CURB RAMPS GENERAL NOTES:

1. In new construction or full-depth reconstruction, provide a separate curb ramp for each corner where a ramped or unmarked pedestrian street crossing or sidewalk is located, or as shown on the contract plans.

2. Alternatives are defined as changes to existing elements that affect pedestrian access, circulation, or use. Alternatives include, but are not limited to, reconfiguring, realigning, relocating, curb ramp extensions, relocating, or realigning to structural elements or elements of a pedestrian facility.

3. A balance surface is defined as a raised surface adjacent to a curb ramp or turning space, without raised obstacles, that could be inadvertently traversed by a user and is visually identified.

4. In alternative, where an existing physical component prevents providing a separate curb ramp for each pedestrian street crossing, a single diagonal ramp for the area shall be permitted to serve the entire pedestrian street crossing. The size of a single diagonal ramp shall be approved by the design and construction; diagonal ramps are not acceptable in new construction or full-depth reconstruction.

5. Reflective warning surfaces shall be installed to indicate the boundary between a pedestrian route and a vehicle route where there is a potential for spills, i.e., curbs, etc. are not intended to provide warning, and shall be installed at the following locations:

   - Side curbs, blended transitions, and defense curbs at pedestrian street crossings.
   - Pedestrian refuge islands at 8 feet on either side of the crossing.
   - Boarding platforms at transit stops where the edge of the platform is not protected to pedestrian crosswalks.
   - In locations near street level on transit stops where the area is not protected to pedestrian crosswalks.

6. Reflective warning surfaces shall contrast visually with the adjacent gutter, apron, or pedestrian access route surface, either light-on-dark or dark-on-light. Federal Yellow Color is preferred, however, other colors may be used if approved by the Engineer.

7. In alternatives, to avoid changing grade ineffectively on steep roadways, a curb ramp length is not required to exceed 15 feet regardless of the minimum ramp running slope.

8. All slabs are measured with respect to the level plane.

9. Drainage structures, traffic, signal, or other structures shall not be installed on the curb ramp or turning space areas.

10. In new construction, full-depth, water joints, maintenance hole covers, street light boxes, or similar, shall not be constructed within any part of a curb ramp or turning space. In alternatives, where these items cannot be relocated outside of the curb ramp or turning space, they must not create a vertical discontinuity greater than 1/2 inch and a horizontal discontinuity between 1/4 inch and 1/2 inch shall be considered with a 0.5% slope to prevent the level slab from being applied across the entire surface discontinuity.

11. Construction of any required pedestrian curb shall be included in the bid price of the concrete curb ramp and shall not be paid for separately.

12. All curb ramp joints and grade breaks shall be flush (0/0). The joint between the roadway surface and the gutter shall be flush.

13. The contractor shall identify removal limits that are sufficient to provide positive drainage, maintain existing drainage patterns, and avoid erosion in the final configuration.

14. Flush side slabs may exceed 10.00 only where they abut a non-pavement surface, or where the adjacent ramp surface is required to a pedestrian traffic.

15. The change in grade at the bottom of the curb ramp shall not exceed an allowable difference of 15.00. The center line of the gutter shall be flush with the road and shall be maintained.

16. Grade breaks at the top and bottom of a ramp shall be perpendicular to the direction of the ramp run or turning space surface slabs that meet at grade breaks shall be flush.

17. A curb finish, with side slabs perpendicular to the direction of pedestrian traffic, shall be applied to all ramp and turning space surfaces.

18. In alternatives, where a ramp or turning space must be in an existing element that cannot be altered, the ramp or turning space may be located on the side of the element that cannot be altered, and when the length of the ramp or turning space to the nearest crosswalk shall be marked clearly visible to the length of the ramp or turning space to manage the degree of warning. The rate of change in a ramp or turning space shall not exceed 1% per linear foot.

19. Design and construct curb ramps, turning spaces, and lane slabs with the following details possible. The details are noted in these details how the minimum requirements allowed to be used during design, layout, and construction are:

   - Ramp running slope 7.5%
   - Ramp running slope less than 1/4%
   - Turning space running slope less than 1/4%
   - Running space transition slope less than 1/4%
   - Lane running slope less than 1/4%

GENERAL NOTES & PAY AREAS:

CURB RAMPS PAY AREAS:

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SLOPE TABLE:

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CURB RAMPS

STANDARD PLAN NO.

M-608-1

Sheet No. 1 of 10
**TYPE 1 RAMPS FOR WIDE SIDEWALK**

*REDUCED CODE*

**TYPE 1 RAMP**

*N/S ALLOWABLE IN NEW CONSTRUCTION/REPLACEMENT RECONSTRUCTION*  
SEE GENERAL NOTE A

**NOTE**

PLACEMENTS SHOWN ARE TYPICAL CONFIGURATIONS ONLY  
AND NOT PRECISE OF ALL OPTIONS OTHER RAMPS  
CONFIGURATIONS MAY BE ACCEPTABLE AS LONG AS  
THEY COMPLY TO THE GUIDELINES IN THESE STANDARDS,  
AND ARE APPROVED BY THE ENGINEER.

**TYPE 1 DIRECTIONAL RAMPS**

*REDUCED CODE*

**TYPE 1 CURB RAMPS TYPICAL CONFIGURATIONS**

**STANDARD PLAN NO.**  
M-608-1

**issu date:** July 4, 2023

**sheet no:** 3 of 10
PARALLEL RAMP

PARALLEL RAMP

SIDEWALK TO SHOULDER TRANSITION

SECTION C-C

SECTION B-B

SECTION A-A

TYPE 2 PARALLEL CURB RAMPS

PARALLEL RAMP NOTES

1. Ramp Width - Provide a ramp width equal to the adjoining sidewalk, provide a 4 ft. minimum. Ramps serving shoulder use lanes shall have the width of the path.

2. Ramp Running Slope - 3.02% max.

3. Ramp Cross Slope - 2.01% max.

4. Turning space running slope - 2.01% max. Turning space cross slope is measured perpendicular to the back of curb.

5. Turning space cross slope - 0.51% typical. At crossings without yield or stop control, or with a visual alert where vehicles can proceed through the intersection without stopping or stopping, the cross slope of the turning space may equal the roadway grade. At vehicle pedestrian street crossings, the turning space cross slope may equal the roadway grade. Turning space cross slope is measured in the direction of the ramp run.

6. Turning space dimensions - Provide a turning space at the bottom of parallel ramps with a width equal to the width of the curb ramp, provide a 4 ft. minimum. In the direction of the ramp run, the turning space is constrained on two sides, provide a 6 ft. minimum. In the direction of pedestrian street crossing, the turning space may contain the detectable warning surface.

7. Ramp alignment - Ramps shall be aligned so the turning space is fully contained within the dimensions of street crossing. Ramps serve one ramp for each street crossing direction. When existing physical constraints prevent providing the curb ramp for each crossing direction, a single curb ramp shall be permitted to serve both pedestrian street crossings. Sidewalk ramps are not acceptable in new construction, of full-depth reconstruction.

8. Ramp length - Parallel ramp length is dependent upon the ramp slope and the change of elevation from the turning space to the sidewalk. Where terrain is such that providing a ramp is not feasible, the ramp shall not exceed one ramp space when more than 5 ft. regardless of the height.

9. Gutter counter slope - 0.02% max.
COMBINATION CURB RAMP NOTES:

1. The curb ramp configurations shown are typical configurations only and are not indicative of all typical curb ramp configurations. They are provided as guidelines to the criteria in these standards and are approved by the engineer.

2. Ramp and turning space cross slope - 2% typical at crossings without hand rail, curb, or crosswalk or where vehicles can proceed through the intersection without stopping; at stopping, the cross slope of the ramp and turning space may equal the roadway grade. Where an intersection is imminent, a cross slope of 2% is recommended, but the turning space cross slope may be reduced to 1% for a horizontal distance of 3 feet.

COMBINATION CURB RAMPS TYPICAL CONFIGURATIONS

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Division of Project Support

JNK/LTA

CURB RAMPS

STANDARD PLAN NO.

M-608-1

Sheet No. 6 of 10
BLENDED TRANSITION & DEPRESSED CORNER NOTES

1. Pedestrian and parallel ramp configurations are preferred. Blended transitions and depressed corners should only be used where site constraints make them a more appropriate option, or where horizontal or parallel ramps cannot be installed due to a physical site constraint.

2. Ramp width - Provide 5 ft. or greater where possible. If site constraints do not permit, provide a ramp width of 4.5 ft. An accessible ramp design showing the entire path shall match the width of the ramp.

3. Ramp running slope - 1:20 max.

4. Blended Transition Running Slope - 1:10 side max.

5. Ramp and turning space cross slope - 1:20 typical at crossings without yield or stop control, or with a pedestrian route where vehicles can proceed through the intersection without slowing or stopping. The cross slope of ramps and turning spaces may equal the roadway grade.

6. Turning space dimensions - Provide a 4 ft. x 4 ft. walking turning space at the bottom of ramp. The turning space may contain the detectable warning surface.

7. Ramp alignment - Turning space shall be allowed to be fully contained within the crosswalk or street crossing(s) they serve.

8. Ramp length - Ramp length is dependent upon the ramp slope and the change of elevation from the turning space to the sidewalk. Where terrain is sloping a ramp is not required to change grade more than 10 ft. regardless of the resulting ramp slope.

9. Ramp edges - A ramp edge must be a durable and non-slip surface. A flared side must be provided. Ramp edge slopes shall not exceed 1:20.

10. Vertical curb returns - Vertical curb returns may be used only where a ramp has a non-usable surface, or where a ramp is protected from pedestrian cross traffic. For example by a traffic barrier or utility pole which blocks passage.

11. Gutter counter slope - 1:10 max.

12. End replacement - Ends shall be placed around the ramps and located at the back of curb in blended transitions and depressed corner ramps.
DETECTABLE WARNING SURFACE PLACEMENT

DETECTABLE WARNING SURFACE NOTES:

1. DETECTABLE WARNING SURFACES (DWS) SHALL BE INSTALLED AT STREET CURB RAMP TRANSITIONS, AND SHALL CONSIST OF TRUNCATED CONE SURFACES. ANY TRUNCATED CONE PANELS ON PATHS WHICH ARE USED MUST BE IN THE COST PROPERLY PLACED

2. THE DETECTABLE WARNING SURFACE SHALL BE PLACED 1000 FEET FROM THE END OF THE DETECTABLE WARNING SURFACES. ANY TRUNCATED CONE PANELS ON PATHS WHICH ARE USED MUST BE IN THE COST PROPERLY PLACED

3. WHEN DETECTABLE WARNING SURFACES ARE PLACED ON A RAMP, THE TRUNCATED CONES SHALL BE ALIGNED IN THE DIRECTION OF THE RAMP TRAVEL. TRUNCATED CONES SHALL BE ALIGNED IN A SQUARE PATTERN. WHEN PLACED RADIAL, PLACE ADJACENT PANELS EDGE TO EDGE WITH A MINIMUM OF 1 FT SPACING.

4. LOCATE THE END OF THE TRUNCATED CONE PANELS AT THE BACK OF CURB. NO POINT ON THE PANELS WILL BE GREATER THAN 1 FT FROM THE BACK OF CURB.

5. WHERE THE DIRECTIONAL RAMP MEETS A VALLEYSURFACES, THE END OF THE TRUNCATED CONE PANELS WILL BE GREATER THAN 1 FT FROM THE BACK OF CURB.

6. IF THE DETECTABLE WARNING SURFACE IS CUT OFF AT THE TRUNCATED CONE PANELS, SEAL ALL CUT PANEL EDGES WITH A VAPOR SEALANT TO PREVENT WATER DAMAGING.

7. TRUNCATED CONE PANELS SHALL BE EMBEDDED IN THE CONCRETE CURB RAMP WHILE THE CONCRETE IS PLASTIC.

8. DWS SHALL NOT BE PLACED OVER GRADE BREAKS.