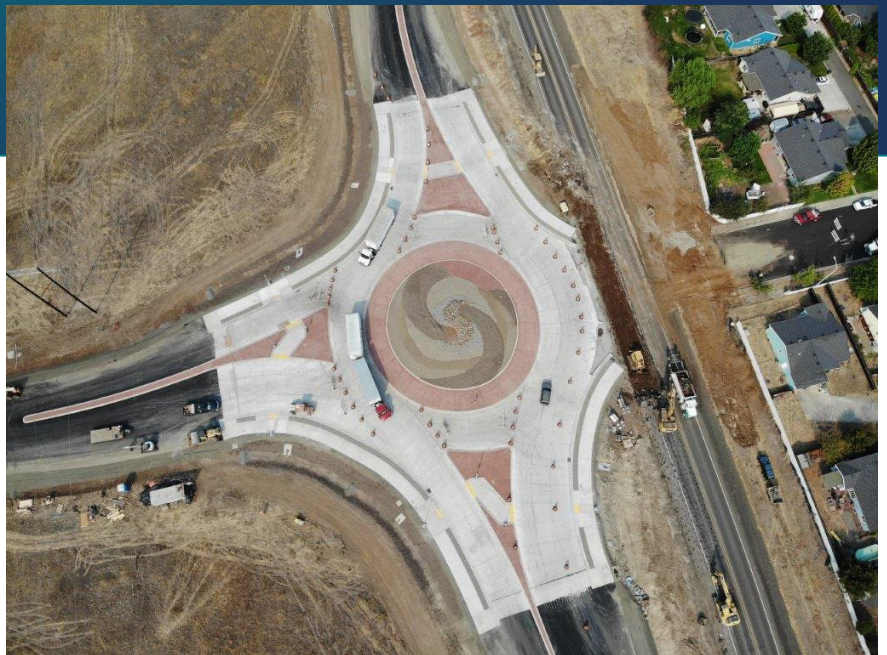


Mobility Engagement Guidance for Intersection Improvements & Roundabouts

November 2023



Mobility Engagement Guidance for Intersection Improvements & Roundabouts

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Oregon Department of Transportation

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Table of Contents

BACKGROUND & PURPOSE	1
ENGAGEMENT TIMELINE	3
Step 1: Early Communication.....	3
Step 2: MAC Support for Roundabout Sizing (DES 02)	6
Step 3: Follow-up, Case-by-Case Communication.....	10
Step 4: MAC Support for Temporary Work Zone Impacts.....	10
MEETING COORDINATION & ATTENDEES	11
MAC Meetings & Work Sessions.....	11
Local Meetings	11
RECORDKEEPING	12
Meeting Minutes	12
Interested Party Forum Records of Support.....	12
Memorialized Agreements with Trucking Industry (DES 02).....	13
REFERENCES	15
Statutes, Rules & Policies.....	15
MAC Committee Charter Documents	15
Manuals	16
Web pages and other resources.....	16

Figures

Figure 1: Roundabout MAC Engagement Steps.....	3
Figure 2: Example of Single Trip Permit history at an intersection location.....	5
Figure 3: Intersection Improvement Presentation Template slide example	6
Figure 4: Example of slide showing roundabout design elements.	7
Figure 5: Example of existing and proposed cross sections from a roundabout presentation.....	8
Figure 6: Example of a slide showing design and accommodation vehicle information.....	8
Figure 7: Example of a slide showing turning movements.	8
Figure 8: Roundabout presentation template slide example.....	9

Figure 9: Record of Support.....13

Figure 10: Example of a Memorialized Agreement for a roundabout not located on an ORS
366.215 Reduction Review Route14

Tables

Table 1: Required presentation information for step 1 (Early Communication)..... 4

Table 2: Required information for sharing a proposed roundabout in step 2 7

Table 3: Applicable Statutes, Rules & Policies.....15

Table 4: Applicable Manuals.....16

Table 5: Web pages & other resources.....16

BACKGROUND & PURPOSE

This document is intended for staff involved in planning activities, project development, and development review on intersection improvement projects that potentially result in roundabouts on the state highway system. It provides guidance based on current practice for successfully engaging with the Mobility Advisory Committee.

Communications within ODOT and with the Mobility Advisory Committee (MAC) as well as local private & public interested parties are critical to the success of traffic mobility on Oregon's transportation system. During the planning and design phases of a project, the project team must correctly identify the impacted MAC members (working with the region mobility liaison and the Mobility Services Team) and provide for their input into processes.¹ Effective public involvement provides necessary information to make informed project decisions and is an essential part of developing the best solutions.²

If freight, including large oversize loads and vehicles are not properly addressed in the planning and design process, a roundabout can be an impediment to their movement on the highway system.

ODOT's "Roundabouts on the State Highway System" Directive ([Highway Directive DES 02](#)) establishes the expectation and processes concerning freight mobility to be followed whenever a roundabout is proposed to be installed on the state highway system. The Directive states:

"When considering a roundabout on the state highway system, follow ODOT procedures that consider the needs and concerns of all interested parties³, including assuring that the roundabout can accommodate the freight movement on the highway. Determining if the roundabout can accommodate freight movement requires conversations with the trucking industry, through the ODOT Mobility Program.⁴

¹ Oregon Department of Transportation, *Mobility Procedures Manual*, Chapter 2: Communications, Roles, Resolution, April 2013:

<https://www.oregon.gov/ODOT/MCT/Documents/MobilityProcedureManual.pdf>

² Oregon Department of Transportation, Highway Operational Notice PD-12, *Public Involvement Expectations for Project Delivery*, June 25, 2015:

https://www.oregon.gov/ODOT/Engineering/Doc_TechnicalGuidance/PDLTNotice12.pdf

³ Modified in accordance with the Office of Equity and Civil Rights request to replace the word "stakeholder" with more inclusive language.

⁴ The original text in the Oregon Department of Transportation Highway Directive DES 02, *Roundabouts on the State Highway System*, refers to the ODOT Motor Carrier Division, but has been replaced in this quote with the ODOT Mobility Program (which is current practice). DES 02 has not yet been updated to reflect the agency's current organizational structure.

Mobility Engagement Guidance for Intersection Improvements & Roundabouts

Regardless of when roundabouts are being considered; during planning, during project development, or during development review, conversation with the trucking industry is required.”

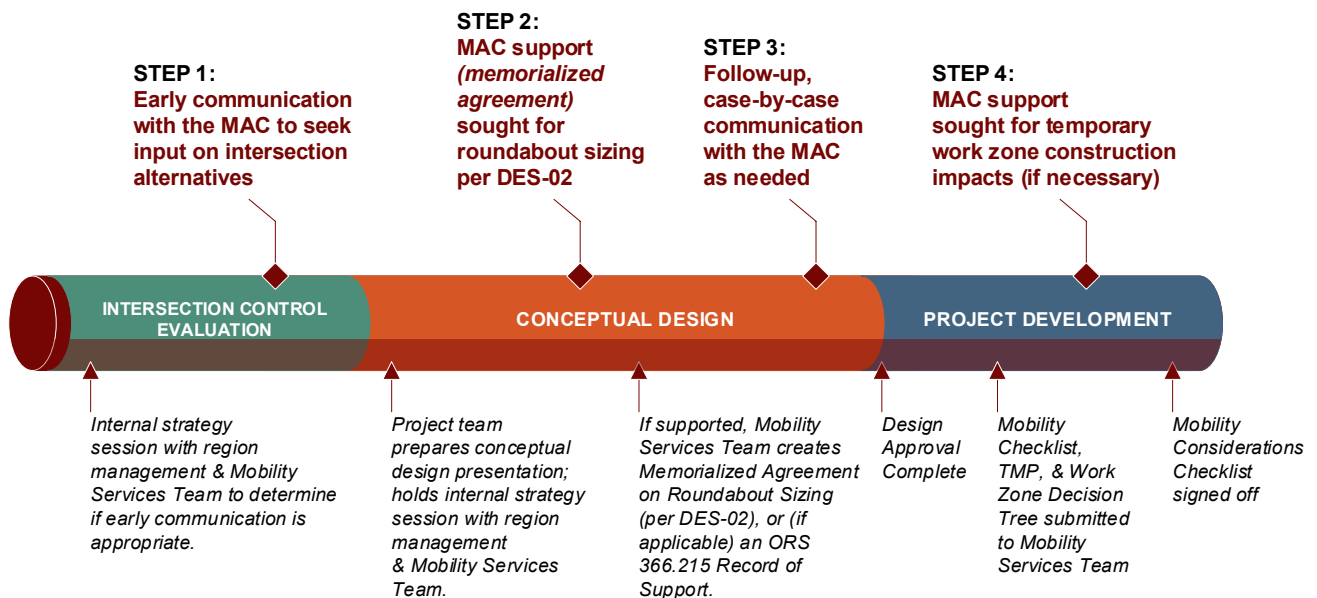
Furthermore, intersection improvement projects located on Reduction Review Routes are subject to an Interested Party Forum⁵ review under Oregon Revised Statute 366.215. The Interested Party Forum review process is defined in rule ([OAR Chapter 731, Division 12](#)), and is required when a Proposed Action on a Reduction Review Route will result in a reduction in vehicle-carrying capacity of a highway section.

⁵ Modified in accordance with the Office of Equity and Civil Rights request to replace the word “stakeholder” with more inclusive language.

ENGAGEMENT TIMELINE

Mobility needs should be sufficiently defined and addressed prior to conceptual approval for a proposed roundabout. Ideally, the MAC is engaged (through the Mobility Services Team) at the following steps during the planning and design process. Refer to the [Meeting Coordination and Attendees](#) section of this document for information on roles and responsibilities for presenting projects and plans at MAC meetings.

Figure 1: Roundabout MAC Engagement Steps



Step 1: Early Communication

Regions should work with their region management, region mobility liaison and the Mobility Services Team (MST) to determine if a presentation would be appropriate at a regular MAC meeting or a separate work session to seek the committee’s input on the different options being considered for the intersection. In some cases, sharing early with the MAC may not be recommended if the project takes place on a route that is already highly restricted to freight, or if the region does not anticipate a roundabout or other major design feature with significant impacts will be implemented.

Early communication with the MAC at this step should be held during the initial intersection control evaluation study before a roundabout has been selected as the preferred traffic control

Mobility Engagement Guidance for Intersection Improvements & Roundabouts

solution for the intersection. According to the *ODOT Traffic Manual*, the purpose of the study is to determine the most appropriate form of traffic control at an intersection given the benefits of each alternative and the right-of-way, environmental, cost, and other constraints.⁶

At this step, the MAC (which includes members of the trucking industry) should be presented the issues with the existing intersection and provide advice related to heavy vehicle operations on each alternative solution that is being considered. MAC members can provide valuable insight into each option from a statewide industry and road user perspective that can be useful in identifying the appropriate solution for the intersection.

Early engagement at this step is consistent with mobility policy and industry commitments outlined in the Mobility Procedures Manual (which emphasizes engagement in all planning and design activities) and Highway Directive DES 02 (which requires conversations regardless of when roundabouts are considered).

During this step, the *ODOT Traffic Manual* requires that potential intersection projects being considered for inclusion in the STIP should be identified as an “intersection improvement” project rather than a roundabout, traffic signal, or other type of traffic control until such time that the Intersection Traffic Control Study has been conducted and consensus has been reached on the proper traffic control solution for the intersection.

Information that should be shared with the MAC in a presentation at this step should include the items in the following table.

Table 1: Required presentation information for step 1 (Early Communication)

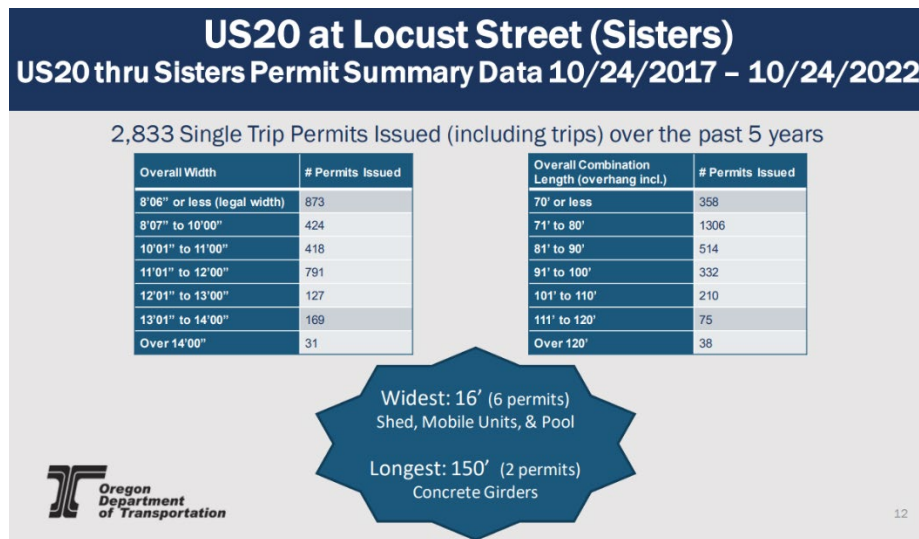
Required Information for Step 1
1. Map showing the project location.
2. Summary of the safety and operations issues that need to be addressed at the intersection.
3. Summary of the improvements previously attempted with the intersection (if applicable).
4. Diagram of the existing intersection and traffic volumes (including the percentage of freight traffic).
5. Summary of the crash history of the intersection (if appropriate for improvements focused on improving safety).
6. Summary of the intersection options being considered (including pros, cons and anticipated costs (if available) of each).
7. Summary of over-dimension freight mobility activity at this location:

⁶ Oregon Department of Transportation, *Traffic Manual*, July 2023 Edition, Chapter 400.0, Intersection Control Evaluation: https://www.oregon.gov/odot/Engineering/Docs_TrafficEng/Traffic-Manual-2023.pdf

Required Information for Step 1

- a. Summary of annual permitted over-dimension loads allowed to use the route (*the Mobility Services Team can provide this data*).
- b. History of single-trip permits have been issued for the corridor (*the Mobility Services Team can provide this data*).
- c. Summary of District Permitting Guidelines used by the Commerce and Compliance Division’s Over-Dimension Permitting Unit to issue single-trip permits on the route. (*the Mobility Services Team can provide this data*)

Figure 2: Example of Single Trip Permit history at an intersection location.



- 8. Summary of nearby pinch points that affect overall movement of over-dimension loads through the project area.

An [Intersection Improvements PowerPoint Presentation Template](#) is available, which ensures all of this information for step 1 is included in the presentation. (See the [Web Pages & Other Resources](#) section at the end of this document.)

Figure 3: Intersection Improvement Presentation Template slide example

Howard Memorial Sports Park Intersection Options Considered			
Option	Pros	Cons	Cost
Option 1: Standard 4-way Intersection @ Cheshire Way	<ul style="list-style-type: none"> Simple design No additional delay to through traffic 	<ul style="list-style-type: none"> EB Right Turn Lane Required WB Left Turn Lane Required Pedestrians cross 4-Lanes Higher Speeds (45+ mph) Limits 2-Stage left out of Cheshire Way 	\$250,000
Option 2: Standard 4-way Intersection @ Cheshire Way with Pedestrian Island	<ul style="list-style-type: none"> Simple Design No additional delay to through traffic Improves pedestrian crossing safety by providing a refuge 	<ul style="list-style-type: none"> Removes Left Turn Lane(s), Reduces Vehicle Capacity Higher Speeds (45+ mph) EB Right Turn Lane Required 	\$300,000
Option 3: Compact Roundabout	<ul style="list-style-type: none"> Reduces approach speeds at the intersection Statistically the overall safest intersection control option Efficient intersection control (i.e. no signal in long term) Provides Pedestrian Refuge Pedestrians cross 2-lanes of traffic Compact footprint, no additional R/W 	<ul style="list-style-type: none"> Moderately expensive option Minor delay to through traffic 	\$350,000
Option 4: Standard 4-way Intersection @ Cheshire Way with Traffic Signal	<ul style="list-style-type: none"> Facilitates protected pedestrian crossings Provides access from side streets during peak volume periods 	<ul style="list-style-type: none"> Most expensive option Signal warrants are not currently met Greater overall intersection delay compared to the compact roundabout (i.e. less efficient) Less effective at reducing free flow speeds relative to the compact roundabout. 	\$500,000

Step 2: MAC Support for Roundabout Sizing (DES 02)

Once the Intersection Control Evaluation study has been concluded and a recommended treatment has been identified, the region will need to present the recommended solution for the intersection to the Mobility Advisory Committee. In some cases, however, a presentation may not be needed for step 2 if the study recommends no action, there is no funding yet for the project, or it recommends some other minor improvements that will not significantly impact mobility. (The project team should consult with their respective region mobility liaison and the MST to determine if step 2 is necessary).

If a roundabout is recommended after the intersection control study is complete, the objective at this step is to seek support for a memorialized agreement with statewide representatives of trucking industry that the roundabout is properly sized, as required in ODOT Directive DES 02. (The [Recordkeeping section](#) of this document describes how this agreement is memorialized.)

If the recommended treatment is not a roundabout, a follow-up presentation with the MAC may still be necessary. For example, a new traffic signal might result in a new permanent vertical clearance restriction requiring input from the committee; or a complex freeway interchange (e.g. diverging diamond) may significantly impact horizontal and/or vertical clearances.

If the proposed roundabout is located on a Reduction Review Route subject to ORS 366.215, the project team must also seek Interested Party Forum support for the Proposed Action (as outlined in the [ORS 366.215 Implementation Guidance document](#)). As part of this process, Oregon Administrative Rule (Chapter 731, Division 12) requires that any local agency representatives or (in the case of a development review) a local development representative be

Mobility Engagement Guidance for Intersection Improvements & Roundabouts

invited to participate in the Interested Party Forum review process. The sponsoring region of the project or plan is responsible for inviting these local representatives to participate in the ORS 366.215 Interested Party Forum.


Roundabout information shared with the MAC in step 2 should include all of the items in the following table.

Table 2: Required information for sharing a proposed roundabout in step 2

Required Information for Step 2	
1.	A recap of the findings from the Intersection Traffic Control Study in Step 1 (pros, cons and costs of each option considered).
2.	A summary of how proposed roundabout operations will impact the corridor immediately upstream and downstream from the roundabout intersection.
3.	A diagram of the proposed roundabout conceptual design that shows the following design elements: <ol style="list-style-type: none"> a. Inscribed diameter. b. Truck apron diameter. c. Truck apron width. d. Central island diameter. e. Central island curb height. f. Circulating roadway cross slope. g. Truck apron cross slope. h. Splitter island and truck apron curb heights. i. Which curbs in the roundabout are mountable. j. Narrowest curb-to-curb pinch point within the roundabout for each travel direction. k. Travel lane widths within the roundabout.

Figure 4: Example of slide showing roundabout design elements.

US20 at Locust Street (Sisters)
Proposed Roundabout Design

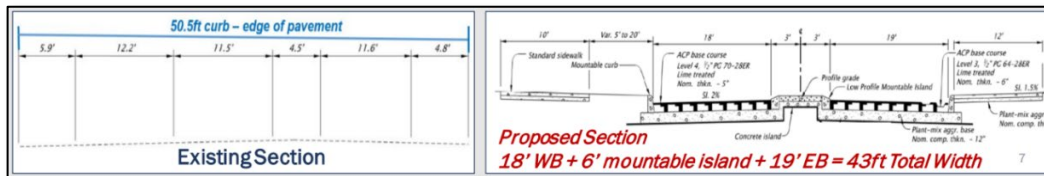


Inscribed Circle Diameter (ICD)	150 Feet
Truck Apron Diameter	110 Feet
Truck Apron Width	18 Feet
Central Island Diameter	74 Feet
Central Island Curb Height	4 inches
Circulating Roadway Cross Slope	2%
Truck Apron Cross Slope	1%
Splitter Island & Truck Apron Curb Heights	3 inches
Mountable Curbs	All curbs low profile mountable
Narrowest Pinch Point (curb to curb) for each travel direction	<ul style="list-style-type: none"> • 18' westbound (US20) • 18' eastbound (US20) • 18' northbound (Locust) • 16' southbound (Locust)
Travel Lane Widths	16 to 21 feet

Required Information for Step 2

4. A cross section showing the existing roadway, and a cross section of the proposed roundabout that shows the truck apron, circular roadway, curbs and other features.

Figure 5: Example of existing and proposed cross sections from a roundabout presentation.



5. A description of the design vehicle and accommodation vehicles used for the roundabout design, and diagrams showing turning movements of these vehicles through the roundabout. (Note: The Mobility Services Team can provide vehicle diagrams to be used for modeling turning movements.)

Figure 6: Example of a slide showing design and accommodation vehicle information.

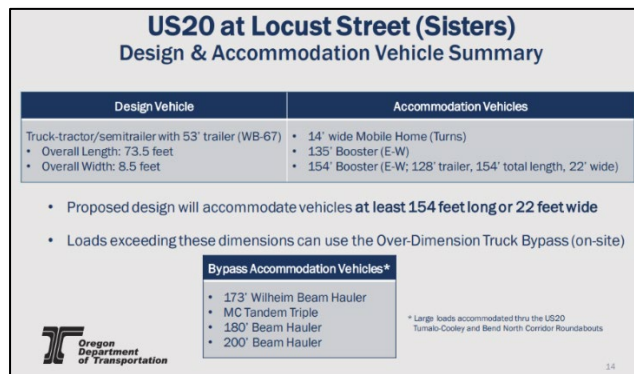
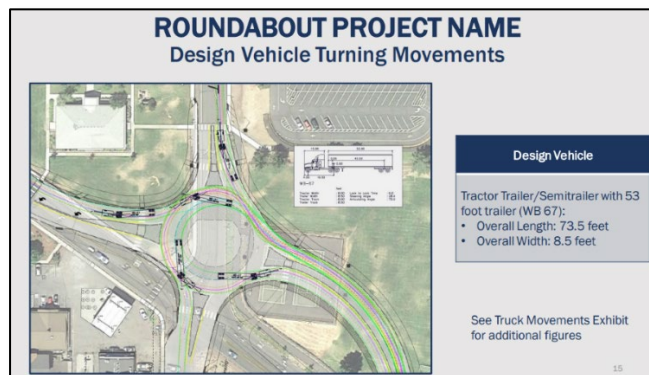


Figure 7: Example of a slide showing turning movements.



6. Summary of over-dimension freight mobility activity at this location:

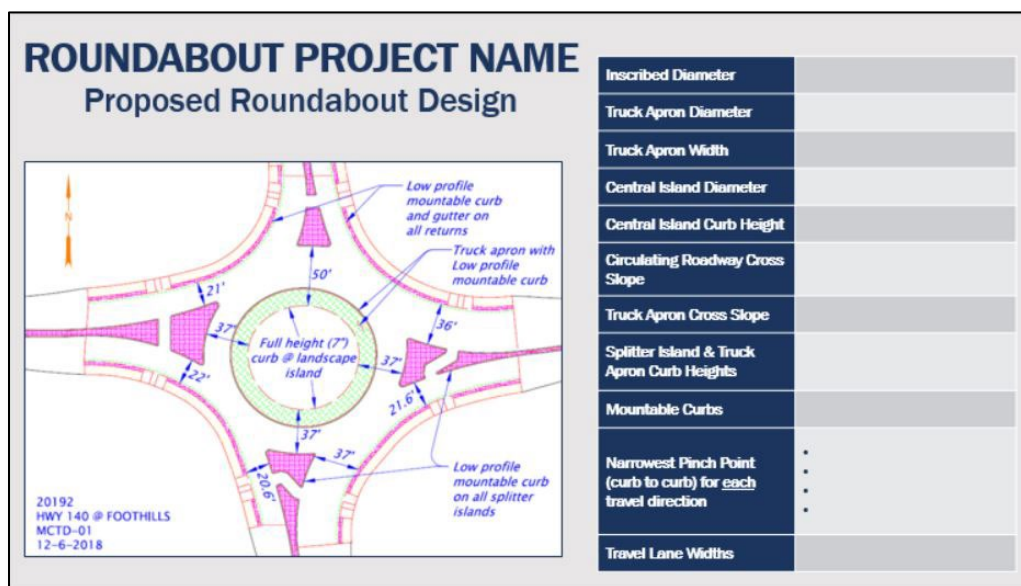
Mobility Engagement Guidance for Intersection Improvements & Roundabouts

Required Information for Step 2	
a.	Summary of annual permitted over-dimension loads allowed to use the route (<i>the Mobility Services Team can provide this data</i>).
b.	History of single-trip permits have been issued for the corridor (<i>the Mobility Services Team can provide this data</i>).
c.	Summary of District Permitting Guidelines used by the Commerce and Compliance Division's Over-Dimension Permitting Unit to issue single-trip permits on the route. (<i>the Mobility Services Team can provide this data</i>)
7.	Summary of nearby pinch points that affect overall movement of over-dimension loads through the project area.
8.	A summary of the proposed changes to horizontal clearances (and vertical clearance, if applicable) to the intersection as a result of the proposed roundabout.

It is recommended that the project team hold an internal strategy session and dry-run of the presentation with its region management, the region mobility liaison and the MST prior to presenting at a MAC meeting to determine the best approach for presenting the information to the committee and to address any concerns or questions that may have been raised during the initial Early Communication presentation held in [step 1](#).

A [Roundabout PowerPoint Presentation Template](#) is available, which ensures all of the necessary information for step 2 is included in the presentation. (See the [Web Pages & Other Resources](#) section at the end of this document.)

Figure 8: Roundabout presentation template slide example



Step 3: Follow-up, Case-by-Case Communication

Following the presentation of the proposed roundabout design to the MAC, communication with the committee takes place through the MST on a case-by-case basis to follow up on any outstanding action items or decision elements needed for satisfying the requirements of Directive DES 02.

Follow-up may also be needed to discuss any changes to the proposed conceptual design that may be necessary to mitigate issues that might be identified in traffic analysis during design acceptance.

This communication may take place via email and/or virtual meetings as appropriate and as consistent with the Meeting Guidelines in [Appendix D](#) of the MAC Charter.

Step 4: MAC Support for Temporary Work Zone Impacts

Following MAC support of the roundabout design, temporary work zone safety and mobility impacts will need to be reviewed during the project development stage. These are typically reviewed after the roundabout design review, as traffic control plans are typically not yet completed and ready to share at this point.

Once traffic control plans are developed, project development teams document these temporary impacts using the Mobility Considerations Checklist, Transportation Management Plan and Work Zone Decision Tree. All three documents are required to be submitted to the Mobility Services Team before temporary impacts can be reviewed and (if necessary) shared with the Mobility Advisory Committee. Reviews of temporary work zone safety and mobility impacts typically take place during design acceptance, with the Checklist signed-off by advanced plans. The completed Checklist, TMP and Work Zone Decision Tree should be submitted to the MST for review at least 120 days prior to the project's advanced plans due date (or the date when the project team desires to receive a signed Checklist from the MST).

Project review criteria provided in [Appendix C](#) of the MAC Charter are used by the MST to determine if and how temporary work zone impacts should be shared (e.g. presentation to the committee, shared via email or not shared at all). If the severity of the impacts require a presentation at a MAC meeting, a [Temporary Work Zone Impacts Presentation Template](#) is available which ensures all necessary information is included in the presentation. (See the [Web Pages & Other Resources](#) section at the end of this document.)

MEETING COORDINATION & ATTENDEES

MAC Meetings & Work Sessions

The Mobility Services Team is responsible for scheduling and sending out meeting invitations for monthly MAC meetings and any requested work sessions. A presentation to the MAC can take place at either a regular monthly meeting, or a region may request a separate work session if more time is desired to discuss the intersection improvement project or plan in greater detail. The MST and the region mobility liaison can help determine which option would be more appropriate for presenting your project or plan. The Meeting Guidelines in [Appendix D](#) of the MAC Charter provides more information on meeting facilitation, deadlines for submitting documents, and presenter expectations.

While the MST is responsible for inviting the MAC members and regular ODOT staff members to meetings and work sessions, the sponsoring region is responsible for inviting local interested parties as appropriate in these meetings.

For projects or plans located on Reduction Review Routes subject to ORS 366.215, Oregon Administrative Rule (Chapter 731, Division 12) requires that any affected local agency representatives or (in the case of a development review) a local development representative be invited to participate in the Interested Party Forum review process. The sponsoring region of the project or plan is responsible for inviting these local representatives to participate in the meeting or work session and notifying the MST to include them in the meeting invitation.

Local Meetings

Occasionally, the sponsoring region of the intersection improvement project or plan may hold local meetings or town hall events to seek input from local interested parties. The region may desire to include local trucking companies to attend these events to gather input specific to their needs. The MST can work with the trucking representatives on the MAC to identify local trucking companies for the region to invite to these local events.

Although local trucking companies can provide valuable input, engaging with these local interested parties does not satisfy the requirement to engage with designated statewide trucking industry representatives on the MAC (as required in Directive DES 02).

RECORDKEEPING

The Mobility Services Team is responsible for maintaining documentation of discussions and MAC support for proposed roundabouts. Documentation includes:

- Meeting minutes for work sessions and MAC meetings (including Interested Party Forum discussions).
- ORS 366.215 Records of Support for proposed roundabouts located on a Reduction Review Route subject to an Interested Party Forum review under the statute.
- Memorialized Agreement on roundabout sizing, required by ODOT Directive DES-02.

These documents are described in the sections below.

Meeting Minutes

MAC meeting minutes (for regular meetings and work sessions) are posted to the Mobility Meeting Records web page. The minutes and corresponding meeting materials can be found on the Mobility Meeting Records web page at the following link:

<https://www.oregon.gov/odot/Get-Involved/Pages/MobilityRecords.aspx>

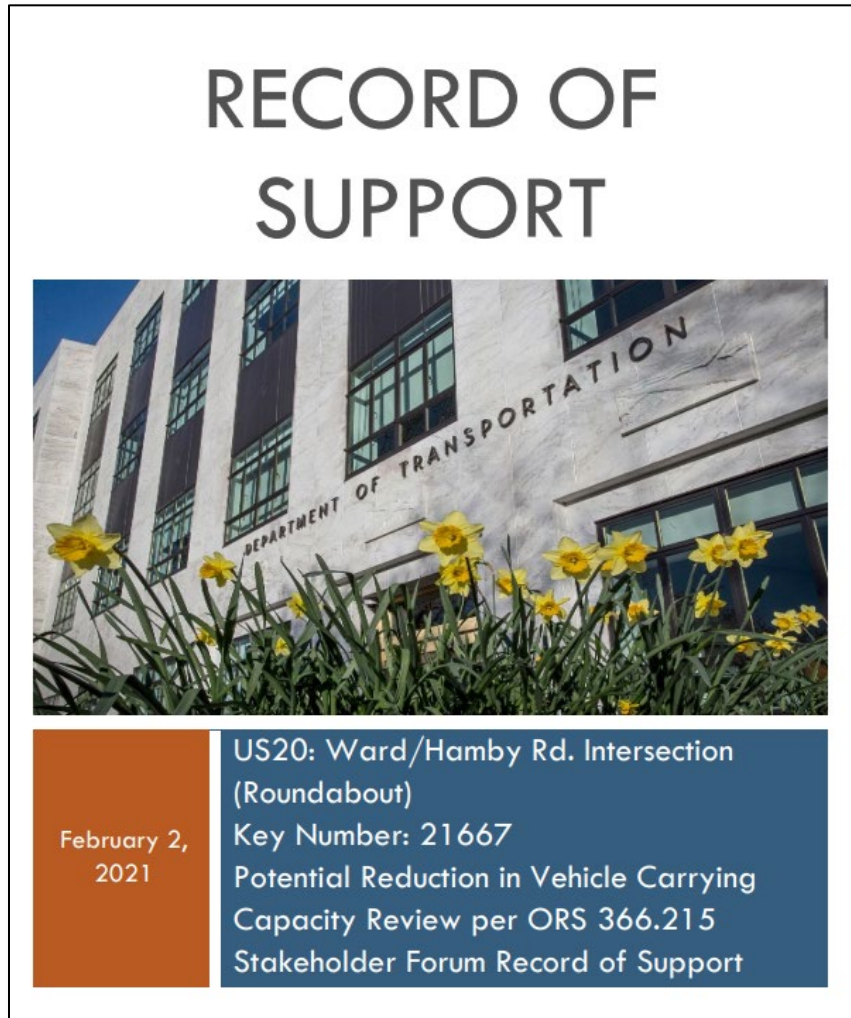
Interested Party Forum Records of Support

If the proposed roundabout is located on a Reduction Review Route subject to ORS 366.215, a formal Record of Support will be created by the Mobility Services Team once the Interested Party Forum provides support.

Oregon Administrative Rule Chapter 731, Division 12 requires that these documents be maintained on a web page for 10 years. The Mobility Services Team maintains this web page, which can be found at the following link:

<https://www.oregon.gov/odot/Get-Involved/Pages/ORS-366.215-Records.aspx>

Figure 9: Record of Support



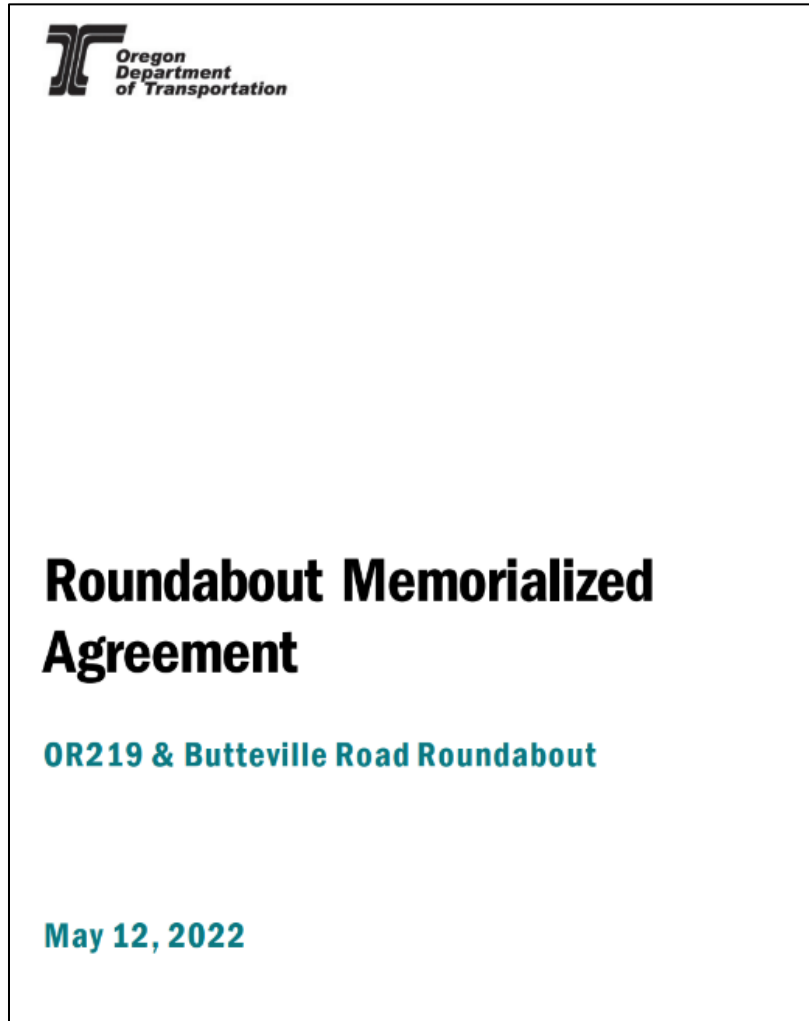
Memorialized Agreements with Trucking Industry (DES 02)

ODOT Highway Directive DES-02 requires a documented agreement to be memorialized with the designated statewide representatives of the trucking industry that the roundabout is properly sized.

For proposed roundabouts located on Reduction Review Routes subject to ORS 366.215, the Record of Support serves as the documented agreement to satisfy DES-02.

For roundabouts located on non-Reduction Review Routes, a Memorialized Agreement is created by the Mobility Services Team, which is provided to the project team and region to maintain with their project records in ProjectWise.

Figure 10: Example of a Memorialized Agreement for a roundabout not located on an ORS 366.215 Reduction Review Route



REFERENCES

Statutes, Rules & Policies

Table 3: Applicable Statutes, Rules & Policies

Topic	Reference	Description
Roundabouts located on Reduction Review Routes	ORS 366.215	Prohibits permanent reductions in vehicle-carrying capacity of an identified freight route unless safety or access considerations require the reduction.
Roundabouts located on Reduction Review Routes	OAR 731-012	Implements ORS 366.215. Defines terms, identifies a review process, and facilitates communication and development of consensus during the review process.
Engagement with the freight industry on proposed roundabouts	ODOT Highway Directive DES 02	Establishes the expectation and processes concerning freight mobility to be followed whenever a roundabout is proposed to be installed on the state highway system.
Public involvement expectations	ODOT Operational Notice PD-12	Provides direction to the business line on public involvement expectations for project delivery (project development and construction).

MAC Committee Charter Documents

Charter Document	Description
Charter and appendices	Complete charter with all appendices.
Appendix A	Definitions, Standards and Resources
Appendix B	Table of Authorities
Appendix C	Mobility Project Review Criteria
Appendix D	MAC Meeting Guidelines
Charter FAQs	Charter frequently asked questions

Manuals

Table 4: Applicable Manuals

Topic	Reference	Description
Mobility procedures and key policy considerations	Mobility Procedures Manual	Accepted authority for mobility policy for the Agency.
Intersection traffic control and operations	Traffic Manual, 2023 Edition	Provides guidance on traffic engineering policies and establishes uniform methods and procedures.
Design standards, guidelines, and processes for designing road approaches, signalized and unsignalized at-grade intersections for State Highways.	Highway Design Manual	Provides guidance for the design of new construction.
Roundabouts located on Reduction Review Routes	ORS Implementation Guidance Manual	Provides guidance for projects proposing reductions in vehicle-carrying capacity on Reduction Review Routes subject to ORS 366.215.
Temporary work zone impacts due to construction	Mobility Considerations Checklist Guide	Provides guidance for completing the Mobility Considerations Checklist which is used to document temporary mobility impacts resulting from construction work.

Web pages and other resources

Table 5: Web pages & other resources

Resource	Description
Mobility Meeting Records Web Page	Mobility Advisory Committee meeting schedule, agendas, minutes, and meeting materials.
ORS 366.215 Records Web Page	Records of Support and related documentation for projects with permanent impacts subject to ORS 366.215 Interested Party Forum Review.
Mobility Program Web Page	Provides information about the Mobility Program and includes contact information for Mobility Staff and region mobility liaisons.
Roundabout Record of Support Example	Record of Support issued for the U.S. 20: Ward/Hamby Rd. Roundabout in Region 4.

**Mobility Engagement Guidance for
Intersection Improvements & Roundabouts**

Resource	Description
Intersection Improvements Presentation Template	PowerPoint presentation template used in step 1 (Early Communications) of the engagement process outlined in this document.
Roundabout Presentation Template	PowerPoint presentation template used for seeking a memorialized agreement on roundabout sizing (per step 2 of the engagement process outlined in this document).
ODOT TransGIS Mapping Tool	This tool can be used to view Reduction Review Routes subject to ORS 366.215. Select "Freight" from the layer catalog on the left, check the box for "Reduction Review Routes" and then click Apply.
Temporary Work Zone Impacts Presentation Template	PowerPoint presentation template used to share temporary work zone impacts at a MAC meeting (if necessary) in step 3.
Mobility PowerPoint Template Instructions	Instructions and links to all of the available presentation templates for MAC meetings.