

**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	<a href="#">RCW 39.80 &amp; 39.04</a>	<a href="#">RCW 47.20.785</a>	<a href="#">RCW 39.10</a>
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			
<b>Pro's</b>	<input type="checkbox"/> Competitive bidding provides a low cost bid for construction to a fully defined scope of work <input type="checkbox"/> Increase certainty about cost estimates for Construction because project fully designed before bidding <input type="checkbox"/> Construction costs and/or unit prices are contractually set before construction begins	<input type="checkbox"/> Contractor input into design should moderate cost <input type="checkbox"/> Design-Builder collaboration and ATCs can provide a cost-efficient response to Project Goals <input type="checkbox"/> Costs are contractually set early in design process with design-build proposal <input type="checkbox"/> Allows a variable scope bid to match a fixed budget <input type="checkbox"/> Potential lower average cost growth <input type="checkbox"/> Funding can be obligated in a very short timeframe <input type="checkbox"/> Potential for fewer cost change orders as the Design-Builder is responsible for design errors and the associated costs	<input type="checkbox"/> WSDOT/designer/contractor collaboration to reduce project risk can result in lowest project costs <input type="checkbox"/> Early contractor involvement can result in cost savings through VE and constructability <input type="checkbox"/> Cost will be known earlier when compared to DBB <input type="checkbox"/> Integrated design/construction process can provide a cost efficient strategies to Project Goals <input type="checkbox"/> Can provide a cost efficient response to the Project Goals
<b>Con's</b>	<input type="checkbox"/> Cost accuracy is limited until design is completed <input type="checkbox"/> Construction costs are not locked in until design is 100% complete <input type="checkbox"/> Cost reductions due to contractor innovation and constructability is difficult to obtain <input type="checkbox"/> More potential of cost change orders due to WSDOT design responsibility (WSDOT responsible for design errors)	<input type="checkbox"/> 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	<input type="checkbox"/> Non-competitive negotiated MACC introduces price risk <input type="checkbox"/> Difficulty in MACC negotiation introduces some risk that MACC will not be successfully executed requiring aborting the GCCM process <input type="checkbox"/> Paying for contractors involvement in the design phase may increase total cost <input type="checkbox"/> More potential of cost change orders due to WSDOT design responsibility (WSDOT responsible for design errors)

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Level of Design			
<b>Pro's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 100% design by WSDOT or WSDOT selected consultants</li> <li><input type="checkbox"/> WSDOT has complete control over the design (can be beneficial when there is one specific solution for a project)</li> <li><input type="checkbox"/> Project scope can be developed/changed during the design without change orders</li> <li><input type="checkbox"/> The scope of the project is well defined through complete plans and contract documents</li> <li><input type="checkbox"/> Well-known process to the industry</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Design advanced by the WSDOT to level necessary to precisely define the contract requirements and properly allocate risk</li> <li><input type="checkbox"/> Does not require much design to be completed before awarding project to the Design-Builder (between ~ 10% - 30% complete)</li> <li><input type="checkbox"/> Contractor involvement in early design, which improves constructability and innovation</li> <li><input type="checkbox"/> 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</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Can utilize a lower level of design prior to selecting a contractor then collaboratively advance design with WSDOT, designer and contractor</li> <li><input type="checkbox"/> Contractor involvement in early design improves constructability</li> <li><input type="checkbox"/> WSDOT controls design</li> <li><input type="checkbox"/> Design can be used for DBB if the price is not successfully negotiated</li> <li><input type="checkbox"/> Design can be responsive to risk minimization</li> </ul>
<b>Con's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> WSDOT design errors can result in a higher number of change orders, claims, etc.</li> <li><input type="checkbox"/> Minimizes competitive innovation opportunities</li> <li><input type="checkbox"/> Can reduce the level of constructability since the contractor has no input into the project until after the design is complete</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Must have very clear definitions and requirements in the RFP because it is the basis for the contract</li> <li><input type="checkbox"/> If design is too far advanced it will limit the advantages of design-build</li> <li><input type="checkbox"/> Potential for lacking or missing scope definition if RFP not carefully developed</li> <li><input type="checkbox"/> Over utilizing performance specifications to enhance innovation can risk quality through reduced technical requirements</li> <li><input type="checkbox"/> Less WSDOT control over the design</li> <li><input type="checkbox"/> Can reduce WSDOT design consistency statewide.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Teaming and communicating concerning design can cause disputes</li> <li><input type="checkbox"/> Three party process can slow progression of design</li> <li><input type="checkbox"/> If design is too far advanced it will limit the advantages of GCCM or could require design backtracking</li> </ul>
SCHEDULE			
<b>Pro's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Schedule can be more predictable and more manageable with a complete design</li> <li><input type="checkbox"/> Milestones can be easier to define with a complete design</li> <li><input type="checkbox"/> Projects can more easily be “shelved” with a complete design</li> <li><input type="checkbox"/> Shortest procurement period (Bid period is typically shorter than the RFQ/RFP processes)</li> <li><input type="checkbox"/> Elements of design can be advanced prior to permitting, construction, etc.</li> <li><input type="checkbox"/> Time to communicate/discuss design with stakeholders</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Potential to accelerate schedule through parallel design-build process</li> <li><input type="checkbox"/> Shifting schedule risk to DB team</li> <li><input type="checkbox"/> Obligates construction funds more quickly</li> <li><input type="checkbox"/> Industry input into design and schedule</li> <li><input type="checkbox"/> Fewer chances for disputes between WSDOT and Design-Builders</li> <li><input type="checkbox"/> More efficient procurement of long-lead items</li> <li><input type="checkbox"/> Ability to start construction before entire design, ROW, etc. is complete (i.e., phased design)</li> <li><input type="checkbox"/> Allows innovation in resource loading and scheduling by DB team</li> <li><input type="checkbox"/> Schedule delays due to design error the responsibility of the Design-Builder</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Ability to start construction before entire design, ROW, etc. is complete (i.e., phased design)</li> <li><input type="checkbox"/> More efficient procurement of long-lead items</li> <li><input type="checkbox"/> Early identification and resolution of design and construction issues (e.g., utility, ROW, and earthwork)</li> <li><input type="checkbox"/> Can provide a shorter procurement schedule than DB</li> <li><input type="checkbox"/> Team involvement for schedule optimization</li> <li><input type="checkbox"/> Continuous constructability review and VE</li> <li><input type="checkbox"/> Maintenance of Traffic improves with contractor inputs</li> <li><input type="checkbox"/> Contractor input for phasing, constructability and traffic control may reduce overall schedule</li> </ul>
<b>Con's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Requires time to perform a linear design-bid-construction process</li> <li><input type="checkbox"/> Design and construction schedules can be unrealistic due to lack industry input</li> <li><input type="checkbox"/> WSDOT is responsible for design errors which can lead to change orders and schedule delays</li> <li><input type="checkbox"/> Low bid selection may lead to potential delays and other adverse outcomes.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Request for proposal development and procurement can be intensive</li> <li><input type="checkbox"/> Undefined events or conditions found after procurement, but during design can impact schedule and cost</li> <li><input type="checkbox"/> Time required to define technical requirements and expectations through RFP development can be intensive</li> <li><input type="checkbox"/> Time required to gain acceptance of quality program</li> <li><input type="checkbox"/> Requires WSDOT and stakeholder commitments to an expeditious review of design</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Potential for not reaching MACC and substantially delaying schedule</li> <li><input type="checkbox"/> MACC negotiation can delay the schedule</li> <li><input type="checkbox"/> Designer-contractor-WSDOT disagreements can add delays</li> <li><input type="checkbox"/> Strong WSDOT management is required to control schedule</li> <li><input type="checkbox"/> WSDOT is responsible for design errors which can lead to change orders and schedule delays</li> </ul>

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Project Complexity and Innovation			
<b>Pro's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> WSDOT can have more control of design of complex projects</li> <li><input type="checkbox"/> WSDOT and consultant expertise can select innovation independently of contractor abilities</li> <li><input type="checkbox"/> Opportunities for value engineering studies during design, more time for design solutions</li> <li><input type="checkbox"/> Aids in consistency and maintainability</li> <li><input type="checkbox"/> Full control in selection of design expertise</li> <li><input type="checkbox"/> Complex design can be resolved and competitively bid</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Designer and contractor collaborate to optimize means and methods and enhance innovation</li> <li><input type="checkbox"/> Opportunity for innovation through draft RFP, best value and ATC processes</li> <li><input type="checkbox"/> Can use best-value procurement to select Design-Builder with best qualifications</li> <li><input type="checkbox"/> Constructability and VE inherent in process</li> <li><input type="checkbox"/> Early team integration</li> <li><input type="checkbox"/> Sole point of responsibility for design and construction</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Highly innovative process through three party collaboration</li> <li><input type="checkbox"/> Allows for WSDOT control of a designer/contractor process for developing innovative solutions</li> <li><input type="checkbox"/> Allows for an independent selection of the best qualified designer and best qualified contractor</li> <li><input type="checkbox"/> VE inherent in process and enhanced constructability</li> <li><input type="checkbox"/> Risk of innovation can be better defined and minimized and allocated</li> <li><input type="checkbox"/> Can take to market for bidding as contingency if MACC negotiations fail</li> </ul>
<b>Con's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Innovations can add cost or time and restrain contractor's benefits</li> <li><input type="checkbox"/> No contractor input to optimize costs</li> <li><input type="checkbox"/> Limited flexibility for integrated design and construction solutions (limited to constructability)</li> <li><input type="checkbox"/> Difficult to assess construction time and cost due to innovation</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Requires desired solutions to complex designs to be well defined through technical requirements (difficult to do)</li> <li><input type="checkbox"/> Qualitative designs are difficult to define (example. aesthetics)</li> <li><input type="checkbox"/> Risk of time or cost constraints on designer inhibiting innovation</li> <li><input type="checkbox"/> Some design solutions might be too innovative or unacceptable</li> <li><input type="checkbox"/> Quality assurance for innovative processes are difficult to define in RFP</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Process depends on designer/CM relationship</li> <li><input type="checkbox"/> No contractual relationship between designer/CM</li> <li><input type="checkbox"/> Innovations can add cost or time</li> <li><input type="checkbox"/> Scope additions can be difficult to manage</li> <li><input type="checkbox"/> Preconstruction services fees for contractor involvement</li> <li><input type="checkbox"/> Cost competitiveness – single source negotiated MACC</li> </ul>
Staff Experience and Availability			
<b>Pro's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> WSDOT, contractors and consultants have high level of experience with the traditional system</li> <li><input type="checkbox"/> Designers can be more interchangeable between projects</li> <li><input type="checkbox"/> Smaller number of technical staff required through use of consultant designer</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Less WSDOT staff required due to the sole source nature of DB</li> <li><input type="checkbox"/> Opportunity to grow WSDOT staff by learning a new process</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> WSDOT can improve efficiencies by utilizing more project managers on staff rather than specialized experts</li> <li><input type="checkbox"/> Smaller number of technical staff required through use of consultant designer</li> </ul>
<b>Con's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Can require a high level of WSDOT staffing of technical resources</li> <li><input type="checkbox"/> Staff's responsibilities are spread out over a longer design period</li> <li><input type="checkbox"/> Can require staff to have full breadth of technical expertise</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Limitation of availability of staff with skills, knowledge and personality to manage DB projects</li> <li><input type="checkbox"/> Existing staff may need additional training to address their changing roles</li> <li><input type="checkbox"/> Need to “mass” WSDOT management and technical resources at critical points in process (i.e., RFP development, design reviews, etc.)</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Strong committed WSDOT project management is important to success</li> <li><input type="checkbox"/> Limitation of availability of staff with skills, knowledge and personality to manage GCCM projects</li> <li><input type="checkbox"/> Existing staff may need additional training to address their changing roles</li> <li><input type="checkbox"/> WSDOT must learn how to negotiate MACC projects</li> </ul>

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Level of Oversight and Control			
<b>Pro's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Full WSDOT control over a linear design and construction process</li> <li><input type="checkbox"/> Oversight roles are well understood</li> <li><input type="checkbox"/> Contract documents are typically completed in a single package before construction begins</li> <li><input type="checkbox"/> Multiple checking points through three linear phases: design-bid-build</li> <li><input type="checkbox"/> Maximum control over design</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> A single entity responsible for project design and construction</li> <li><input type="checkbox"/> Allows overlap between design and construction</li> <li><input type="checkbox"/> Getting input from construction to enhance constructability and innovation</li> <li><input type="checkbox"/> Overall project planning and scheduling is established by one entity</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Preconstruction services are provided by the construction manager</li> <li><input type="checkbox"/> Getting input from construction to enhance constructability and innovation</li> <li><input type="checkbox"/> Provides WSDOT control over an integrated design/construction process</li> </ul>
<b>Con's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Requires a high-level of oversight</li> <li><input type="checkbox"/> Increased likelihood of claims due to WSDOT design responsibility</li> <li><input type="checkbox"/> Limited control over an integrated design/construction process</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Can require high level of design oversight</li> <li><input type="checkbox"/> Can require high level of quality assurance oversight</li> <li><input type="checkbox"/> Limitation on staff with DB oversight experience</li> <li><input type="checkbox"/> Less WSDOT control over design</li> <li><input type="checkbox"/> Control over design relies on proper development of technical requirements</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> WSDOT must have experienced staff to oversee the GCCM</li> <li><input type="checkbox"/> Higher level of cost oversight required</li> </ul>
Competition and Contractor Experience			
<b>Pro's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Promotes high level of competition in the marketplace</li> <li><input type="checkbox"/> Opens construction to all reasonably qualified bidders</li> <li><input type="checkbox"/> Transparency and fairness</li> <li><input type="checkbox"/> Reduced chance of corruption and collusion</li> <li><input type="checkbox"/> Contractors are familiar with DBB process</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Allows for a balance of qualifications and cost in Design-Builder procurement</li> <li><input type="checkbox"/> Two-phase process can promote strong teaming to obtain "Best Value"</li> <li><input type="checkbox"/> Increased opportunity for innovation possibilities due to the diverse project team</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Allows for qualifications based contractor procurement</li> <li><input type="checkbox"/> WSDOT has control over an independent selection of best qualified contractor</li> <li><input type="checkbox"/> Contractor is part of the project team early on, creating a project "team"</li> <li><input type="checkbox"/> Increased opportunity for innovation due to the diversity of the project team</li> </ul>
<b>Con's</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Risks associated with selecting the low bid (the best contractor is not necessary selected)</li> <li><input type="checkbox"/> No contractor input into the process</li> <li><input type="checkbox"/> Limited ability to select contractor based on qualifications</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Need for DB qualifications can limit competition</li> <li><input type="checkbox"/> 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)</li> <li><input type="checkbox"/> Issues with the DB team selected for the project can impact communications and collaboration</li> <li><input type="checkbox"/> The gap between WSDOT experience and contractor experience with Project Delivery Method can create conflict</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Currently there is not a large pool of contractors with experience in GCCM, which will reduce the competition and availability</li> <li><input type="checkbox"/> Working with only one contractor to develop MACC can limit price competition</li> <li><input type="checkbox"/> Requires a strong project manager from the WSDOT</li> <li><input type="checkbox"/> A common point of failure is Teamwork and communication between WSDOT, the designer and the Contractor, which is critical to project success</li> </ul>

# Appendix A Worksheets and Forms