Date: May 4, 2011

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Curb Ramp Modification for Radial Installations  Case 11-10

PURPOSE: Eliminate concrete spalling that may occur in the narrow circular segment between the back of curb and the detectable warnings for curb ramps installed within a curb return.

REVISION: Modify the back of curb to include the circular segment area between the back of curb and the detectable warnings. This proposed revision involves the creation of the attached new Detail 234 showing the curb modification and also revising Type A, B, and C Curb Ramps shown in Details 235-1, 235-2 and 235-3.
**NOTES:**

1. CLASS 'B' CONCRETE PER SECTION 725.
2. EXPANSION JOINTS SHALL CONFORM TO SECTION 340.
3. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY’S REQUIREMENTS.
4. INCREASE 'L' OR 'D' AS NEEDED TO HAVE THE TOP OF RAMP FORM A RADIAL LINE.
5. WHEN TOP OF RAMP IS LESS THAN 4' FROM CURB RETURN, EXTEND RAMP TO THE CURB RETURN.
6. DETAIL IS ADA COMPLIANT FOR $S_o \leq 2\%$.

<table>
<thead>
<tr>
<th>CURB HEIGHT</th>
<th>$D_{(\text{min})}$</th>
<th>$S_o \leq 1%$</th>
<th>$S_o \leq 2%$</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>4.0'</td>
<td>4.0'</td>
<td>4.5'</td>
</tr>
<tr>
<td>6&quot;</td>
<td>6.6'</td>
<td>6.0'</td>
<td>6.5'</td>
</tr>
<tr>
<td>7&quot;</td>
<td>7.0'</td>
<td>6.5'</td>
<td>7.5'</td>
</tr>
</tbody>
</table>

$S_o =$MAXIMUM GUTTER SLOPE WITHIN RAMP LIMITS

**SECTION B-B**

**TYPE 'B'**

**SECTION A-A**

**CURB RAMPS**

**DETAIL NO.** 235-2

**STANDARD DETAIL** ENGLISH

**REVISED** 01–01–2012

**DETAIL NO.** 235-2
NOTES:
1. CLASS 'B' CONCRETE PER SECTION 725.
2. EXPANSION JOINTS SHALL CONFORM TO SECTION 340.
3. SIDEWALK SURFACE TO MATCH 1 1/2% SLOPE FROM TOP OF CURB.
4. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.
5. DETAIL IS ADA COMPLIANT FOR S_G ≤ 2%.

**TYPE 'A' (DETACHED SIDEWALK)**

**SECTION A-A**

**DETACHABLE WARNING**

**GUTTER FLOW LINE**

**SUBGRADE PREPARATION, SEE SECTION 301**

**CURB RAMP**

**MINIMUM LENGTH VARIES**

**Curb Modification**

SEE DETAIL 234

**CURB AND GUTTER DETAIL 220, TYPE A**

**EXPANSION JOINT AT CURB RETURN**

**ROUGH BROOM FINISH, USE A RIPPLE SURFACE PATTERN**

**LANDING**

2'-6" 2'-6"

**RADIUS AS SHOWN ON PLANS**

**EXPANSION JOINT AT CURB RETURN**

**RIGHT-OF-WAY LINE**

**S_W 3'-5'**

**S_W 2'-0'**

**D (MIN)**

<table>
<thead>
<tr>
<th>CURB HEIGHT</th>
<th>CURB RAMP MINIMUM LENGTH</th>
<th>S_G ≤ 1%</th>
<th>S_G ≤ 2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>5'</td>
<td>4.0'</td>
<td>4.5'</td>
</tr>
<tr>
<td>6&quot;</td>
<td>7'-1/2&quot;</td>
<td>6.0'</td>
<td>6.5'</td>
</tr>
<tr>
<td>7&quot;</td>
<td>9'</td>
<td>6.5'</td>
<td>7.5'</td>
</tr>
</tbody>
</table>

S_G = MAXIMUM GUTTER SLOPE WITHIN RAMP LIMITS
NOTES:
1. CLASS 'B' CONCRETE CONSTRUCTION PER SECTION 725.
2. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY’S REQUIREMENT.
3. RAMP LONGITUDINAL SLOPE SHALL BE 12:1 OR FLATTER.
4. RAMP CROSS SLOPE SHALL BE 1½%.
5. DETAIL IS ADA COMPLIANT FOR CURB RADII ≥ 20’ AND GUTTER SLOPE ≤ 2.0%.

<table>
<thead>
<tr>
<th>CURB HEIGHT</th>
<th>S. G. ≤1%</th>
<th>S. G. ≤2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4”</td>
<td>5.0’</td>
<td>6.0’</td>
</tr>
<tr>
<td>6”</td>
<td>7.0’</td>
<td>8.5’</td>
</tr>
</tbody>
</table>

S. G. = MAXIMUM GUTTER SLOPE WITHIN RAMP LIMITS

SECTION B-B

SECTION A-A

TYPE 'C'

RAMP CURB HEIGHT TO MATCH S/W ELEVATION @ EACH END

5' S/W OR AS SHOWN ON PLANS

EXPANSION JOINT AT CURB RETURN (TYP)

ROUGH BROOM FINISH (TYP BOTH RAMP)S

DETECTABLE WARNING

TOP OF S/W

S/W RAMP

TOP OF LANDING

BOTTOM OF RAMP CURB WHEN FORMED & POURED SEPARATELY

MATCH GUTTER FLOW LINE

VARIABLES

CURB MODIFICATION SEE DETAIL 234

Curb Preparation PER MAG SEC 301

CONTRACTION JOINT 1" DEEP OR FORMED SEPARATELY

DETECTABLE WARNING

DETAIL NO. 235-3

STANDARD DETAIL

ENGLISH

CURB RAMPS

REvised 01-01-2012

DETAIL NO. 235-3