed to context appropriate, multimodal, and performance based practical designs. WSDOT [Design Manual](#) Chapter 11 discusses WSDOT's approach to performance based practical solutions and practical design for developing cost efficient solutions. Design-build projects are also required to follow the practical design procedures outlined in Chapter 11 for developing the conceptual layout and the project's Basic Configuration.

2-7.1.1 The Basic Configuration

The Basic Configuration defines fundamental parameters of the project, and it is a critical provision in the contract documents. The Basic Configuration is described in the RFP in the *General Provisions*, Section 1-01.3(1). Unlike the project description, which is furnished to the Proposers as information, the Basic Configuration is a contractual obligation to which the Design-Builder must conform. The Basic Configuration describes the scope of

the improvements and elements that at a minimum must be included in the proposal by the Design-Builder. The Basic Configuration is generally a narrative description formatted as a bulleted list, not a set of plans, exhibits, or technical documents. The bulleted list includes features or attributes from the conceptual plans and consists of the essential project elements that all responsive proposals must adhere to in order to establish a level playing field.

The Basic Configuration combines with the technical provisions of the RFP to fully define the project. Generally, the Basic Configuration describes the basic elements to be built, and the technical provisions describe what is to be designed and constructed. Basic Configuration is the standard against which constructability is measured. WSDOT warrants that the project is constructible with the Basic Configuration parameters listed in the *General Provisions* and as shown in the conceptual plans.

The essence of writing the Basic Configuration is finding the appropriate balance between maintaining sufficient control over the basic design and allowing enough room to incorporate innovative ideas from the Proposers. WSDOT should have a good understanding of project goals and risk allocation before developing the Basic Configuration. The Basic Configuration should be limited to the fundamental scope of work that is necessary to meet the project purpose and need and project commitments.

Critical project components, such as interchanges, on-and off-ramps, number of lanes, trail locations, alignment and widths, intersection control types, etc. often are included in the Basic Configuration. The Basic Configuration is the foundation of the project scope of work and its elements may not be omitted, altered, or substituted in a proposal without WSDOT approval. The Basic Configuration should be defined in such a way as to give the design-build team latitude to make design adjustments that provide cost or schedule advantages while maintaining compliance with project goals, objectives, criteria, and other contract requirements. The “footprint” described by the Basic Configuration should provide the Design-Builder appropriate flexibility to modify the preliminary design developed by WSDOT, in order to ensure transfer of design risk from WSDOT to the Design-Builder. In establishing the Basic Configuration, WSDOT should avoid imposing unnecessary controls over the design that may lay liability for design defects on WSDOT and limit the Design-Builder’s flexibility for innovation. A project’s Basic Configuration may include the following dependent on the project risks and constraints:

1. Begin and end points for tying in horizontal and vertical alignment
2. ROW plans that depict the limits of ROW or easements obtained or to be obtained by WSDOT
3. Vertical clearances
4. Horizontal clearances
5. Number and width of lanes
6. Location of major structures (or crossings)
7. Railroad crossings (grade separation or at-grade)

8. Location of signalized intersection
9. Paving requirements
10. Mitigation measures for environmental commitments (e.g. noise walls, wetland mitigation, historic/cultural resources mitigation)

2-7.2 Preliminary Survey and Mapping

WSDOT is responsible for providing survey control and preliminary base mapping for the project. The level of mapping should be adequate to support initial project development, including a complete definition of the project, development of the necessary Conceptual Design, basis for estimating the project cost, completing environmental documents, and determining ROW needs. The mapping will ultimately be provided in the RFP and will serve as the basis for the Design-Builder to develop concepts. The Design-Builder is responsible for all final design surveying and construction staking surveying.

The survey and mapping performed for the preliminary and Conceptual Design is made available for the Design-Builder as a reference document, with the caveat that it is the Design-Builder's responsibility to validate and confirm the quality and accuracy of this data to use in their effort to finalize the design of the project. The recommended survey and mapping tasks include:

- Establishing control throughout the project
- Stationing along the control lines to establish feature and design criteria locations
- Existing cadastral information describing existing and future ROW
- Construction easements associated with WSDOT's Conceptual Design
- Topographic information, such as contour lines, and major site features to define the footprint of the project as expected by the Department or as intended by the Design-Builder. This level of mapping also supports other data gathering investigations and provides the base map for delineating feature locations
- Location of sensitive areas (e.g. known existing contamination, wetlands, trees, ESA habitat, historic/cultural resources)

2-7.3 Right of Way and Access Determination

WSDOT must delineate existing ROW and access as part of base data collection. ROW and access are potential high-risk areas that can significantly impact the project schedule both in initial project development by WSDOT and contract execution by the Design-Builder. If additional ROW needs are identified to construct the conceptual plan, WSDOT is generally responsible for developing or modifying existing ROW and access control plans and acquiring necessary ROW within which the Design-Builder must work based on the Conceptual Design footprint. The Design-Builder can pursue additional ROW acquisition for their design and is responsible for all additional construction easements that may become necessary. The Design-Builder assumes all schedule risk for additional ROW needs arising from their design during the procurement and implementation phase.

WSDOT will typically acquire all ROW needed for the project, but at the expense of the Design-Builder when it is beyond that identified for the conceptual plan. It is not necessary to have all ROW acquired at the time the RFP is released. If it is not, however, the RFP should identify the dates at which WSDOT will obtain possession and use. ROW parcels not available at Notice to Proceed shall be detailed in Chapter 2 Technical Requirements of the RFP. To avoid delay claims, it is important to provide access to parcels by the dates indicated.

In some cases, it may be advantageous to delay purchasing a portion of the required ROW until the footprint is finalized by the selected Design-Builder, or until all proposals are submitted to determine if the conceptual ROW footprint is needed. This is important in areas with very high real estate costs where minimizing the amount of real estate purchased is critical to successful delivery of the project. It will require incorporating this requirement in the project goals and the scoring criteria for proposals to incentivize ROW minimization. When making this decision, factor the potential cost of delays associated with ROW acquisition into WSDOT's risk cost.

2-7.4 Pavement Design

It is important to provide the Design-Builder with pavement condition reports and the structural composition of the existing pavements. Due to time constraints placed on the project, the Design-Builder will be inclined to assume that all existing pavements are in good condition unless noted otherwise. Provide a full pavement report to the Design-Builder for all roadways within the project limits, including all shoulders.

Pavement designs for all permanent roadways, ramps, shoulders, paths, and trails must be designed by WSDOT in accordance with WSDOT's Pavement Policy; the pavement design report will be referenced in the Technical Requirements and provided in RFP appendices. The pavement designs shall include minimum pavement sections, pavement types, and base materials. Typical roadway sections will be provided in the Conceptual Design, depicting the width, depth, and material type for the permanent roadway work. Pavement designs for temporary work are the responsibility of the Design-Builder. Typically, pavement designs for Local Agency roadways are the responsibility of the Design-Builder.

2-7.5 Geotechnical and Soils Investigation

Geotechnical data represents a significant risk to both WSDOT and the Design-Builder. Focus should be on providing the data and the analysis should be left up to the Design-Builder. The geotechnical data should provide enough information to permit the Design-Builder to perform a preliminary assessment of geologic features and to address key engineering issues such as foundation and wall types.

Borehole data information must be prepared and provided as part of the Geotechnical Data Report (GDR). The borehole data must include a log indicating depths and layers of subsurface materials, and groundwater elevations. Boreholes with piezometers or other geotechnical instrumentation should be installed sufficiently ahead of time to provide the design-build teams with a full year of data prior to advertisement of the RFP. The borehole locations must be accurately surveyed, and all wells installed as part of the field

exploration efforts need to be decommissioned following the guidance in Chapters 3 and 22 of the WSDOT *Geotechnical Design Manual* prior to RFP advertisement.

WSDOT's Conceptual Design used to develop the field exploration program for the preliminary design and the development of the GDR. Together, the Conceptual Design and the GDR data will be used by the Geotechnical Office, or Geotechnical Consultant, to prepare the Geotechnical Baseline Report (GBR). The GBR and GDR data will also be used to estimate the allotted value for change conditions as it is encountered by the Design-Builder and will be the baseline for establishing Differing Site Conditions (DSC).

Data prepared and gathered by WSDOT is provided and represented as specific to the exact location where it is taken. WSDOT intends to minimize proposal development costs by gathering enough data to allow competitive price estimates by the design-build teams. However, all Design-Build teams have the opportunity and option to develop their own data and create alternate solutions based on that data.

The risk management approach for unknown geotechnical conditions is one of shared assignment and shared allocation. Geotechnical information and details are gathered consistent with the current version of the WSDOT *Geotechnical Design Manual*.

Supplemental information may be gathered and made available from As Built plans and other geotechnical reports prepared for earlier projects.

Refer to WSDOT *Geotechnical Design Manual* Chapter 22, for more detailed, design-build geotechnical investigation requirements.

2-7.6 **Bridges and Structures**

During PE and conceptual plan development, WSDOT prepares the structure conceptual plan to be included as part of the RFP Appendix M. The purpose of the structure conceptual plan is to present a baseline structural concept where bridges or buried structures are assumed by WSDOT to be necessary in the conceptual plans.

The structure conceptual plan should be limited to the assumed type, size, and location information for each structure and any other pertinent information included in the WSDOT *Bridge Design Manual* Appendix 15.2-A1 Conceptual Plan Checklist.

Conceptual plan information regarding the location, size, and type of retaining walls assumed to be needed should be limited to a plan view of the approximate locations. General assumptions regarding the locations of retaining walls should be made for estimating purposes and to provide a general concept of the need for retaining walls to the design-build teams. Efforts to minimize the use of retaining walls and to balance cuts and fills should be kept to a minimum with the understanding that this is likely one of the first efficiencies that the design-build teams will investigate.

WSDOT *Bridge Design Manual* Chapter 15 provides detailed structural design requirements for design-build contracts.

2-7.7 Stormwater and Water Crossings

This information developed for the Conceptual Hydraulic Report and the Draft Preliminary Hydraulic Design Report serves as the basis for environmental permits and ROW acquisition. Complete or final stormwater and water crossing designs should not be provided to the Design-Builder. The focus should be on establishing the stormwater and water crossings design requirements for the project beyond those already set by the Mandatory Standards (*WSDOT Hydraulics Manual* and *WSDOT Highway Runoff Manual*). If the stormwater and water crossing requirements or design criteria are ambiguous or can lead to significantly different results, WSDOT may set the design basis for all design-build teams in the RFP as minimum acceptable parameters. The supplemental stormwater and water crossing parameters may include items such as:

1. Minimum stormwater structure dimensions
2. Acceptable alternative runoff treatment or flow control BMP options
3. Local Agency or other regulatory requirements or agreements
4. Minimum Bankfull Width
5. Minimum Hydraulic Clear Span
6. Minimum Structural clear Span
7. Maximum Hydraulic length
8. Minimum 100-year design freeboard
9. Minimum maintenance clearance
10. Expected Structure type
11. Required Design methodology
12. Channel morphology
13. Channel regrade expectation
14. Bed material composition
15. Minimum number of Large Woody Material expected
16. Use of Large Woody Material within the hydraulics length of the structure

The Mandatory Standards, supplemental hydraulics and stormwater requirements, and desired end results should be clearly identified and defined in the RFP Technical Requirements.

Ambiguous, vague, or incomplete information increases the risk to WSDOT and the possibility of undesirable stormwater and water crossing designs and results. Some project areas may require a preliminary hydrologic and hydraulic analysis to establish minimum design criteria or fulfill regulatory requirements such as:

1. Conducting a floodplain analysis or no-rise analysis for Environmental Assessment (EA)/Environmental Impact Statement (EIS) on projects with water-crossing structures

2. Determining the drainage area data for site drainage design criteria
3. Conducting an existing stormwater drainage feature system evaluation to determine which part of the existing stormwater drainage system doesn't need to be replaced by the project.

In summary, the information included in the RFP should be the minimum required to meet the regulatory requirements, define the scope of hydraulic and stormwater design criteria, and serve as the basis for environmental permits and ROW acquisition.

2-7.7.1 Roadside Restoration

The WSDOT project team should work with their Region support staff and Bridge & Structures to identify any project specific landscaping or architectural requirements. This should also be a topic that is discussed with project stakeholders. Any project specific, regional roadside restoration, or structural architectural treatments need to be identified in the RFP. For projects that require corridor continuity or other specific needs, the WSDOT project team should consider including an appendix that would include details for landscaping and architectural features.

2-7.8 Traffic

2-7.8.1 Traffic Data and Analysis

Traffic data supports many technical areas of the project scope and definition both during initial project development and during proposal development as the basis for design-build teams to develop concepts. WSDOT performs much of the traffic data and analysis during initial project development in order to conduct tasks necessary for developing Basic Configuration and completing the National Environmental Policy Act (NEPA) process.

The traffic data and analysis may be necessary to develop design year traffic forecasts, environmental studies (noise, air quality, etc.), Intersection Control Evaluation, ARR, construction phasing, and Maintenance of Traffic (MOT) strategies.

Where minimum requirements are not the desired end result, the RFP must identify the controlling criteria, such as acceptable levels of service, minimum lane widths, minimum shoulder widths, minimum temporary alignment designs, safety requirements, or other design criteria.

2-7.8.2 Safety Analysis

All projects are required to perform safety analysis in accordance with the WSDOT *Design Manual* Chapter 321. On design-build projects, WSDOT project teams typically perform safety analysis on the conceptual plans during initial project development. During procurement, design-build proposals and ATCs developed by the design-build teams could require re-evaluation of safety and modifications to the safety analysis. The Design-Builder is required to address safety concerns as part of the ATC analysis they provide to WSDOT to show that the ATC is equal or better. The Design-Builder is responsible for revising safety analysis as part of the final Design Documentation Package for their proposed designs.

2-7.8.3 Intelligent Transportation System

The ITS Technical Requirement section will need to include any project or region specific requirements such as fiber count, conduit type, conduit routing, fiber termination, proprietary equipment, or other requirements not covered by the Mandatory Standards. Recommendations for ITS elements to be incorporated in the RFP include:

1. Early identification and meeting of the ITS stakeholder group to define the ITS needs
2. Early planning to identify, develop, and execute necessary agreements
3. Development of 30 percent or less system design plans for ITS and communications that provide the conceptual locations of ITS devices
4. Specify the minimum number of devices, if necessary. An example requirement could be “One Variable Message Sign (VMS) sign on mainline I-5 for the northbound and one for the southbound direction, north of SR 16.”
5. Verification of existing infrastructure needed to support ITS elements, communication, and identification of required minimum standards
6. WSDOT specifications beyond performance and function requirements
7. WSDOT oversight and acceptance requirements including inspection and testing
8. Inclusion of ITS elements, work, and testing in the Design-Builder Project Schedule
9. Identification of standards to be used for bidding and work identification purposes. Should include Local Agency standards if applicable.

Based on specific project needs, consideration should be given for ITS elements to include:

1. Software development
2. Incident Information Management Systems
3. Mass Transit signal priority systems
4. Parking management systems
5. Light Rail Transit public address systems
6. VMS systems, camera system, toll system
7. Active Traffic Management System
8. Proprietary or specific types of material

2-7.8.4 Signing

The conceptual plans should include a conceptual guide sign plan that provides the location and messaging for key guide signs. This would include any signing that has been committed to for destination signing or other messaging. The WSDOT project team should work with the Traffic Office to develop this conceptual plan, which will typically include the mandatory locations of overhead sign placement. The conceptual guide sign plan should not include regulatory signing or other signs that are adequately covered by the Mandatory Standards. The signing section of the RFP will need to include any project

or region specific requirements such as sign sheeting, steel versus wood posts, or other specific requirements not covered by the Mandatory Standards.

2-7.8.5 Traffic Signals

The conceptual plans should include a conceptual traffic signal plan to identify the locations of vehicle and pedestrian signals as well as ramp meter signal configurations and locations. The conceptual traffic signal plan should not provide the level of detail that is typically included in a DBB project such as conduit runs and conductor sizing, but it should provide the basic orientation of each signal system. The traffic signals section of the RFP will need to include any project or region specific requirements such as LED signal heads, region or project specific pole or cabinet specifications or other specific requirements not covered by the Mandatory Standards. Details for cabinets, poles, or other features that are unique to the project due to commitments to Local Agencies or other requirements need to be included in Appendix T or otherwise referenced in the RFP documents.

2-7.8.6 Illumination

The conceptual plans typically will not include a conceptual illumination plan unless there is a need to show what the requirements or project commitments are to tie into an existing system or other need to identify luminaire spacing that would conflict with a light level analysis. If a conceptual illumination plan is necessary, it should not provide the level of detail that is typically included in a DBB project such as conduit runs and conductor sizing, but it should only provide the conceptual location of each luminaire. The illumination section of the RFP will need to include any project or region specific requirements such as LED luminaires, Region or project specific pole or cabinet specifications or other specific requirements not covered by the Mandatory Standards. Details for cabinets, poles, or other features that are unique to the project due to commitments to Local Agencies or other requirements need to be included in Appendix T or otherwise referenced in the RFP documents.

2-7.8.7 Pavement Markings

The conceptual plans should include a conceptual pavement marking plan if the project includes intersections, interchanges, or other features that require somewhat complex pavement markings. All Regional or project specific pavement marking requirements, such as thermoplastic or recessed pavement markings, need to be identified in the pavement marking section of the RFP. If there is a Region Pavement Marking Policy, it should be included in Appendix T and referenced in the RFP documents.

2-7.8.8 Maintenance of Traffic

Consideration must be given to the interim condition during construction. The development of a stakeholder work group may assist in identifying the need and solutions for MOT. This is especially helpful when an Interagency/Intergovernmental Agreement may be necessary to implement the MOT. Typically, a conceptual MOT plan will not be included in the RFP. However, a conceptual MOT plan must be developed by the WSDOT

project team to confirm that the project is constructible and to develop allowable ramp or lane closures, project schedule, and engineering estimate.

Traffic Management Strategies (TMS) must also be defined in the RFP. The thresholds, conditions, and definitions of the TMS should be under the direction of WSDOT and stakeholders and must be included in the RFP. The Design-Builder must prepare strategies and solutions for all construction activities and impacts. These strategies and solutions must be refined to account for dynamic field conditions and safety aspects specific to location and situation. Strategies or solutions that should be considered for development in the RFP include:

1. Mandatory weekly Traffic Management Meetings
2. Allowable extended closures of ramps or roadways
3. Mandatory Courtesy Patrol during “peak hours”
4. Mandatory “pull-outs” where full shoulders are not provided at all times
5. Mandatory installation of milepost markers at all times
6. Americans with Disabilities (ADA) requirements

2-7.9 Environmental Considerations

2-7.9.1 Coordination

Early coordination with regional or modal environmental staff is critical for project success. Environmental staff can help identify the major risks associated with the Project and provide the expertise necessary to address these risks. It is suggested that the Project Team coordinate with the region or modal environmental staff on the following:

- Setting Project Goals
- Filling out the risk matrix as part of the Project Delivery Selection Guidance
- Conducting preliminary investigations
- Engaging with regulatory agencies and Tribes on preliminary designs and plans when appropriate
- Determining a strategy and schedule for completing environmental documentation and obtaining environmental permits and approvals
- RFQ and RFP Development
- Review of ATCs and Proposal Evaluation

2-7.9.2 Environmental Documentation

The environmental documentation process, which is described in the WSDOT *Environmental Manual* M 31-11, is generally the same for a design-build project as a DBB project. This process includes documentation to ensure compliance with the NEPA, State Environmental Policy Act (SEPA), ESA, and Section 106 of the National Historic Preservation Act (including tribal coordination). The WSDOT project team should complete environmental documentation prior to advertising the RFP, except for exceptional cases in which the potential for innovation would be stifled by WSDOT

completing the NEPA process for a Basic Configuration. It is important to consider that, even with this scenario, in many cases having an environmental decision document in hand to revise or update could be simpler and faster than starting from scratch.

The NEPA process needs to be carefully addressed in the initial project development phase. A project team should consult with the ASCE, Region environmental manager(s), and FHWA (or other lead Federal agency) to determine the risks involved with going to advertisement before NEPA documentation is complete, prior to making a decision on which way to go. NEPA processes can have a significant impact on the project schedule.

23 Code of Federal Regulations (CFR) 636.109 allows contracting agencies to proceed with the award of a design-build contract prior to the conclusion of the NEPA process, as long as certain conditions have been met at the time of RFQ advertisement, RFP advertisement, and contract award.

If WSDOT does not complete the NEPA process prior to issuing the RFQ, then you must inform Submitters of the general status of the NEPA review.

If WSDOT does not complete the NEPA process prior to issuing the RFP, then you must again inform the Proposers of the general status of the NEPA review. You must also modify the RFP to include specific language from the CFR and get FHWA approval to move forward with the RFP. In addition, the RFP must inform Proposers that no commitments are to be made to any alternatives that are under evaluation in the NEPA process, including the no-build alternative. WSDOT should also identify the amount of time it will take to complete the NEPA process in the RFP. If it takes longer than what is identified in the RFP, WSDOT would be responsible to reimburse the Design-Builder for a delay. Any such timeline will be based on assumptions environmental staff have used to build schedule and budget considerations. Environmental staff often are able to provide an accurate NEPA timeline post award, based on whether or not WSDOT programmatic agreements for NEPA CEs, ESA, and Section 106 apply. Schedule and budget risks of any elements proposed by the Design-Builder that push us outside of those assumed level of impacts/ processes, would be owned by the Design-Builder.

If WSDOT does not complete the NEPA process prior to awarding the contract, then the contract must include the appropriate provisions described in Federal regulation. As described above, the contract must state that no commitments will be made as to any alternatives that are under evaluation in the NEPA process, including the no-build alternative, and include termination provisions if the no-build alternative is selected.

The Design-Builder must not have any decision-making responsibility with respect to the NEPA process. Therefore, it is recommended that for higher risk projects (i.e., those that require an EA or EIS), the NEPA process be completed prior to the award of a design-build contract.

2-7.9.2.1 Air Quality, Greenhouse Gasses, and Energy

The NEPA/SEPA process may require an air quality analysis to demonstrate that the project meets air quality requirements (conformity, mobile source air toxics, greenhouse gas emissions, and, if an EIS, energy effects).

Since acquiring environmental approvals is WSDOT's responsibility, completing the air quality analysis may be part of that process. Design changes that affect traffic volumes or traffic flows could affect air quality impacts and may require reevaluation. Contact the WSDOT HQ air quality specialist to determine type of reevaluation needed.

2-7.9.2.2 Noise Analysis

The NEPA/SEPA process may require a noise study to identify project impacts and the required mitigation measures. Since acquiring environmental approvals is WSDOT's responsibility, determining the noise impacts of the project may be part of that process. WSDOT project teams need to consider balance between fulfilling regulatory requirements, allocating risk, and allowing innovation. Projects anticipating noise walls based on the conceptual plans should include the preliminary noise analysis in a noise technical report in the RFP. The noise technical report should document the allowable impact to receivers, the analysis assumptions (including profiles and alignments), and the prescribed mitigation measures. In the RFP, clearly define changes in the horizontal and vertical alignments that will require an adjustment to the prescribed mitigation measures. If significant variability is allowed in the design criteria, define the reevaluation process (including the involvement of WSDOT HQ noise experts) and how the schedule and cost risk will be allocated. Make WSDOT's noise analysis model available to design-build teams in order to maintain consistency in design-build teams' Conceptual Designs. In situations where the design-build teams are allowed to deviate from WSDOT's Conceptual Design, include the noise study as an attachment and provide scoring criteria during the RFP process to assist them in making design decisions. If the noise wall locations and height are commitments made to stakeholders by WSDOT, noise wall configurations must be included as a Basic Configuration element.

2-7.9.3 Aquatic and Sensitive Areas (Wetlands, Streams, Lakes, Jurisdictional Ditches)

WSDOT should delineate all wetlands and aquatic resources within the project area. WSDOT typically obtains a preliminary permit from the US Army Corps of Engineers (Army Corp) and Washington State Department of Ecology (Ecology) based on the anticipated (often worst case) impact to the aquatic resources. To minimize risk, WSDOT should develop a mitigation strategy and clearly communicate requirements in the RFP. WSDOT often includes scoring incentives in the ITP that provide Technical Credits to Proposers if they can further avoid and minimize impacts to the aquatic resources. If the design-build team impacts more aquatic resources than WSDOT anticipated or permitted, the design-build team shall assume the risk of schedule delays and costs associated with having to obtaining a permit modification and mitigating the additional impacts.

2-7.9.4 Contaminated Materials

Contaminated materials investigation is required prior to releasing the RFP. Unless the risks can be quantified during procurement, the testing, handling, and disposal of contaminated materials should not be delegated to the design-build team for inclusion in their Price Proposal. WSDOT's Environmental Services Office has a Hazardous Materials Program that can help WSDOT project offices identify, characterize, and estimate cleanup costs for inclusion in the RFP. The presence of asbestos and lead-based materials that may be encountered should be investigated by WSDOT so it can be clearly identified in the RFP. Because there is cost associated with the disposal of soil with low levels of contaminants, WSDOT should identify the threshold for what constitutes "Solid Waste, Dangerous Waste, and/or Hazardous Waste". Material that may have contamination in concentrations below the Models Toxics Cleanup Act (MTCA) Cleanup Levels (CULs), may be reused on-site by the Design-Builder pursuant to the Solid Waste Handling Rule, Washington Administrative Code (WAC) 173-350, and approval of the local Jurisdictional Health Department. Material with concentrations above MTCA CULs may be considered a DSC. Unless WSDOT is aware of a specific location of Hazardous Materials or suspects that the Hazardous Materials are confined to a specific location, it may not be cost effective to attempt to quantify the amount of Hazardous Material. Instead, the WSDOT project team should consider developing a reasonable estimate for the cost of the disposal of Hazardous Material within the project limits. Based on this estimate of disposal costs, the WSDOT project team would establish a threshold amount that the Design-Builder should assume and include in their bid. Any disposal costs encountered by the Design-Builder beyond this amount would be the responsibility of WSDOT and would qualify for payment under DSC.

2-7.9.5 Environmental Permits

To reduce Design-Builder risk, WSDOT should obtain the major environmental permits (i.e., those with a lengthier lead-time) before accepting proposals, without limiting potential innovation. These include, but are not limited to, Individual Section 404/Section 10 permits from the Army Corps, Individual Section 401 Water Quality Certifications from Ecology or the Tribes, Section 9 Bridge Permits from the Coast Guard, Hydraulic Project Approvals from the Washington State Department of Fish and Wildlife, and Shoreline Approvals from Local Agencies. The design-build team will often need to obtain certain permits based upon their operations or design such as noise variances from Local Agencies, local street use permits, and the National Pollutant Discharge Elimination Systems Construction Stormwater General Permit from Ecology. WSDOT should coordinate early with the regulatory agencies to share their permitting strategy and to outline the project's risks and anticipated environmental impacts. If necessary, it may be appropriate during procurement to obtain conditional permits outlining the anticipated impacts. In these cases, the Design-Builder would work with WSDOT to obtain the final permit or to request a permit modification based upon the final design.

2-7.9.6 Temporary Erosion and Sediment Control

The responsibility of adhering to the Construction Stormwater General Permit and the necessary permit requirements including temporary erosion and sediment control plans should rest with the Design-Builder.

2-7.10 Utilities

It is important to investigate and define the utility information in the RFP to establish an equal basis for all design-build teams. Typically, WSDOT will retain the risk of unidentified utility conflicts within the footprint of the conceptual plan. WSDOT's standard utility process should be followed for utility and conflict identification. This may include identification of the utility by owner, As Built plan and profile location, requirement for relocation or adjustment, determining franchise or easement rights, and other utility owner stipulated design and construction requirements. High-risk areas should be evaluated for potholing to verify plan and profile information. Completing an in-depth Subsurface Utility Engineering site investigation with survey documentation of existing utilities may be warranted for projects with extensive existing utilities and limited or suspect As Built information.

The RFP should include current schedule or matrix for utilities identified for relocations or adjustments and should identify the party responsible for performing the work and the schedule by which the work will be completed. The utility agreements or their draft, and the matrix should be included in Technical Requirements Section 2.10, *Utilities and Relocation Agreements*, and Appendix U of the RFP.

Exact dimensions of utilities can often be difficult to verify. Although it is Design-Builder's responsibility to verify the exact horizontal and vertical location, size, and type of utility impacted by the project, best available information should be included in the RFP. If WSDOT is aware of conceptual plan facilities such as foundations or drainage structures that will be in close proximity to known existing utilities, potholing should be done during RFP development to ensure the conceptual plan can be constructed without necessitating utility relocation.

WSDOT should secure all utility permits prior to release of the RFP. Early coordination by the Design-Builder with the utility companies will assist in securing buy-in and resolving issues related to budgeting, scheduling, inspections, approvals, and performance of the work.

Under design-build contracting, WSDOT assigns franchise rights to the Design-Builder. The RFP should emphasize that the Design-Builder is responsible for the following:

1. Require coordination meetings (Task Force Meeting) between the Design-Builder, WSDOT, and utility owners
2. Require scheduling, verification, and documentation of all utility work completed on the project (utility owner and Design-Builder)
3. Show all proposed utility relocation designs on the project plans (utility owner and Design-Builder)
4. Field survey and locate all utilities
5. Provide location information for all utility relocations
6. Complete "As Built" drawings for all utilities
7. Require a utility pre-construction conference

2-7.11 Interagency/Intergovernmental Agreements

When projects are jointly developed (funded) or when different agencies or governmental entities have jurisdiction over portions of the project, it is advisable to execute a joint agreement among all such entities covering the following:

1. Applicable criteria and specifications for all components of the project
2. Procedures for implementing changes to the project
3. Approvals of changes desired by one or more parties
4. Limits on changes in scope, criteria, or specifications
5. Responsibility for cost or credits for changes or Betterment
6. Involvement of parties in design reviews and construction inspection
7. Designation and authority of representatives of each entity
8. Designation and recognition of the contracting agency and the relationship of other parties with the Design-Builder
9. Review time required by jurisdictions to be defined in the RFP

These issues may be similar to those in DBB projects but may be addressed in different ways. The purpose of such agreements is to ensure the relationship among the various agencies or governmental entities are as transparent to the Design-Builder as possible in order to avoid perceived risk and contingency costs. Since the design-build contract will be between the Design-Builder and WSDOT, the RFP will include the scope of work included in the Interagency/Intergovernmental Agreements (IGA) that will be part of the project. The RFP requires the Design-Builder to include the IGA work in their proposal. Also, even though different agencies may be responsible for design reviews and construction inspection for different portions of the project, a single process should be specified and followed by all responsible agencies.

WSDOT should always be the contact point for agencies and governmental entity review of design-build submittals to ensure that their review comments are supported by WSDOT prior to sending the comments to the Design-Builder.

2-7.12 Railroad

Discussions with railroads should be initiated as early as possible in the project and agreements with railroads should be in place prior to issuance of the RFP. The HQ Railroad Liaison should be contacted as soon as possible to assist with coordination. To contact the HQ Railroad Liaison and find additional highway-railroad coordination support, visit: www.wsdot.wa.gov/engineering-standards/design/utilities/railroad

Railroad agreements often require long lead times. If a project interfaces with railroads, advance agreements with the railroad operator are critical in terms of schedule and costs. Typical agreements may be similar to a railroad agreement for a DBB project. Due to the fast track schedule in design-build, the potential limitations railroads place on accommodating project schedules for review can have costly impacts.

Depending on the scope of work and impacts to the railroad, the following issues need to be considered prior to the issuance of the RFP:

- Design criteria and requirements relating to construction on railroad property and for facilities affecting railroad operations
- Required training prior to entry on railroad property. Consult with HQ Railroad Liaison for railroad-specific training links.
- Requirements for necessary investigations on railroad property
- WSDOT survey under Revised Code of Washington (RCW) 47.01.170, will require railroad flagging
- Permit requirements for Design-Builder survey
- Permit requirements for environmental studies or monitoring
- Locating and treatment of railroad-related or owned utilities
- Railroad procedures and schedule for design review (railroads have manuals that serve as guides for these processes).
- Contractor Right of Entry agreements
- Conditions under which construction on railroad property may start prior to completion of design
- Time periods during which field and construction activities can occur, including designated construction windows (Form B)
- Operational constraints and requirements for field and construction activities, including flagging responsibility, costs, 4th quarter moratorium, and inspection
- Payments to railroad
- Review time on submittals under contract defined requirements in RFP
- Federal Railroad Administration (FRA) and Utilities Transportation Commission (UTC) (Petition and Order) compliance for any changes to track prior to construction

Railroads typically require review and “no exception” of 100 percent design on DBB projects prior to allowing construction on or over their property. For design-build projects, it would be preferable to obtain a clearance envelope over and beside the railroad and any protective measures required (such as throw fence or crash barrier) based on the conceptual plan. The WSDOT project team should emphasize to the railroad that these minimum requirements will be contractual and although the final design might be different from the conceptual plan, any commitments made in the agreement will be upheld. Any variances during the final design must be approved by the railroad. Once the Design-Builder’s design efforts related to the railroad commence, design submittals will need to be sent to the railroad for their Review and Comment. The over-the-shoulder design reviews should include FRA discussion, additional risks, and Washington UTC.

2-7.13 **Third Party/Adjacent Property Owners**

While WSDOT is in a contractual relationship with the Design-Builder, third parties and adjacent property owners will expect direct communication with WSDOT. If a third-party benefit is requested (local developer, Local Agency), set up the agreement and establish the performance criteria prior to the RFP. The improvement requested by the third party(ies) will be included in the RFP Technical Requirements and appendices for the Design-Builder to include in their proposal.

2-7.14 **Community Engagement/Public Information**

Community engagement is part of the practical design and practical solutions approach and should be performed by WSDOT in accordance with the WSDOT Community Engagement Plan. It is the WSDOT project team's responsibility to gain endorsement from stakeholders, Local Agencies, public, and other interested parties of the Conceptual Design prior to issuing the RFP. The intent of the community engagement is to determine the necessary contractual requirements that need to be added to the RFP based on the needs of the project stakeholders. For example, the Design-Builder shall conduct work as described in the Environmental Justice (EJ) analysis completed by WSDOT. This work may include, but is not limited to, ensuring all outreach materials are in all relevant Limited English Proficiency languages and distributed appropriately to the identified populations within the project area. Community engagement will play a critical role in guiding the Conceptual Design and may shape project goals.

Since the final design, staging, and schedule are the responsibility of the Design-Builder, shifting public information responsibilities to the design-build team during final design and construction is encouraged. If the planned work changes (including additional ROW, added or changed detours/alternative routes, schedule), the Design-Builder shall notify the WSDOT Engineer of the change(s) and a new EJ analysis may need to be completed by WSDOT to reflect the changes. On complex projects with heavy public involvement, requiring the Design-Builder to have a highly skilled public relations expert on staff is encouraged. Press releases and direct contact with elected officials, media, and the public regarding the project (or changes to the project) should *remain* the responsibility of WSDOT except for responses to construction noise inquiries.

2-8 Design Documentation

The WSDOT *Design Manual* Chapter 300 defines design procedures, documentation, and the approvals necessary to deliver successful projects, including projects involving FHWA. The Design Documentation requirements for design-build projects are similar to DBB projects, however, it is the Design-Builder's responsibility to complete all required project development documents for Project Development Approval and to complete the final design documentation Package as part of the final records. WSDOT generally completes the Conceptual Design Approval on design-build projects that include a Basic Configuration prior to issuing the RFP. The Conceptual Design Approval package is included in the appendices as a Reference Document. Those design-build projects that do not include Basic Configuration as part of the RFP, transfer the Conceptual Design Approval and NEPA responsibilities to the Design-Builder as part of their preliminary design effort.

If NEPA responsibilities are transferred to the Design-Builder, the project funding phases need to be modified to align with Federal PE and construction requirements. Coordinate with region Program Management and the HQ Capital Program Development and Management Office.

2-8.1 *Conceptual Design Approval*

The Conceptual Design Approval records the evaluations and decisions made during initial project development that established the design-build project's baseline configuration and the design criteria. The documents required for Conceptual Design Approval on highway projects are defined in the WSDOT *Design Manual* Chapter 300.

2-8.2 *Basis of Design, Design Parameter Sheets, and Design Analyses*

As part of the Conceptual Design Approval package, the Basis of Design is completed to document the project scope and design elements that will be addressed during final design. The conceptual plans are based on the preferred alternative identified in the Basis of Design. Design Parameter Sheets are also part of the Conceptual Design Approval Package and document the conceptual plans design elements against the required WSDOT *Design Manual* criteria.

Any conceptual plans design elements not meeting the criteria in the WSDOT *Design Manual* requires an approved Design Analysis prior to issuing the RFP in accordance with WSDOT *Design Manual* requirements in Chapter 300. All WSDOT approved Design Analysis are identified in the RFP Technical Requirements Section 2.12, *Project Documentation*. For ATCs submitted by the Design-Builder that require a Design Analysis, the Design Analysis must be approved prior to approving the ATC.

2-8.3 *Project Development Approval*

The Project Development Approval is completed by the Design-Builder in accordance with RFP Technical Requirements Section 2.12, *Project Documentation*.