

## MnDOT ADA PREFERRED DESIGNS

*"All designs need to be ADA compliant and follow the ADA Preferred Designs 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 Preferred Designs** were created to implement best practices and incorporate lessons learned into a manner that provides construction tolerances and meets the long term maintenance and usability needs."*

**REASON(S) FOR PREFERRED**

- {C} = CONSTRUCTION
- {M} = MAINTENANCE
- {U} = USABILITY

**Design to the nearest minimum half foot increment, one foot increment (preferred) for all ADA and APS Applications.**

<b>PREFERRED CURB RAMP DESIGN CRITERIA</b>					
ITEM	MIN	MAX	PREFERRED	REASON	GUIDANCE
LANDING	4' X 4'	VARIES	5' X 5'	C & U	MATCH PAR's, enlarge landings to achieve perpendicular grade breaks, landings should be designed in one continuous plane
RAMP SLOPE	(F)	2.0%	5.0%	C, M & U	(1) Maintains drainage in gutter (2) Blend in better with surrounding terrain (3) Reduce removal limits while minimizing v-curb *The min. radius allowed for the grade break between the landing and ramp of a Fan ramp is 7'
	(S)	5.0%	8.3%		
	FAN	2.0%	8.3%		
ONCE YOU HAVE REACHED THE 3" MIN CURB HEIGHT, THE CURB HEIGHT SHOULD MATCH PAR HEIGHT. SHOW INTERMEDIATE CURB HEIGHTS WHEN (1) LANDING ELEVATIONS ARE LESS THAN THE TYPICAL CURB SECTION OR (2) BLVD's ARE LESS THAN 3 FEET AT THE CURB RAMP OR (3) WHEN SIDEWALK IS AT BACK OF CURB.				M & U	Avoid inverse sloped boulevards and keep landing above gutter line 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' APS/COMMERCIAL AREAS MATCH TRAIL WIDTH	M & U	Match PAR's
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.
FLOWLINE	POSITIVE FLOW	2.0%	1.0% MIN 1.5% MAX	C	Maintain positive drainage, flowline with radial domes show have a continuous grade, show tabling of curb and gutter if existing flow line is over 3%. If 2-3% provide contractor friendly term 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 flow lines, maintain positive drainage to edge of road and don't exceed 5%

When inverse grades are present minimize the elevation of the PAR, unless proven necessary to maintain drainage.

Grading or concrete/bit patch is always preferred over V-curb when needed to match surrounding property elevations. Talk with owners to see which treatment they would prefer.

Avoid introducing a bump in between ramps when it's in line with the direction of ped travel. This typically happens when ramp separation is minimal on a combined directional and either no or narrow boulevard is present. In these certain instances a Fan ramp or Depressed Corner will alleviate this problem and provide better maintainability and usability.

Flowlines need a 3" minimum freeboard to doorways. (3" below threshold) 4" min. for all other cases. (I.E depressed corners must not be used when adjacent to corner doorways at buildings.)

PREFERRED APS DESIGN CRITERIA					
ITEM	MIN	MAX	PREFERRED	REASON	GUIDANCE
Push Button Station Setback	1.5'	10'	4' MIN URBAN, 6-8' MIN RURAL, 9.5' MAX	M	Push Button setback from the back of curb (urban) or edge of roadway (rural)
Push Button from grade break or back of walk	0.75'	-	2' MIN	U	6' MAR trumps this preferred 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.
Push Button Separation	10'	-	10.5 MIN	C	Must meet MIN. MAR criteria at Porkchops
Keep all Pushbuttons outside of sidewalk PAR's. PB's shall not be in the middle of shared use paths.					Allowable PB encroachment: 2' on 10' trails and 1' on 8' trails.
When sidewalk is at the back of curb, the push button should be toward the back of walk. Typ. 8'-9.5' from the back of curb.					
When installing new signal poles it's preferred to get them out of the way as to not obstruct the pedestrian facilities. When in congested quadrants (i.e. downtown corridors) or rural quadrants that have much flexibility, APS push buttons on signal poles are preferred.					
When a sidewalk dead-ends (i.e. on freeway ramps where the PAR doesn't continue down the freeway ramp) a semi-directional ramp is preferred over a perpendicular ramp since the perpendicular ramp acts more like a diagonal ramp directing peds into the intersection. The directionality is governed by the APS Criteria, so a <b>3'</b> dome setback, <b>4'</b> long ramp and <b>9'</b> PB setback is the Max semi-directional ramp that can be constructed <b>(3,4,9)</b> .					

PREFERRED SIDEWALK DESIGN CRITERIA					
ITEM	MIN	MAX	PREFERRED	REASON	GUIDANCE
LANDING	5' X 5'	VARIES	-	C & U	MATCH PAR's, enlarge landings to achieve perpendicular grade breaks
ONCE YOU HAVE REACHED THE 3" MIN CURB HEIGHT, THE CURB HEIGHT SHOULD MATCH PAR HEIGHT. SHOW INTERMEDIATE CURB HEIGHTS WHEN (1) PAR ELEVATIONS ARE LESS THAN THE TYPICAL CURB SECTION OR (2) WHEN SIDEWALK IS AT BACK OF CURB.				-	When inverse grades are present, minimize the elevation of the PAR, unless needed to maintain drainage.
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.
FLOWLINE	POSITIVE FLOW	2.0%	1.5% MAX 1.0% MIN	C	Maintain positive drainage, show tabling of curb and gutter if existing flow line is over 3%. If 2-3% provide contractor friendly term to obtain <2% with note on plan.
SIDEWALK RUNNING SLOPE	2.0%	5.0%	4.0%	C, M & U	For sidewalk running slopes, the max. running slope is 5% (unless roadway grade is steeper). When sidewalk running slope is greater than 5% a landing is needed for every 30" of vertical rise with compliant handrails on both sides.
SIDEWALK RAMP SLOPE	5.0%	8.3%	7.0%		
SIDEWALK OFFSET AND TAPER	-	-	-	M & U	Maximum offset is 1/2 the width of the ramp. On Curb ramp retro fit 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'	VARIES	6' APS/COMMERCIAL AREAS MATCH TRAIL WIDTH	M & U	Talk with local agencies to understand their snow and ice maintenance requirements.

PREFERRED SIDEWALK DESIGN CRITERIA (Cont.)					
ITEM	MIN	MAX	PREFERRED	REASON	GUIDANCE
SIDEWALK WIDTH AT BACK OF CURB	5'-6'	VARIES	7' MIN PREFERRED 8'	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%	5%	M & U	Slopes greater than 8% can become tripping hazards for user traversing the curb and sloped blvd from the street. Other factors should be adjusted such as centerline road profile or flattening of the shoulder/parking lane to raise the curb line.
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 blvd.
GRASS BOULEVARD WIDTH	3' MIN	-	4' FOR 4" HIGH CURB FOR 6" HIGH CURB 6'	M & U	When the blvd. is less than 3', it should be paved.
PAR WIDTH	4' MIN	VARIES	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 min. 2/3 PAR width to 1/3 Blvd. trumps the 6' min. criteria

PREFERRED DRIVEWAY DESIGN CRITERIA					
ITEM	MIN	MAX	PREFERRED	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 ROW allows.
COMMERCIAL APRON SLOPE RESEDENTIAL APRON SLOPE	0.5%	10% 12%	8.0% MAX	U	Design adequate slope for landing height to match designed curb height, maintain PAR elevation and limit the sidewalk roller coaster effect.
PAR HEIGHT (6" C&G)	0"	6"	3" MIN, 6" DESIRABLE	M & U	Minimize sidewalk roller coaster effect. Desirable to keep PAR elevation continuous or at least in the upper half of curb height. In addition don't introduce unnecessary elevation changes into the PAR.
PAR HEIGHT (4" C&G)	0"	4"	2" MIN, 4" DESIRABLE		
CROSS SLOPE	0.5%	2.0%	1.5%	C, M & U	-
SIDEWALK RUNNING SLOPE	2.0%	5.0%	4.0%		-
SIDEWALK RAMP SLOPE	5.0%	8.3%	7.0%		Allowable only when road slope is greater than 5%
Pedestrian Access Route (PAR)	4'	VARIES	4.5' MIN	C & U	Preferred to match sidewalk/trail widths
Back of Curb Height at Driveway Apron	1"	2.5"	2" IF VERTICALLY CONSTRAINED	M & U	If the street has parking or shoulders use 1" as MAX. Curb Height. Vertically constrained curb may be used to help contain drainage when the driveway is sloping away from the roadway.
Negative driveway drainage trumps. 4" curb height is preferred when you have narrow boulevards or driveways sloping down from the roadway.					