



**m1** DEPARTMENT OF  
TRANSPORTATION

# Project Scoping and Design Requirements

SCREEN READABLE  
VERSION IS IN THE  
MAKING AND WILL  
BE MADE AVAILABLE  
SOON

Spring, 2018

# Project Scoping Requirements

## Scoping Overview

- General Scoping Requirements
- MnDOT Project Scoping Requirements
  - MnDOT Scoping Process
  - MnDOT ADA Standards
    - Minimums & Maximums
    - Preferred Metrics and Guidance
    - Comparing MnDOT & PROWAG
- Example Project:
  - TH 95 in Bayport
  - Missed Opportunities
  - TH 14 in Sleepy Eye
  - TH 51 Snelling





# General Scoping Requirements

Which of the following project types require the provision of accessible curb ramps, per the Americans with Disabilities Act?

New Construction

Reconstruction

Preservation (Alteration) Projects

Preventative Maintenance Projects

# General Scoping Requirements

## Preservation (Alteration) Projects

- Trigger the Alterations Threshold
- Locally Owned Facilities in MnDOT ROW must be updated to MnDOT Standards if Alterations Threshold is met

## Preventative Maintenance Projects

- Generally DO NOT require Accessibility improvements
- The combination of two or more maintenance treatments may rise to the level of being an alteration, thereby requiring the inclusion of accessible features



# General Scoping Requirements

## Pavement Treatment Types (Maintenance vs. Alteration)

### MAINTENANCE

**Chip Seals**

**Crack Filling and Sealing**

**Diamond Grinding**

**Dowel Bar Retrofit**

**Fog Seals**

**Joint Crack Seals**

**Joint repairs**

**Pavement Patching**

**Scrub Sealing**

**Slurry Seals**

**Spot High-Friction Treatments**

**Surface Sealing**

### ALTERATION

**Addition of New Layer of Asphalt**

**Cape Seals**

**Hot In-Place Recycling**

**Microsurfacing / Thin-Lift Overlay**

**Mill & Fill / Mill & Overlay**

**New Construction**

**Open-graded Surface Course**

**Rehabilitation and Reconstruction**

# General Scoping Requirements

## Additional MnDOT Bridge Thresholds

- Preventative Maintenance Projects
  - Bridge Substructure Activities
  - Bridge Superstructure Preservation (Concrete and Steel)
    - Painting
    - Bearing Rehab/Replacement
    - Barrier/Guardrail/Railing Restoration
- Preservation (Alteration) Projects
  - Bridge Deck Overlays – Bridges are roadways for purposes of ADA
  - Bridge Expansion Joint Replacement if potentially impacting adjacent curb ramp
  - Bridge Sidewalk Repairs if Bridge Deck Repairs are part of project

# General Scoping Requirements

STOP. WAIT...

The ADA only requires *curb ramp* improvements when the threshold is met.

WHAT?

DOES THIS MAKE SENSE?

What about the rest of the infrastructure?



# General Scoping Requirements

If minimum requirements drive your project scope, you will end up in a perpetual loop of short-term fixes.

Consider the value in expanding a project's scope to provide a long-term or permanently accessible solution.

- Improve the Sidewalks/Trails
- Improve Driveways
- Provide APS and APS-Readiness
- Improve crosswalks

# The Power of the $\Delta$

Consider the following major goals:

- Providing a system of accessible infrastructure
- Limiting liability (from injuries and discrimination)

Both goals can be achieved by looking for improvement opportunities within roadway projects

- Opportunities are identified in the Scoping phase
- Look for value in relatively minor Scope additions
- An “added” project expense pays off long-term



# MnDOT Scoping Requirements

## General

Curb cuts, sidewalks, APS replacement/readiness **SHALL** be scoped, designed, and constructed prior to, or at the same time as, the project roadway improvement

Applies to all:

- New construction
- Reconstruction
- Alteration projects



# MnDOT Scoping Requirements

## General

When site conditions restrict construction or alteration of the facility to PROWAG minimums:

- PM, design engineer, ADA unit must concur in providing accommodation to the maximum extent feasible
- Document all facilities not meeting minimum requirements





# MnDOT Scoping Requirements

## General

All MnDOT projects with pedestrian facilities shall be **scoped** and designed for a minimum 20-year lifecycle that meets ADA standards and are:

- Constructible
  - Including Tolerances
- Maintainable
  - Maintenance Access Routes
  - Snow Storage
- Usable – for the range of users



# MnDOT ADA Standards

## MnDOT ADA Standards

All designs need to be ADA compliant and follow the ADA Standards unless all alternatives have been explored and the results have been documented. While ADA compliance is the minimum standard that must be met, in order to meet the long term objectives, all designs must also be constructible, maintainable, and address the range of pedestrian user needs. The ADA Standards were created to implement best practices and incorporate lessons learned in a manner that provides construction tolerances and meets the long term maintenance and usability needs.

MnDOT		PROWAG		MUTCD		CURB RAMP DESIGN CRITERIA			revision: 1/12/2018
ITEM	MIN	MAX	STANDARD	REASON*	GUIDANCE				
LANDING	4' X 4'	VARIES	5' X 5'	C & U	1) Match Pedestrian Access Routes (PAR). 2) Enlarge landings to achieve perpendicular grade breaks. 3) Landings should be designed in one continuous plane.				
RAMP SLOPE	(F)	2.0%	5.0%	4.0%	C, M & U 1) Maintains drainage in gutter. 2) Blend in better with surrounding terrain. 3) Reduce removal limits while minimizing v-curb. 4) For (S) Fans, see Curb Ramp Standard Plans 5-297.250 Pg 1 of 6 Note 10.				
	(S)	5.0%	8.3%	7.0%					
	FAN	2.0%	5.0%	4.0%					
ONCE YOU HAVE REACHED THE 3" MIN CURB HEIGHT, THE CURB HEIGHT SHOULD MATCH PAR HEIGHT. SHOW INTERMEDIATE CURB HEIGHTS WHEN (A) LANDING ELEVATIONS ARE LESS THAN THE TYPICAL CURB SECTION OR (B) BOULEVARDS ARE LESS THAN 3 FEET AT THE CURB RAMP OR (C) WHEN SIDEWALK IS AT BACK OF CURB.				M & U	Avoid inverse sloped boulevards and keep landing above or within an inch of the top of curb to reduce trip hazards. Utilizing an appropriate ramp slope helps maintain the PAR height and provides a very usable pedestrian network, in addition to the guidance seen above.				
RAMP WIDTH	4'	VARIES	6' MIN APS 6' MIN COMMERCIAL AREA MATCH TRAIL WIDTH	M & U	Match PARs.				
RAMP LENGTH	3'	15'	4' MIN 6' MAX	C & U	Construction can build a minimum 2.5' ramp if necessary.				
LANDING & RAMP CROSS SLOPE	POSITIVE FLOW	2.0%	1.0% MIN 1.5% MAX	C	Steep trails and side landings use 0.5% cross slope.				
GUTTER FLOWLINE	POSITIVE FLOW	2.0%	1.0% MIN 1.5% MAX	C	Maintain positive drainage, flowline with radial domes should have a continuous grade, show tabling of curb and gutter with adequate construction limits if existing flowline is over 3%. If 2-3%, state designer intent to obtain <2% with note on plan.				
ROADWAY CROSS SLOPE	POSITIVE FLOW	5.0%	1.0% MIN 5.0% MAX	C & U	Used when adjusting flowline, maintain positive drainage to edge of road and do not exceed 5%.				

- Design to the nearest minimum half-foot increment, one-foot increment (preferred) for all ADA and APS Applications.
- When inverse grades are present, minimize the elevation change of the PAR unless proven necessary to maintain drainage.
- With regards to v-curb/grading, see Curb Ramp Standard Plans 5-297.250 Pg 1 of 6 Note 7. Talk with property/land owners to find out which treatment they would prefer.
- With regards to multiple ramps design at a quadrant, see Curb Ramp Standard Plans 5-297.250 Pg 2 of 6 Note 4. The "bump" typically happens when ramp separation is minimal on a combined directional and no (or narrow) boulevard is present. In these instances, a Fan/Depressed Corner will alleviate this problem and provide better maintainability and usability. 7' min. separation between ramps should be achieved in areas with concrete boulevards while 5.5' min. separation applies for areas with grass boulevards.
- Flowlines need a 3" minimum freeboard to doorways. (3" below threshold i.e. depressed corners must not be used when adjacent to corner doorways at buildings).

\*C for Constructability, M for Maintainability, U for Usability.

# MnDOT ADA Standards

MnDOT PROWAG MUTCD

## APS DESIGN CRITERIA

revision: 1/12/2018

ITEM	MIN	MAX	STANDARD	REASON*	GUIDANCE
PUSH BUTTON STATION SETBACK	1.5'	10'	4' MIN URBAN, 6-8' MIN RURAL, 9.5' MAX	M	Push button setback measured from the back of curb (urban) or edge of roadway (rural) at outside zero point.
PUSH BUTTON FROM INITIAL RAMP GRADE BREAK OR BACK OF WALK	0.75'	-	2' MIN	C & U	Place push button 2' min from edge of landing to provide usable push button access. 6' MAR takes priority over this criteria.
MAINTENANCE ACCESS ROUTE (MAR)	6'	-	-	M & U	Move push button to back of landing when 6' MAR cannot be achieved. Talk with local agencies to understand their snow and ice maintenance requirement widths.
PUSH BUTTON OFFSET FROM OUTSIDE EDGE OF CROSSWALK	0'	5'	-	U	When the push button is offset from the edge of crosswalk a walkable flare is preferred over a graded flare so users who depart from the push button will traverse a concrete surface. Distance is measured perpendicularly from extension of crosswalk.
PUSH BUTTON SEPARATION	10'	-	10.5' MIN	C	Must meet minimum MAR criteria at pork chop islands.

(1) A leveled landing shall be adjacent to all push buttons.

(2) Keep all push buttons outside of sidewalk PAR's. Push buttons shall not be in the middle of shared-use paths. Allowable push button encroachment: 2' on 10' wide trails and 1' on 8' wide trails if needed.

(3) When sidewalk is at the back of curb, the push button should be placed toward the back of walk. Typically placed at 8' - 9.5' from the back of curb.

(4) When installing new signal poles, it is preferred to get them out of the way as to not obstruct the pedestrian facilities. When in congested quadrants (i.e. downtown corridors), APS push buttons on signal poles are preferred although new signal poles need thorough underground utility coordination.

\*C for Constructability, M for Maintainability, U for Usability.

# MnDOT ADA Standards

MnDOT PROWAG MUTCD

## SIDEWALK DESIGN CRITERIA

revision: 1/12/2018

ITEM	MIN	MAX	STANDARD	REASON*	GUIDANCE
LANDING	5' X 5'	VARIABLES	-	C & U	MATCH PARs, enlarge landings to achieve perpendicular grade breaks.
SIDEWALK CROSS SLOPE	POSITIVE FLOW	2.0%	1.5% MAX 1.0% MIN	C	For steep sidewalk running slopes greater than 5%, flatter cross-slopes should be used 0.5% typical.
SIDEWALK RUNNING SLOPE		5.0%	-	C, M & U	For sidewalk running slopes, the max. running slope is 5% (unless roadway grade is steeper).
SIDEWALK RAMP SLOPE	5.0%	8.3%	7.0%	C, M & U	Only for sidewalk not adjacent to roadway. A landing is needed for every 30" of vertical rise with compliant handrails on both sides of ramp For building access, ramp slopes are 5% max. unless covered.
SIDEWALK OFFSET AND TAPER	-	-	-	M & U	Maximum offset is 1/2 the width of the ramp. On Curb ramp retrofit projects the min. sidewalk taper is 1:3 with 1:5 being preferred. However the min. taper for sidewalk reconstruction projects is 1:10.
SIDEWALK WIDTH	5'	VARIABLES	-	M & U	<ol style="list-style-type: none"> <li>1) Based on context and volume of users.</li> <li>2) Talk with local partners to understand their snow and ice maintenance requirements.</li> <li>3) Recommend 10' min measured from back of curb for commercial areas with doorways at back of walk.</li> </ol>
SIDEWALK WIDTH AT BACK OF CURB (NON-COMMERCIAL AREAS)	5'-6'	VARIABLES	7' MIN 8' PREFERRED	M & U	The sidewalk minimums of 5'-6' should only be used if there are no driveway, lighting or sign impacts present with in the sidewalk.
SIDEWALK PAVED BOULEVARD SLOPE	POSITIVE FLOW	8%	1.0% MIN 5.0% MAX	M & U	Slopes greater than 8% can become tripping hazards for user traversing the curb and sloped boulevard. Adjust centerline road profile or flatten the shoulder/parking lane to raise the curb line to achieve desired boulevard slope.
PAVED BOULEVARD WIDTH	2' MIN	-	1/3 BLVD. WIDTH TO 2/3 PAR WIDTH	M & U	For example a 9' sidewalk at a min. should have 6' wide par with a 3' wide boulevard.
GRASS BOULEVARD WIDTH	3' MIN	-	4' FOR 4" HIGH CURB 6' FOR 6" HIGH CURB	M & U	When the boulevard width is less than 3', it should be paved.
PAR WIDTH	4' MIN	VARIABLES	6' MIN ADJ. TO BUILDINGS. 2/3 PAR MIN TO 1/3 BLVD	M & U	PAR width adjacent to buildings should be 6' min. to allow for a 1' buffer to the building and doorways. The 6' min. PAR takes priority over 2/3 PAR width to 1/3 boulevard criteria.

\*C for Constructability, M for Maintainability, U for Usability.

# MnDOT ADA Standards

MnDOT PROWAG MUTCD

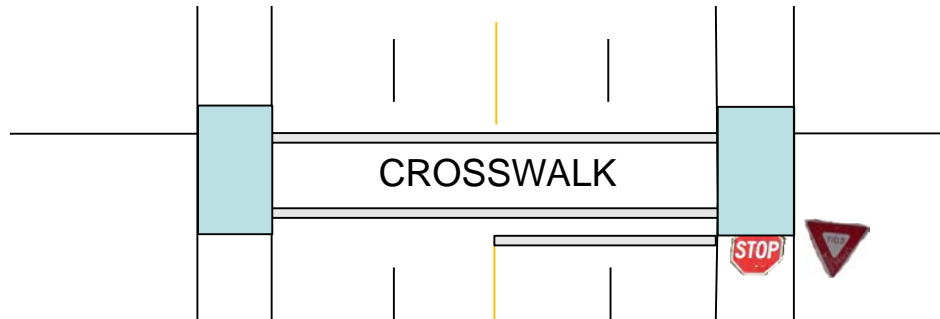
## DRIVEWAY DESIGN CRITERIA

revision: 1/12/2018

ITEM	MIN	MAX	STANDARD	REASON*	GUIDANCE
APRON LENGTH	18"	-	6' FOR 6" CURB HEIGHT, 4' FOR 4" CURB HEIGHT	U	Add one foot of driveway apron length for every inch of designed curb height if Right-of-Way (ROW) allows.
COMMERCIAL APRON SLOPE	POSITIVE FLOW	10%	1.0% MIN 8.0% MAX	U	Design adequate slope for PAR to match designed curb height, maintain consistent PAR elevation and limit the sidewalk roller coaster effect.
RESIDENTIAL APRON SLOPE		12%			
PAR HEIGHT (6" C&G)	0"	6"	3" MIN, 6" PREFERRED	M & U	<ol style="list-style-type: none"> <li>1) Minimize sidewalk roller coaster effect.</li> <li>2) Desirable to keep PAR elevation continuous or at least in the upper half of curb height.</li> <li>3) Do not introduce unnecessary elevation changes into the PAR.</li> <li>4) Standard criteria do not apply to parallel driveway. Recommend to not have consecutive parallel driveway in a series.</li> </ol>
PAR HEIGHT (4" C&G)	0"	4"	2" MIN, 4" PREFERRED		
PAR CROSS SLOPE	0.5%	2.0%	1.0% MIN 1.5% MAX	C, M & U	-
SIDEWALK RUNNING SLOPE (PAR) AT DRIVEWAY TRANSITIONS	2.0%	5.0%	4.0% MAX	C, M & U	Can match roadway slope if roadway profile is >5%
PEDESTRIAN ACCESS ROUTE (PAR)	4'	VARIES	5' MIN	C & U	Preferred to match sidewalk/trail widths
BACK OF CURB HEIGHT AT DRIVEWAY APRON	1"	3"	1"	M & U	<ol style="list-style-type: none"> <li>1) Refer to Sidewalk &amp; Driveway Standard Plan 5-297.254.</li> <li>2) DW Curb Type 2 can be used to maintain drainage in gutter flowline at negative driveways. 4" curb height is preferred in sidewalk fill areas and in areas adjacent to negative driveways slipping downward from the roadway.</li> <li>3) Only use DW Curb Type 3 with garage doors at back of walk or minor usage driveways like railroad access along tracks.</li> </ol>

\*C for Constructability, M for Maintainability, U for Usability.

# Crosswalk



\*Uncontrolled and  
signalized intersections

\*\*Uncontrolled or  
signalized

Walkway Location & Function	Desirable Grade		Maximum Grade	
	Running	Cross	Running	Cross
Crosswalk <b>with</b> YIELD or STOP sign	<5% or max. extent feasible	<1.5% or max. extent feasible	5%	2%
Crosswalk <b>without</b> YIELD or STOP sign*	<5% or max. extent feasible	<1.5% or max. extent feasible	5%	5%
Midblock crossing**	NA	NA	5% for any distance	Warped to meet roadway grade

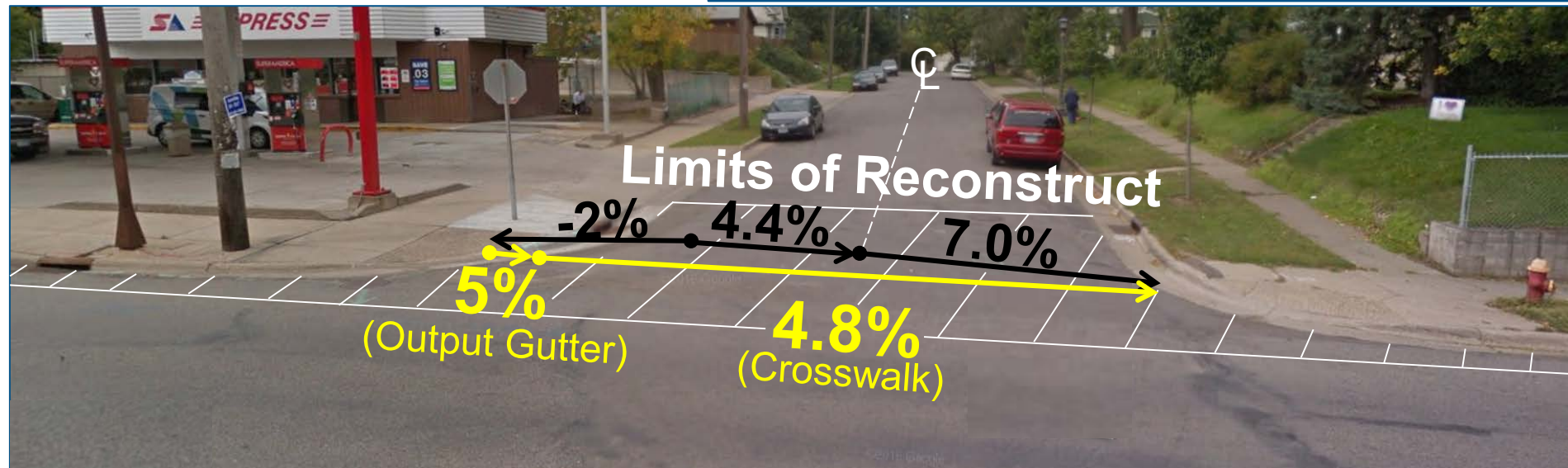
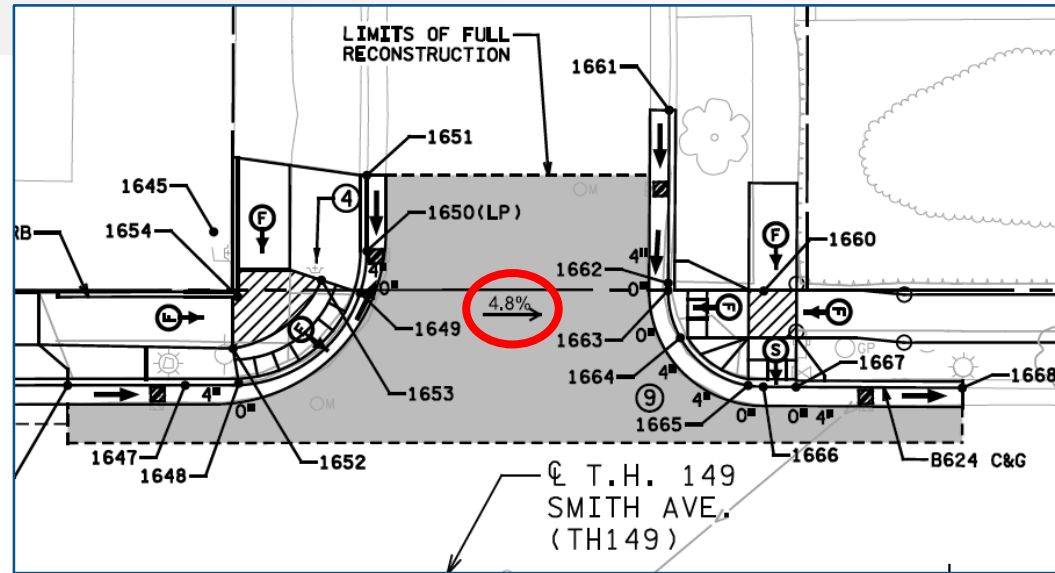


# Crosswalk Reconstruct

Eliminating crown with milling operations would have adversely reduced pavement thickness at center

Reconstructed crosswalk to taper from crowned section on approach road to full superelevation matching highway profile before crosswalk

Result: crosswalk running slope < 5%





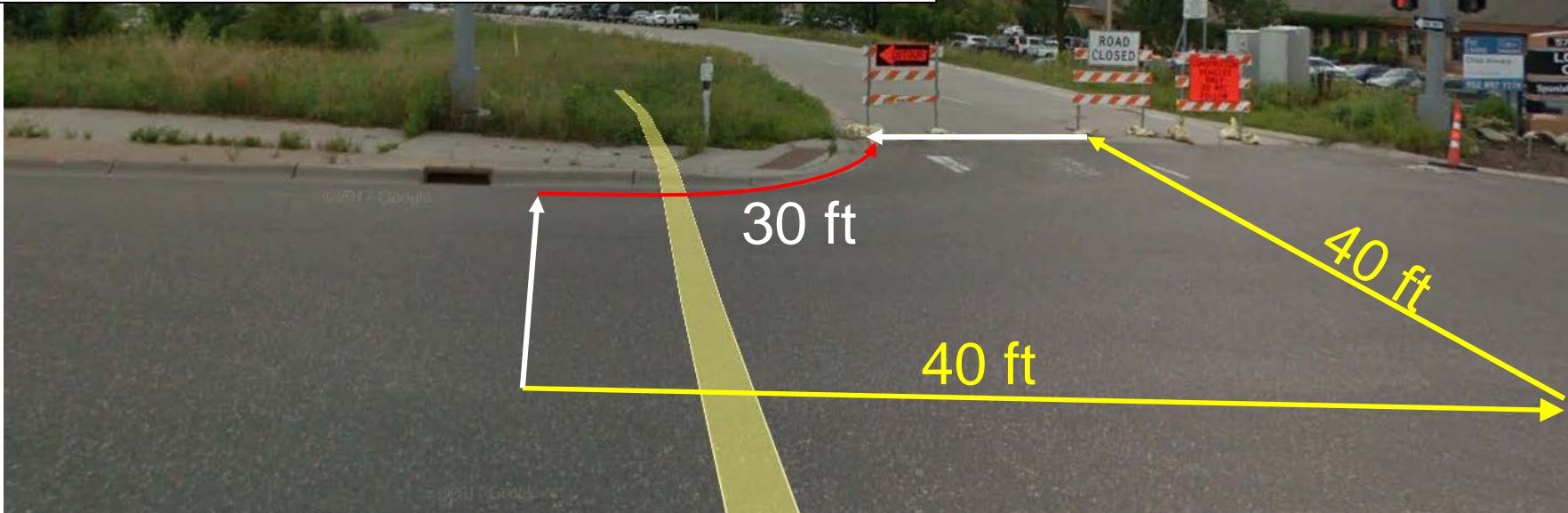
# Bridge Overpass & Crosswalk Design

- Use 5% max. outflow gutter
- Remove curb box
- Extend curb taper to eliminate reverse grade boulevard
- Match centerline profile grade through crosswalk



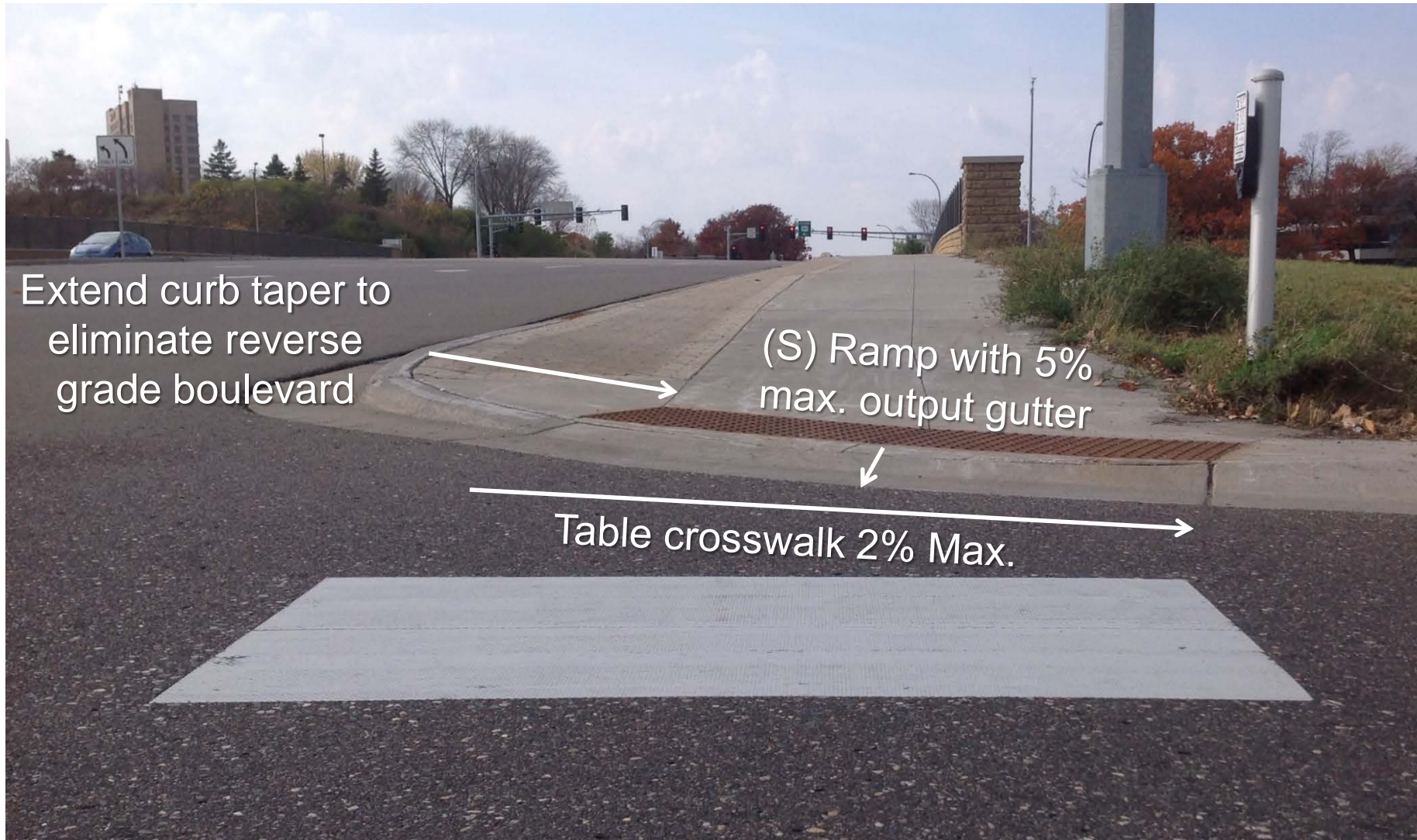
# Bridge Overpass & Crosswalk Design

- Mainline: typical cross slope from centerline to point of curvature (PC)
- Hwy ramp: typical cross slope from centerline to point of tangent (PT) on entrance ramp
- Same difference in elevations at centerline is made up through inside radius at flowline





# Bridge Overpass & Crosswalk Design



# Crosswalk Reconstruct

BEFORE



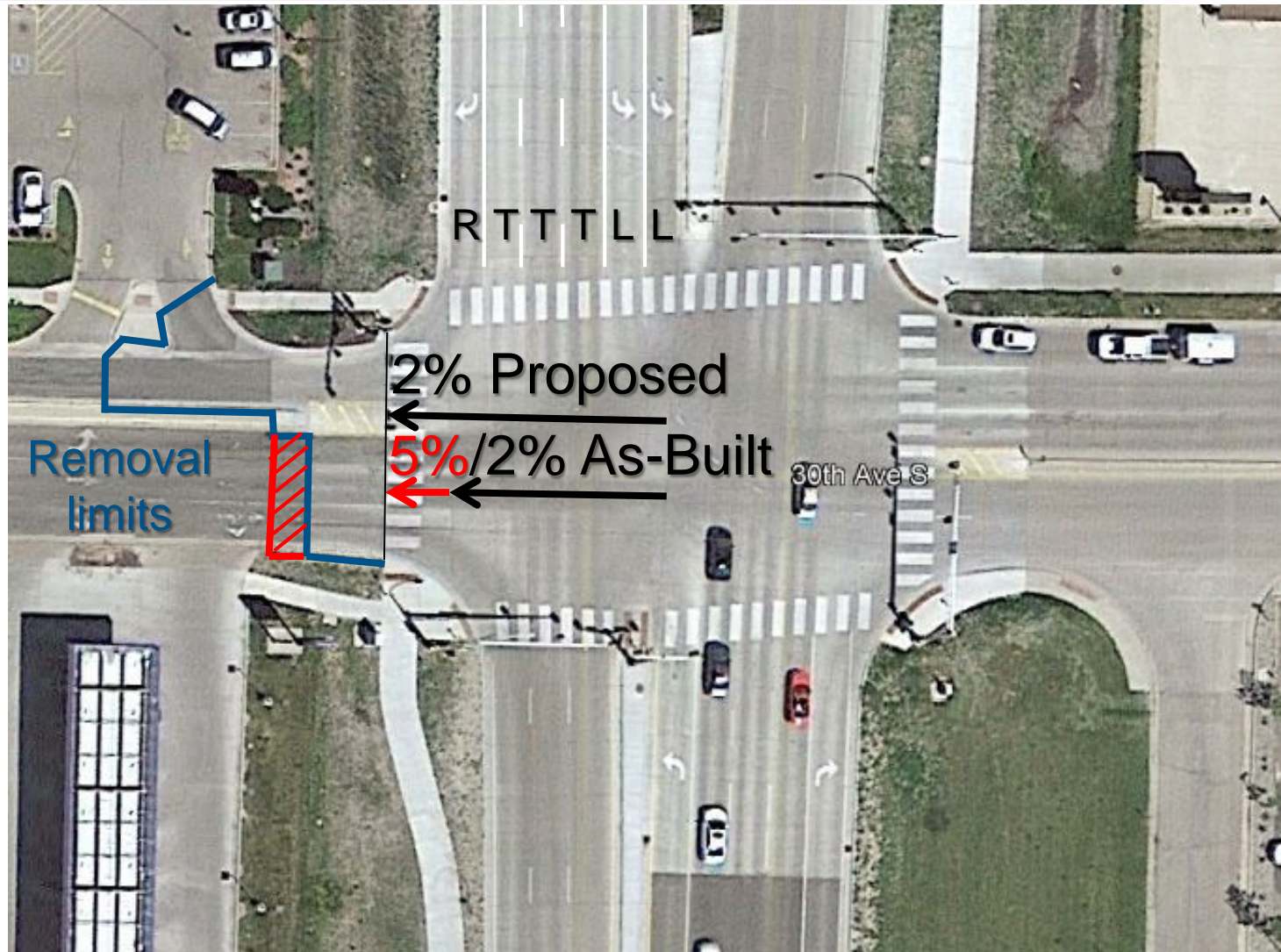


# Crosswalk Reconstruct

## AFTER

Proposed to build roadway at 2% from centerline to outside edge of crosswalk

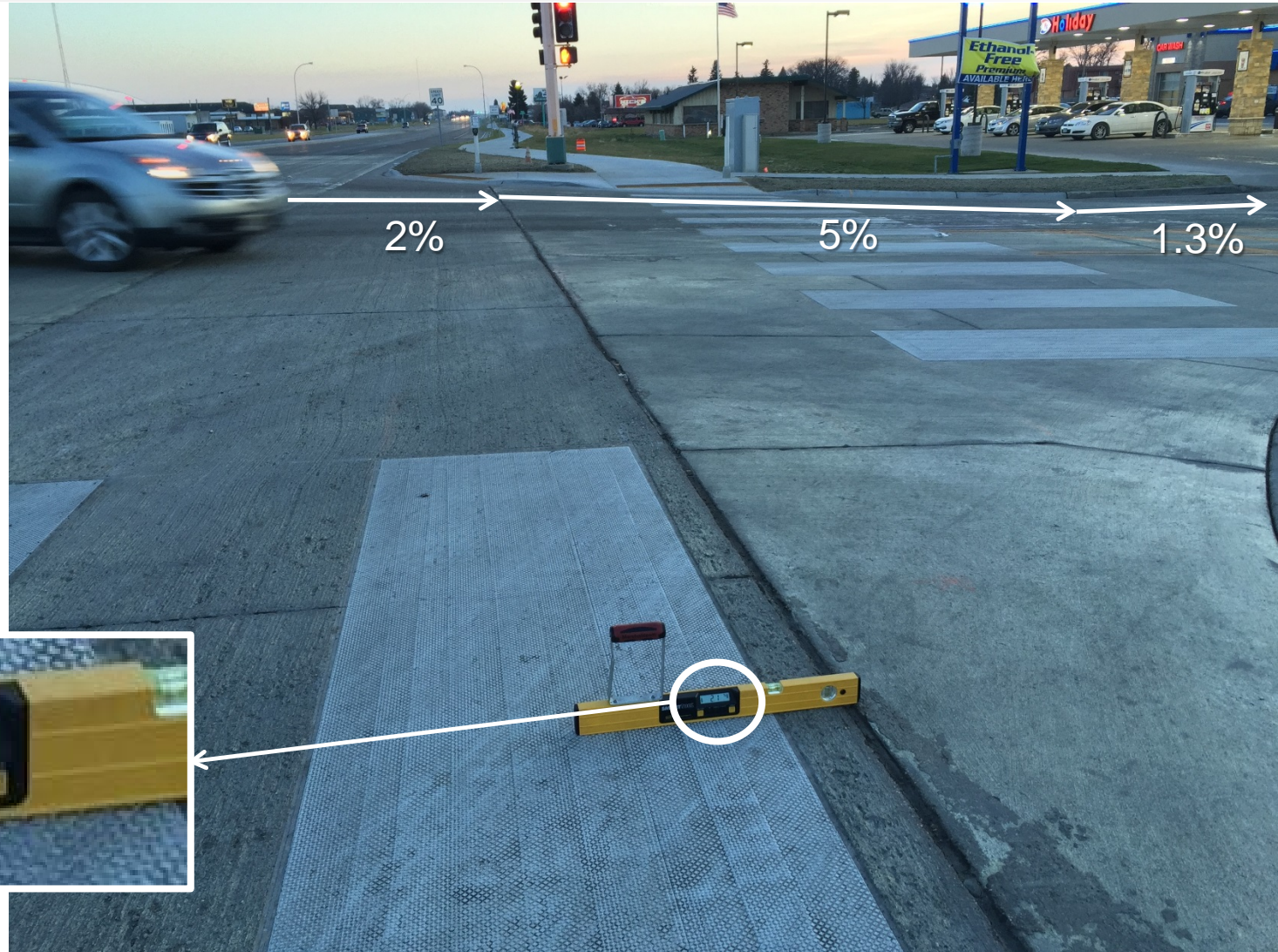
To reduce profile grade of the roadway approach, field call increased crosswalk slope to 5%





# Crosswalk Reconstruct

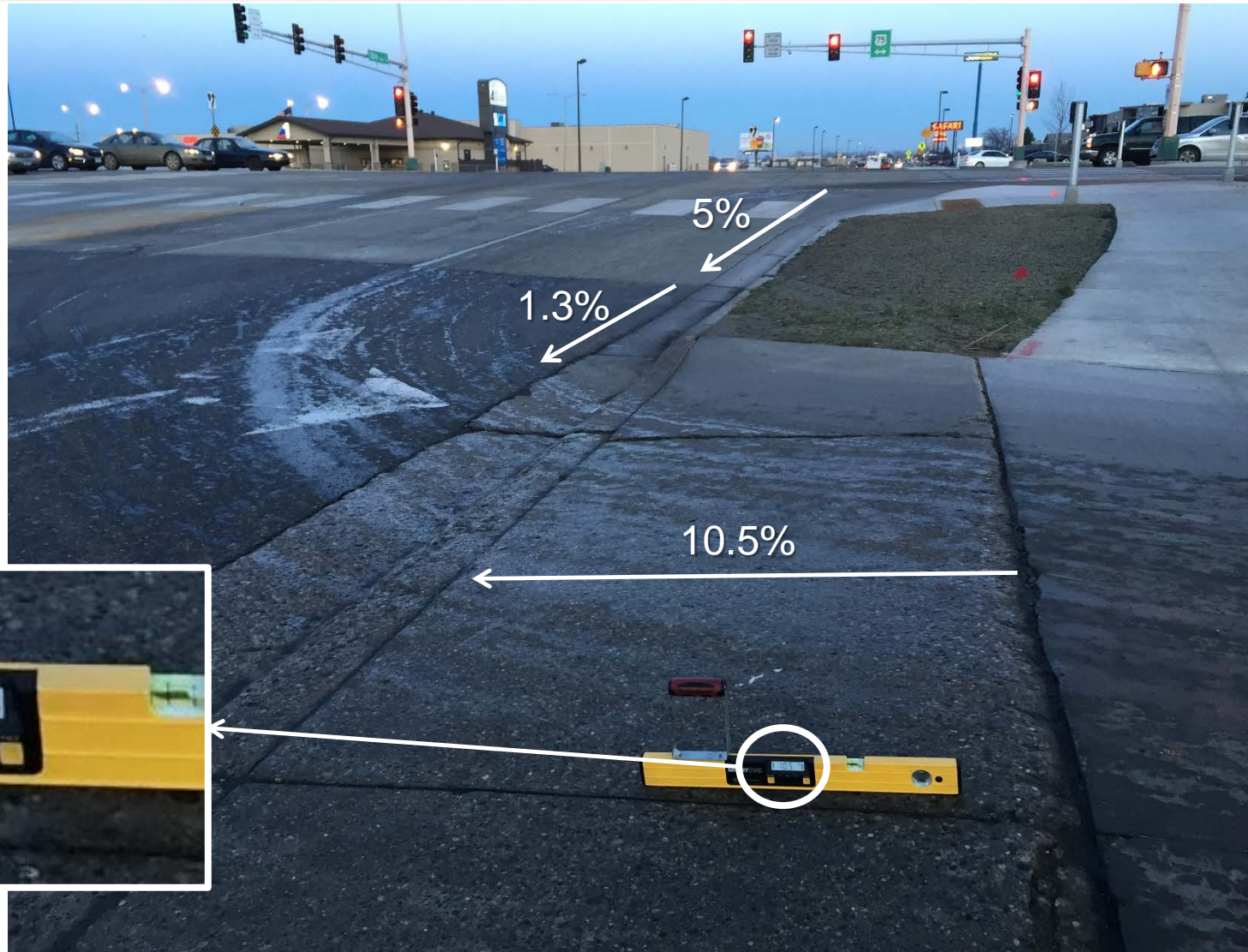
Could have extended removals on the south side to table crosswalk and swapped the 1.3% existing section with the 5% section through the crosswalk





# Crosswalk Reconstruct

Extending removals and raising flowline elevations into the adjacent driveway could have improved/ reduced the 10.5% apron slope





# Differences between PROWAG and MnDOT

## Pedestrian Access Route (PAR) Width

- PROWAG: 4' Min (Must provide 5'x5' passing spaces every 200' if width <5')
- MnDOT: 5' Min

## Rail Road Flangeway Gap

- PROWAG: 2.5" Max (Non-Freight Rail) and 3" Max (Freight Rail)
- MnDOT: Did not adopt this PROWAG requirement (conflicts with available products and industry standards)

## Detectable Warning Setback at Rail Road Crossings

- PROWAG - 6'-15' from nearest rail
- MnDOT – 12' – 15' at freight rail, AREMA minimum standards

## Roundabouts & Multi-Lane Free-Right Turn Guidance

- MnDOT excluded PROWAG's Signalization requirements (more study needed)



# ADA Design Overview

- Levels of ADA Design
- ADA Plan Review Checklists
- ADA Design Memo
- ADA Pay Items
- PAR Alignment and Profile

# Levels of ADA Design – Level 1 Curb Ramps

- Curb ramps typically built with the ADA standard plans
- ADA quantities are in tabulations only
- No control points
- Typically used in residential areas with grass boulevards



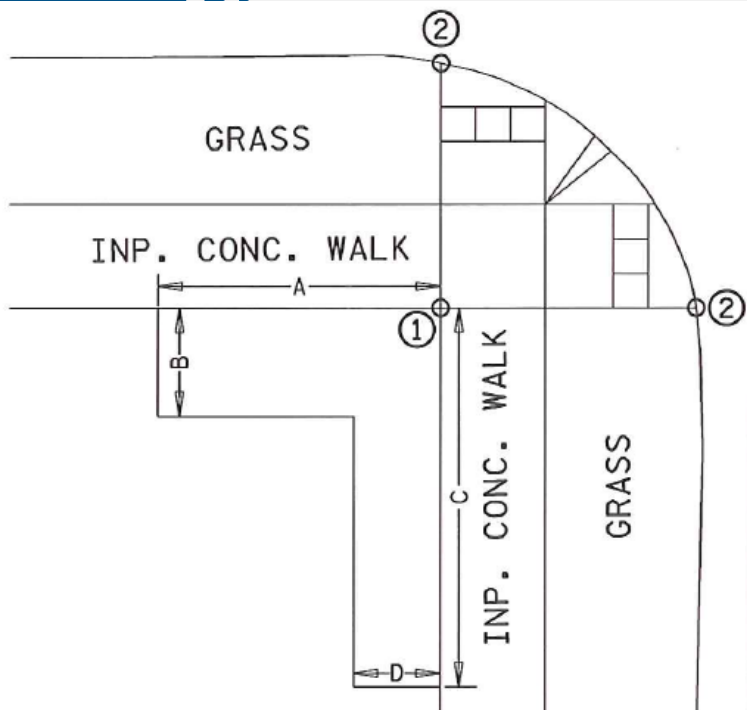


# Levels of ADA Design – Level 1

## Curb Ramps

A ADA TABULATION															
CROSS STREET	CORNER LOC.	STATION	LOC.	REMOVE CONCRETE	REMOVE CURB	MILL & PATCH	DRILL AND GROUT REINF BAR (EPOXY COATED)	CONCRETE WALK	CONCRETE CURB AND GUTTER	TRUNCATED DOMES				SITE RESTORATION	RAMP TYPE
				WALK	BOX	BITUMINOUS PAVEMENT				SQUARE		RADIAL			
										TH 61	SIDE STREET				
				SQ FT	EACH	LIN FT				SQ FT	SQ FT	SQ FT	RADIUS		
36TH AVE EAST	N	48+12.425	LT	110		39	8	150	39	10	10			1	COMBINED DIRECTONAL
	S	47+72.093	RT	50		20	6	155	20	10				1	TIERED PERPENDICULAR
	E	48+12.425	RT	75		18	6	160	18	10				1	TIERED PERPENDICULAR
	W	47+72.093	LT	90		34	8	130	34	10	10			1	COMBINED DIRECTONAL
40TH AVE EAST (APS)	NE	69+68.633	LT	270	1	34	10	345	34			38	R = 18	1	DEPRESSED CORNER
	SE	69+68.633	RT	170		31	9	221	31			40	R = 30	1	FAN
	SW	69+12.543	RT	262		45	12	284	45			38	R = 30	1	FAN
41ST AVE EAST	NE	74+28.169	LT	215		25	8	217	25			20	R = 20		DEPRESSED CORNER
	NW	73+87.970	LT	243		30	11	270	30			28	R = 28		FAN
	SW	73+87.970	RT	100		23	6	135	23	10					PERPENDICULAR
42ND AVE EAST	NE	79+02.358	LT	176		32	8	193	32	10				1	ONE-WAY
	NW	78+54.760	LT	100		26		100	26		10			1	ONE-WAY
	SE	79+02.358	RT	40	1	18	6	76	18	10				1	PERPENDICULAR
43RD AVE EAST	NE	84+20.232	LT	334		35	10	426	35			24	R = 22	1	FAN
	NW	83+30.240	LT	353		57	14	395	57	10	10			1	PARALLEL
	SE	84+20.232	RT	95		21	6	130	21	10					PERPENDICULAR
<b>TOTALS</b>				<b>2683</b>	<b>2</b>	<b>488</b>	<b>128</b>	<b>3387</b>	<b>1223</b>	<b>90</b>	<b>40</b>	<b>188</b>		<b>12</b>	

# Levels of ADA Design – Level 1 Curb Ramps



RIGHT OF WAY TABULATIONS							B
CROSS STREET	REFERENCE POINT	CORNER LOCATION	TEMPORARY EASEMENT DIMENSIONS MEASURED FROM (1) & (2)				REMARKS
			A	B	C	D	
	T.H. 1						
5TH ST S (A)	00.217	SW	20	10	40	5	PROTECT SIGN
	00.217	SE	30	5	40	10	
	00.217	NW	20	10	50	5	
	00.217	NE	30	5	35	5	
4TH ST S (B)	00.280	SW	20	5	30	15	
	00.280	SE	30	5	25	5	PROTECT INPLACE RETAINING WALL
	00.280	NW	30	5	30	10	
	00.280	NE	20	5	20	5	
2ND ST S (C)	00.405	SW	45	5	20	5	
	00.405	SE	30	15	20	5	CLEAN CUT SPRINKLER & CAP ABOVE GROUND
	00.405	NW	30	5	40	5	
	00.405	NE	30	5	30	3	HOMEOWNER WILL REPLACE LANDSCAPING
CO RD 34 (D)	00.455	SW	40	5	35	5	
	00.455	SE	20	5	35	5	
	00.455	NW	50	3	30	5	
	00.455	NE	30	5	30	5	

① WHEN INTERSECTING WALK IS PRESENT

② WHEN NO INTERSECTING WALK IS PRESENT



# Levels of ADA Design – Level 2



















## Curb Ramps

- Complicated ADA designs that differ from the ADA standard plans
- One X,Y control point needed per outside edge of curb ramp
- 20' scale ADA detail sheet
- ADA Standard Legend
- Signalized intersections are always Level 2 designs at a minimum

# Levels of ADA Design – Level 2

## Curb Ramps

REMOVE ALL UNNECESSARY SYMBOLS

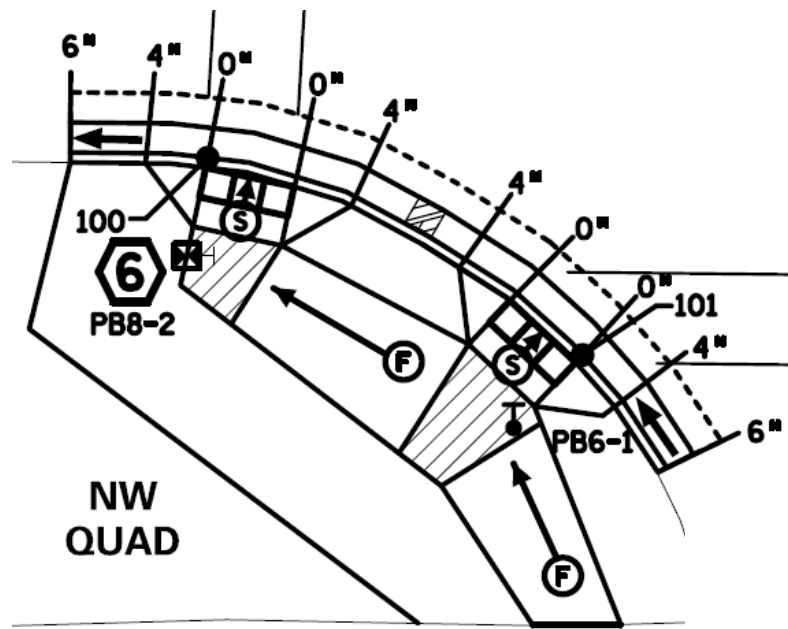
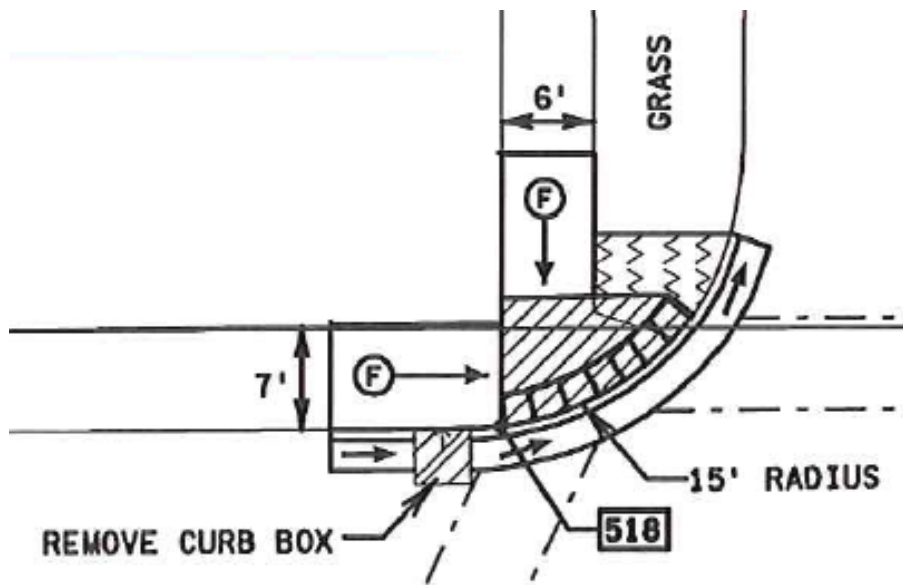
LEGEND	
	INPLACE SIGNAL POLE
	PROPOSED SIGNAL POLE
	PEDESTRIAN PUSH BUTTON STATION
	PEDESTRIAN PUSH BUTTON
	INPLACE PEDESTAL POLE
	PROPOSED PEDESTAL POLE
	PROPOSED SIGNAL CABINET
	EXISTING CABINETS (SCALE TO SIZE)
	CONTROL POINTS AT GUTTER FLOW LINE
	TRUNCATED DOMES (SEE STANDARD PLATE 7038)
	CONSTRUCT 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
	TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK.

ADA Standard Legend  
required for all level 2  
and 3 ADA designs



# Levels of ADA Design – Level 2

## Curb Ramps



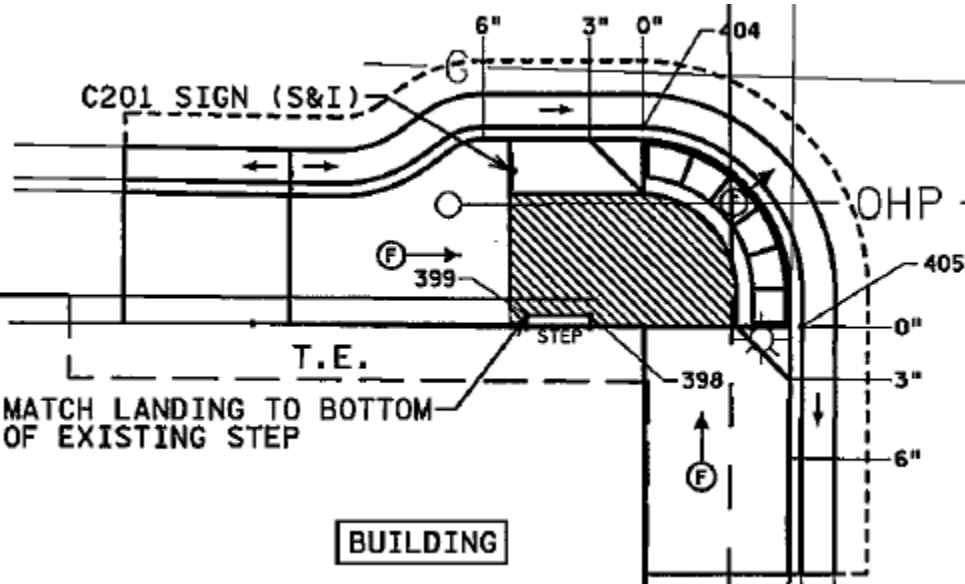
# Levels of ADA Design – Level 3

## Curb Ramps

- Complicated designs that are vertically constrained (i.e. doorway or step/alcove tie-ins)
- Existing 3% or greater curb ramp flow line
- Significant horizontal or vertical changes to the existing curb line
- X,Y,Z's needed around the radius at gutter flowline
- One X,Y,Z per initial landing
- One X,Y,Z per vertical constraint
- Designer Intent (contractor friendly terms)
- Steep topography

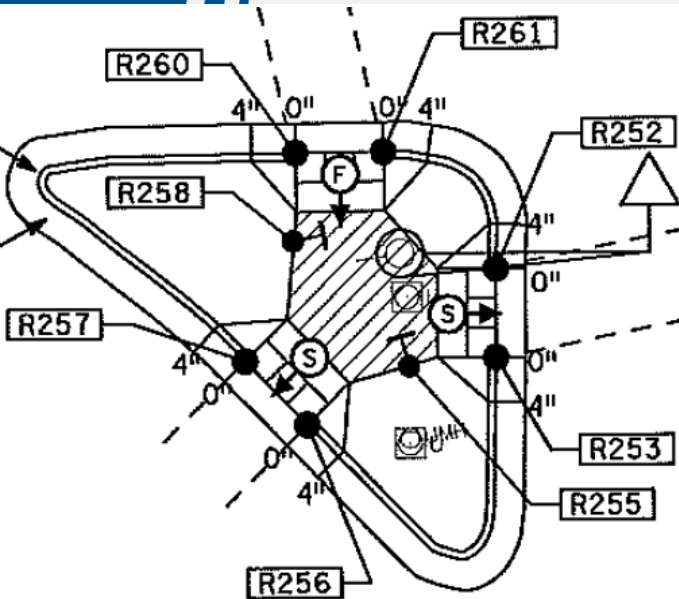
# Levels of ADA Design – Level 3

## Curb Ramps



# Levels of ADA Design – Level 3

## Curb Ramps



Pork chops and medians are considered level 3 designs.





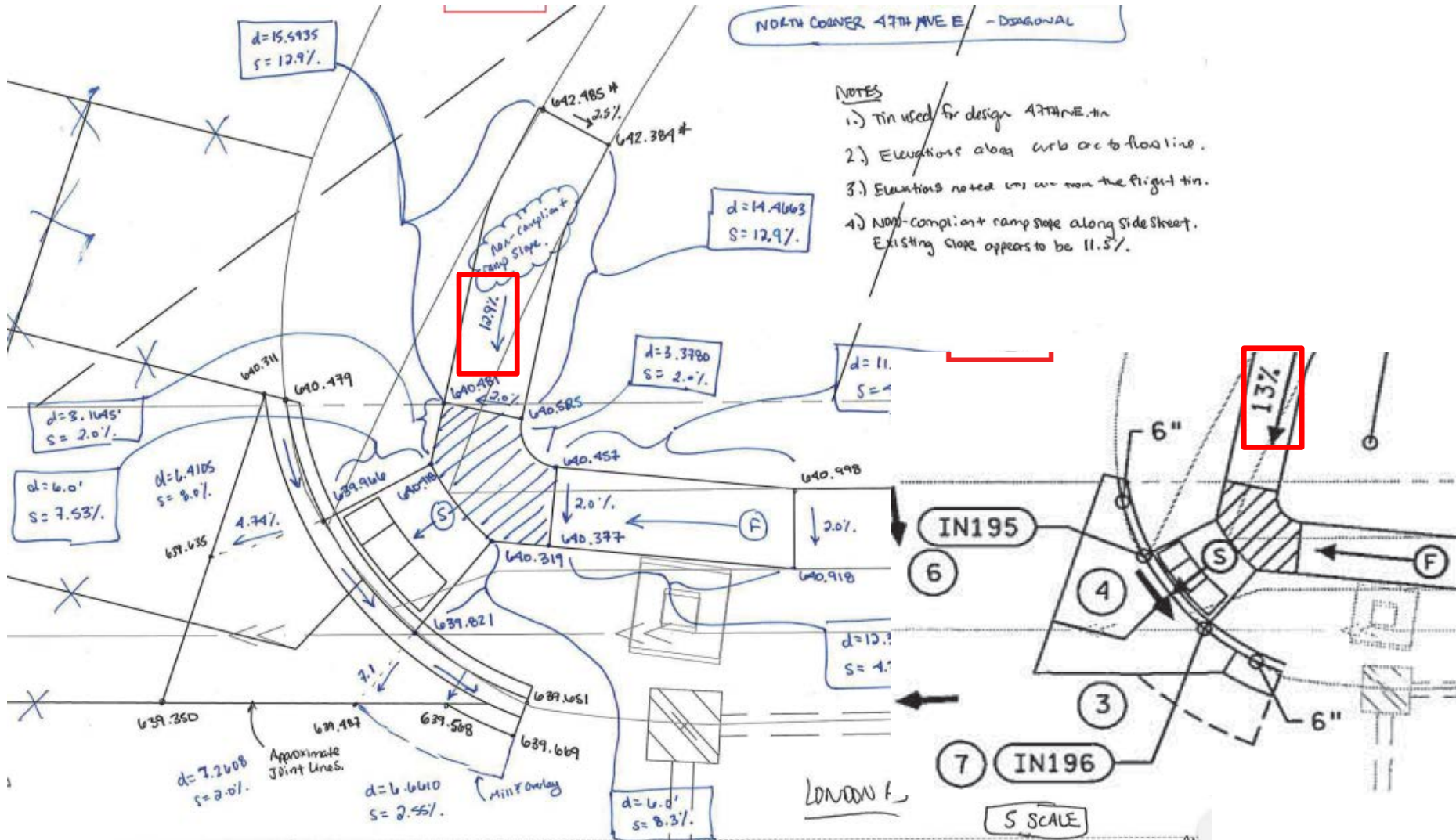
# Levels of ADA Design – Level 3

## Curb Ramps

ADA design calculations are required for all level 3 quadrants. They are not to be included in the plan set but are helpful for the ADA reviewers (see ADA Plan Review Checklist) and may be sent to construction as supplemental sheets.



# Levels of ADA Design – Level 3 Curb Ramps





# Levels of ADA Design – Level 1 Sidewalks

- Sidewalk quantities are shown in tabulations only
- No control points or sidewalk plan sheets needed
- Sidewalks built with typical sections



# Levels of ADA Design – Level 2 Sidewalks

- Horizontal changes of existing sidewalk alignment
  - Sidewalk width changes including sidewalk taper sections
- 20'-50' scale construction plan sheet





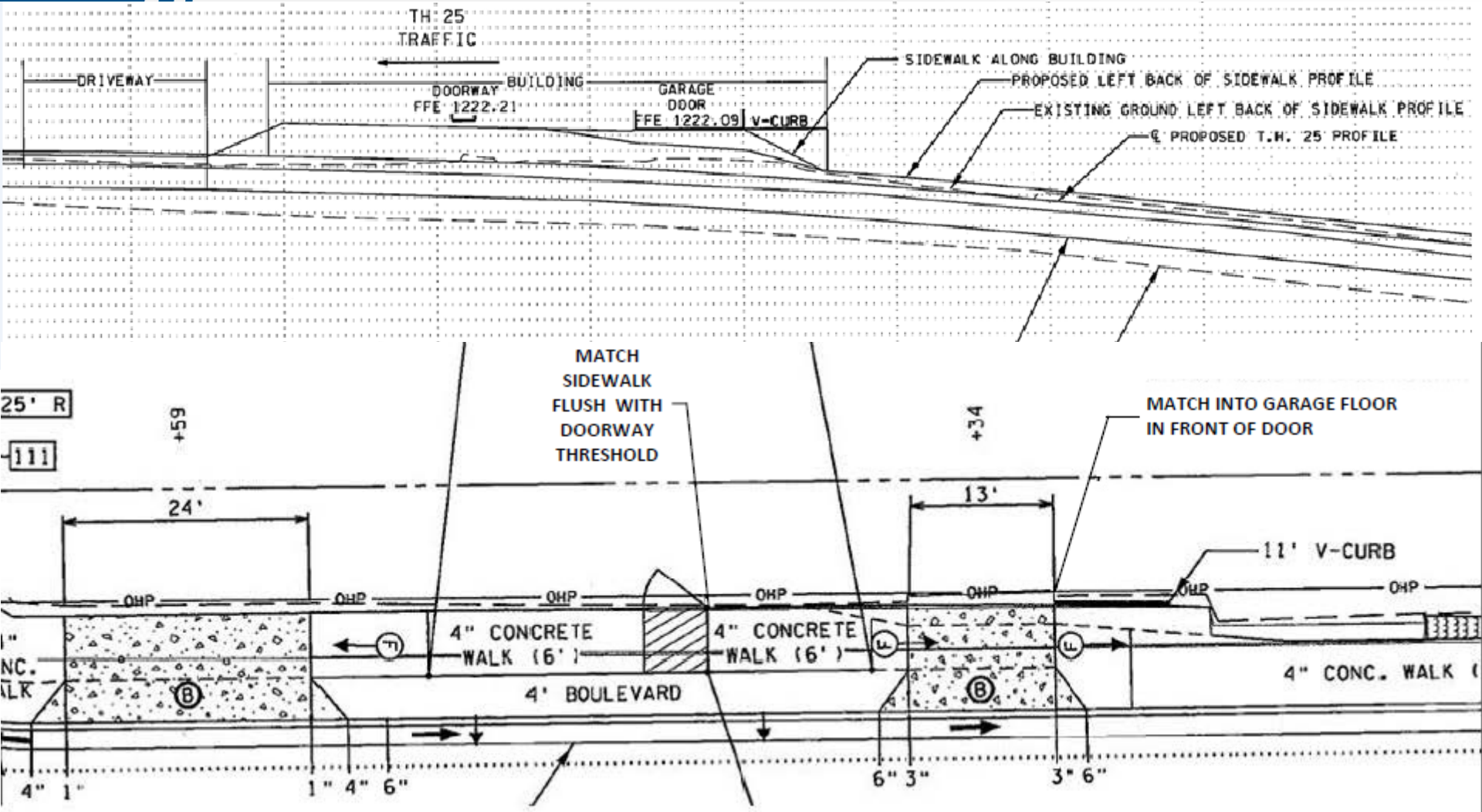
# Levels of ADA Design – Level 3 Sidewalks



# Levels of ADA Design – Level 3 Sidewalks

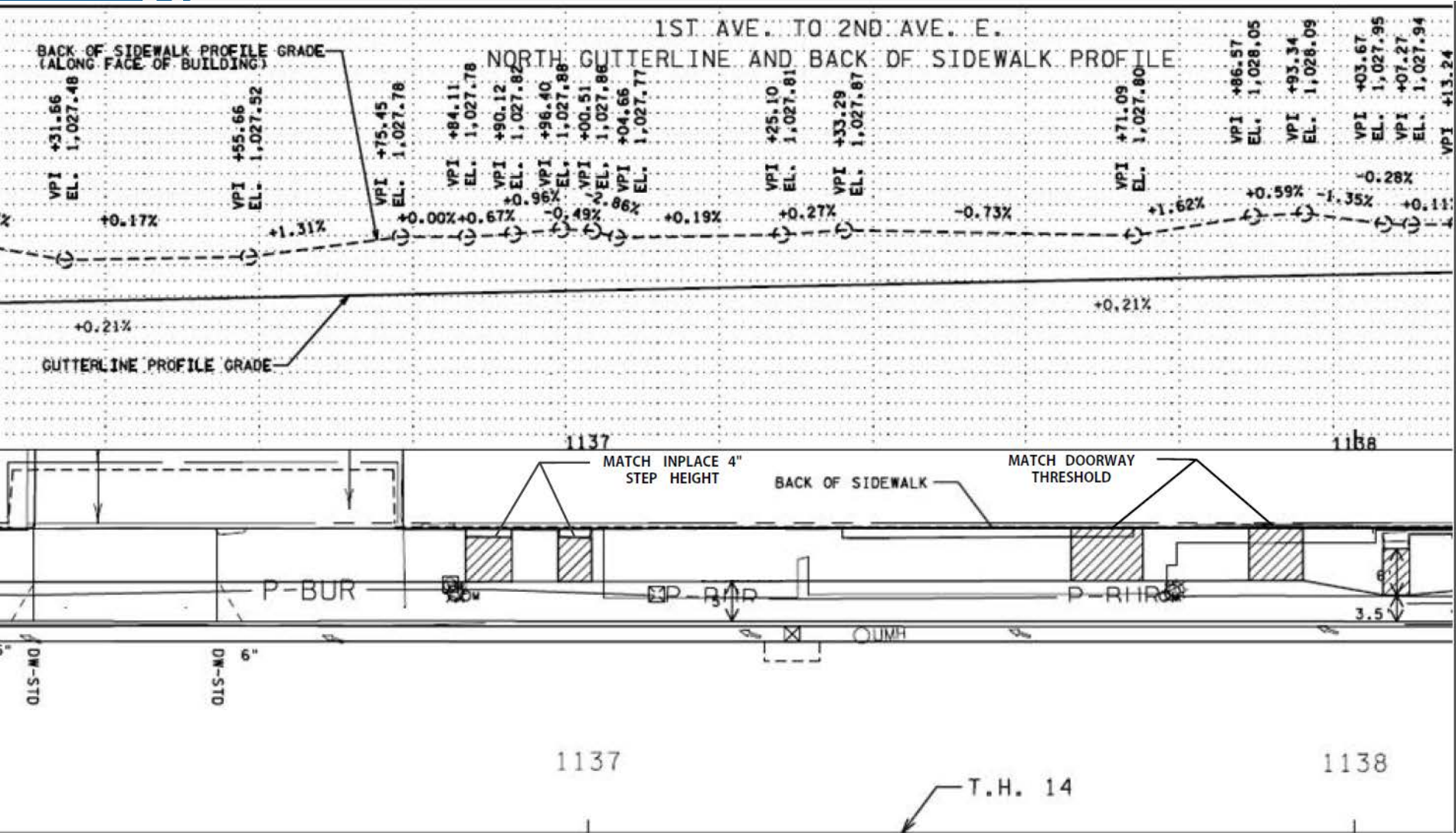
- Complicated designs that are vertically constrained (i.e. doorway or alcove tie-ins)
- Sidewalk profiles are required when a broken boulevard is used. (Typ. Downtown corridors)
- Curb and gutter profiles or super elevation sheets are used in conjunction with the sidewalk profiles
- One X,Y,Z and designer intent description per vertical constraint included on the 20'-30' scale sidewalk plan sheet
- Label paved boulevards slopes greater than 5% at any doorway cross-section

# Levels of ADA Design – Level 3 Sidewalks





# Levels of ADA Design – Level 3 Sidewalks







# ADA Plan Review Checklist #1



## ADA PLAN REVIEW #1

Plan Review Stage (ADA Review #1: 30% - 60%)

30%  45%  60%

SP  City  Letting Date  ChargeID T  TH(s)

Project Description

Project Designed by: MnDOT/Consultant (firm's name)  Lead ADA Designer(s)  Engineer of record

### Design Survey Method

- LIDAR
- Total Station
- RTK
- Aerial/Mapping
- Others

Survey Accuracy within 0.10' horizontal and 0.05' vertical shall be used for all Level 2 and 3 designs

[Click to Attach Plan Set](#)

Snow & Ice Maintenance Requirement Widths  MAR width (If APS) Signal Designer

Ped Ramps Design Detail - LEVEL 1  LEVEL 2  LEVEL 3

Sidewalk Design Detail - LEVEL 1  LEVEL 2  LEVEL 3  [leave unchecked if project has no sidewalk work beyond curb ramps]

Please check the box if your ADA design contain any of these [level of details](#)



# ADA Plan Review Checklist #1

CURB RAMPS			DESIGN LEVEL			
No.	Description	Guide	L 1	L 2	L 3	Comment (if not checked)
1	Followed <a href="#">ADA Project Design Guide</a> (PDG) and <a href="#">Curb Ramp Guidelines</a>	<input type="checkbox"/>				
2	Followed <a href="#">preferred Curb Ramp Design, APS Design, Sidewalk Design and Driveway Design Criteria</a>	<input type="checkbox"/>				
3	Utilized <a href="#">ADA Standard Legend</a>	<input type="checkbox"/>				
4	Show MnDOT and local agencies (city/county) Right-of-Way	<input type="checkbox"/>				
5	All Surface Utilities (Shown + Field Verified)	<input type="checkbox"/>				
6	20' (preferred) or 30' scale ADA details to fit an entire intersection on ONE sheet	<input type="checkbox"/>				
7	Determine Crossing Locations. Confer with <a href="#">Pedestrian Crossing Facilitation tech memo.</a>	<input type="checkbox"/>				
8	Pick Curb Ramp Types	<input type="checkbox"/>				
9	Existing flowlines from 2-3% need a construction note stating to table the flowline to less than 2% either on the Tabs for level 1's or on the ADA details for 2 and 3's.	<input type="checkbox"/>				



# ADA Plan Review Checklist #1

10	Existing flow line's over 3% need to be labeled & Include X, Y, Z or profile that brings the flow line to compliance	<input type="checkbox"/>				
11	Show Crosswalk and Push Button Locations, including push button table from <a href="#">Signal Guidance</a> .	<input type="checkbox"/>				
12	For APS pushbuttons located on signal poles, include the APS Pole Mounting Adaptor with a note in the signal plans	<input type="checkbox"/>				
13	For APS pushbuttons located on existing pedestals, ensure 3 saddle adaptors are labeled in the Plan for each pedestal	<input type="checkbox"/>				
14	Designer Intent (Contractor Friendly Terms) and X, Y, Z needed for all vertically constrained tie-ins	<input type="checkbox"/>				
15	Specify all non-compliant components to nearest foot and whole percent (slopes and ramp lengths)	<input type="checkbox"/>				
16	Directional curb shown properly (built integral with the curb and gutter)	<input type="checkbox"/>				
17	Curb removals at least 5' – 10' away from outside edge of ramps. Sidewalk removals at least 10' – 15' from initial landings with transition panel tie-in.	<input type="checkbox"/>				





# ADA Plan Review Checklist #1

SIDEWALK			L 1	L 2	L 3	Comment (if not checked)
18	Sidewalk Tabulation and Typical Sections	<input type="checkbox"/>				
19	Preliminary Sidewalk Profile	<input type="checkbox"/>				
20	Preliminary Curb & Gutter Profile	<input type="checkbox"/>				
21	Doorway Details (tie-in)	<input type="checkbox"/>				
22	Designer Intent (Contractor Friendly Terms) and X, Y, Z needed for all vertically constrained tie-ins	<input type="checkbox"/>				
23	<a href="#">Driveway Table</a> for Establishing Construction Limits	<input type="checkbox"/>				
24	All Surface Utilities Shown on Sidewalk Plan Sheets (Proposed & Existing)	<input type="checkbox"/>				
25	20' - 50' Scale Construction Plan Sheets showing sidewalk work limits.	<input type="checkbox"/>				
26	20' - 30' Scale Sidewalk Plan Sheets showing half/full block depending on complexity incl. curb ramps on each end.	<input type="checkbox"/>				

[Click here to submit to MnDOT Operations-ADA](#)

Rev: 1/15/2018



# ADA Plan Review Checklist #2

CURB RAMPS			DESIGN LEVEL			
No.	Description	Guide	L 1	L 2	L 3	Comment (if not checked)
	<a href="#">ADA Pay Items</a> Included in Plans		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1	ADA Concrete Walk <input type="checkbox"/> ADA Concrete Curb & Gutter <input type="checkbox"/> Mill and Patch Bituminous Pavement <input type="checkbox"/> Remove and Replace Bituminous Pavement <input type="checkbox"/> Site Restoration <input type="checkbox"/> Drill and Grout Reinforcement Bars <input type="checkbox"/>	<input type="checkbox"/>	CHECK ALL ADA PAY ITEMS BEING USED			
2	Radial Domes are used whenever the domes are placed at the back of curb (label radius). These radial domes must be tabbed out separately from the rectangular domes	<input type="checkbox"/>				
3	Typical Sections Shown in Plan	<input type="checkbox"/>				
4	Note for all initial Landings to be poured separately, language matching the ADA special provisions from 1803 (requires Drill & Grout Reinf Bars)	<input type="checkbox"/>				
5	ADA Special Provisions	<input type="checkbox"/>				



# ADA Plan Review Checklist #2

6	Standard Plates, Standard Plans	<input type="checkbox"/>				
7	Show Striping or Outline of Striping on ADA Detail Sheet	<input type="checkbox"/>				
8	X, Y for Push Buttons Stations, New Signal Poles, and Zero Height Curb	<input type="checkbox"/>				
9	Survey control/Datum shown in Plan	<input type="checkbox"/>				
10	X, Y, Z or radius and profile for all Curb & Gutter modifications	<input type="checkbox"/>				
11	Landscape/Construction Plans show a compliant joint detail	<input type="checkbox"/>				
12	ADA Design Calculation	<input type="checkbox"/>				
<b>SIDEWALK</b>			L1	L2	L3	Comment (if not checked)
13	Final Sidewalk Profile	<input type="checkbox"/>				
14	Final Curb & Gutter Profile	<input type="checkbox"/>				

[Click here to submit to MnDOT Operations-ADA](#)





# ADA Design Memo

SP #: \* District:  City: \* TH(s): \*

Project Description (Stand alone, Mill and Overlay, Reconstruction, etc...)  
\*

MnDOT/Consultant (firm's name) Lead ADA Designer(s) Engineer of record

Project Designed by: \* \* \*

Letting Date: \*  Letting Agency: \*

Survey Method Used	Vertical Acc. (ft)	Horizontal Acc. (ft)	Date of Survey	Design Survey Crew Chief	Comment
<input type="text" value="Select..."/> *	± <input type="text"/>	± <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/>	<input type="text"/>

Click to add more survey method

Guidance on filling out the memo is available at <http://www.dot.state.mn.us/ada/pdf/DesignMemoGuidance.pdf>



# ADA Design Memo

Number of Quadrants (no APS) <input style="width: 50px;" type="text" value=""/>		Number of Quadrants (with APS/PB) <input style="width: 50px;" type="text" value=""/>	
Sidewalk/Trail Work on MnDOT Right-of-Way? <input type="checkbox"/> Yes <input type="checkbox"/> No click <a href="#">here</a> for sidewalk/driveway measurement method. <i>NOTE: Sidewalk work does not include 6" walk that is part of curb ramps</i>			
Any ADA-governed (curb ramps, sidewalks, driveways, etc) facilities work deferral? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Number of Non-compliant Curb Ramps	{	Ramp slope > 8.3%:	<input style="width: 50px;" type="text" value=""/> *
		Landing slope > 2.0%:	<input style="width: 50px;" type="text" value=""/> *
		Pedestrian Access Route (PAR) is less than 4 ft:	<input style="width: 50px;" type="text" value=""/> *
Number of Non-Compliant Curb Ramps due to <b>Roadway</b>	{	Inslope/Crosswalk Slope > 5%:	<input style="width: 50px;" type="text" value=""/> *
		Flowline Grade > 2%	<input style="width: 50px;" type="text" value=""/> *
Number of Curb Ramps w/ Existing Flowline	{	between 2% - 3% w/ Note:	<input style="width: 50px;" type="text" value=""/> *
		> 3% w/ Profiles or x,y,z's:	<input style="width: 50px;" type="text" value=""/> *
Total number of Push Buttons:			<input style="width: 50px;" type="text" value=""/>
Number of Push Buttons that don't meet standards	{	Offset/Setback/Separation/Landing Criteria:	<input style="width: 50px;" type="text" value=""/>
		< 6 ft Maintenance Access Route (MAR):	<input style="width: 50px;" type="text" value=""/>
		Button < 2 ft from grade break and back of walk:	<input style="width: 50px;" type="text" value=""/>
<b>State the number of non-compliant elements in Plans:</b>			<input style="width: 50px;" type="text" value=""/> *



# ADA Design Memo

Attach documentation along with alternatives considered for the non-compliant design elements. Include **mitigation steps taken** and **reason(s)** why it still can't be compliant.

Example of documentation includes but is not limited to: Design plans with calculations, review and analysis of ADA field walk recommendations, emails, photographs, correspondences with public/local agency, etc.

## **ZIP THE FILE TOGETHER BEFORE UPLOADING!**

**Rename the zipped file to the Project SP # then upload the file to the link below:**

<https://mn365.sharepoint.com/sites/DOT-teams3/ADA/DesignerDocumentation/Forms/AllItems.aspx>

If **ANY** ped ramps are proposed to be excluded from the project, include ALL compliance checklist forms in the zipped attachment for existing curb ramps to verify compliance.

I certify that the information entered on this form and the submitted compliance checklist forms are accurate to the best of my knowledge and were completed by me or under my direct supervision.

Submit to ADA Compliance



# ADA Pay Items

## TRADITIONAL PAY ITEMS

REMOVE CURB AND GUTTER  
REMOVE BITUMINOUS PAVEMENT  
REMOVE CONCRETE WALK  
SAWING BITUMINOUS PAVEMENT  
SAWING CONCRETE WALK  
BITUMINOUS PATCHING MIXTURE  
CONCRETE CURB & GUTTER B624  
CONCRETE CURB & GUTTER B424  
AGGREGATE SURFACING CLASS 5  
CONCRETE CURB DESIGN V4  
CONCRETE CURB DESIGN V6  
4" CONCRETE WALK  
6" CONCRETE WALK  
COMMON EXCAVATION  
COMMON BORROW  
SUBGRADE PREPARATION  
SELECT TOPSOIL BORROW  
SODDING TYPE LAWN

## ADA PAY ITEMS

REMOVE AND REPLACE BITUMINOUS PAVEMENT  
MILL AND PATCH BITUMINOUS PAVEMENT  
REMOVE CONCRETE WALK  
CONCRETE CURB AND GUTTER  
CONCRETE WALK  
CONCRETE CURB DESIGN V  
SITE RESTORATION





# ADA Pay Items

- Due to adding sidewalks and driveways to the previous curb ramp only projects, there has been issues with paying for Aggregate Base and Site Restoration. Sometimes roadways are altered more than 2' linear patch in front of gutter so flexibility will be required in the pay item.
- (2104) Remove and Replace Bituminous Pavement (ADA) – Change from LF to SF
- (2232) Mill and Patch Bituminous Pavement (ADA) – Change from LF to SF
- (2575) Site Restoration – Keep by the EACH for curb ramp only jobs. Add payment by SF item for all jobs including sidewalks and driveways.



# ADA Pay Items

- (2521) Concrete Walk (ADA)– Remove incidental Aggregate Base and have designers comp and include pay item for 3" of Aggregate Base by the CV under all new concrete curb ramp areas for all projects.
- (2531) Curb and Gutter (ADA) – same recommendation as 2521 Concrete Walk (ADA)

This will clear up confusion from incidental Aggregate Base on curb ramps and paying for it under Sidewalks/Driveways. Designers should include Aggregate Base CV pay item so construction can use as needed.

Plan (P) quantities should not be used due to varying field conditions.



# ADA Pay Items

Designer direction for sidewalks and driveways:

- Use traditional pay items for 4" concrete walk, 6" and 8" driveway pavement.
- Compute 3" Aggregate Base CV for all new concrete areas. Plan (P) quantity should not be used due to unknown soil and aggregate base conditions - especially in intermittent sidewalk replacement areas.
- Calculate grading quantities (common excavation, embankment) whenever there is brand new sidewalk where none currently exist or whenever existing sidewalk replacement width, alignment, or profile changes.

# PAR Alignment

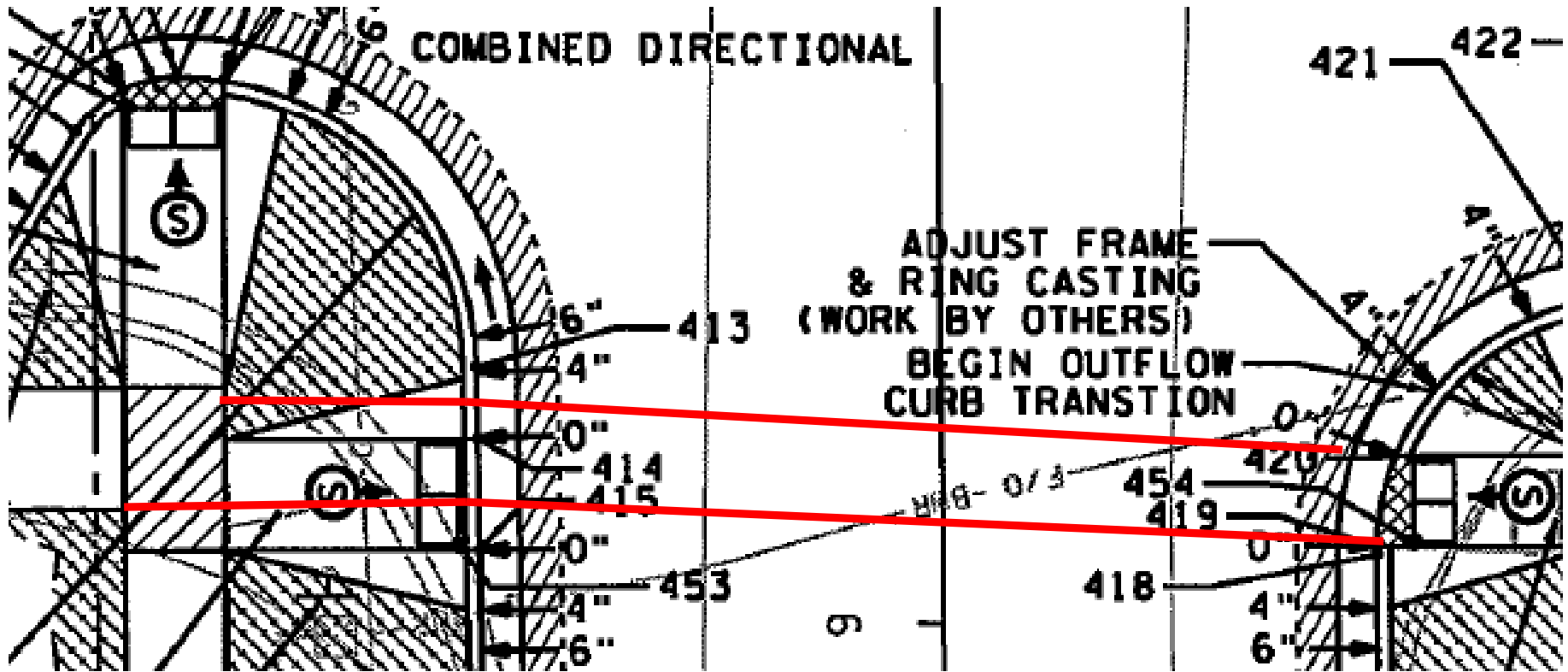




# PAR Alignment



# PAR Alignment



# PAR Alignment

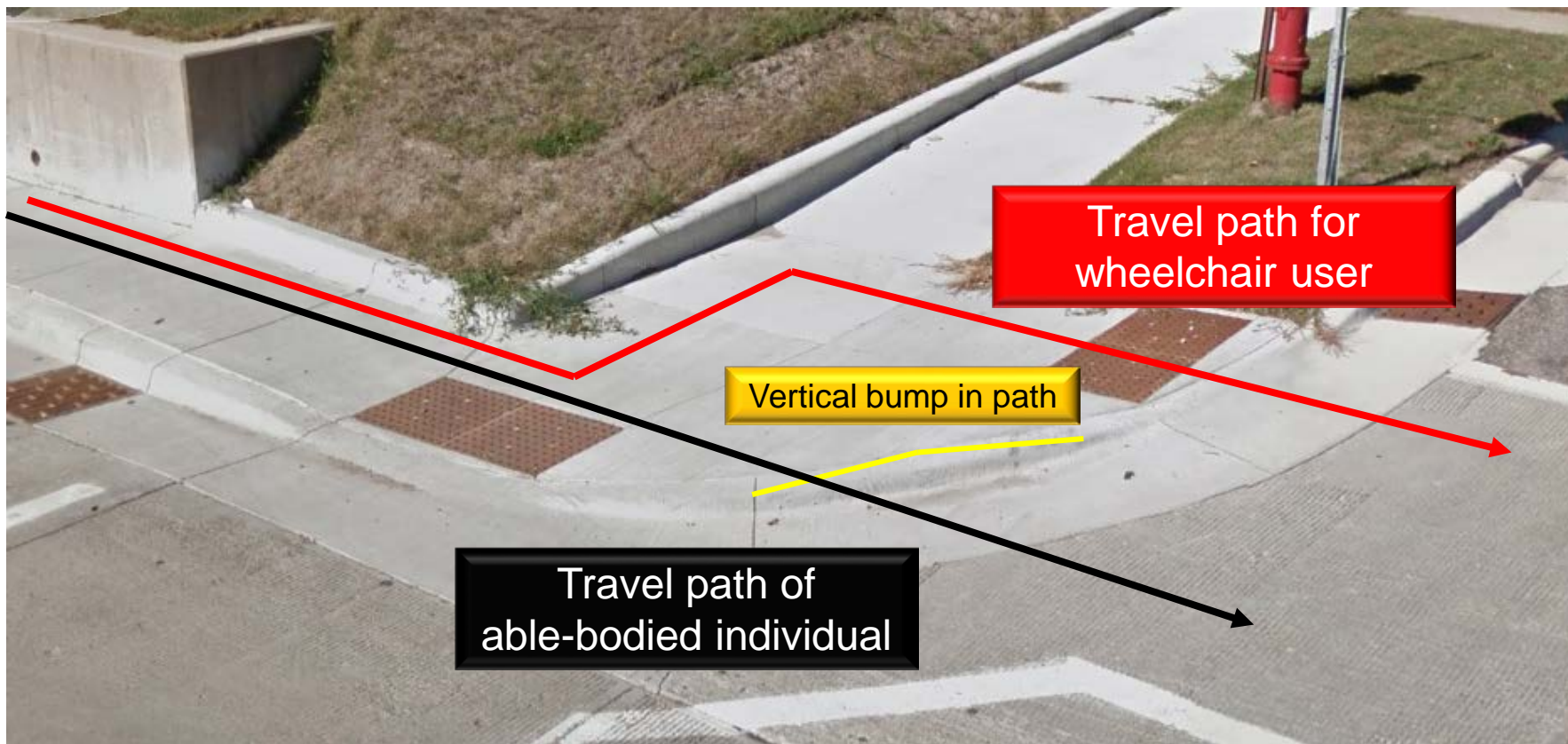
- Can be used if offset is less than or equal to half the ramp width and an adequate sidewalk taper is used
- 1:3 min. with 1:5 preferred
- 1:10 min for full sidewalk reconstruction projects





# PAR Alignment

Does the picture below look usable and maintainable?





# PAR Alignment



# PAR Profile

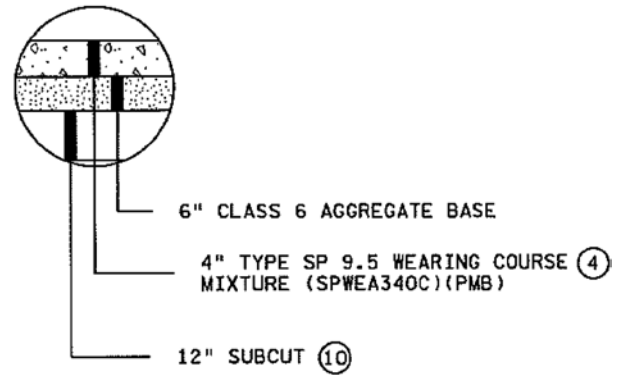
Minimize “Roller coaster” effect



# Bituminous Pedestrian Facilities

- Bituminous should be paved in two 1.5" lifts at a min.
- 2% max. cross-slope is rarely achieved when only one bituminous lift is used

INSET E





# Bituminous Pedestrian Facilities

- 2% max. cross-slope
- 5% max. running slope





# Bituminous Pedestrian Facilities



# Bituminous Pedestrian Facilities



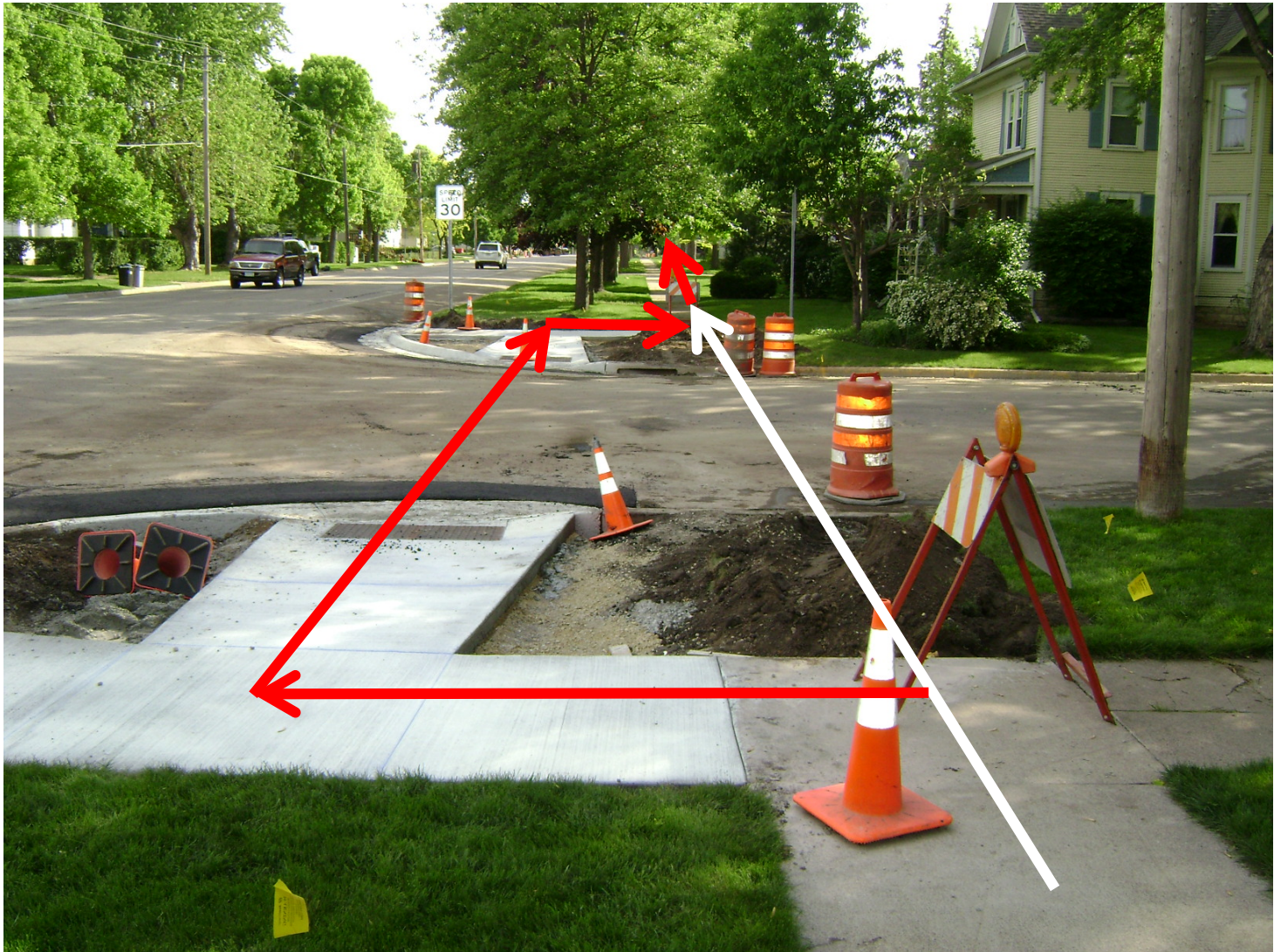


# ADA Hydraulics





# ADA Hydraulics





# ADA Hydraulics

- To be used when the existing catch basin is 1' or less from the edge of pedestrian ramp or within the path of travel of an APS push button.
- When constructing new catch basins or relocating existing catch basins, the new structures should be located 10' min away from the edge of ramp.



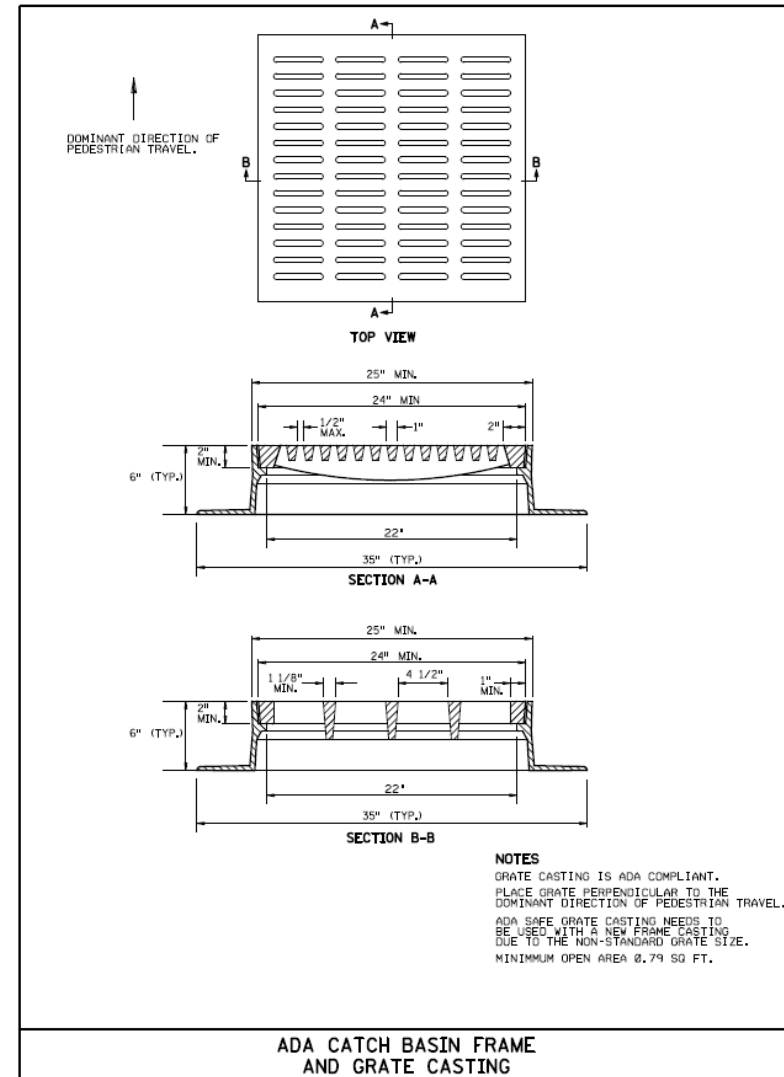
# ADA Hydraulics

- ADA Safe grates have approximate 50% less hydraulic capacity compared to the standard grate.
- “Helper” structures should be used when added capacity is needed.



# ADA Hydraulics

- A standard plate is in the process of being created for ADA Safe Grate.
- The interim procedure is to include the ADA safe grate detail in the plan.
- Openings in ground and floor surfaces, such as grates, are limited in width to prevent passage of a 1/2" diameter sphere.





# ADA Hydraulics

- Catch basins with curb boxes must be outside the pedestrian ramp and curb taper
- A “helper” structure should be added upstream whenever a curb box is removed at a low point



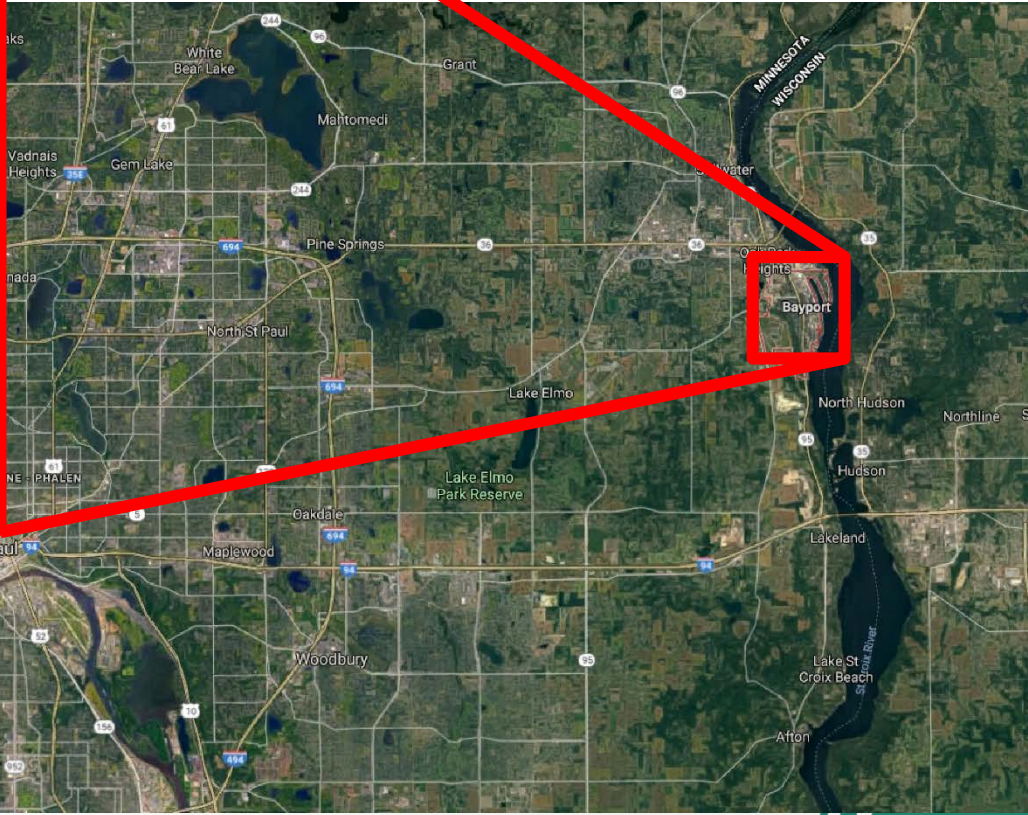
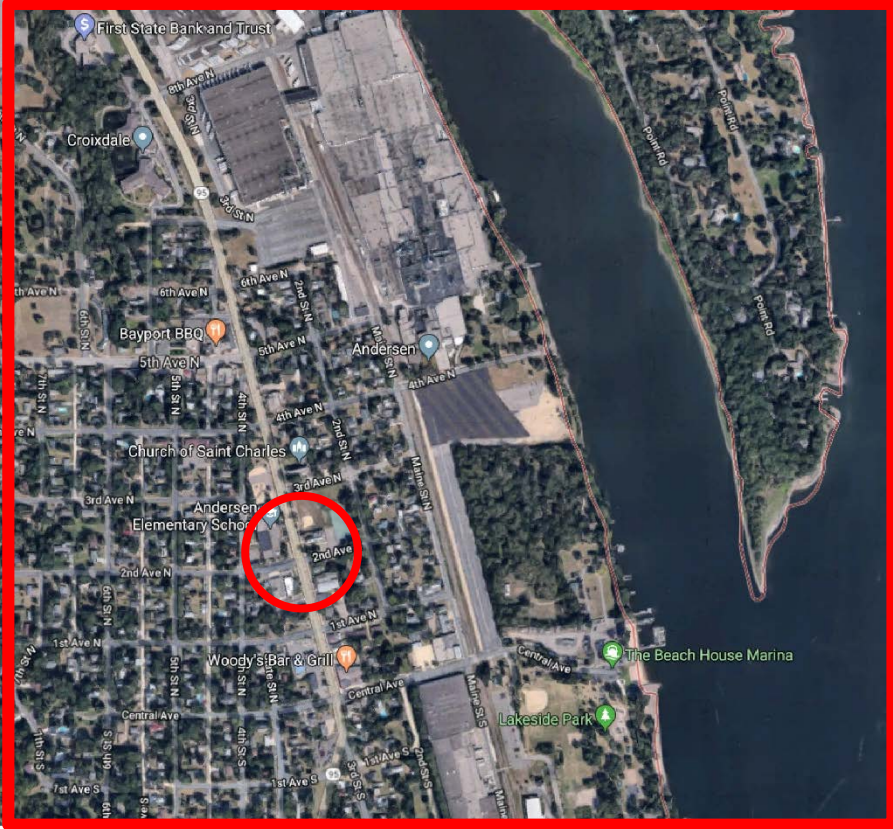
# ADA Safe Tree Grates





# Example: TH 95 (3<sup>rd</sup> St N) in Bayport

## Proposed Project, Bayport



3<sup>rd</sup> St N & 2<sup>nd</sup> Ave N



# Example: TH 95 (3<sup>rd</sup> St N) in Bayport



TH 95 (3<sup>rd</sup> St N) & 2<sup>nd</sup> Ave N



# Example: TH 95 (3<sup>rd</sup> St N) in Bayport



TH 95 (3<sup>rd</sup> St N) & 2<sup>nd</sup> Ave N



# Example: TH 95 (3<sup>rd</sup> St N) in Bayport



TH 95 (3<sup>rd</sup> St N) & 2<sup>nd</sup> Ave N



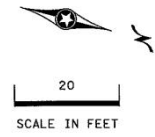
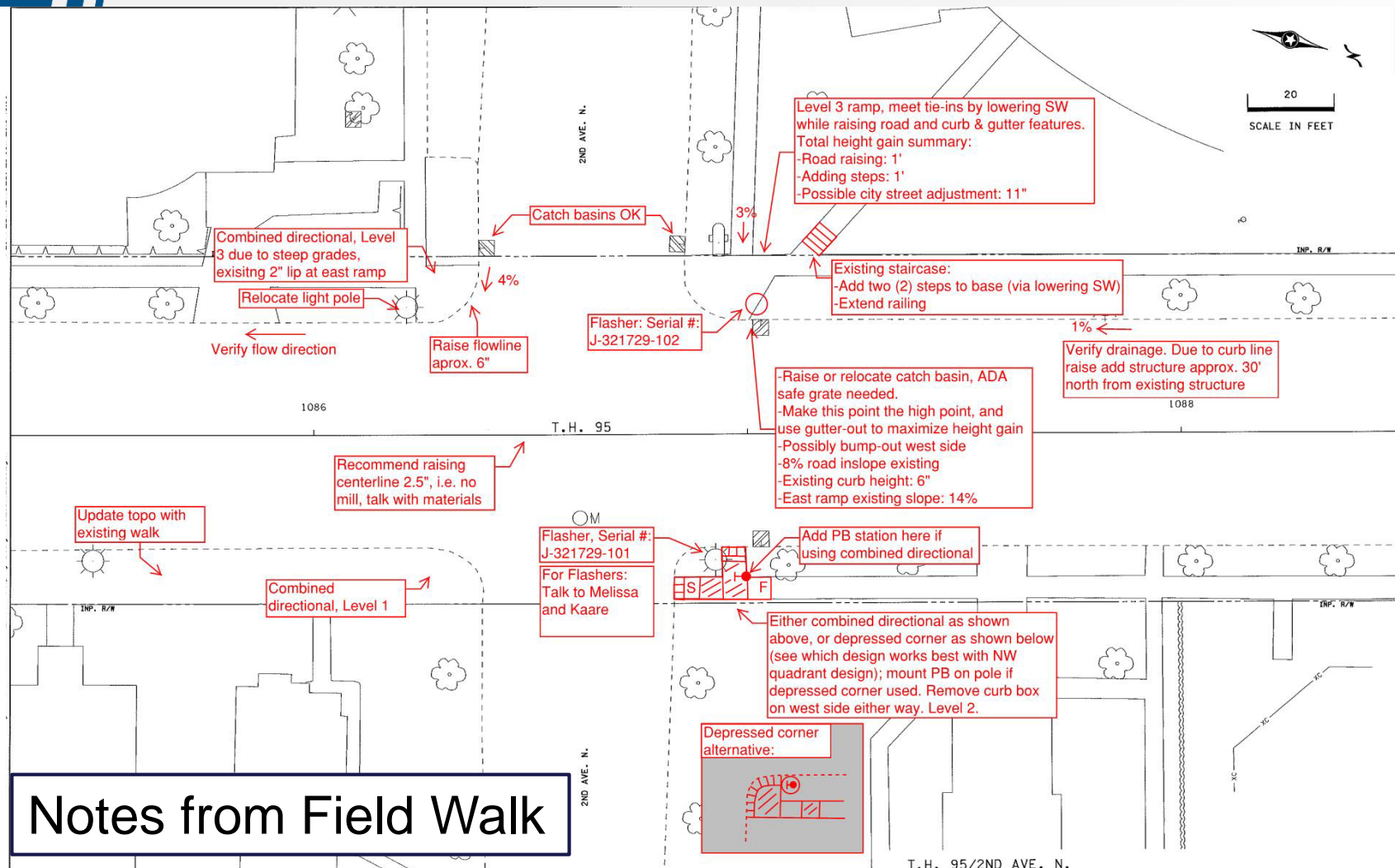
# Example: TH 95 (3<sup>rd</sup> St N) in Bayport



TH 95 (3<sup>rd</sup> St N) & 2<sup>nd</sup> Ave N



# Example: TH 95 (3<sup>rd</sup> St N) in Bayport

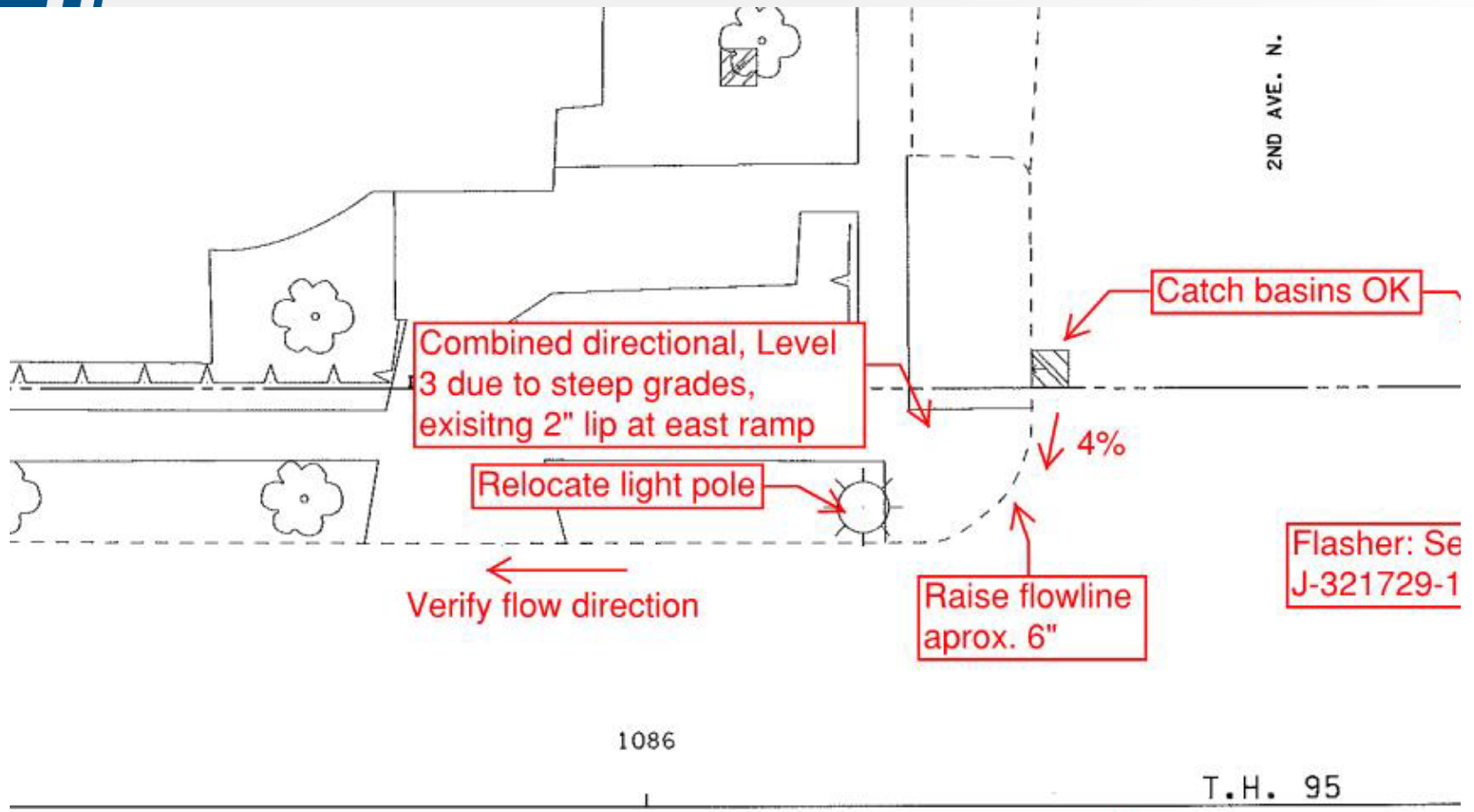


**Notes from Field Walk**

# Example: TH 95 (3<sup>rd</sup> St N) in Bayport



# Example: TH 95 (3<sup>rd</sup> St N) in Bayport



SW Corner

Recommend raising centerline 2.5", i.e. no mill, talk with materials

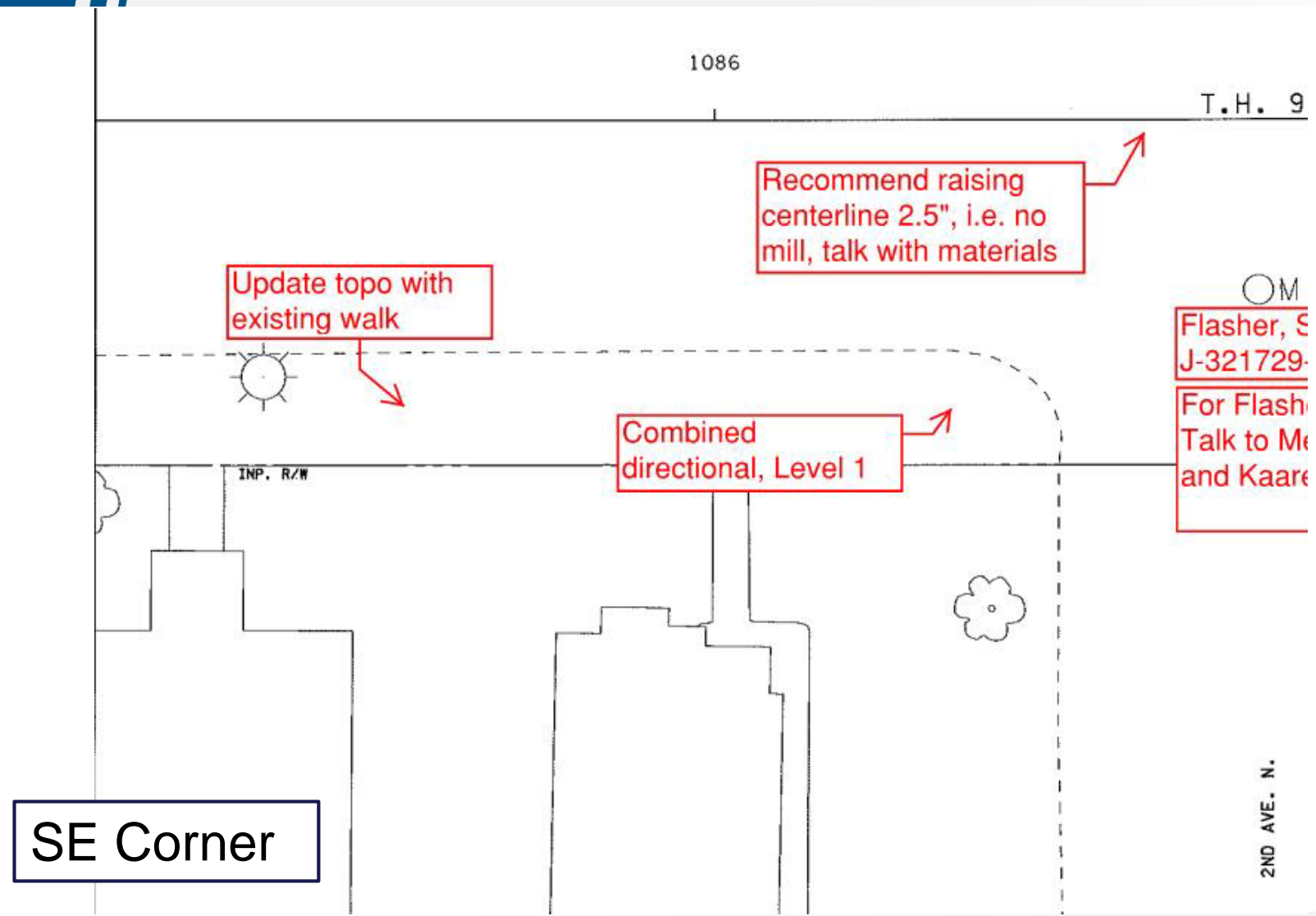


# Example: TH 95 (3<sup>rd</sup> St N) in Bayport



SE Corner

# Example: TH 95 (3<sup>rd</sup> St N) in Bayport





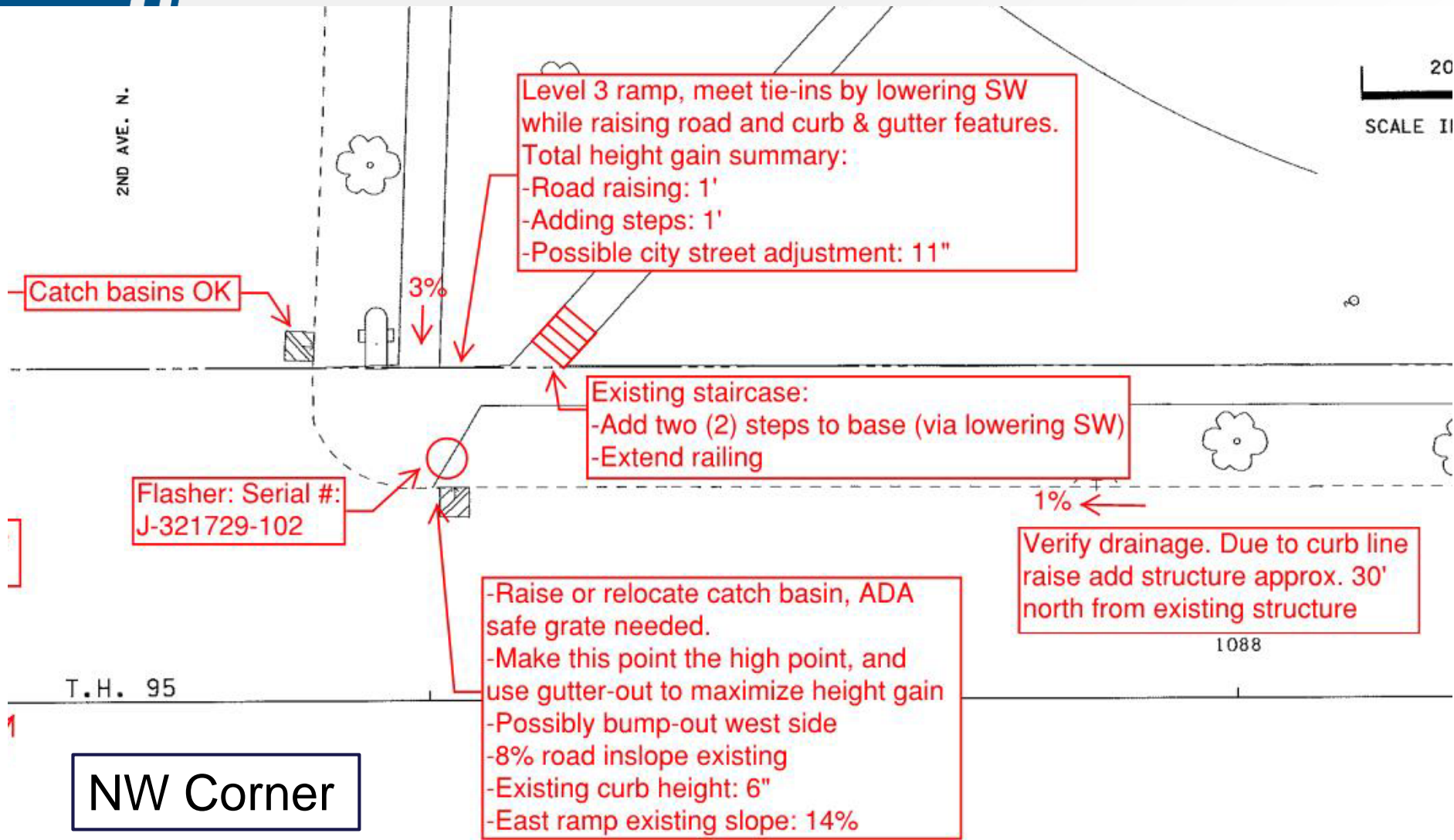
# Example: TH 95 (3<sup>rd</sup> St N) in Bayport



NW Corner



# Example: TH 95 (3<sup>rd</sup> St N) in Bayport



20  
SCALE 1/2"



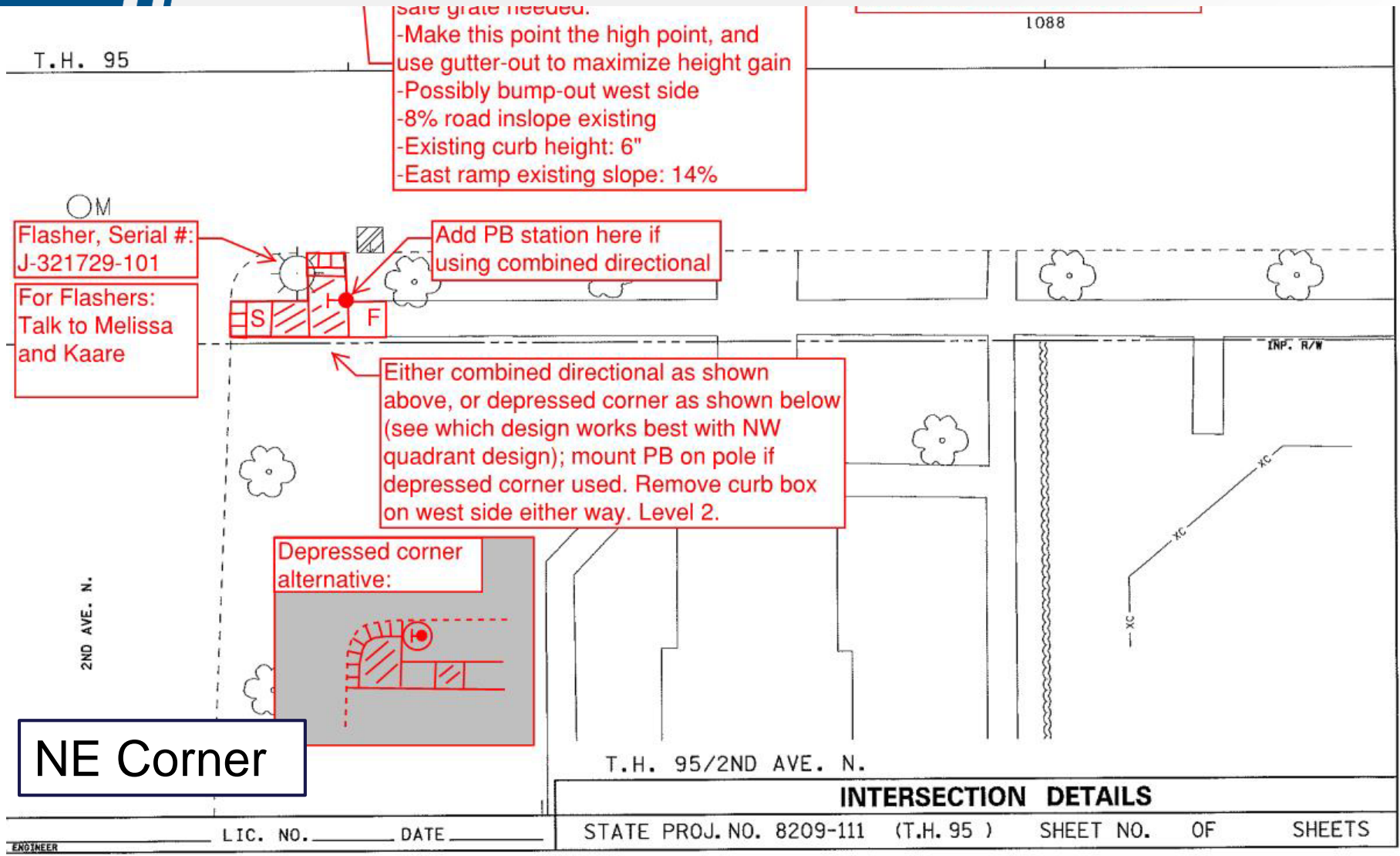
# Example: TH 95 (3<sup>rd</sup> St N) in Bayport



NE Corner



# Example: TH 95 (3<sup>rd</sup> St N) in Bayport





# Example: TH 95 (3<sup>rd</sup> St N) in Bayport

## Summary

The intersection of 3<sup>rd</sup> St N and 2<sup>nd</sup> Ave N will require:

- Level 1 Curb Ramp (SE corner) and Level 2 Curb Ramp (NE corner)
- Two Level 3 Design Curb Ramps due to existing steep slopes
- Roadway Profile to be raised (~2.5")
- Curb & Gutter Reconstruction, Sidewalk Reconstruction, Stairway and Railing modifications (NW corner)
- Relocated Catch Basin and ADA Grate (NW corner)
- TH 95 School crossing improvements: Pedestrian Crossing Flashers (NW and NE corners) and push button (NE corner)
- Relocated Light Pole and Raised Curb Flowline (SW corner)
- Temporary Construction Easements?

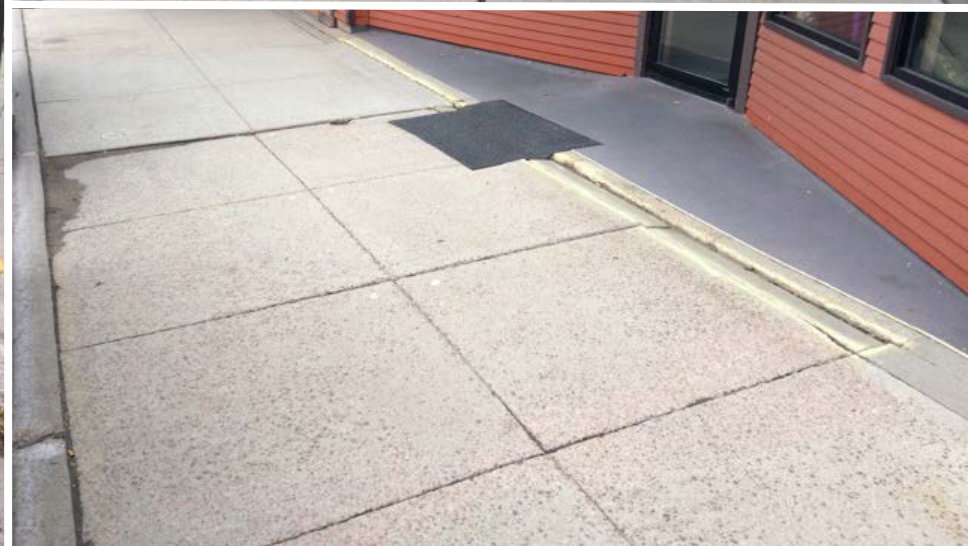
# Missed Opportunities – Curb Ramp Only

- Original project scope
  - Mill and Overlay requiring pedestrian ramp upgrades
  - Bump outs were constructed due to narrow sidewalks, steep side streets and doorway matches
  - City was not interested in bump outs but understood the need for compliance
  
- Sidewalk deficiencies were deferred
  - Cross slope issues
  - Poor condition



# Missed Opportunities – Curb Ramp Only

- Sidewalk settlement and tripping hazards





# Missed Opportunities – Curb Ramp Only



# Missed Opportunities – Curb Ramp Only

- Missed opportunity!
  - Curbs should have been modified during the overlay to correct sidewalk cross slopes
  - **Modifying curbs/fixing sidewalks will cause:**
    - *Curb ramp rework*
    - *Overlay rework*



# Missed Opportunities – Curb Ramp Only

- Post Project
  - City has identified trip hazards as a major issue, residents & business owners would like improvements
  - Evaluated sidewalk confirming condition and excessive cross slopes
  - Moving and raising curb line (Priority “A”) was needed to correct cross slope deficiencies







# Priority A Sidewalks

- Priority A sidewalks and driveways are constructed adjacent to the back of curb and require curb line replacement, relocation and/or raising the curb line to provide an accessible sidewalk.
- Reconstructing curb lines on preservation projects maintains roadway drainage and the roadway surface integrity.

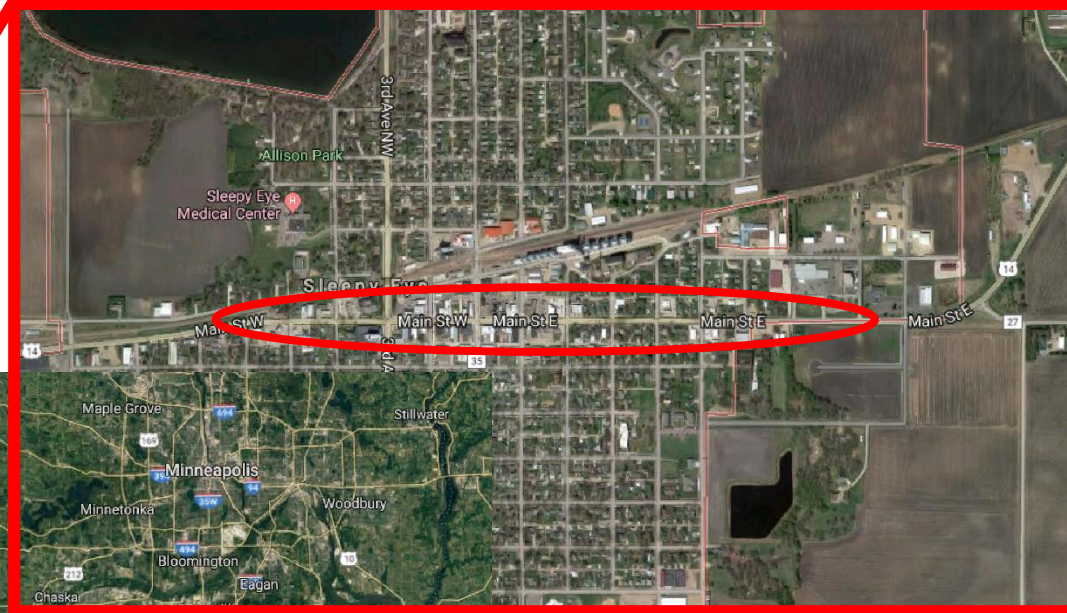


# Priority A Sidewalks

- All Priority A sidewalks shall be completed on alteration level projects in order to avoid missing any opportunities to substantially complete the Transition Plan.

# Example: TH 14 (Main St) in Sleepy Eye

## Mill & Overlay, Sleepy Eye





# Sleepy Eye Case Study

- Original project scope
  - BOC overlay
  - ADA Improvements
    - ✓ Curb ramps required
    - ✓ Sidewalk as needed
- Issues
  - Steep sidewalk cross slopes in a downtown cross section with fixed doorway tie-in elevations

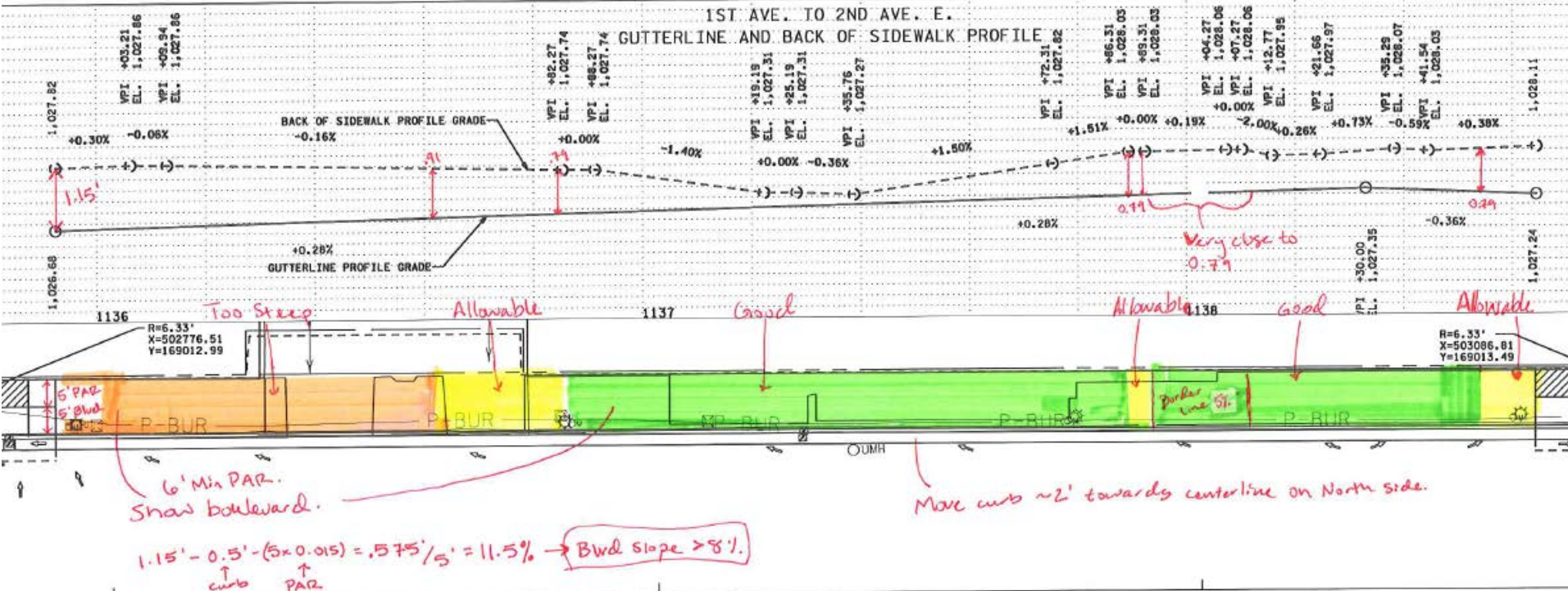




# Sleepy Eye Case Study

## ➤ Before Priority A

- Exceeded allowable paved boulevard cross slopes in areas (> 8%)
- PAR width adjacent to face of buildings did not meet minimums in areas (< 6 ft)
- Did not meet preferred balance of PAR to boulevard (2/3 PAR, 1/3 boulevard width)
- Ramps didn't work at some quadrants and have no construction tolerances





# Sleepy Eye Case Study

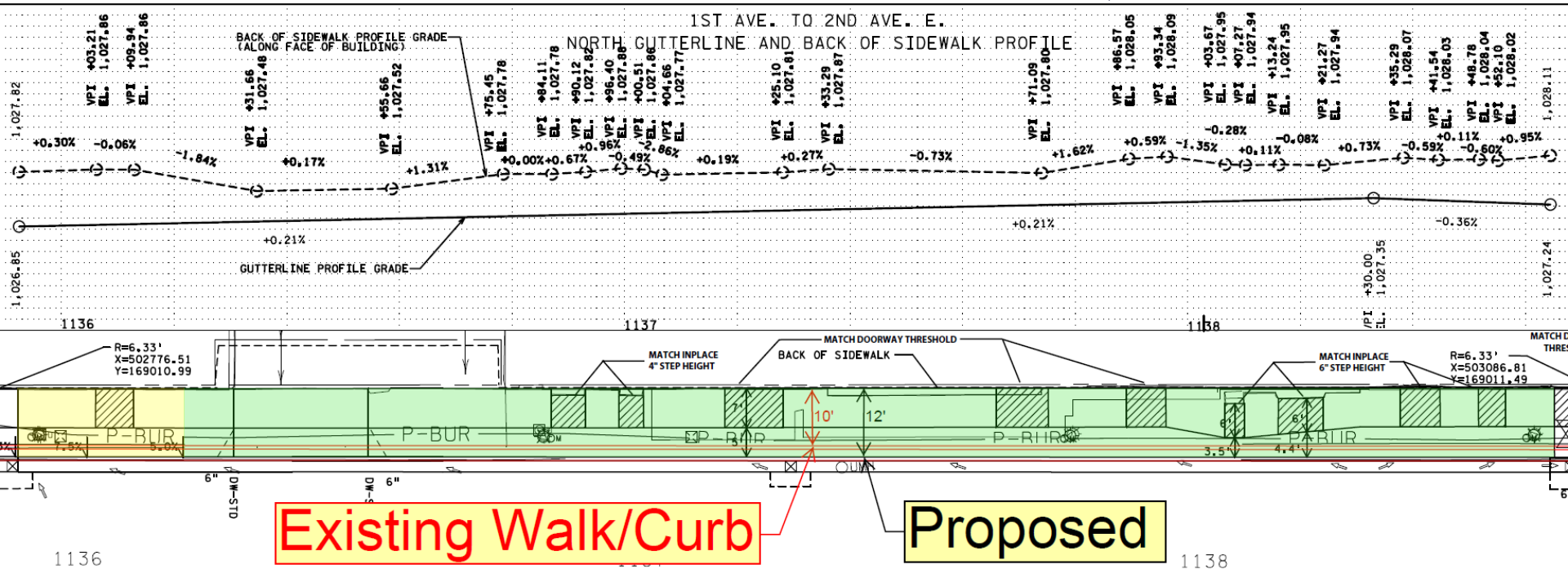
➤ After Priority A

- North Side of TH 14

- 2 blocks
- Move curb towards centerline by 2 feet
- Lift gutter flowline 3 inches
- 7' PAR, 5' boulevard achieved

- South Side of TH 14

- 2 - half blocks
- No curb move
- Lift gutter flowline 3 inches
- 6' PAR, 4' boulevard achieved



# Sleepy Eye Case Study

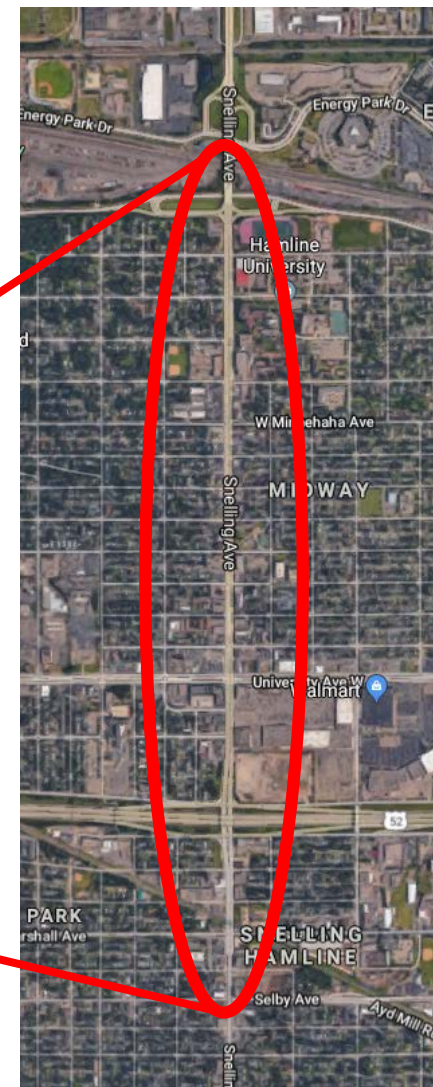
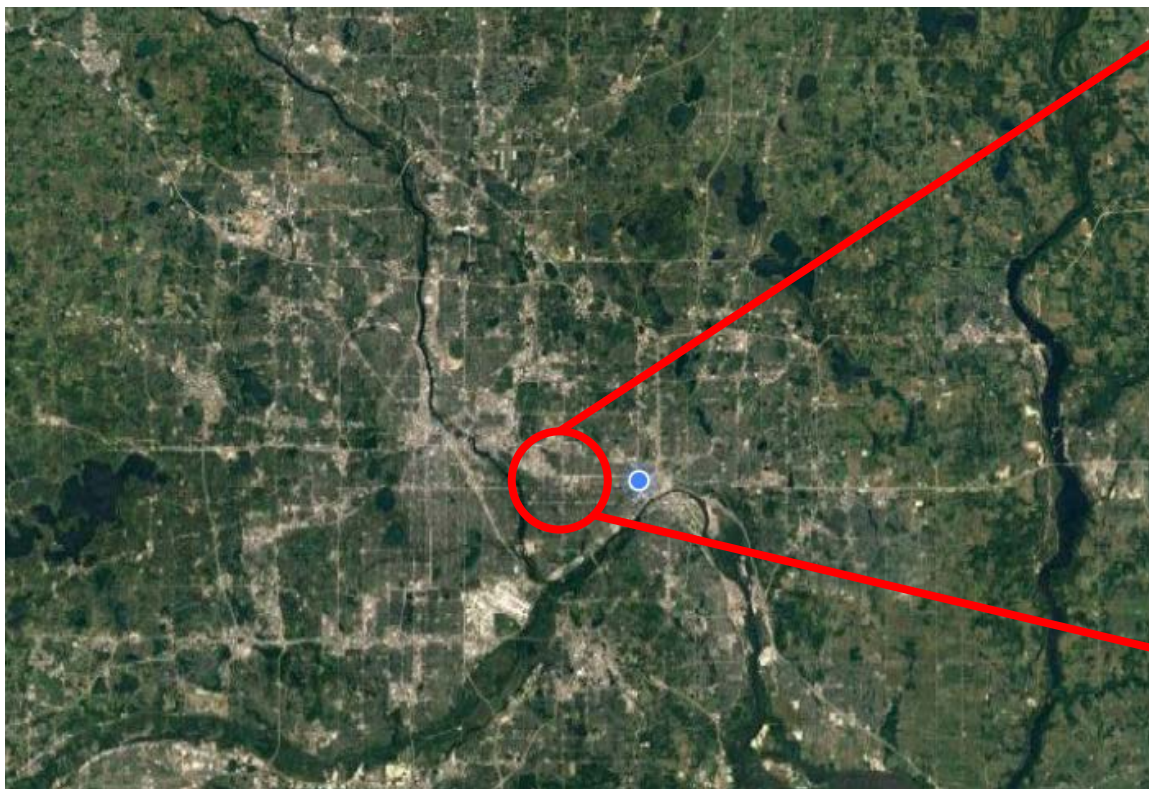
- Power of the Delta
  - Additional quantities for Priority A:
    - ✓ Sawcutting Pavement
    - ✓ Reinforcement
    - ✓ Pavement Removal
    - ✓ 4" Walk
    - ✓ Curb Removal
    - ✓ Agg. Base
    - ✓ B624 Curb (Modified)
    - ✓ Storm Drainage Work

**SP 0803-38 TH 14 Priority A "Cost Delta"**

	<b>Curb, Walk, Reinforcement, etc.</b>	<b>Drainage</b>	<b>Total</b>
<b>North Side</b>	\$ 30,372	\$ 28,933	\$ 59,305
<b>South Side</b>	\$ 12,189	\$ 5,335	\$ 17,524
<b>Total</b>	\$ <b>42,560</b>	\$ 34,268	\$ <b>76,828</b>

# Example: Snelling Ave (TH 51) in St. Paul

Mill & Overlay,  
St. Paul







# Snelling Ave Mill & Overlay

Significant curb replacement with a Mill & Overlay (PRIORITY A)

- Useful for modifying flowline elevations locations and tying-in to doorways and other vertical constraints

Project Specifics:

- Approximate 20 blocks densely urban area
- Mill and Overlay with pedestrian reconstruction (preservation plus)
- “Road Diet” – shift curbs 2’ in on each side (this was being done already for new lighting installations, and long bump outs for BRT purposes)

AFTER



AFTER





AFTER

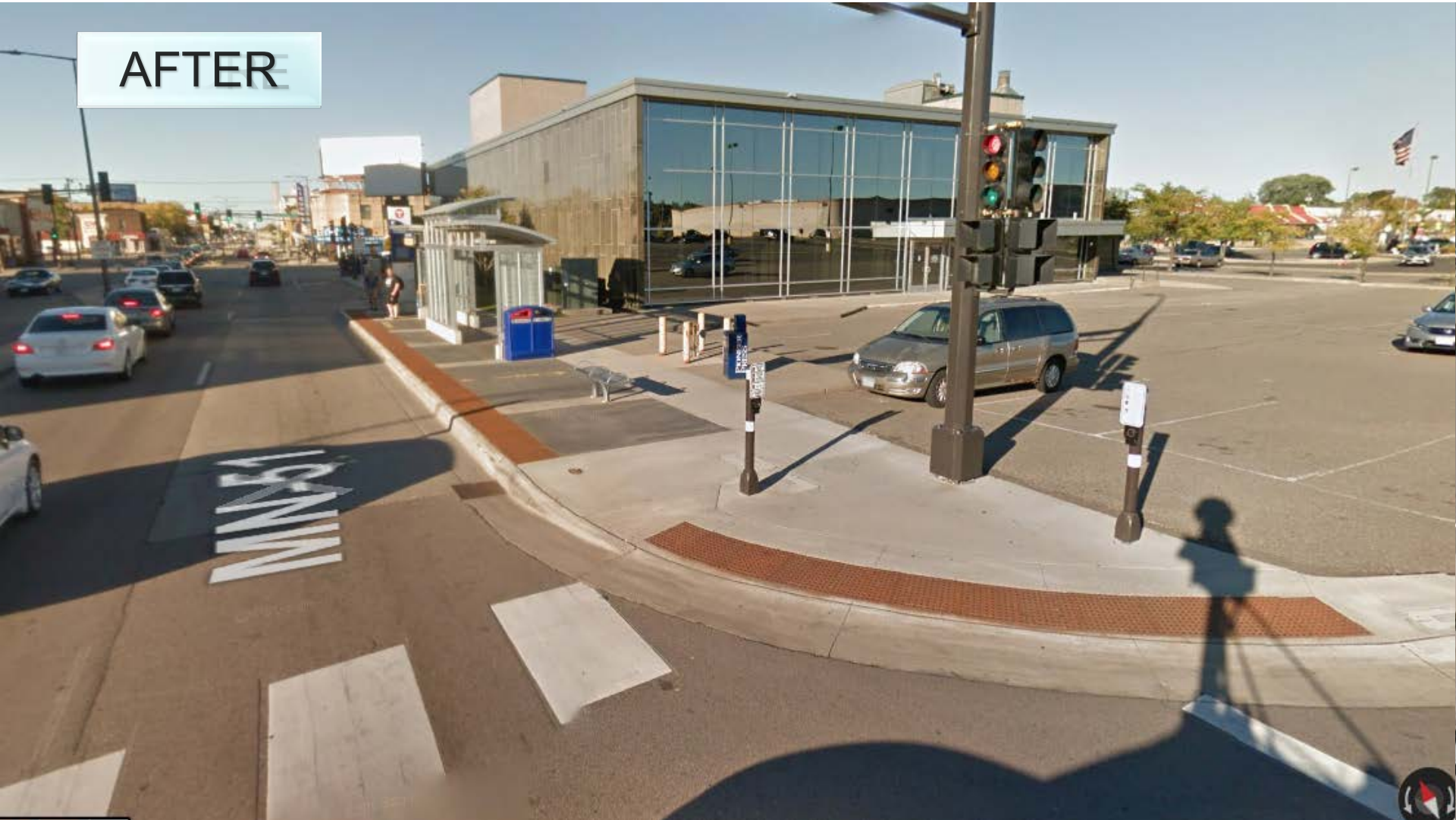


AFTER





AFTER

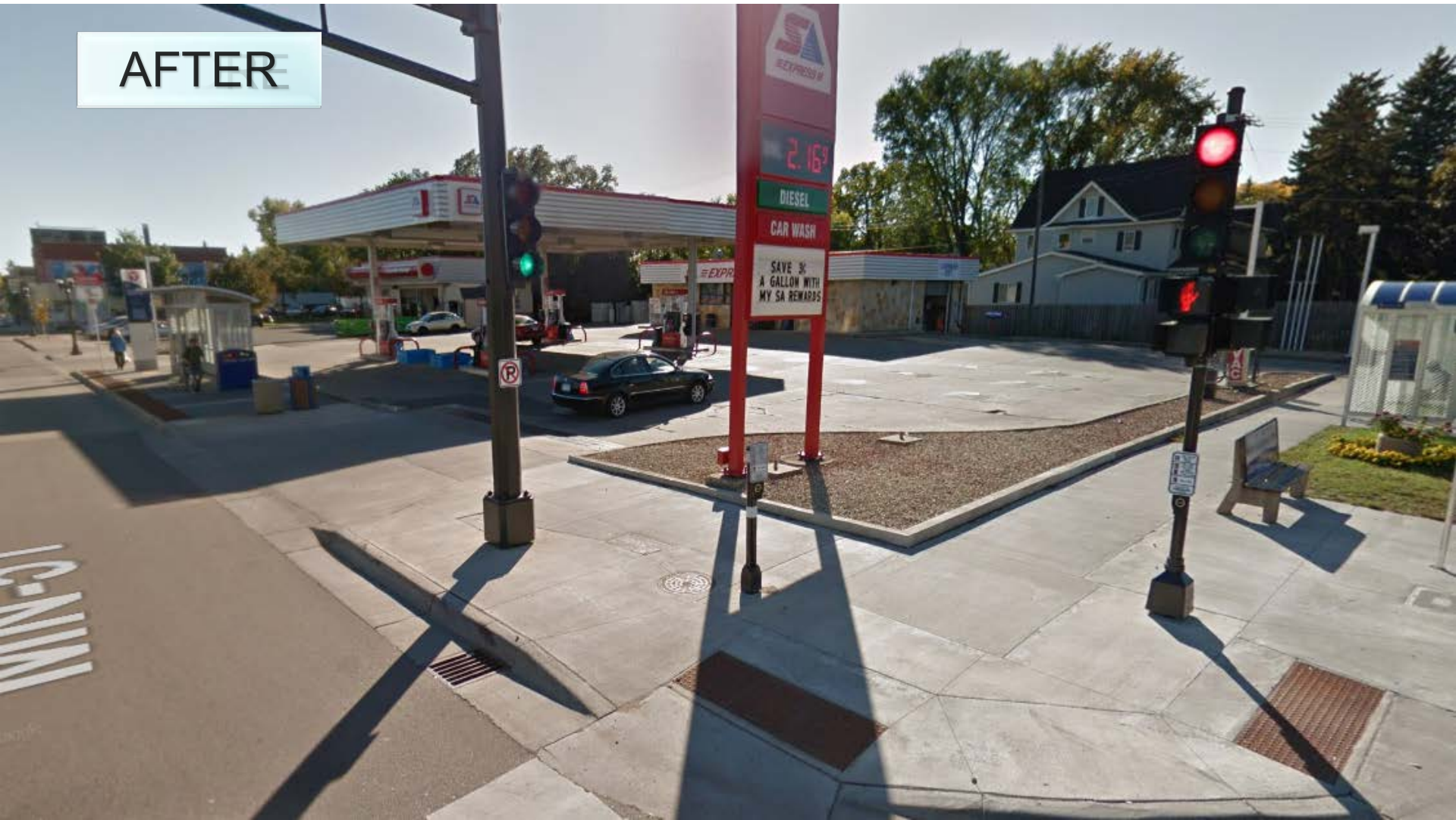




AFTER



AFTER





AFTER



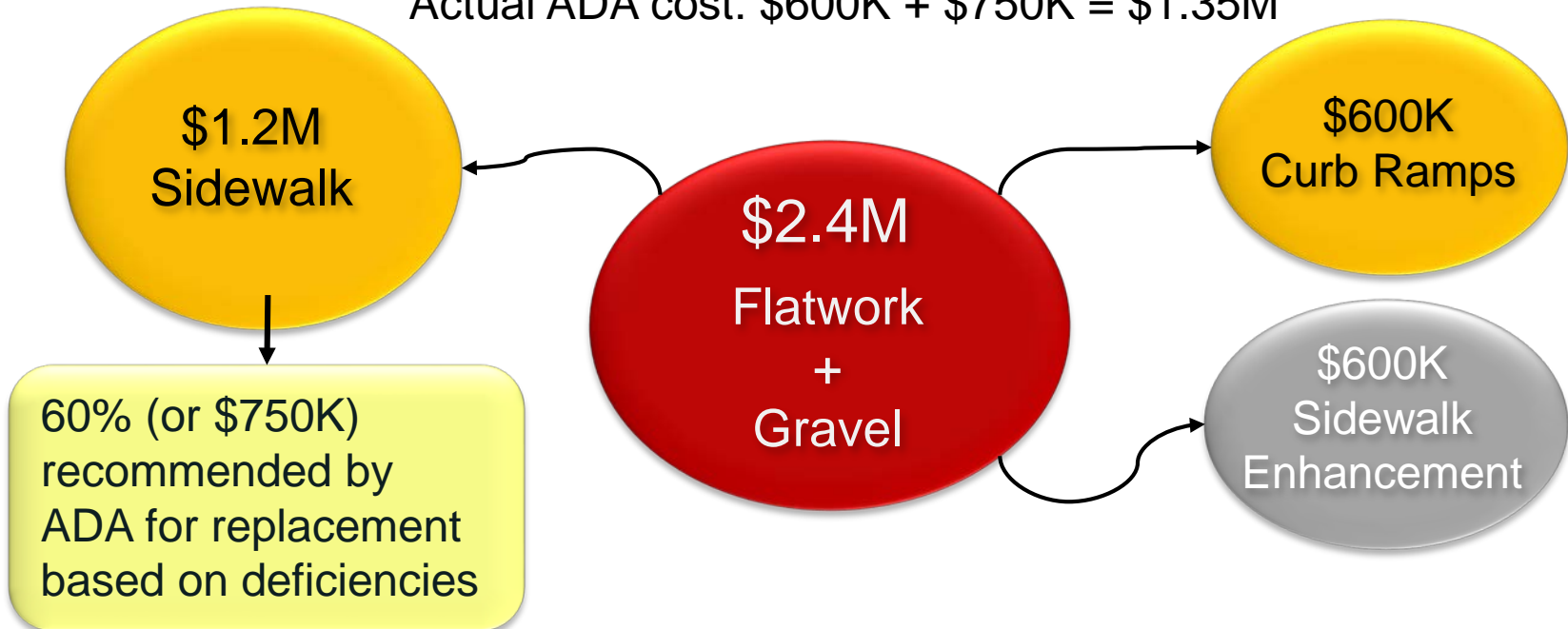


# Snelling Ave Mill & Overlay

Project type	M & O with Pedestrian Reconstruction	Full Reconstruction
Total Cost	8.5M	20M
Price/Block	425K*	1M

The concrete flatwork accounted for \$120K a block, or \$2.4M to the total project

Actual ADA cost: \$600K + \$750K = \$1.35M





# Scoping Minimum ADA Following Federal Requirements

Pre-2010

2010

2016

2017

ANOTHER  
PROJECT  
UPCOMING IN  
2019!



# The MnDOT Scoping Process

Project Managers are required to identify all accessible pedestrian facility needs in the scoping phase of project development:

- ADA Unit Field Walk
  - Identify facility types, ROW needs, utilities, obstructions, and necessary coordination with local jurisdictions
- Right-of-way needs to meet MnDOT ADA requirements
  - Preliminary Plans should include enough ADA design to generate dependable construction limits and allow sufficient time to acquire ROW and easements
- Budget to meet MnDOT ADA requirements
  - Use industry norms for cost estimates of items needed for achieving accessibility



# The MnDOT Scoping Process

## Field Walk (Assessing the needs)

- Identify what facilities and upgrades will meet the needs of all users
  - Curb Ramps: Install where needed and upgrade when existing ramps do not meet minimum requirements
  - Sidewalk (and Driveway) Improvements
  - Accessible Pedestrian Signal (APS) Upgrades
  - Roadway Modifications (Curb Line Modification, Tabling, Grade Mitigation, Structure Relocation, Crosswalks)
  - Maintenance Access Routes (MAR)
- Identify utilities and obstructions for relocation
- Determine necessary coordination with local jurisdictions

# The MnDOT Scoping Process

## Right-of-Way

- Additional ROW will often be required at quadrants and along sidewalks and driveways to meet Accessibility Standards
- Identification of ROW needs and easements shall occur at scoping or shortly after
- Exceptions to requiring ROW
  - Buildings or other permanent structures with durable concrete footings
  - Environmental Risks (vary by jurisdiction)
  - Significant Utility Relocations (Mains for water/sewer/storm/gas, communications vaults, large electrical distribution lines)

# The MnDOT Scoping Process

## Design

- Pedestrian facilities in new construction, reconstruction, and alteration projects are required to meet the following design requirements:
  - ADA Project Design Guide
  - MnDOT Standard Plate 7038A
  - MnDOT Standard Plans
  - MnDOT Road Design Manual
  - MnDOT LRFD Bridge Design Manual
  - MnDOT Tech Memos
- When the requirements are silent on an aspect of accessible design, designers will consult PROWAG
- In the event MnDOT requirements cannot be met, PROWAG minimums may be used



# The MnDOT Scoping Process

## Design

- Driveways and curb ramps need individual design to set reasonable construction limits
- Temporary construction easements can be established by acquiring uniform widths along a corridor
  - Adjacent turf areas should have a minimum 5' easement from back of walk
  - Adjacent paved areas should have a minimum 2' to set forms, allow for compaction, and eliminate trip hazards



# The MnDOT Scoping Process

## Design

- Turf boulevards should be 6' minimum to facilitate simple design
  - 8-10' encouraged for snow storage and improved tree planting
  - If 4' is maximum achievable, consider 4" curb height
- Sidewalks at back of curb should have minimum 7' width
  - 8' encouraged at driveways and curb ramps
  - Sidewalks adjacent to storefronts should have minimum 6' PAR and constructed with 2/3 PAR to 1/3 boulevard ratio





# Questions?

