

# SECTION 2: TEMPORARY IMPACTS PROJECT REVIEWS

## 2.1 Temporary Impacts Review Process

Projects that have an impact on work zone safety and mobility (as a result of temporary size and weight restrictions, closures, delays and detours) need to be reviewed by the Mobility Services Team.

Project teams send required project documents (Mobility Considerations Checklist, *Transportation Management Plan*, and *Work Zone Decision Tree*) to the Mobility Team to review during the Project Development Stage. [Refer to [Chapter 2.3: Required Documents for Temporary Impacts](#)]

Projects are prioritized for review based on the order received, unless an exception has been approved. [Refer to [Appendix AP7: Expedited Mobility Reviews](#)] The Mobility Services Team cannot begin its review until it receives a completed and accurate *Mobility Considerations Checklist*, *Transportation Management Plan* and *Work Zone Decision Tree*.

These completed documents should be submitted to the Mobility Services Team at least 120 days prior to the region’s requested target date for receiving a signed Checklist (but no later than the end of the Advanced Plans phase). The Mobility Services Team requires at least 60-days to complete its review; and the remaining 60 days are available as a buffer for the region in the event there are any changes to traffic control plans that affect the mobility impacts previously supported (see Figure 4 below).

Figure 3: Temporary Mobility Work Zone Impact Review Timeline

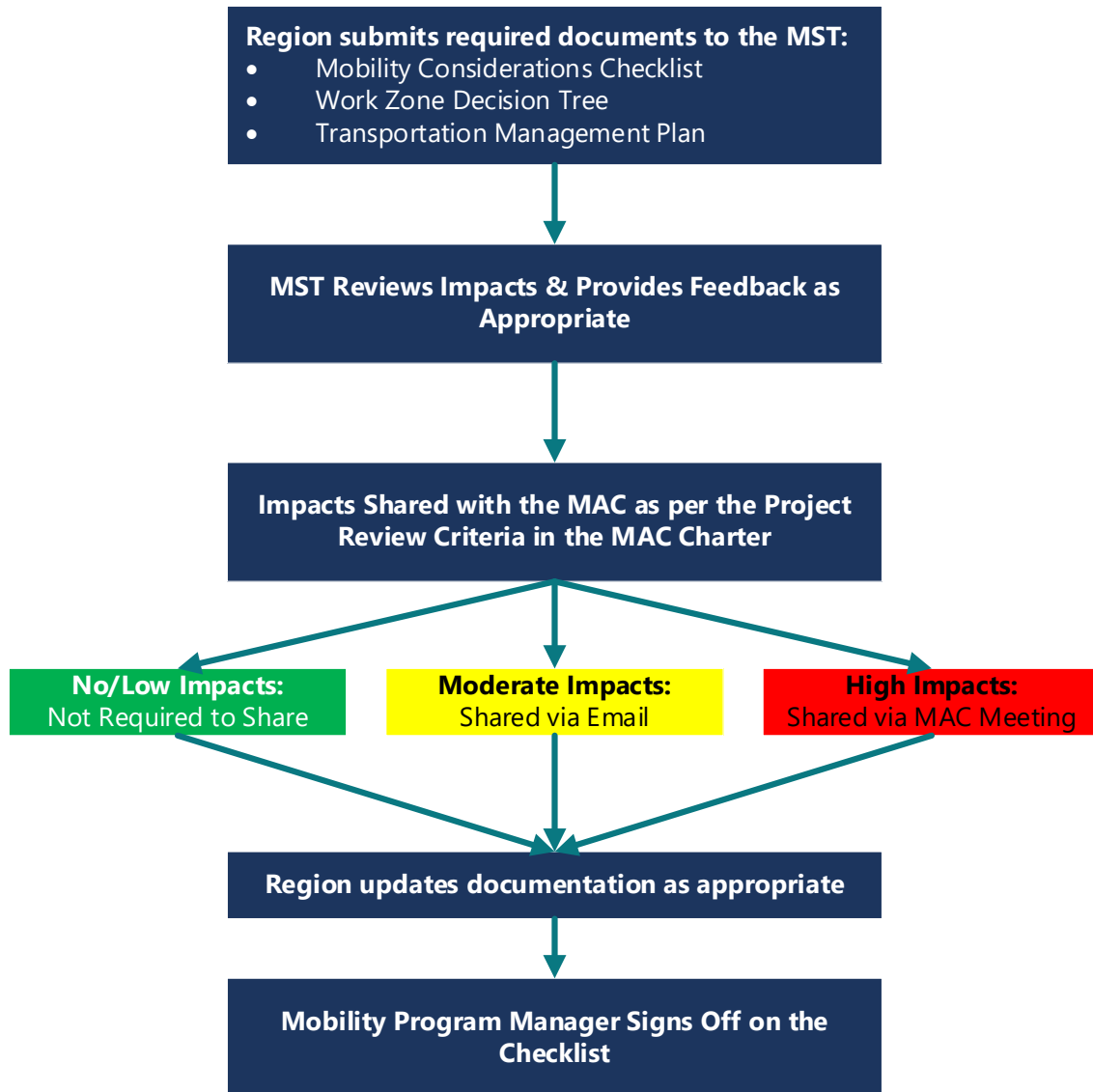


The Mobility Advisory Committee Charter established project review criteria to determine which projects should be shared with the committee, and how the project will be shared (via

email or in-person presentation). Refer to [Section 5: MAC Engagement](#) for information and resources related to sharing your project with the committee (via presentation or email). The project review criteria are available in [Appendix C of the MAC Charter](#).

The flow chart below summarizes the steps involved in reviewing projects with temporary mobility work zone impacts.

Figure 4: Temporary Impacts Project Review Flow Chart



## 2.2 Critical Route Pairs

### 2.2.1 Policy

ODOT is committed to keeping freight moving safely and efficiently throughout Oregon in support of the State's economy. If a route needs to be restricted, ODOT will collaborate closely with the freight industry to minimize the impact of construction projects for mobility on state highways.

An important concept that affects mobility practices is critical route pairs (CRP). If the route that is identified on the list of critical route pairs (see Table 4 below) needs to be temporarily restricted, ODOT will take steps to make sure that the paired critical route on the list is not restricted. For instance, on the Portland to Coast Route, if US 30 needs to be restricted, ODOT will not plan any restrictions on Hwy 26 during that same period.

It is essential to communicate within a region, between regions, and statewide in development, construction, and maintenance to ensure an identified alternate critical route pair will not be concurrently restricted.<sup>11</sup> A local detour is acceptable if it provides the shortest practical distance and will accommodate vehicles of the same weight and dimensions that are normally allowed on the route under construction.<sup>12</sup>

#### Exceptions:

If planned restrictions conflict with other projects on the CRP, follow the steps in Chapter 2.2.3.

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<sup>11</sup> A Critical Route Pair is considered restricted if the work zone includes any of the temporary conditions which require notification to the trucking industry, and unannounced oversize loads arriving at the work zone cannot be accommodated (on non-Interstates only) with minimal delay (20 minutes or less). [Refer to [Chapter 3.2.1: When Notification is Required](#)]

<sup>12</sup> Consult with the Mobility Services Team to determine if a proposed local detour route should be shared with the Mobility Advisory Committee to provide for stakeholder input. [Refer to [Chapter 2.6.2: Detours](#)]

Table 4: Critical Route Pairs

Highway	Paired With	Area
I-5	OR 212, US 26, US 97	Washington – California
I-84	OR 212, US 26, US 97, US 20 <i>(Sometimes includes OR 78 and US 95)</i>	Portland – Ontario
US 30	US 26	Portland – Coast
OR 22 & OR 18	US 20	Willamette Valley – Coast
OR 126	OR 38	Willamette Valley – Coast
OR 38	OR 42	I-5 – Coast
OR 126	OR 58	I-5 – Central Oregon

## 2.2.2 Coordination

Project teams should use the following resources to coordinate restrictions planned on CRPs:

- **Enroll in Training:** Region staff involved in project scheduling and construction management (including region mobility liaisons, area managers, transportation project managers and resident engineers) are encouraged enroll in training provided by the Mobility Program ([Understanding Oregon's Critical Route Pairs](#)).
- **Engage with the region mobility liaison:** The region mobility liaison (RML) is the single point-of-contact between the region's project team and the Mobility Services Team. It is the RML's responsibility to engage with the project team on any known mobility restrictions that will potentially restrict a CRP. [Refer to [Chapter F5.2 Region Roles](#)]
- **Utilize the Critical Route Pair GIS Map:** The [Critical Route Pairs GIS Map](#) is intended as a tool for region mobility liaisons to view projects with restrictions on Critical Route Pairs and identify potential conflicts in advance so that they can be avoided or mitigated. (Refer to the [CRP Map Instructions](#) for using the map features.) Projects that are planning to restrict a CRP must work with the appropriate region mobility liaison to ensure the restriction information is entered into the map so that other projects can avoid potential conflicts.

## 2.2.3 Exceptions

There may be times when the region has considered **all** options to avoid concurrent restrictions but has determined a conflict is unavoidable. It is ultimately up to the region to make the final decision on the CRP conflict after considering advice from the Mobility Advisory Committee.

If there is a conflict with another project on the same CRP, the region must take the following steps to resolve the conflict before making an exception to keeping the paired routes open:

1. **Attempt to mitigate at the project level:** The region mobility liaison should first attempt to work within the project team resolve a conflict including mitigating the restriction (e.g. providing sufficient width to remove the restriction or accommodating all unannounced over-dimension loads, adjusting the work schedule to avoid conflicting restrictions with other projects on the paired route or rescheduling the project).
2. **Attempt to mitigate between projects/regions:** If the conflict cannot be resolved within the project team, the region mobility liaison should engage with the other conflicting project team(s) (including the other appropriate region mobility liaison, if the other project is in a different region) to see if work schedules and/or restrictions can be adjusted to avoid concurrent restrictions.
3. **Attempt to resolve conflicts with the MAC:** Per the project review criteria in [Appendix C](#) of the *Mobility Advisory Committee Charter*, CRP conflicts are considered to be a “high impact” that must be shared in a MAC meeting. If a conflict cannot be resolved at the project level or between projects, a region must bring the project to a MAC meeting to provide for stakeholder input if:
  - All mitigation options to avoid the conflict and minimize impacts have been considered.
  - The decision to bring the conflict to the MAC is supported by the appropriate region management.

A potential solution to explore at a MAC meeting with freight industry stakeholders is to accommodate oversize loads that provide advance notice of 24 hours or less prior to arriving at the work zone. If more time is needed for advance notification, the region should be prepared to explain why more time is necessary.

If the MAC does not support the planned restriction, the region may request the MST schedule a work session to further discuss alternative solutions.

4. **Update project documentation and CRP GIS Map:** After considering input from the committee, the project team must update its *Mobility Considerations Checklist* as appropriate and send it to the Mobility Services Team for sign-off. The region mobility liaison must also update the information posted on the [CRP GIS Map](#) so that it reflects any changes to the restrictions that were signed off in the Checklist.

## 2.3 Required Documents for Temporary Impacts

The documents described in this chapter are used to identify temporary mobility and work zone safety issues, assess impacts, and provide for Mobility Advisory Committee input (per the project review criteria in [Appendix C](#) of the *Mobility Advisory Committee Charter*) prior to the Plans, Specifications & Estimates (PS&E) phase. Once finalized, these documents are submitted to eBids for prospective bidders to understand the agency’s safety and mobility expectations for the project.

## 2.3.1 Mobility Considerations Checklist

The *Mobility Considerations Checklist* (form [735-9983](#)) is used to assess and identify potential impacts to work zone safety and mobility during the project development phase. Prior to PS&E, the mobility program manager must sign off on all Checklists for projects that impact mobility. Sign-off is not required for a “no mobility impact” project before submitting it with the PS&E package.

A [Mobility Considerations Checklist Guide](#) is available to help project teams provide the information required for completing the form. A *Mobility Considerations Checklist Essentials* training is also available (sign up in [Work Day Learning](#)).

Additional requirements for the Checklist include:

- A completed *Transportation Management Plan* and *Work Zone Decision Tree* must be submitted with the Checklist. The TMP should contain all information needed to sign the *Mobility Considerations Checklist* (including the *Traffic Control Plan*).
- Any potential ORS 366.215 impacts must have been reviewed through the Stakeholder Forum process before a Checklist can be signed-off. [Refer to [Chapter 1.3 Oregon Revised Statute 366.215](#)]
- Off-system projects that create a mobility impact on the state system must also comply with Department mobility policies and submit a completed Checklist.

## 2.3.2 Transportation Management Plan (TMP)

A [Transportation Management Plan](#) (TMP) is a documented set of coordinated transportation management strategies used to manage the temporary work zone impacts of construction projects. The TMP is to be started early in the project development process but is considered a living document that will continually grow and change throughout project development. For more information, a [Project Level TMP Guidance Manual](#) is available.

The purpose of the TMP is to minimize disruptions to public traffic, including motorists, bicyclists, pedestrians, the freight industry and communities without compromising public or worker safety, or the quality of work being performed. As part of the commitment to safety and project integrity, ODOT makes the TMP a required portion of all ODOT highway construction contracts within state highway right of way.

Information needed for the Freight Mobility Section of the TMP includes:

- Critical Route Pair information.
- Detour route information.
- Can oversize loads be accommodated through the work zone (on non-Interstates only) by moving barriers and equipment out of the way and waving loads through with a short delay?
- Is advanced notice required for oversized loads (on non-Interstates only)?

- Are crossovers used? If so, will traffic travel under structures?
- When lane closures are used, describe how much width is available for traffic between barriers.
- Is the work zone on a tangent or curve?
- Describe any ramp closures. Which on and off ramps are closed? How long will the closure last?
- Specify the hours of operation for the project. Is the work done at nighttime, daytime or both? Is weekend work allowed? Are there windows of opportunity for loads to get through?

### 2.3.3 Traffic Control Plan (TCP)

A *Traffic Control Plan* (TCP) is incorporated into the TMP and is required for any temporary activity that will disrupt the normal flow of traffic on a roadway. The primary function of the plan is to allow safe and effective movement of public traffic - including vehicles, bicycles and pedestrians – through or around the work zone, while providing an equally safe and efficient workspace for highway workers.

The TCP follows ODOT guidance for the layout and placement of the temporary traffic control devices, signs, and related safety appurtenances and equipment for the highway construction project.<sup>13</sup> Supporting documentation will (1) consist of all relevant correspondence, meeting minutes, calculations, models, and agreements used to support and show how the TCP was developed; and (2) show how it achieves the goal of providing the best solution for safety and mobility within the project and surrounding environment.

### 2.3.4 Work Zone Decision Tree (WZDT)

The *Work Zone Decision Tree* (form [734-5042](#)) is used to consider work zone separation opportunities, planning and design concepts, and work zone traffic control device options. ODOT's *Guiding Principle for Work Zone Safety* requires the Decision Tree for all projects on ODOT facilities, including local agency projects on the state highway system.<sup>14</sup>

The WZDT is considered a living document throughout the life of the project that includes all of the options evaluated during scoping, during design and during construction, including:

- Construction staging.
- Traffic control.
- Separation strategies.

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<sup>13</sup> Oregon Department of Transportation, *ODOT Traffic Control Plans Design Manual*, January 2024: [https://www.oregon.gov/ODOT/Engineering/Docs\\_TrafficEng/TCP-Design-Manual.pdf](https://www.oregon.gov/ODOT/Engineering/Docs_TrafficEng/TCP-Design-Manual.pdf)

<sup>14</sup> Oregon Department of Transportation, *Highway Directive TRA 10-16, Guiding Principle for Work Zone Safety*, November 8, 2016: [https://www.oregon.gov/ODOT/Engineering/Doc\\_TechnicalGuidance/TRA10-16d.pdf](https://www.oregon.gov/ODOT/Engineering/Doc_TechnicalGuidance/TRA10-16d.pdf)

- Public/stakeholder involvement.
- Communications that occur throughout the entire project lifecycle.

## 2.4 Temporary Size & Weight Restrictions

### 2.4.1 Temporary Restrictions Considerations

Several factors must be considered before imposing temporary vertical, horizontal, or weight restrictions on a route. These include but are not limited to the following:

- Are there any available options that would eliminate the restriction?
- Are there any available options that would minimize the restriction?
- Are there any available options that would shorten the duration of the restriction?
- During full closures, how will restricted traffic be detoured?
- Are there any restrictions on the detour route?
- Is this route being used as a detour for other restricted routes?
- How will all restricted vehicle owners be notified of the restriction?
- How will the restrictions affect existing over-dimension permits?
- How will the restrictions affect emergency services?
- Is the highway part of a critical route pair?

If restrictions would limit or delay the passage of emergency services vehicles, then special coordination with these stakeholders must be made. If there is a conflict with other projects, then the work may need to be rescheduled to eliminate the conflict. When feasible, a backup route should be identified in case of a natural disaster or unplanned restriction on the proposed detour route. [Refer to [Chapter 2.6: Diversions, Detours & Staging](#)]

Temporary size and weight restrictions can have severe impacts on freight mobility, and if not planned properly, can affect freight movement on entire routes. These types of restrictions require coordination with the Mobility Services Team that should take place as soon as a restriction is being considered. When planning a temporary size or weight restriction, the region mobility liaison, project team leader/manager, the Mobility Services Team and the Mobility Advisory Committee should be engaged in the decision-making process. [Refer to [Section 5: MAC Engagement](#)]

In some cases, the cost of maintaining temporary clearance during construction will be high when the impacts to freight traffic using the route will be relatively small. This may occur when the duration of the project is short or if there are several unrestricted routes in close proximity to the route in question. In these cases, the region mobility liaison, project team leaders, and the Mobility Services Team will work with industry representatives to evaluate the different alternatives.

During construction, adequate signing and traffic control devices must be deployed to warn traffic and direct affected traffic around the restriction:

- For vertical clearance restrictions, false-work illumination and over-height vehicle warning systems can also be used, if needed.
- For horizontal clearance restrictions, temporary speed zone reductions and linear delineation systems on barrier or guardrail can also be used, if needed.
- For weight restrictions, adequate signing and traffic control devices must be deployed to warn traffic and direct affected traffic around the restriction. Flaggers and/or law enforcement officers may need to be employed to ensure detour compliance in rare circumstances.

## 2.4.2 Daytime Horizontal Width Standards & Temporary Width Restrictions

### a) Minimum Daytime Horizontal Width Standards

The daytime horizontal width standards<sup>15</sup> shown in Table 5 are intended to minimize the impact of restrictions on the movement of oversize freight. Overwidth loads up to 16 feet wide are commonly transported throughout the state. Oregon issues continuous trip (annual) overwidth permits authorizing loads up to 14 feet in width for many two-lane highways throughout Oregon. [Refer to [Appendix AP3: Freight Permitting Overview](#)]

Daytime is defined as one-half hour before sunrise until one-half hour after sunset.<sup>16</sup> When developing traffic control plans, refer to the [ODOT Traffic Control Plans Design Manual](#) for additional information about these and other work zone horizontal clearance requirements.

It is important to note that the standards listed below for single lane horizontal clearance is considered to be a restriction. However, the listed clearance has been established as the minimum width required on the state highway system to allow for the movement of the loads described above.

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<sup>15</sup> Refer to the Horizontal Width Standards Bulletin HDM-05 in [AP6: Summary of Freight Industry Commitments](#). See also Oregon Department of Transportation, *Traffic Control Plans Design Manual*, January 2024, Chapter 3.4.17, Horizontal and Vertical Design Policy: [https://www.oregon.gov/odot/Engineering/Docs\\_TrafficEng/TCP-Design-Manual.pdf](https://www.oregon.gov/odot/Engineering/Docs_TrafficEng/TCP-Design-Manual.pdf)

<sup>16</sup> Oregon Administrative Rules, [OAR 734-082-0005\(7\)](#), Division Permits Issued for Non-Divisible Loads and Road Use Assessment Fees; and [OAR 734-075-008\(5\)](#), Movement of Over-Dimension Mobile Homes and Modular Building Units

Table 5: Daytime Horizontal Width Standards for Work Zones

Highway Type	Daytime Horizontal Width Standards
Interstate/Multilane Highway	<ul style="list-style-type: none"> <li>• Maintain 28 feet for two lanes of one-way traffic.</li> <li>• Maintain 19 feet for one lane of one-way traffic.<sup>17</sup></li> </ul>
Other Two-Lane Routes on NHS	<ul style="list-style-type: none"> <li>• Maintain 28 feet for two lanes of one-way traffic (single lane each direction).</li> <li>• Maintain 16 feet of horizontal clearance for one lane of one-way traffic.<sup>18</sup></li> </ul>

If these daytime horizontal width standards cannot be maintained, this is considered a “high” impact that is shared with the Mobility Advisory Committee to provide for their input (per the Project Review Criteria in [Appendix C](#) of the MAC Charter).

**b) Temporary Width Restrictions**

The work zone is width restricted anytime horizontal width<sup>18</sup> is less than:

- \*28 feet for two lanes of one-way traffic,
- \*28 feet for two lanes of two-way traffic (single lane each direction), or
- 22 feet for one lane of one-way traffic.

*\*Note: When there is less than 28 feet for two lanes of traffic, additional pilot vehicles may be required for oversize loads depending on several factors (e.g. width, location, speed, etc.). Contact the appropriate district office to determine if additional pilot vehicles will be needed, and notify the Mobility Services Team about these requirements during the project review process.*

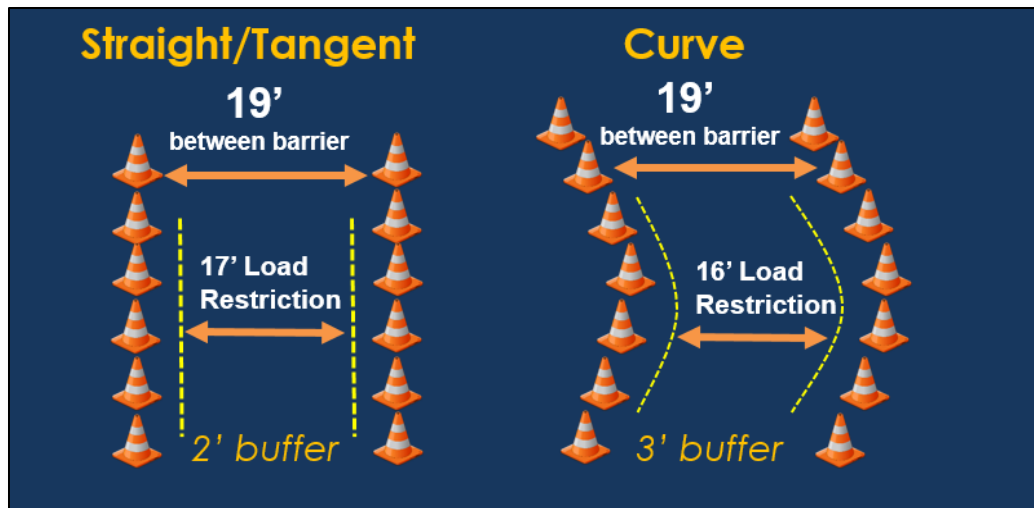
The available horizontal clearance is used to determine the actual load width restriction for freight travelling through the work zone. A buffer space is applied to the available width, depending on if the roadway is curved, straight or both. A two-foot buffer is applied for load restrictions on straight sections, and a three-foot buffer is applied to curves (or both straight and curved sections). For curved sections, the buffer assumes the curve is a 5-degree curve (1145’/350 m radius) or less.

For example, a travel lane with 19-feet of horizontal clearance between barriers would result in a 17-foot wide width restriction on a straight section of roadway, and a 16-foot wide width restriction on curve (or a section that is both curved and straight). See Figure 5 below.

<sup>17</sup> Even if the single lane width standards can be maintained, they are still subject to restriction notification requirements. Refer to [Chapter 3.2.1: When Notification is Required](#).

<sup>18</sup> Width refers to paved width capable of supporting the freight traffic loads without failure. Unpaved/aggregate shoulders may be included when deemed adequate by the resident engineer to support the freight, which may be heavy and or low to the ground.

Figure 5: Example showing how a buffer is applied to determine a load width restriction.



### 2.4.3 Nighttime vs. Daytime Overwidth Movement

There are no nighttime travel restrictions for loads that are overheight, overweight, or overlength. However, there are nighttime travel restrictions for overwidth loads exceeding certain dimensions.

Nighttime hours are defined as one-half hour after sunset to one-half hour before sunrise.<sup>17</sup>

The following overwidth loads operating under an annual permit or single-trip permit are allowed to travel at night:

- Overwidth loads other than manufactured homes and modular homes up to 12 feet wide on Interstate highways.
- Manufactured homes/modular units up to 10 feet wide measured at the base on Interstate highways.
- Loads up to 10 feet wide (including mobile homes) on specific non-interstate routes (green routes on the [Freight Mobility Nighttime Width Map](#)).
- On a case-by-case basis, single-trip permit overwidth loads exceeding the above authorized widths (over 12 feet wide) can travel at night per district manager approval on any route.
- Emergency movements of loads exceeding the above authorized widths (over 12 feet wide) can occur at night on any route in the event of incidents creating such a need (train derailment, forest fire, etc.).

All other overwidth loads are restricted to traveling during daylight hours only (from one-half hour before sunrise to one-half hour after sunset). The definition of daylight hours means that these hours will change with the seasons. Sunrise and sunset times must be checked for each

project site to ensure that work and/or lane closures will not affect loads running under either an annual permit or single-trip permit.<sup>19</sup>

*Note: Various weekend travel restrictions are in effect during the summer months—from Memorial Day through Labor Day—as well as on major holiday weekends throughout the year. However, existing exemptions allow many oversize loads to travel during these weekends on all Interstate highways statewide, provided they meet certain dimension limits. Some exemptions also apply to select two-lane routes. For more information, contact the [CCD Over-Dimension Permits Unit](#).*

## 2.4.4 Temporary Vertical Clearance Restrictions

Any proposed temporary reduction in vertical clearance is a restriction subject to notification requirements. [Refer to [Chapter 3.2: Restriction Notification Requirements](#)] Examples include temporary bridge falsework, bridge containment systems, and closing lanes and/or diverting traffic into lanes with lower clearances underneath structures.

These restrictions also require coordination with the Mobility Services Team that should take place as soon as a vertical clearance restriction is being considered. For temporary clearance reductions, submittal of the [Standard Vertical Clearance Form \(734-2614a\)](#) is required. Actual measurements on all structures must be submitted within 30 days of the reduction taking effect.

## 2.4.5 Temporary Weight Restrictions

Temporary weight restrictions may be needed in circumstances where temporary bridge containment systems and scaffolding add extra weight to the bridge requiring a temporary restriction until the equipment is removed. On bridges where heavy loads are required to straddle the center line, a temporary lane closure could also result in a temporary weight restriction when traffic is shifted to one side of the bridge.

Temporary weight restrictions can also be caused by catastrophic events such as natural disasters or vehicle collisions. In these cases, the ODOT Commerce and Compliance Division and the trucking industry will be notified, and the bridge will be restricted until the extent of the damage is determined. Once the extent of the damage has been determined, either the temporary restriction will be lifted, or a permanent restriction will be put into effect until repairs can be made. Every effort will be made to ensure that the time of the temporary restriction and the effect on the motor carrier industry are minimized.

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<sup>19</sup> Sunrise and Sunset times can be checked at: <https://www.sunrisesunset.com/predefined.asp>

## 2.5 Managing Delay

### 2.5.1 Delay Estimates

All construction projects are evaluated and managed by ODOT regions for delay impacts to mobility and staging. Options will be carefully reviewed to minimize duration and severity of delay impacts.

For the purposes of work zone traffic analysis, the concept of delay is defined as the average additional travel time that will be required to travel from one point to another as a result of construction activities. Existing delays resulting from current capacity and/or geometric deficiencies and from incidents are not included.<sup>20</sup> Delay also includes additional travel time resulting from detours and resulting from congestion on a roadway when a lane or shoulder is closed, or traffic is diverted on site.

Guidance for this analysis can be found in the [Work Zone Traffic Analysis Manual](#). The analysis can be performed using the *Work Zone Traffic Analysis Tool*.<sup>21</sup> Other tools are available for work zones that demand greater levels of complexity (such as intersections). Contact the ODOT region traffic analysts to determine the appropriate traffic analysis method.

Delay estimates should be performed early in work zone planning and design and reviewed throughout as the project progresses to ensure the final design will meet expectations. By estimating delays early, the project team can identify if delays need to be mitigated by adjusting schedules or programming the correct level of funding to minimize delays.

### 2.5.2 Twenty Minute Stop and Hold

Do not stop or hold vehicles on a highway within the project site for more than 20 minutes, as required per [ODOT Standard Specification](#) 00220.02 Public Safety and Mobility.

### 2.5.3 Delay Mitigation

Specific work activities and time periods may not allow for delays to fall within the region's acceptable limits for a particular segment or corridor. In these cases, the region may need to coordinate with projects along the corridor to mitigate delay.

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<sup>20</sup> Oregon Department of Transportation, Work Zone Traffic Analysis Manual, January 2022, Delay Estimates, Page 12: [https://www.oregon.gov/ODOT/Engineering/Docs\\_TrafficEng/Work-Zone-Analysis-Manual.pdf](https://www.oregon.gov/ODOT/Engineering/Docs_TrafficEng/Work-Zone-Analysis-Manual.pdf)

<sup>21</sup> Oregon Department of Transportation, ODOT Work Zone Traffic Analysis Mapping Tool: [https://www.oregon.gov/ODOT/Engineering/Docs\\_TrafficEng/WZTA-Tool.zip](https://www.oregon.gov/ODOT/Engineering/Docs_TrafficEng/WZTA-Tool.zip)

## 2.6 Diversions, Detours, & Staging

### 2.6.1 On-Site Diversions

An on-site diversion is a change in traffic pattern that shifts lanes from their existing alignment but maintains traffic flow. If traffic is shifted to an off-site facility, such as another roadway, it is considered a detour. In some cases, an on-site diversion involves a slight shift of the existing alignment to better accommodate shoulder work. Diversions may also involve a complete shift of traffic to the median or to the opposite side of a median to allow work to be completed on one-half of a divided highway. When using such diversions, weight restrictions and vertical clearances may be affected. [Refer to [Chapter 2.4: Temporary Size & Weight Restrictions](#)]

Under certain structures, overheight vehicles may be required to use a specific lane where the vertical clearance is higher than adjacent lanes or shoulders. Therefore, the Mobility Services Team must be notified for all on-site diversions whenever traffic is routed under structures.

Some structures that are weight restricted require heavy loads to utilize certain lanes or straddle the center of the structure when passing over it. Contact the [CCD Over-Dimensions Permits Unit](#) to determine if a bridge is weight restricted. Diversions over structures must consider existing permanent and temporary weight restrictions, and consultation with the Mobility Services Team should take place if any diversions will occur over such structures.

### 2.6.2 Detours

Detours are a staging strategy that involves shifting traffic onto a different roadway and away from the project site. This occurs during a closure of a facility to all traffic or to selected traffic, such as a closure for over-width vehicles only.

During project development, the Mobility Services Team needs to be notified about planned off-site detour routes. The Mobility Services Team will work with the region mobility liaison and project team leader/manager to engage mobility stakeholders for the development of off-site detours.

#### a) Selecting & Evaluating Detour Routes

All detours must allow for all legal traffic, including freight and over-dimensional vehicles. The Mobility Services Team can identify what types of freight currently use the route being closed.

If the proposed detour can't accommodate over-dimensional vehicles, then either:

- A different detour must be chosen, or
- A separate detour must be provided just for those vehicles.

If no local detour is available, ODOT will provide an alternate route that can accommodate similar vehicle sizes and weights—as long as it's safe and within normal delay limits.

If there's no agreement on a detour, the following should meet to find a solution: Mobility Services Team, region mobility liaison, transportation project manager, and the Mobility Advisory Committee.

All detour routes need to be checked for restrictions which could affect freight traffic:

- Structures along the route need to be checked for weight restrictions.
- Turning movements need to be evaluated to see if they safely provide for turning movements and off-tracking.
- Horizontal and vertical pinch points need to be checked to ensure that all vehicles can safely traverse the entire route.

Once a detour route clear of restrictions has been identified, the route should be tested with a truck to check for problems with sight distance or grade issues if possible.

### **b) Freeway Ramps Used as “Up & Over” Detours**

The Mobility Services Team must be consulted if freeway ramps are used as a short “up and over” detour around a restriction on a freeway. The Mobility Services Team evaluates the impact of this routing for high or wide loads as it affects the permit instructions provided to motor carriers. Permits provide specific instructions on what lane to use and what ramps or exits must be taken in order to move along the corridor. If the motor carrier encounters a work zone that directs them to use a ramp for an “up and over” that is not on their permit, they face the risk of a violation or damage to a structure.

### **c) Out of Direction Travel & Delay Impacts**

Out-of-direction travel is the additional distance a vehicle must travel on a detour route beyond what would be traveled on the existing route. Detour delay is the amount of additional time it takes to travel a route once traffic is switched onto the detour.

Out-of-direction travel impacts to passenger vehicles are usually less costly than impacts to freight vehicles. The additional distance freight vehicles must travel impacts their weight-mile tax, permits, and distance allowances. Significant delays to freight traffic can also be caused by frequent stopping and restarting, stopping traffic at the bottom of steep grades, sending traffic through sharp corners, etc. Detour routes must be reviewed for these impacts, and those that have the least out-of-direction travel and create the least delays to traffic should be utilized whenever possible.

### **d) Emergency Services, HAZMAT & other Special Considerations**

The following special considerations must be considered when evaluating or designing a detour route:

- How will the detour route affect emergency services response times?
- Will vehicles transporting hazardous materials be able to use the planned detour?

- Are any other projects using the existing route as a detour?
- Are there other projects along the proposed detour route which will restrict traffic?
- Is another detour available if something happens to the proposed detour route?

Coordination with emergency services must be made if out-of-distance travel or detour delay times are excessive. If hazardous material is transported along the existing route, then the detour route must be evaluated to see if it can accommodate it as well. If there is a conflict with other projects, then the work should be rescheduled to eliminate the conflict.

A backup detour route should always be identified in case of a natural disaster or unplanned restriction on the proposed detour route.

### 2.6.3 Staging

Providing traffic control plans with staging that maintains appropriate horizontal and vertical clearance will enable ODOT to repair and upgrade the existing system while transporting freight within the state. All construction projects will be evaluated for impacts to freight mobility and staging options will be carefully reviewed to minimize the duration and severity of the impacts from construction work.

#### a) Selecting and Evaluating Staging Options

When evaluating staging options, the project team leader/manager must take into account and provide for all traffic that is legally allowed to use the route, including freight and over-dimensional units. The Mobility Services Team can determine whether or not freight traffic currently uses the affected route. If over-dimensional units use the existing route, a detour route must be provided and special consideration must be given to reduce the duration of the staging restriction.

When reviewing staging options during project development, it is important to compare what the overall impacts to industry stakeholders will be with each option. In some cases, a complete route closure with a detour over a shorter period will have a smaller overall impact than an expensive, prolonged staging plan that strives to keep the route open. Some stakeholders prefer a project with a shorter duration and a severe impact (i.e. brief closure with detour) over a project with a prolonged duration and moderate/minor impacts.

If staging restrictions would limit or delay the passage of emergency services vehicles, then special coordination with these stakeholders must be made.

The project team manager must take into account the impacts that each staging option will have in regards to delay time. Each option must be carefully evaluated and, when safe and practical, the option with the least impacts should be selected. Issues to be considered include:

- **Each project needs to be analyzed to ensure that sufficient capacity for the expected traffic volumes is maintained.** Staging options reviewed must be able to accommodate the expected traffic volumes at all times, especially during peak hours of travel. If the

traffic analysis shows that traffic volumes for a staging option will exceed capacity, then the project team will need to provide for additional capacity or find a way to reduce the traffic volumes. If this cannot be done, then the staging option should be eliminated.

- **Night work can be used on many projects to avoid daytime impacts when traffic volumes are greater.** Temporary detour structures or temporary bridge widening can be used to provide additional capacity when traffic volumes are too high to close travel lanes. Volumes can be reduced through media campaigns and the use of message boards directing traffic to alternative routes.
- **Staging options that provide continuous free-flow conditions with minimal delays and no restrictions should be used when possible.** Freeway crossovers and full-width detour structures on separate detour alignments are two examples. They provide a work zone which can be traversed at regular speeds with little to no interference.
- **When staging options that provide for minimal delays cannot be used, options with only minor delays should be used.** Staging that involves a controlled delay or a single lane closure would be examples of this. This would provide a work zone with moderate delays, and possibly a reduction in speed, but would not restrict freight traffic.
- **When staging options that provide for minor delays cannot be used, other options with more significant delay times may need to be used.** A staging plan that involves a two-way, one-lane configuration controlled by a temporary signal or flaggers is an example. Since this option can cause significant delays to freight traffic, the Mobility Services Team should be contacted so they can notify affected stakeholders.
- **The length of the work zone can affect the severity of the traffic delay and should be reviewed during the development of a staging plan.** Projects that extend over a large section of road should be broken into smaller segments whenever possible, so that the area of impact is reduced. On an urban modernization project, work should be limited to only a few blocks at a time if possible. For example, on a rural preservation overlay project, the length of the work zone should be controlled to minimize the amount of delay encountered.
- **Staging options need to be checked to avoid delays to freight traffic caused by frequent stopping and restarting, stopping traffic at the bottom of steep grades, sending traffic through sharp corners, etc.** Staging options need to be evaluated for these impacts, and those that have the least delay times should be used when possible.
- **During the development of projects, special consideration should be made to eliminate or minimize staging delay time impacts.** Whenever practical the staging duration should be limited, and innovative contracting tools and methods should be considered. [Refer to [Chapter 1.6.3: Alternative Contracting Methods](#)]

**b) Special Staging Considerations**

There are several special considerations that must be taken into account when evaluating or designing a staging option. These include, but are not limited to, the following:

- How will the staging affect emergency services response times? If staging would limit or delay the passage of emergency services vehicles, then special coordination with these stakeholders must be made.
- How will other projects be affected by the staging? If there is a conflict with other projects, then the work should be rescheduled to eliminate the conflict.
- Are there any ways to provide windows for unrestricted freight movement between stages? If windows of unrestricted freight movement can be created while transitioning between stages, then this should be discussed with stakeholders as a viable option.
- Have there been changes to vehicle capacity due to lane shifts? If the lane shifts will exceed capacity, then the project team will need to provide for additional capacity or find a way to reduce the traffic volumes.