Unit 14 Lesson 1: Advanced Curb Ramp Inspection Topics

Course Navigation Tips:

- To complete each lesson, you must interact with the audio narration at the top of each section.
- You may drag the toggle on the playback bar to the last 5 seconds and let it play. This will allow the system to note it as complete.
- You are encouraged to complete the entire unit before closing in case your progress is not saved.

You must click on all images before moving on to next Lesson.

04:45

Start Audio Narration

The following are curb ramp conditions that are newer or more complex than a standard curb ramp scenario that you will come across in the field on your projects.

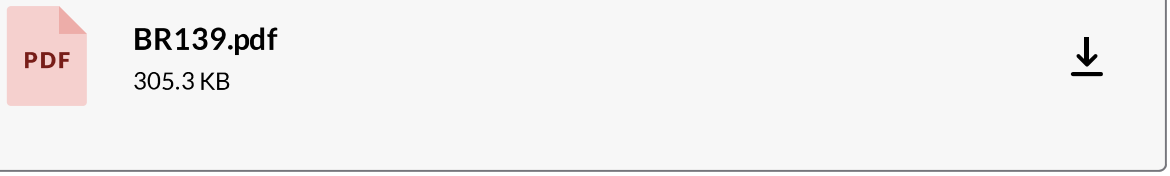
Pedestrian Accessibility on Bridges

Bridge sidewalks are required to be accessible to pedestrians. Bridge Work often involves overlapping assets and coordination with multiple disciplines and contractors. For example, when the project includes upgrades to guardrail installation, it can encroach on the pedestrian clear width on a bridge sidewalk. Another example is when the bridge design requires certain types of bridge joints within the pedestrian access route on the bridge.

Bridge Expansion Joints

When a sidewalk exists on a bridge, pedestrian ramps may be at the ends of the bridge and may have expansion joints in the proximity of the curb ramp system. The same ADA lip requirements on curb ramps are the same for expansion joints anywhere on the bridge walkway.

The Oregon Standard Drawing BR139 Preformed Compression Joint Seal and BR 140 Poured Joint Seal have updated requirements for accessible walkways. Review the updated Oregon Standard Drawing details sections for the sidewalk joint section.



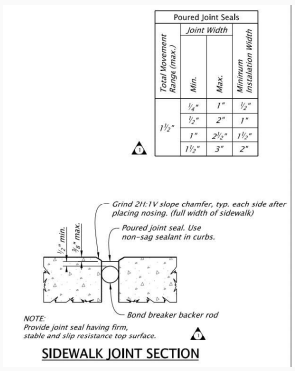
PDF

BR140.pdf

294.9 KB

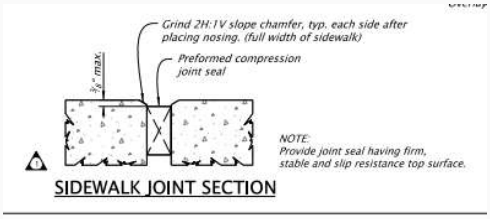
Scroll and flip through images for additional information.

BR140

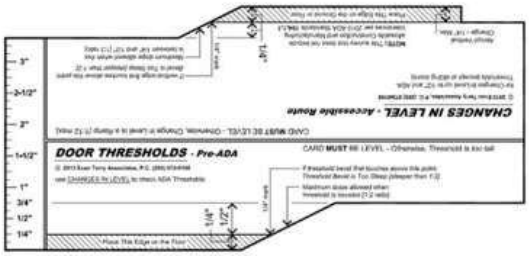


1 of 2

BR139

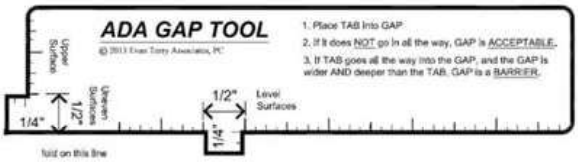


Joint seals must have a firm, stable and slip resistant top surface per the ODOT qualified products listing. This ensures that the walkway is accessible when traversed over for pedestrians using mobility devices. Bridges expand and contract due to the natural properties of the construction materials, particularly concrete. The joint seals also change shape with the expansion and contraction due to temperature changes. and the installation must remain nearly flush in hot or cold weather. Tools such as those shown in the figure below are available for inspecting expansion joints.



Change in Level - Door Thresholds Tool

Door Thresholds Tool



Gap Tool

Plastic Stock Tool

Quantity

Measuring Tools. These particular items can be found at Change in Level - Door Thresholds Tool – Corada.

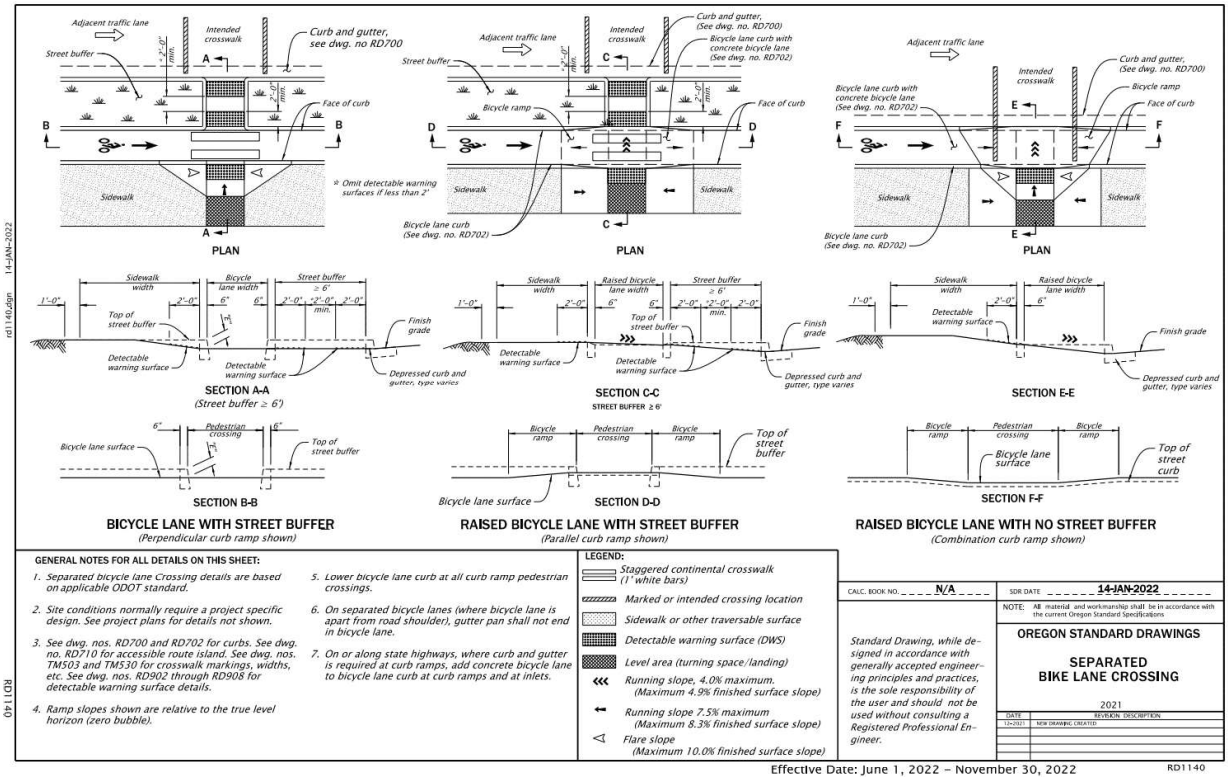
Non-compliant bridge expansion joints within the proximity limits of a curb ramp or pedestrian ramp shall be recorded as a lip failure or horizontal lip failure and is noted in the Comments

section of the inspection form.

Separated Bike Lanes and Curb Ramps

Example of a Separated Bike Lane at a Protected Intersection.

Separated or protected bike lanes offer a physical separation between bicycles and motorists. These have numerous benefits to safety and visibility. RD1140 details several configurations for when a pedestrian crosswalk overlaps a separated bike lane.



RD1140 Separated Bike Lane Standard Drawing

For inventory and asset purposes in these scenarios, the pedestrian access route that cuts through the street buffer strip during curb ramp inspection will typically be recorded as a cut through island on the Curb Ramp Inspection Forms and will get its own corner number, generally with an island suffix of A.

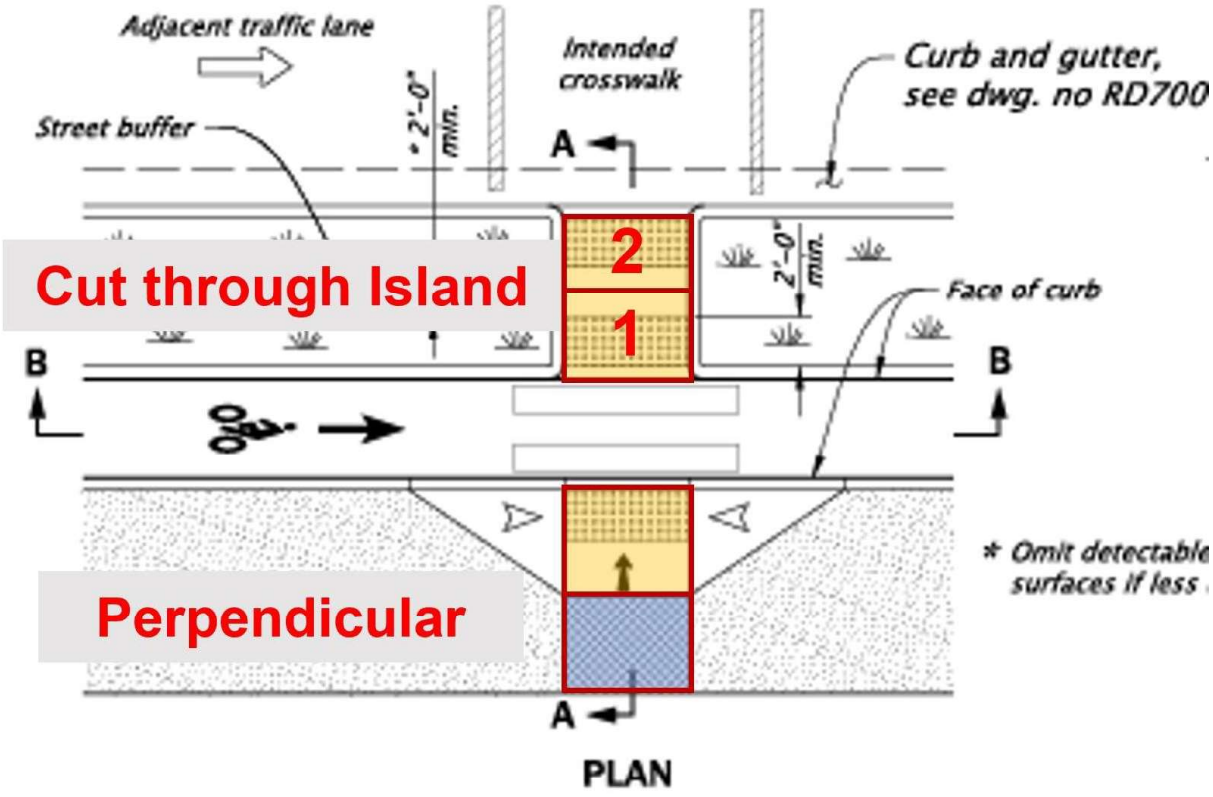
The curb ramp along the walkway is measured and recorded based on the curb ramp style that is constructed. The standard drawing illustrates that a perpendicular, a parallel, or combination could be constructed on the walkway. The separated bike lane could be in a variety of configurations based on the project site.

The counter slope and gutter flow slope are measured for each curb ramp position as described in the earlier units. The counter slope will be measured for a distance 2 feet from the face of curb. The bike lane may only span a short distance (typically 6 to 8 feet) between the curb ramp and the buffer (if applicable). Ensure the entire pedestrian access route for the crosswalk does

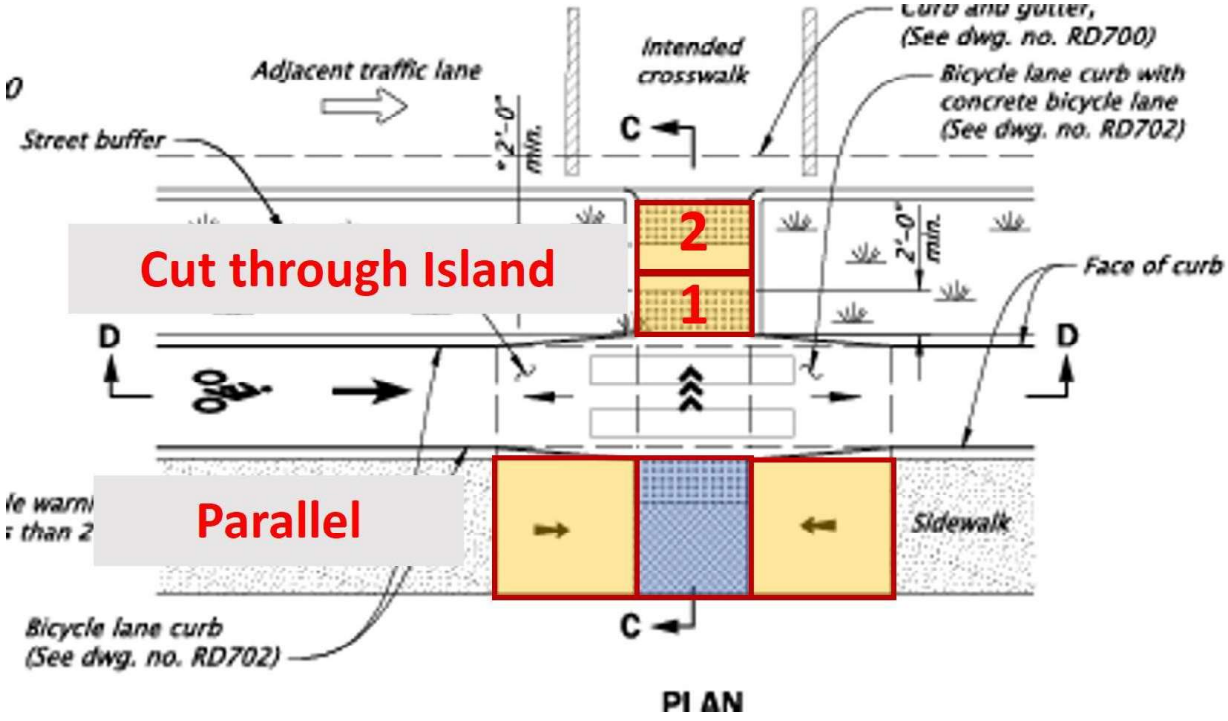
not have any lips or gaps on the finished surface; however, this will not be captured on the curb ramp form(s).

Contact the ODOT ADA Standards Team when a designated bike lane is on the same surface as the sidewalk and curb ramp and is defined by paint or other markings or other unique situations arise. The corner and ramp positions are to be reviewed with the Statewide Asset Specialist in these circumstances.

Scroll images below to see how to measure curb ramps at a separated/protected bike lane.



How to Measure Curb Ramps at a Separated/Protected Bike Lane and a Perpendicular Curb Ramp



How to Measure Curb Ramps with a Separated/Protected Bike Lane and a Parallel Curb Ramp

Image of a Separated Bike Lane Crossing

04:26

Continue Audio Narration

Truck Aprons Adjacent to the Curb Ramp System

Truck Apron at a Shared Use Path Curb Ramp

Truck aprons are sometimes constructed adjacent to curb ramps at an intersection. Refer to Oregon Standard Drawing RD170 Roundabout and Truck Apron Placement. The crosswalk and truck apron are required to meet ADA requirements when constructed.

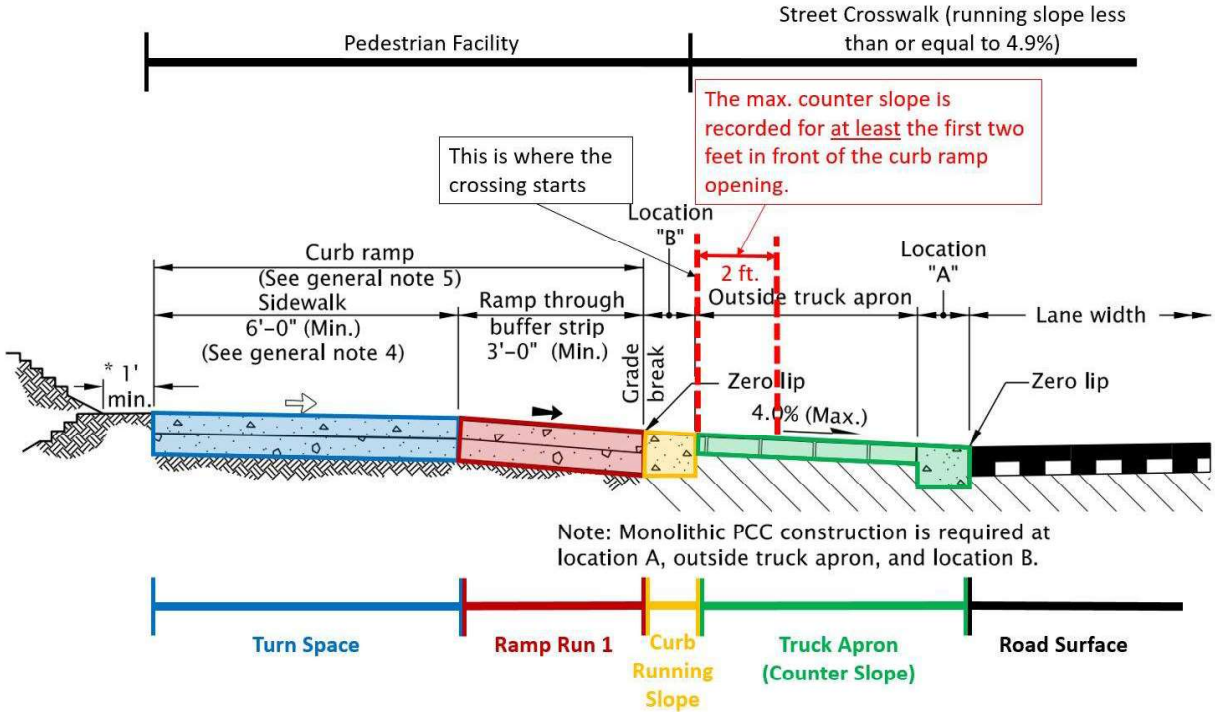
PDF

RD170.pdf

358.4 KB

The street crosswalk with a truck apron is required to be free of lips and may not exceed 4.9% in the direction of pedestrian travel on the finished surface. The crosswalk slope information won't

be captured on the curb ramp inspection forms. The figure below from Section B-B on RD170 outlines the curb ramp system components and the truck apron.



Truck Apron Detail from RD170, Roundabout and Truck Apron Curb Placement. Note Design Counter Slope is 4% Max. but Finished Counter Slope has a Maximum of 4.9%

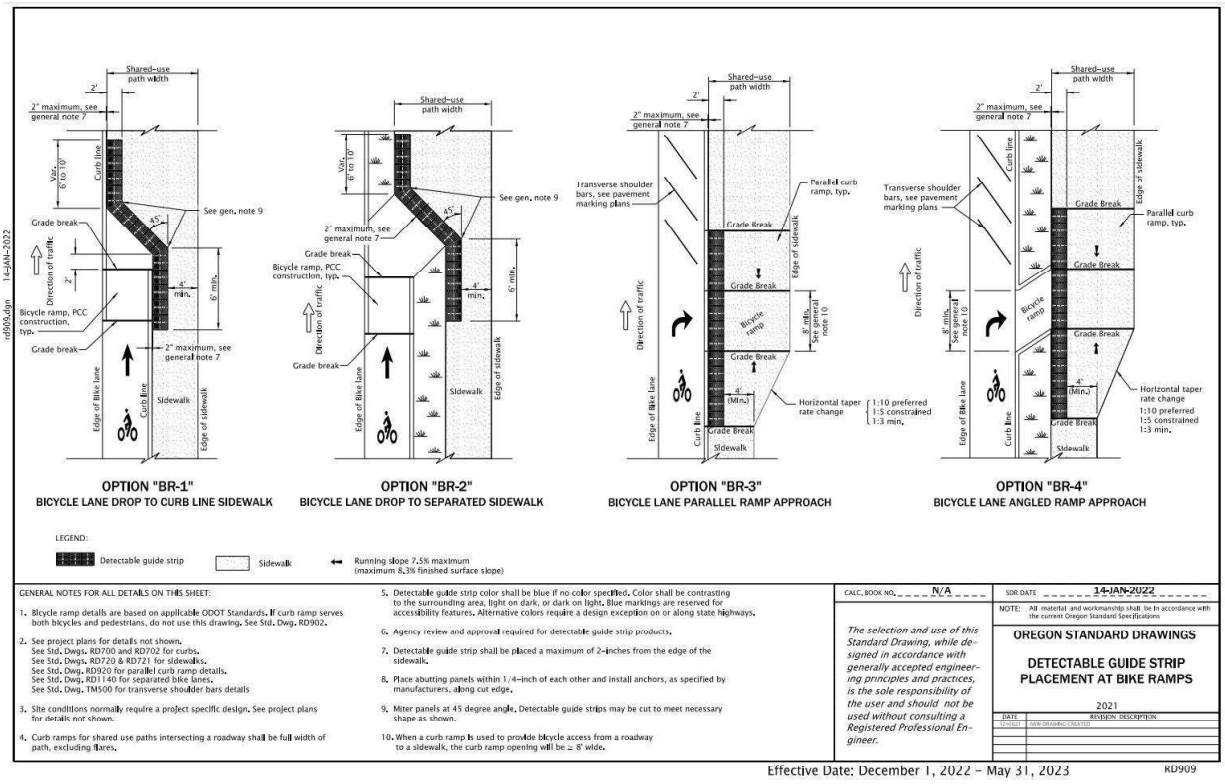
In these cases, the counter slope and gutter flow slope are still measured in the first two feet in front of the curb ramp position (on the truck apron surface).

Generally, the truck apron will not have additional grade breaks in the crosswalk along the pedestrian path of travel unless there is a drainage need. The inspection practice for the curb ramp is the same. Refer to section E-E Raised Bike Lane without Street Buffer on RD1140 in section above to see the similarities between the two types of construction.

Truck Apron at a Roundabout

Bike Ramps

Ramp connections that allow only a bicyclist to enter and exit the walkway, referred to as a bike ramp, look very similar to a curb ramp. **Bike Ramps are not inspected on ADA curb ramp inspection form(s).** Follow the contract plan requirements. It will not have a corner position assigned to the connection. RD 909, Detectable Guide Strip Placement at Bike Ramps illustrate different types of bike ramp designs.



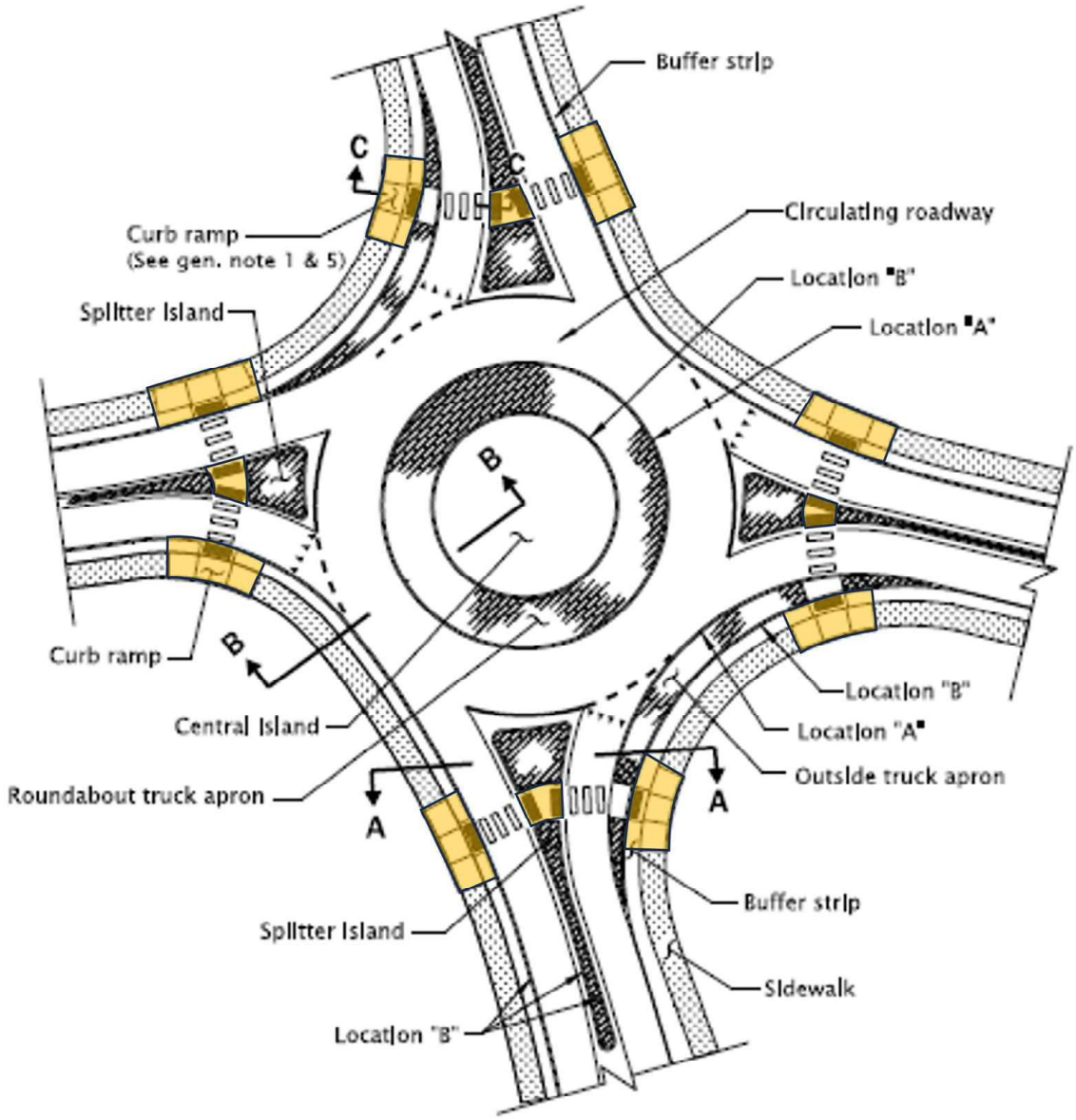
RD909, Detectable Guide Strip Placement at Bike Ramps

When the ramp connections provide access for both pedestrians and bikes, it is a shared use curb ramp and a Curb Ramp Inspection Form is required. End of walkway connections/ locations for the shared walkway are also submitted on the Curb Ramp Inspection Forms based on the curb ramp style constructed at that location.

Curb Ramps at Roundabouts

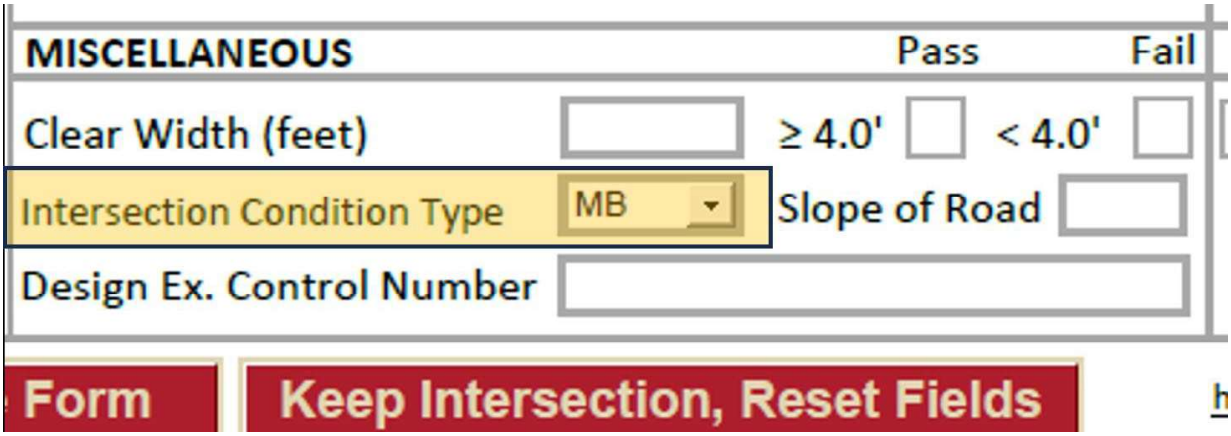
Roundabout intersections are designed with curb ramps located away from the yield entrance to the circulatory roadway. Yield markings and signs are located some distance past the crosswalks. These setback pedestrian crossings are typically in flat terrain and designed with new construction cross slope requirements. For example, pedestrian access routes in the crosswalk

are not to exceed 2.0%. Gutter flow slope of 2.0% at the curb ramp opening is achievable in nearly all circumstances.



Roundabout Curb Ramps are Designated as Midblock Intersection Condition Type

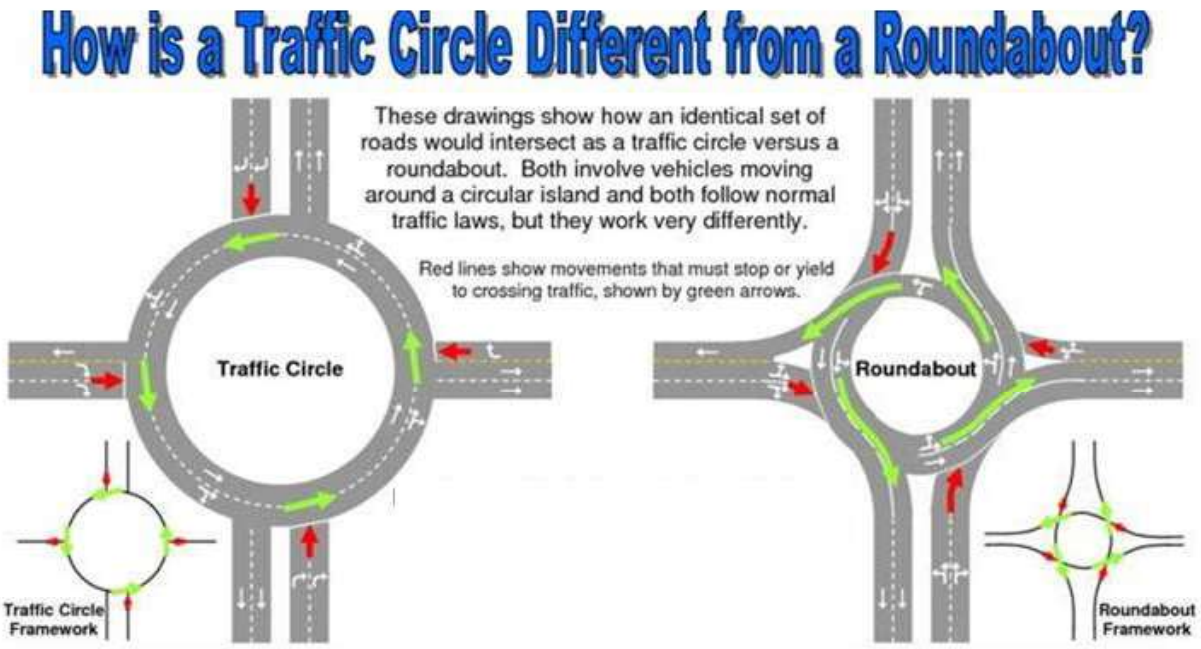
Based on the location of the pedestrian crossings, curb ramps at roundabouts are designated as Midblock Intersection Condition Type. For curb ramps at roundabouts, choose the correct curb ramp inspection form based on the style of ramp. In the **Miscellaneous** section of the form choose **MB** for "Midblock" in the drop-down box for the **Intersection Control Type**.



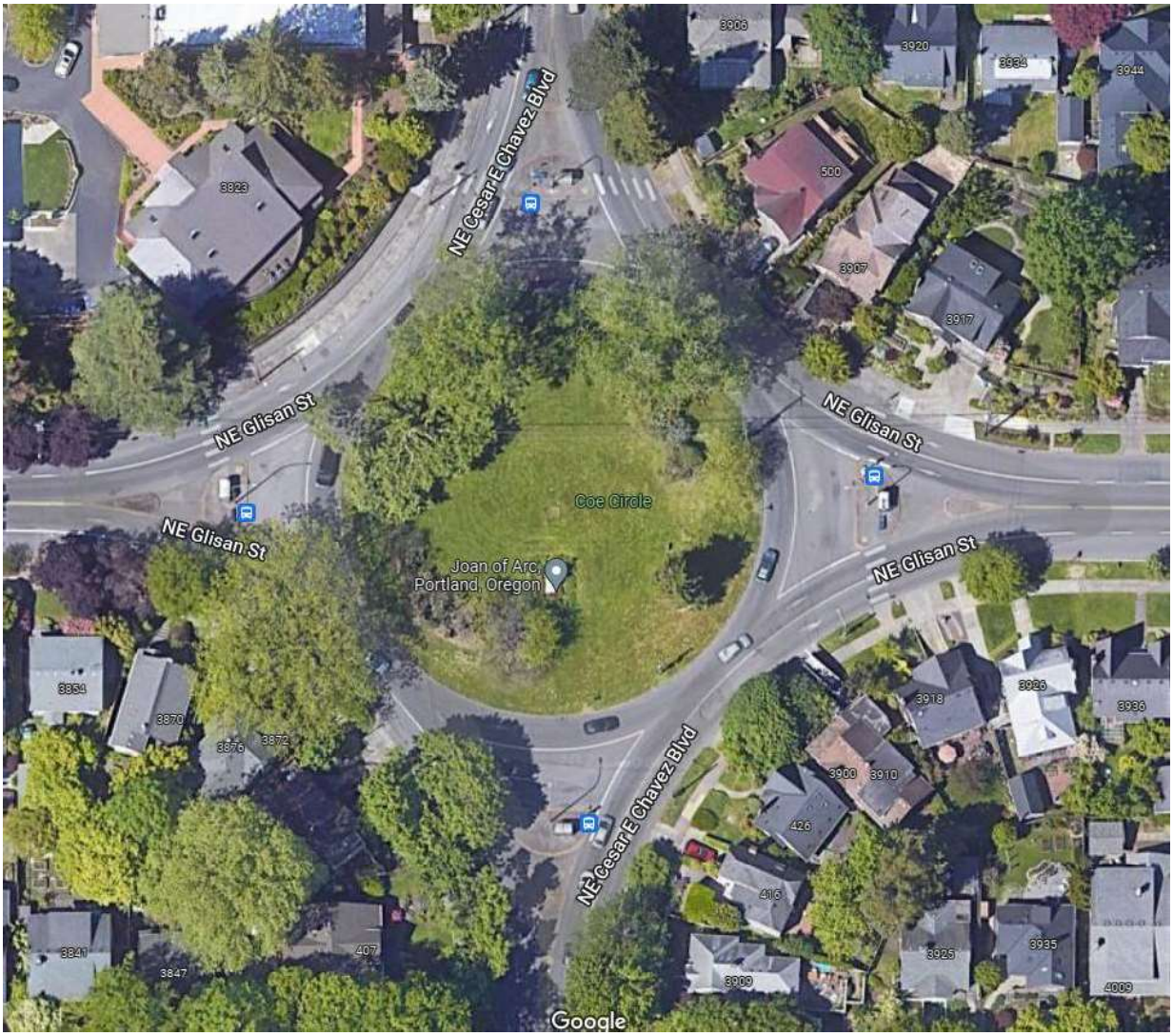
Midblock (MB) Intersection Control Type on the Inspection Form

Traffic Circles

Traffic Circles look similar but function differently than roundabouts. Refer to the following figure. Traffic circles with both signalized operations and pedestrian crossings have not been constructed on Oregon State Highways. They are not the same as roundabouts. A signalized traffic circle will have the Signalized/Uncontrolled "SU" intersection control type condition. Traffic circles with lower volumes and controlled by Stop Signs will have an intersection control type marked as "SY" for Stop/Yield.



Roundabout Vs Traffic Circle Diagram



Traffic Circle in Portland

Traffic Circle with Pedestrian Access to Center Island in North Bend, OR.

Street approach at traffic circle with the stop/yield (SY) condition at crosswalk. Traffic Circle with pedestrian access to center island in North Bend, OR.

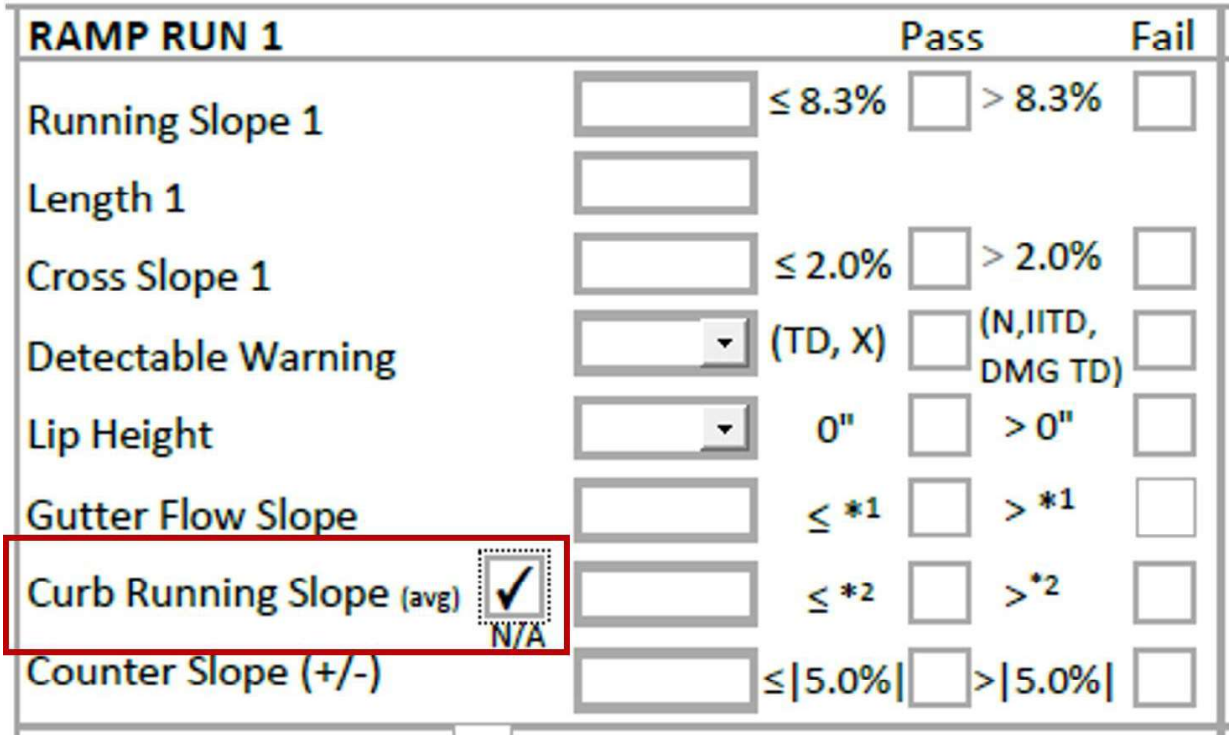
06:31

Continue Audio Narration

Sidewalk connections at Streets without Curbs

Some sidewalk facilities will be at locations that do not have curbed streets but will need accessible surfaces to connect sidewalks to street crossings. This might occur at a shared used path or at a rural signalized intersection for example. These connections are still inventoried as Curb Ramps. In these cases, the gutter flow slope directly effects the cross slope of ramp run 1 or directional curb (if applicable).

Each curb ramp inspection form has a “Not Applicable” or “N/A” box for the curb running slope that can be checked when the construction does not have a curb. The figure to the right shows where “N/A” would be marked on the curb ramp inspection form.

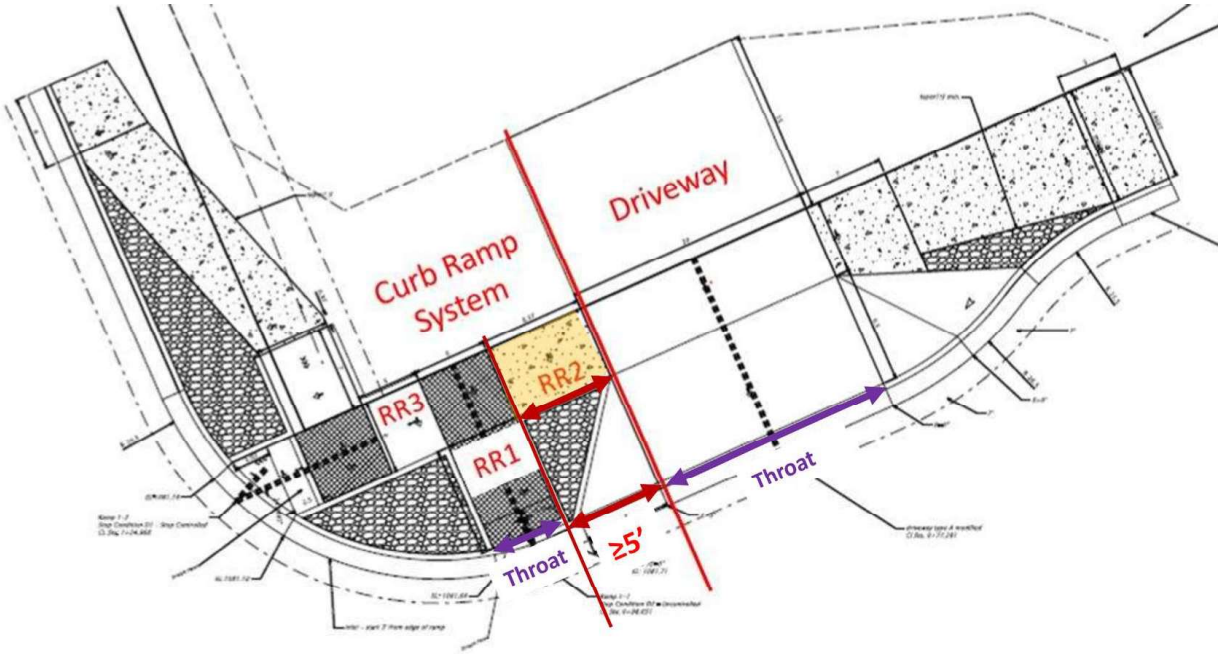


Curb Running Slope "N/A" Box Checked for When there is no Curb at a Curb Ramp

Image of a Curbless Construction for An Asphalt Walkway and Shared Use Path.

Curb Ramps Adjacent to Driveways

Driveways are often close to intersections and may abut a curb ramp system. There are circumstances to be aware of when inspecting curb ramps that are close to driveways. Separation between the curb ramp system and the driveway system is a benefit for pedestrians and vehicles. **Older designs where the curb ramp and driveway are one facility shared by the pedestrian and vehicle providing access from the roadway is no longer permitted.**

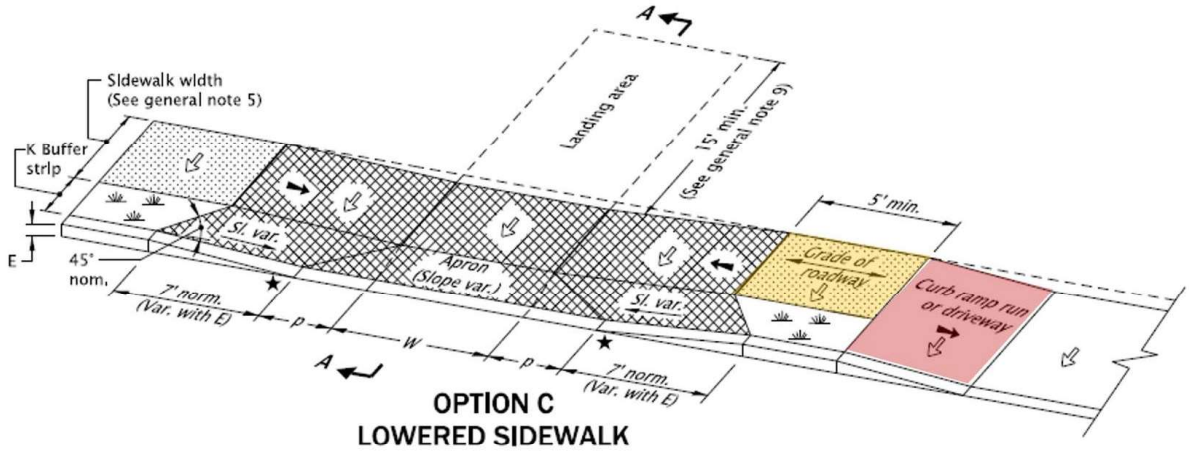


5-foot Distance Between Curb Ramp Throat and Driveway Throat

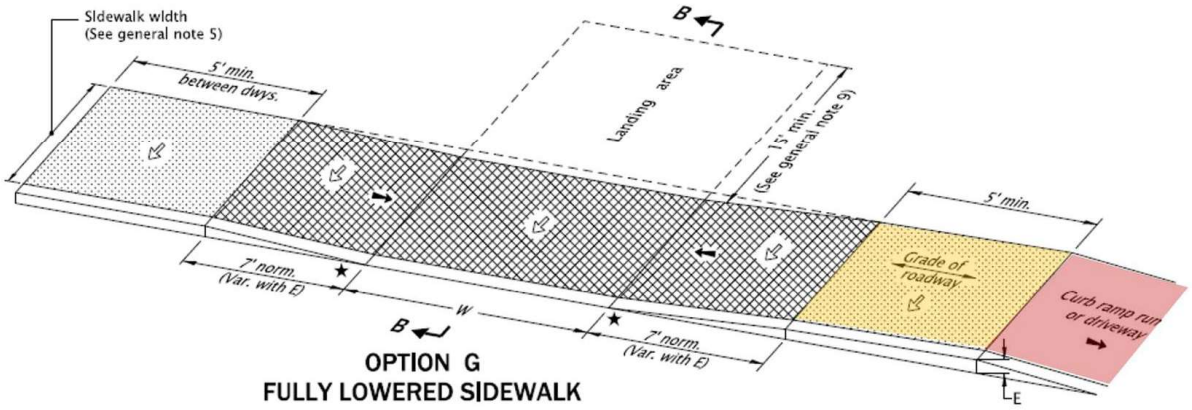
When curb ramps are constructed in close proximity to a driveway, check to see that at least 5 feet of horizontal distance has been provided between the curb ramp opening **(throat)** and the driveway throat. The distance should be measured from the edge of the driveway width (W dimension in the driveway standard drawings such as RD725 below) to the closest edge of the curb ramp opening. If the distance is not 5 feet or greater, a design exception for Criteria **P2**, Minimum 5' distance between parallel curb ramps, is needed.

.

Scroll through the following Standard Drawing driveway options to see highlighted sidewalk and curb ramp run separation illustrations.



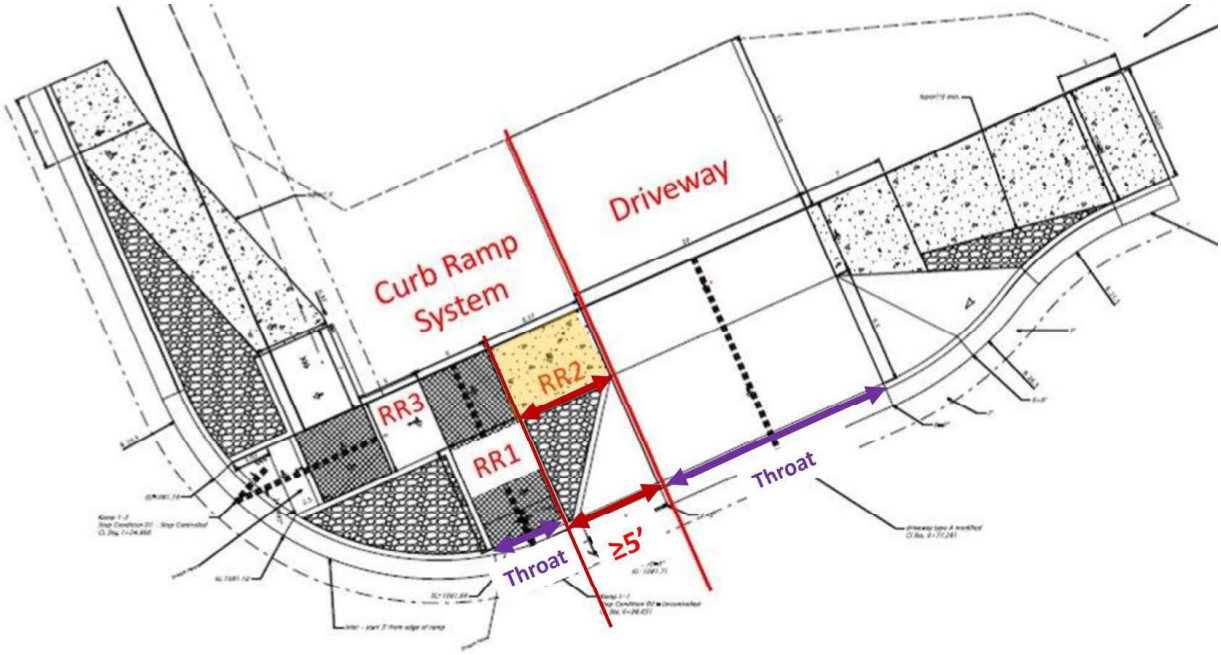
RD725 Option C. 5 feet Between Driveway and Curb Ramp or Another Driveway.



RD725 Option G. 5 feet Between Driveway and Curb Ramp or Another Driveway.

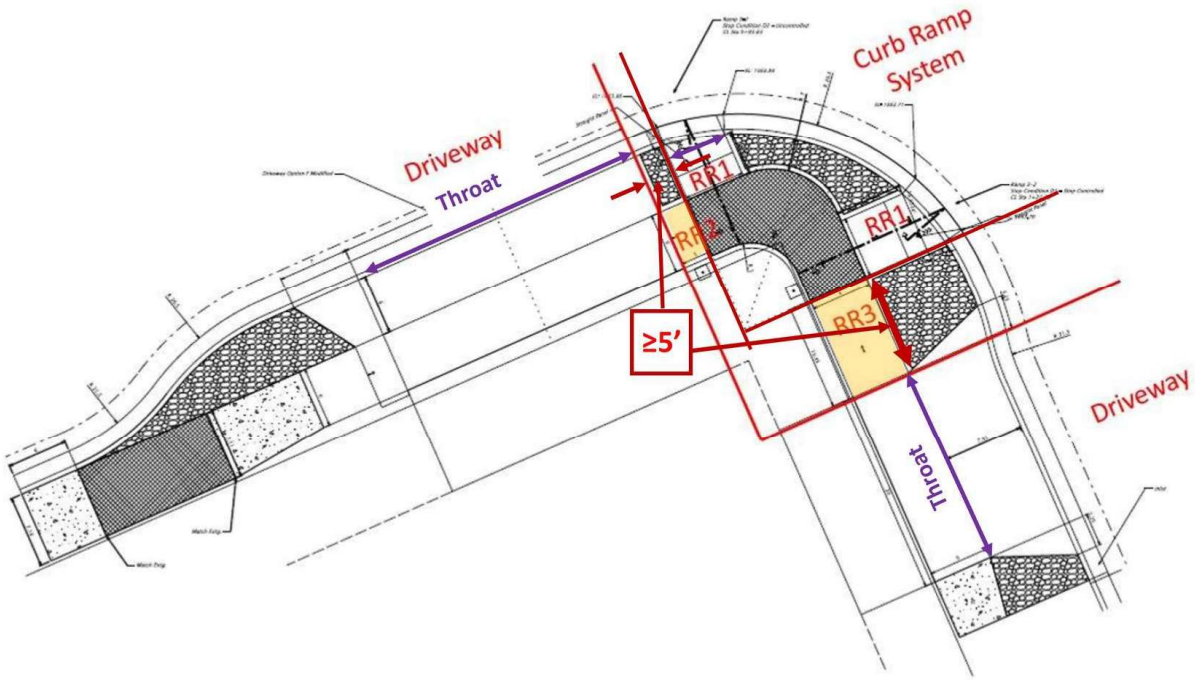
The following are examples of designs where curb ramps are in very close proximity to the curb ramp system. Confusion may occur as to where the boundaries of the two facilities are.

Click on the images of designs with curb ramps close to driveways.



Combination Curb Ramps Next to Driveway

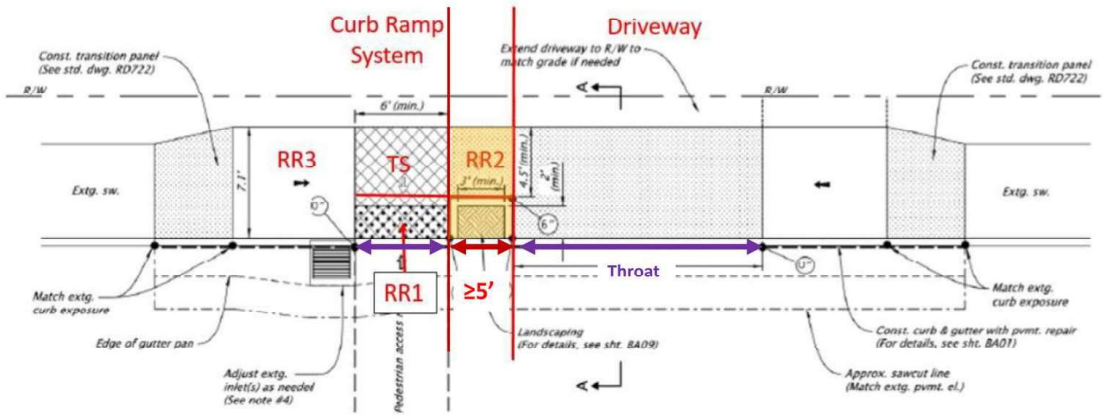
These curb ramps should be captured on Combination Curb Ramp Inspection Forms (Form 734-5020B). Ramp Run 3 has a slope less than 8.3%. Ramp Run 2 is the same slope as the sidewalk. There is a buffer with a raised curb and a driveway flare along Ramp Run 2 providing separation between the curb ramp throat and the driveway throat. If the buffer between the curb ramp throat and the driveway throat is less than 5 feet, it requires an ADA Design exception. Note: if these buffers have grouted durable rock, they will need to have general design exceptions.



Combination Curb Ramps with Shared Turn Space and Driveways Adjacent on Both Sides

---

These curb ramp should be captured on Combination Curb Ramp Inspection Form (Form 734-5020B). This corner has a shared turn space for both curb ramps and two adjacent driveways. Ramp Run 2 and Ramp Run 3 have slopes less than 8.3%. There are buffers with raised curbs along Ramp Run 2 and Ramp Run 3 providing separation between the curb ramp throat and the driveway throat. If the buffer between the curb ramp throat and the driveway throat is less than 5 feet long, it requires an ADA Design exception. Note: if these buffers have grouted durable rock, they will need to have general design exceptions.

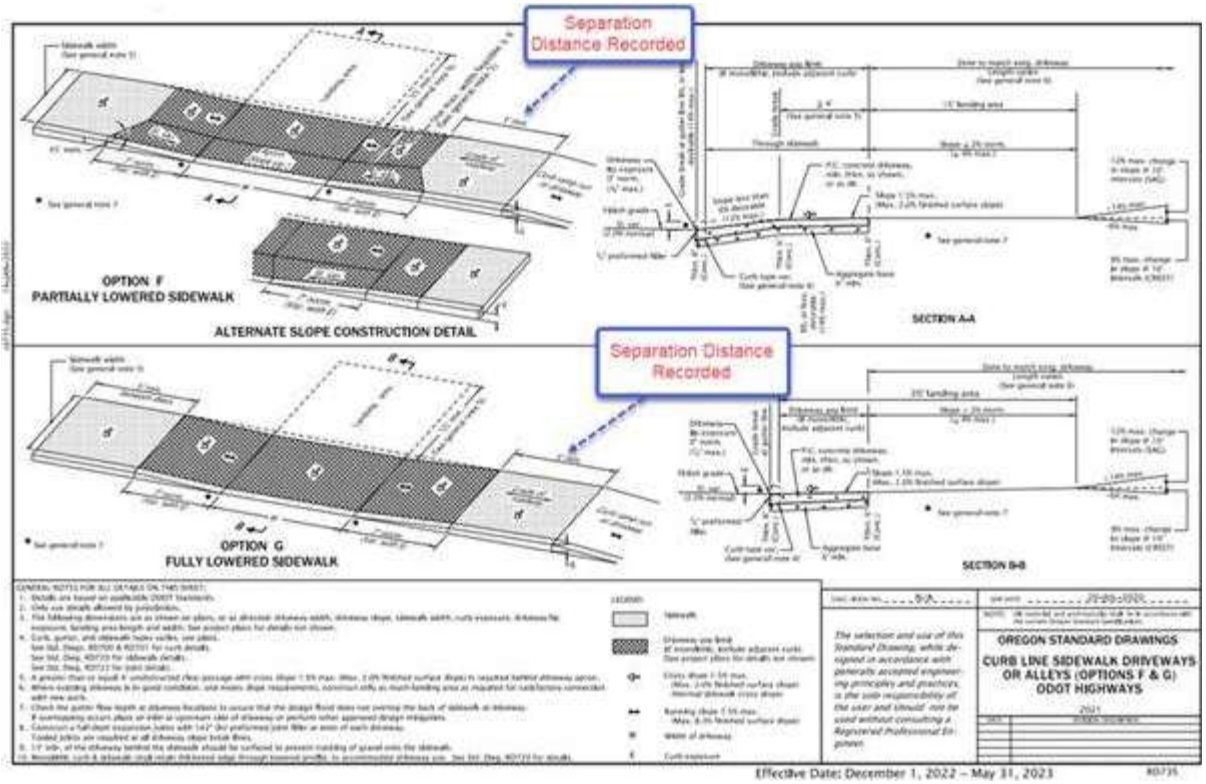


Combination Curb Ramp with a Turn Space, Ramp Run 2 and Driveway with the Same Grade

---

This curb ramp should be captured on Combination Curb Ramp Inspection Form (Form 734-5020B). Ramp Run 3 slope is less than 8.3%. The turn space, Ramp Run 2 and the driveway have the same grade. There is a raised landscape buffer with return curbs along Ramp Run 2 providing separation between the curb ramp throat and the driveway throat. If the buffer between the curb ramp throat and the driveway throat is less than 5 feet long, it requires an ADA Design exception.

Details are shown for new driveway construction with horizontal separation distances for accessible routes which include 5 feet between successive ramp runs of the curb ramp system and the driveway system (see RD700s).

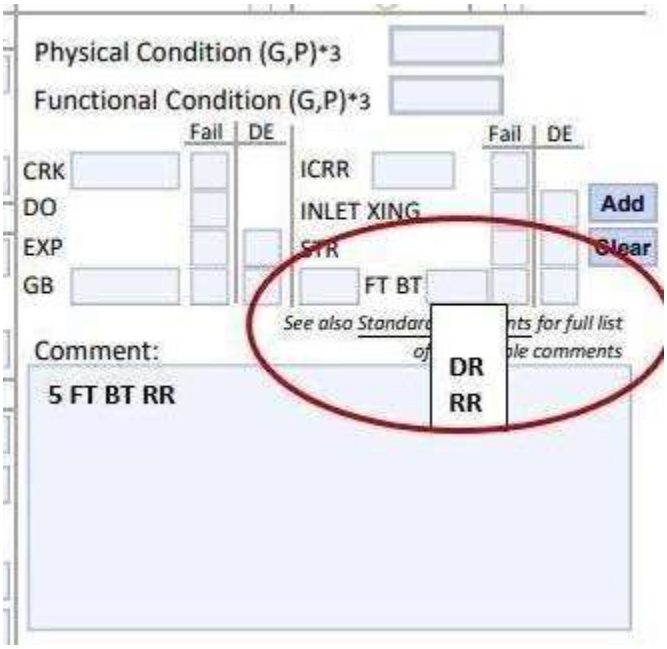


Recent Updates to RD700 Driveway Standard Drawings Showing Separation Distance Between Driveways and Driveways and Curb Ramps

---

Comments in Curb Ramp Inspection Form

Capture the distance in the comments section of the curb ramp inspection form using the standard comment #FT BT RR/DR.



Recording Feet Between Curb Ramp and Driveway or Ramp Run in Comments Section of the Curb Ramp Inspection Forms.

Detectable Warning Surfaces with Monolithic or Variable Curb and Gutter

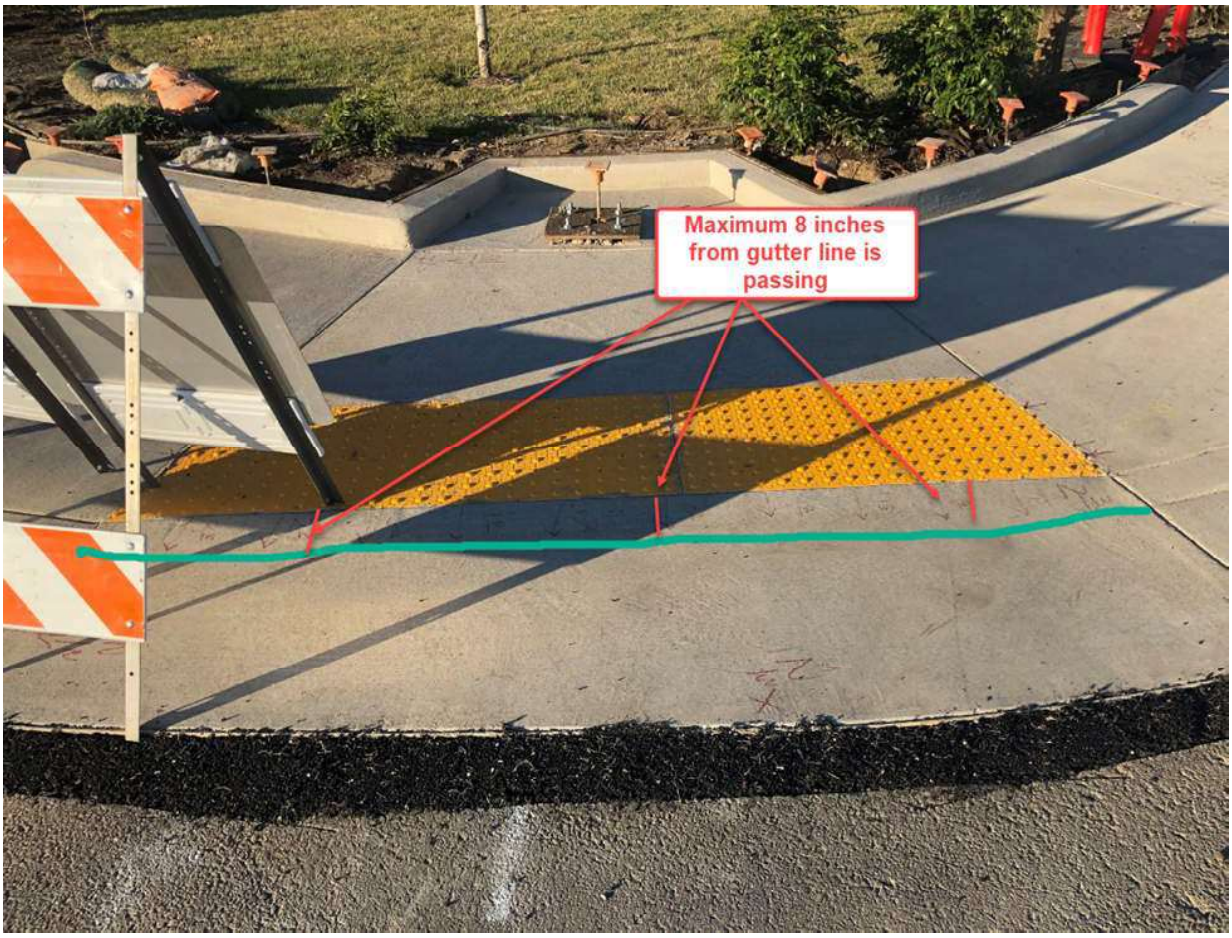
If the curb and gutter sections are of variable width or constructed monolithically without tooled joints, it can be difficult to assess if a detectable warning surface is installed correctly. There may not be a tooled joint at the gutter flow line or back of curb.

To check for conformance, an inspector must first identify where the grade break between the curb and gutter pan occurs. This is the location of the gutter flow line. It is recommended that you mark out the gutter flow line with chalk or crayon, measure the distance and take a photo as shown below.

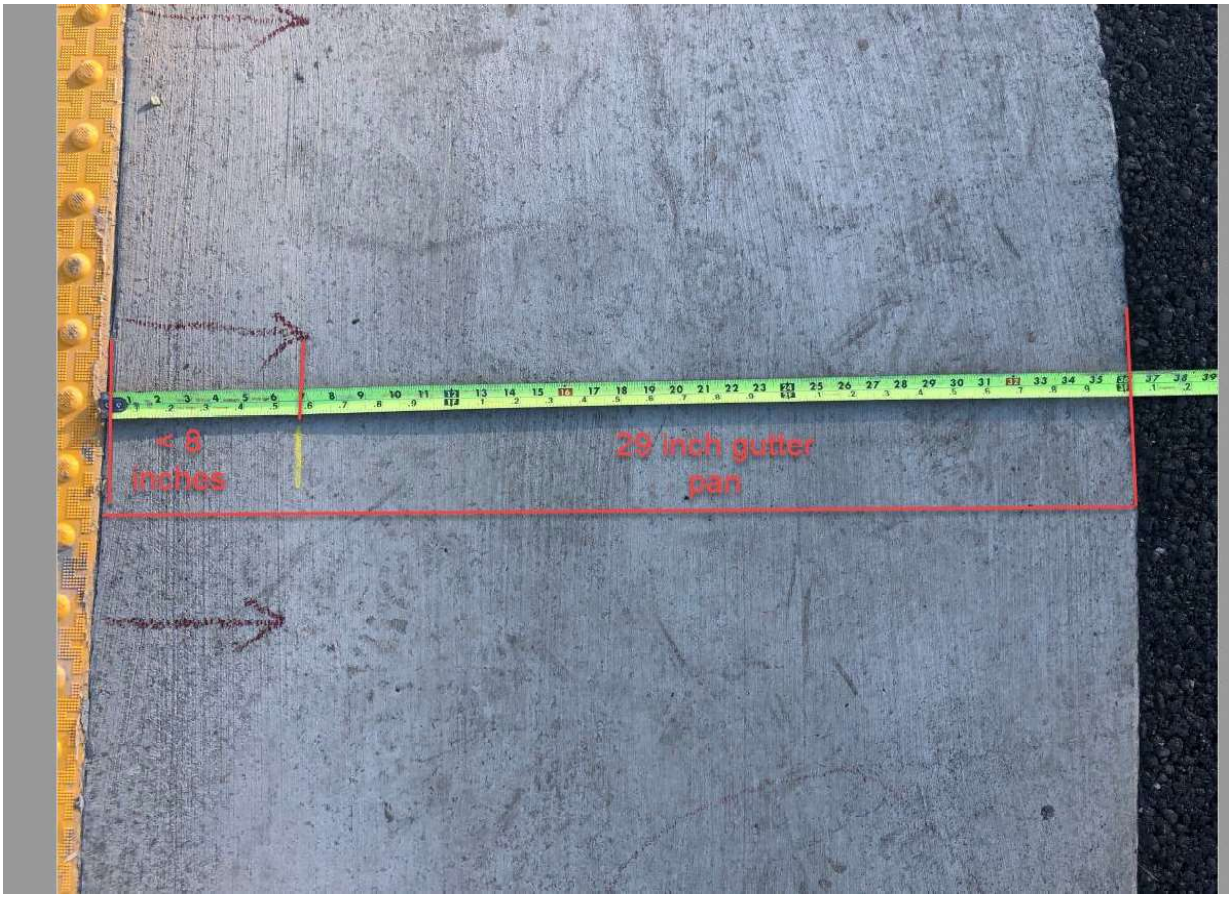
Depending on the curb type the depressed portion may be of varying widths. Review Oregon Standard Drawing RD700 for Curbs. Typically, ODOT standard for curb is 6 inches wide on the top surface. A low profile mountable curb is 12 inches on the surface.

RD700.pdf
289.3 KB

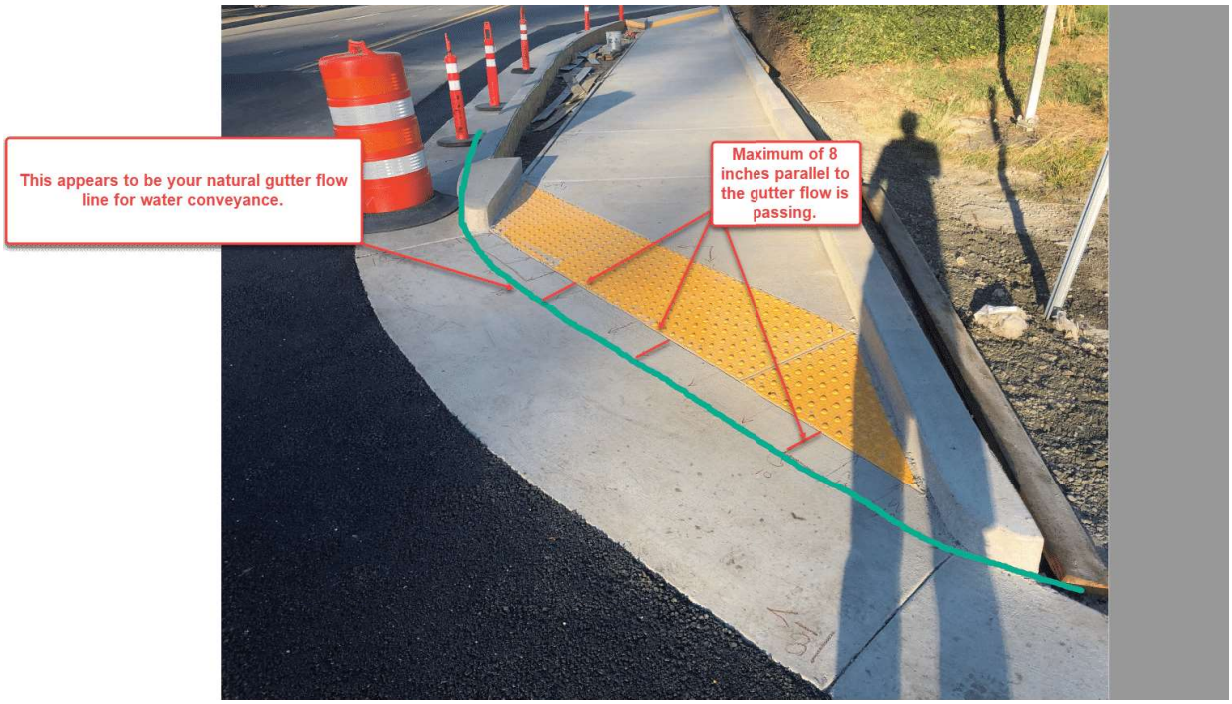
In the example below, a standard curb is depressed with a 29-inch-wide gutter pan. The gutter flow line is marked with green marking. The distance to the edge of the detectable warning surface panel must be less than 8 inches (6-inch curb+ 2 inch maximum gap between the back of curb and DWS) from the gutter flow line.



Gutter Line Determination



Variable Gutter Pan or Monolithic Depressed Curb Inspection Measurement.



Gutter Line Determination

Expand all tabs, review all figures, and advance audio to the end before moving on. The quiz is on the next screen.

After you have completed the quiz, close your window and the next Unit will become available in Workday Learning.