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SECTION 4 – SIDEWALKS, CURB RAMPS AND BICYCLE FACILITIES

4.1 SIDEWALKS AND CURB RAMPS - GENERAL

This section addresses sidewalk and curb ramp design for roadways within public rights-of-way (ROW) in order to provide accessible route(s) in the design and construction of City streets.

Early consideration of pedestrian facilities should be studied at the planning stages of a roadway system as later installations might be costly and/or unfeasible.

Accessible routes shall comply with Texas Accessibility Standards as administered by the Texas Department of Licensing and Regulation. Public rights-of-way and facilities are required to be accessible to persons with disabilities through the following statutes: Section 504 of the Rehabilitation Act of 1973 (Section 504) (29 U.S.C. §794) and Title II of the Americans with Disabilities Act of 1990 (ADA) (42 U.S.C. §§ 12131-12164). The laws work together to achieve this goal. When a public or private agency provides a pedestrian facility, it must be accessible to persons with disabilities to the extent technically feasible.

A SIDEWALK is a pathway constructed to provide for pedestrian traffic; such traffic is generally non-motorized and may include self-propelled wheeled vehicles and devices, if not prohibited; but may also include vehicles such as motorized wheelchairs and personal transport devices, if not prohibited. A CURB RAMP is a connection between a sidewalk and a roadway surface that is constructed with special surface, visual, and geometric characteristics. The WIDTH of a sidewalk or curb ramp is the dimension of the surface measured perpendicular between the sides of the sidewalk or curb ramp exclusive of any abutting curb or flared sides. CLEAR WIDTH is the width of the surface and the space to a point eighty inches (80") perpendicularly above the surface that is void of obstructions or protruding objects.

Sidewalks and curb ramps shall be constructed to comply with Chapter 4: "Accessible Routes" of the latest edition of the Texas Accessibility Standards (TAS) of the Architectural Barriers Act Article 9102, Texas Civil Statutes; the latest edition of the Americans with Disabilities Act (ADA) Accessibility Guidelines (ADAAG) for Public Rights-of-Way; or the standards herein, whichever is more restrictive. The geometry and tolerances of the surface of a roadway between curb ramps on either side of the roadway, or of a driveway between the points where sidewalk intersects the driveway edges on either side of the driveway, shall also comply with the aforementioned standards. The "Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way", available from the United States Access Board, is also a design source for sidewalk and general pedestrian facility design.

Sidewalks and curb ramps constructed within City of Round Rock (CORR) right-of-way or sidewalk easements shall be constructed in accordance with the CORR Design and Construction Standards (DACS) and the Standard Specification Manual (CORR Specifications). Construction material for sidewalk other than reinforced hydraulic cement concrete in accordance with CORR Specifications will not be allowed except through separate license agreement with the CORR, to include maintenance responsibilities. Construction material for curb ramps other than reinforced

hydraulic cement concrete with cast-in-place detectable warning pads, in accordance with CORR Specifications, will not be allowed except through separate agreement with the CORR.

A design variance is required whenever the design guidelines specified in the ADAAG and the TAS are not met. The Project Engineer who is sealing the construction plans is responsible for obtaining approval of design variances from the Texas Department of Licensing and Regulation (TDLR). Contact the CORR Transportation Director prior to proceeding with the variance request to obtain concurrence that specific criteria cannot be met and a request for variance is reasonable.

Sidewalk requirements are also defined in the Code of Ordinances, specifically Section 36-108, and Chapter 6, Article III of the Zoning and Development Code of the CORR (the code). Where discrepancies occur, these codes as adopted or amended by the City Council shall govern.

Refer to the Bibliography for reference documents pertaining to accessibility requirements and curb ramp standards.

4.2 SIDEWALK REQUIREMENTS

For the specific roadway classifications, sidewalks shall typically be constructed on both sides of the road and parallel to the roadway with a minimum width specified herein. For sidewalks constructed with a width equal to or greater than ninety-six inches (96"), the clear width may be comprised of two sections on either side of an obstruction provided that each section has a clear width no less than forty-two inches (42").

Obstructions or protrusions in or over a sidewalk shall be kept to a minimum. When unavoidable, an obstruction or protrusion in or over a sidewalk shall not be longer than twenty-four inches (24") longitudinally along the sidewalk. The longitudinal distance between separate obstructions or protrusions shall not be less than sixty inches (60"). Detection and/or protection barriers shall be provided for objects with a height above the finished sidewalk surface greater than twenty-seven inches (27") and less than eighty inches (80") that protrude more than four inches (4") into the area above a sidewalk or into the area above surfacing abutting or adjacent to a sidewalk that is not readily distinguished from the sidewalk area due to the surfacing characteristics.

Sidewalks and curb ramps constructed to provide for public pedestrian traffic shall be constructed within public right-of-way or sidewalk easements dedicated for public use.

Unless excluded in the Ordinance or approved by the CORR Transportation Director, sidewalks are required on both sides of the street.

Sidewalk widths shall be as described in Sec. 36-108. – Sidewalks of the City Ordinance, and CORR Standard Detail ST-01.1. The minimum sidewalk width shall be four feet (4') for local and collector street classifications however, a 5 foot by 5 foot (5' x 5') passing space must be provided at 200 foot intervals in accordance with TAS. The minimum width for arterial street classifications (MAD 4 or MAD 6) shall be six feet (6'). Wider sidewalks may be required if a street is to have a shared use path.

Items such as street furniture, signal poles, illumination poles, trees, utilities, and other obstructions shall be located in order to provide the minimum clear width and height per TAS/ADAAG.

With the approval of the CORR Transportation Director, an alternative sidewalk design (such as a hike and bike trail or shared-use path) may be substituted for a conventional sidewalk, provided that maintenance and public access agreements are provided and that they are accessible to persons with disabilities as defined and required in the ADA. Meandering sidewalks are encouraged in order to avoid trees or other natural features, provided that sufficient right-of-way is dedicated to accommodate them.

Sidewalk locations shall be coordinated with the driveway design in order to provide an accessible route across the driveway. The maximum grade of the drive at the accessible route shall be 2% which corresponds to the maximum cross slope of the accessible route.

Sidewalks constructed within TxDOT's ROW shall be as approved by TxDOT.

The width and alignment of sidewalks within the public ROW shall be as shown on the typical sections in Section 1 – Street Design Criteria and Table 1-1. For local residential, local rural and local collector streets, the minimum sidewalk width shall be four feet (4') when separated by a distance of at least three feet (3') from the curb. Sidewalks closer than three feet (3') to the roadway shall be a minimum of five feet (5') in width. If there are ROW limitations and the sidewalk is adjacent to the back of curb, a six foot (6') wide sidewalk shall be used. Variances from these widths and clearances shall be approved by the CORR Transportation Director.

4.3 SHARED-USE PATH REQUIREMENTS

City policy is to provide a 10 foot-wide shared use path adjacent to arterial streets and 8 feet adjacent to collector streets. A shared-use path is a physically separated sidewalk from the roadway and may be located either within the street ROW, or outside in a meandering alignment or easement. Shared-use paths may be used by bicyclists and pedestrians and therefore shall meet the design requirements of a bike facility and the ADA/TAS. Minimum width for a two-way facility is ten feet (10'), however an eight foot (8') width may be provided in rare instances, as approved by the CORR Transportation Director.

The path shall include a two foot (2') wide graded area at a maximum slope of 1:6 adjacent to both sides of the path. Three foot horizontal clearance shall be maintained. Refer to Figure 4-1 for a typical section of a shared-use path and CORR Standard Detail ST-01.2.

The shared-use path shall have a minimum vertical clearance of eight feet (8'), however where practical, ten feet (10') should be provided.

Railings, fences or barriers adjacent to a shared-use path shall be a minimum of forty-two inches (42") high.

4.4 CURB RAMPS

Sidewalks shall include a curb ramp whenever an accessible route crosses a curb. Ramps shall be constructed in accordance with the CORR Design and Construction Standards (DACs), ADAAG, and TAS. TxDOT Standard Drawings for Pedestrian Facilities include curb ramps for various conditions and shall be included in the construction drawings.

The City Standard for a detectable warning surface is a cast-in-place or surface-mounted panel with truncated domes compliant with TAS Section 705 (Detectable Warnings). Truncated dome panels shall conform to the following ASTM Standards: D 695, D 790, D570, C 1028, E 84, B 117, 1308, C 501, G 155, D 638, C 903 and C1026. Concrete pavers with truncated domes are not allowed due to maintenance requirements. The preferred alignment for new curb ramps is perpendicular to vehicular flow. All curb ramps shall be constructed perpendicular to the curb as shown on the TxDOT Standard Drawings for the various types of curb ramps.

The curb ramp width shall match the width of the adjoining sidewalks or shared use paths to avoid a bottleneck condition as the pedestrian or other user approaches the ramp. In no case shall the curb ramp width be less than forty-eight inches (48"). Curb ramps shall be installed at all street intersections and for every sidewalk connection to the travel surface of a roadway. Curb ramps shall not be required at driveways but may be provided if the driveway is controlled by a traffic signal. At four-way street intersections, a total of eight curb ramps shall be provided (two ramps at each intersection corner). At three-way street intersections, a total of six curb ramps shall be provided (two ramps at each intersection corner, and two ramps on the through street each of which will be across the street from one of the intersection corners). Curb ramps shall typically be "Type 1 Perpendicular Curb Ramp" as shown in TxDOT Design Division Standard "Pedestrian Facilities-Curb Ramps", sheet 1 of 4. Under special circumstances, curb ramps may be the other types shown in the aforementioned TxDOT Standard. Curb ramp Types 4, 8 and 9 in the aforementioned TxDOT Standard shall not be used unless approved by the CORR Transportation Director.

Curb ramp slopes, widths and landing areas shall be as shown on the Standard Drawings. A five foot by five foot (5' x 5') landing area shall be provided at the top of the ramp.

At signalized intersections, the curb ramp location and pedestrian detector locations shall be properly coordinated. Refer to Part IV of the TMUTCD, latest edition.

4.5 SAFETY CONSIDERATIONS

Drop-off hazards are defined as steep or abrupt downward slopes that can be perilous to pedestrians and bicyclists. The design engineer should consider shielding any drop-off determined to be a hazard. Railings or fences should be provided for vertical drop-off hazards or where shielding is required as described in this section.

The horizontal clearance for the sidewalk, shared-use path or roadway shall be maintained when designing the railing or fence. Only crash-tested barriers are allowed within the clear zone of roadways.

The following guidelines will be used to standardize the identification and treatment of drop-off hazards for pedestrians and bicyclists.

There are two cases that require shielding. As shown in Figure 4.2 (Case 1), a drop-off greater than ten inches (10") that is closer than two feet (2') from the pedestrians' or bicyclists' pathway or edge of sidewalk is considered a hazard and shall be shielded. Also, as shown in Figure 4.2 (Case 2), a slope steeper than 2H:1V that begins closer than two feet (2') from the pedestrians' or bicyclists' pathway or edge of sidewalk is considered a hazard and shall be shielded when the total drop-off is greater than sixty inches (60"). Also, depending on the depth of the drop-off and severity of the conditions below, shielding may be necessary for cases other than described above.

The height of railings for bicyclists are generally the same as the minimum pedestrian railing height of forty-two inches (42"), except a minimum fifty-four inch (54") railing or fence should be considered on bridges and retaining walls for special circumstances as identified in the commentary of the AASHTO LRFD Bridge Design Specifications Section 13.9.

4.6 BICYCLE FACILITIES - GENERAL

The City of Round Rock requires shared-use paths on arterial and collector streets. This section addresses the design of bicycle facilities or bicycle accommodations within the street cross section.

A bicycle lane is defined as a portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

Bicycle paths and shared use paths are physically separated from vehicular traffic and may be shared with pedestrians.

These shared-use paths, which are separate paths used by pedestrians, runners, skaters, wheelchair users, and other non-motorized users, are covered in paragraph 4.3 of this Section.

City of Round Rock's preferred option is to provide separate, 10-foot wide (arterial) or 8-foot wide (collector) shared-use paths for arterial and collector streets.

Refer to the typical sections in Section 1 for the configuration of the various classifications of roadway with bike lanes incorporated adjacent to the outside lane.

Streets within the City of Round Rock shall incorporate bicycle lanes or a shared-use path in accordance with the City's Trail Master Plan, and Transportation Master Plan. The applicant for a subdivision plat or Planned Unit Development (PUD) is encouraged to coordinate with the City Planning Department concerning bicycle and pedestrian accommodation early in the planning process.

Refer to published design guidance such as AASHTO Guide for the Development of Bicycle Facilities for further information. Another primary design reference for design of bicycle facilities is the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide.

Figure 4-1 Sign Placement on Shared-Use Paths

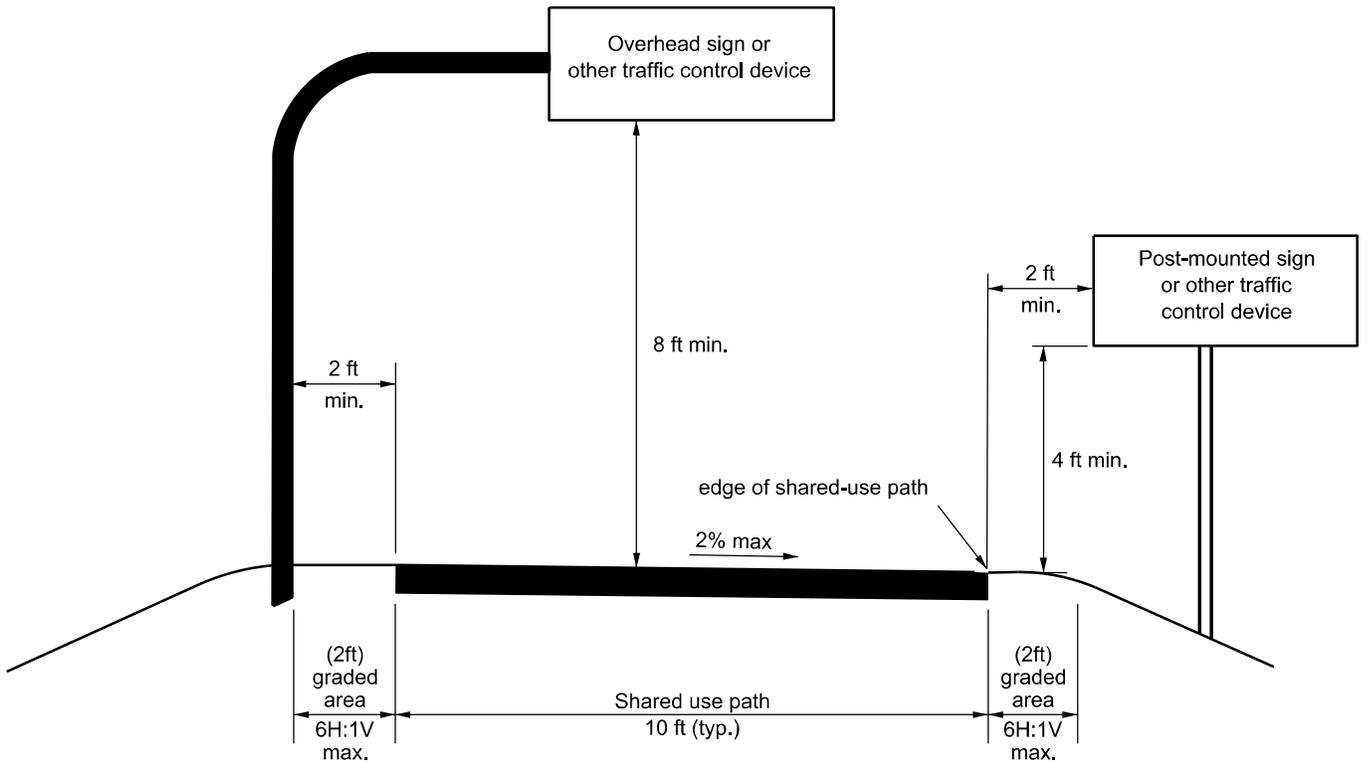


Figure 4-2 Drop-Off Hazards for Pedestrians and Bicyclists

