
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

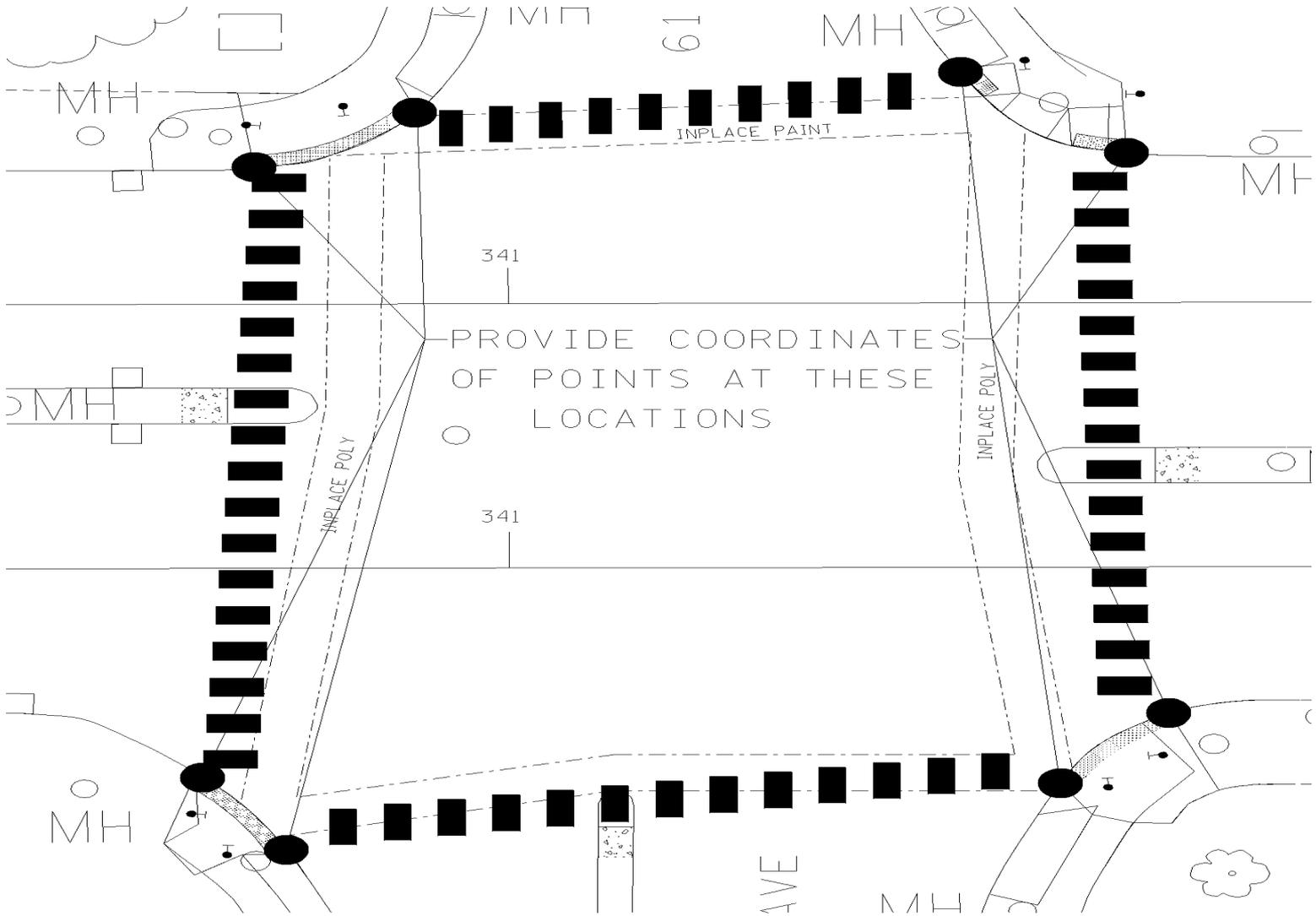
- Select **appropriate ramp types** that are **constructible** at the chosen quadrant
- If standard ramp types will not work at a particular quadrant, then a **custom ramp** must be designed
- All pay items should be tabulated independently for each quadrant
- If radial truncated domes are needed the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



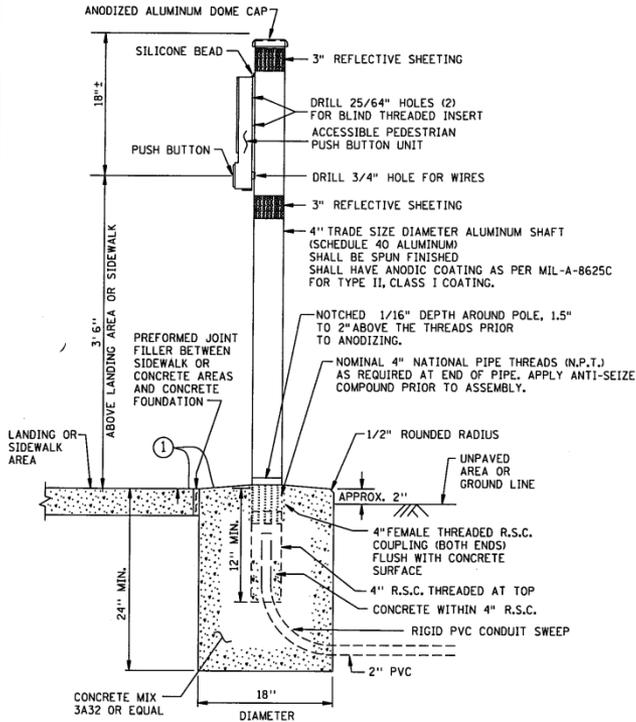


Signalized Intersections

- 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



PEDESTRIAN PUSH BUTTON STATION



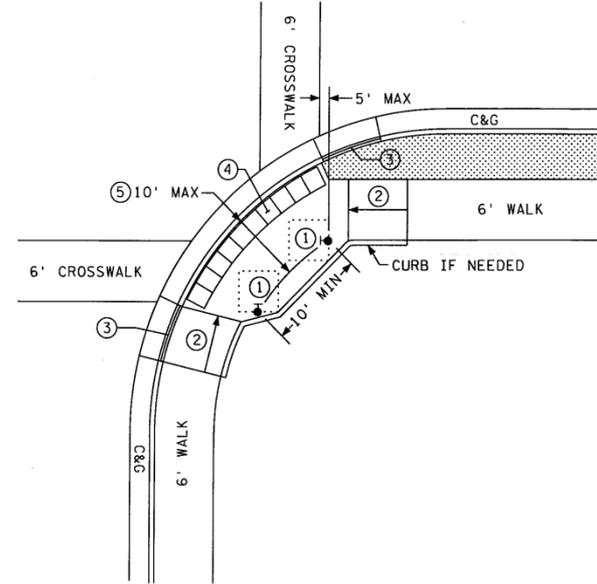
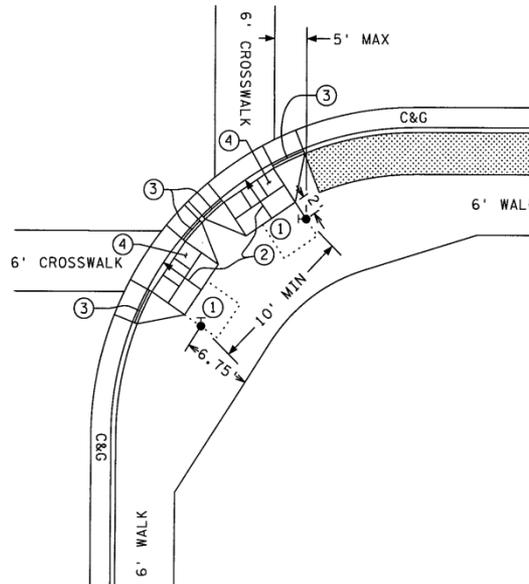
NOTES:

- PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN POST TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE POST.
- BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSTALLATION TOOL. NO OTHER METHOD OF INSTALLATION IS ACCEPTABLE.
- BLIND THREADED INSERTS SHALL BE ZINC PLATED STEEL WITH 1/4 - 20 UNC THREADS. INSERT SHALL BE SUITABLE FOR USE ON A MOUNTING SURFACE WALL THICKNESS OF .337". APPROVED BLIND THREADED INSERTS CAN BE FOUND ON THE MN/DOT QUALIFIED PRODUCTS LIST.
- MOUNTING BOLTS SHALL BE 1/4 - 20 STAINLESS STEEL. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
- APPLY A BEAD OF 100% SILICONE 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 MN/DOT SIGNING QUALIFIED PRODUCTS LIST (OPL) 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 INPLACE AND CONSTRUCTED FLUSH WITH THE SURROUNDING SIDEWALK.

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 CROSSWALK.
- THE FACE OF THE BUTTON SHALL BE PARALLEL WITH THE CROSSWALK.
- 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.



- 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 (10%) (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.

TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION

BY	DATE	REVISIONS	SYSTEM ID:
			METER ADDRESS:
			MASTER ID:

T.E.	ACCESSIBLE PEDESTRIAN SIGNAL (APS) PEDESTRIAN PUSH BUTTON STATION
T.E.	TYPICAL APS PUSH BUTTON LOCATION DETAIL

S.A.P. NO.	DRAWN BY:	CKD BY:	DATE: 12-03-
CERTIFIED BY:	LIC. NO.	DATE:	
STATE PROJ. NO.	(T.H.	SHEET NO.	OF SHEETS

PLOTTED/REVISED: \$\$\$DATE\$\$\$\$\$
 I/PLOT NAME: \$\$\$PLOTNAME\$\$\$\$\$
 PATH & FILENAME: \$\$\$PATHFILENAME\$\$\$\$\$

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



