Appendix D

How to Complete the Selection Matrix

Appendix D – How to Complete the Selection Matrix

Part 1 – Using the Selection Matrix to Determine Probable PDM

The Project Engineer will use the Selection Matrix to determine the Probable PDM if any of the following is true:

- The Project Engineer was unable to determine the Probable PDM using the Selection Checklist;
- The Project cost is $25 Million or more;
- The Project Engineer decides to complete the Selection Matrix to provide more backup for the determination of Probable PDM.

The Project Engineer will perform all of the pre-work for the project utilizing current information developed for the project. Information on the pre-work is located in Appendix B.

The purpose of the Selection Matrix is to provide an additional tool to evaluate projects that are more complex or larger, or when the Selection Checklist does not provide a Probable PDM. The Selection Matrix compares the ability of each PDM to meet the criteria (Project Delivery Goals). The listed criteria in the Matrix are based on the University of Colorado, Boulder Delivery Matrix process, modified by WSDOT policies and values. These criteria were identified as potential goals of transportation projects that might be affected by the PDM. The Selection Matrix has generic Project Delivery Goals with ratings assigned to each goal for each PDM.

The user will:

- Identify the Project Delivery Goals in the Matrix that apply to their project,
- Identify any Project Delivery Goals that are actually Constraints,
- Refine or add Project Delivery Goals if needed (with associated ratings),
- Apply Weights to the Project Delivery Goals in accordance with their importance, and
- Multiply ratings with weights for scores to be total at the bottom of the Matrix.

Constraints do not have a relative importance related to Project Goals, but are a requirement of the Project and will be evaluated as a pass/fail.

As you complete each step of the process, detail the justification and backup for each step. This documentation will be part of the backup for the Matrix.

I. Selection Matrix Project Delivery Goals

Review the generic Project Delivery Goals provided in the Selection Matrix and compare them to the Primary Project Goals developed in the pre-work. Primary Project Goals are those most critical to the project success. Secondary Project Goals may also be used. The Project Engineer should use a 1 to 10 priority system with 1 as low and 10 as highest. These priorities may be used for the Goal Weights

where the Project Goals are identical to Project Delivery Goals (Goals affected by the PDM). The Project Goals may not be directly applicable to the generic Project Delivery Goals provided in the Matrix.

As part of this process, the Project Engineer may have some Project Goals that do not translate directly to Project Delivery Goals (refer to Appendix B). The Project Delivery Goals were identified as potential goals of transportation projects that might be affected by the PDM. With some thought, the Project Engineer should be able to identify the criteria of a particular Project Goal that relates to one or more of the Project Delivery Goals.

If a critical Project Delivery Goal is not provided, the Project Engineer may add it to the Matrix in the appropriate category.

The Project Engineer should typically have 4 to 6 Project Delivery Goals in the Selection Matrix.

II. Selection Matrix Goal Prioritization and Weights

As part of the pre-work, the Engineer identified and prioritized the Project Goals. Project Goals were then separated into Primary and Secondary. The Project Delivery Goals used in the Selection Matrix should be identical or related to a Primary Project Goal. If you prioritized your Project Goals in the pre-work using 1 to 10 scoring from lowest to highest, you have a good start on this task.

Evaluate the Weight of each Project Delivery Goals that are not identical to the associated Project Goal by using a 1 to 10 score to show the relative importance of each goal. Start by picking out the goal considered the highest priority and assign it a “10”. Now evaluate each Goal by comparing it with the starting, highest Goal. Has it the same importance? Is it a little more important than the first Goal? Assign and adjust the Weights and continue with the remaining highest Weighted Goal, until all Project Delivery Goals are weighted.

III. Selection Matrix Project Delivery PDM Ratings

The Selection Matrix provides a two point rating range that reflects the ability of each PDM to meet the generic Project Delivery Goal. The two point range is adjusted to reflect project specific attributes associated with the Goal or slight modifications to the Goal.

After identifying the Project Delivery Goals that apply to the Project and modifying or adding Goals, the Project Engineer will eliminate the remaining generic Project Develop Goals provided in the Matrix by crossing them out.

Ratings are provided in the Selection Matrix for the generic Project Development Goals as a two point range and show the relative value of each PDM in achieving the associated Project Goal. Evaluate the generic Project Development Goals for the specific project and determine the final rating within the range.

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The Engineer may need to modify one or more of the existing generic Project Delivery Goals to more closely align it with the project being evaluated. It is possible that several Project Goals may relate to one of the Project Delivery Goals provided in the Matrix. If modification occurs, the Project Engineer may need to adjust the ratings outside the provided range. The Engineer may use the PDM Attribute Comparison Worksheet in Appendix A.5 to help develop the rating.

This spreadsheet provides the Project Engineer with a basis for evaluating typical PDM 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. The Project Engineer can highlight or check items that may affect the project to help evaluate the relative rating of a goal that was added.

If a new Project Delivery Goal is added to the Selection Matrix, the Project Engineer will again use the PDM Attribute Comparison Worksheet in Appendix A.5 to develop its rating.

If ratings are modified outside the provided range or developed for a new goal, justification of the rating must be provided with the Probable PDM backup.

Neutral Project Goals

After evaluating the Project Goals, it is possible that one or more may be neutral. All three PDMs have the same ability to meet a Neutral Goal, resulting in the same rating for the PDM's. A couple of potentially Neutral Goals are provided in the Selection Matrix.

These Goals have the same range for each PDM. Project specific adjustments to the ratings ranges may make these no longer neutral. However, in most cases, these Goals remain neutral.

After finalizing the ratings for each Project Delivery Goals, cross out any Project Delivery Goals that are contract Neutral.

IV. Selection Matrix Project Constraints

Identify Project Constraints, including an evaluation of the highest priority Project Delivery Goals ("10" Project Goals) to determine if any are Constraints. Constraints differ from Project Goals in that they **MUST** be accomplished for project success. Project decisions and limitations identified in the project information can assist with establishing Constraints verses Project Goals.

If a Constraint is identified and is obviously not affected by the PDM selection, it is neutral and can be identified as such in the backup and dropped out of the process similarly to neutral Goals.

Identifying Constraints can be difficult. If unsure, leave it as a high priority Goal. If it is really a Constraint, there are steps in the process where the Project Engineer will be able to reevaluate if a Goal is actually a constraint. Avoid the temptation to make every high priority Project Delivery Goal into a Constraint. Most projects will not have Constraints that affect the selection of the PDM.

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If the Engineer has identified a Constraint, evaluate it as Pass/Fail against the three PDM's. If any PDM's "fail", cross that column off of the Matrix as it is not a viable option.

V. Selection Matrix Scoring

For each Project Delivery Goal, multiply each Weight with the rating of each PDM. Add the scores at the bottom of the Matrix.

The highest score indicates the Probable Project Delivery Method.

Do not score columns for a PDM that was removed by failing a Constraint (if any).

If you have concerns with the highest score Probable PDM because it scored poorly on a particular Goal, check to make sure that this is a Goal, and not a Constraint, or that the relative importance of the Goal is correct.

Resist adjusting weights and ratings after scoring unless there is an obvious mistake as this is where bias can creep into the process. If any adjustment occurs, document why and what was done.

If scores are very close or tied, the Project Engineer may choose to add secondary Goals to the process or continue by evaluating all of the PDM's in the Qualitative Risk Analysis.

VI. Checking Probable PDM against Risks

The Project Summary Package identifies preliminary project risks. Utilizing the Qualitative Risk Analysis provided on the WSDOT Project Management Online Guide or the simple Qualitative Risk Analysis spreadsheet provided in Appendix A, evaluate the effect of the PDM or PDMs on each risk. If the highest score PDM does not create an unacceptable level of risk, the Project Engineer has determined the Probable PDM.

If the highest score PDM is not acceptable based on the risks, the Project Engineer will evaluate the effect of the next highest scored PDM on the project risks in the analysis.

If a PDM fails the risk analysis, this may indicate a Project Constraint that was identified as a high priority Goal, or a Constraint that was not identified.

VII. Documentation

The Selection Matrix is part of the supporting documentation for this process. However, the work to identify, prioritize, rate and weigh the Project Delivery Goals and PDM's in the Matrix should be provided as part of the backup.

Justification for each Goal and Constraint must be provided. Documenting the reasoning behind the relative importance between Project Delivery Goals, and why a Goal is a Constraint will be necessary to

support the results of the process and provide the background needed for endorsement. It will also provide the Project Engineer and Project Office responsible for determining the Final PDM the information needed to validate or revise the PDM.

Provide the justification for the ratings of the relative ability of each PDM to achieve the goal if it is not within the provided range, if the generic Project Delivery Goal is modified significantly or if a rating is developed for a new Project Delivery Goal. Reference specific project attributes and the pro's and con's provided or inferred from the PDM Attribute Comparison Worksheet in Appendix A.5.

The risk analysis and any supporting information and justification must also be provided. If the highest scoring PDM fails and the next is used, provide a summary of the process and why the highest scored PDM failed.

Appendix D – How to Complete the Selection Matrix

Part 2 – Explanation of the Selection Matrix for Determining Probable PDM

The following Selection Matrix has explanations to assist using the Matrix to determine the Probable PDM.

Appendix D – How to Complete the Selection Matrix

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

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

_____ Determining Final PDM Date:_____

Project Status ___Definition ___ 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	

Comment [ET1]: Fill in Project Name

Comment [ET2]: Indicate Probable PDM and date

Comment [ET3]:
- Select Goals that fit Primary Goals or relate to Primary Goals
- Add Goals if needed and provide rating for each PDM utilizing the Contract Attribute Comparison Spreadsheet in Appendix A
- Cross out unused Goals
- Identify Constraints (Goals that are pass/fail)
- Cross out any PDM's that fail the Constraints
- Add Weights and score remaining PDMS
- Check Probable PDM against risks utilizing a Qualitative Risk Analysis
- Provide Documentation and Justification supporting Goals, Constraints, Weights and Ratings

Comment [ET4]: Use if you have a Project Goal where the shortest possible schedule is required. Emergency projects, projects that impact other projects or events, seasonal work, all could require that the schedule be compressed as small as possible.

Comment [ET5]: Very similar to the previous if the project does not seem to have enough time to meet this deadline.

Comment [ET6]: Some types of funding may require the obligation of funds by a certain date. If the timeline is short or this deadline cannot be modified, it could be a Project Goal.

Comment [ET7]: Do funding limits affect the ability of the project to go into construction? Limit how much work can be down within the construction season? Is this a significant ...

Comment [ET8]: Although some organizations say GCCM is cheaper, others DBB and a third DB, it is generally recognize ...

Comment [ET9]: Although some organizations say GCCM is cheaper, others DBB and a third DB, it is generally recognize ...

Comment [ET10]: Set a maximum cost and do as much work possible within that amount.

Comment [ET11]: Set maximum contract limit.

Comment [ET12]: This is often referred to as early cost certainty. Utilize cost commitments and contracted amounts ...

Comment [ET13]: Changes during design and construction from 3rd parties may need to be incorporating into the project while minimizing change orders.

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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 PDM neutral unless the project is larger and more complex – if so, use the ratings provided.		6/7		8/9		9/10	

Comment [ET14]: A Project Goal that requires quality and scope to be met or exceeded utilizing innovation – the specifics of the goal should determine if innovation to meet this requirement is optimal.

Comment [ET15]: There are some items such as aesthetics or some high tech work items that are difficult to describe in a performance document. Control of the aesthetics or some design decisions may be critical to an Owner in some cases. Also, if the Owner has a high level of expertise in a particular area or defined standards, Owner Control may also be desirable. Remember Owner Control typically means that the Owner retains more of the risk, including design errors.

Comment [ET16]: These would typically be long lead items, highly sensitive items, or items where WSDOT credibility was critical for resolution.

Comment [ET17]: Every project cost tends to be a balance of initial Capital Cost with Operations and Maintenance Costs. Day to day design and construction choices impact the balance of these costs. Owner control of the design typically minimizes O&M costs.

Comment [ET18]: Contractual flexibility with collaboration tends to maximize capacity and mobility of improvements.

Comment [ET19]: Contractual flexibility, innovation and collaboration tends to minimize these impacts.

Comment [ET20]: PDM's that provide collaboration with the contractor during design and earlier tend to maximize innovation and efficiencies.

Comment [ET21]: Assigning risk to the party best able to manage it is best way to mitigate risk and maximize project innovation and efficiencies.

Comment [ET22]: WSDOT's Practical Design initiative requires that a project be designed to include only scope of work that need to be improved or restored. Improves that do not provide a real benefit and scope creep should be avoided.

Appendix D – How to Complete the 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.

Comment [ET23]: IF A PROBABLE PDM HAS BEEN DETERMINED, INDICATE IT IN THIS SECTION

Comment [ET24]: REGIONAL ADMINISTRATOR ENDORSEMENT IS REQUIRED IF THE PROJECT COST IS $25 MILLION OR GREATER OR AN EXCEPTION TO THE GUIDANCE IS REQUESTED.

Comment [ET25]: ASCE ENDORSEMENT IS REQUIRED IF THE PROJECT COST IS $25 MILLION OR GREATER, OR AN EXCEPTION TO THE GUIDANCE IS REQUESTED.

Comment [ET26]: ASDE ENDORSEMENT IS REQUIRED IF THE PROJECT COST IS $25 MILLION OR GREATER, OR AN EXCEPTION TO THE GUIDANCE IS REQUESTED.

Appendix D – How to Complete the Selection Matrix

Part 3 – Example Selection Matrix for Determining Probable PDM

The following Selection Matrix is an example for determining the Probable PDM. The example project information is provided on a Project Delivery Description Worksheet. This is abbreviated backup; a real project will have much more detail and backup than just the Project Delivery Description Worksheet.

Appendix D – How to Complete the Selection Matrix

Project Attributes
Project Name: **Project X -Bridge Replacement Project and HOV Connector**
Location: **I-A/SR-B in**
Project Goals: **Minimize Schedule** **Minimize Impacts to the traveling public and local municipality (businesses)** **Minimize Environmental impacts** **Minimize Operations and Maintenance costs** **There are no Project Constraints that affect the selection of the PDM**
Estimated Budget: **$25,000,000**
Estimated Project Schedule: **Completion Date 11/1/2017**
Required Project Completion or Milestone Dates (if applicable): **Must Complete Milestone for Part I of project to allow Project Y project to start 8/15/2016**
Source(s) of Project Funding: **Transportation package**
Project Corridor: **I-A**
Major Features of Work – pavement, bridge, sound barriers, etc.: **Bridge replacement and HOV connector**
Major Schedule Milestones: **Complete Phase I by 8/15/2016**
Major Project Stakeholders: **Municipality B**
Major Obstacles (as applicable) **Resolve issues on 3rd party agreement with Municipality B so doesn't hold up design (Project design is not required before execution of the agreement)**
Major Obstacles with Right of Way, Utilities, and/or Environmental Approvals: **Avoid any impact to Sensitive Environmental Area A** **Delay on ROW's not expected**
Major Obstacles during Construction Phase: **Complex staging and phasing to maintain access to Municipality B Businesses** **Noise impacts during construction** **Safety issues working on river banks**
Preliminary Risks Identified: **Delays receiving Environmental Permits** **Delays with 3rd Party agreement** **Difficulty meeting milestones impact Project Y** **Unknown utilities cause delays and cost impacts**
Safety Issues: **may be difficult to excavate safely at the steep embankments at river** **unusual flood levels could threaten existing bridge (because designed with older standards) if construction delayed**
Construction Requirements: **WSDOT BDM and Standards**

Comment [ET27]: The milestone in Project X (for Project Y to start) is not a project constraint, as in, Project X cannot be successful without meeting this goal. However, it contributes to the Goal to minimize the schedule.
The impacts from the third party agreement could also impact the schedule goal, but again, is not a constraint.

It is rare for a constraint to affect the selection of the PDM, but since it can happen, constraints must be evaluated.

Comment [ET28]: It is preferred that an agreement is executed prior to advertising, but there are options to working around this issue regardless of the contracting type.

Comment [ET29]: This is a project limitation, but is not a constraint on the selection of the PDM as it can be accommodated regardless of the PDM (again, this is typical)

Comment [ET30]: This may be part of the reason for the goal to minimize schedule due to potential issues with the current bridge.

Appendix D – How to Complete the Selection Matrix

Project Name__ Project X -Bridge Replacement Project and HOV Connector_ __X_ Determining Probable PDM Date:_6/30/2015_

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

_____ Determining Final PDM Date:_____

Project Status ___Definition ___ 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	10	4	40	9	90	6	60
-	~~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~~	-

Comment [ET31]: Provide Project Title

Comment [ET32]: Indicate that is determining the Probable PDM and date

Comment [ET33]: Indicate Project Status

Comment [ET34]: Minimize Project delivery time as determined as the Goal with the highest relative importance.

Comment [ET35]: In this case, the low end of the rating range provided was used for all three PDM's.

Appendix D – How to Complete the Selection Matrix

Project Name:_____**Project X**_____ Probable PDM or Final PDM (circle one) Date:__6/3-/2015_____

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)	6	9	54	5	30	9	54
-	~~Maximize capacity and mobility of improvements~~	-	~~6/7~~	-	~~9/10~~	-	~~9/10~~	-
	Minimize impacts to the public and/or local businesses during construction	10	6	60	9	90	8	80
	~~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)	8	4	32	9	72	8	64
Although the project is only $25 Million, the type of work was complex enough to use the ratings	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)	8	6	48	8	64	9	72
	Total Score – DB is the Probable PDM			234		**346**		330

Comment [ET36]: This Goal has the lowest relative importance of the primary goals utilized in the process.

Comment [ET37]: The lower end of the 2 point range was used for all three PDM's.

Comment [ET38]: The relative importance of this Goal was considered the same as the first highest ranking Goal.

Comment [ET39]: Again, the lower end of the 2 point range was used for all three PDM's.

Comment [ET40]: This was handled similarly to all of the previous Goal weights and PDM ratings.

Comment [ET41]: This Goal was added to the project to incorporate practical design into the process. Although the project is only $25 Million, the type of work was complex enough to use the ratings.
Otherwise, this would be considered neutral.

Comment [ET42]: This was handled similarly to all of the previous Goal weights and PDM ratings.

Comment [ET43]: Using a Qualitative Risk Analysis Spreadsheet, evaluate the risk of using this PDM
Delay receiving Environmental Permits - acceptable
Delays with 3rd Party Agreement- acceptable (100% design not required prior (Difficulty meeting milestone for Project Y- optimal
Unknown Utilities cause delays and cost impacts- acceptable

Comment [ET44]: Note that the score for GCCM is close to the optimal score.

Appendix D – How to Complete the Selection Matrix

PART I: PROBABLE PROJECT DELIVERY METHOD			
☒ **A Probable Delivery Method has been determined** ☐ DBB ☒ DB ☐ GCCM			
Preparer Name and Title:	Mr. Project Engineer, Project Engineer	**Authorizing Name and Title:**	Ms. RA, Regional Administrator
Preparer Signature:	*Mr. Project Engineer* 6/30/2015	**Authorizing Signature:**	*Ms. RA* 1/31/2015
State Construction Office Endorsement	Mr. ASCE	**ASCE Signature:**	*Mr. ASCE* 6/30/2015
State Design Office Endorsement	Ms. ASDE	**ASDE Signature:**	*Ms. ASDE* 6/30/2015

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 D – How to Complete the Selection Matrix

Simplified Qualitative Risk Analysis for preliminary evaluation of risk for PDM Selection Project Name: _ **Project X -Bridge Replacement Project and HOV Connector**_____ Date:____6/30/2015_____					
Identify Risks	What are possible Causes?	Probability (L-M-H)	Seriousness (L-M-H)	Possible Preventative Action	Possible Mitigating Action (If it happens anyway)
Delays receiving Environmental Permits **Design-Build as the PDM – impacts from the delay are serious, but not more probable. Mitigating actions acceptable. DBer responsible for any changes to Envir permit due to changes proposed in ATC's or Design**	Agency delays issuing permit Information needed for permit not timely	L L	H H	Work with agency upfront to resolve issues Provide additional site investigation for environmental study	Work in areas not impacted by permit Expedite additional work while resolving other issues with agency. See if some information can be deferred.
Delays with 3rd Party Agreements **Impacts from the 3rd party agreement delay are changes to the contract during design and construction resulting in more CO's. However, allocation or an amount for improvements in the 3rd party agreement can minimize CO so risk is not greatly increased for DB.**	3rd party cannot make decisions on agreement	M	M	Work with 3rd party to resolve issues as early as possible. Create a "fund" for changes if having difficulty or options	Allocations in contract for "work" in 3rd party agreement to minimize change orders.
Missed Milestone impacts Project Y **Use of DB reduces this risk as it is the most effective way to minimize schedule and transfers schedule risk effectively to the DBer**	Construction Delays on Phase I of project	M	H	Critical milestone part of contract with incentives and penalties	Provide contingency in contract milestone to handle an unavoidable delay
Unknown Utilities cause delays and cost impacts **Use of DB reduces this risk as it is the most effective way to transfer the responsibility of the field investigation to the DBer with the associated risk.**	Poor asbuilts and lack of field investigation	M	M	Additional Field investigation by owner or in contract	Include possible missed utility relocations in contract language. Use unit prices Force Account

Appendix D – How to Complete the Selection Matrix

Part 4 – Using the Selection Matrix to Determine Final PDM

Before proceeding with this section of the appendix, review the previous section for Determining the Probable Project Delivery Method using the Selection Matrix.

The Project Engineer will use the Selection Matrix to determine the Final PDM if any of the following is true:

- The Project Cost is $25 Million or greater;
- The Project Engineer was unable to determine the Final PDM using the Selection Checklist;
- The Project Engineer decides to complete the Selection Matrix to provide more backup for the determination of Probable PDM.

If the Selection Matrix was used for determining Probable PDM, the Project Engineer may continue the process utilizing the existing Selection Matrix even if the Project Cost is no longer $25 Million or greater. If the Checklist was used to determine the Probable PDM and the Project Cost increased to $25 or greater, the Project Engineer shall use the Selection Matrix to determine the Final PDM.
If this is the first time the PE has used the Selection Matrix for this project, the processes is identical with the proceeding chapter of this appendix for determining the Probable PDM,. The only difference is the information and level of confidence in the information available to the Project Engineer.

The Project Engineer will perform all of the pre-work for the project utilizing current information developed for the project. Information on the pre-work is located in Appendix B.

The purpose of the Selection Matrix is to provide an additional tool to evaluate projects that are more complex or larger, or when the Selection Checklist does not determine a Final PDM. The Selection Matrix compares the ability of each PDM to meet the criteria (Project Delivery Goals). The listed criteria in the Matrix are based on the University of Colorado, Boulder Delivery Matrix process, modified by WSDOT policies and values. These criteria were identified as potential goals of transportation projects that might be affected by the PDM. The Selection Matrix has generic Project Delivery Goals with ratings assigned to each goal for each PDM.

The user will:

- Identify the Project Delivery Goals in the Matrix that apply to their project,
- Identify any Project Delivery Goals that are actually Constraints,
- Refine or add Project Delivery Goals if needed (with associated ratings),
- Apply Weights to the Project Delivery Goals in accordance with their importance, and
- Multiply ratings with weights for scores to be total at the bottom of the Matrix.

Constraints do not have a relative importance related to Project Goals, but are a requirement of the project and will be evaluated as a pass/fail.

Appendix D – How to Complete the Selection Matrix

As you complete each step of the process, detail the justification and backup for each step. This documentation will be part of the backup for the Matrix.

I. Selection Matrix Project Delivery Goals

Start this process with a copy of the Selection Matrix used to determine the Probable PDM for the Project.

If writing over the original Matrix, use a different font color or ink color. All added items or markups should be in the new color. If the changes are too extensive for clarity, transfer your markups to a new Selection Matrix and attach a copy of the Selection Matrix used to determine the Probable PDM as part of the backup.

Review the generic Project Delivery Goals and new or revised Goals provided in the Selection Matrix used to determine the Probable PDM and compare them to the updated Primary Project Goals developed in the pre-work. Primary Project Goals are those most critical to the project success. Secondary Project Goals may be added at a later step if the Final PDM is not determined by the Primary Goals. Make sure to review Project Delivery Goals that were crossed out in the original Selection Matrix in case one or more have become valid. Also check to see if the Selection Matrix form has been updated since determining the Probable PDM and incorporate updated information into you Goals if applicable and make a note of the newer version of the form incorporated in the footer.

As part of this process, the Project Engineer may have some Project Goals that do not translate directly to Project Delivery Goals (refer to Appendix B). The Project Delivery Goals were identified as potential goals of transportation projects that might be affected by the PDM. With some thought, the Project Engineer should be able to identify the criteria of a particular Project Goal that relates to one or more of the Project Delivery Goals.

If a critical Project Delivery Goal is not provided, the Project Engineer may add it to the Matrix in the appropriate category.

The Project Engineer should typically have 4 to 6 Project Delivery Goals in the Selection Matrix.

II. Selection Matrix Goal Prioritization and Weights

After all of the Project Delivery Goals have been validated, modified or added to the Selection Matrix, validate the “Weights” of each Goal. The Weights reflect the priority of the Goals using a 1 to 10 system with 1 as low and 10 as highest. These priorities may be used for the Goal Weights where the Project Goals are identical to Project Delivery Goals (Goals affected by the PDM). The Project Goals may not be directly applicable to the generic Project Delivery Goals provided in the Matrix.

Prioritize Project Delivery Goals that are not identical to the associated Project Goal by using a 1 to 10 score to show the relative importance of each goal. Start by picking out the Project Delivery Goal

considered the highest priority and assign it a "10" if it does not already have it assigned. Now evaluate each Goal by comparing it with the starting, highest Goal. Has it the same importance? Is a little more important than the first Goal? Assign and adjust the priority and continue with the remaining highest priority Goal, until all Project Delivery Goals are weighed or existing weights validated.

III. Selection Matrix Project Delivery PDM Ratings

After identifying the Project Delivery Goals that apply to the Project and validating or adding Weights, the Project Engineer will identify the ratings that apply to each Goal and PDM.

Ratings show the relative value of each PDM in achieving the associated Project Delivery Goal. The Selection Matrix provides a two point rating range for the provided Project Delivery Goals that reflects the ability of each PDM to meet the generic Project Delivery Goal. Adjust the two point range to reflect project specific attributes associated with the Goal or slight modifications to the Goal.

Modifications to the Project Goals or new Project Goals may require that the associated ratings be adjusted outside the range 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.

This spreadsheet provides the Project Engineer with a basis for evaluating typical PDM 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. The Project Engineer can highlight or check items that may affect the project to help evaluate the relative rating of a goal that was added.

If ratings are modified outside the provided range or developed for a new or modified Project Delivery Goal, justification of the rating must be provided with the Final PDM backup.

Neutral Project Goals

After evaluating the Project Goals, it is possible that one or more may be neutral. All three PDMs have the same ability to meet a Neutral Goal, resulting in the same rating for the PDM's. A couple of potentially Neutral Goals are provided in the Selection Matrix.

These Goals have the same range for each PDM. Project specific adjustments to the ratings ranges may make these no longer neutral. However, in most cases, these Goals will remain neutral.

After finalizing the ratings for each Project Delivery Goals, cross out any Project Delivery Goals that are contract Neutral.

Appendix D – How to Complete the Selection Matrix

IV. Selection Matrix Project Constraints

As part of the pre-work, potential Project Constraints were identified. Constraints differ from Project Goals in that they **MUST** be accomplished for project success. Project commitments, decisions and assumptions identified in the updated project information can assist with establishing Constraints verses Project Goals.

If a Constraint is identified and is obviously not affected by the PDM selection, it is neutral and can be identified as such in the backup and dropped out of the process similarly to neutral Goals.

Identifying Constraints can be difficult. If unsure, leave it as a high priority Goal. If it is really a Constraint, there are steps in the process where the Project Engineer will be able to reevaluate if a Goal is actually a constraint. Avoid the temptation to make every high priority Project Delivery Goal into a Constraint. **Most projects will not have Constraints that affect the selection of the PDM.**

If the Engineer has identified a Constraint, evaluate it as Pass/Fail against the three PDM's. If any PDM's "fail", cross that column off of the Matrix as it is not a viable option for Final PDM.

V. Selection Matrix Scoring

For each Project Delivery Goal, multiply each Weight with the rating of each PDM. Add the scores at the bottom of the Matrix.

The highest score indicates the Final Project Delivery Method.

Do not score columns for a PDM that was removed by failing a Constraint (if any).

If you have concerns with the highest score Probable PDM because it scored poorly on a particular Goal, check to make sure that this is a Goal, and not a Constraint, or that the relative importance of the Goal is correct.

Resist adjusting weights and ratings after scoring unless there is an obvious mistake as this is where bias can creep into the process. If any adjustment occurs, document why and what was done.

VI. Checking Final PDM against Risks

The Project Engineer will have updated the project risks and completed a Qualitative Risk Analysis using the spreadsheet provided on the WSDOT Project Management Online Guide or the simple Qualitative Risk Analysis spreadsheet provided in Appendix A. Using the completed Qualitative Risk Analysis, evaluate the effect of the PDM or PDM's on each risk. If the highest score PDM does not create an unacceptable level of risk, the Engineer has determined the Final PDM.

If the highest score PDM is not acceptable based on the risks, the Project Engineer will evaluate the effect of the next highest scored PDM on the project risks in the analysis.

Appendix D – How to Complete the Selection Matrix

If a PDM fails the risk analysis, this may indicate a Project Constraint that was identified as a high priority Goal, or a Constraint that was not identified.

VII. Documentation

The Decision Matrix is itself, part of the supporting documentation for this process. However, the work to identify, prioritize, rate and weigh the Project Delivery Goals and PDM's in the Matrix should be provided as part of the backup.

Justification for each Goal and Constraint must be provided. Documenting the reasoning behind the relative importance between Project Goals, and why a Goal is a Constraint will be necessary to support the results of the process and provide the background needed endorsement and approval.

Provide the justification for the ratings of the relative ability of each PDM to achieve the goal if it is not within the provided range, if the generic Project Delivery Goal is modified significantly or if a rating is developed for a new Project Delivery Goal. Reference specific project attributes and the pro's and con's provided or inferred from the PDM Attribute Comparison Worksheet in Appendix A.5.

The risk analysis and any supporting information and justification must also be provided. If the highest scoring PDM fails and the next is used, provide a summary of the process and why the highest scored PDM failed.

Appendix D – How to Complete the Selection Matrix

Part 5 – Explanation of the Selection Matrix for Determining Final PDM

The following Selection Matrix has explanations to assist using the Matrix to determine the Final PDM.

A copy of the Selection Matrix that was used to determine Probable PDM was used as a starting point. The Project Engineer may choose to use a blank Selection Matrix form and attach the Probable PDM Selection Matrix as backup.

Appendix D – How to Complete the Selection Matrix

Project Name__ Project X -Bridge Replacement Project and HOV Connector_ __X_ Determining Probable PDM Date:_6/30/2015_

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

_____ Determining Final PDM **Date:_____**

Project Status ___Definition ___ 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	10	4	40	9	90	6	60
-	~~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~~	-

Comment [ET45]: Revise the Project Title if needed

Comment [ET46]: Indicate that you are completing the Matrix to determine the Final PDM

Comment [ET47]: Indicate the current status of the Project

Comment [ET48]: Validate the Previous Project Delivery Goals or Modify. Make sure that previously crossed out generic Goals are not now valid for the project.

Comment [ET49]: Validate the Project Delivery Goal Weights by identifying the highest priority Goal and assigning a "10" Weight. Compare each Goal to the highest Weight Goal and assign numbers from 1 to 10 to show the relative importance of each Project Delivery Goal to each other.

Comment [ET50]: Validate or change the rating of each PDM's ability to achieve the Goal.
Use the original Selection Matrix check the original range, check for any changes to the Matrix form since the Probable PDM was completed, and assign ratings. Provide justifications for ratings outside the generic Goal rating ranges provided and for modified and new Goal ratings.

Use the PDM Attribute Comparison Spreadsheet in Appendix A to assist with assigning Ratings. This spreadsheet provides pro's and con's for each PDM on different project attributes.

Appendix D – How to Complete the Selection Matrix

Project Name:_____**Project X**_____ Probable PDM or Final PDM (circle one) Date:__6/3-/2015_____

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)	6	9	54	5	30	9	54
-	~~Maximize capacity and mobility of improvements~~	-	~~6/7~~	-	~~9/10~~	-	~~9/10~~	-
	Minimize impacts to the public and/or local businesses during construction	10	6	60	9	90	8	80
	~~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)	8	4	32	9	72	8	64
Although the project is only $25 Million, the type of work was complex enough to use the ratings	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)	8	6	48	8	64	9	72
	Total Score – DB is the Probable PDM			234		**346**		330

Comment [ET51]: Score the PDM's by multiplying the Weight of each Goal by the Rating of each PDM. Add the scores in each column and total. The highest score will be the Final PDM.

Evaluate the highest score PDM using the Qualitative Risk Analysis to evaluate if impact of the PDM to the risk.

Appendix D – How to Complete the Selection Matrix

PART I: PROBABLE PROJECT DELIVERY METHOD			
☒ **A Probable Delivery Method has been determined** ☐ DBB ☒ DB ☐ GCCM			
Preparer Name and Title:	Mr. Project Engineer, Project Engineer	**Authorizing Name and Title:**	Ms. RA, Regional Administrator
Preparer Signature:	*Mr. Project Engineer* 6/30/2015	**Authorizing Signature:**	*Ms. RA* 1/31/2015
State Construction Office Endorsement	Mr. ASCE	**ASCE Signature:**	*Mr. ASCE* 6/30/2015
State Design Office Endorsement	Ms. ASDE	**ASDE Signature:**	*Ms. ASDE* 6/30/2015

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.

Comment [ET52]: Complete the information on the Final PDM determination

Comment [ET53]: The Project Engineer or Designee signs as the Preparer.

Comment [ET54]: The RA approves the Final PDM for all Projects. If the Project is under $100 Million and complies with the guidance, no further endorsement or approval is needed.

Comment [ET55]: The ASCE and the ASDE endorse the Final PDM if the project cost is $100 Million or greater or if an exception to the guidance is requested.

If an exception to the guidance is requested by the Region, the completed Matrix attached to a memo requesting approval must be submitted to the Deputy Chief Engineer. (Delegated by the Chief Engineer in the PDMSG Implementation Memorandum dated 10/28/2015.)

Appendix D – How to Complete the Selection Matrix

Part 6 – Example Selection Matrix for Determining Final PDM

The following Selection Matrix is an example for determining the Final PDM. The example project information is provided on a Project Delivery Description Worksheet. This is abbreviated backup; a real project will have much more detail and backup than just the Project Delivery Description Worksheet.

The Qualitative Risk Analysis example was not included in this section – see Section 3 for the example provided for Probable PDM determination.

Appendix D – How to Complete the Selection Matrix

Project Attributes
Project Name: **Project X -Bridge Replacement Project and HOV Connector**
Location: **I-A/SR-B in**
Project Goals: **Minimize Schedule (10 and highest priority)** **Minimize Impacts to the traveling public and local municipality (businesses) ~~(10)~~ (7)** **Minimize Environmental impacts (8)** **~~Minimize Operations and Maintenance costs (6)~~** **Minimize Project Area Footprint ~~(8)~~ (10)** **There are no Project Constraints that affect the selection of the PDM**
Estimated Budget: **$25,000,000**
Estimated Project Schedule: **Completion Date 11/1/2017**
Required Project Completion or Milestone Dates (if applicable): **~~Must Complete Milestone for Part I of project to allow Project Y project to start 8/15/2016~~**
Source(s) of Project Funding: **Transportation package**
Project Corridor: **I-A**
Major Features of Work – pavement, bridge, sound barriers, etc.: **Bridge replacement and HOV connector**
Major Schedule Milestones: **~~Complete Phase I by 8/15/2016~~**
Major Project Stakeholders: **Municipality B**
Major Obstacles (as applicable) **~~Resolve issues on 3rd party agreement with Municipality B so doesn't hold up design (~~Project design is not required before execution of the agreement) Third Party agreement resolved with Municipality B**
Major Obstacles with Right of Way, Utilities, and/or Environmental Approvals: **Avoid any impact to Sensitive Environmental Area A** **Delay on ROW's not expected**
Major Obstacles during Construction Phase: **Complex staging and phasing to maintain access to Municipality B Businesses** **Noise impacts during construction** **Safety issues working on river banks**
Preliminary Risks Identified: **Delays receiving Environmental Permits** **Delays with 3rd Party agreement** **Difficulty meeting milestones impact Project Y** **Unknown utilities cause delays and cost impacts**
Safety Issues: **may be difficult to excavate safely at the steep embankments at river** **unusual flood levels could threaten existing bridge (because designed with older standards) if construction delayed**
Construction Requirements: **WSDOT BDM and Standards**

Comment [ET56]: Changes in the project scope and development of the project information has reduced this Goal's relative importance.

Comment [ET57]: Changes in the project scope and development of the project information has reduced this goal from Primary to Secondary and it is dropped from the Matrix.

Comment [ET58]: As part of the pre-work, the priority of this goal was adjusted to reflect the increase of its relative importance to project success.

Comment [ET59]: This Milestone no longer exists.

Comment [ET60]: This is a project limitation, but is not a constraint on the selection of the PDM as it can be accommodated regardless of the PDM (again, this is typical)

Comment [ET61]: This is part of the reason for the goal to minimize schedule due to potential issues with the current bridge.

Appendix D – How to Complete the Selection Matrix

Project Name__ Project X -Bridge Replacement Project and HOV Connector_ __X_ Determining Probable PDM Date:_6/30/2015_

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

___X__ Determining Final PDM Date:_6/30/2016_____

Project Status ___Definition ___ Initiation & Alignment **_X**____ 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	10	4	40	9	90	6	60
-	~~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 D – How to Complete the Selection Matrix

Project Name:_____**Project X**_____ ~~Probable PDM~~ or Final PDM (circle one) Date:__~~6/30/2015~~___6/30/2016_____

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)~~	~~6~~	~~9~~	~~54~~	~~5~~	~~30~~	~~9~~	~~54~~
-	~~Maximize capacity and mobility of improvements~~	-	~~6/7~~	-	~~9/10~~	-	~~9/10~~	-
	Minimize impacts to the public and/or local businesses during construction	~~10~~ 7	6	~~60~~ 42	9	~~90~~ 63	8	~~80~~ 56
	~~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)	8	4	32	9	72	8	64
Although the project is only $25 Million, the type of work was complex enough to use the ratings	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)	~~8~~ 10	6	~~48~~ 60	8	~~64~~ 80	9	~~72~~ 90
	Total Score – DB is the ~~Probable~~ Final PDM			~~234~~ 174		~~346~~ 305		~~330~~ 270

Comment [ET62]: Evaluate the highest score PDM using the Qualitative Risk Analysis. Quickly consider the risks based on using this PDM. If there is an unacceptable increase or new risk associated with this PDM, evaluated the next highest scored PDM.

Appendix D – How to Complete the Selection Matrix

PART I: PROBABLE PROJECT DELIVERY METHOD			
☒ **A Probable Delivery Method has been determined** ☐ DBB ☒ DB ☐ GCCM			
Preparer Name and Title:	Mr. Project Engineer, Project Engineer	**Authorizing Name and Title:**	Ms. RA, Regional Administrator
Preparer Signature:	*Mr. Project Engineer* 6/30/2015	**Authorizing Signature:**	*Ms. RA* 6/30/2015
State Construction Office Endorsement	Mr. ASCE	**ASCE Signature:**	*Mr. ASCE* 6/30/2015
State Design Office Endorsement	Ms. ASDE	**ASDE Signature:**	*Ms. ASDE* 6/30/2015

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:	Mr. Project Engineer, Project Engineer	**Authorizing Name and Title:**	Ms. RA, Regional Administrator
Preparer Signature:	*Mr. Project Engineer* 6/30/2016	**Authorizing Signature:**	*Ms. RA* 6/30/2016
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 D – How to Complete the Selection Matrix

End of Appendix D