Preparing a Curb Ramp Project

December 15, 2010
3 Tiers of Project Types

• Non-Signalized Curb Ramp Reconstruction
  - Typically utilizing standard plans and identifying ramp types at each quadrant

• Signalized Curb Ramp Reconstruction with upgrades to APS or “APS ready”
  - Custom Design
  - Identifying Crosswalk Locations
  - Grades determined in the field

• New Construction/Reconstruction
  - Layout proposed curb ramps with X,Y,Z coordinates at curb lines, grade breaks, and push button stations
Non-Signalized Intersections

- Use curb ramp inventory and perform field walk to determine which ramps are non-compliant and need to be reconstructed with the project.

- Determine whether surveying is needed or if a site visit is adequate to determine necessary pay items and choose appropriate ramp types.

- Talk to local agencies/bike ped/ADA unit to determine:
  - If pedestrian crossings should be added, removed, or kept in place.
  - If any future pedestrian facilities are planned or if the local government has a pedestrian master plan.
Non-Signalized Intersections

- Select **appropriate ramp types** that are **constructible** at the chosen quadrant
- If standard ramp types will not work at a particular quadrant, then a **custom ramp** must be designed
- All pay items should be tabulated independently for each quadrant
- If radial truncated domes are needed the proposed radius and quantity must be provided for each quadrant
Signalized Intersections

• All signalized intersections in the project will be upgraded to APS or “APS ready”

• Surveys should locate:
  - All utilities including handholes, manholes, hydrants, gate valves, drainage structures, signal poles/cabinets, light poles, loop detectors, telephone/cable boxes, fiber optic vaults, and irrigation/sprinkler heads or services
  - Buildings and doorways, other permanent features in sidewalk areas such as landscaping, retaining walls, benches, sign posts, etc.,
  - Crosswalk striping, curb and gutter, sidewalk edges 30’ in both directions(mainline and side street), Median locations
  - ROW in areas where the construction limits may fall close to or outside existing ROW
PROVIDE COORDINATES OF POINTS AT THESE LOCATIONS
Signalized Intersections

• All Signalized Intersections should have a separate 20 scale intersection detail sheet that shows:
  - All signal system components: poles, cabinets, handholes, and pedestrian push button stations
  - Proposed curb ramp construction including truncated domes, ramps, landings, grade breaks, flares, and curb and gutter
  - Proposed crosswalk locations, provide X,Y coordinates of the points where the outside edge of the proposed crosswalk intersects the curb line at the curb face
  - Contractor will use the Crosswalk Control Points to layout push buttons and ramps

• Two primary designs for APS curb ramps
  - 1) Two separate perpendicular ramps
  - 2) Depressed Corner
GUIDELINES FOR LOCATING APS PUSH BUTTONS:
- THIS IS A GENERAL DETAIL INTENDED TO SHOW THE REQUIREMENTS OF APS PUSH BUTTON LOCATION. FOR PROJECT SPECIFIC DETAILS REGARDING PEDESTRIAN RAMP LAYOUT, SEE THE PEDESTRIAN CURB RAMP AND SIDEWALK DETAILS.
- BUTTONS SHALL BE WITHIN 5' OF THE OUTSIDE EDGE OF THE CROSSTRAVEL.
- THE FACE OF THE BUTTON SHALL BE PARALLEL WITH THE CROSSTRAVEL.
- A MIN. 4' X 4' LANDING AREA SHALL BE PROVIDED ADJACENT TO EACH BUTTON.
- BUTTONS SHALL BE WITHIN 10' OF THE BACK OF CURB OR EDGE OF ROADWAY.
- BUTTONS SHALL BE AT LEAST 10' APART.

TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION:

1. 4' X 4' MINIMUM LANDING AREA ADJACENT TO PUSH BUTTON. (2% SLOPE MAX.)
2. RAMP - SLOPE (5% PREFERRED 8% MAX).
3. CURB TAPER SECTION AT 1:10 (10X). (HEIGHT OF CURB IS TAPERED TO 0').
4. DETECTABLE WARNING SURFACE (TRUNCATED DOMES) - RADIUS SECTIONS WHERE SPECIFIED.
5. DISTANCE FROM THE BACK OF CURB TO PUSH BUTTON STATION.

NOTES:
- PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSTRAVEL. SCREW IN POST TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE POST.
- BLIND THREADED INSERTS retrofit kit must be inserted using manufacurers specific installation tool. No other method of installation is acceptable.
- BLIND THREADED INSERTS SHALL BE ZINC PLATED STEEL WITH 1/4" X 20 UNC THREADS. INSERT SHALL BE SUITABLE FOR USE ON A MOUNTING SURFACE WALL THICKNESS OF 13/32". APPROVED BLIND THREADED INSERTS CAN BE FOUND ON THE M&A QUALIFIED PRODUCTS LIST.
- MOUNTING BOLTS SHALL BE 1/4" X 20 STAINLESS STEEL. APPLY BRUSH ON ANTI-SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
- APPLY A BEAD OF B/COSILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" POST.
- THE REFLECTIVE SHEETING SHALL BE WHITE AT INTERSECTION CORNERS AND SHALL BE YELLOW WHEN USED IN CENTER MEDIANS. SEE M&A SIGNING QUALIFIED PRODUCTS LIST FOR APPROVED SIGN SHEETING.
- ANTI-SEIZE COMPOUND MUST BE USED ON THE MOUNTING BOLTS WHEN THE PEDESTRIAN SIGN IS MOUNTED.

1. THE CONCRETE FOUNDATION SHALL BE CAST IN PLACE AND CONSTRUCTED FLUSH WITH THE SURROUNDING SIDEWALK.
Locating APS Push Buttons

- It is important to note that APS Push Buttons and curb ramp designs are integral to each and are difficult to design and construct apart from one another.

- Buttons should be located between 1.5 feet and 10 feet from the back of curb, shoulder, or pavement edge.

- Buttons should be located at the projected outside edge of the crosswalk and no more than a 5 foot offset from the outside crosswalk edge.

- Buttons should have a minimum 10 feet of separation between them.

- Buttons should be placed adjacent to a landing.

- Buttons should be mounted at a height of 42” and no more than 48”.
Best Practices in Locating APS

- Maintain a 6 foot MAR (Maintenance Access Route) around ped stations
- Locate ped stations at least 4 feet back from the back of curb and ideally 6 feet from back of curb
- Keep button outside truck turning radius
- Don’t obstruct walk/trail
- Center the push button on the landing
- Mount push button on signal pole when it is in an appropriate location
New/Reconstruction

• Provide an Intersection Detail sheet for each intersection
• Provide curb ramp designs showing ramps, landings, truncated domes, grade breaks, and APS
• Provide X,Y,Z coordinates of all grade breaks on all pedestrian access routes until they reach the Typical Section
• Provide X,Y,Z coordinates of APS push button stations
• Design tolerances – 0.25% to 0.50% less than maximum allowable grades
Shared-Use Trails

• Mn/DOT Bike Manual states that grades in excess of 8.3% (1/12) exceed ADA Accessibility Guidelines
  - This is true, however when constructing a pedestrian facility at an 8.3% grade, a landing must be provided for every 30 inches of vertical rise (30 feet at 8.3%)
  - To avoid having to construct landings, design trails with a maximum running slope of 5 percent (4.5% -4.75% for construction tolerance)
  - Cross slope is still 2.0% maximum

• Truncated Domes should be full width of the trail
  - It is unlikely domes will be directional due to 5 foot maximum setback

• When providing APS, realign trails to come in behind the push button stations and encroach upon clear space requirements if necessary