Washington State Department of Transportation

Memorandum

7/8/2025

TO: WSDOT Project Development Engineers
WSDOT Region Traffic Engineers
WSDOT Development Service Engineers

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Development Division Director

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SUBJECT: Project Delivery Memo #25-02 – Roundabout First and Intersection Control Evaluations

Purpose

The purpose of this Project Delivery Memo is to revise the Intersection Control Evaluation language within Washington State Department of Transportation (WSDOT) Design Manual Section 1300.05 to be in alignment with Secretary's Executive Order E 1085.01, Road Safety - Advancing the Safe System Approach for All Users.

Background

In support of Washington State Strategic Highway Safety Plan, *Target Zero*, WSDOT prioritizes reducing fatal and serious injury crashes within the constraints of available resources, scientific advancements, technology, and legislative mandates. A key element of this strategy is the implementation of roundabouts. Both the Federal Highway Administration (FHWA) and WSDOT recognize roundabouts as a Proven Safety Countermeasure because they effectively reduce the likelihood of fatal and serious injury crashes. Roundabouts achieve this by managing traffic speeds, reducing conflict points, and improving pedestrian and bicyclist safety with shorter crossing distances.

To enhance the Intersection Control Evaluation (ICE) process and promote the implementation of roundabouts, WSDOT has modified the ICE process to incorporate the *Safe System Approach*. These updates:

- Encourage the implementation of roundabouts by establishing a streamlined decision-making approach for roundabouts at certain intersections,
- Provide a separate vehicle safety analysis and active transportation safety assessment, and
- Clarifies the connection between intersection studies and other safety evaluations conducted by WSDOT.

Direction

For all projects that have not obtained Design Approval by the date of this Project Delivery Memorandum, Design Manual Section 1300.05 is revised to read as follows:

1300.05 Intersection Control Evaluation Procedures (Rewritten 2025)

An Intersection Control Evaluation (ICE) is used to determine the preferred control at an intersection or driveway. There are two types of ICE: Simplified ICE and the standard ICE. Applicability and documentation needs are detailed in the following sections.

Roundabouts are the preferred intersection control type on state highways due to the safety, operational resilience, and service life performance record. In certain circumstances, a Simplified ICE can be used to identify a roundabout as the preferred intersection control (see Section 1300.05(3)); however, some conditions may affect the feasibility of selecting a roundabout and/or the ability to use the Simplified ICE. These conditions include high volume highways, right of way impacts, environmental impacts, topography, transportation context, modal priorities, or other impacts/considerations. When any of these conditions or considerations exist at an intersection or driveway, use the ICE type deemed appropriate by the Region Traffic Engineer in consultation with HQ Transportation Operations.

An approved ICE is required prior to the development of the plan for approval (PFA) package. With ASDE approval, the need for a Basis of Design (BOD) may be exempted if the project needs, alternatives considered, and performance tradeoffs are used in the alternative selection and documented in the standard ICE. Additionally, the ASDE may waive the need for a BOD with an approved Simplified ICE with a roundabout being the only alternative considered. See Chapter 1100 for more information. For local agency and developer-initiated projects with an approved Simplified ICE, the requirement to submit a Summary of Design (SOD) for approval may be waived by the approving authority designated in Exhibit 300-4.

1300.05(1) New Intersections and Driveways

At new intersections, complete an ICE to determine and document intersection control according to the applicable procedures in this chapter.

At new driveways, an Intersection Control Evaluation (ICE) may be required by the Region Traffic Engineer due to factors such as roadway speeds, transportation context, volumes, composition of traffic and/or multimodal users, etc.

1300.05(2) Existing Intersections and Driveways

When a project includes work on an existing intersection, an Intersection Control Evaluation (ICE) is required for:

- **Improvement Projects** (e.g., I-1, I-2, I-3) that include pavement construction or reconstruction through intersections.
- **Preservation Projects** (e.g., P-1, P-2, P-3) that involve changes to channelization or signal replacement/rehabilitation.

For all other project types, the need for an ICE will be determined by the Region Traffic Engineer in cases such as:

- incorporating active transportation design elements at an existing intersection or driveway,
- minor revisions such as channelization changes within existing pavement, and/or

- changes in volumes or composition of traffic and multimodal users on existing driveways caused by development or other circumstances.

1300.05(3) Simplified Intersection Control Evaluation

A Simplified Intersection Control Evaluation (Simplified ICE) may be used for projects that elect to pursue a roundabout as their preferred intersection control type. The Simplified ICE process is intended to expedite roundabout intersection control decision by focusing on operational performance and fatal and serious injury crash reduction. Use Exhibit 1300-5 to identify the recommended type of intersection control evaluation for a roundabout. The Simplified ICE may be used with approval from the Region Traffic Engineer in consultation with HQ Transportation Operations. A Simplified ICE contains:

- Background and Project Needs (see Section 1300.05(4))
- Feasibility (see Section 1300.05(4))
- Operational Performance
- Any supplementary analysis requested by the Region Traffic Engineer

Consult the Region Traffic Office to establish the appropriate scope of work prior to initiating. Consider site or corridor complexity and transportation context guides that may influence the analysis needs. During this consultation, identify the need for and type of supplementary analysis the Simplified ICE may require.

Exhibit 1300-5 Recommended Intersection Control Evaluation Type for Roundabouts [1] (New 2025)

	Simplified ICE [2]	Standard ICE
Design Year Traffic Volumes [3]	< 30,000	≥30,000
Right of Way Impacts	None to Medium	Significant
Environmental Impacts	None to Medium	Significant
Community Engagement & Local Partners	Roundabout is generally supported by community and local agencies	Roundabout is generally not supported by community and local agencies
Other Considerations	None to Medium	Significant
Maintenance & Preservation	Replacement of a traffic signal at the end of its service life	N/A
Corridor Complexity	N/A	Proximity to high volume driveways and intersections, congested corridors, and proximity to interchange functional areas

[1] Region Traffic Engineer in consultation with HQ Transportation Operations determines the type of ICE required.

[2] Supplementary analysis may be required. Need and type of supplementary analysis and documentation determined by Region Traffic Engineer.
[3] Total entering average daily traffic volume

1300.05(4) Standard Intersection Control Evaluation

The standard Intersection Control Evaluation (ICE) is a 6-step process designed to analyze and evaluate different intersection alternatives to determine the best option for the intersection. The process can be adjusted based on the size and complexity of the project. As part of the evaluation, a roundabout alternative must be considered.

Scoping

Consult with the Region Traffic Office to establish the appropriate scope, network area of influence and extent of analysis of the ICE prior to initiating work.

Step 1: Background and Project Needs

Document the project's needs and why an intersection improvement is needed.

Describe the existing conditions. Include physical characteristics of the site, posted speed, AADT, turning movement volumes, channelization and control features, multimodal facilities, context, and modal priority. Identify prior planning work or studies that include this intersection.

Identify all project alternatives under consideration. See Section 1300.03(7) for a list of possible alternative intersections. Additional information on intersection types can be found on the Federal Highway Administrations (FHWA) Intersection Safety Website Intersection Safety | FHWA (dot.gov) For each alternative, provide a brief description of the assumed layout. Include the number of lanes on major and minor approaches and any measures necessary to accommodate multi-modal users. For a roundabout, document the assumed inscribed circle diameter. For a signal, document the assumed cycle length and phasing strategy used for the analysis. If signal warrants are not met, then traffic signal alternatives should be screened out.

Step 2: Feasibility

Develop conceptual alternatives and determine the approximate footprint required to achieve expected performance measures. To help inform the decision, for each alternative:

- Determine any potential right of way impacts or other considerations that can inform the decision. Provide sketches or plan sheets with sufficient detail to identify topography, existing utilities, drainage, property boundaries, buildings, and other fixed objects.
- Identify known or potential environmental impacts that could influence control type selection. Consult with region Environmental staff to determine any known environmental impacts or risks that may substantially affect the feasibility of the project.
- Consider Community Context. A proposed transportation project is to be planned not only for its physical aspects as a facility serving specific multimodal transportation objectives, but also for its effects on the larger community setting.
    - Considerations can include, but are not limited to, community and statewide plans, equity, economic development, land use, community identified needs, and engagement with tribes and local partners. See Chapter 210 for more information regarding Community Engagement.
    - Community or state plans that call for a specific intersection control should not exclude alternatives within an evaluation. History, context, land use, transportation

innovation, Department policies, and statewide goals change over time. Past recommendations may not align with the current or future context.

If an alternative is not feasible, remove it from consideration and document why the alternative was removed from further consideration. All remaining alternatives are to proceed to Step 4.

Step 3: Performance Metrics

Document the project's needs along with associated performance metrics and targets that will be affected by the intersection. These needs, metrics, and targets will be used for alternative comparison in Step 5. The State of Washington has set a goal to have zero fatal and serious crashes on our roadways by 2030 as directed in the Strategic Highway Safety Plan, and Target Zero. WSDOT prioritizes design and operational decisions that support safety for all users based on the context and modal priorities of the road. Include safety among the performance metrics in the evaluation (see Step 4 for additional information).

Step 4: Operational and Safety Performance Analysis

Perform and report the results of applicable analyses for all remaining alternatives and the no-build condition for performance metrics and targets identified in Step 3. The analysis and level of effort is scalable based on project's complexity, scale of proposed alternatives, context, and impact to the network and other modes. Include the following:

- **Traffic Analysis** – Use the opening year and selected design year for analysis (see Chapter 1103). In some cases, it may also be appropriate to analyze the horizon year. Identify and justify any growth rates used and provide turning movements for all scenarios. Traffic volumes, duration of congestion, and the proximity to other access points will dictate the modeling effort required. General practice includes evaluating the morning and evening peak periods. Extended analysis periods beyond peak hours or examining other peak periods may be necessary to gain a comprehensive understanding of operations, offering a broader perspective on operations and mobility in relation to intersection alternatives depending on site context or congestion levels. Consider metrics that may provide a benefit to the corridor, such as person throughput, travel time, and reliability. Contact the region Transportation Operations Office to determine the appropriate approved analysis tool(s) and evaluation scope. For more information and guidance on traffic analysis, refer to Chapter 320 and the Traffic Analysis webpage.
- **Safe System Intersection Assessment** – At intersections, safety challenges can be identified by examining safety history, evaluating the benefits of various safety strategies, managing speed and crash angles, considering roadway and roadside characteristics, and complexity. ICE safety evaluations should be divided into two parts: focusing on 1) vehicles and 2) on pedestrians and bicyclists.
    - **Vehicle Safety Analysis** – See the Safety Analysis Guide for ICE safety analysis procedures. Safety assessments typically involve reviewing 5 consecutive years of historical data and are enhanced by quantitative evaluations like the Highway Safety Manual Predictive Methods, Crash Modification Factors, and societal safety cost analysis. Additional factors to consider include identifying/classifying conflict points and implementing speed management strategies. In situations where intersections may not align well with specific or combination of approaches, consider each evaluation method to determine best fit. In some cases, a qualitative discussion

might be an appropriate method for safety analysis. Consult the Region Traffic Office to determine a suitable level of analysis.

- **Active Transportation Safety Assessment** – Discuss how the design for each alternative is expected to affect active transportation user's comfort and safety. Use functional characteristics listed in Designing for Active Transportation found in Section 1310.03(1) to guide this evaluation. When applicable, evaluate active transportation strategies that may be necessary for each alternative to meet the performance needs of each user type.

Step 5: Alternatives Evaluation

Compare the alternatives based on their ability to address the project needs, operational and safety analysis using the established performance metrics and targets. The goal is to discuss performance tradeoffs to help approving authorities reach an informed decision.

In most cases where there are few alternatives, a written performance summary is all that is needed. In more complex ICE's, an alternative comparison table may be considered to summarize performance, however ranking or scoring is discouraged. The evaluation may also include the following:

- Resilience benefits of intersection strategies. Does the alternative improve WSDOT's ability to mitigate, prepare for, and respond to emergencies; combat climate change; and Washington's long-term resilience objectives such as operations during power outages and transportation greenhouse gas reductions.
- Maintenance, operations and maximize useful lifetime of the design.
- Magnitude of estimated project costs.
- A qualitative or quantitative discussion of life cycle cost or return on investment may be utilized. This method is not intended to be used alone but with other metrics identified in the study and by considering the following factors:
  - Annual maintenance and operations, and replacement costs. For signals, this should include routine and non-routine maintenance, periodic replacement of components such as controllers, and replacement of the entire signal systems at the end of its service life.
  - Travel time savings in all hours of the day.
  - Greenhouse Gas Emissions
  - Safety Societal cost savings (considered as the Benefit in the analysis) of reduced crash frequency and/or severity using methods described in Chapter 321 and the Safety Analysis Guide. See the Safety Analysis Guide for WSDOT Societal Costs for crash severities.

Step 6: Selection

Based on performance tradeoffs and documented project needs, select the recommended alternative.

1300.05(4)(a) Additional Information

Discuss the following in the ICE as needed to further support the selection (is it an item that will have a significant effect on the decision?):

- Review the corridor sketch plans and database with the regional planning office.
- Information from a corridor or planning study.

- Current and future land use and whether or not the intersection control will reasonably accommodate future land use traffic changes.
- Community engagement and local agency coordination and comments.
- Effect on future local agency projects.
- Other elements considered in the selection of the intersection control.

1300.05(5) Community Engagement

Community engagement is a necessary element of project development that allows communities to learn about the transportation needs WSDOT has identified, share their needs and experiences, and provide input to inform WSDOT decisions (see Chapter 210). Technical, community, and political aspects must be considered. It is critical that community engagement efforts occur with preparation and well-organized content regarding the known performance data associated with different control types to inform communities of the distinct differences between control types with respect to the existing and future contexts and modes.

There is often concern from communities regarding control types that may be under consideration, especially the types of intersections that may seem unfamiliar or that break from the traditional approach. Education and outreach efforts, if necessary, are collaborative and are most useful during the analysis and early scoping stages.

Follow the guidelines of WSDOT's Community Engagement Plan, and document the effort as indicated in Chapter 1100.

1300.05(6) Approval

The ICE shall be prepared by or under the direct supervision of a licensed Professional Engineer. Approval of the ICE (see Chapter 300 for more information) requires the following:

- Region Traffic Engineer Approval, and
- HQ State Traffic Design Engineer Approval or Designee
- For single lane roundabouts, HQ State Traffic Design Engineer may delegate the approval of the Simplified ICE to the Region Traffic Engineer.

1300.05(7) Developer-Initiated Impacts

Chapter 320 provides guidance for preparation of a Traffic Impact Analysis (TIA). Early in the design process, developers should coordinate with the region office to identify specific intersections for further analysis. The project initiator provides an Intersection Control Evaluation (ICE) for approaches and intersections with state routes per Section 1300.05 or references this information in the TIA. The project initiator documents the design considerations and submits the ICE and all documentation to the region for approval (per Section 1300.05). After the ICE is approved, finalize the intersection design and obtain approval per Chapter 300 (for documentation), Chapter 1310 (for intersections), Chapter 1320 (for roundabouts), and Chapter 1330 (for traffic signals). If the TIA appropriately incorporates all aspects of Section 1300.05 into the study, a separate ICE for state highway intersections may be waived with written concurrence from the Region Traffic Engineer and HQ Transportation Operations Division. Consult with HQ Transportation Operations Division for guidance. Section 1300.05(7) approvals are applicable to combined studies.

1300.05(8) Relationship to other Analysis and Studies

1300.05(8)(a) Access Revision Reports and Non-Access Feasibility Reports

Consult with Region Traffic Office, Assistant State Design Engineer, and Transportation Operations Division before beginning any ICE at an intersection or ramp terminal within the interchange functional area. See Chapter 550 for requirements.

1300.05(8)(b) Crash Analysis Reports (by WSDOT)

If the crash analysis report appropriately incorporates aspects of Section 1300.05 into the study, a separate ICE for state highway intersections may not be required. Section 1300.05(7) does not apply to Crash Analysis Reports prepared by WSDOT. Consult with HQ Transportation Operations Division for guidance.

1300.05(8)(c) Planning or Corridor Analysis (by WSDOT)

Generally, planning studies do not provide the depth of analysis to support an intersection control decision. However, if the scope of the efforts allows sufficient operations and safety evaluation then consult with both the Region Traffic Engineer and HQ Transportation Operations Division to determine applicability. Section 1300.05(7) is applicable to these combined analyses.

Questions

For questions or information on how to implement this Project Delivery Memo, contact your ASDE.

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