CITY OF RIVERSIDE COUNCIL AGENDA

SPECIAL MEETING OF THE CITY COUNCIL

RIVERSIDE CITY HALL COUNCIL CHAMBERS

60 N GREENE STREET

Monday, August 22nd, 2016 at 6:00 P.M.

NOTICE TO THE PUBLIC:

This is a meeting of the City Council to conduct the regular business of the City. Every item on the agenda is an item of discussion and action if needed.

CALL MEETING TO ORDER: Mayor Schneider

- Pledge of Allegiance
- Roll Call

APPROVAL OF AGENDA:

1. Tour and Review of Ella Street Project – take action as needed
2. Resolution #08222016-01 "Set date for Public Hearing – Cherry Ln Lot Sales"

Adjourn meeting

RESOLUTION #08222016-01

RESOLUTION TO SET THE DATE FOR PUBLIC HEARING FOR TO SELL LOTS #1, #15 & #16 IN THE CHERRY LANE SUBDIVISION

WHEREAS, the City of Riverside, Iowa, will set the date to hold a public hearing on the Sale of Lot #1, Lot #15 & Lot #16 in the Cherry Lane Subdivision, on September 6th, 2016 at 6:45 p.m. in the City Council Chambers located at the Riverside City Hall, 60 North Greene Street, Riverside, Iowa.

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THEREFORE, BE IT RESOLVED, The City of Riverside City Council, hereby approves the date for the Public Hearing.

IT WAS MOVED BY Councilperson Schnoebelen, seconded by Councilperson Weber that the foregoing resolution be adopted.

Roll Call Vote: Schneider, Sexton, Schnoebelen, Weber, Redlinger

Ayes:

Nays:

Absent:

Signed: _____
Allen Schneider, Mayor

Attest : _____
Lory Young, City Clerk

NOTICE OF PUBLIC HEARING

NOTICE OF PUBLIC HEARING ON THE PROPOSED SALE AND CONVEYANCE OF LOT 1, LOT 15 AND LOT 16 OF CHERRY LANE ADDITION IN RIVERSIDE, IOWA

The City of Riverside, Iowa, hereby gives notice that a public hearing on the proposed sale and conveyance of property located in the Cherry Lane Addition in Riverside, Iowa, will be held on the _____ day of _____, 2016, at _____ p.m. in the City Council Chambers located at 60 North Greene Street, Riverside, Iowa.

At that time, the City Council for the City of Riverside will consider the proposed sale of 101 Cherry Lane to Kevin A. and Maria E. Meller pursuant to the Offer to Purchase received by the City. The property located at 101 Cherry Lane in Riverside is legally described as follows:

> Lot 1 (1) of Cherry Lane Addition, Riverside, Iowa; in Washington County, Iowa.

The City Council will also consider the proposed sale of 104 Cherry Lane and 106 Cherry Lane to TWRVR Properties, LLC pursuant to the Offer to Purchase received by the City. The properties located at 104 Cherry Lane and 106 Cherry Lane in Riverside are legally described as follows:

> Lot 16 (16) of Cherry Lane Addition, Riverside, Iowa; in Washington County, Iowa.
>
> AND
>
> Lot 15 (15) of Cherry Lane Addition, Riverside, Iowa; in Washington County, Iowa.

Following the public hearing, the City of Riverside, by and through its duly-elected City Council, may approve the proposed property sale and conveyance of the above-described property.

YOU ARE FURTHER NOTIFIED that you may appear at the hearing and make comments, either orally or in writing, either for or against the proposed sale and conveyance.

Dated at Riverside, Iowa, on this _____ day of _____, 2016.

_____

Lory Young, City Clerk
City of Riverside, Iowa

Accessible Sidewalk Requirements

A. Introduction

SUDAS and Iowa DOT jointly developed this section based on the July 26, 2011 "Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way." This section was developed in accordance with Federal regulations (23 CFR 652 and 28 CFR 35) and is the standard for use by all governmental entities in the State of Iowa. A local jurisdiction may elect to produce their own standards; however, these will require review and approval by FHWA and/or the United States Department of Justice.

Where sidewalks are provided, they must be constructed so they are accessible to all potential users, including those with disabilities. This section establishes the criteria necessary to make an element physically accessible to people with disabilities. This section also identifies what features need to be accessible and then provides the specific measurements, dimensions, and other technical information needed to make the feature accessible. The requirements of this section were developed based on the following documents:

1. **ADAAG:** The "Americans with Disabilities Act Accessibilities Guidelines" (ADAAG) was written by the US Access Board and adopted by the Department of Justice (DOJ) in 2010. This document includes a broad range of accessibility guidelines including businesses, restaurants, public facilities, public transportation, and sidewalks. These standards were originally adopted in 1991 and have been expanded and revised several times.

2. **PROWAG:** The July 26, 2011 "Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way" was written by the US Access Board and is also known as the Public Right-of-Way Accessibility Guidelines or PROWAG. PROWAG provides more specific information than the ADAAG for transportation facilities within the right-of-way including pedestrian access routes, signals, and parking facilities. The PROWAG requirements are currently in the development and adoption process and have not been officially adopted by the Department of Justice; however, the Federal Highway Administration has issued guidance that the draft version of the PROWAG "are currently recommended best practices, and can be considered the state of the practice that could be followed for areas not fully addressed" in the existing ADAAG requirements.

   Due to the widespread acceptance of the PROWAG, and their pending adoption in the future, the standards of this chapter are based upon the PROWAG requirements. The designer is encouraged to reference the complete PROWAG document for additional information (www.access-board.gov). References to the PROWAG in this section are shown in parentheses, e.g. (R302.7). Buildings and other structures not covered by PROWAG must comply with the applicable requirements of the ADAAG. For parks, recreational areas, and shared use paths, refer to other sections within this chapter.

B. Transition Plan

The ADA law passed in 1990 required public entities with more than 50 total employees to develop a formal transition plan identifying the steps necessary to meet ADA accessibility requirements for all pedestrian access routes within their jurisdiction by upgrading all noncompliant features. Recognizing that it would be difficult to upgrade all facilities immediately, the law provided the opportunity to develop a transition plan for the implementation of these improvements. Covered entities had until 1992 to complete a transition plan. In addition, any local public agency that is a recipient of US DOT funds must have a transition plan. For those agencies that have not completed a transition plan, it is critical that this process be completed. Although the transition plan may cover a broader scope, this section will only cover requirements within the public right-of-way.

Key elements of a transition plan include the following:

- Identifying physical obstacles in the public agency's facilities that limit the accessibility of its programs or activities to individuals with disabilities
- A detailed description of the methods that will be used to make the facilities accessible
- A schedule for taking the steps necessary to upgrade pedestrian access in each year following the transition plan
- Identification of the individual responsible for implementation of the plan

The document: *ADA Transition Plans: A Guide to Best Management Practices* (NCHRP Project No. 20-7 (232)) provides guidance for the development and update of transition plans. The document also assists communities in prioritizing required improvements for accessibility.

Public entities not required to have a formal transition plan are required to address noncompliant pedestrian access routes.

C. Definitions

Accessible: Facilities that comply with the requirements of this section.

Alteration: A change to a facility in the public right-of-way that affects or could affect pedestrian access, circulation, or use. Alterations include, but are not limited to resurfacing, rehabilitation, reconstruction, historic restoration, or changes or rearrangement of structural parts or elements of a facility.

Alternate Pedestrian Access Route: A route provided when a pedestrian circulation path is temporarily closed by construction, alterations, maintenance operations, or other conditions.

Curb Line: A line at the face of the curb that marks the transition between the curb and the gutter, street, or highway.

Cross Slope: The grade that is perpendicular to the direction of pedestrian travel.

Crosswalk: See pedestrian street crossing.

Curb Ramp: A ramp that cuts through or is built up to the curb. Curb ramps can be perpendicular, parallel, or a combination of parallel and perpendicular curb ramps.

Detectable Warning: Detectable warnings consist of small, truncated domes built in or applied to a walking surface that are detectable by cane or underfoot. On pedestrian access routes, detectable warning surfaces indicate the boundary between a pedestrian route and a vehicular route for

pedestrians who are blind or have low vision.

New Construction: Construction of a roadway where an existing roadway does not currently exist.

Pedestrian Access Route: A continuous and unobstructed path of travel provided for pedestrians with disabilities within, or coinciding with, a pedestrian circulation path.

Pedestrian Circulation Path: A prepared exterior or interior surface provided for pedestrian travel in the public right-of-way.

Pedestrian Street Crossing: A marked or unmarked route, providing an accessible path to travel from one side of the street to the other. Pedestrian street crossings are a component of the pedestrian access route and/or the pedestrian circulation path.

Running Slope: The grade that is parallel to the direction of pedestrian travel.

PROWAG: The Public Right-of-way Accessibility Guidelines establish the criteria for providing a feature within the public right-of-way that is physically accessible to those with physical disabilities.

Scope of the Project: Work that can reasonably be completed within the limits of the project. This is not defined by the written project scope; however, it focuses on whether the alteration project presents an opportunity to design the altered element, space, or facility in an accessible manner.

Structurally Impracticable: Something that has little likelihood of being accomplished because of those rare circumstances when the unique characteristics of terrain prevent the incorporation of full and strict compliance with this section. Applies to new construction only.

Technically Infeasible: With respect to an alteration of an existing facility, something that has little likelihood of being accomplished because existing structural conditions would require removing or altering a load-bearing member that is an essential part of the structural frame; or because other existing physical or site constraints prohibit modification or addition of elements, spaces, or features that are in full and strict compliance with the requirements of this section. (2010 ADAAG 106.5)

Turning Space: An area at the top or bottom of a curb ramp, providing a space for pedestrians to stop, rest, or change direction.

D. Applicability

1. **New Construction:** Newly constructed facilities within the scope of the project shall be made accessible to persons with disabilities, except when a public agency can demonstrate it is structurally impracticable to provide full compliance with the requirements of this section. Structural impracticability is limited to only those rare situations when the unique characteristics of terrain make it physically impossible to construct facilities that are fully compliant. If full compliance with this section is structurally impracticable, compliance is required to the extent that it is not structurally impracticable. [2010 ADAAG 28 CFR 35.151(a)]

2. **Alterations:** Whenever alterations are made to the pedestrian circulation path, the pedestrian access route shall be made accessible to the maximum extent feasible within the scope of the project. If full compliance with this section is technically infeasible, compliance is required to the extent that it is not technically infeasible. [2010 ADAAG 28 CFR 35.151(b)] Alterations shall not gap pedestrian circulation paths in order to avoid ADA compliance.

Where elements are altered or added to existing facilities, but the pedestrian circulation path is not altered, the pedestrian circulation path is not required to be modified (R202.1). However, features that are added shall be made accessible to maximum extent feasible. The following are examples of added features:

- Installation of a traffic sign does not require sidewalk improvements; however, the sign cannot violate the protruding objects requirements.
- Installation of a traffic or pedestrian signal does not require sidewalk improvements; however, the signal must be accessible.
- Installation of a bench adjacent to the pedestrian access route would not require sidewalk improvements, but the bench cannot be placed in a manner that would reduce the sidewalk width below the minimum requirement.

3. **Maintenance:** Accessibility improvements are not required for work that is considered maintenance. Examples of work that would be considered maintenance include, but are not limited to, the following items.
   - Application of thin maintenance surfaces; for example, slurry seal, seal coat, chip seal, fog seal, and microsurfacing
   - Minor street patching (less than 50% of the pedestrian street crossing area)
   - Curb and gutter repair or patching outside the pedestrian street crossing
   - Minor sidewalk repair that does not include the turning space and curb ramps
   - Painting pavement markings, excluding parking stall delineations

   The DOJ considers resurfacing that goes beyond normal maintenance to be an alteration; however, neither DOJ nor U.S. DOT has provided a specific definition of what level or thickness of resurfacing constitutes an alteration. According to the FHWA Office of Civil Rights' *Questions and Answers about ADA/Section 504*, maintenance activities include actions that are intended to preserve the system, retard future deterioration, and maintain the functional condition of the roadway without increasing the structural capacity. Iowa's Administrative Rules (761 IAC 178.3(2)) states, "Repair or maintenance means the preservation of a road, street, bridge or culvert so that it is in sound or proper condition. The work may include minor replacements and additions necessary to restore the road, street, bridge, or culvert to its original built condition with essentially the same design." Since there is no standard definition for resurfacing, the agency administering the project is responsible for determining if a project should be considered maintenance and documenting the reasons for this determination. If a project is defined as maintenance, federal funding and Farm-to-Market funds cannot be used.

   When a maintenance project modifies a crosswalk, installation of curb ramps at the crosswalks is strongly recommended, if none already exists. The other accessibility improvements of this section are also recommended, but not required with such projects.

4. **Technical Infeasibility:** Examples of existing physical or site constraints that may make it technically infeasible to make an altered facility fully compliant include, but are not limited to, the following:
   - Right-of-way availability. Improvements may be limited to the maximum extent practicable within the "available right-of-way." However, as the pedestrian facility is designed, evaluate options that may include right-of-way agreements and result in full compliance.
     - For projects that do not require additional right-of-way purchase (including permanent easements), available right-of-way is defined as existing right-of-way or property that can be utilized through an agreement to work on private property. The right-of-way acquisition process would cause significant delay in upgrading the deficiency.

  - For projects that require any additional right-of-way purchase (including permanent easements), for reasons other than accessibility, available right-of-way is defined as right-of-way that can be purchased through normal acquisition and condemnation processes. In these projects, right-of-way availability is not considered an existing physical constraint.
  - For pedestrian access route projects (i.e. the scope is limited to making improvements to pedestrian facilities only), right-of-way availability is defined the same as for projects that do not require right-of-way purchase.
- Underground structures that cannot be moved without significantly expanding the project scope.
- Adjacent developed facilities, including buildings that would have to be removed or relocated to achieve accessibility.
- Drainage cannot be maintained if the feature is made accessible.
- Notable natural or historic features that would have to be altered in a way that lessens their aesthetic or historic value.
- Underlying terrain that would require a significant expansion of the project scope to achieve accessibility.
- Street grades within the crosswalk exceed the pedestrian access route maximum cross slopes, provided an engineering analysis has concluded that it cannot be done without significantly expanding the project scope (for example, changing from resurfacing an intersection to reconstructing that intersection).

5. **Safety Issues:** When accessibility requirements would cause safety issues, compliance is required to the maximum extent practicable.

6. **Documenting Exceptions:** If the project cannot fully meet accessibility requirements because the accessibility improvements are structurally impracticable, technically infeasible, or safety issues, a document should be developed to describe how the existing physical or site constraints or safety issues limit the extent to which the facilities can be made compliant. This document should identify the specific locations that cannot be made fully compliant and provide specific reasons why full compliance cannot be achieved. It is recommended that this document be retained in the project file. For local agency projects administered through Iowa DOT, a certification with supporting documentation shall be submitted to the Iowa DOT administering office. The certification shall be as prescribed by the Iowa DOT and signed by a registered professional engineer or landscape architect licensed in the State of Iowa. For Iowa DOT projects, contact the Office of Design, Methods Section.

   Note: Documenting exceptions does not remove an agency's responsibility to consider making accessibility improvements the next time the facility is altered because physical or site constraints and safety issues may change over time. The determination of exceptions and corresponding documentation needs to be made each time a facility is altered, based on the existing conditions and the scope of the proposed project.

7. **Reduction in Access:** Regardless of whether the additions or alterations involve the modification of the existing pedestrian circulation path, the resulting work cannot have the result of reducing the existing level of accessibility below the minimum requirements. For example, the installation of a bench cannot have the effect of reducing the width of the pedestrian access route to 3 feet (4 feet is the minimum). Likewise, the construction of an overlay cannot result in a street cross slope of more than 5%, nor have a lip at the curb ramp that exceeds 1/2 inch.

   Pedestrian facilities may be removed if they are being re-routed for safety reasons, or terminated because they do not connect to a destination or another pedestrian circulation path.

8. **Addition of Pedestrian Facilities:** If a sidewalk exists on both sides of the street, curb ramps shall be installed on both sides when the street is altered. PROWAG does not require construction of pedestrian facilities where none currently exists, although the jurisdiction's transition plan may require them.

9. **Utility Construction:** If the pedestrian circulation path is disturbed during utility construction, the requirements of this section and Section 12A-4 shall apply.

E. Standards for Accessibility

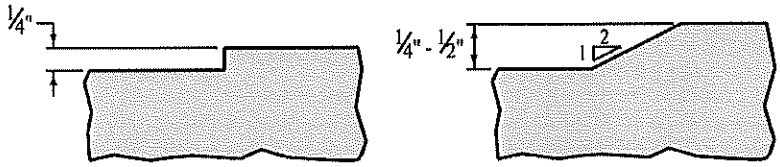
The following section summarizes the design standards for the elements of an accessible pedestrian access route. The minimum and maximum values stated are taken from the PROWAG. Target values are also provided. Designing features to the target values, rather than the allowable maximum or minimum, allows for appropriate construction tolerances and field adjustment during construction while maintaining compliance with the PROWAG standards.

1. **General Requirements:** These requirements apply to all parts of the pedestrian access route.

   a. **Surfacing:** PROWAG requires all surfaces to be firm, stable, and slip resistant (R302.7). All permanent pedestrian access routes, with the exception of some Type 2 shared use paths (see Section 12B-2), shall be paved. When crossing granular surfaced facilities, consider paving wider than the pedestrian access route; see the shared use path section.

   b. **Changes in Level:** Changes in level, including bumps, utility castings, expansion joints, etc. shall be a maximum of 1/4 inch without a bevel or up to 1/2 inch with a 2:1 bevel. Where a bevel is provided, the entire vertical surface of the discontinuity shall be beveled (R302.7.2).

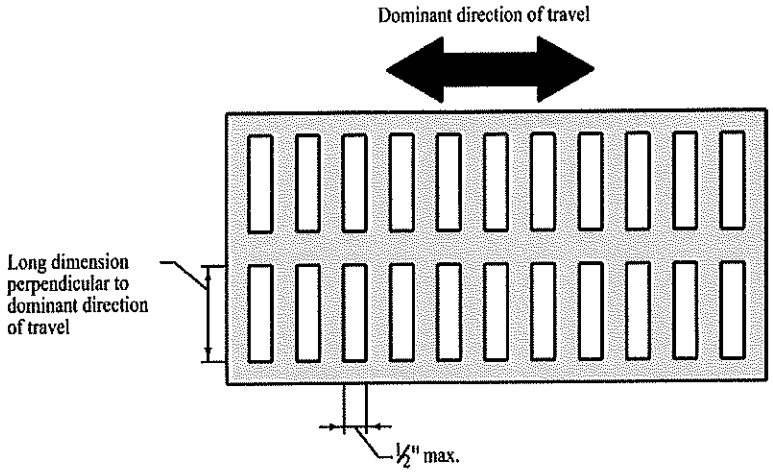
Figure 12A-2.01: Vertical Surface Discontinuities



   c. **Horizontal Openings:** Horizontal openings shall not allow passage of a sphere more than 1/2 inch in diameter. Elongated openings in grates shall be placed so the long dimension is perpendicular to the dominant direction of travel. The use of grates within the pedestrian access route is discouraged; however, where necessary, the grate should be located outside of curb ramp runs, turning spaces, and gutter areas if possible. (R302.7.3)

   It should be noted that none of the standard SUDAS/Iowa DOT intake grates meet the requirements for use within a pedestrian access route; therefore, a special design is required.

Figure 12A-2.02: Horizontal Openings



2. **Standard Sidewalk:** Sidewalks solely serving private residences are not required to follow these requirements.

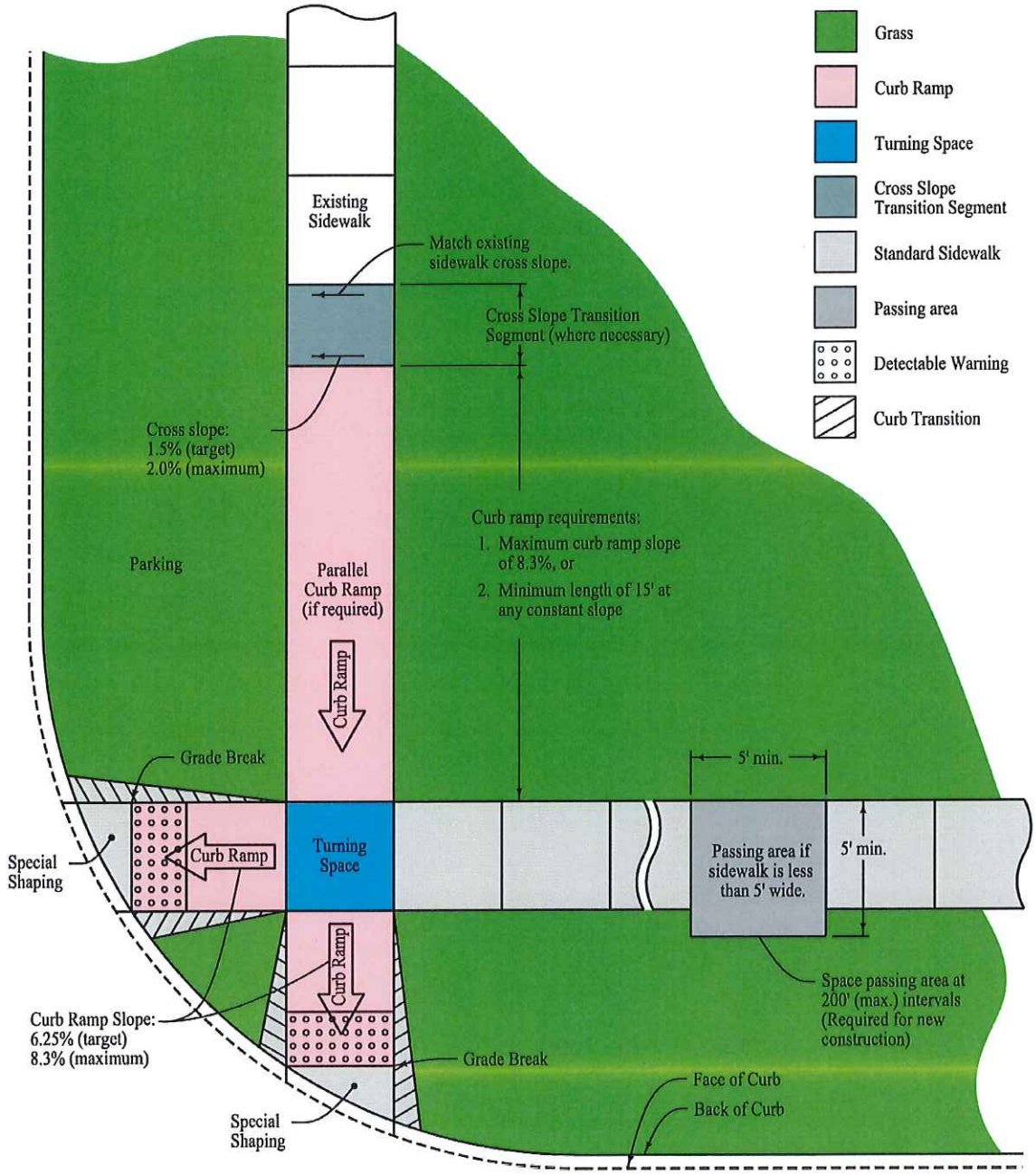
   a. **Cross Slope:** The maximum cross slope is 2.0% with a target value of 1.5% (R302.6).

   b. **Running Slope:** Sidewalks with a running slope of 5% or less are acceptable. However, where the sidewalk is contained within the street right-of-way, the grade of the sidewalk shall not exceed the general grade of the adjacent street (R302.5). For design, consider the general grade of the adjacent street to be within approximately 2% of the profile grade of the street.

   c. **Width:** The minimum width of the pedestrian access route is 4 feet. Five foot sidewalks are encouraged and may be required by the Jurisdiction. Iowa DOT will design 5 foot sidewalks unless otherwise requested. (R302.3)

   d. **Passing Spaces:** Where the clear width of the pedestrian access route is less than 5 feet, passing spaces are required at maximum intervals of 200 feet. The passing space shall be 5 foot minimum by 5 foot minimum. Passing spaces may overlap with the pedestrian access route. (R302.4). Driveways may be used as passing spaces, as long as the 2.0% maximum cross slope is not exceeded.

Figure 12A-2.03: Standard Sidewalk and Curb Ramp Elements

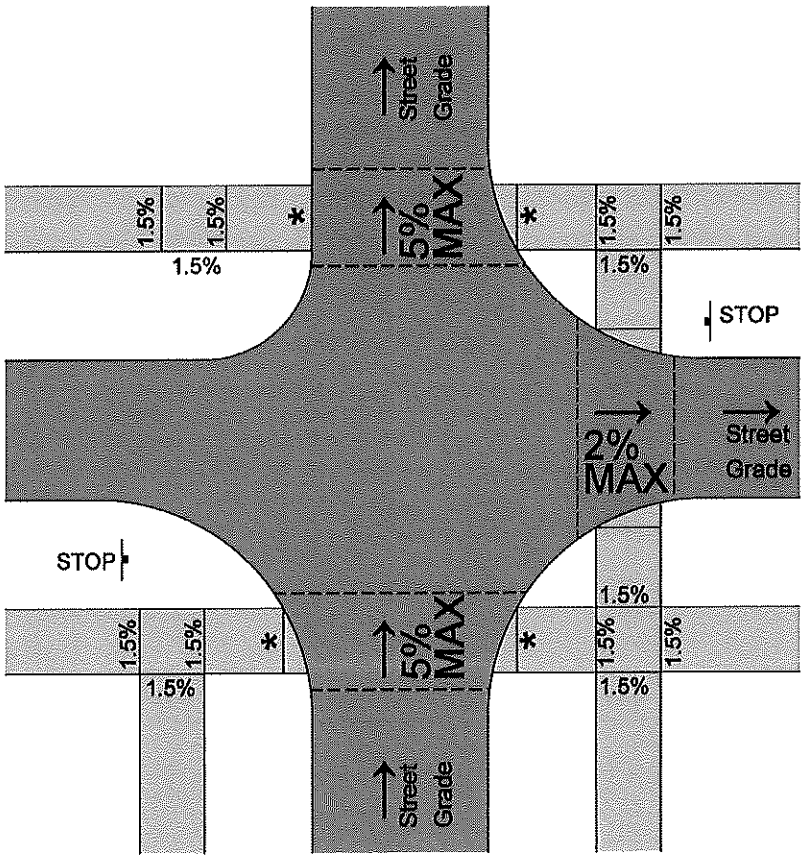


3. **Pedestrian Street Crossings:**

   a. **Cross Slope:** The longitudinal grade of a street becomes the cross slope for a pedestrian street crossing. PROWAG has maximum limits for the cross slope of pedestrian street crossings, which vary depending on the location of the crossing and the type of vehicular traffic control at the crossing. These requirements, in effect, limit the longitudinal grade of a street, or require a "tabled crosswalk" at the intersection. (R302.6)

      1) **Intersection Legs with Stop or Yield Control:** For pedestrian street crossings across an intersection leg with full stop or yield control (stop sign or yield sign), the maximum cross slope is 2.0% (maximum 2.0% street grade through the crossing).
      2) **Intersection Legs without Stop or Yield Control:** For pedestrian street crossings across an intersection leg where vehicles may proceed without slowing or stopping (uncontrolled or signalized), the maximum cross slope of the pedestrian street crossing is 5.0% (maximum 5.0% street grade through the crossing).
      3) **Midblock Pedestrian Street Crossings:** At midblock crossings, the cross slope of the pedestrian street crossing is allowed to equal the street grade.

Figure 12A-2.04: Example Street Intersection

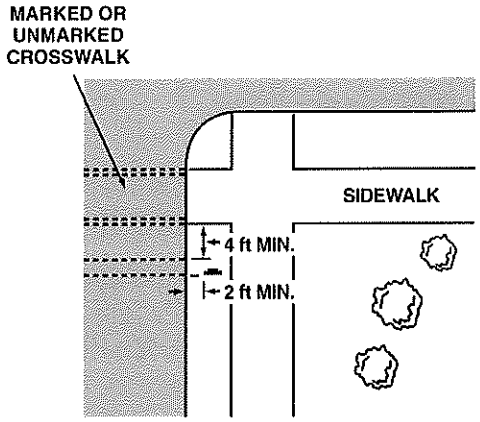


* Match pedestrian street crossing cross slope or flatter

   b. **Running Slope:** The running slope of the pedestrian street crossing is limited to a maximum of 5.0% (maximum street cross slope or superelevation of 5.0%) (R302.5.1).

c. **Location:** Driver anticipation and awareness of pedestrians increases as one moves closer to the intersection. Therefore, curb ramps and pedestrian street crossings should be located as close to the edge of the adjacent traveled lane as practical. Where a stop sign or yield sign is provided, MUTCD requires the pedestrian street crossing, whether marked or unmarked, be located a minimum of 4 feet from the sign, between the sign and the intersection. It is recommended stop and yield signs be located no greater than 30 feet from the edge of the intersecting roadway; however, MUTCD allows up to 50 feet. Consult MUTCD for placement of curb ramps and pedestrian street crossings at signalized intersections.

Figure 12A-2.05: Pedestrian Street Crossing Location



Source: MUTCD, FHWA

d. **Medians and Pedestrian Refuge Islands:** Medians and pedestrian refuge islands in pedestrian street crossings shall be cut through level with the street or complying with the curb ramp requirements. The clear width of pedestrian access routes within medians and pedestrian refuge islands shall be 5.0 feet minimum (R302.3.1). If a raised median is not wider than 6 feet, it is recommended the nose not be placed in the pedestrian street crossing.

4. **Curb Ramps:**

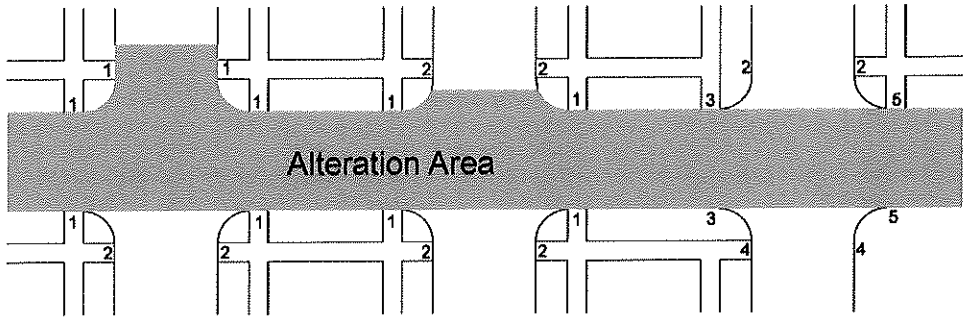
a. **General:** There are two types of curb ramps: perpendicular and parallel. Perpendicular curb ramps are generally perpendicular to the traffic they are crossing with the turning space at the top. Parallel curb ramps have the turning space at the bottom. Parallel curb ramps may be used where the sidewalk begins at or near the back of curb and there is little or no room between the sidewalk and curb for a perpendicular curb ramp.

A separate curb ramp is required at each pedestrian street crossing for new construction. Parallel ramps with a large turning space, as shown in Figure 12A-2.08, are allowed. For alterations, follow the new construction requirements if possible; however, a single diagonal curb ramp is allowed but not recommended where existing constraints prevent two curb ramps from being installed.

For alterations, it is strongly recommended to construct curb ramps at both sides of a pedestrian street crossing. It is also recommended to correct other curb ramps within the intersection. See Figure 12A-2.06.

For transitions into and out of driveways, curb ramp requirements may be used.

Figure 12A-2.06: Curb Ramps for Alterations



1. Required.
2. Strongly recommended.
3. Add/modify unless a safety issue or existing physical constraint limits installation. Consider installing both sides or removing the existing one.
4. Recommended to address as stated in #3 above, but not required because it is outside the project limits.
5. Address based on pedestrian usage, safety, and land development. Consider installing both sides or removing the existing one.

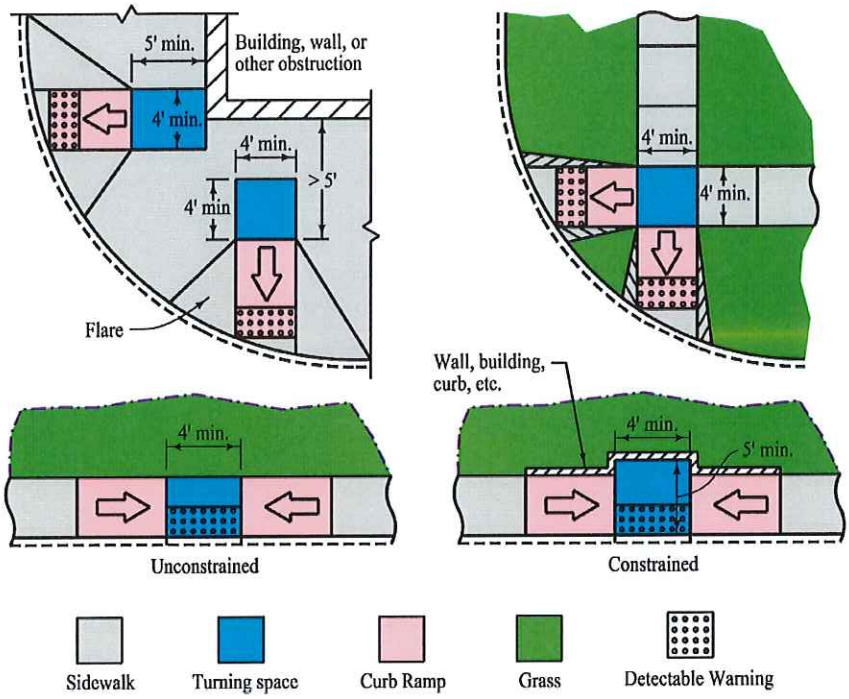
b. Technical Requirements:

1) **Cross Slope:** The maximum cross slope is 2.0% with a target value of 1.5%; however, for intersection legs that do not have full stop or yield control (i.e. uncontrolled or signalized) and at mid-block crossings, the curb ramp cross slope is allowed to match the cross slope in the pedestrian street crossing section. See "pedestrian street crossings" for additional details. (R304.5.3)
2) **Running Slope:** Provide curb ramps with a target running slope of 6.25% and a maximum slope of 8.3%; however, curb ramps are not required to be longer than 15 feet, regardless of the resulting slope. (R304.2.2 and R304.3.2)
3) **Width:** The minimum width of a curb ramp is 4 feet, excluding curbs and flares. If the sidewalk facility is wider than 4 feet, the target value for the curb ramp is equal to the width of the sidewalk. (R304.5.1)
4) **Grade Breaks:** Grade breaks at the top and bottom of curb ramps must be perpendicular to the direction of the curb ramp run. Grade breaks are not allowed on the surface of curb ramp runs and turning spaces. (R304.5.2)
5) **Flared Sides:** For perpendicular curb ramps on Class A sidewalks, or configurations where the pedestrian circulation path crosses the curb ramp, PROWAG requires the flares along the sides of the curb ramp to be constructed at 10% or flatter. (R304.2.3) This allows pedestrians to approach the curb ramp from the side and prevents a tripping hazard. It is recommended to design these flares at a slope between 8% and 10%, which will clearly define the curb ramp from the sidewalk.
6) **Clear Space:** At the bottom of perpendicular curb ramps, a minimum 4 foot by 4 foot area must be provided within the width of the pedestrian street crossing, but wholly outside of the parallel vehicle travel lanes. (R304.5.5)
7) **Turning Space:** Turning spaces allow users to stop, rest, and change direction on the top or bottom of a curb ramp (R304.2.1 and R304.3.1).
   a) **Placement:** A turning space is required at the top of perpendicular curb ramps and at the bottom of parallel curb ramps.
   b) **Slope:** The maximum cross slope and running slope is 2.0% with a target value of 1.5% (R304.2.2 and R304.3.2). When turning spaces are at the back of curb, cross slopes may be increased to match allowable values in the pedestrian street crossing section (R304.5.3).

c) **Size:** The turning space shall be a minimum of 4 feet by 4 feet. Where the turning space is constrained on one or more sides, provide 5 feet in the direction of the pedestrian street crossing.

8) **Special Shaping Area:** Transition area between the back of curb and the grade break. The longest side cannot exceed 5 feet.

Figure 12A-2.07: Curb Ramp Turning Spaces



c. **Curb Ramp Design Considerations:**

1) **Combination Curb Ramps:** For many intersection configurations, a perpendicular curb ramp will not provide enough length to establish the top turning space at the sidewalk elevation; in these situations, a parallel curb ramp is often required to transition from the turning space up to the sidewalk elevation. The use of a perpendicular curb ramp from the curb to the turning space in conjunction with a parallel curb ramp between the turning space and the sidewalk elevation is referred to as a combination curb ramp. When transitioning from a turning space to sidewalk elevation on a steep street, it is not necessary to chase the grade. As noted in the technical requirements above, a parallel curb ramp is not required to exceed 15 feet in length, regardless of the resulting curb ramp slope. In practice, the parallel curb ramp should be extended to the next joint beyond 15 feet.

2) **Cross Slope Transition Segment:** When connecting to existing construction that is out of cross slope compliance, the cross slope transition should be completed beyond the parallel curb ramp or turning space; this recommendation eliminates the need to list this curb ramp in the transition plan. It is recommended this cross slope transition take place at 1% per foot or less. Typically, this can be accomplished in a single panel.

3) **Parking Slope:** In situations where the length of the perpendicular curb ramp is insufficient to bring the turning space up to sidewalk elevation, consider lowering the sidewalk and flattening the parking slope.

5. **Blended Transitions:** A blended transition is allowed but not recommended. Design and constructability is difficult to meet compliance requirements. In lieu of a blended transition, a curb ramp or standard sidewalk should be used.

6. **Detectable Warnings:**

   a. **General:** Detectable warning surfaces are detected underfoot or with a cane by blind and low vision individuals. The warnings indicate the location of the back of curb. Detectable warnings also provide a visual queue to pedestrians with low vision and aid in locating the curb ramp across the street. For these reasons, the detectable warning shall contrast visually (light on dark or dark on light) from the surrounding paved surfaces (R305.1.3).

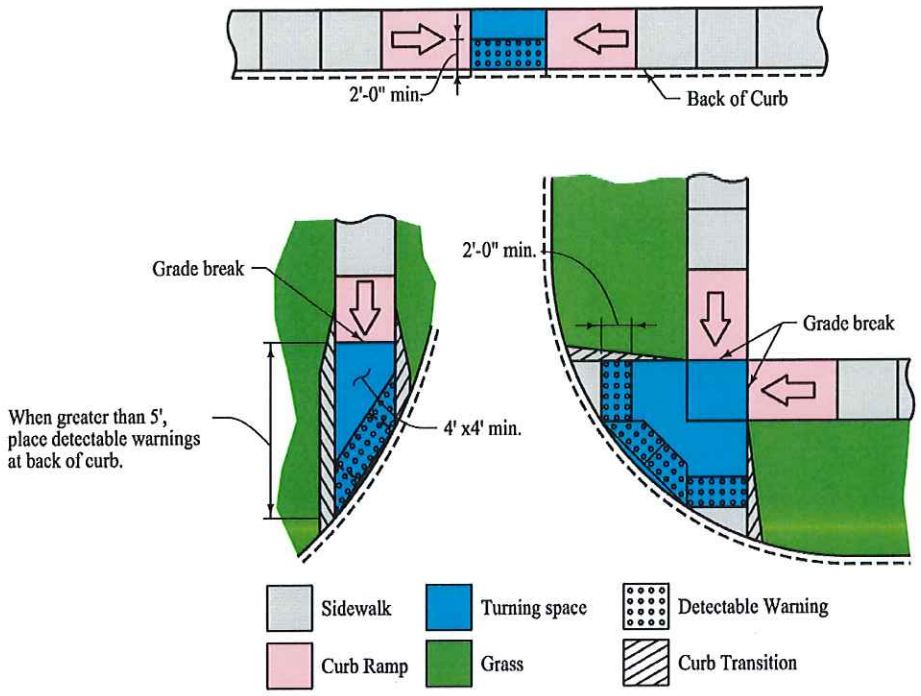
   b. **Location:** Detectable warnings shall be installed at all pedestrian street crossings and at-grade rail crossings (R208.1). Detectable warning surfaces should not be provided at crossings of residential driveways since the pedestrian right-of-way continues across the driveway. Where commercial driveways are provided with yield control, stop control, or traffic signals at the pedestrian access route, detectable warnings should be installed at the junction between the pedestrian access route and the driveway (Advisory R208.1).

   c. **Size:** Detectable warning surfaces shall extend a minimum of 2 feet in the direction of pedestrian travel and extend the full width of the curb ramp or pedestrian access route (R305.1.4).

   d. **Dome Orientation:** On curb ramps, the rows of truncated domes should be aligned perpendicular to the grade break so pedestrians in wheelchairs can track their wheels between the domes. On surfaces less than 5% slope, dome orientation is less critical.

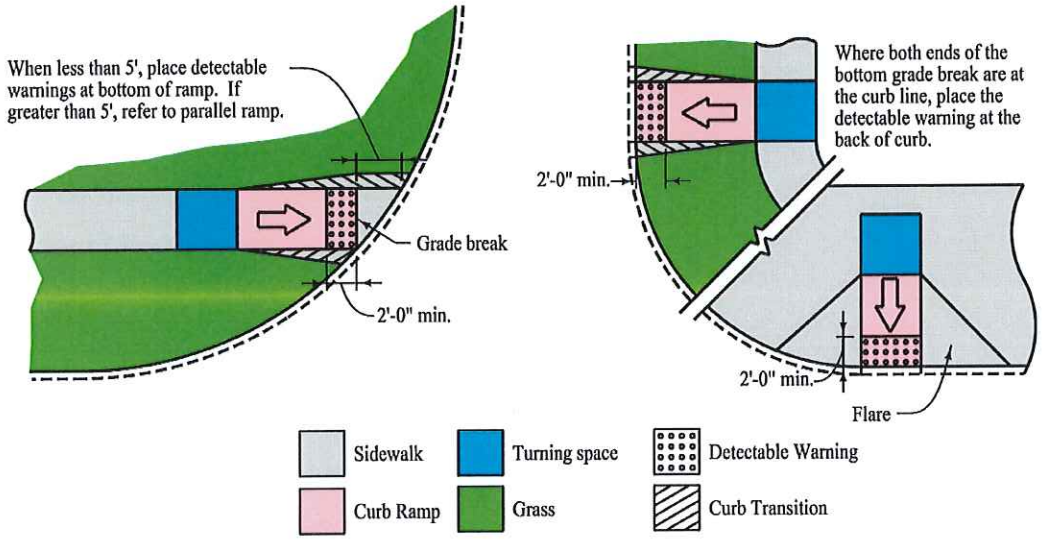
   e. **Parallel Curb Ramps:** On parallel curb ramps, detectable warning shall be placed on the turning space at the back of curb (R305.2.2).

Figure 12A-2.08: Detectable Warnings on Parallel Curb Ramps



f. Perpendicular Curb Ramps: Placement of detectable warning varies based upon location of grade break as shown in Figure 12A-2.09.

Figure 12A-2.09: Detectable Warnings on Perpendicular Curb Ramps



g. **Refuge Islands:** Where refuge islands are 6 feet wide or greater from back of curb to back of curb, detectable warning shall be placed at the edges of the pedestrian island and separated by a minimum 2 foot strip without detectable warnings. Where the refuge island is less than 6 feet wide, a 2 foot strip without detectable warnings cannot be installed. In these situations, detectable warnings shall not be installed at the island and the pedestrian signal must be timed for full crossing. (R208.1 and R208.2)

h. **Rural Cross-section:** Detectable warnings should be placed similar to urban layouts, except at the edge of shoulder instead of the back of curb.

F. Bus Stop

1. **Bus Stop Pads:** New and altered bus stop pads shall meet the following criteria.
   - Provide a firm, stable, and slip resistant surface (R308.1.3.1).
   - Provide a minimum clear length of 8 feet (measured from the curb or roadway edge) and minimum clear width of 5 feet (measured parallel to the roadway) (R308.1.1.1).
   - Connect the pad to streets, sidewalks, or pedestrian circulation paths with at least one accessible route (R308.1.3.2).
   - The slope of the pad parallel to the roadway will be the same as the roadway to the maximum extent practicable (R308.1.1.2).
   - Provide a desirable cross slope of 1.5% up to a maximum cross slope of 2.0% perpendicular to the roadway (R308.1.1.2).

2. **Bus Shelters:** Where new or replaced bus shelters are provided, install or position them to allow a wheelchair user to enter from the public way. An accessible route shall be provided from the shelter to the boarding area. (R308.2)

G. Accessible Pedestrian Signals

An accessible pedestrian signal is an integrated device that communicates information about the WALK and DON'T WALK intervals at signalized intersections in a non-visual format (i.e. audible tones and vibrotactile surfaces) to pedestrians who have visual disabilities. Each traffic signal project location should be evaluated to determine the need for accessible pedestrian signals. An engineering study should be completed that determines the needs for pedestrians with visual disabilities to safely cross the street (MUTCD 4E.09). The study should consider the following factors:

- Potential demand for accessible pedestrian signals
- Requests for accessible pedestrian signals by individuals with visual disabilities
- Traffic volumes when pedestrians are present, including low volumes or high right turn on red volumes
- The complexity of the signal phasing, such as split phasing, protected turn phases, leading pedestrian intervals, and exclusive pedestrian phases
- The complexity of the intersection geometry

If a pedestrian accessible signal is warranted, audible tones and vibrotactile surfaces should be included. Pedestrian push buttons should have locator tones for the visually impaired individual to be able to access the signal. See MUTCD 4E.09 through 4E.13 for more information. Consistency throughout the pedestrian system is very important. Contact the Jurisdictional Engineer regarding the standards and equipment types that should be incorporated into the design of the accessible pedestrian system.

Chronology of Changes to Design Manual Section:

012A-002 Accessible Sidewalk Requirements

9/20/2012	Revised - Definition for "Stucturally Impracticable" was added - Improved the explanation of Right Of Way availability
4/17/2012	NEW New. Replaces 11C-3. Adds 15' maximum for ramp length. Gives list of physical constraints.