

## Section 1 – General Information

### 1.1 Concept

The principal considerations when designing sidewalks are to provide safe and adequate walkways for pedestrian traffic. If sidewalks are required in a rural cross section, they should be separate from the shoulder.

Sidewalks must be designed per ADA requirements to accommodate persons of different abilities. Pedestrian ramps shall be provided where the sidewalk connects to a street.

### 1.2 Conditions

1. The design of sidewalks shall conform to the following:
  - A. The Design Standards Manual.
  - B. Americans with Disabilities Act (ADA).
2. Construction Standards shall be the Cedar Rapids Metropolitan Area Standard Specifications and Details.
3. Project Submittals - All projects are to be submitted to the Jurisdictional Engineer for review and comment. On new streets, the sidewalk location and grade shall be included in the improvement plans.

## Section 2 – Sidewalk Design

### 2.1 Sidewalk Location - (Class "A")

The back of the walk is to be located on the property line and may extend to the back of curb. The Class "A" sidewalk is generally placed in the downtown business/commercial areas, through adjoining multiple-residential complexes, near schools and other pedestrian generators and where border width is restricted.

### 2.2 Sidewalk Location - (Class "B")

The back of the walk is to be located two feet from the property line. Minimum sidewalk widths shall be determined by street classification per the following table:

Minimum Sidewalk Width per Street Classification (feet)			
	Local/Collector	Minor Arterial	Major Arterial
Residential	4	5	5
Commercial/Office	5	5	6
Industrial	4	5	5

### 2.3 Grades

The cross-slope grade for sidewalks is 2% maximum. To ensure positive drainage, the cross-slope grade for sidewalks is 1.5% minimum.

The sidewalk portion that crosses a driveway shall be delineated by expansion joint lines so it is clear where the sidewalk crosses the entrance. Also, depressed sidewalk that is lower than the back of curb elevation will not be allowed.

**Sidewalk Longitudinal Grade:** The grade of the sidewalk shall follow the street grade except ramps at intersections. Grades greater than street grades shall require special approval.

**Parking (parkway):** The parking grade (between the sidewalk and street) for all 6-inch and higher curb shall be a minimum of 4% unless the Jurisdiction approves otherwise. The parking grade for a 3.25-inch roll curb shall be a minimum of 6% if the sidewalk is set back eight or more feet from the back of curb and a minimum of 8% if the sidewalk is set back less than 8 feet from the back of curb. Parking area grades may be increased as needed for topography, change in curb height, and pedestrian ramp location. Under special circumstances the parking area grade may exceed ten percent, provided sidewalk has a 2-foot wide graded shoulder with maximum 2% cross slope on both sides of the sidewalk.

#### 2.4 Sidewalk Ramps

Pedestrian ramps shall be installed at all intersections and at some mid-block locations for new or reconstructed curb and sidewalks. The maximum ramp slope shall be 1" in 12". The maximum rise for any run shall be 30 inches. If the distance between ramps on the same intersection quadrant is less than five feet along the arc of the curb, the entire curb between the sidewalks shall be constructed as a large ramp. The area between the sidewalks shall be paved as sidewalk. Ramp detectable warnings shall conform to ADA requirements and be included in the pedestrian ramp design. A detailed design of ramp elevations and grades may be required by the Jurisdiction at each location to ensure ramps can be constructed to ADA requirements.

#### 2.5 Special Conditions

1. **Retaining Walls:** When the sidewalk construction requires the installation of retaining walls for grade adjustments, the detailed plans shall include their design. Unless otherwise approved by the Jurisdiction, all retaining walls shall be located entirely on private property.
2. **Obstructions:** All obstructions are to be removed or relocated except for those that are impractical to move, ie: utility poles and trees will be considered on a case basis. In new subdivision areas, these items should never occur but in older, built up areas they will have to be addressed. In the case where the sidewalk must be shifted an 8:1 taper (max sharpness) to and away from the obstruction, with a straight section adjacent to the obstruction, shall be provided.

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3. Combination Sidewalk/Bikeway: Where a combination sidewalk/bikeway is required the minimum width shall be 10 feet wide, with 12 feet being desirable. In the design of a combined facility, particular attention should be paid to maintenance of proper lateral clearances. The most common lateral clearance obstructions are plantings, utility poles, parking meters, signs, drain grates, amenities, fencing, driveways, landscaping, and intersections. Also, if combination is desired, signing and striping should be used to minimize conflict and shall follow AASHTO criteria.
4. Sewers and water main should not be located under the sidewalk wherever possible.

2.6 Design Aids

1. The following sample intersection drawings show typical design considerations for grading, drainage, right-of-way location, and ADA requirements. The layouts shown are often needed to satisfy both ADA requirements and positive drainage.
2. Curbing limit drawings are also included to show the practical minimum limits of 6-inch curb along intersections. These limits are needed because the 6-inch curb aids in protecting pedestrian ramps from vehicle turning movements. Potential pedestrian safety and ramp breakage concerns arise from vehicle turning movements over the pedestrian ramps when 3 ¼ inch roll curb extends through the intersection.