Basis of Design

**[Project Title]**

[State Route], MP [Begin] to MP [End]

[Enter multiple SR and MP as necessary]

[Work Order Number], [WIN Number], [PIN Number]

[Month Day, Year]

**WASHINGTON STATE DEPARTMENT OF TRANSPORTATION**

Choose an item.

[City], Washington

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| **SIGNATURES** | | Template  Version 2.2 |
| PREPARED BY | REGION APPROVAL | |
|  | *Consult* [*PDM #22-03*](https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/project-delivery-memos) *to determine if the BOD must be signed by the Regional Adminstrator*  *[insert title]* | |
| ASSISTANT STATE DESIGN ENGINEER APPROVAL | | |
| Consult Design Manual Chapter 300.  If ASDE approval is not required, simply type  “Not Applicable per Design Manual Chapter 300.”  in this box. | | |
| **PRACTICAL DECISION MAKING** | | |
| Practical decision making is a philosophy that considers each situation, aligns with our financially constrained budget environment, and encourages incremental, flexible, and sustainable investments by focusing on identified performance needs and engaging stakeholders at the right time.  There are six core principles that capture the essence of practical decision making:  ▪ Starts with a clear purpose and need ▪ Considers resource constraints and life cycle cost  ▪ Engages stakeholder and looks for partnerships *▪* Considers overall system performance  *▪* Considers incremental, phase solutions *▪* Applies innovation and creativity  These six core principles are incorporated throughout the document. | | |

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| **NOTE TO DESIGNERS**  *There are tips provided in red italics text. This text along with the BOD instructions are intended to help you fill out this document. Delete the red text [including this note] in the final version of the document.* |

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| **Related Documents and Technical Reports** |
| *Provided by HQ for statewide use; Regions can add what they believe is appropriate for the site (such as local planning comprehensive plans or other documents).*  *HQ will provide:*  *\* I2 Prevention Systemic Safety at Intersections with Compact Roundabouts Programmatic Document.*  *\* Identification of the Compact Candidate Location Methodology Document.*  *\* Compact Roundabout Intersection Safety Analysis Document.* |

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| **General Project Information** | | | | | | | | |
| **Route Information** | **SR** | **NHS (Y/N)** | [**Functional Class**](https://www.wsdot.wa.gov/data/tools/geoportal/?config=FunctionalClass) | [**City**](https://wsdot.maps.arcgis.com/home/item.html?id=bb7c67c334be494c88cf00ebb91fe51f) | | [**County**](https://wsdot.maps.arcgis.com/home/item.html?id=fe229f9df5aa4289b8ccd2a99289951b) | | |
|  |  |  |  | |  | | |
| **Project Information** | **Begin SRMP** | **End**  **SRMP** | **Budget** | **Funding**  **Sub-Program** | **Posted Speed** | | [**AADT**](https://hqolymcognos02p.wsdot.loc/ibmcognos/bi/?pathRef=.public_folders%2FReports%2FTransportation%2BPlanning%2FTraffic%2BCounts%2FSystem-Wide%2BReports%2FAADT%2BHistory%2BReport&action=run&format=HTML&prompt=false&promptParameters=%5B%7B%22name%22%3A%22Year%22%2C%22value%22%3A%5B%5D%7D%2C%7B%22name%22%3A%22End%20AB%22%2C%22value%22%3A%5B%7B%22display%22%3A%22A%22%2C%22use%22%3A%22A%22%7D%5D%7D%2C%7B%22name%22%3A%22MPType%22%2C%22value%22%3A%5B%7B%22display%22%3A%22SRMP%22%2C%22use%22%3A%22SRMP%22%7D%5D%7D%2C%7B%22name%22%3A%22Leg%22%2C%22value%22%3A%5B%7B%22display%22%3A%22State%20Route%22%2C%22use%22%3A%22State%20Route%22%7D%5D%7D%2C%7B%22name%22%3A%22Begin%20AB%22%2C%22value%22%3A%5B%7B%22display%22%3A%22A%22%2C%22use%22%3A%22A%22%7D%5D%7D%2C%7B%22name%22%3A%22SRID%22%2C%22value%22%3A%5B%7B%22display%22%3A%22%28Use%20only%20SR%20Number%29%22%2C%22use%22%3A%22000%22%7D%5D%7D%5D) | [**Truck %**](https://hqolymcognos02p.wsdot.loc/ibmcognos/bi/?pathRef=.public_folders%2FReports%2FTransportation%2BPlanning%2FTraffic%2BCounts%2FSystem-Wide%2BReports%2FAADT%2BHistory%2BReport&action=run&format=HTML&prompt=false&promptParameters=%5B%7B%22name%22%3A%22Year%22%2C%22value%22%3A%5B%5D%7D%2C%7B%22name%22%3A%22End%20AB%22%2C%22value%22%3A%5B%7B%22display%22%3A%22A%22%2C%22use%22%3A%22A%22%7D%5D%7D%2C%7B%22name%22%3A%22MPType%22%2C%22value%22%3A%5B%7B%22display%22%3A%22SRMP%22%2C%22use%22%3A%22SRMP%22%7D%5D%7D%2C%7B%22name%22%3A%22Leg%22%2C%22value%22%3A%5B%7B%22display%22%3A%22State%20Route%22%2C%22use%22%3A%22State%20Route%22%7D%5D%7D%2C%7B%22name%22%3A%22Begin%20AB%22%2C%22value%22%3A%5B%7B%22display%22%3A%22A%22%2C%22use%22%3A%22A%22%7D%5D%7D%2C%7B%22name%22%3A%22SRID%22%2C%22value%22%3A%5B%7B%22display%22%3A%22%28Use%20only%20SR%20Number%29%22%2C%22use%22%3A%22000%22%7D%5D%7D%5D) |
|  |  | $500k to $700k | I2 Crash Prevention |  | |  |  |
| **Brief Project Description** | Install a compact roundabout at the intersection of \*\*\* FILL IN \*\*\*. | | | | | | | |
| **Important Project History or Background** | The I2 crash prevention program for systemic treatment at intersections selected this location for a compact roundabout. See the I2 Prevention Systemic Safety at Intersections with Compact Roundabouts Programmatic document. | | | | | | | |
| **Future and Related Projects** | N/A | | | | | | | |
| **Major Environmental Considerations** | *If sliver widening occurs, environmental and right of way considerations may become a factor. If major environmental issues exist, the location may not be a feasible candidate. If deemed infeasible, then document this reason and include it in the Compact Roundabout Feasibility Documentation Template retained at the Region Traffic Office to explain why ultimately no action was taken. If Environmental or right of way issues become substantial, the project is not likely to prioritize high enough for I-2 funding.*  The intent of the Compact Roundabout program is to construct the improvement on the existing roadway footprint, thus minimizing environmental impacts and a potential right of way phase. Minor sliver widening may be required, resulting in environmental documentation and possible permitting. Temporary construction or slope easements may be required that could add a minor right of way phase. | | | | | | | |

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| **Section 1) Project Needs** |
| **Baseline Needs (BN)** |
| **BN1 – Safety**  Background: To reduce the potential for fatal and serious crashes at intersections by constructing compact roundabouts per the I2 Prevention Systemic Safety Programmatic strategy.  Metric: Potential for fatal and serious crashes  Target: Reduce fatal and serious crash potential |
| **BN# – TITLE**  Background: *Write a short paragraph providing the background behind why this is a baseline need for the project. Make sure you address what are the contributing factors to this baseline need.*  Metric: *What are you going to measure? This needs to be a simple statement or a few words.*  Target: *What is the project’s target for the above metric? Keep this simple.* |
| **Complete Streets Needs** |
| **Does Complete Streets apply to the project?**  **No**   **Yes**  *Refer to the Complete Streets Project Screening Worksheet. If the result of the worksheet was a complete streets analysis was required, then check Yes and provide highlights of the Project Screening Worksheet in this box. Leave the remainder of the Complete Streets Model Process for Sections 2 and 4 of the BOD. If Complete Streets is not applicable, check “no” and insert a statement as to why and delete the next two rows of this BOD. If the Complete Streets Model Process results in a “no” that involved a determination by the Regional Administrator (see* [*PDM #22-03*](https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/project-delivery-memos)*), summarize the decision here and have the Regional Administrator sign in the “Region Approver” box on the signature sheet of this BOD (Page 1).* |
| **Complete Streets for Pedestrians** *Delete this cell if you are not a Complete Street project.*  Background:  *Write a short paragraph providing the background behind complete streets for pedestrians.*  Metric: Pedestrian Level of Traffic Stress (PLTS)  Target: *2 or better* |
| **Complete Streets for Bicyclists** *Delete this cell if you are not a Complete Street project.*  Background:  *Write a short paragraph providing the background behind complete streets for bicyclist. Delete this cell if you are not a Complete Street project.*  Metric: Bicycle Level of Traffic Stress (BLTS)  Target: *2 or better* |
| **Contextual Needs (CN)** |
| **CN# – TITLE** *… add CN1, CN2, etc. If no contextual needs are identified, insert “N/A” for the TITLE.*  Background:  *Write a short paragraph providing the background behind why this is a contextual need for the project. Make sure you address what are the contributing factors to this contextual need. If there are no contextual needs identified, state such in this background section and put “N/A” for the metric and target.*  Metric:  *What are you going to measure? This needs to be a simple statement or a few words.*  Target: *What is the project’s target for the above metric? Keep this simple.* |
| **Safety Analysis** |
| Was a Safety Analysis performed  No  Yes  Provided by HQ Traffic for statewide use – see Compact Roundabout Intersection Safety Analysis Document. |
| **Existing Variance** |
| Are there existing Design Variances within the Project Limits?  No  Yes  If YES, can this project correct any of the existing design variances?  *Request a list of known variances from your ASDE. Go through this list and see if you have an opportunity to correct or change the elements associated with the design variance.* |

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| **Section 2) Context** | | | | | | | | | | | | | | | | | | | | | |
| **Roadway \_\_\_\_\_\_ MP \_\_\_\_\_ to MP \_\_\_\_\_**  *[Duplicate this section as necessary to reflect distinct segments with different context]* | | | | | | | | | | | | | | | | | | | | | |
| **Multidisciplinary Team Members** | | | | *List the agencies, community stakeholders, and divisions involved in determining the context for this project. Include the partners from Step 3 of the Complete Streets Model Process.* | | | | | | | | | | | | | | | | | |
| **Community Engagement** | The predesign phase will begin community engagement and stakeholder support. The engagement will continue through the design phase as necessary. Note: If the project is not supported by the Region, then document the reason and include it in the Compact Roundabout Feasibility Documentation Template retained at the Region Traffic Office to explain why ultimately no action was taken. If no action was taken, then this BOD is not completed. | | | | | | | | | | | | | | | | | | | | |
| **Freeway** | | Rural  Urban | | | | | | | | | | | | | | | | | Interstate  Non-Interstate | | |
| **Non-Freeway** | | Existing | | | | | | | Rural  Suburban  Urban  Urban Core *See DM Chapter 1102.02(1)* | | | | | | | | | | | | |
| Future | | | | | | | Rural  Suburban  Urban  Urban Core | | | | | | | | | | | | |
| **Bicycles – Complete Street?**  **No**  **Yes** *If you are a Complete Street, select “Yes” and skip this section.* | | | | | | | | | | | | | | | | | | | | | |
| Accommodation | | | Prohibited | | | | Low | | | | | Med | | | | High | | | | Involve Multidisciplinary Team Members | |
| Current | | |  | | | |  | | | | |  | | | |  | | | |
| Future | | |  | | | |  | | | | |  | | | |  | | | |
| Comments | | | *Describe any special design considerations that apply. If this is a complete street project, state “This project has been identified as a complete street and bicycle accommodation is taken into consideration in Sections 1 and 4 of the BOD.”* | | | | | | | | | | | | | | | | | | |
| **Pedestrians – Complete Street?**  **No**  **Yes** *If you are a Complete Street, select “Yes” and skip this section.* | | | | | | | | | | | | | | | | | | | | | |
| Accommodation | | | Prohibited | | | | Low | | | | | | Med | | | High | | | | | Involve Multidisciplinary Team Members |
| Current | | |  | | | |  | | | | | |  | | |  | | | | |
| Future | | |  | | | |  | | | | | |  | | |  | | | | |
| Comments | | | *Describe any special design considerations that apply here. If this is a complete street project, state “This project has been identified as a complete street and pedestrian accommodation is taken into consideration in Sections 1 and 4 of the BOD.”* | | | | | | | | | | | | | | | | | | |
| **Freight** | | | | | | | | | | | | | | | | | | | | | |
| Classification | | | T-1 | | T-2 | | | T-3 | | | T-4 | | | | T-5 | | | See [Truck Freight Classification](https://wsdot.maps.arcgis.com/home/item.html?id=0e37044a459244d9b6414826b46e8c46) | | | |
| Current | | |  | |  | | |  | | |  | | | |  | | |
| Future | | |  | |  | | |  | | |  | | | |  | | |
| Comments | | | *Coordinate with Multidisciplinary Team Members. Describe any special design considerations that apply here. If the project will be a complete street, confirm that freight is accommodated during alternatives development.* | | | | | | | | | | | | | | | | | | |
| **Transit** | | | | | | | | | | | | | | | | | | | | | |
| Fixed route type | | | None | | | Local | | | | Limited Stops | | | | Express | | | Transit Agencies | | | | |
| *Current* | | |  | | |  | | | |  | | | |  | | | *List all transit agencies that operate within the project limits.* | | | | |
| *Future* | | |  | | |  | | | |  | | | |  | | |
| *Comments* | | | *See DM 1102.03(5). Coordinate with Multidisciplinary Team, describe special design considerations. If the project will be a complete street, confirm that transit vehicles and riders are accommodated during alternatives development.* | | | | | | | | | | | | | | | | | | |

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| **Section 3) Design Controls** | | |
| **Roadway \_\_\_\_\_\_ MP \_\_\_\_\_ to MP \_\_\_\_\_**  *[Duplicate this section as necessary to align with the Context described in Section 2]* | | |
| **Design Year** | Year of opening. | |
| **Design Vehicle** | Buses and trucks may traverse over the central island to complete turning maneuvers.  *Note to designer: Insert what you are using for a Design Vehicle in this section. Address why you selected that design vehicle.*  *See DM 1310.02(5) for more information about accommodating vs. designing for vehicles.* | |
| **Terrain** | **Level**  **Rolling**   **Mountainous** *See*[*WSDOT State Highway Log*](https://www.wsdot.wa.gov/mapsdata/roadway/statehighwaylog.htm) | |
| **Access Control** | **Existing** | No change. |
| **Planned** | No Change. |
| **Proposed** | No Change. |
| **Target Speed** | Target speed is not appropriate for compact roundabouts. Only geometrics within the vicinity of the intersection are changing by installing the compact roundabout. There will be no changes in either mainline or side street geometrics outside of the intersection area and therefore no change in mainline or side street speed limits are proposed. The circulatory advisory speed of the compact roundabout will be determined based upon the size of the roundabout that can be constructed. | |

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| **Section 4) Alternatives** |
| **Alternatives Comparison Table** |

Legend:

ഠ = Worst

◔ = Worse

◑ = Average

◕ = Better

⬤ = Best

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| Alternative ID | Description |  | Cost | Operations | Safety | ↓ Baseline Needs ↓ | BN1 – Safety | ↓ Complete Streets Needs ↓ | Pedestrian LTS | Bicycle LTS | Route Directness Index | ↓ Contextual Needs ↓ | CN1 Name | CN2 Name  (Add columns for more CNs) | ↓ Other Impacts ↓ | Other Impacts | Other Impacts |
| A | Compact Roundabout |  | N/A | N/A | N/A | N/A | LTS | LTS | Rate | Rate | Rate | Rate | Rate |
| B |  |  | Rate | Rate | Rate | Rate | LTS | LTS | Rate | Rate | Rate | Rate | Rate |
| C |  |  | Rate | Rate | Rate | Rate | LTS | LTS | Rate | Rate | Rate | Rate | Rate |
| D |  |  | Rate | Rate | Rate | Rate | LTS | LTS | Rate | Rate | Rate | Rate | Rate |
| E |  |  | Rate | Rate | Rate | Rate | LTS | LTS | Rate | Rate | Rate | Rate | Rate |

Add or delete columns as necessary

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| **Cost Summary:**  This project was funded via the I2 Prevention Systemic Safety program. No other alternatives were considered. Therefore, the cost to implement was not taken into consideration.  **Operations:**  An operations assessment is not necessary for a compact roundabout. These locations were screened for implementation during the process of implementing the project through the I2 Prevention Systemic Safety program.  **Safety:**  A safety assessment was provided by HQ Traffic for statewide use – see the safety section in Section 1 of this BOD.  **Baseline Need Summary:**  To reduce the potential for fatal and serious crashes at intersections, a compact roundabout was chosen to be constructed at this intersection as part of the I2 Prevention Systemic Safety Program which is providing the funding. For further information on how this compact roundabout meets the baseline need, see the I2 Prevention Systemic Safety at Intersections with Compact Roundabouts Programmatic document.  **Complete Streets Need Summary:**  *If this is not a complete streets project, then select “N/A” in the columns above and do nothing else. The reason for selecting “N/A” should be given in Section 1 of this BOD. Otherwise, for those projects that are complete streets, fill in the columns above and give a summary here on how your project addressed complete streets. The columns with black text are the minimum columns to consider. Other columns may be added as necessary.*  **Contextual Need Summary:**  *Give a summary of how the preferred alternative addressed the contextual needs (if any). If multiple CNs were defined, add a column for each additional CN. If there are no contextual needs for the project, delete these columns and remove this summary section.*  **Other Impacts Summary:**  *Since this project is a systemic safety project, there will likely be no “other impacts”. As such, these columns and this summary text will likely be deleted. However, they are being left in this form in case you do have different compact roundabout alternatives you are considering for your project. If you do have other compact roundabout alternatives, provide a summary of how “Other Impacts” helped select the preferred alternative.*  *Let’s take a moment to explain the difference between a need and an impact. A need is a purpose of a project; why you are there. An example of a need is to preserve the pavement, improve safety, provide multimodal connectivity, or address a fish barrier. An impact is how your project affects the project location, or a result of the project. For example, you are considering alternatives of a roundabout and a signal. Both will have different affects on the project location and you may affect right of way, maintenance cost, stormwater, wetlands, and utilities. The project need might have been to improve safety, but both the signal and the roundabout affect the project location in different ways … they have different impacts. These impacts may have a bearing on selecting the preferred alternative and they can be shown in this Alternatives Comparison Table as “Other Impacts”.*  **Preferred Alternative *\_A\_* was selected because:**  A compact roundabout per the I2 prevention program for systemic treatment at intersections is the only alternative considered according to the I2 Prevention Systemic Safety at Intersections with the Compact Roundabouts Programmatic document. |

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| **Section 5) Design Elements Changed** | | |
| *For each design element below, identify the design elements that will have dimensions changed in the* ***preferred alternative*** *for each alignment or location. You can group alignments into a single location if desired. You may need to add or delete columns.* | | |
| **Design Element** | Intersection of  \*\*\* Fill In \*\*\* |
| 1. **Lane** |  |
| 1. **Median / Buffer** |  |
| 1. **Shoulder** |  |
| 1. **Streetside / Roadside Zone** |  |
| 1. **Pedestrian Facility** |  |
| 1. **Bicycle Facility** |  |
| 1. **Bridges and Buried Structures** |  |
| 1. **Horizontal Alignment** |  |
| 1. **Vertical Alignment** |  |
| 1. **Cross Slope** |  |
| 1. **Side Slope** |  |
| 1. **Clear Zone** |  |
| 1. **Barrier, Guardrail & Rumble Strips** |  |
| 1. **Signals, Illumination, and ITS** |  |
| 1. **Signing and Delineation** |  |
| 1. **On/Off Connections** |  |
| 1. **Intersection / Ramp Terminal** |  |
| 1. **Road Approaches** |  |
| 1. **Roundabout** | X |
| 1. **Access Control** |  |