WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

Project Delivery Method Selection Guidance

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State Construction Division

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Executive Summary

In alignment with Reform VII, this formal guidance was developed to aid WSDOT staff in evaluating projects for the most appropriate Project Delivery Method (PDM) based on each project's attributes, opportunities and risks that result in the most cost effective and best value project delivery.

A State Construction Office led focus group established the following goals for the development of this guidance:

1. Establish a systematic approach that can be consistently applied throughout WSDOT,
2. Establish how and when a project should be assessed,
3. Develop the PDM selection process to be scalable for all projects,
4. Design the PDM selection process to provide the documentation for PDM approval,
5. Clearly identify all levels of approval or endorsement in the process.

Historically, Design-Bid-Build (DBB) has been the default PDM for all WSDOT projects unless an Alternative PDM, such as Design-Build (DB) or General Contractor/Construction Manager (GCCM) was pursued. In those cases, internal approval was required from the WSDOT Chief Engineer.

WSDOT is legislatively pre-approved and strongly encouraged to use DB as a PDM for projects with a cost of $2 Million and greater. The use of GCCM by WSDOT currently requires approval from the Capital Projects Advisory Review Board (CPARB), a separate entity outside of WSDOT.

Consistent with the goals identified above, WSDOT, working in collaboration with the Association of General Contractors (AGC) of Washington and the Association of Engineering Companies (ACEC), has developed the Project Delivery Method Selection Guidance (PDMSG) as outlined in this document. This guidance is to be applied to all WSDOT projects from this point forward to determine the optimal PDM. The PDMSG evaluates three methods: DBB, DB, and GCCM. Regional authorities will typically provide the approval of the PDM with additional approvals for larger projects and special cases.

The PDMSG focus group evaluated selection processes of other DOT's and agencies in US and Canada. The Project Delivery Selection Matrix from University of Colorado, Boulder and Colorado DOT was selected as a foundation for developing WSDOT's PDMSG. The guidance in this document has been tailored to incorporate WSDOT's policies and values while retaining the data and evaluation criteria applicable to all transportation projects. After assessing the PDM evaluation methods used by the transportation industry and other entities, a fundamental basis for using a PDM selection process emerged. No one PDM is optimal for all projects.

Some of key features of the PDMSG include the following:

- The PDMSG is integrated with the existing project development process,
- All projects are evaluated in two steps,
    - The Probable PDM is determined during the Project Definition Phase,
    - The Final PDM is determined by validating, updating or revising the Probable PDM (at 10% to 30% design).
- The process to determine the Probable PDM and the Final PDM is scalable to the size and complexity of the project,
- A Selection Checklist is used to quickly identify projects that are have an obvious optimal PDM,
- A Selection Matrix (if needed as a second step) is used for more complex projects to determine the Probable PDM or validate/update the determination for the Final PDM, with a Workshop being required for projects with costs of $100 Million and greater.

The PDMSG provides a scalable, unbiased and systematic process to determine the PDMSG. The process provides the documentation needed to support the PDM selection and gain approval. The approval process and timing is clearly identified and is integrated within the existing project development process. Using a systematic and unbiased process to determine the most appropriate PDM, based on project attributes, opportunities and risks will result in the most cost effective and best value project delivery.

Introduction

This guidance document provides a systematic approach for selecting the optimal PDM for WSDOT projects. It provides the definitions, background, tools and processes to accomplish the following tasks and deliverables:

- Assist WSDOT staff to determine the best PDM for each project.
- Document the PDM decision and approval process.

The previous PDM selection process automatically assumed DBB as the PDM unless approval to use DB or GCCM as the contracting method was pursued. Current policy is that all projects will be evaluated for the optimal PDM.

This document provides progressive evaluation tools to determine the optimal PDM for every project, with each tool scalable to the appropriate level of effort based on the type and size of the project.

PDMSG is integrated into the existing project development processes as outlined in the WSDOT Design Manual (M22-01), including the Project Deliverables Expectation Matrix (Section 305.04(1)(b)). It also coordinates with the CRA-CVEP workshops processes as described in the Project Risk Management Guide. Ultimately, the PDM determination will be integrated into the Design Document Package contained in the Project File.

This document has also used the University of Boulder, Colorado, Project Delivery Selection Matrix located at: http://www.colorado.edu/tcm/project-delivery-selection-matrix, as a starting point in developing this WSDOT guidance. Much of the data, background and some of the process documents are derived from the University of Boulder, Colorado, Project Delivery Selection Matrix, although this guidance has been further developed to meet the goals, values, policies and procedures of WSDOT.

This guidance has been developed by a team with representation from the Construction Division, the Development Division, the Capital Development Program Management Office, the NW Region and Olympic Region. Additionally, this document has contributions from the WSDOT/AGC/ACEC Design-Build Committee, the Design-Build Work Group and numerous other key WSDOT staff.

This is a living document and periodic updates are anticipated to incorporated continual improvement to this guidance and process through lessons learned and changes in WSDOT policies and procedures.

The PDMSG Team that provided the majority of the time and effort to produce this guidance include Scotty Ireland, Mark Gaines, Ed Barry, Matt Neely, Omar Jepperson, John Wynands and Teresa Eckard.

Project Delivery Method Selection Guidance Comment Form

This is a living document and we actively seek user feedback to improve the PDMSG. If you have comments or suggestions please do one of the following:

Send an email with your comment(s), including the contact and guidance information noted below, or

Fill out a copy of this form and attach a copy to an email.

Please send your email to your designated ASDE. Attach any other applicable information you feel will explain/clarify your comment(s).

Date	
Name	
Office & Address/Location	
Phone Number	
Email Address	
Chapter/Appendix, Section, Subsection and/or Page Number	
Comments(s)/Suggestions(s):	

CHAPTER 1. Project Delivery Method Selection Overview

1.1 Definitions

In addition to terms defined in the WSDOT Design Manual, the following terms are defined for use with this guidance.

1.1.1 *Project Delivery Method (PDM):*

The Project Delivery Method is the process by which a transportation project is comprehensively designed and constructed from project definition to closeout. The different Project Delivery Methods are distinguished by the manner in which contracts between WSDOT, designers and contractors are formed and the technical relationships that evolve between each party inside those contracts. Currently, WSDOT primarily uses two types of Project Delivery Methods and is pursuing the use of a third; Design-Bid-Build (DBB), Design-Build (DB) and General Contractor/ Construction Manager (GCCM). The Project Delivery Method determines when the parties become engaged and influences ownership and impact of changes on project cost. No single Project Delivery Method is ideal for all projects. Each project must be examined individually to determine how it aligns with the attributes of each available Project Delivery Method.

1.1.2 *Design-Bid-Build (DBB):*

Design-Bid-Build is the traditional PDM used by WSDOT. When using DBB, WSDOT designs, or retains a designer to furnish complete design services, and then advertises and awards a separate construction contract based on the WSDOT or designer's completed construction documents. In DBB, WSDOT has control over the entire process and is responsible for the details of design during construction and as a result, is responsible for the cost of any errors or omissions encountered in construction. In DBB, selection of the contractor is based solely on price with award of the contract based on the lowest bid.

1.1.3 *Design-Build (DB):*

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. WSDOT typically uses a two-phase selection process where Design-Builders are shortlisted based on qualifications in the first phase and then selected based on price and approach in the second phase. The DB project delivery method allows the phases of design and construction to overlap. The Design-Builder becomes involved early in project development, at approximately the 15% to 30% design level, offering opportunities for innovation and improved constructability, and confirming project costs early. The Design-Builder controls the details of design and is typically responsible for the cost of any design

errors or omissions encountered during construction. Per RCW 47.20.785.WSDOT can use the Design-Build project delivery method for projects that cost $2 Million or more.

1.1.4 *General Contractor /Construction Manager (GCCM):*

General Contractor/Construction Manager is a PDM in which WSDOT contracts separately with a contractor as a Construction Manager and either performs the design or contracts with an engineering firm to provide a design. The Construction Manager is selected early in the project development phase (10% to 30% Design) to provide design and constructability input. WSDOT retains control of the design of the project and is typically responsible for design errors and omissions during construction on GCCM projects. As the design nears completion, WSDOT and the Construction Manager work to negotiate a Maximum Allowable Construction Cost (MACC) for the project. Upon successful negotiation of the MACC, the Construction Manager becomes the General Contractor and works at-risk for the final cost and construction schedule. The early contractor input associated with GCCM delivery is especially suited for projects that are technically complex, require complicated phasing and staging, or require operability of the facility (such as a ferry terminal) during construction. WSDOT must get approval from the Capital Project Advisory Review Board (CPARB), Project Review Board (PRB) subcommittee, before using the GCCM project delivery method.

1.1.5 *Alternative Project Delivery Method*

An Alternative Project Delivery Method refers to any PDM other than traditional DBB. In this guidance, it refers to DB and GCCM.

1.1.6 *Probable Project Delivery Method (Probable PDM):*

The Probable PDM is a preliminary determination that is used for project planning until it can be validated or updated by the Design Project Office assigned to the project. Probable PDM selection occurs at the project definition or "Scoping Phase" (per Design Manual, Section 300.05(1)), and is determined by using the Selection Checklist and/or the Selection Matrix. The Probable PDM assists with the programing and assignment of the project and is a required deliverable within the Project Definition Package. Projects assigned pre-design funding may delay determining the Probable PDM if more information from the pre-design phase is needed to select the best PDM.

1.1.7 *Final Project Delivery Method (Final PDM):*

Final PDM is the PDM determination submitted for approval in preliminary design. Final PDM selection is recommended at the Project Planning and Endorsement stage of the project (approximately 10% design). The Project Engineer will determine the Final PDM by verifying or updating the Probable PDM Selection Checklist/Matrix. If changes in project size or complexity have occurred since the Probable PDM determination, a Selection Matrix Workshop may be needed.

1.1.8 *Project Goals*

Project Goals are an observable and measurable end result having one or more objectives to be achieved as part of the project. Typically, Project Goals are the highest priority end results necessary for a successfully delivered project. Do not confuse the Project Goals with the goals established as criteria in a Design-Build procurement process. There may be overlap, but the purpose and focus of the two types of goals are not necessarily identical. Project Goals and their related Project Delivery Goals are evaluated with numerical scores.

1.1.9 *Project Delivery Goals*

Project Delivery Goals are goals related to the characteristics of the PDMs. A Project Goal may be identical to a Project Delivery Goal or it may have a related goal determined by the Project Goal specifics, causes or risks. Project Delivery Goals are a refinement of the Project Goals and are used to evaluate the ability of the PDMs to meet the Project Goals based on the characteristics of the PDMs.

1.1.10 *Project Constraints*

Project Constraints are end results that **must** be achieved as part of the project. They can often be confused with Project Goals that have a high priority. Project Constraints are evaluated using pass/fail ratings.

1.1.11 *Weights*

Weights are a way to apply relative importance to Project Goals as part of the evaluation process in the Selection Matrix. Project Constraints are not weighted because they are Pass/Fail.

1.1.12 *Ratings*

Ratings are provided in the Selection Matrix and show the relative value of each PDM in achieving the associated Project Goal. Modifications to the Project Goals or new Project Goals may require that the associated ratings be adjusted or created. Appendix A.6, PDM Attribute Comparison Spreadsheet, provides data on the pros and cons of each potential PDM as it relates to project attributes and Project Goals.

1.1.13 *Selection Checklist*

The Selection Checklist is an initial tool developed to quickly evaluate projects using a series of questions. The first part of the Checklist will quickly identify obvious DBB projects and eliminate GCCM due to project cost. Parts II and III of the Selection Checklist have more detailed questions and the RCW requirements for using an Alternative PDM.

1.1.14 *Selection Matrix*

The Selection Matrix is a form of decision matrix developed to evaluate the probability of each of the possible Project Delivery Methods to meet the Project Goals.

1.1.15 *Neutral Goals*

A neutral goal is a Project Goal that has the same rating for each proposed PDM in the Selection Matrix. The Selection Matrix shows several potentially neutral goals. These goals are automatically removed from the scoring, unless modifications to the Project Goal require a shift in the "neutral" rating. Likewise, any Project Goal added to the Selection Matrix that the team determines has the same rating for each PDM, would be neutral and therefore not included in the scoring.

1.2 The Benefits and Timing of Project Delivery Method Selection

After evaluation of the methods used by the transportation industry and other entities, a fundamental basis for using a Project Delivery Method Selection process emerged. No single PDM is optimal for every project; therefore each project should be evaluated to determine the best PDM. Emergency projects would be exempt from this process unless the project team determines that this guidance and process would facilitate the project. The TCRP Report 131, A Guidebook for the Evaluation of Project Delivery Methods indicates that the end of conceptual design (approx. 10% design) is desirable timing for all three possible PDMs to be determined and that the end of preliminary design (approx. 30% design) is at least feasible timing for all three PDM's.

Some of the benefits associated with selecting the optimal PDM for WSDOT projects include:

- Achieving the best price or best value for the project,
- Achieving critical schedule requirements for the project including key milestones,
- Achieving the best quality and maximum scope within the limitations of cost, schedule and other project limits,
- Aligning the Design and Construction Office staff resources with the PDM to increase contract administration efficiency,
- Aligning the attributes of the project with the PDM to best meet the Project Goals,
- Utilize the characteristics of the PDM to effectively mitigate or respond to project risks.

Early identification of the PDM enhances the benefits of using this PDM for the project. While evaluating project delivery methods utilized nation-wide and WSDOT project development guidance, it became clear that the benefits associated with selecting a PDM are reduced or negated if the PDM is not identified early in the design process.

The benefits of early identification of PDM include:

- The Project Management Plan (PMP) needs will vary based on the PDM selected. Early selection maximizes the benefits of having a solid PMP.
- Early selection allows effective early design decisions that affect final costs.
- Early selection facilitates selecting the project office staff and early determination of design effort/resource loading, scheduling and budgeting.
- Early selection facilitates incorporation of PDM risk allocation into the cost estimate.
- Scoping estimates will be more accurate by allowing the team to estimate using factors appropriate to the PDM. For example, GCCM will include costs for an independent cost estimator, construction management, WSDOT management and on-call designer in the PE phase.

1.3 Potential Bias

The processes in this guidance need to be followed without bias. As previously noted, there is no PDM that is optimal for every project. Potential bias for or against a PDM should be considered or discussed briefly and put aside. Awareness of potential bias by the individual or team is the key to being able to consciously discard it.

If a Selection Workshop is part of the process, the assistance of a facilitator is strongly encouraged. A facilitator, familiar with the process and Selection Matrix but independent of the project, can help effectively manage the workshop and allow the Project Engineer the opportunity to fully participate. A facilitator can help keep bias under control and balance the participation of the team in the workshop so that an individual, with a strong opinion and a loud voice, does not dominate the results.

Justification and backup for the Checklist and Matrix is required for each step of the processes and the endorsement and approval processes for the Probable PDM and the Final PDM provide additional checks and balances to prevent bias.

1.4 Project Delivery Method - Project Holds/Approved PDM Change

If a project is on hold for a substantial time (i.e. no work proceeding) after the Probable or Final PDM is determined, it would be prudent for the Project Engineer to check the viability of the PDM once the project recommences. If two years or more have elapsed without work on the project, a new evaluation of the Probable PDM and/or Final PDM is required when the project proceeds.

Significant changes can occur on a project that may affect the optimal PDM. If the Final PDM has been approved and a substantial change occurs to the project scope of work, the Project Engineer should review the documentation for the Final PDM selection to see if it is impacted. If a revision to the approved Final PDM is indication, the Project Engineer will submit a revised Final PDM for approval per the processes provided. If the change occurs after 30% design, the impacts to the project and the benefits of the revised PDM must be provided as part of the justification for this change and it will follow the same approval process as an exception to the guidance.

CHAPTER 2. Determining Probable Project Delivery Method

2.1 Summary

The scope, budget, schedule and risks developed for the Project Summary are needed to determine the Probable PDM. Part I of the Selection Checklist allows quick identification of DBB projects or eliminates GCCM based on project cost. Part II provides quick identification of the Probable PDM or possible delivery options. Part III confirms that the RCW requirements for an Alternative PDM are being met. If the Selection Checklist does not determine a Probable PDM or if the project is $25 Million or more, the Selection Matrix shall be used to determine the Probable PDM. The Selection Matrix process uses a decision matrix with Project Goals rated against each PDM. If the result is indeterminate, the Probable PDM can be determined later when more project information is available, although this should be a rare occurrence. Projects which are large and complex that are assigned pre-design funding may fall into this category and delay determining the Probable PDM until some or all of the pre-design work is complete. The Probable PDM will be included with the Project Summary documentation. Validation or revision of the Probable PDM will be performed later in the project's development as part of the Final PDM determination.

2.2 Probable PDM Selection Process Requirements

Each project will complete the required process for determining the Probable PDM. These requirements are based on the cost of the project provided in Table 2.1. The Project Engineer may choose to do more than the required process to determine the Probable PDM.

Table 2.1 Determining Probable Project Delivery Method

Estimated Project Cost	Required Process
• Less than $2 Million*	Part I and IV of Selection Checklist
• Equal to or greater than $2 Million* but less than $25 Million	Part I, II, III and IV of Selection Checklist
• $25 Million or greater, or • Parts II and III of the Checklist does not determine a Probable PDM	Selection Matrix

*This limitation relates to Design-Build Contracts and the estimated contract cost which includes Construction and PE costs included in a potential DB contract. Project Cost is used in all other cases.

2.3 A Heuristic or "Rule of Thumb" when Evaluating Probable PDM

The evaluation of project attributes against the characteristics of each PDM is the most important basis for determining the optimal PDM. Project cost is not the primary attribute to determine the optimal PDM except as a criteria established by the RCW's or a feasible minimum.

Based on WSDOT's Small Design-Build Pilot Project Evaluation Report, the Department has determined that projects with a cost of between $2 Million and $10 Million can be successful candidates for using DB as a PDM if they have certain attributes that benefit from the DB PDM. In alignment with these findings, in

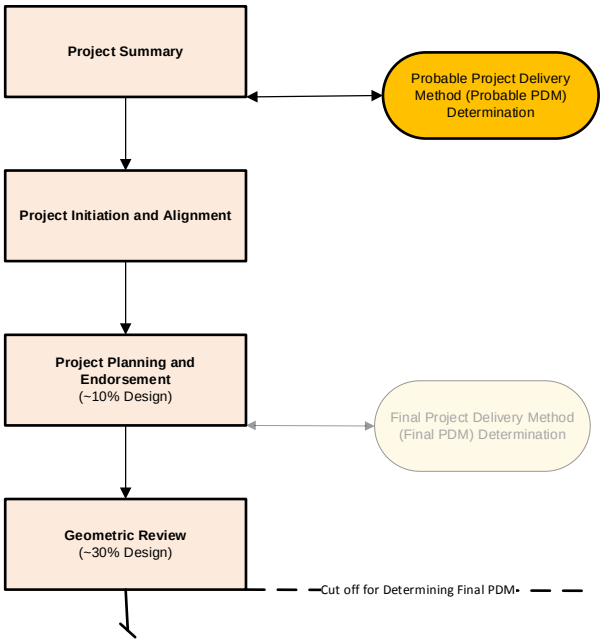
2015 Legislature passed a transportation bill (2ESSB 5988) that "strongly encouraged" the Department to use DB PDM and reduced the minimum value that the WSDOT is authorized to use DB from $10 Million to $2 Million.

However, it should be noted that based on industry practice and opinion, projects with costs between a $2 and $10 Million range are less likely to have the attributes that benefit from DB, although they should still be evaluated for potential benefit. Projects with costs that are $10 Million or greater but less than $25 Million are more likely to have the characteristics that benefit from an Alternate Delivery Method (DB or GCCM) while projects over $25 Million would typically have the characteristics that benefit from an Alternate Delivery Method.

This "rule of thumb" should be used as an indicator with the evaluation for determining the Probable PDM and to insure that a clear justification for the result is provided. This is not intended to replace the process, but should be used to make sure that a rigorous evaluation and justification is provided when a specific project deviates from this trend for projects over $10 Million.

2.4 Recommended Timing for Determining Probable PDM

Figure 2.1 Determination of Probable PDM as part of Project Development Phases Flowchart



2.5 Participation

The Probable PDM will be determined based on the information provided by the staff assigned to the Project Definition. It is recommended to have Region representatives that will be responsible for the design and construction of the project participate in the assessment. The following staff members are expected to participate in this process:

- Project Engineer/Project Design Lead or Program Management staff assigned the Project Definition of the project.
- Regional Project Development Engineer's Representative(s) assigned the Project Definition of the project.
- Construction Project Engineer will consult as appropriate, if assigned.

Once a Probable PDM is selected, participation by the following staff members may occur if an exception to the guidance is requested or if the project cost is $25 Million or greater:

- Regional Administrator.
- Assistant State Design Engineer.
- Assistant State Construction Engineer.

2.6 Tasks Prior to Determining the Probable PDM

Determining a PDM is based on the project's attributes. The following tasks will need to be performed prior to determining the Probable PDM:

1. Study the Project Delivery Method Selection Guidance.
2. Thoroughly review the appendices on how to use the Selection Checklist/Matrix.
3. Develop and review the initial Project Summary Package, including or expanded as follows:
    a. Project Description and attributes such as scope, schedule and budget (reference the Project Description Worksheet as an additional tool).
    b. Project Goals and Project Constraints.
    c. PDM Attribute Comparison Spreadsheet – review the pros and cons of the three project delivery methods as they relate to different project attributes.
    d. Preliminary Risk Assessment (reference the Risk Assessment Guidance in Appendix A as an additional resource).

2.7 Probable PDM Determination Process

2.7.1 *Overview*

The process is shown in the outline below and in Figure 2.1. It consists of individual steps followed in sequential order and follows, in general, milestones defined in the Deliverables Expectation Matrix (Appendix A.1).

2.7.2 *Probable PDM Determination- Selection Checklist Process*

The purpose of the Selection Checklist (Appendix A.2) is to provide an initial tool to quickly evaluate projects using a series of questions. The first part of the Checklist will quickly identify obvious DBB projects or eliminate GCCM based on project cost. Parts II and III have more detailed questions and the RCW requirements for using an Alternative PDM. The Selection Checklist will determine the Probable PDM in Parts I, II or III; reduce the options for Probable PDM before utilizing the Selection Matrix; or identify all three methods as options for Probable PDM for the Selection Matrix process. In summary the process includes the following steps:

I. Review the Project Summary Package and other project information,

   A. Determine project attributes including scope, schedule, and budget.

   B. Identify Project Goals.

   C. Determine and review Project Constraints.

   D. Identify project risks.

II. Selection Checklist Parts I and II,

III. If more effort is needed to determine the Probable PDM, questions associated with the Project Goals or Project Constraints are identified and the results given more weight,

IV. Selection Checklist Part III - RCW Requirements.

V. If the Selection Checklist did not determine a Probable PDM, the project cost is $25 Million or more or if the Project Engineer determines that additional evaluation would be beneficial to the project, then go to Subsection 2.7.3, Step II and proceed with using the Selection Matrix to determine the Probable PDM.

2.7.3 *Probable PDM Determination– Selection Matrix*

The Selection Matrix is used to determine the Probable PDM if the project cost is $25 Million or more or if the Checklist did not determine the Probable PDM. Utilizing a decision matrix format, the Selection Matrix has general Project Goals with ratings assigned to each goal for each possible PDM that typically affects the PDM selection per the transportation industry and WSDOT. The user will identify the general goals provided that apply to their project, refine or add goals if needed (with associated adjusted or new ratings),

apply weights to the Project Goals in accordance with their relative importance, and multiply ratings with weights for scores to be total for each possible PDM. If there are any Project Constraints, they may initially be identified as high priority Project Goals. Rather than having a Weight with relative importance related to the others goals, they are a requirement of the project and will be evaluated as a pass/fail against each possible PDM.

After a Probable PDM is identified, it will be evaluated against the project risks to ensure that it is a viable option, resulting in a determination of the Probable PDM. In summary the process includes the following steps:

I. Review Project Summary Package and other project information,

   A. Determine project attributes including scope, schedule, and budget.

   B. Identify Project Goals.

   C. Determine and review Project Constraints.

   D. Identify project risks.

II. Identify Project Goals in the matrix.

   A. Eliminate any of the provided Goals that do not apply to the project or are minor or PDM selection neutral.

   B. Clarify the language of the provided Project Delivery Goals that apply or relate to your Project Goals.

   C. Review and adjust the rating for each Project Delivery Goal, if needed, and provide justification.

   D. Add Project Delivery Goals if needed and provide rating for each possible PDM.

III. Identify Project Constraints, if any, including Project Goals or Project Delivery Goals that are really Project Constraints and evaluate possible methods as pass/fail.

IV. Cross out columns for PDM's that fail Constraints, and do not consider those further in your evaluation.

V. Assign Weights for Project Goals, score and total scores for possible PDM's.

VI. If there is a clear choice of PDM, then:

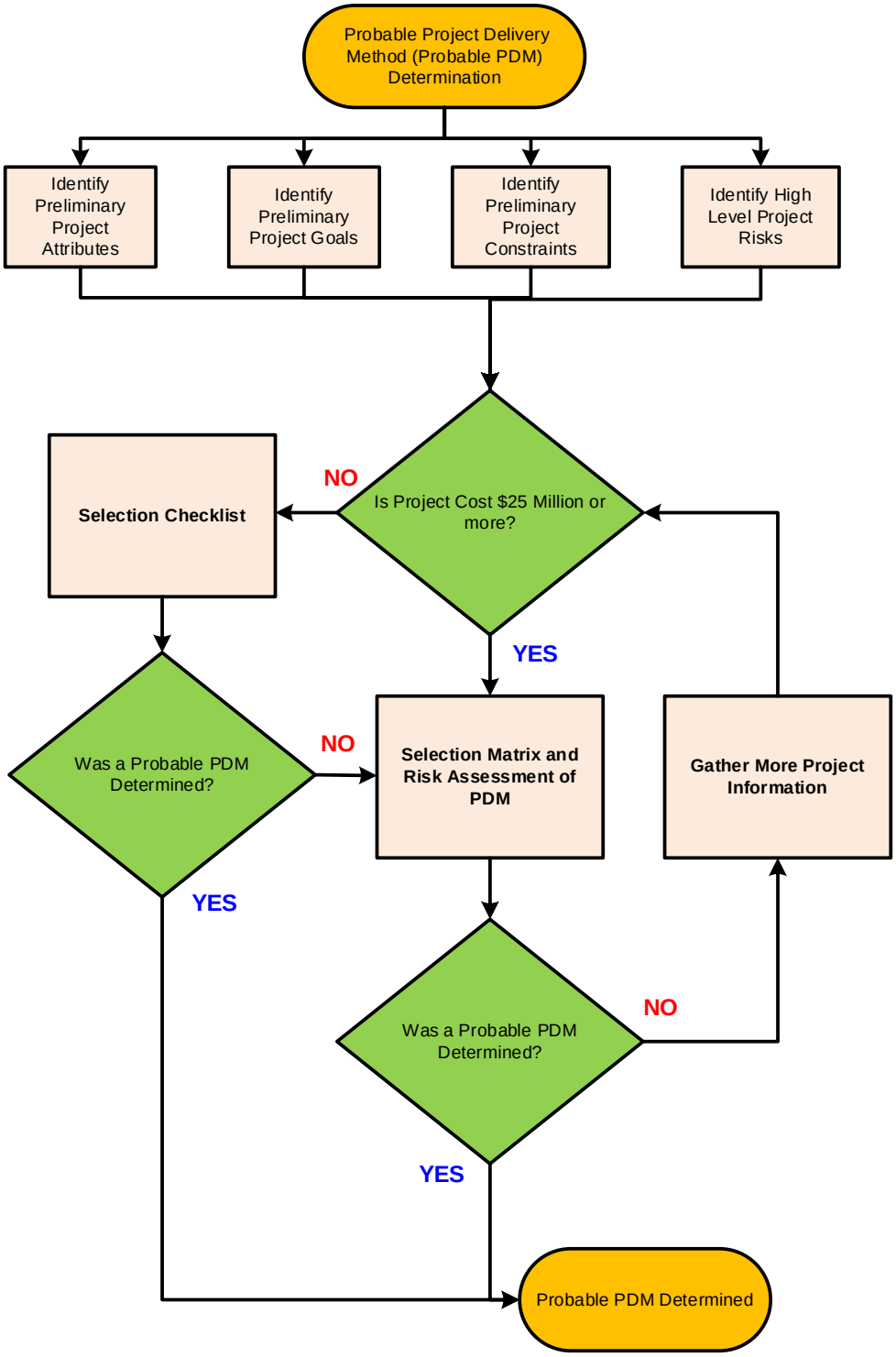
   A. Perform an initial risk assessment for the Probable PDM (evaluate the Probable PDM ability to overcome the project risks and/or if the PDM creates additional risks and if these are acceptable).

VII. If there is not a clear choice of Probable PDM, then:

   A. Perform an initial risk assessment on all remaining PDM's.

   B. If there is still no clear Probable PDM, redo the Probable PDM Selection Checklist/Selection Matrix when additional project information is available. Large and complex projects may have pre-design funding. Determine Probable PDM utilizing the information developed in the pre-design phase, if applicable.

Figure 2.2 Probable PDM Determination Flowchart



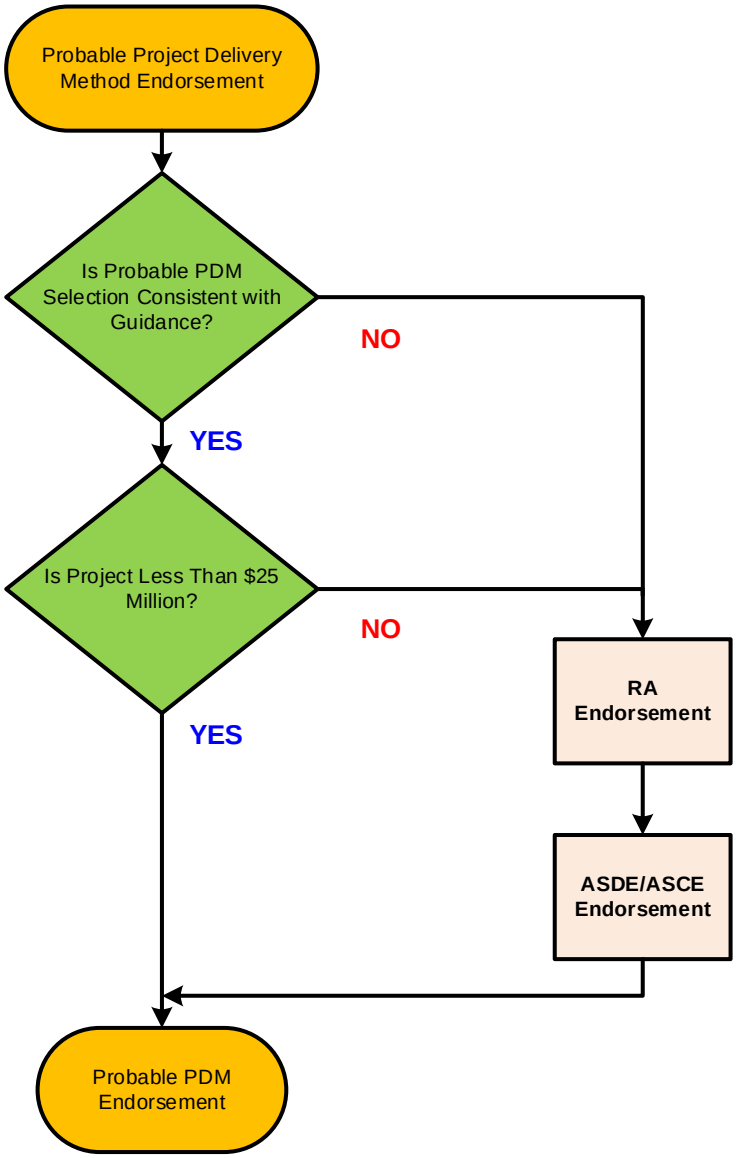
2.8 Probable PDM Endorsement Process

I. If an exception to the guidance is requested or project budget is $25 Million or more, then;

a. Regional Administrator (RA) recommends and endorses Probable PDM,

b. Assistant State Design Engineer (ASDE) and Assistant State Construction Engineer (ASCE) review and endorse RA recommendation of the Probable PDM.

Figure 2.3 Probable Project Delivery Method Endorsement Flowchart



CHAPTER 3. Determination of the Final Project Delivery Method

3.1 Summary

The project information further developed after the Project Summary Package will be used, in conjunction with the Probable PDM documentation to determine the Final PDM. It is recommended that the Final PDM be determined as early as possible in the "Project Planning and Endorsement" phase as defined in the "Deliverables Expectation Matrix", but no later than the "Geometric Review" phase or approximately 30% Design. In determining the Final PDM, the project design team will need to identify additions or changes to the project information, identify significant changes, review the applicable Probable PDM documentation, and validate or revise the documentation to confirm or revise the Final PDM. If the project team considers the determination to be clearly supported by the validated or revised documentation, and the project is less than $100 Million, then no additional work is needed.

For projects $25 Million or over, the Final PDM should be determined before the required Cost Risk Assessment (CRA) Workshop. All projects $100 Million or over will go through the Final PDM Selection Matrix Workshop before the required Cost Estimate Validation Process (CEVP) Workshop. The Final PDM should be determined **at least one month prior** to a CRA or CEVP Workshop to allow sufficient time to incorporate the PDM into the project documents required prior to these Workshops. Because the CRA or CEVP process could modify or change the PDM in a few rare cases, the Project Engineer/Project Office should defer seeking approval for the Final PDM until after the CRA/CEVP Workshops.

It may be necessary to delay determining the Final PDM past the recommended 10% design due to the need to develop project information critical to the determination but as previously state, it should be determined no later than 30% design. Delaying until after 30% design to determine the Final PDM will impact the benefits gained using GCCM or DB as the PDM, and may adversely impact the cost and schedule of the project. Determination of the Final PDM and the CRA/CEVP Workshops should be identified as milestones in the Project Management Plan (PMP) to ensure that the processes are coordinated and not unnecessarily delayed.

3.2 Changes to the Final PDM

A significant change to a project may cause the Project Engineer to re-evaluate the approved Final PDM. If this occurs, the Project Engineer should assess the impacts of the project change to the Final PDM documentation and the justification and backup including the risk analysis. If a change to the approved Final PDM is indicated, the Project Manager will need to update the documentation and pursue approval in accordance subsection 3.10 Final PDM Approval Process. Justification of the

change in the approved Final PDM should be provided as well as impacts from this change to the project scope, schedule and budget.

3.3 Final PDM Selection Process Requirements

Each project will complete the required process for determining the Final PDM. These requirements are based on the cost of the project provided in Table 3.1. The Project Engineer may choose to do more than the required process to determine the Final PDM.

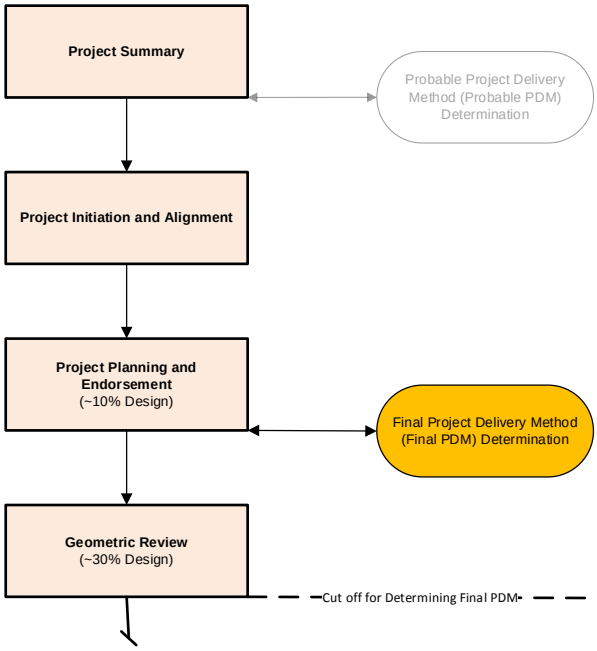
Table 3.1 Determining Final Project Delivery Method

Estimated Project Cost	Required Process
• Less than $2 Million*	Validate or Revise Part I and V of Selection Checklist
• Equal to or greater than $2 Million* but less than $$25 Million	Validate, Revise or Complete Part I, II, III and V of Selection Checklist
• $25 Million or greater but less than $100 Million, or • Validation/Revision of Parts II and III of the Checklist does not determine a Final PDM	Validate, Revise or Complete Selection Matrix
• $100 Million or more, or • Validation/Revision of the Selection Matrix does not determine a Final PDM	Selection Matrix Workshop

*This limitation relates to Design-Build Contracts and the estimated contract cost which includes Construction and PE costs included in a potential DB contract. Project Cost is used in all other cases.

3.4 Recommended Timing for Determining Final PDM

Figure 3.1 Determination of Final PDM as part of Project Development Phases Flowchart



3.5 Participation

The Final PDM will be determined by the Project Engineer assigned to the design and/or construction of the project. The following staff members are expected to participate in this process:

3.5.1 *Final PDM Validation/Revision Process*

- Project Engineer/Project Design Lead assigned to the design/construction of the project (this may be different offices).
- Project Office/staff assigned to the design and construction of the project, as appropriate and available.

3.5.2 *Final PDM Selection Matrix Workshop*

- Project Engineer/Project Design Lead assigned the design/construction of the project (this may be different offices.)
- Project Office/staff assigned to the design and construction of the project, as appropriate and available.
- Assistant State Design Engineer.
- Assistant State Construction Engineer.
- Facilitator – facilitators for the Selection Matrix Workshop will be trained for each region and may be shared between regions.

3.5.3 *Final Project Delivery Method Approval/Endorsement*

Once a Final PDM is determined, the following additional participation will occur:

- Regional Administrator.

Once a Final PDM is selected, the following additional participation may occur if a project cost is $100 Million or greater or if an exception to the guidance is requested:

- Assistant State Design Engineer.
- Assistant State Construction Engineer.
- Chief Engineer

3.6 Tasks Prior to PDM Validation/Revision Process/Selection Matrix Workshop

1. Study the Project Delivery Method Selection Guidance.
2. Review the Project Summary Package and other project information and identify changes (scope, schedule, preliminary drawings, goals, risks and constraints).
3. Refine and revise the Project Delivery Description Worksheet if applicable.
4. Refine and revise the Project Goals and Constraints.
5. Refine and revise risks or Risk Assessment (if applicable).
6. Review any new project information associated with any related or expanded tasks (e.g. CRA or CEVP documentation).
7. Coordinate with CRA/CVEP Workshops per section 3.1.1 of this guidance.

3.7 Final PDM Determination – Process Overview

The process is shown in the outline below and in Figure 4.1. It consists of individual steps followed in sequential order and follows, in general, milestones outlined in the Deliverables Expectation Matrix (Appendix A.1).

3.8 Final PDM Determination – Validation/Revision Process

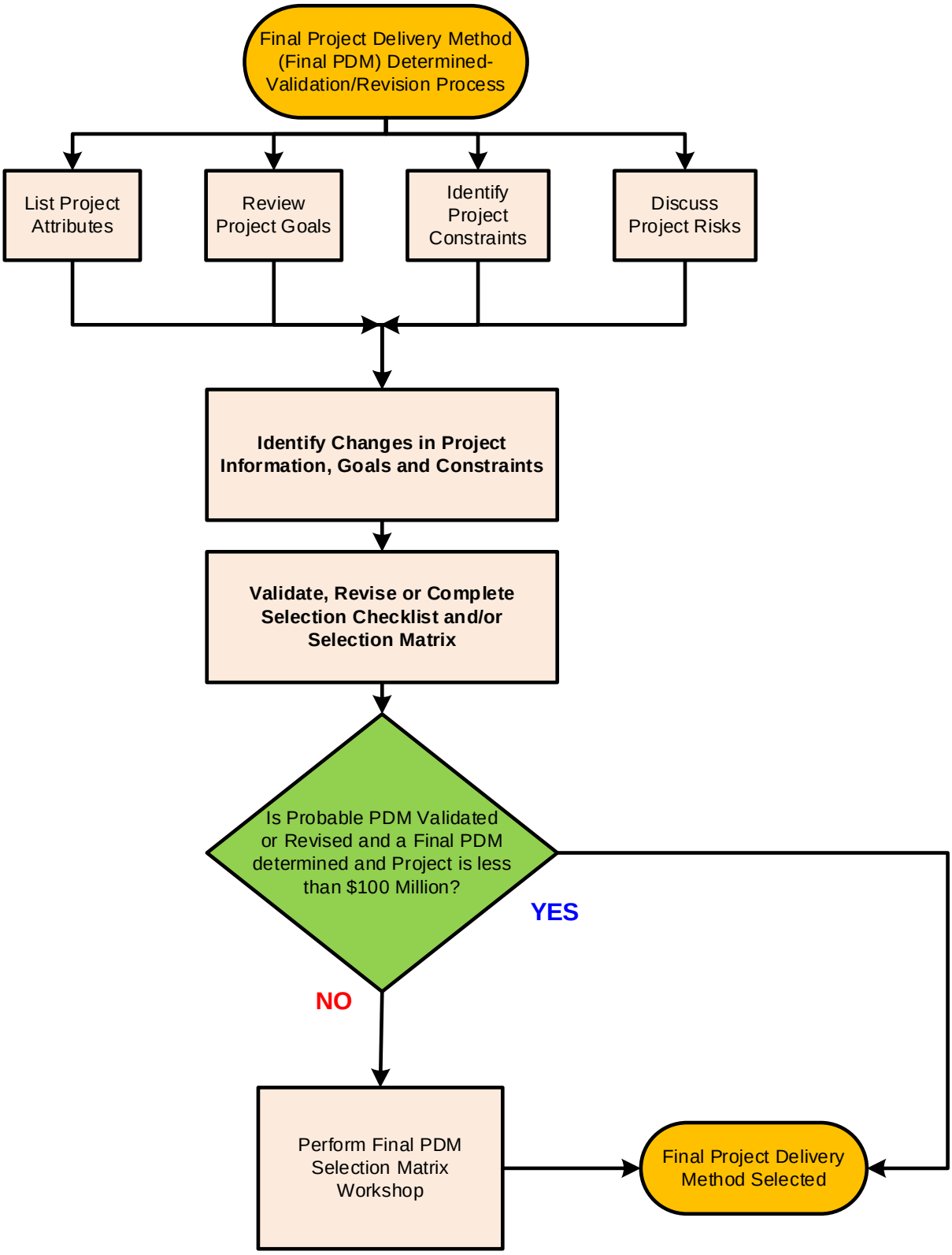
I. Identify any changes in Project information (scope, schedule, budget, goals, etc.).

II. Revise the original Selection Checklist and/or Selection Matrix with additional information and changes, if any.

III. If any of the follow are true, perform the Selection Matrix Workshop

   1. There is no clear choice.
   2. The Probable PDM was not validated, and the revised Selection Checklist and/or Selection. Matrix does not clearly indicate a Final PDM.
   3. The project cost is $100 Million or more.
   4. The Project Engineer chooses to perform the Selection Workshop.

Figure 3.2 Final PDM Determination – Validation/Revision Process Flowchart



3.9 Final PDM Determination – Selection Matrix Workshop

I. Assemble Workshop Team/Pre-work.

II. Identify Project Goals.

A. Goals associated with the following are included in the Matrix:

1. Schedule.
2. Cost/Funding.
3. Standards.
4. Function (Complexity & Innovation).

III. Identify Project Constraints and eliminate Project Delivery Methods that fail.

IV. Review Goal ratings, determine Weights and score matrix.

V. If the completed matrix indicates there is a clear choice of Final PDM, then perform an initial risk assessment for the selected PDM.

VI. If there is not a clear choice of Final PDM, then perform an initial risk assessment on all remaining Project Delivery Methods.

VII. If the previous steps do not result in a clear determination of the Final PDM then perform a more rigorous evaluation of all goals and risks against the three potential methods of delivery (DBB, DB and GCCM).

A. Are Project Goals clearly defined and weighed appropriately?

B. Are all risks identified?

C. Are all Constraints identified?

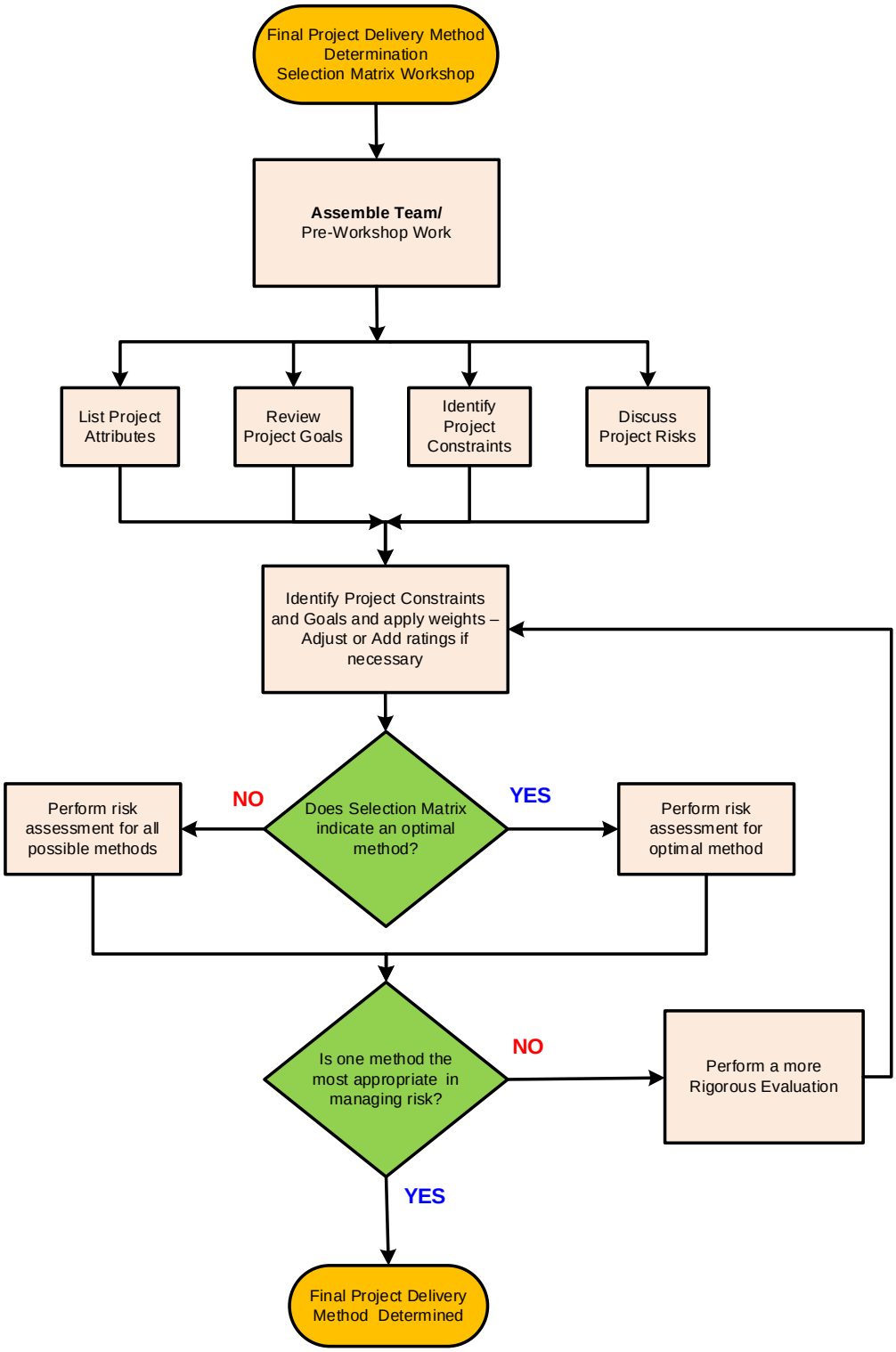


Figure 3.3 Final PDM Determination - Selection Matrix Workshop Flowchart

3.10 Final Project Delivery Method (Final PDM) Approval Process

I. If the Project cost is less than $100 Million and complies with the guidance; then the Regional Administrator reviews and approves the Final PDM.

II. If the Project cost is $100 Million or more; then

A. The Regional Administrator Approves the Final PDM and submits it to HQ for endorsement; and

B. The Assistant State Design Engineer and Assistant State Construction Engineer endorse the Final PDM. If they do not endorse the Final PDM, the Regional Administrator will provide the additional justification and modifications as necessary to gain the ASCE and ASDE endorsement.

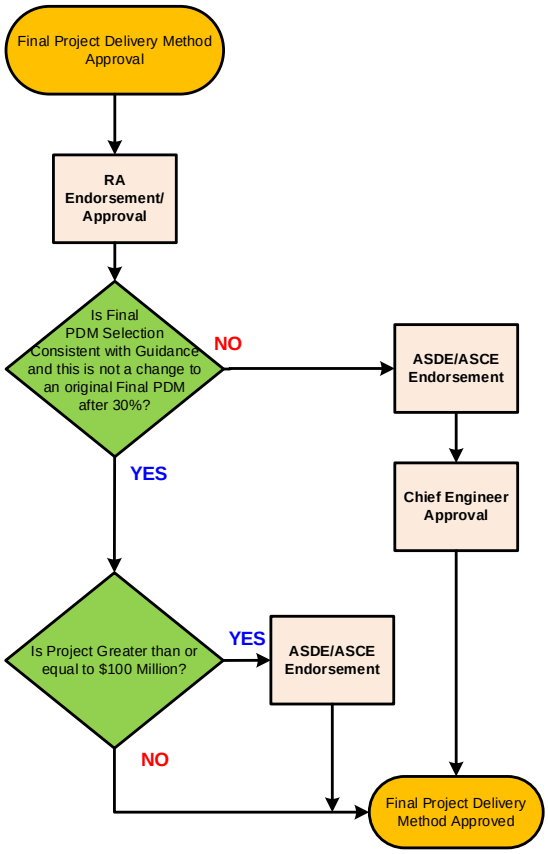
III. If an exception to the guidance is requested for the Final PDM or the original Final PDM is changed after 30% design; then

A. The Regional Administrator endorses the Final PDM and recommends approval to HQ;

B. The Assistant State Design Engineer and Assistant State Construction Engineer review and endorse the Final PDM; and

C. The Chief Engineer reviews and approves the Final PDM.

Figure 3.4 Final PDM Approval Flowchart



Appendix A Worksheets and Forms

The following forms are included to facilitate this process.

A.1 Project Deliverables Expectation Matrix - Reference WSDOT Design Manual, 305.04(1)(b)

Only page one as modified for the PDMSG deliverables is provided.

A.2 Project Delivery Method - Selection Checklist

Fill out the appropriate sections of the Selection Checklist to determine the Probable PDM or verify/revise for the Final PDM. Goals and Constraints may be used in Step 2 to refine the focus to determine the Probable PDM.

A.3 Project Delivery Method - Selection Matrix

Determine which of the provided Project Goals are applicable. Identify if any are Project Constraints (Pass/Fail). These are instrumental first steps of the process that will guide the selection of the Probable PDM. Weigh each goal based on its relative importance to the project, score each goal by possible PDM and total the scores with the highest score indicating the PDM. Check the selected PDM against risks and secondary factors. Provide assumptions and backup as required.

Project Delivery Method - Selection Matrix Workshop

Utilizing the Selection Matrix in a workshop setting, determine the Final PDM. Typically the workshop would utilize a facilitator and the team would evaluate the project attributes in more detail. Modify or create goals in the workshop. Identify if any are project constraints (Pass/Fail). Review and assign or modify ratings as needed. Weigh each goal based on relative importance to the project, score and total scores. Check the selected Final PDM against risks and secondary factors. Provide assumptions and backup as required.

*A.4 Project Delivery Description Worksheet**

Provide information on the project. This includes size, type, funding, risks, complexities, etc. All information should be developed for the specific project. Document any assumptions, if necessary.

A.5 PDM Attribute Comparison Spreadsheet

This spreadsheet provides the project team with a basis for evaluating typical Project Delivery Method pro's and con's associated with project attributes. This spreadsheet includes general information and is not intended to be all-inclusive. Use the spreadsheet as a supplement to determining specific pro's and con's related to your project's goals and attributes and the evaluation of rankings for the selection matrix, and assistance with evaluating risks.

Appendix A Worksheets and Forms

*A.6 Risk Assessment Guidance **

This guidance section provides the project team with additional assistance for evaluation of the risk factor including: Typical Transportation Project Risks; a General Project Risks Checklist; and a simplified qualitative risk analysis spreadsheet that can be used to record and evaluate risks relating to the PDM early in the project or for smaller or less complex projects. The WSDOT Qualitative Risk Analysis process and spreadsheets are referenced as links at the beginning of Appendix A.6.

*Note: Use of these tools is optional and they are provided to facilitate the organization of information at the discretion of the Project Engineer. The Project Engineer/Project Office would typically use the Project Summary Package and the PMP as the primary backup for the processes, workshops and required documentation.

Appendix A Worksheets and Forms - A.1 Deliverable Expectation Matrix

	Project Definition and Summary (PE.PS.08)	Project Initiation and Alignment	Project Planning and Endorsement (10%)	Geometric Review (30%)	General Plans Review (60%)	Preliminary Contract Review (90%)	Final Contract Review (100%)	Contract Ad and Award	Project Close Out and Archiving
Milestone Purpose	Documents the project purpose, type, strategy, phase durations, budget, and recommended ad date.	Provides basis to charter project team and begins development of the PMP. (PE.PM.03.12)	Documents the key project criteria, assumptions, and deliverable format.	Documents design criteria and major design decisions. (PE.PD.42)	Design of major project elements completed, review for constructability and conformance with standards (PE.PD.75)	On small projects, this may be combined with the Final Contract Review. (PE.PD.80) On major projects, this is an added constructability review. (PE.PD.75) This is intended to be a near-final review. Items missing from design should be minor and should be documented to reviewers.	PS&E documents are reviewed by the Region (typically 10 weeks). At end of this review, Contract Plans are Ad Ready. (PE.PD.80)	Submittal of all final deliverables for owner acceptance. (PE.PD.90)	Archive and forward all required project records and files.
Decisions Frozen and Milestones Completed (Overview)		Expected level of effort Authorized budget Deliverable list (PE.PM.03.12)	Milestone dates set Study framework set Study criteria set Assumptions defined Design criteria set (PE.PD.42)	Design concept fixed Design features defined NEPA/SEPA approval obtained (PE.EV.11.60) Type size and location of all structures fixed (PE.BR) Footprint set Approval to begin ROW acquisition process (RW.PA) Approval of geometric design Design Concurrence/ Approval (PE.PD.42)	All key project elements and features that drive the project outcome and costs are defined. Type, size and location of key elements and features fixed. Geometric Review comments resolved and documented.	The deliverables are substantially complete Review and acceptance of design detail of key elements and features (PE.PD.75) Permits Obtained. All environmental permits are approved, verified, and accepted for inclusion into the plans (PE.EV.29) General Plans Review comments resolved & documented. (PE.PD.80)	The deliverables are complete. All review comments adjudicated. Plans and specifications stamped and sealed at end. ROW Certification (PE.PD.90.03) Final Project Approval (PE.PD.80)	Owner accepts design Approval to advertise ROW is clear (PE.PD.90)	PS&E documents boxed w/original plans & sent to Archive. (PE.PD.90.14) Electronic CAD and CAE files and supporting project documentation transmitted to the WSDOT Project Manager. (PE.PD.90.15)
Preliminary Engineering									
Design/PS&E Elements									
Project Management (PE.PM)	Project Definition completed. (PE.PS.08) Environmental Review Summary completed. (PE.PS.08.03) Design Decisions Summary completed. (PE.PS.08.02)	Project definition (description) completed (PE.PS.08) Team assignments made Team identification completed Roles & responsibilities established Measures of success identified Major Milestones established Boundaries of project identified Operating guidelines established Lessons Learned Review	Project Management Plan completed, including: Baseline schedule Budget Risk assessment Communication plan Change management plan QA/QC plan Endorsement (PE.PM.03)					Construction Project Management Plan completed (CN.03.PM.03)	Lessons Learned captured and reported Evaluation of team/ consultant performance completed (CN.03.PM.03)
Project Delivery Method Selection	Determine Probable PDM (May be deferred to pre-design phase if applicable)		Recommended: Determine Final PDM	Required: Determine Final PDM					

Appendix A Worksheets and Forms-A.2 Project Delivery Method Selection Checklist

Project Name	☐ **Probable PDM** **Date**_____ ☐ **Final PDM** **Date**_____ ☐ **Change Final PDM** **Date**_____
Project Status	☐ Project Summary ☐ Initiation & Alignment ☐ Planning & Endorsement (~10% Design) ☐ Geometric Review (~30% Design) ☐ Past Geometric Review (Past 30% Design)

PART IA (SEE APPENDIX C)		DBB Only	DBB, DB or GCCM
Cost	A. Is the Project Estimate $2 Million or less	☐ Yes	☐ No
	*RCW does not allow use of DB for a project contract cost (PE & Const.) less than $2 Million		

A **Yes** answer above indicate Design-Bid-Build as the Project Delivery Method

Part IA: Probable Project Delivery Method Recommendation
☐ DBB Only ☐ DBB, DB or GCCM (Go to Part IB) ☐ Proposed Exception (Go to Part IB)
If DBB Only is selected, skip Parts II and III and go to Part IV

Part IA: Final Project Delivery Method Recommendation
☐ DBB Only ☐ DBB, DB or GCCM (Go to Part IB) ☐ Proposed Exception (Go to Part IB)
If DBB Only is selected, skip Part II and III and go to Part V

Part IA: Change Final Project Delivery Method Recommendation
☐ DBB Only ☐ DBB, DB or GCCM (Go to Part IB) ☐ Proposed Exception (Go to Part IB)
If DBB Only is selected, skip Part II and III and go to Part VI

PART IB (SEE APPENDIX C)		DBB or DB	DBB, DB or GCCM
Cost	B. Is the Project Estimate $10 Million or less?	☐ Yes	☐ No
	Note: Would not typically use GCCM for a project at $10 Million or less.		

A **Yes** answer above indicate GCCM is not a viable Project Delivery Method

Part IB: Probable Project Delivery Method Recommendation
☐ DBB or DB Only (Go to Part II) and cross out GCCM as a Viable Option
☐ DBB, DB or GCCM (Go to Part II)

Part IB: Final Project Delivery Method Recommendation
☐ DBB or DB Only (Go to Part II) and cross out GCCM as a Viable Option
☐ DBB, DB or GCCM (Go to Part II)

Part IB: Change Final Project Delivery Method Recommendation
☐ DBB or DB Only (Go to Part II) and cross out GCCM as a Viable Option
☐ DBB, DB or GCCM (Go to Part II)

PART II SEE APPENDIX C FOR GUIDANCE ON FILLING OUT THIS CHECKLIST				IS QUESTION RELATED TO A GOAL OR CONSTRAINT?
Schedule	A. Are there 3rd party agreements with local government or agencies that require a full design before execution? (Is a significant portion of the project impacted?)	**DBB/GCCM** ☐ Yes	**DB** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			
	B. Are there long lead, lengthy environmental permits or ROW issues that would delay start of Construction? (Is a significant portion of the project impacted?)	**DBB/GCCM** ☐ Yes	**DB** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			

	C. Is early obligation of funds necessary? (Such as a deadline to obligate grant funding)	**DB** ☐ Yes	**DBB/GCCM** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			
	D. Is there time to prepare 100% design?	**DBB/GCCM** ☐ Yes	**DB** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			
	E. Is there a need to compress the schedule?	**DB** ☐ Yes	**DBB/GCCM** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			
	F. Do funding limits restrict when the schedule can start? (such as the Biennium)?	**DBB/GCCM** ☐ Yes	**DB** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			
Complexity and Innovation	G. Are there significant risks that could be better managed by others than WSDOT?	**DB** ☐ Yes	**DBB/GCCM** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			
	H. Does the project involve specialty engineering or high-tech designs or have other opportunities for innovation?	**DB/GCCM** ☐ Yes	**DBB** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			
	I. Does the project require complex phasing and staging with the possibility of high impacts to the public?	**DB/GCCM** ☐ Yes	**DBB** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			
	J. Does an existing road or facility need to remain in service? (no options for detour or an alternate facility available and a significant portion of the project is impacted)	**DB/GCCM** ☐ Yes	**DBB** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			
	K. Is WSDOT willing to give up control of design and/or construction on this project?	**DB** ☐ Yes	**DBB/GCCM** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			
	L. Are critical 3rd party involvement and changes likely during design & construction?	**DBB/GCCM** ☐ Yes	**DB** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			
Cost/ Funding	M. Is early certainty of the total project cost important? (Increased certainty of total cost early in the project needed due to funding or project constraints)	**DB** ☐ Yes	**DBB/GCCM** ☐ No	**Goal** ☐ **Const** ☐
	Justification:			

Appendix A Worksheets and Forms-A.2 Project Delivery Method Selection Checklist

The following PDM Options are indicated from the responses to the questions in Part II (Constraints and Goals) ☐ **DBB** ☐ **DB** ☐ **GCCM**			
Proposed Exceptions or Change to Final PDM	(Optional) Describe the proposed exception to the guidance provided by the questions in Part II or the Change to the project that resulted in a Change in the Final PDM:		
	Provide Justification for the Exception or Change:		
PART III: RCW REQUIREMENTS TO USE DESIGN-BUILD OR GENERAL CONTRACTOR/CONSTRUCTION MANAGER			
Design-Build **RCW 47.20.785**	**1. Is the preliminary Engineer's Estimate $2 Million or greater?**	☐ **Yes**	☐ **No**
	If the answer to 1 is yes, continue with questions 1a through 1d. If no, Design-Build is not a viable option.		
	1a. Are construction activities highly specialized?	☐ Yes	☐ No
	1b. Is a DB approach critical in developing the construction methodology?	☐ Yes	☐ No
	1c. Does the project provide opportunity for greater innovation and efficiencies between the designer and builder?	☐ Yes	☐ No
	1d. Would use of DB result in significant reduction to the overall project schedule or critical milestones?	☐ Yes	☐ No
	If yes was selected for any of questions 1a through 1d, Design-Build is a viable PDM option.		
GCCM **RCW 39.10.340**	**2. Is CPARB approval to use GCCM likely?**	☐ **Yes**	☐ **No**
	If the answer to 2 is yes, continue with questions 2a through 2e. If no, General Contractor/ Construction Manager is not a viable option.		
	2a: Does the project involve complex scheduling, phasing or coordination?	☐ Yes	☐ No
	2b: Does the project involve construction at an occupied facility which must continue to operate during construction?	☐ Yes	☐ No
	2c: Is involvement of General Contractor/Construction Manager input during design critical to project success?	☐ Yes	☐ No
	2d: Does the project encompass a complex or technical work environment?	☐ Yes	☐ No
	2e: Does the project require specialized work on a building that has historic significance?	☐ Yes	☐ No
	If yes was selected for any of questions 2a through 2e, General Contractor/Construction Manager is a viable PDM option.		

PART IV: PROBABLE PROJECT DELIVERY METHOD	
☐ **A Probable Delivery Method has been determined** ☐ DBB ☐ DB ☐ GCCM	
☐ **More than one Viable Options have been determined and the Selection Matrix will be completed** ☐ DBB ☐ DB ☐ GCCM	
Preparer Name and Title:	**Authorizing Name and Title:**
Preparer Signature:	**Authorizing Signature:**
State Construction Office Endorsement	**ASCE Signature:**
State Design Office Endorsement	**ASDE Signature:**

PART V: FINAL PROJECT DELIVERY METHOD	
☐ **A Final Project Delivery Method has been determined through validation or revision of this Checklist** ☐ DBB ☐ DB ☐ GCCM	
☐ **More than one Viable Options have been determined and the Selection Matrix and/or Workshop will be completed** ☐ DBB ☐ DB ☐ GCCM	
Preparer Name and Title:	**Authorizing Name and Title:**
Preparer Signature:	**Authorizing Signature:**
State Construction Office endorsement	**ASCE Signature:**
State Design Office endorsement	**ASDE Signature:**

PART VI: CHANGE TO APPROVED FINAL PROJECT DELIVERY METHOD	
☐ **A Changed Final Project Delivery Method has been determined through validation or revision of this Checklist** ☐ DBB ☐ DB ☐ GCCM	
☐ **More than one Viable Options have been determined and the Selection Matrix and/or Workshop will be completed** ☐ DBB ☐ DB ☐ GCCM	
Preparer Name and Title:	**Authorizing Name and Title:**
Preparer Signature:	**Authorizing Signature:**
State Construction Office endorsement	**ASCE Signature:**
State Design Office endorsement	**ASDE Signature:**

Attach project information, assumptions and additional justification to Form.

Appendix A Worksheets and Forms - A.3 Selection Matrix

Project Name_____ _____ **Determining Probable PDM** **Date:**_____

Project Status ___Project Summary ___ Initiation & Alignment _____ Planning & Endorsement (~10% Design) _____ Geometric Review ~30% Design) _____ Past Geometric Review (Past 30% Design)

_____ **Determining Final PDM** **Date:**_____

Project Status ___Project Summary ___ Initiation & Alignment _____ Planning & Endorsement (~10% Design) _____ Geometric Review ~30% Design) _____ Past Geometric Review (Past 30% Design)

Ratings are from 1 to 10 with 1 lowest and 10 highest. A two point range provided for the general Goals in the Matrix. (4 to 5 shown as 4/5) Select the Rating that best fits the specifics of your Project Delivery Goal. If a Goal is modified or rewritten, the ratings may need to be revised more extensively. Any new Goals added to the Matrix will need to have ratings provided based on the probability of each PDM to meet the Goal.

Pass/Fail Constraints	Project Delivery Goals	Weight	Design-Bid-Build		Design-Build		General Contractor/ Construction Manager	
			Rating	Score	Rating	Score	Rating	Score
	Schedule							
	Minimize project delivery time		4/5		9/10		6/7	
	Meet a specific critical Milestone or Completion date		4/5		9/10		8/9	
	Utilize (federal) funding by a certain date		6/7		9/10		6/7	
	Effectively manage weather, environmental and/or other construction windows		6/7		9/10		8/9	
	Funding limitations impacts ability to compress the schedule and/or contract all the work early in the process (such as the biennium, grants, etc.)		9/10		6/7		9/10	
	Cost/Funding							
	Minimize project cost (typically considered neutral)		6/7		6/7		6/7	
	Complete the project on budget (typically considered neutral)		6/7		6/7		6/7	
	Maximize the project scope and improvements within the budget		4/5		8/9		8/9	
	Project cost must not exceed a specific amount		6/7		8/9		8/9	
	Determine the total project cost as early as possible in the schedule		4/5		9/10		6/7	
	Meet 3rd Party requirements with possible impacts in design and construction		6/7		4/5		8/9	

Appendix A Worksheets and Forms - A.3 Selection Matrix

Project Name:_____ Probable PDM or Final PDM (circle one) Date:_____

Pass/Fail Constraints	Project Delivery Goals	Weight	Design-Bid-Build		Design-Build		General Contractor/ Construction Manager	
			Rating	Score	Rating	Score	Rating	Score
	Standards							
	Meet or exceed project quality/scope requirements - utilizing opportunities for innovation		6/7		9/10		9/10	
	Owner requires control of design to meet specific design and construction constraints and/or standards (such as aesthetics)		8/9		5/6		9/10	
	WSDOT maintains controls of specific project elements (such as significant right of way or environmental impacts)		8/9		5/6		9/10	
	Function/Innovation							
	Minimize maintenance and operations costs (assume maintenance and operations is not part of DB contract)		9/10		5/6		9/10	
	Maximize capacity and mobility of improvements		6/7		9/10		9/10	
	Minimize impacts to the public and/or local businesses during construction		6/7		9/10		8/9	
	Incorporate opportunities for innovation and efficiencies to meet specific requirements		4/5		9/10		8/9	
	Avoid or minimize impacts to the project through risk transfer and innovation (such as environmental risks)		4/5		9/10		8/9	
	Minimize project permanent area impact (footprint) (This would be project neutral unless the project is larger and more complex – then use the ratings ranges provided)		6/7		8/9		9/10	

Appendix A Worksheets and Forms - A.3 Selection Matrix

PART I: PROBABLE PROJECT DELIVERY METHOD	
☐ **A Probable Delivery Method has been determined** ☐ DBB ☐ DB ☐ GCCM	
Preparer Name and Title:	**Authorizing Name and Title:**
Preparer Signature:	**Authorizing Signature:**
State Construction Office Endorsement	**ASCE Signature:**
State Design Office Endorsement	**ASDE Signature:**

PART II: FINAL PROJECT DELIVERY METHOD	
☐ **A Final Project Delivery Method has been determined through validation or revision of this Checklist** ☐ DBB ☐ DB ☐ GCCM	
Preparer Name and Title:	**Authorizing Name and Title:**
Preparer Signature:	**Authorizing Signature:**
State Construction Office endorsement	**ASCE Signature:**
State Design Office endorsement	**ASDE Signature:**

PART III: CHANGE TO APPROVED FINAL PROJECT DELIVERY METHOD	
☐ **A Changed Final Project Delivery Method has been determined (if the project is over 30% Design, this is considered an Exception to the Guidance)** ☐ DBB ☐ DB ☐ GCCM	
Preparer Name and Title:	**Authorizing Name and Title:**
Preparer Signature:	**Authorizing Signature:**
State Construction Office endorsement	**ASCE Signature:**
State Design Office endorsement	**ASDE Signature:**

Attach project information, assumptions and additional justification to Form.

Appendix A Worksheets and Forms -A.4 Project Delivery Description Worksheet

The following items should be considered in describing the specific project. This form is optional and may be used to summarize the project attributes. Other project information such as the Project Summary Package and PMP is the source information and should be attached. Make sure to identify assumptions.

Project Attributes
Project Name and Status (level of Design):
Location:
Project Goals and Constraints:
Estimated Budget:
Estimated Project Schedule:
Required Project Completion or Milestone Dates (if applicable):
Source(s) of Project Funding:
Project Corridor:
Major Features of Work – pavement, bridge, sound barriers, etc.:
Major Schedule Milestones:
Major Project Stakeholders:
Assumptions:
Major Obstacles with Right of Way, Utilities, and/or Environmental Approvals:
Major Obstacles during Construction Phase:
Preliminary Risks Identified:
Safety Issues:
Construction Requirements:

Appendix A Worksheets and Forms - A.5 PDM Attribute Comparison Spreadsheet

ITEM	DESIGN-BID-BUILD (DBB)	DESIGN-BUILD (DB)	GENERAL CONTRACTOR / CONSTRUCTION MANAGER (GC/CM)
PROCUREMENT			
Requirements	DBB provides for a path to execute public work through a competitive process resulting in award to the lowest cost bidder.	DB project delivery may be used by WSDOT on projects over $2 million if they meet the criteria in RCW. May be used if: 1)construction activities highly specialized, 2) critical to developing construction methodology 3) project provides an opportunity for greater innovation and efficiencies, and 4) use of DB would result in significant reduction to the overall project schedule or critical milestones	GCCM process may be used by WSDOT on projects generally over $10 million with the approval of CPARB. May be used if: 1) complex scheduling or phasing 2) facility is occupied and continue to operate during construction 3) GCCM input in design is critical to project success 4) complex or technical work environment 5) Is there specialized work on a building with historic significance.
RCW	RCW 39.80 & 39.04	RCW 47.20.785	RCW 39.10
Procurement of Contract	Design-Bid-Build is the traditional Project Delivery Method in which WSDOT designs, or retains a designer to furnish complete design services, and then advertises and awards a separate construction contract based on the designer's completed construction documents. In DBB, WSDOT has control over the entire process and is responsible for the details of design during construction and as a result, is responsible for the cost of any errors or omissions encountered in construction. In DBB, selection of the Contractor is based solely on price with award of the contract based on Apparent Low Bid.	Design-Build is a Project Delivery Method in which WSDOT procures both design and construction services in the same contract from a single, legal entity referred to as the Design-Builder. At WSDOT, the method typically uses a two-phase selection process where Design-Builders are shortlisted based on qualifications in the first phase and then selected based on price and approach in the second phase. This Project Delivery Method allows the phases of design and construction to overlap. The Design-Builder becomes involved early in project development, at approximately the 15% to 30% design level, offering opportunities for innovation and improved constructability, and confirming project costs early. The Design-Builder controls the details of design and is typically responsible for the cost of any design errors or omissions encountered in construction. Per RCW 47.20.785, WSDOT can use Design-Build project delivery for projects over $10 Million. For projects between $2 and $10 Million, WSDOT must get approval from the Capital Project Advisory Review Board to use Design-Build project delivery.	General Contractor/Construction Manager is a Project Delivery Method in which WSDOT contracts separately with a Contractor as a Construction Manager and either performs design or contracts with an engineering firm to provide a design. The Construction Manager is selected early in the project development phase (10% to 30% Design) to provide design and constructability input. WSDOT retains control of the design of the project and is typically responsible for design errors and omissions during construction on GCCM projects. As the design nears completion, WSDOT and the Construction Manager work to negotiate a Maximum Allowable Construction Cost (MACC) for the project. Upon successful negotiation of the MACC, the Construction Manager becomes the General Contractor and works at-risk for the final cost and construction schedule. The early Contractor input associated with GCCM delivery is especially suited for projects that are technically complex, require complicated phasing and staging, or require operability of the facility (such as a ferry terminal) during construction. WSDOT must get approval from the Capital Project Advisory Review Board before using GCCM project delivery.
COST			
Pro's	☐ Competitive bidding provides a low cost bid for construction to a fully defined scope of work ☐ Increase certainty about cost estimates for Construction because project fully designed before bidding ☐ Construction costs and/or unit prices are contractually set before construction begins	☐ Contractor input into design should moderate cost ☐ Design-Builder collaboration and ATCs can provide a cost-efficient response to Project Goals ☐ Costs are contractually set early in design process with design-build proposal ☐ Allows a variable scope bid to match a fixed budget ☐ Potential lower average cost growth ☐ Funding can be obligated in a very short timeframe ☐ Potential for fewer cost change orders as the Design-Builder is responsible for design errors and the associated costs	☐ WSDOT/designer/contractor collaboration to reduce project risk can result in lowest project costs ☐ Early contractor involvement can result in cost savings through VE and constructability ☐ Cost will be known earlier when compared to DBB ☐ Integrated design/construction process can provide a cost efficient strategies to Project Goals ☐ Can provide a cost efficient response to the Project Goals
Con's	☐ Cost accuracy is limited until design is completed ☐ Construction costs are not locked in until design is 100% complete ☐ Cost reductions due to contractor innovation and constructability is difficult to obtain ☐ More potential of cost change orders due to WSDOT design responsibility (WSDOT responsible for design errors)	☐ Risks related to design-build, lump sum cost without 100% design complete, can impact final cost due to unknowns at the time of the RFP	☐ Non-competitive negotiated MACC introduces price risk ☐ Difficulty in MACC negotiation introduces some risk that MACC will not be successfully executed requiring aborting the GCCM process ☐ Paying for contractors involvement in the design phase may increase total cost ☐ More potential of cost change orders due to WSDOT design responsibility (WSDOT responsible for design errors)

ITEM	DESIGN / BID / BUILD (DBB)	DESIGN / BUILD (DB)	GENERAL CONTRACTOR / CONSTRUCTION MANAGER (GC/CM)
Level of Design			
Pro's	☐ 100% design by WSDOT or WSDOT selected consultants ☐ WSDOT has complete control over the design (can be beneficial when there is one specific solution for a project) ☐ Project scope can be developed/changed during the design without change orders☐ The scope of the project is well defined through complete plans and contract documents ☐ Well-known process to the industry	☐ Design advanced by the WSDOT to level necessary to precisely define the contract requirements and properly allocate risk ☐ Does not require much design to be completed before awarding project to the Design-Builder (between ~ 10% - 30% complete) ☐ Contractor involvement in early design, which improves constructability and innovation ☐ Plans do not have to be as detailed because the Design-Builder is bought into the project early in the process and will accept design responsibility	☐ Can utilize a lower level of design prior to selecting a contractor then collaboratively advance design with WSDOT, designer and contractor ☐ Contractor involvement in early design improves constructability ☐ WSDOT controls design ☐ Design can be used for DBB if the price is not successfully negotiated ☐ Design can be responsive to risk minimization
Con's	☐ WSDOT design errors can result in a higher number of change orders, claims, etc. ☐ Minimizes competitive innovation opportunities ☐ Can reduce the level of constructability since the contractor has no input into the project until after the design is complete	☐ Must have very clear definitions and requirements in the RFP because it is the basis for the contract ☐ If design is too far advanced it will limit the advantages of design-build ☐ Potential for lacking or missing scope definition if RFP not carefully developed ☐ Over utilizing performance specifications to enhance innovation can risk quality through reduced technical requirements ☐ Less WSDOT control over the design ☐ Can reduce WSDOT design consistency statewide.	☐ Teaming and communicating concerning design can cause disputes ☐ Three party process can slow progression of design ☐ If design is too far advanced it will limit the advantages of GCCM or could require design backtracking
SCHEDULE			
Pro's	☐ Schedule can be more predictable and more manageable with a complete design ☐ Milestones can be easier to define with a complete design ☐ Projects can more easily be “shelved” with a complete design ☐ Shortest procurement period (Bid period is typically shorter than the RFQ/RFP processes) ☐ Elements of design can be advanced prior to permitting, construction, etc. ☐ Time to communicate/discuss design with stakeholders	☐ Potential to accelerate schedule through parallel design-build process ☐ Shifting schedule risk to DB team ☐ Obligates construction funds more quickly ☐ Industry input into design and schedule ☐ Fewer chances for disputes between WSDOT and Design-Builders ☐ More efficient procurement of long-lead items ☐ Ability to start construction before entire design, ROW, etc. is complete (i.e., phased design) ☐ Allows innovation in resource loading and scheduling by DB team ☐ Schedule delays due to design error the responsibility of the Design-Builder	☐ Ability to start construction before entire design, ROW, etc. is complete (i.e., phased design) ☐ More efficient procurement of long-lead items ☐ Early identification and resolution of design and construction issues (e.g., utility, ROW, and earthwork) ☐ Can provide a shorter procurement schedule than DB ☐ Team involvement for schedule optimization ☐ Continuous constructability review and VE ☐ Maintenance of Traffic improves with contractor inputs ☐ Contractor input for phasing, constructability and traffic control may reduce overall schedule
Con's	☐ Requires time to perform a linear design-bid-construction process ☐ Design and construction schedules can be unrealistic due to lack industry input ☐ WSDOT is responsible for design errors which can lead to change orders and schedule delays ☐ Low bid selection may lead to potential delays and other adverse outcomes.	☐ Request for proposal development and procurement can be intensive ☐ Undefined events or conditions found after procurement, but during design can impact schedule and cost ☐ Time required to define technical requirements and expectations through RFP development can be intensive ☐ Time required to gain acceptance of quality program ☐ Requires WSDOT and stakeholder commitments to an expeditious review of design	☐ Potential for not reaching MACC and substantially delaying schedule ☐ MACC negotiation can delay the schedule ☐ Designer-contractor-WSDOT disagreements can add delays ☐ Strong WSDOT management is required to control schedule ☐ WSDOT is responsible for design errors which can lead to change orders and schedule delays

ITEM	DESIGN / BID / BUILD (DBB)	DESIGN / BUILD (DB)	GENERAL CONTRACTOR / CONSTRUCTION MANAGER (GC/CM)
Project Complexity and Innovation			
Pro's	☐ WSDOT can have more control of design of complex projects ☐ WSDOT and consultant expertise can select innovation independently of contractor abilities ☐ Opportunities for value engineering studies during design, more time for design solutions ☐ Aids in consistency and maintainability ☐ Full control in selection of design expertise ☐ Complex design can be resolved and competitively bid	☐ Designer and contractor collaborate to optimize means and methods and enhance innovation ☐ Opportunity for innovation through draft RFP, best value and ATC processes ☐ Can use best-value procurement to select Design-Builder with best qualifications ☐ Constructability and VE inherent in process ☐ Early team integration ☐ Sole point of responsibility for design and construction	☐ Highly innovative process through three party collaboration ☐ Allows for WSDOT control of a designer/contractor process for developing innovative solutions ☐ Allows for an independent selection of the best qualified designer and best qualified contractor ☐ VE inherent in process and enhanced constructability ☐ Risk of innovation can be better defined and minimized and allocated ☐ Can take to market for bidding as contingency if MACC negotiations fail
Con's	☐ Innovations can add cost or time and restrain contractor's benefits ☐ No contractor input to optimize costs ☐ Limited flexibility for integrated design and construction solutions (limited to constructability) ☐ Difficult to assess construction time and cost due to innovation	☐ Requires desired solutions to complex designs to be well defined through technical requirements (difficult to do) ☐ Qualitative designs are difficult to define (example. aesthetics) ☐ Risk of time or cost constraints on designer inhibiting innovation ☐ Some design solutions might be too innovative or unacceptable ☐ Quality assurance for innovative processes are difficult to define in RFP	☐ Process depends on designer/CM relationship ☐ No contractual relationship between designer/CM ☐ Innovations can add cost or time ☐ Scope additions can be difficult to manage ☐ Preconstruction services fees for contractor involvement ☐ Cost competitiveness – single source negotiated MACC
Staff Experience and Availability			
Pro's	☐ WSDOT, contractors and consultants have high level of experience with the traditional system ☐ Designers can be more interchangeable between projects ☐ Smaller number of technical staff required through use of consultant designer	☐ Less WSDOT staff required due to the sole source nature of DB ☐ Opportunity to grow WSDOT staff by learning a new process	☐ WSDOT can improve efficiencies by utilizing more project managers on staff rather than specialized experts ☐ Smaller number of technical staff required through use of consultant designer
Con's	☐ Can require a high level of WSDOT staffing of technical resources ☐ Staff's responsibilities are spread out over a longer design period ☐ Can require staff to have full breadth of technical expertise	☐ Limitation of availability of staff with skills, knowledge and personality to manage DB projects ☐ Existing staff may need additional training to address their changing roles ☐ Need to "mass" WSDOT management and technical resources at critical points in process (i.e., RFP development, design reviews, etc.)	☐ Strong committed WSDOT project management is important to success ☐ Limitation of availability of staff with skills, knowledge and personality to manage GCCM projects ☐ Existing staff may need additional training to address their changing roles ☐ WSDOT must learn how to negotiate MACC projects

ITEM	DESIGN / BID / BUILD (DBB)	DESIGN / BUILD (DB)	GENERAL CONTRACTOR / CONSTRUCTION MANAGER (GC/CM)
Level of Oversight and Control			
Pro's	☐ Full WSDOT control over a linear design and construction process ☐ Oversight roles are well understood ☐ Contract documents are typically completed in a single package before construction begins ☐ Multiple checking points through three linear phases: design-bid-build ☐ Maximum control over design	☐ A single entity responsible for project design and construction ☐ Allows overlap between design and construction ☐ Getting input from construction to enhance constructability and innovation ☐ Overall project planning and scheduling is established by one entity	☐ Preconstruction services are provided by the construction manager ☐ Getting input from construction to enhance constructability and innovation ☐ Provides WSDOT control over an integrated design/construction process
Con's	☐ Requires a high-level of oversight ☐ Increased likelihood of claims due to WSDOT design responsibility ☐ Limited control over an integrated design/construction process	☐ Can require high level of design oversight ☐ Can require high level of quality assurance oversight ☐ Limitation on staff with DB oversight experience ☐ Less WSDOT control over design ☐ Control over design relies on proper development of technical requirements	☐ WSDOT must have experienced staff to oversee the GCCM ☐ Higher level of cost oversight required
Competition and Contractor Experience			
Pro's	☐ Promotes high level of competition in the marketplace ☐ Opens construction to all reasonably qualified bidders ☐ Transparency and fairness ☐ Reduced chance of corruption and collusion ☐ Contractors are familiar with DBB process	☐ Allows for a balance of qualifications and cost in Design-Builder procurement ☐ Two-phase process can promote strong teaming to obtain "Best Value" ☐ Increased opportunity for innovation possibilities due to the diverse project team	☐ Allows for qualifications based contractor procurement ☐ WSDOT has control over an independent selection of best qualified contractor ☐ Contractor is part of the project team early on, creating a project "team" ☐ Increased opportunity for innovation due to the diversity of the project team
Con's	☐Risks associated with selecting the low bid (the best contractor is not necessary selected) ☐No contractor input into the process ☐Limited ability to select contractor based on qualifications	☐ Need for DB qualifications can limit competition ☐ May be lack of competition with past experience with the Project Delivery Method and WSDOT (although this is not the current experience on NWR projects) ☐ Issues with the DB team selected for the project can impact communications and collaboration ☐ The gap between WSDOT experience and contractor experience with Project Delivery Method can create conflict	☐ Currently there is not a large pool of contractors with experience in GCCM, which will reduce the competition and availability ☐ Working with only one contractor to develop MACC can limit price competition ☐ Requires a strong project manager from the WSDOT ☐ A common point of failure is Teamwork and communication between WSDOT, the designer and the Contractor, which is critical to project success

Appendix A Worksheets and Forms- A.6 Risk Assessment Guidance for PDM Selection

For assistance evaluating preliminary risks, utilize the link below to WSDOT Risk Assessment webpage.

http://www.wsdot.wa.gov/Projects/ProjectMgmt/RiskAssessment/and select the "Project Risk Management Guide".

It is recommended that the qualitative risk analysis is utilized for evaluating the risks associated with the project and procurement method.

Additionally, a simplified Qualitative risk analysis is attached to facilitate identification of risks in the early stages of the project and for small or less complex projects.

Much of the following information came from University of Boulder, Colorado, Project Delivery Selection Matrix with revisions to conform to WSDOT policy and procedures.

Three documents are provided in this appendix to assist in an initial risk assessment relative to the selection of the Project Delivery Method:

- Typical Transportation Project Risks List
- General Project Risks Checklist
- Simplified Qualitative Risk Analysis

It is important to recognize that the initial risk assessment is only to ensure the selected PDM can properly address the project risks. A more detailed level of risk assessment, as described in the WSDOT Project Risk Management Guide, should be performed concurrently with the development of the procurement documents to ensure that project risks are properly allocated, managed, and minimized through the procurement and implementation of the project.

Appendix A Worksheets and Forms- A.6 Risk Assessment Guidance for PDM Selection

Typical Transportation Project Risks

Following is a list of project risks that are frequently encountered on transportation projects and a discussion on how the risks are resolved through the different Project Delivery Methods. This was derived from the from University of Boulder, Colorado, Project Delivery Selection Matrix with minor modifications to incorporate WSDOT policy and procedure and specifics for Washington State.

1) Site Conditions and Investigations

DESIGN-BID-BUILD

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 when the schedule allows.

DESIGN-BUILD

Certain site condition responsibilities can be allocated to the Design-Builder provided they are well defined and associated third party approval processes are well defined. Caution should be used as unreasonable allocation of site condition risk will result in high contingencies during procurement. WSDOT should perform site investigations in advance of procurement to define conditions and avoid duplication of effort by proposers. At a minimum, WSDOT should perform the following investigations:

1) Basic design surveys;
2) Hazardous materials investigations to characterize the nature of soil and groundwater contamination, if any;
3) Geotechnical baseline report to allow Design-Builders to perform proposal design without extensive additional geotechnical investigations.

GCCM

WSDOT, the designer, and the contractor can collectively assess site condition risks, identify the need to perform site investigations in order to reduce risks, and properly allocate risk prior to determining the MACC.

2) Utilities

DESIGN-BID-BUILD

Utility risks are best allocated to WSDOT, and mostly addressed prior to procurement to minimize potential for claims when the schedule allows.

DESIGN-BUILD

Utilities responsibilities need to be clearly defined in contract requirements, and appropriately allocated to both Design-Builder and WSDOT.

GCCM

Can utilize a lower level of design prior to contracting and joint collaboration of WSDOT, designer, and contractor in the further development of the design.

3) Railroads (if applicable)

DESIGN-BID-BUILD

Railroad risks are best resolved prior to procurement and relocation designs included in the project requirements when the schedule allows.

DESIGN-BUILD

Railroad coordination and schedule risks should be well understood to be properly allocated and are often best assumed by WSDOT. Railroad design risks can be allocated to the designer if well defined. Best to obtain an agreement with railroad defining responsibilities prior to procurement

GCCM

Railroad impacts and processes can be resolved collaboratively by WSDOT, designer, and contractor. A lengthy resolution process can delay the MACC negotiations.

5) Environmental

Meeting environmental document commitments and requirements, noise, historic, wetlands, endangered species, etc.

DESIGN-BID-BUILD

Risk is best mitigated through design prior to procurement when the schedule allows.

DESIGN-BUILD

Certain environmental approvals and processes that can be fully defined can be allocated to the Design-Builder. Agreements or MOUs with approval agencies prior to procurement is best to minimize risks.

GCCM

Environmental risks and responsibilities can be collectively identified, minimized, and allocated by WSDOT, the designer, and the contractor prior to determining the MACC

6) Third Party Involvement

Timeliness and impact of third party involvement (funding partners, adjacent municipalities, adjacent property owners, project stakeholders, FHWA, Utilities).

DESIGN-BID-BUILD

Third party risk is best mitigated through the design process prior to procurement to minimize potential for change orders and claims when the schedule allows.

DESIGN-BUILD
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 is best to minimize risks.

GCCM
Third party approvals can be resolved collaboratively by WSDOT, designer, and contractor.

Appendix A Worksheets and Forms- A.6 Risk Assessment Guidance for PDM Selection

General Project Risk Checklist (Items to consider when assessing risk) from University of Boulder, Colorado, Project Delivery Selection Matrix

Environmental Risks	External Risks
☐ Delay in review of environmental documentation ☐ Challenge in appropriate environmental documentation ☐ Defined and non-defined hazardous waste ☐ Environmental regulation changes ☐ Environmental impact statement (EIS) required ☐ NEPA/ 404 Merger Process required ☐ Environmental analysis on new alignments required	☐Stakeholders request late changes ☐Influential stakeholders request additional needs to serve their own commercial purposes ☐Local communities pose objections ☐Community relations ☐Conformance with regulations/guidelines/ design criteria ☐Intergovernmental agreements and jurisdiction
Third-Party Risks	**Geotechnical and Hazmat Risks**
☐ Unforeseen delays due to utility owner and third-party ☐ Encounter unexpected utilities during construction ☐ Cost sharing with utilities not as planned ☐ Utility integration with project not as planned ☐ Third-party delays during construction ☐ Coordination with other projects ☐ Coordination with other government agencies	☐Unexpected geotechnical issues ☐Surveys late and/or in error ☐Hazardous waste site analysis incomplete or in error ☐Inadequate geotechnical investigations ☐Adverse groundwater conditions ☐Other general geotechnical risks
Right-of-Way/ Real Estate Risks	**Design Risks**
☐ Railroad involvement ☐ Objections to ROW appraisal take more time and/or money ☐ Excessive relocation or demolition ☐ Acquisition ROW problems ☐ Difficult or additional condemnation ☐ Accelerating pace of development in project corridor ☐ Additional ROW purchase due to alignment change	☐ Design is incomplete/ Design exceptions ☐ Scope definition is poor or incomplete ☐ Project purpose and need are poorly defined ☐ Communication breakdown with project team ☐ Pressure to delivery project on an accelerated schedule ☐ Constructability of design issues ☐ Project complexity - scope, schedule, objectives, cost, and deliverables - are not clearly understood
Organizational Risks	**Construction Risks**
☐ Inexperienced staff assigned ☐ Losing critical staff at crucial point of the project ☐ Functional units not available or overloaded ☐ No control over staff priorities ☐ Lack of coordination/ communication ☐ Local WSDOT issues ☐ Internal red tape causes delay getting approvals, decisions ☐ Too many projects/ new priority project inserted into program	☐ Pressure to deliver project on an accelerated schedule. ☐ Inaccurate contract time estimates ☐ Construction QC/QA issues ☐ Unclear contract documents ☐ Problem with construction sequencing/ staging/ phasing ☐ Maintenance of Traffic/ Work Zone Traffic Control

Appendix A Worksheets and Forms- A.6 Risk Assessment Guidance for PDM Selection

General Project Risk Checklist

DESIGN-BID-BUILD	
Opportunities	**Obstacles**
☐ Risks managed separately through design, bid, build is expected to be easier ☐ Risk allocation is most widely understood/used ☐ Opportunity to avoid or mitigate risk through complete design ☐ Risks related to environmental, railroads, & third party involvement are best resolved before procurement ☐ Utilities and ROW best allocated to WSDOT and mostly addressed prior to procurement to minimize potential for claim ☐ Project can be shelved while resolving risks	☐ WSDOT accepts risks associated with project complexity (the inability of designer to be all-knowing about construction) and project unknowns ☐ Low-bid related risks ☐ Potential for misplaced risk through prescriptive specifications ☐ Innovative risk allocation is difficult to obtain ☐ Limited industry input in contract risk allocation ☐ Change order risks can be greater ☐ Contractor may avoid risks

DESIGN-BUILD	
Opportunities	**Obstacles**
☐ Performance specifications can allow for alternative risk allocations to the Design-Builder ☐ Risk-reward structure can be better defined ☐ Innovative opportunities to allocate risks to different parties (e.g., schedule, means and methods, phasing) ☐ Opportunity for industry review of risk allocation (draft RFP, ATC processes) ☐ Avoid low-bid risk in procurement ☐ Contractor will help identify risks related to environmental, railroads, ROW, and utilities ☐ Designers and contractors can work toward innovative solutions to, or avoidance of, unknowns	☐ Need a detailed project scope, description etc., for the RFP to get accurate/comprehensive responses to the RFP (Increased RFP costs may limit bidders) ☐ Limited time to resolve risks ☐ Additional risks allocated to designers for errors and omissions, claims for change orders ☐ Unknowns and associated risks need to be carefully allocated through a well-defined scope and contract ☐ Risks associated with agreements when design is not completed ☐ Poorly defined risks are expensive ☐ Contractor may avoid risks or drive consultant to decrease cost at risk to quality

GCCM	
Opportunities	**Obstacles**
☐ Contractor can have a better understanding of the unknown conditions as design progresses ☐ Innovative opportunities to allocate risks to different parties (e.g., schedule, means and methods, phasing) ☐ Opportunities to manage costs risks through GCCM involvement ☐ Contractor will help identify and manage risk ☐ WSDOT still has considerable involvement with third parties to deal with risks ☐ Avoids low-bid risk in procurement ☐ More flexibility and innovation available to deal with unknowns early in design process	☐ Lack of motivation to manage small quantity costs ☐ Increase costs for non-proposal items ☐ Disagreement among Designer-Contractor-WSDOT can put the process at risk ☐ If MACC cannot be reached, additional low-bid risks appear ☐ Limited to risk capabilities of GCCM ☐ Designer-contractor-WSDOT disagreements can add delays ☐ Strong WSDOT management is required to negotiate/optimize risks ☐ Discovery of unknown conditions can drive up MACC, which can be compounded in phased construction

Simplified Qualitative Risk Analysis for preliminary evaluation of risk for PDM Selection

Project Name: _____ Date:_____

Identify Risks	What are possible Causes?	Probability (L-M-H)	Seriousness (L-M-H)	Possible Preventative Action	Possible Mitigating Action (If it happens anyway)

End of Appendix A