



# Standard Drawing Report

**Date:** June 29, 2023

**Technical Owner:** Civil – Aszita Mansor, P.E.

**Standard Drawing No.** P-547      **Calculation Book No.** n/a

**Drawing Title:** Midblock Curb Ramp



Expires 12/31/2024

## Background Information, Including Reference Material:

The drawing goes back to 1992 and most likely back to 1987 or later. In 1995, 3 additional drawings were made for the midblock sidewalk ramp with slight variations regarding combination curb, curb radius, and planting strip. The drawing created in 2009 and revised in 2015 combines the relevant ideas of the 4 drawings and provides additional criteria as required to meet ADA Standards.

## Assumption Made:

The drawing meets 2010 ADA Standards and FHWA best practices. The drawing is used with the City of Portland Standard Construction Specifications.

## Design Narrative:

The drawing defines the three common types of midblock curb ramp: combination curb ramp at separated sidewalks, combination curb ramp at curb-tight sidewalks, and parallel curb ramp at curb-tight sidewalks. The combination curb ramps contain elements of parallel and perpendicular curb ramps. Perpendicular curb ramps were not shown because it is uncommon in Portland to have furnishing zones with adequate width.

This drawing is to be accompanied by P-550, P-551, and may be accompanied by P-549 as required. Additional background information on the installation and placement criteria of Detectable Warning Surfaces is described in the P-550 standard drawing and report.

Curb ramps are required to span a vertical change in level greater than 1/2 inch (ADA Standard 303.4) along newly constructed or altered street with curbs and sidewalks at intersections (28 CFR 35.151(i)). Midblock crossings are locations where street-level pedestrian walkways cross streets. This drawing may be used at T intersections, where the crossing may be unmarked, or at midblock crossings where the crossing will be marked.

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This drawing defines the shape of the combination and parallel curb ramp. It defines the slopes and the widths required for the basic combination and parallel curb ramp. The 8.3% slope (1:12) of the ramp running slopes, the ramp flares, and the 5% counter slope (1:20) of adjoining road surfaces immediately adjacent to curb ramps. A walking surface can have a maximum cross slope of 2% (1:48). Ramp running slopes and cross slopes may be positive or negative but should not allow stormwater drainage to accumulate or discharge onto private property.

As per the 2020 City of Portland Standard Construction Specifications, the working tolerance of ramp running slope and ramp cross slope, including the ramp landing, is 0.5%. Design values of 1.5% for ramp cross slope, and 7.2% for ramp running slope are provided to accommodate most irregularities or variances due to construction methods or materials. Additional design values are provided on the PBOT ADA Curb Ramp Design Report to aid in designing compliant ramps.

At combination curb ramps, where there is no vertical obstruction adjacent to the landing, the turning space may be 4 feet. An additional foot of clearance adjacent to turning spaces is required for mobility device foot plates or overhang of power assisted device fenders to utilize when maneuvering, as indicated in note 10. PBOT's minimum sidewalk width is 5 feet exclusive of the curb; thus, the minimum width of sidewalk at the street crossing for a parallel style curb ramp is 5 feet and provides for a turning space adjacent to a curb or other obstruction at the back of the ramp. The flat landing, which is a turning space, should match the design sidewalk width and not restrict thru pedestrian movements or capacity. The turning space meets ADA Standard 304.3.2, which exceeds US DOT requirements at curb ramps.

Pedestrian pushbuttons may be placed within parallel ramp runs, adjacent to the landing, provided there is at least a 4-foot-wide accessible route. The sidewalk must be at least 77 inches wide when pushbuttons are placed 1.5' from the face of curb at parallel curb ramps, which provides for dimensions and staking tolerances for pushbuttons on base mounted signal posts; larger signal poles will require additional width.

Slopes are provided to one tenth of one percent, which conform to the accuracy of standard measurement devices which is at least  $\pm 0.175\%$ , and the precision which is at least 0.1%. All slopes are relative to a horizontal plane.

The flat landing is any surface that has a maximum slope of 2% in any direction, typically measured at the boundaries of the landing. For a perfectly rectangular landing with a running and cross slope of 2%, the mathematical value of the slope in the diagonal direction is 2.8% and is acceptable under current approved inspection practices.

Curbing shown at the back of the ramp on detail C is specified to prevent stormwater within the gutter from overtopping the back of the sidewalk and discharging onto private property. If the curb ramp is located adjacent to a steep slope, the curb may provide protection against a mobility device from unintentionally leaving the back of the ramp. The curb may not be warranted at locations where stormwater will flow away from the ramp, or when an adjacent structure will prevent stormwater from leaving the right-of-way.

**Update:** June 29, 2023

This drawing was revised to provide clarification to the midblock curb ramp thickness.

Note 1 has been updated to reference P-551 Sidewalks and P-540 Curbs standard drawings.

- P-551 is referenced to provide the concrete and compacted aggregate base thickness information.
- P-540 is referenced to provide curbs information that may be associated with the curb ramp design.