



# 2015 MnDOT Signal Certification Accessible Pedestrian Signals

Todd Grugel, ADA Program Engineer

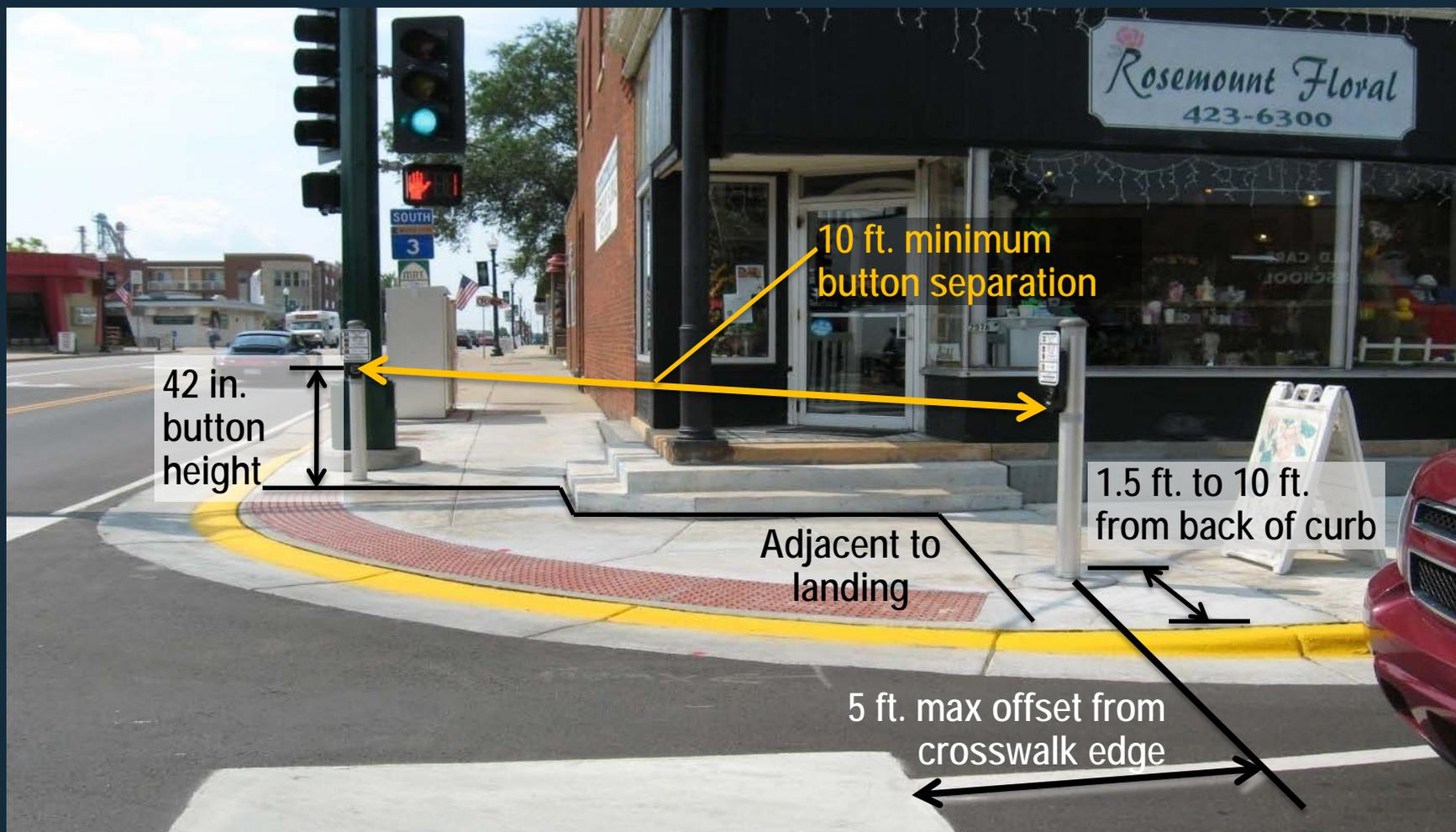
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651-366-3311

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651-216-2912

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# MN MUTCD Push Button Criteria



42 in.  
button  
height

10 ft. minimum  
button separation

1.5 ft. to 10 ft.  
from back of curb

Adjacent to  
landing

5 ft. max offset from  
crosswalk edge

# Specification 1803 ADA Requirements



1. Verify that plan requirements can be met.

2. Notify the Engineer if any requirement(s) cannot be met.

3. Upon resolution, proceed with construction.

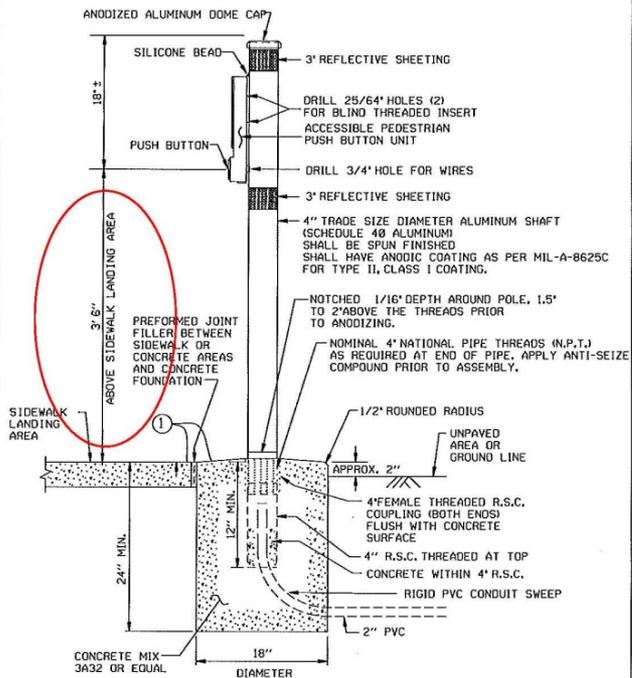
Coordination with concrete contractor required!

If the contractor constructs any pedestrian push button systems or pedestrian facilities which do not meet the criteria or the agreed upon resolution, the contractor will be responsible for correcting the deficiencies with no compensation paid for the corrective work.

# Old Push Button Detail



## PEDESTRIAN PUSH BUTTON STATION



### NOTES:

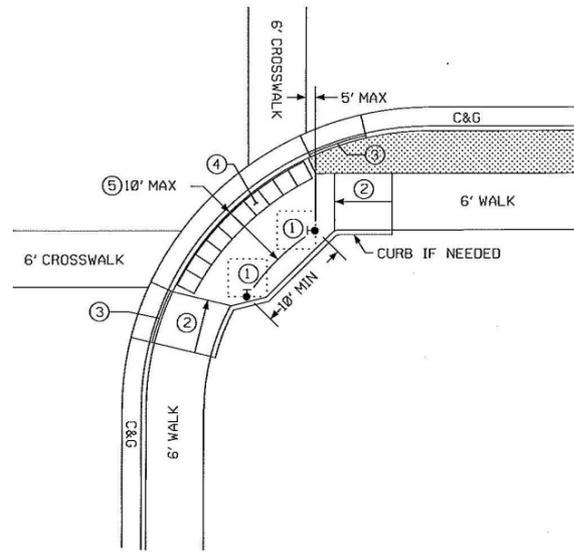
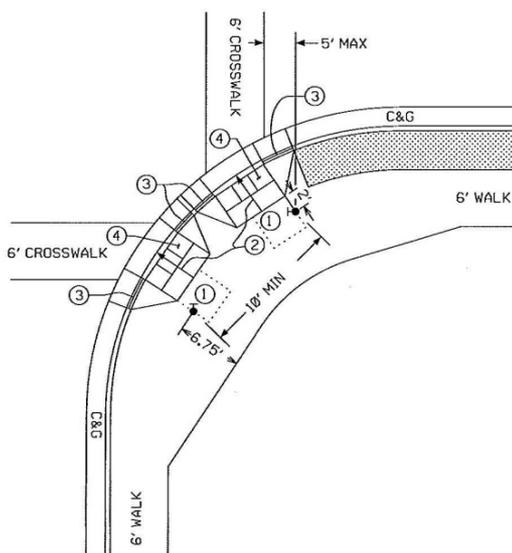
- PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN POST TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE POST.
- BLIND THREADED INSERTS (RIVET NUTS) MUST BE INSERTED 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 .33". 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 (QPL) FOR APPROVED TUBE DELINEATOR SHEETING.
- ANTI-SEIZE COMPOUND MUST BE USED ON THE MOUNTING BOLTS WHEN THE PEDESTRIAN SIGN IS MOUNTED.

- THE CONCRETE FOUNDATION SHALL BE CAST IN PLACE AND CONSTRUCTED FLUSH WITH THE SURROUNDING SIDEWALK. THE FOUNDATION SHALL BE CONSTRUCTED CONCURRENTLY WITH, OR AFTER, THE ADJACENT SIDEWALK CONSTRUCTION.

### 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'X4' 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.

### MN MUTCD Criteria



- 4'x4' MINIMUM LANDING AREA ADJACENT TO PUSH BUTTON. (2% SLOPE MAX.)
- RAMP - SLOPE (5% PREFERRED 8% MAX.)
- CURB TAPER SECTION AT 1:10 (10%) (HEIGHT OF CURB IS TAPERED TO 0').
- DETECTABLE WARNING SURFACE (TRUNCATED DOMES) - RADIUS SECTIONS WHERE SPECIFIED.
- DISTANCE FROM THE BACK OF CURB TO PUSH BUTTON STATION.

Construct concurrently with, or after, adjacent sidewalk

### TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION

BY	DATE	REVISIONS	SYSTEM ID:	T.E.	S.A.P. NO.	DRAWN BY:	CKD BY:	DATE: 08-28-12
			MEYER ADDRESS:		CERTIFIED BY		LIC. NO.	DATE:
			MASTER ID:	T.E.	STATE PROJ. NO.	(T.H.)	SHEET NO.	OF SHEETS

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



# APS Push Button Station



# APS Push Button Station

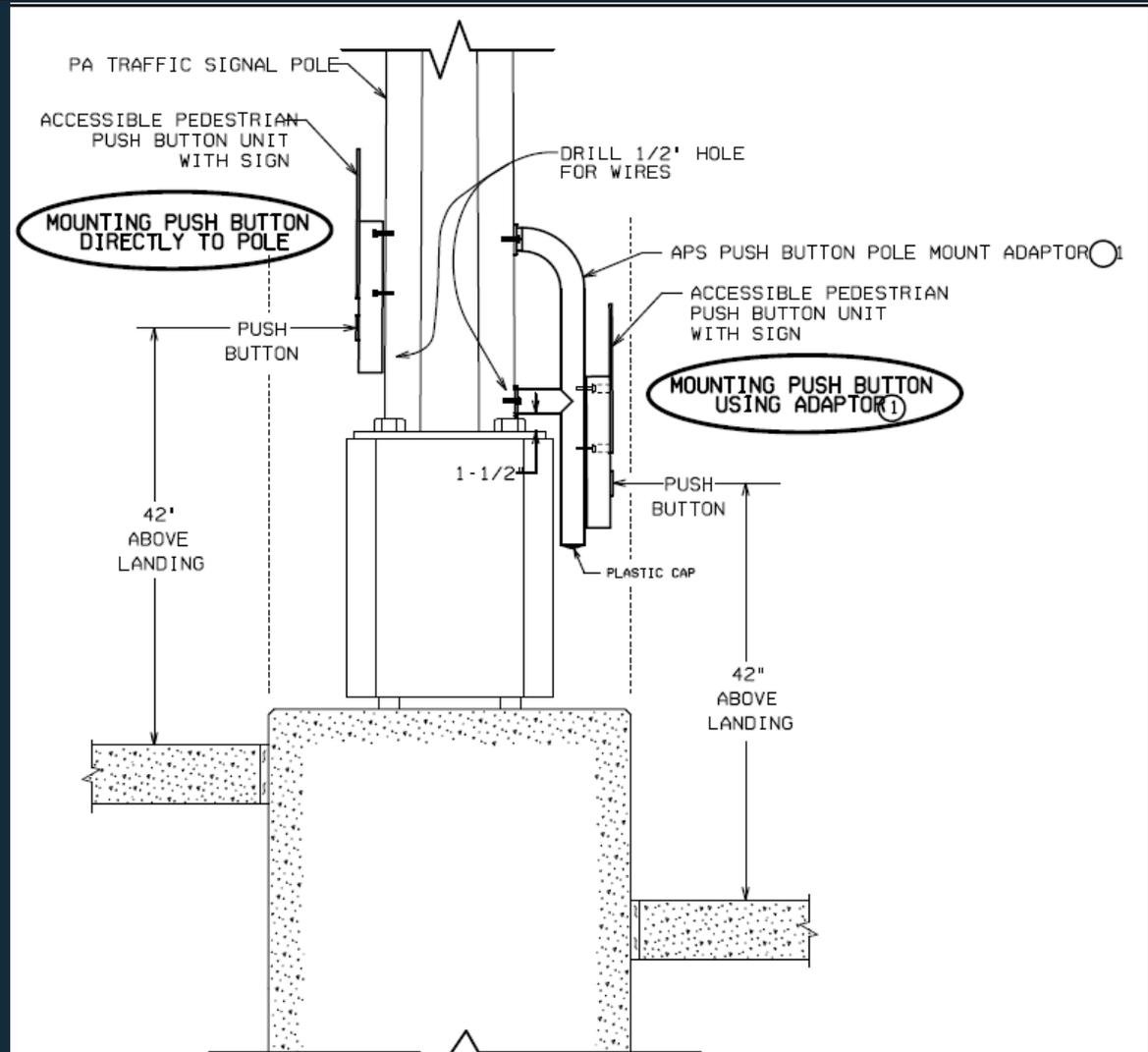




# APS Push Buttons on Signal Poles



# APS Push Buttons on Signal Poles



**PEDESTRIAN BUTTON POLE STATION  
(WITH OR WITHOUT POLE MOUNTING ADAPTOR)**

NOT TO SCALE

- ① USE THE APS PUSH BUTTON POLE MOUNT ADAPTOR
- WHEN THE SIGNAL POLE FOUND TO ALLOW THE APS PUSH BUTTON TO BE MOUNTED TO THE POLE AT THE PROPER HEIGHT
- WHEN THE 'FLAT' OF THE POLE IS NOT AT THE CROSS WALK.
- TO REDUCE THE REACH DISTANCE

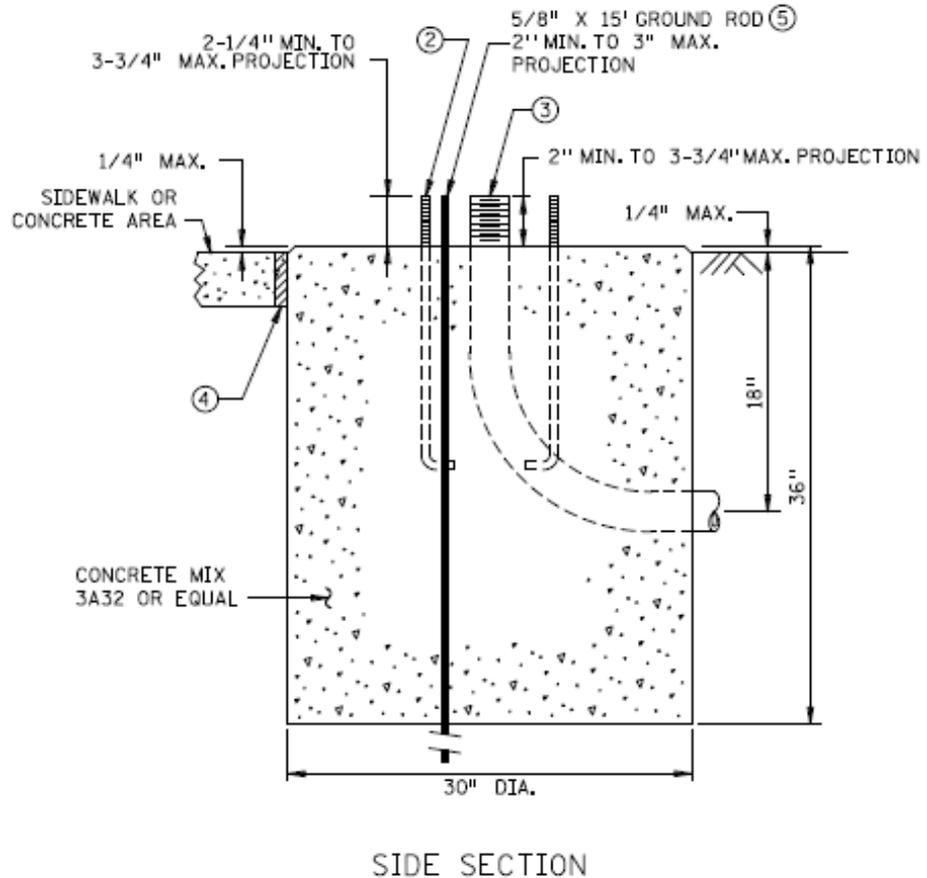
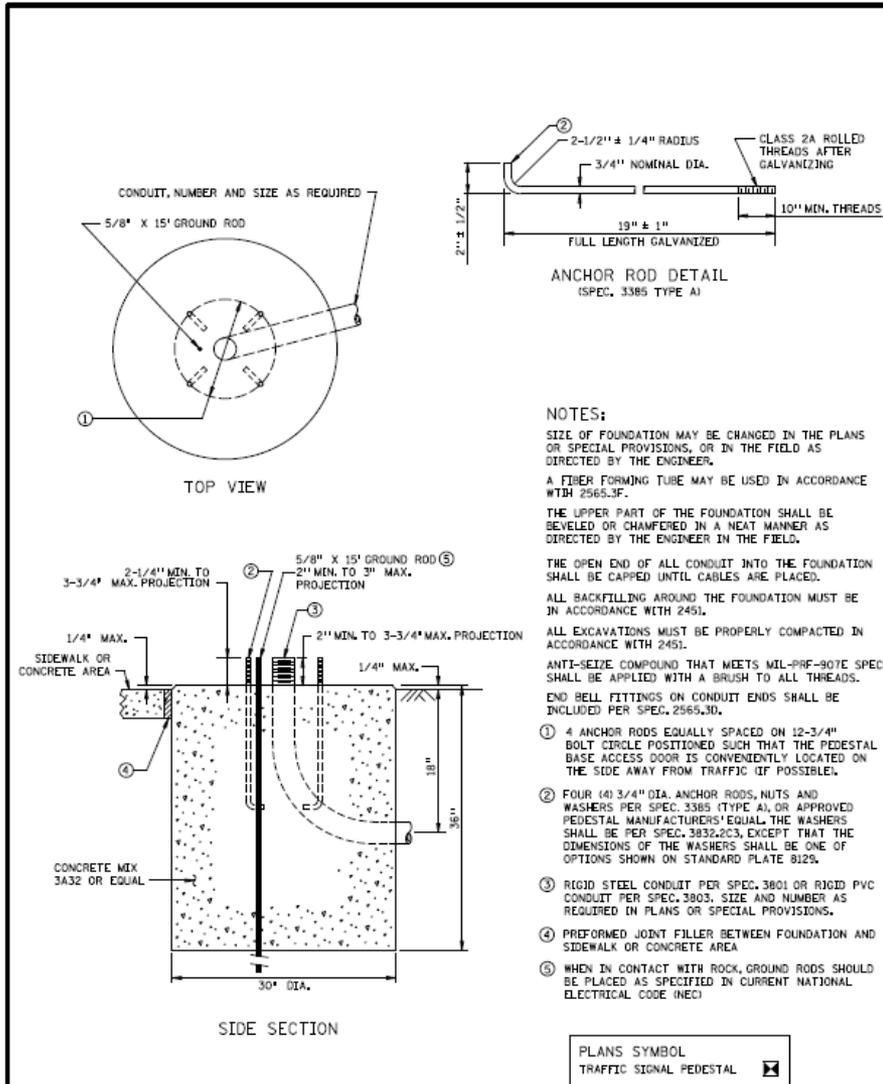
# APS Push Buttons on Signal Poles



# APS Push Buttons on Signal Poles



# APS Push Buttons on Pedestals



APPROVED JUNE 2, 2014

*Christina Ky*  
STATE DESIGN ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
**PEDESTAL FOUNDATION**  
(TRAFFIC CONTROL SIGNALS)

SPECIFICATION  
REFERENCE

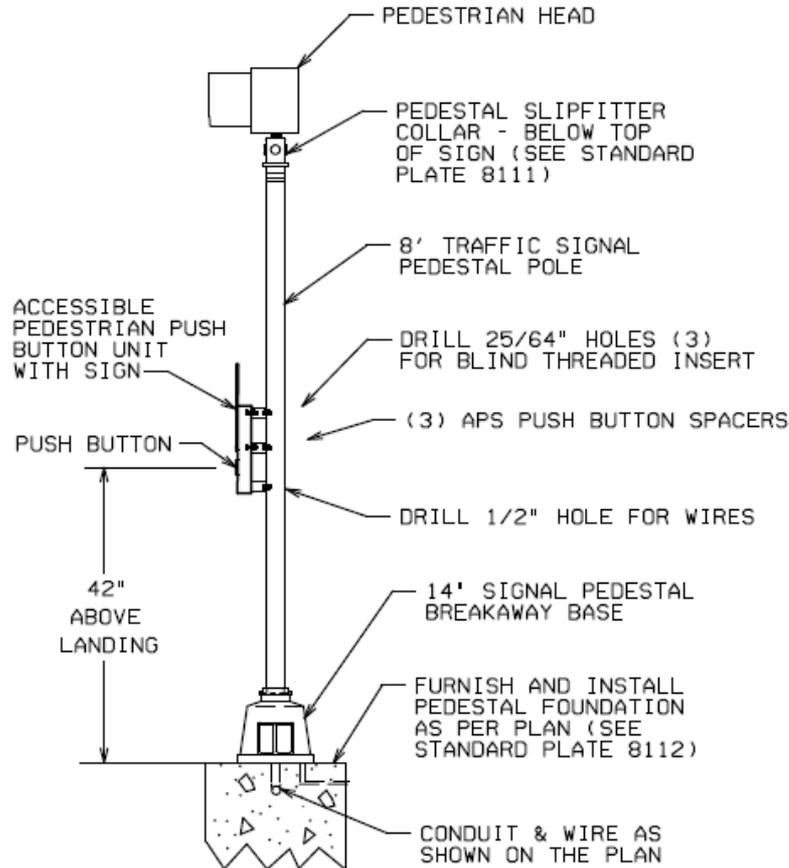
2461  
2565

STANDARD  
PLATE  
NO.

8112H

# APS Push Buttons on Pedestals

PLOTTED/REVISED 02 - JAN - 2015



**PEDESTRIAN PEDESTAL POLE STATION TYPE 4A**

NOT TO SCALE

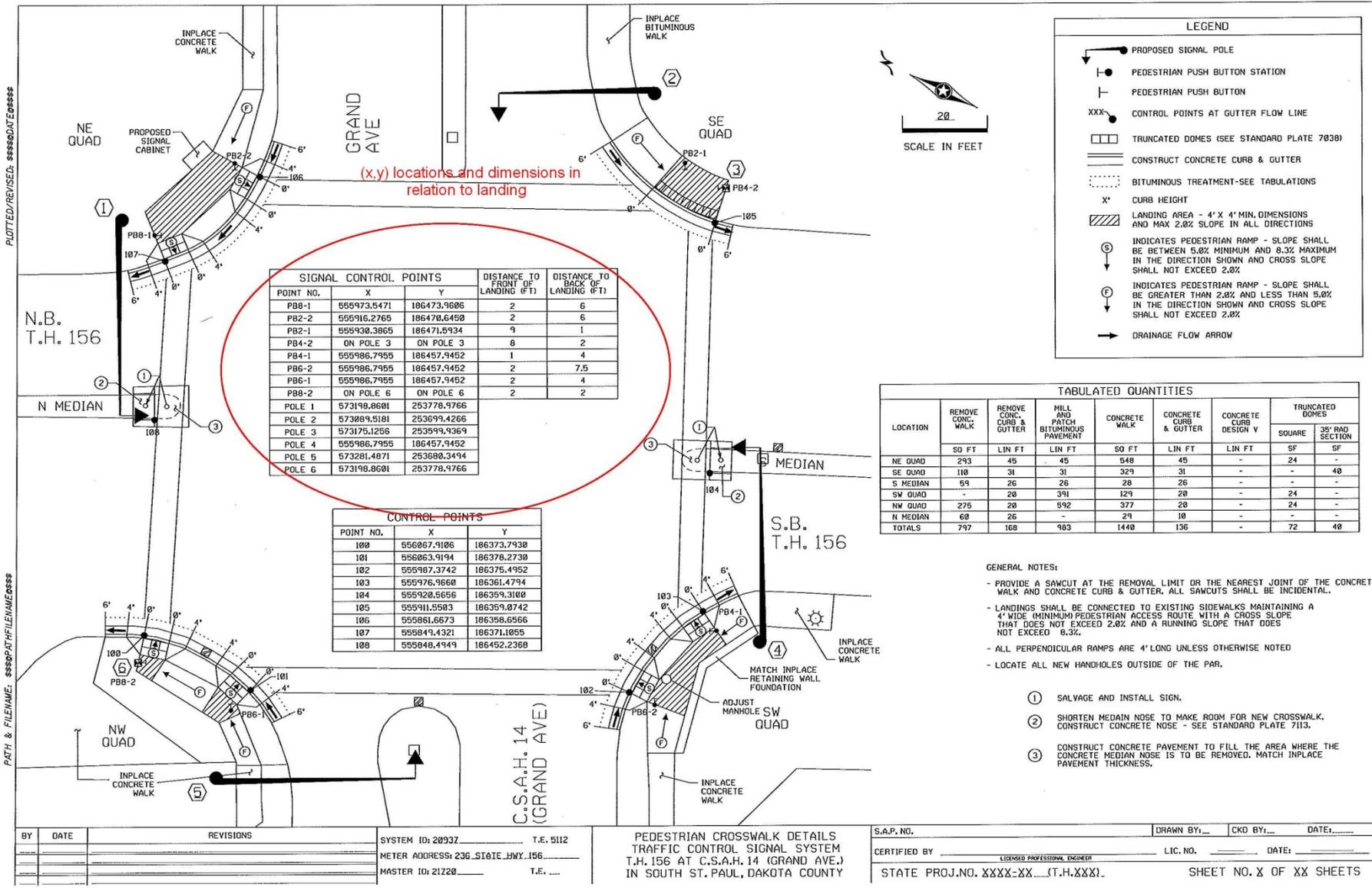


T • DISTRICT •  
NAME: APS PUSH BUTTON PEDESTAL & POLE DETAIL (3-1-14)  
FILENAME:

# Saddle Adaptors on Pedestals



# Signalized Intersection Plan Details



(x,y) locations and dimensions in relation to landing

POINT NO.	X	Y	DISTANCE TO FRONT OF LANDING (F.T.)	DISTANCE TO BACK OF LANDING (F.T.)
PB8-1	555973.5471	186473.9606	2	6
PB2-2	555916.2765	186470.6450	2	6
PB2-1	555930.3865	186471.5934	9	1
PB4-2	ON POLE 3	ON POLE 3	8	2
PB4-1	555986.7995	186457.9452	1	4
PB6-2	555986.7995	186457.9452	2	7.5
PB6-1	555986.7995	186457.9452	2	4
PB8-2	ON POLE 6	ON POLE 6	2	2
POLE 1	573198.8681	253778.9766		
POLE 2	573089.5181	253699.4266		
POLE 3	573175.1256	253599.9369		
POLE 4	555986.7995	186457.9452		
POLE 5	573281.4871	253680.3494		
POLE 6	573198.8681	253778.9766		

POINT NO.	X	Y
100	556067.9106	186373.7930
101	556063.9194	186378.2730
102	555987.3742	186375.4952
103	555976.9660	186361.4794
104	555920.5656	186359.3100
105	555911.5583	186359.8742
106	555861.6673	186358.6566
107	555849.4321	186371.1855
108	555840.4949	186452.2388

### LEGEND

- PROPOSED SIGNAL POLE
- PEDESTRIAN PUSH BUTTON STATION
- PEDESTRIAN PUSH BUTTON
- CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- BITUMINOUS TREATMENT-SEE TABULATIONS
- CURB HEIGHT
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW

### TABULATED QUANTITIES

LOCATION	REMOVE CONC. WALK		REMOVE CONC. CURB & GUTTER		MILL AND PATCH BITUMINOUS PAVEMENT		CONCRETE WALK		CONCRETE CURB & GUTTER		CONCRETE CURB DESIGN V		TRUNCATED DOMES	
	50 FT	LIN FT	50 FT	LIN FT	50 FT	LIN FT	50 FT	LIN FT	50 FT	LIN FT	50 FT	LIN FT	SQ	35' RAD SECTION
NE QUAD	293	45	45	45	548	45	-	24	-	-	-	-	-	-
SE QUAD	118	31	31	31	329	31	-	-	-	-	-	-	-	40
S MEDIAN	59	26	26	26	28	26	-	-	-	-	-	-	-	-
SW QUAD	-	20	391	129	20	20	-	24	-	-	-	-	-	-
NW QUAD	275	20	592	377	20	20	-	24	-	-	-	-	-	-
N MEDIAN	68	26	-	29	10	-	-	-	-	-	-	-	-	-
TOTALS	797	168	983	1440	136	-	72	40	-	-	-	-	-	-

- ### GENERAL NOTES:
- PROVIDE A SAWCUT AT THE REMOVAL LIMIT OR THE NEAREST JOINT OF THE CONCRETE WALK AND CONCRETE CURB & GUTTER. ALL SAWCUTS SHALL BE INCIDENTAL.
  - LANDINGS SHALL BE CONNECTED TO EXISTING SIDEWALKS MAINTAINING A 4" WIDE (MINIMUM) PEDESTRIAN ACCESS ROUTE WITH A CROSS SLOPE THAT DOES NOT EXCEED 2.0% AND A RUNNING SLOPE THAT DOES NOT EXCEED 8.3%.
  - ALL PERPENDICULAR RAMPS ARE 4' LONG UNLESS OTHERWISE NOTED
  - LOCATE ALL NEW HANDHOLES OUTSIDE OF THE PAR.

- SALVAGE AND INSTALL SIGN.
- SHORTEN MEDIAN NOSE TO MAKE ROOM FOR NEW CROSSWALK. CONSTRUCT CONCRETE NOSE - SEE STANDARD PLATE 7113.
- CONSTRUCT CONCRETE PAVEMENT TO FILL THE AREA WHERE THE CONCRETE MEDIAN NOSE IS TO BE REMOVED. MATCH INPLACE PAVEMENT THICKNESS.

DISTRICT #: 201  
 S.D. DISTRICTS: 201  
 I.P.L.O.T. NAME: 236 STATE HWY. 156  
 PATH & FILENAME: S:\SSP\AT\FILE\NAME.DSS

BY	DATE	REVISIONS	SYSTEM ID: 2093Z	T.E. 5112	S.A.P. NO.	DRAWN BY: _____	CKD BY: _____	DATE: _____
			METER ADDRESS: 236 STATE HWY. 156		CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
			MASTER ID: 21220	T.E. _____	STATE PROJ. NO. XXXX-XX (T.H. XXX)		SHEET NO. X OF XX SHEETS	

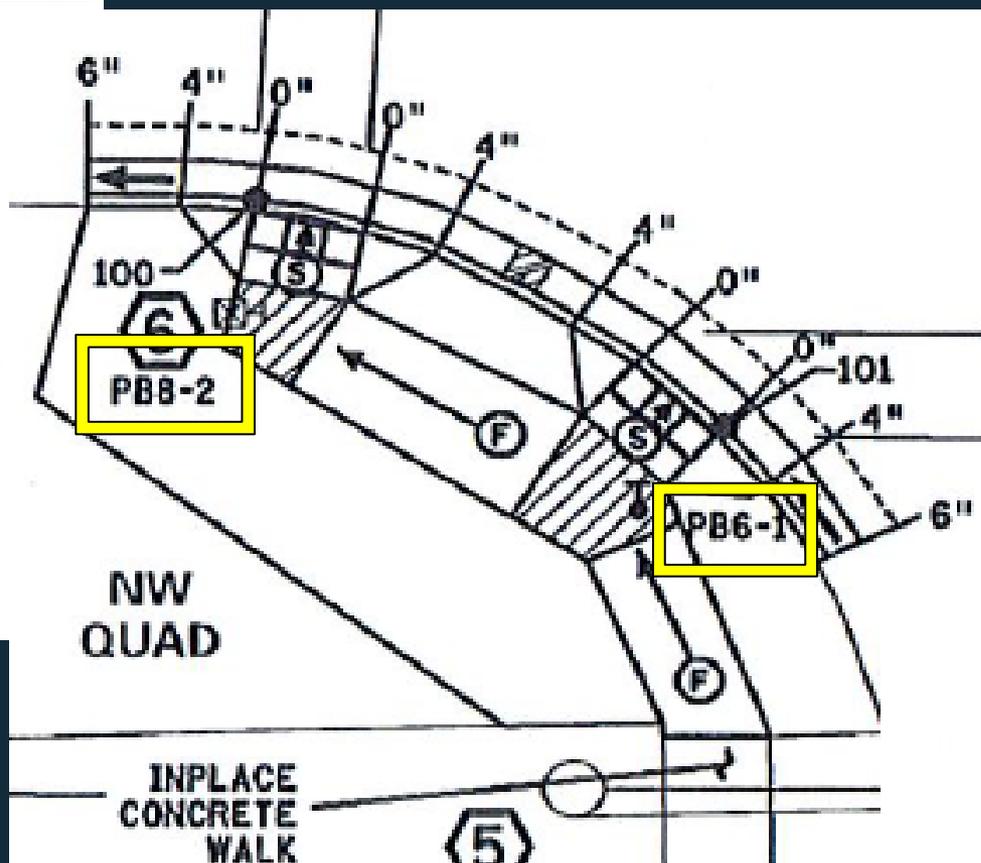
PEDESTRIAN CROSSWALK DETAILS  
 TRAFFIC CONTROL SIGNAL SYSTEM  
 T.H. 156 AT C.S.A.H. 14 (GRAND AVE.)  
 IN SOUTH ST. PAUL, DAKOTA COUNTY

# APS Signals New for 2013

- Signal Control Points
- PB8-2 and PB6-1

SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
POINT NO.	X	Y		
PB8-1	ON POLE 1	ON POLE 1	5	3
PB2-2	555916.2765	186470.6450	2	6
PB2-1	555930.3865	186471.5934	9	1
PB4-2	ON POLE 3	ON POLE 3	8	2
PB4-1	555986.7955	186457.9452	1	4
PB6-2	555986.7955	186457.9452	2	7.5
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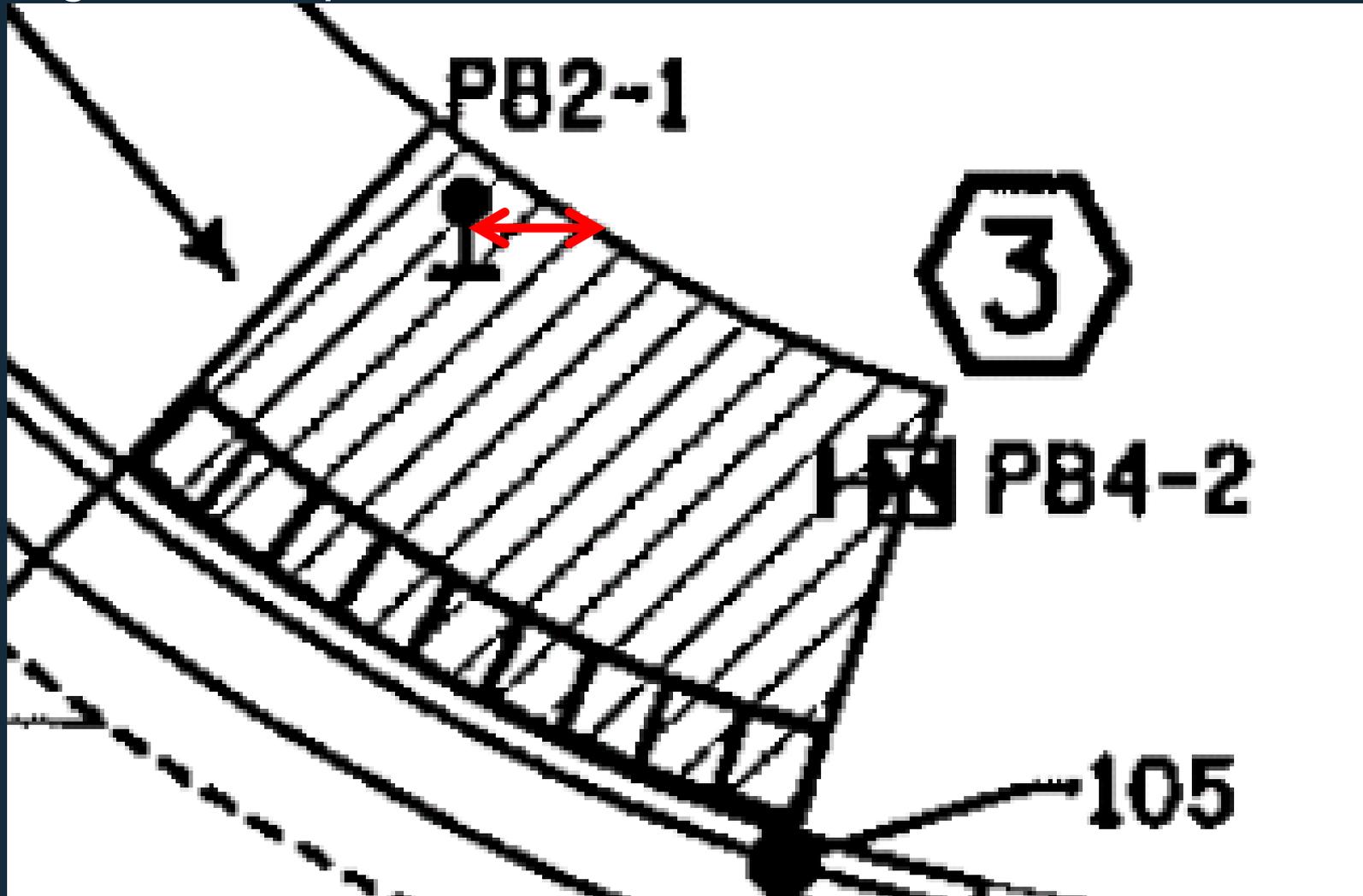
CONTROL POINTS		
POINT NO.	X	Y
100	558067.9106	186373.7930
101	558063.9194	186378.2730
102	555987.3742	186375.4952
103	555976.9660	186361.4794
104	555920.5656	186359.3100
105	555911.5503	186359.0742
106	555861.6673	186358.6566
107	555849.4321	186371.1055
108	555848.4949	186452.2368



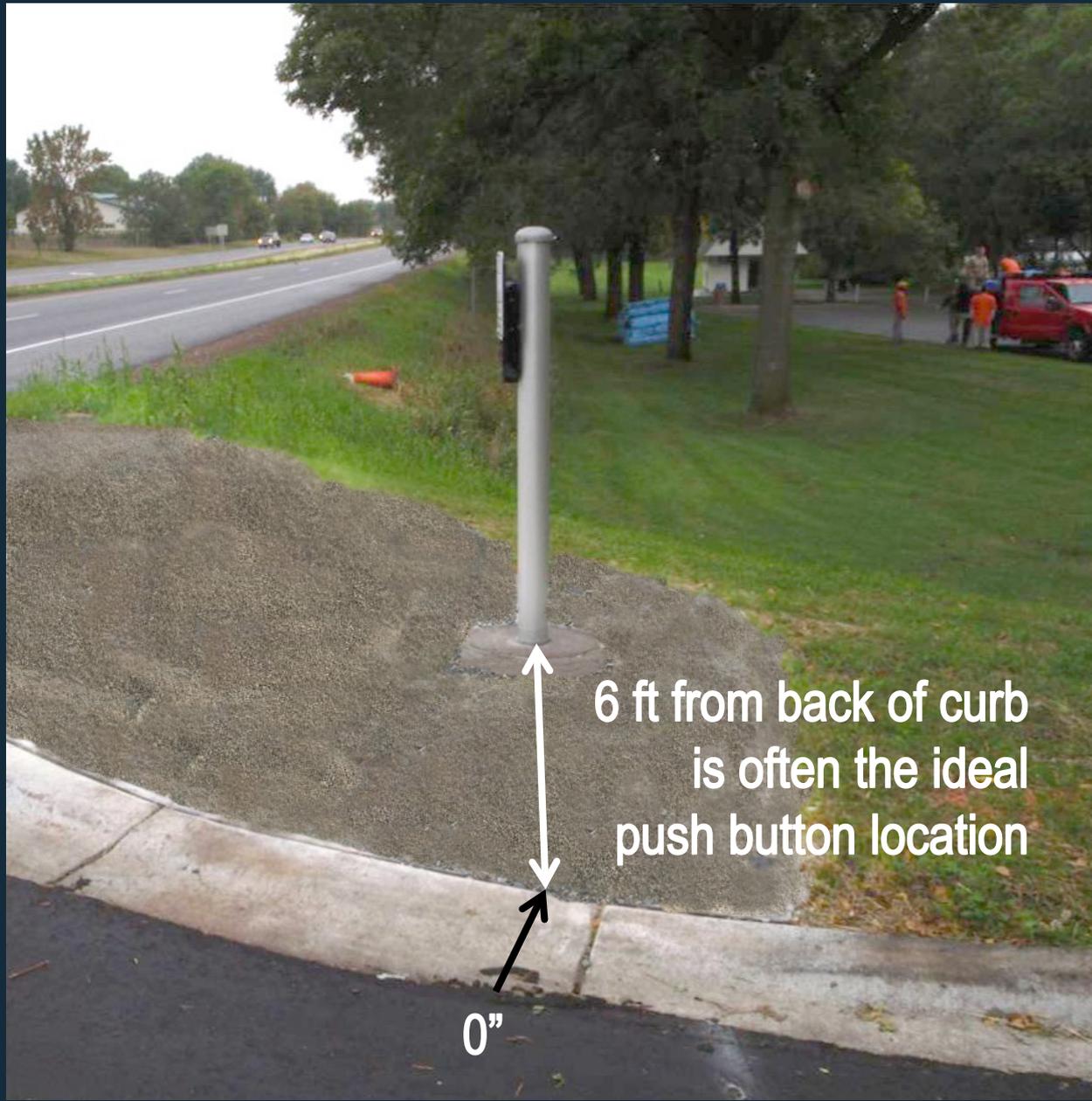
# Signalized Intersection Plan Details



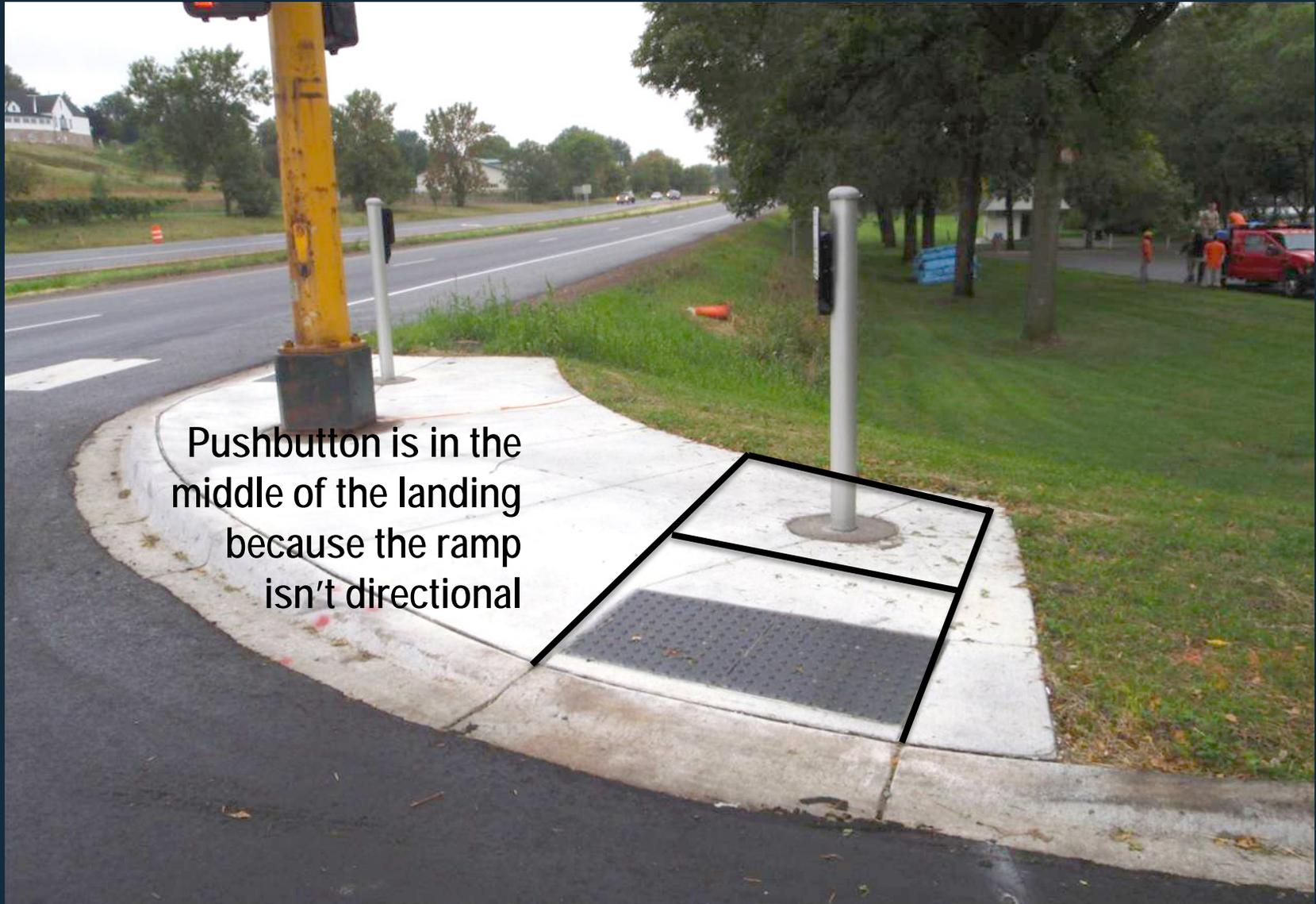
- If staked dimension will not work consult the Engineer as per 1803 .



# Know the Proposed Ramp Design



# Know the Proposed Ramp Design



Pushbutton is in the middle of the landing because the ramp isn't directional

# Pedestrian Signal Systems

All new hand holes shall be placed outside the PAR  
Inclusive of ramps and landings.

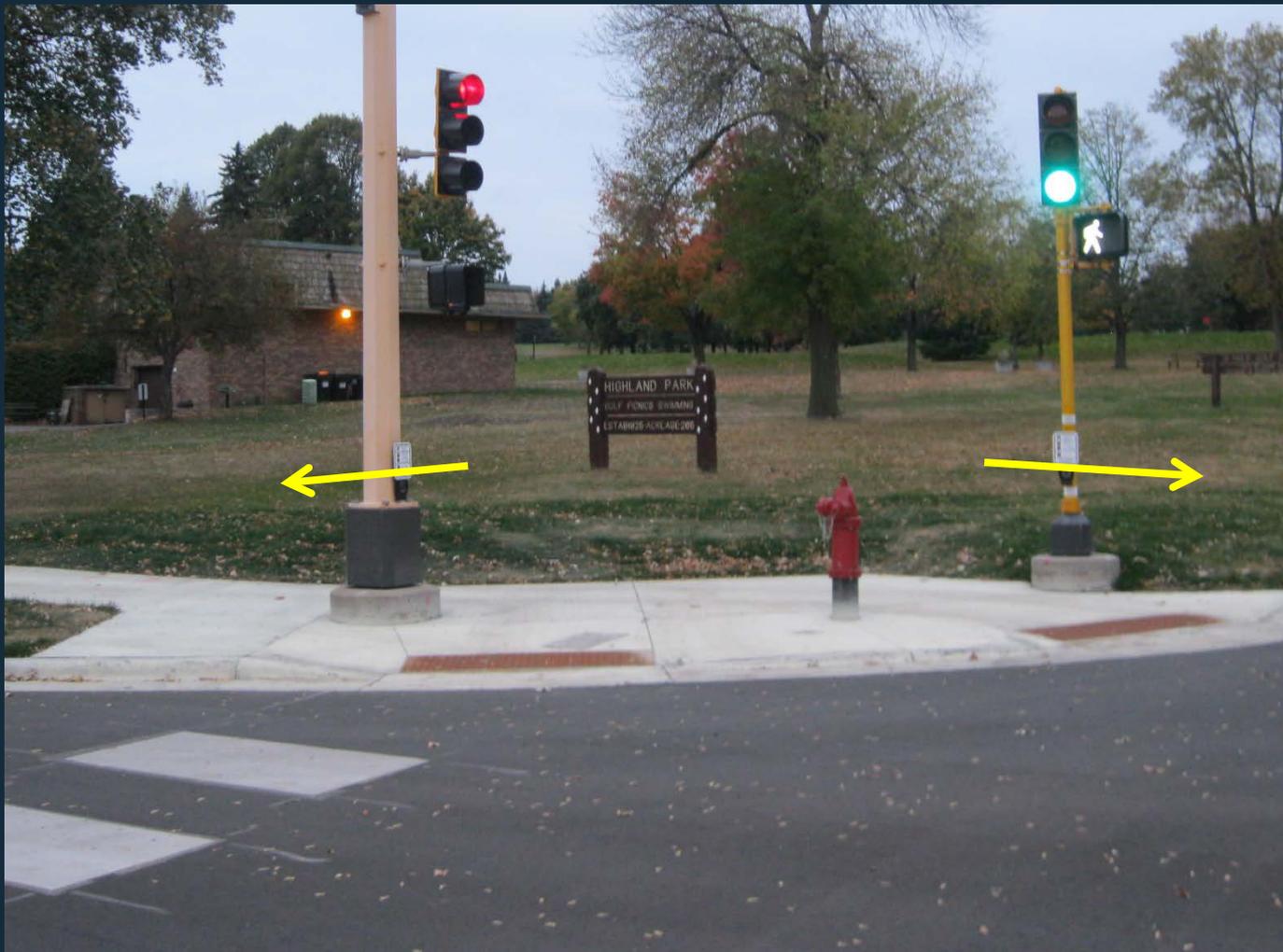




# APS Compliance Checklist



1) Push buttons stations are properly placed and the push button faces are oriented properly.



# APS Compliance Checklist



2) There must be a 4' x 4' landing adjacent to the push button.



# APS Compliance Checklist



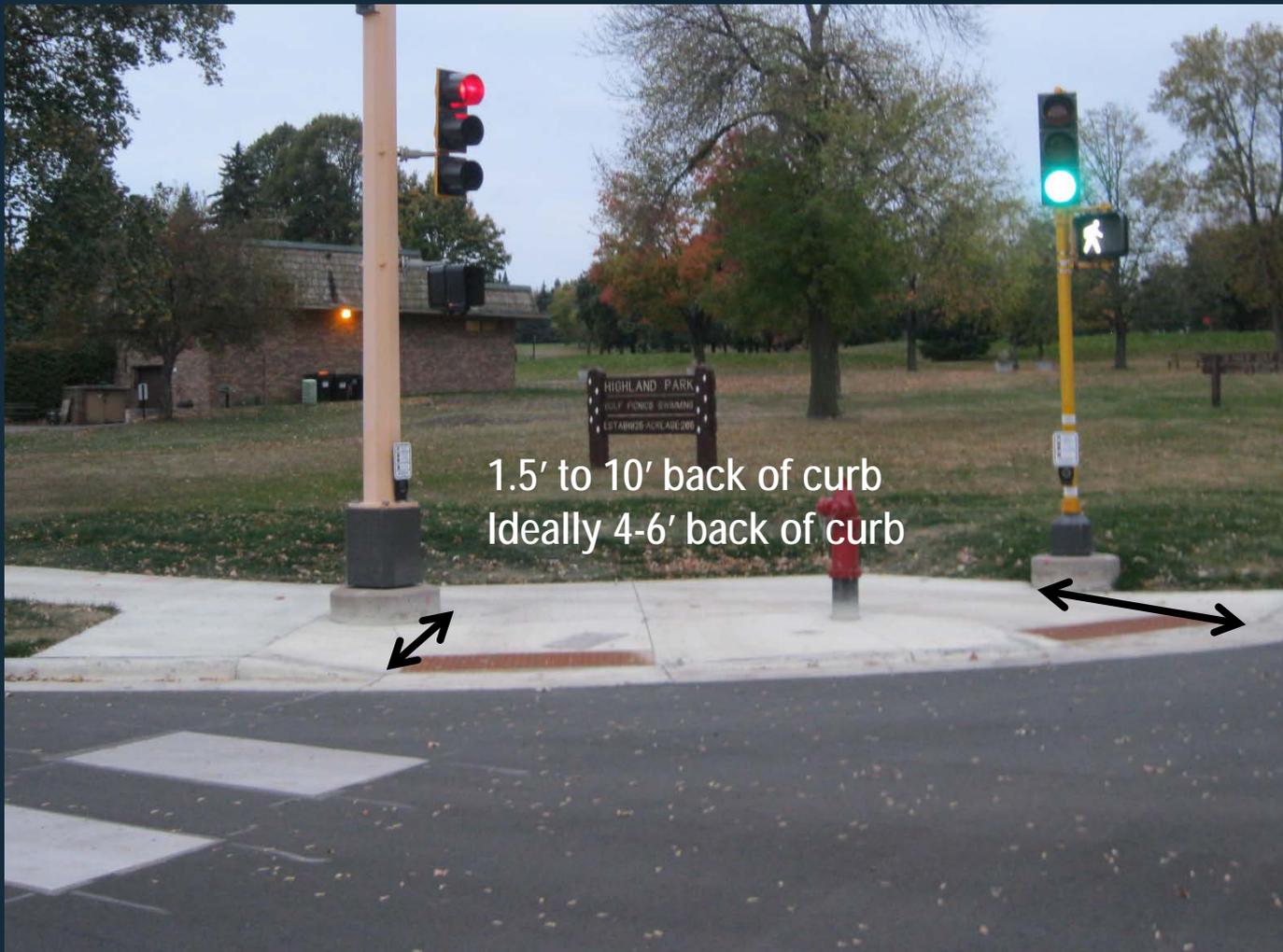
3) Distance from crosswalk edge to push button face:  
\_\_\_\_\_



# APS Compliance Checklist



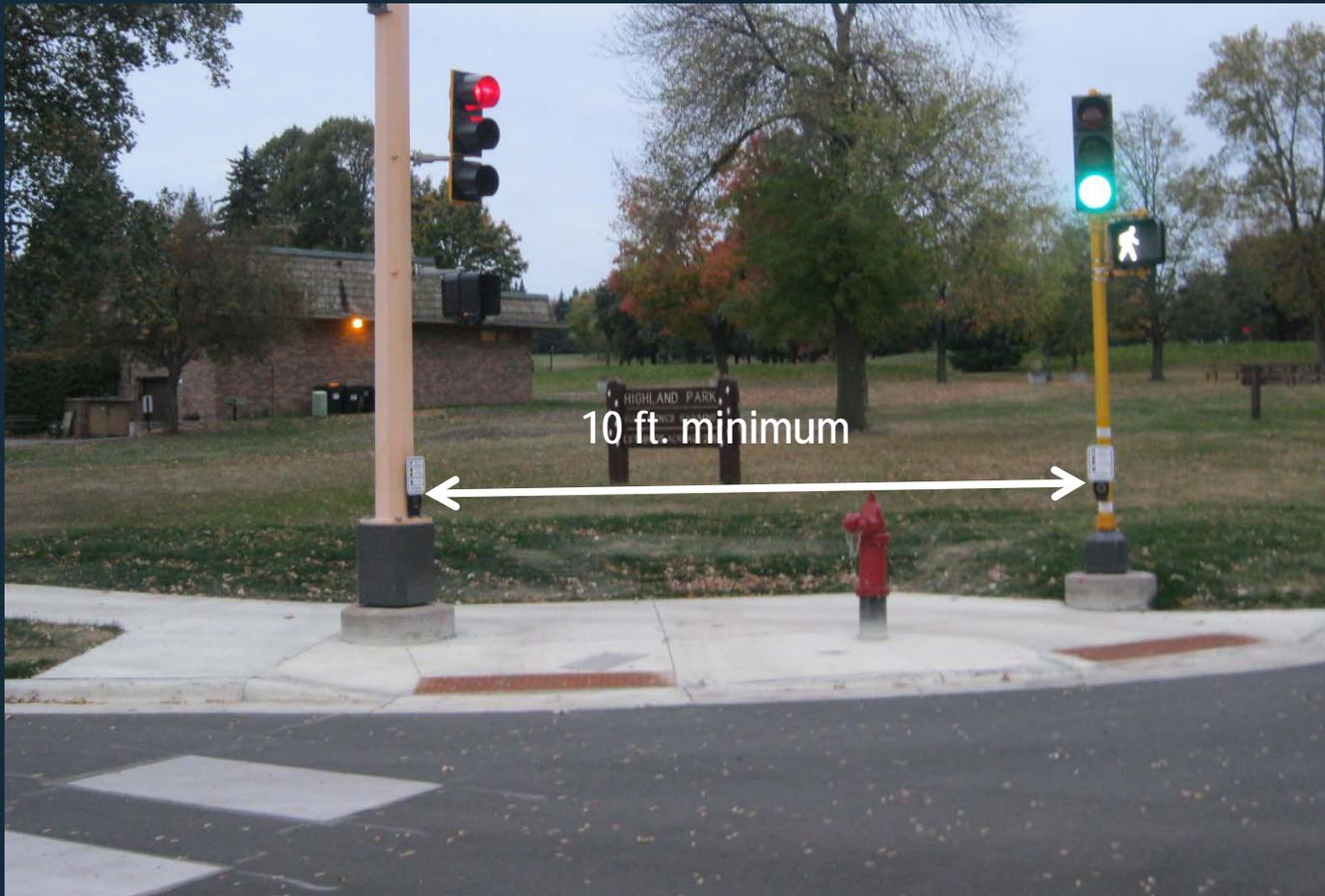
4) Distance from the push buttons to the back of curb:  
\_\_\_\_\_



# APS Compliance Checklist



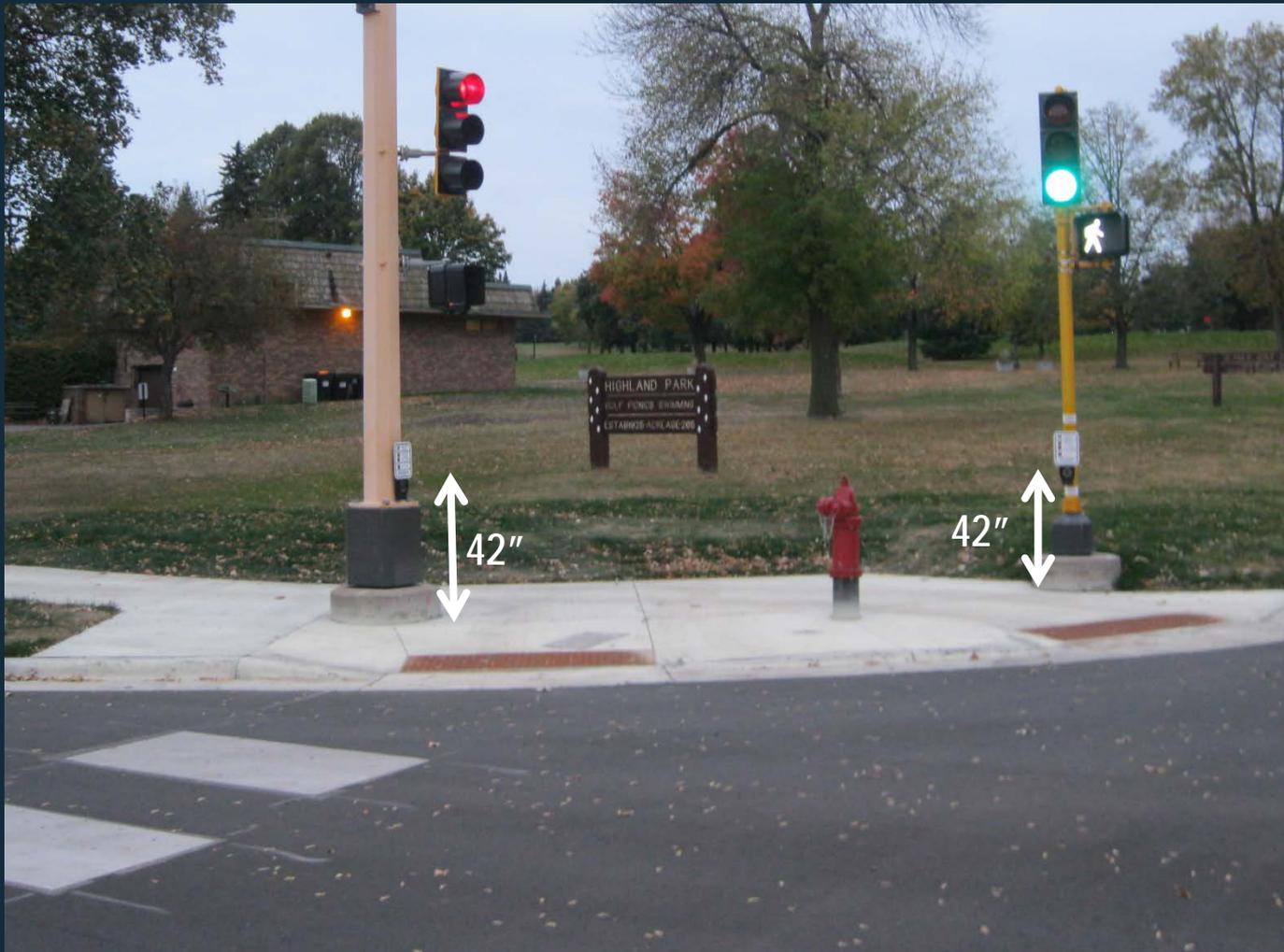
5) Distance between the push buttons: \_\_\_\_\_



# APS Compliance Checklist



6) Push button height: \_\_\_\_\_



# APS Compliance Checklist

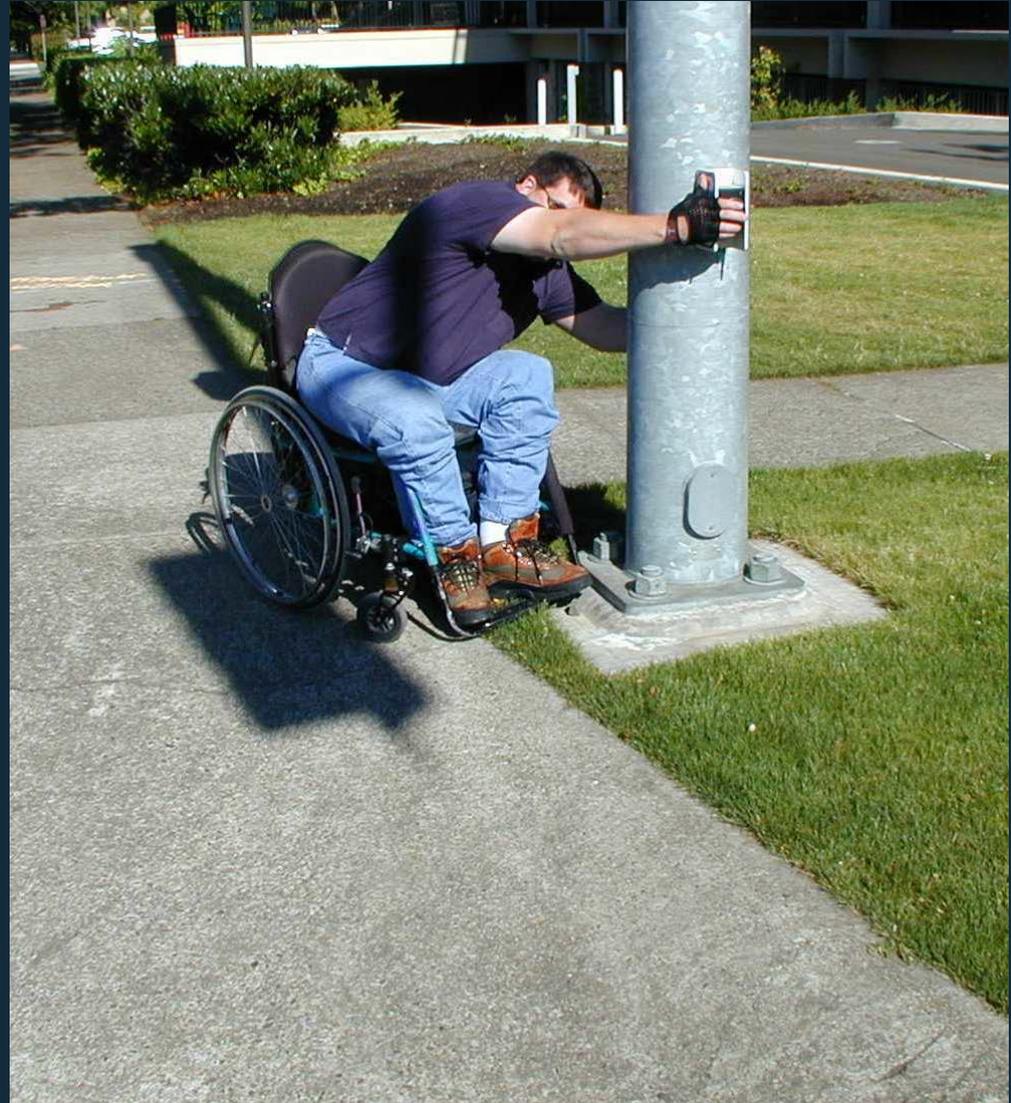


7) The push button needs an unobstructed side reach of 10" maximum.



# Lessons Learned

# Locating APS push buttons



# Coordination with concrete contractor



Must have a level landing adjacent to push button

# Coordination with concrete contractor



PB at grade break, no PAR

# If two crosswalks meet...



Crosswalks intersect each other in roadway

Offset to crosswalk is greater than 5 ft. or the distance between buttons will be less than 10 ft.

# MnDOT's 4 ft minimum setback



Pushbutton is too close to the roadway

# Button at outside edge of crosswalk



Push button should be here for user consistency

# Buttons at outside edge of crosswalks



# Button interferes with ramp



# Button in middle of sidewalk



# Button in middle of 10' trail

- Does button location pass the eye test from both directions.



# Pedestrian Signs installation

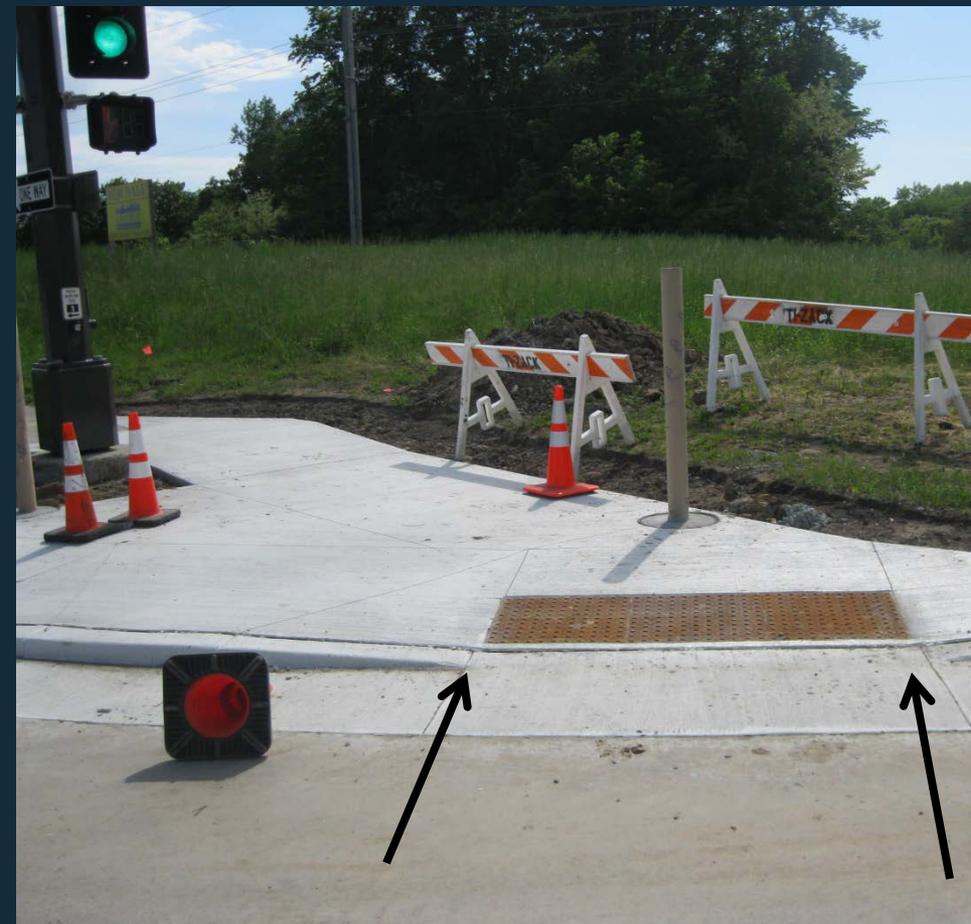


- Sign must be made with retro reflective sheeting.
- Verify Braille message plate is correct for button location.



# Rework costs everybody

- Check curb cuts if it doesn't look right consult the Engineer as per 1803.



# 10" horizontal offset exceeded



# Questions?

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