

# Americans with Disabilities Act (ADA) Sidewalk Transition Plan

City of Columbia, Missouri  
Public Works Department  
2018

Revision 1: January 2019



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## **Introduction:**

The City of Columbia (City) is committed to providing services, programs and activities that are accessible to all members of the community, regardless of disability status. The purpose of this sidewalk transition plan is to focus on the accessibility of pedestrian facilities within the public right-of-way, such as sidewalks, curb ramps, signalized pedestrian crossings, and bus shelters. The plan is enacted in furtherance of the City's obligations under Title II of the Americans with Disabilities Act (ADA).

The City is working to improve the existing accessibility within the right-of-way through maintenance and capital improvement projects. This plan discusses the procedures the City has in place for new construction of sidewalks and for the improvement of any known existing deficient sidewalks. In addition, this plan outlines how the City inventories the existing sidewalk network for ADA compliance and outlines how improvements will be prioritized from that inventory to make the existing sidewalk network more accessible. Finally, this plan provides the names of the officials responsible for implementation of the plan and outlines the City's grievance procedure.

This ADA Sidewalk Transition Plan is administered by the City's Public Works Department. Improvements are completed through the City's Capital Improvement Program (CIP) Plan and the City's maintenance projects. The ADA Sidewalk Transition Plan will be used in conjunction with the Sidewalk Master Plan, which was last updated in 2012, as guidance to prioritize sidewalk improvement projects to be funded by the City. This sidewalk transition plan will be updated annually.

The ADA Sidewalk Transition Plan aligns with Public Works' Mission and Vision statements. The Public Works' Mission is to provide safe, sustainable infrastructure that promotes positive communities. The Public Works' Vision is to provide a safe, sustainable, and connected community.

## **Sidewalk Design Specifications, Standards, and Practices:**

The City's sidewalk design specifications, standards, and practices are aligned to provide accessible pedestrian facilities that meet or exceed minimum ADA standards. In order to ensure it meets this goal, the City has adopted, and incorporated, accessible elements of design for our sidewalks, curb ramps and intersections in the following documents: (1) the City of Columbia Street, Storm Drain and Sanitary Sewer Specifications and Standards; (2) the ADA compliance checklist; (3) the City's Complete Street and Complete Intersection policy; and (4) the City's Vision Zero policy.

*City's Street, Storm, Drain and Sanitary Sewer Specifications and Standards:* The City of Columbia Street, Storm Drain, and Sanitary Sewer Specifications and Standards were adopted in 2004 and then were significantly revised in January of 2012 and then updated again in October of 2016. An addendum revising some of the specifications and standard details was issued in October of 2018. These specifications and standards include details for the design and construction of sidewalks and curb ramps to ensure ADA compliance. Adherence to the specifications and standards is required for both the City improvement projects and private development. The typical standard details for sidewalks are included in Appendix A of this document.

*ADA Checklist:* The Missouri Department of Transportation (MoDOT) ADA checklist is also used by the City as reference during the design and construction of sidewalks, intersections, curb ramps, and bus shelters for Public Works projects. For CIP projects, this checklist is included as an exhibit to the bid document for the Bidder's review and compliance. The checklist outlines ADA requirements from PROWAG for pedestrian access routes, entrances, edge protection, hand rails and pedestrian guardrails, stairways, unobstructed reach ranges, curb ramps, detectable warning devices, islands and medians, accessible pedestrian signals, pedestrian street crossings, alternate circulation path, and bus boarding and alighting areas. The ADA checklist is included as Appendix B of this document.

*City's Complete Streets and Complete Intersection Policy:* The term "Complete Streets" refers to a transportation network design that allows for safe and convenient travel along and across streets for all modes of transportation, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, public transportation, and emergency response services. The City Council adopted the complete streets philosophy through the City's street specifications and standards in which ADA compliant sidewalks are included in the design of new streets. The Columbia Area Transportation Study Organization (CATSO) also adopted a Complete Streets policy in September of 2014. In December 2015, City Council recommended to include the "complete intersections" philosophy as part of the transportation network improvements. The complete intersections philosophy encompasses designing intersections to accommodate all modes of travel which includes crosswalks which are accessible by persons with disabilities. This legislation is included in Appendix C.

*City's Vision Zero Policy:* The City Council adopted the Vision Zero policy in December 2016. Vision Zero is a transportation policy goal and data driven strategy to achieve zero traffic deaths or serious injuries on the City's roadways by the year 2030. Vision Zero considers all road users and values the safety of people traveling by City streets whether by foot, bicycle, wheelchair, motorcycle, automobile, public transit, or any other mode. It prioritizes the safety of vulnerable road users, such as people walking, because of the likelihood of becoming seriously injured or killed in a collision. The City

is currently working through the process to implement the Vision Zero policy through engineering, education, and enforcement. The engineering component identifies design parameters that improve safety for all road users, including people with disabilities.

## **Public Works Street and Sidewalk Improvements in Right-of-Way:**

In its regular course of operation, the City's Public Works Department completes street and sidewalk improvement projects in the right-of-way. These improvements include asphalt overlays, roadway reconstruction, sidewalk repairs, signalized intersection upgrades, and bus shelter installations. For all new curb ramps and sidewalk facilities, the City will construct these to be compliant with the ADA standards. For all existing curb ramps and sidewalks, the City will evaluate their compliance of accessibility upon construction or alteration to the facilities or their adjacent streets. The following outlines various types of Public Works projects that include improvements to existing structures within the right-of-way in order to meet ADA standards.

### **Asphalt Overlays:**

As Public Works completes asphalt overlay projects, curb ramps touching the overlay area are reconstructed if they do not meet ADA standards. Work that only extends to one corner of the intersection requires that only the curb ramps on that side of the intersection be replaced if the curb ramps do not meet ADA standards.

Public Works implements a pavement preservation plan which includes yearly asphalt overlays. The asphalt overlays are completed over the summer and any adjacent non-compliant curb ramps are then replaced over the following fall and winter. The Public Works' budget has a line item each year to fund the replacement of the curb ramps adjacent to the street segments that were overlaid. A list of the curb ramps that were replaced in conjunction with the road segments that have been overlaid since 2015 is located in Appendix D.

### **Roadway Reconstruction:**

When Public Works competes roadway reconstruction projects, curb ramps within the reconstruction area are reconstructed as well, if they do not meet ADA standards. Also, for roadway reconstruction, new sidewalks are constructed where no sidewalk exists. Finally, any sidewalk that is determined unusable along the roadway reconstruction section is replaced.

Public Works follows their CIP Planning Document to prioritize and fund roadway reconstruction projects. The CIP Planning Document is updated each fiscal year

and the roadway reconstruction projects are listed and funded as individual CIP projects. A list of CIP roadway projects that were completed since 2015 is located in Appendix E.

### **Sidewalk Improvements:**

When a sidewalk repair abuts a curb ramp, the curb ramp is also replaced if it does not meet ADA standards. Sidewalk improvements also include constructing sidewalk where there are gaps along the sidewalk network.

Public Works follows their Council approved CIP Planning Document to prioritize and fund sidewalk projects. The CIP projects are funded through the Annual Sidewalks funding source and various other grant funds. Public Works maintenance crews also complete sidewalk repairs using their annual operations budget such as replacing or grinding sidewalk panels to remove trip hazards, replacing deteriorating sidewalk panels, replacing sidewalk panels that have a large cross slope, etc. When Utility Companies impact sidewalks, whether through new installation or repair to existing facilities, they are required to repair the sidewalk to ADA standards, as well. A list of the CIP sidewalk projects that were completed since 2015 is located in Appendix F.

### **Signalized Intersection Improvements:**

Public Works follows their Council approved CIP Planning Document to prioritize and fund signalized intersection improvement projects. These are usually high pedestrian volume signalized intersections that do not have pedestrian facilities and improvements include crosswalks, safety islands, pedestrian signalization, and sidewalks. These items are designed and constructed to meet ADA standards. The projects are listed and funded as individual CIP projects. A list of intersection improvement projects that were completed since 2015 is located in Appendix G.

### **Bus Shelter Installations:**

Public Works has a list of all current bus shelter locations. The bus shelters pads are designed and constructed to meet ADA standards. Sidewalks and crosswalks connecting to the bus shelters are being prioritized for reconstruction if they do not currently meet ADA standards. A list of bus shelters that have been constructed since 2016 is located in Appendix H.



## Inventory of Existing Sidewalk within Street Right of Way:

**General.** The City's Geographic Information System (GIS) Division has mapped nearly all of the City's existing sidewalks, curb ramps, signalized intersections, and bus shelters. There is approximately 3,500,000 linear feet of sidewalk within the City's street right-of-way, street easement, or sidewalk easement. Sidewalks located along Missouri Department of Transportation (MoDOT) right of way and sidewalks located along private roads are not included in this estimate.

**Inventory and Priority Order.** As part of this transition plan, the City is inventorying its sidewalks, curb ramps, signalized intersections, and bus shelters (pedestrian facilities) and evaluating them for accessibility. The order in which the pedestrian facilities are inventoried, evaluated, and prioritized for improvement to meet ADA standards is as follows:

1. City owned properties.
2. The following locations of high pedestrian use, particularly by people with disabilities:
  - a. East Campus/Benton-Stephens neighborhoods
  - b. Downtown
  - c. Worley Street between Providence and Stadium
3. Specific locations identified as a priority for pedestrians with disabilities.
4. Locations where a sidewalk ramp does not exist on a sidewalk network.
5. Strategic Plan Neighborhoods
6. Other locations of high pedestrian use including schools, shopping areas, etc.
7. Locations of lower pedestrian use and remainder of City by subdivision.

Diagrams of areas previously inventoried and areas to be inventoried over the next year are located in Appendix I.

**Inventory Process.** To inventory pedestrian facilities, Public Works staff uses an iPad to input particular features of each facility and then determines an accessibility ranking. A summary of the checklists used and a breakdown of the ranking are located in Appendix J. The pedestrian facilities are to be inventoried in progression according to the order above. The following summarizes the information to be collected for each structure type.

## **Inventory Information to be Collected for Each Structure Type:**

### **Sidewalks and Driveways:**

- Sidewalk width
- Sidewalk cross slope (average of entire section)

### **Curb Ramp:**

- Curb ramp width
- Curb ramp running slope
- Curb ramp cross slope
- Obstruction within the curb ramp
- Detectable warning

### **Pedestrian Crossing (Signalized or Flashing Beacon):**

- Signal Type (Signalize Intersection or Pedestrian Flashing Beacon)
- Crosswalk orientation
- Accessible Pedestrian Signal (APS) (Only required on new installations)
- Push button location (height and distance from user)

### **Bus Shelters:**

- Alighting area dimensions
- Alighting cross slope
- Bus shelter pad dimension

### **Obstructions:**

#### **(Non-compliant spot locations in sidewalk and driveway network)**

- Noticeable cracks or gaps (horizontal trip hazard)
- Noticeable heaving or sinking (vertical trip hazard)
- Permanent obstruction in sidewalk
- Temporary obstruction protruding or hanging in the sidewalk
- Excessive concrete panel cross slope or running slope

The structures are inventoried following the Inventory and Priority Order and assessed for ADA compliance. This information is then utilized to prioritize repairs. The following rankings (Table 1) are used for each structure type to determine compliance. A breakdown of the ranking system used is shown in Appendix J. Structures that are ranked as *Compliant* will not be further evaluated. Structures that are ranked as *Substantially Compliant* will be considered the lowest priority. Structures that are



ranked as *Correction Recommended* will further be reviewed in more detail and prioritized for improvement.

**Table 1: Structure Ranking for ADA Compliance**

<b>Structure Type</b>	<b>Ranking</b>		
	<b>Compliant</b>	<b>Substantially Compliant</b>	<b>Correction Recommended</b>
<i>Sidewalk/Driveway</i>	0	1 to 4	5 to 10
<i>Curb Ramp</i>	0	1 to 4	5 to 25
<i>Pedestrian Crossing</i>	0	1	2 to 3
<i>Bus Shelters</i>	0	1 to 4	5 to 25
<i>Obstructions</i>	See Appendix J for Ranking		

A summary of the rankings for the structures inventoried is located in [Appendix K](#). This appendix will be updated yearly to add areas that have been evaluated throughout the year. Also, an interactive map has been developed that can query and locate the inventoried structures.

### **Improvement Plan to Address ADA Compliance:**

Public Works will review all structures that received a ranking of *Correction Recommended* to determine priority and funding sources for improvement.

**Priority of Improvements.** The priority of improvements will be determined by Public Works in a manner consistent with this policy. Factors to consider in determining priority include the location of the facility, the type of improvement required, the cost of the improvement and available funding, alternative pedestrian routes available in the immediate area, and improvement projects already scheduled within the area.

**Funding Sources.** The source for funding of improvements under this section may vary depending on the type and location of the facility. The City will be responsible for all improvements to structures located on City property, and to all Bus Shelters and Signalized Pedestrian Crossings. Per the City's Code of Ordinances Sections 24-12 and 24-33, it is the responsibility of adjacent landowners for the upkeep and repair to sidewalks on their property. A determination has not yet been made on how to address improvements to sidewalks ranked as *Correction Recommended* that are not located on City property.

City's funding source for improvements under this Plan will primarily come from the 0.25 percent CIP sales tax. This tax is subject to voter approval every ten years. Within the CIP sales tax, the structure improvements may be funded through one of the following designated sources:

- Sidewalk Improvements: Annual Sidewalk Major Maintenance and Annual Sidewalk/Pedways
- Curb Ramps Improvement: Annual ADA Curb Ramp Installations
- Intersections Improvement: Identified Capital Improvement Projects
- Bus Shelter Improvements: Annual Bus Shelters

Additional funding sources for improvements by the City under this Plan may include non-motorized transportation grants or community development block grants.

*Tracking Improvements.* Each of the following appendices includes a list of proposed improvements to be completed. The appendices will be updated each year with any revisions to the list of proposed improvements based on additional inventory information and a list of improvements that have been completed since the original drafting of this document.

- Appendix L includes the list of structures that are inventoried and ranked as *Correction Recommended* on City properties. The appendix also includes the list of bus shelters and signalized pedestrian crossings that are ranked as *Correction Recommended*.
- Appendix M includes the list of CIP projects that include sidewalk, curb ramp, intersection, and/or bus shelter improvements as part of the project. These CIP projects may be within or outside of an inventoried area and these improvements are usually part of a larger project scope, such as a street reconstruction project. The CIP project list includes the location of the project and the year the project will be constructed.
- Appendix N includes the list of curb ramps that need to be modified to meet ADA compliance associated with the asphalt overlay projects. The list includes the location of the project and the number of curb ramps to be improved. These locations may be within or outside of an inventoried area.
- Appendix O includes the list of bus shelter projects to be completed. The list includes the location of each shelter and the year the pad is scheduled to be constructed.

## **Officials Responsible for Plan Implementation:**

The Public Works Director is responsible for the implementation of the sidewalk transition plan. The City's ADA Coordinator is also available for any comments, questions, or concerns related to this transition plan or the accessibility of the City's services, programs, or activities.

The Public Works Director's contact information is:

David Nichols, P.E.  
Director of Public Works  
701 E. Broadway  
Columbia, Missouri 65205-6015  
Phone: (573) 874-2489  
Email: [pubw@como.gov](mailto:pubw@como.gov)

The ADA Coordinator's contact information is:

Adam Kruse  
ADA Coordinator  
701 E. Broadway  
Columbia, Missouri 65205-6015  
Phone: (573) 874-2489  
Email: [disabilityservices@como.gov](mailto:disabilityservices@como.gov)

## **Grievance Procedure:**

The City of Columbia has adopted an internal grievance procedure providing for prompt and equitable resolution of complaints alleging any action prohibited by the U.S. Department of Justice regulations implementing Title II of the Americans with disabilities Act. Title II states, in part, that "no qualified individual with a disability shall, by reason of such disability, be excluded from the participation in or be denied the benefits of services, programs, or activities of a public entity, or be subjected to discrimination by any such entity."

The established grievance procedure is as follows:

1. A complaint shall be filed in writing and shall contain the name and address of the person filing it together with a brief description of the violation(s) alleged.
2. A complaint should be filed within 14 days of when the complainant becomes aware of the alleged violation. (Processing of allegations of discrimination

occurring before this written grievance procedure was in place shall be considered on a case-by-case basis.)

3. An investigation, when deemed appropriate, shall follow the filing of a complaint. The investigation shall be conducted by the ADA Coordinator or his/her designee. These rules contemplate informal, but thorough investigations, affording all interested persons and their representatives, if any, an opportunity to submit evidence relevant to a complaint.
4. A written determination as to the validity of the complaint and a description of the resolution, if any, shall be issued by the ADA Coordinator and a copy shall be forwarded to the complainant no later than 14 business days after its filing. In the event a complex issue arises that requires additional review, the response time may be extended beyond 14 days.
5. The ADA Coordinator shall maintain the files and records of the City of Columbia relating to the complaints filed.
6. The complainant may request reconsideration of their case in instances where he or she is dissatisfied with the resolution. The request for reconsideration should be made, within 14 days of the issuance of the ADA Coordinator's written resolution, to the City Manager.
7. The right of a person to a prompt and equitable resolution of the complaint filed hereunder shall not be impaired by the person's pursuit of other remedies such as the filing of an ADA complaint with the responsible federal department or agency. Use of this grievance procedure is not a prerequisite to the pursuit of other remedies.
8. These rules shall be construed to protect the substantive rights of interested persons to meet appropriate due process standards and to assure that the City of Columbia complies with the ADA and implementing regulations.

The Discrimination Complaint Form is included in Appendix P. All complaints should be addressed to the City of Columbia's ADA Coordinator at the following contact information:

Adam Kruse  
ADA Coordinator  
701 E. Broadway, 2<sup>nd</sup> Floor  
P.O. Box 6015  
Columbia, Missouri 65205-6015  
Phone: (573) 874-2489  
Email: [disabilityservices@como.gov](mailto:disabilityservices@como.gov)

## **Public Involvement and Transition Plan Revisions:**

In developing the initial transition plan, the Disabilities Commission, the Bicycle/Pedestrian Commission, and the Public Transit Advisory Commissions were contacted to provide comments on the draft report. Their comments were incorporated into the plan. Public Works met with the Disabilities Commission on February 8, 2018, with the Bicycle/Pedestrian Commission on February 21, 2018, and with the Public Transit Advisory Commission on March 15, 2018. The transition plan was presented to City Council by a Staff report on April 16, 2018.

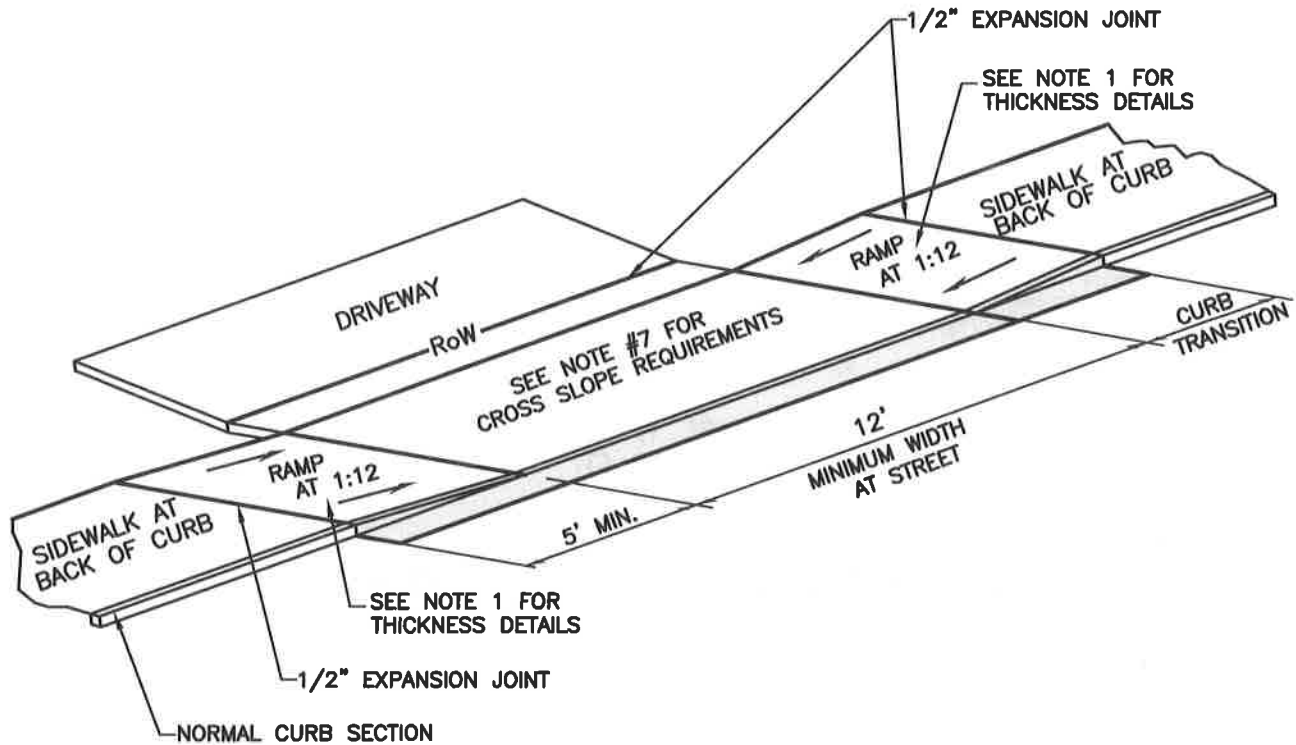
This transition plan is updated yearly. Each update will include the improvement projects that have been completed for the year, structure inventories that were completed for the year, and the updated list of the improvement projects that still need to be completed with target years for the improvements. For the year 2018 update, the transition plan is to be presented to City Council at a work session on June 3, 2019. Public Works will meet with the Disabilities Commission, the Bicycle/Pedestrian Commission, and with the Public Transit Advisory Commission about the updated plan after the work session with Council has been completed.

## Appendices

- A. City's Street, Storm, Drain and Sanitary Sewer Standard Details for Sidewalks
- B. MoDOT ADA Checklist
- C. City's Complete Streets and Complete Intersection Policy
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**NOTE:**

1. RAMP SHALL BE 6" THICK MoDOT PAVEMENT CONCRETE FOR RESIDENTIAL, 7" THICK MoDOT PAVEMENT CONCRETE FOR COMMERCIAL.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. DRIVEWAY CROSS SLOPE SHALL NOT EXCEED 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. REPLACE STANDARD CURB SECTION DRIVEWAY CURB SECTION - DETAIL 400.02 OR 400.03
6. RAMP LENGTH IS DEPENDENT UPON 1:12 MAX. SLOPE AT 5' MINIMUM TRANSITION AREA. USE FLATTER WHEN POSSIBLE.
7. A PEDESTRIAN ACCESSIBLE ROUTE SHALL BE PROVIDED THAT IS 4'-0" WIDE MINIMUM WITH A MINIMUM CROSS SLOPE OF 1/8" PER FOOT AND MAXIMUM CROSS SLOPE OF 2.00%.
8. DRIVEWAY MAY BE REINFORCED AT OWNERS OPTION. ON CITY BID PROJECTS DO NOT REINFORCE.

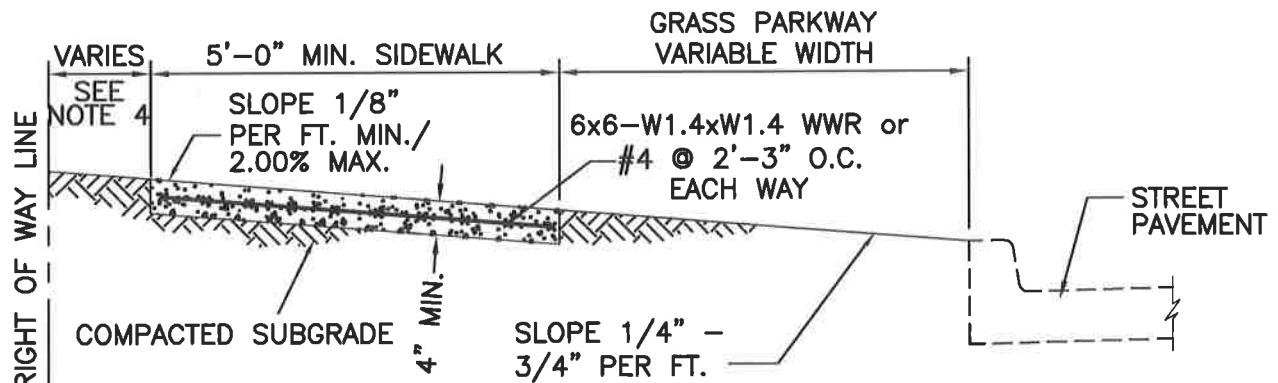
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## SIDEWALK DRIVEWAY DETAIL

### Sidewalk at Back of Curb


410.07



## SIDEWALK WITH GRASS PARKWAY

### NOTE:

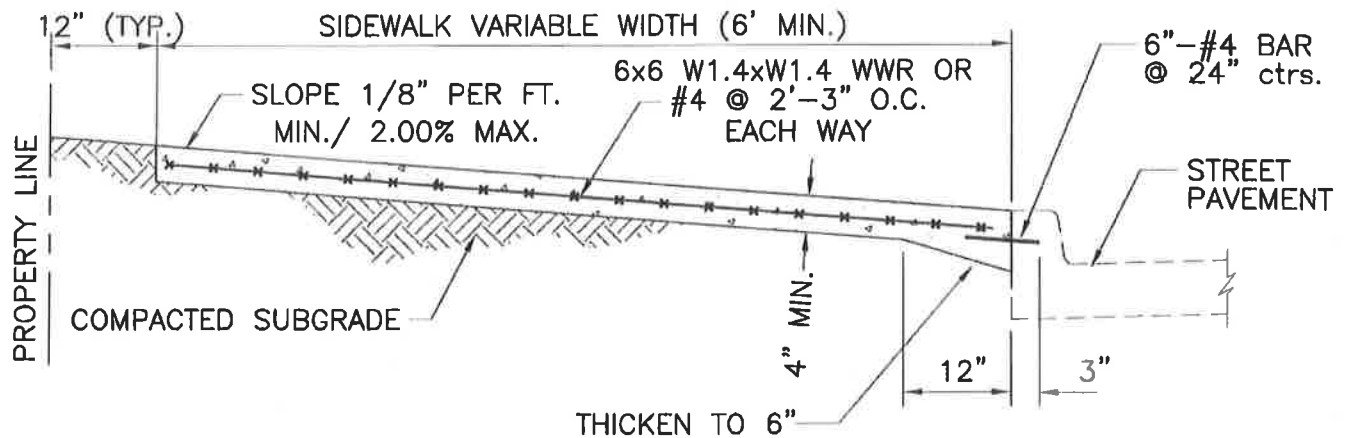
1. SIDEWALK SHALL BE 4" THICK MoDOT PAVEMENT CONCRETE.
2. INSTALL 1/2" EXPANSION JOINTS AT INTERSECTIONS, RAMPS, STRUCTURES, DRIVEWAY APPROACHES, OR EVERY 100'.
3. INSTALL TRANSVERSE SAW JOINTS AT SPACING EQUAL TO SIDEWALK WIDTH.
4. STANDARD SIDEWALK PLACEMENT IS 12" FROM RIGHT OF WAY LINE.
5. NO STEEL TO BE PLACED THROUGH EXPANSION JOINT.
6. SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.00%.
7. DAMAGED SIDEWALK MUST BE PINNED TO EXISTING SIDEWALK.
8. WWR OR REBAR SHALL BE ACCURATELY PLACED AND FIRMLY HELD IN PLACE DURING CONCRETE PLACEMENT BY APPROVED METHODS, SEE SECTION 238.9.

 Approved	10/01/16 Date
Revisions	



SIDEWALK

420.01



NOTE:

1. SIDEWALK SHALL BE 4" THICK MoDOT PAVEMENT CONCRETE.
2. INSTALL 1/2" TRANSVERSE EXPANSION JOINTS TO MATCH STREET OR CURB AND GUTTER EXPANSION JOINTS AND AT ALL DRIVEWAY APPROACHES, AND SIDEWALK RAMPS.
3. INSTALL TRANSVERSE SAW JOINTS AT SPACING EQUAL TO SIDEWALK WIDTH.
4. FOR DOWNTOWN SIDEWALK DETAIL SEE SECTION 1000.
5. NO STEEL TO BE PLACED THROUGH EXPANSION JOINT
6. SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.00%.
7. NEW SIDEWALK MUST BE PINNED TO EXISTING SIDEWALK.
8. WWR OR REBAR SHALL BE ACCURATELY PLACED AND FIRMLY HELD IN PLACE DURING CONCRETE PLACEMENT BY APPROVED METHODS, SEE SECTION 238.9.

*[Signature]*  
Approved

10/01/18  
Date

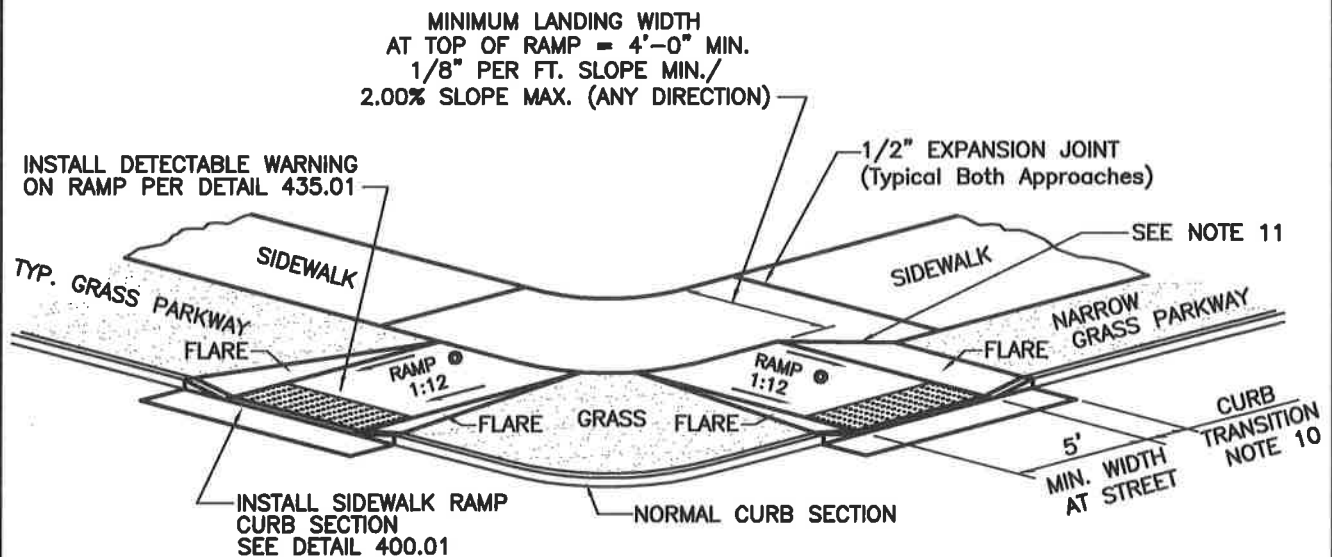
Revisions



City of Columbia  
Public Works Department


SIDEWALK AT BACK OF CURB

420.02



NOTE:

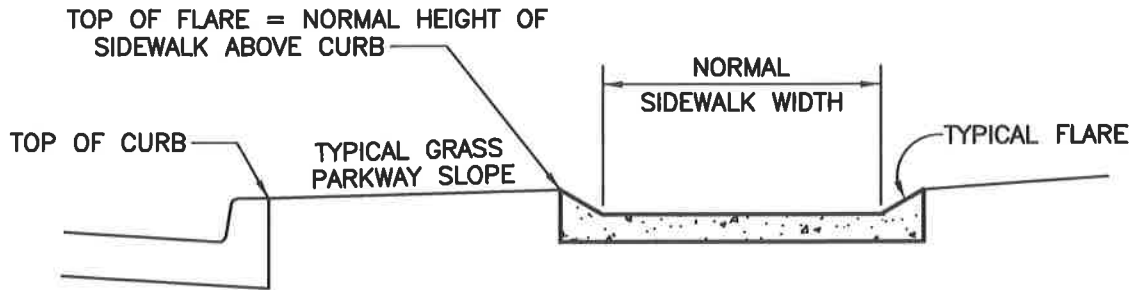
1. RAMP SHALL BE 6" THICK MoDOT PAVEMENT CONCRETE WITH #4 BARS @ 12" O.C. EACH WAY.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. REPLACE STANDARD CURB SECTION WITH SIDEWALK RAMP CURB SECTION - DETAIL 400.01
6. RAMP LENGTH IS DEPENDENT ON 1:12 MAX. SLOPE. USE FLATTER WHEN POSSIBLE.
7. LANDING AREA AT TOP OF RAMP SHALL BE 4'-0" MIN WIDTH, CROSS SLOPE OF LANDING SHALL NOT EXCEED 2.00%, INCREASE SIDEWALK RADIUS TO OBTAIN MINIMUM 4'-0" LANDING.
8. TYPE "A" RAMP NOT APPLICABLE IF SIDEWALK AND PARKWAY WIDTH DOES NOT PROVIDE 4'-0" LANDING AT TOP OF RAMP.
9. FLARES ARE REQUIRED AT RAMPS TO KEEP GRASS PARKWAY SLOPES IN CONFORMANCE WITH THE TYPICAL CROSS SECTION.
10. CURB TRANSITION LENGTH IS DEPENDENT ON FLARE SLOPE
11. IF RAMP EXTENDS INTO NORMAL SIDEWALK, FLARE SLOPE MUST NOT EXCEED 1:10. A LANDING IS REQUIRED, SEE NOTE 7.

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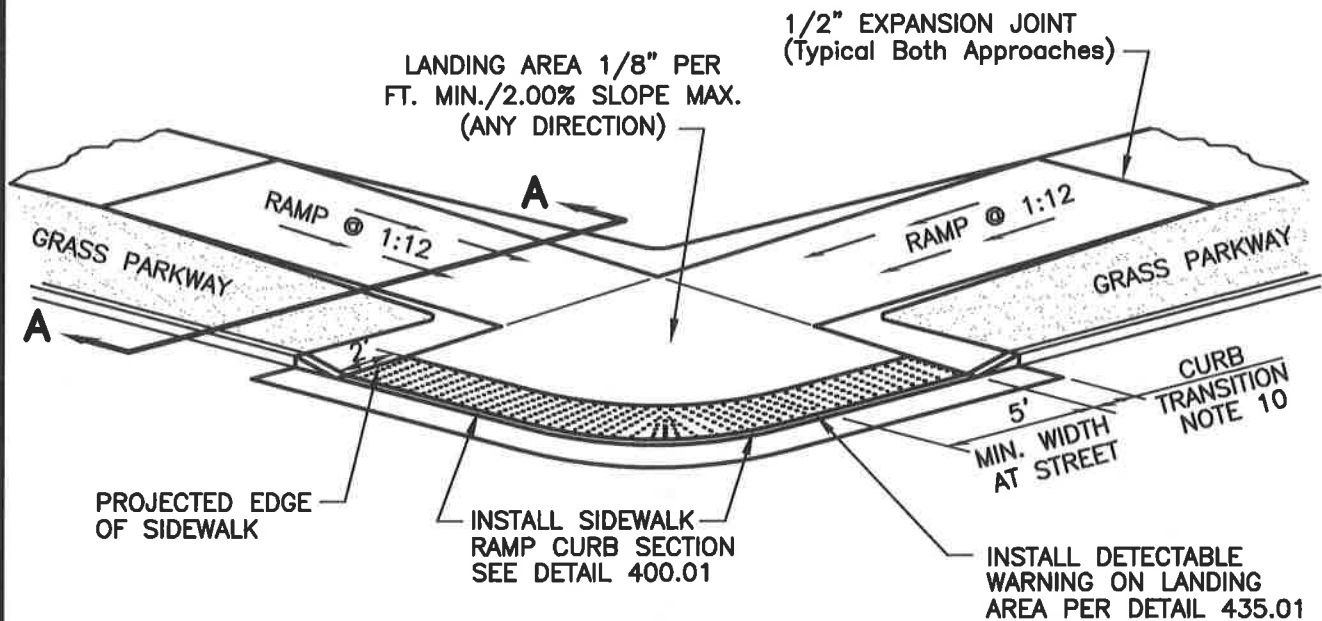


## SIDEWALK RAMP Sidewalk with Grass Parkway (Type A)

430.01




### SECTION A-A



#### NOTES:

1. RAMP AND LANDING SHALL BE 6" THICK MoDOT PAVEMENT CONCRETE WITH #4 BARS AT 12" O.C. E.W.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. REPLACE STANDARD CURB SECTION WITH SIDEWALK RAMP CURB SECTION - DETAIL 400.01
6. RAMP LENGTH IS DEPENDENT ON 1:12 MAX. SLOPE. USE FLATTER WHEN POSSIBLE.
7. LANDING AREA SHALL BE 4'-0" MIN WIDTH.
8. USE TYPE "B" RAMP ONLY IF TYPE "A" IS NOT FEASIBLE.
9. FLARES ARE REQUIRED AT RAMPS TO KEEP GRASS PARKWAY SLOPES IN CONFORMANCE WITH THE TYPICAL CROSS SECTION. (SEE SECTION A-A)
10. CURB TRANSITION LENGTH IS DEPENDENT ON FLARE SLOPE.

  
 Approved \_\_\_\_\_ Date 10/01/16

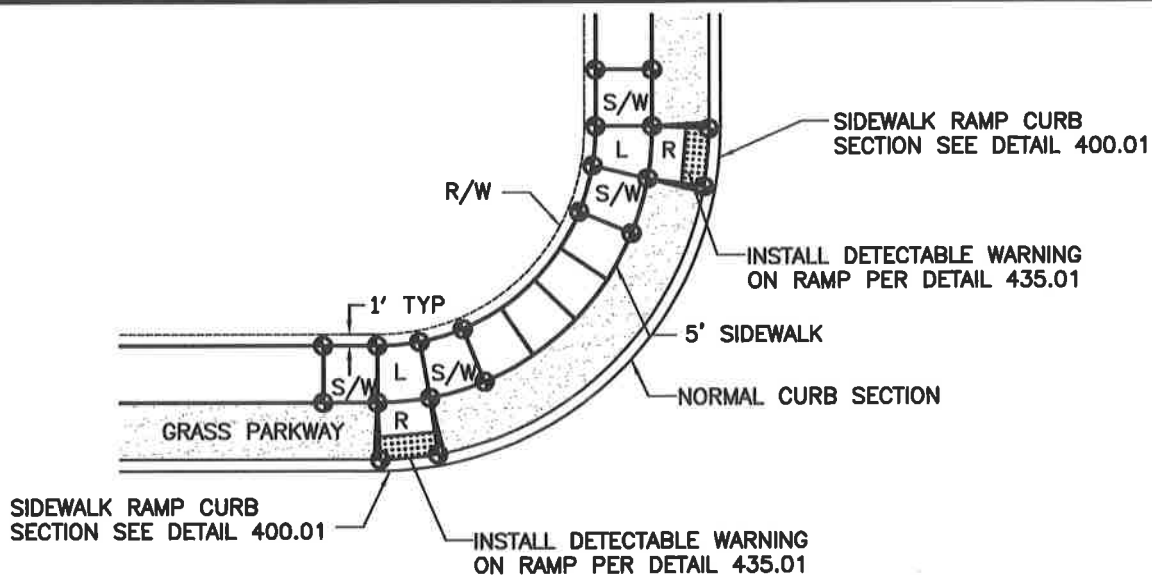
Revisions



## SIDEWALK RAMP Sidewalk with Grass Parkway (Type B)

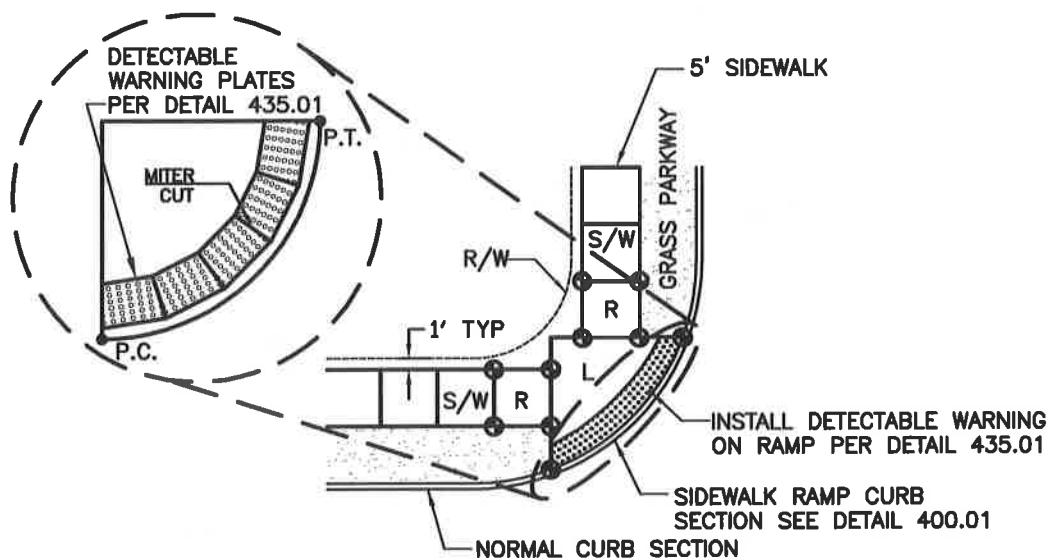
430.02





1. ● DENOTES SPOT ELEVATION REQUIRED

### TYPE "A" SIDEWALK WITH GRASS PARKWAY



1. ● DENOTES SPOT ELEVATION REQUIRED

2. DETECTABLE WARNING PLATES ARE TO BE  
MITERED EQUALLY ON BOTH SIDES TO  
BE FLUSH.

### TYPE "B" SIDEWALK WITH GRASS PARKWAY

R = RAMP AT 1:12 RUNNING SLOPE MAX

L = LANDING AT 1/8" PER FT. SLOPE MIN./2.00% SLOPE MAX. (ANY DIRECTION)

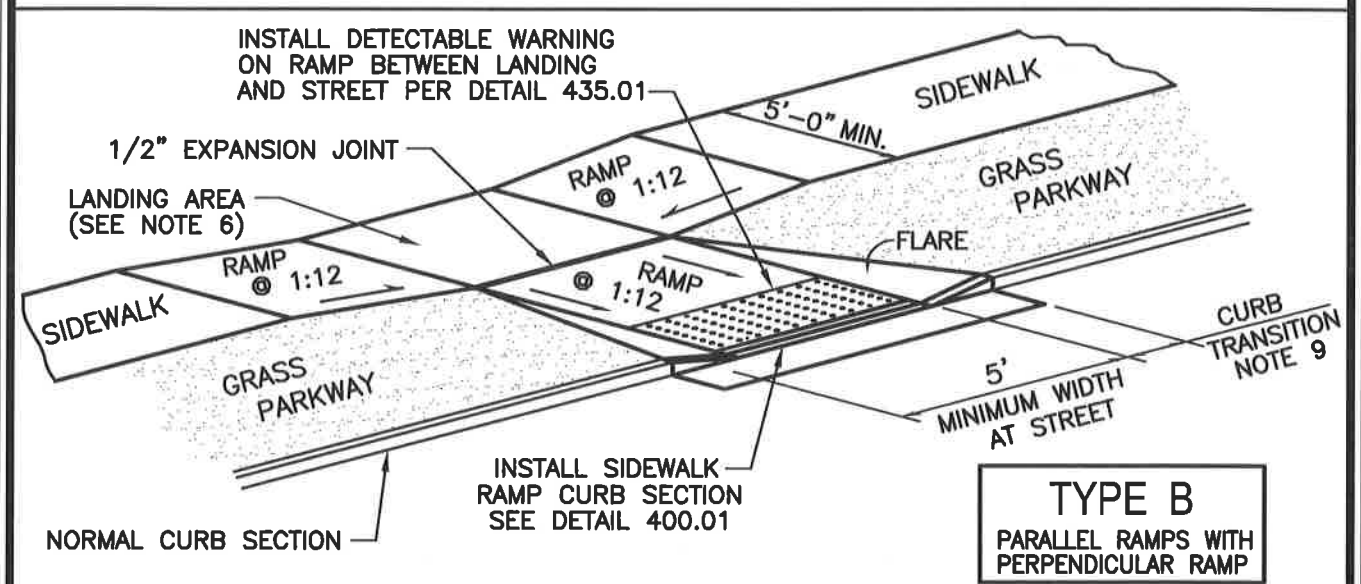
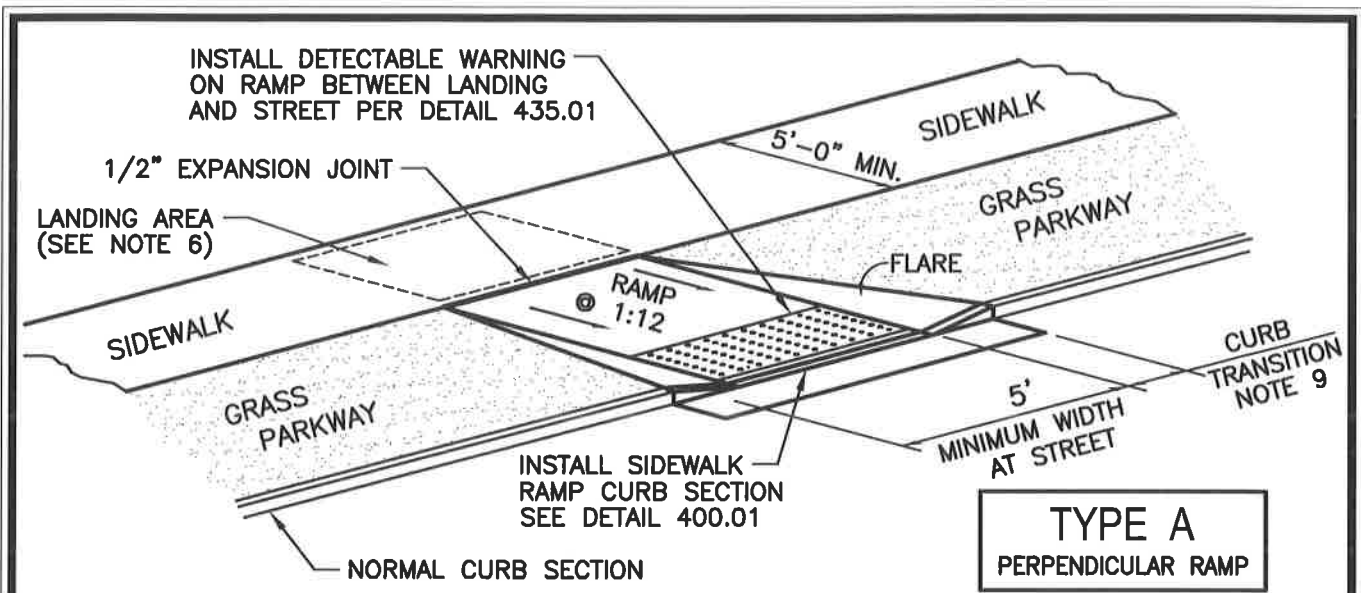
S/W = SIDEWALK AT 1/8" PER FT. CROSS SLOPE MIN./2.00% CROSS SLOPE MAX.

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**SIDEWALK RAMP PLAN VIEW**  
Sidewalk with Grass Parkway  
(Type A & B)

430.03



**NOTE:**

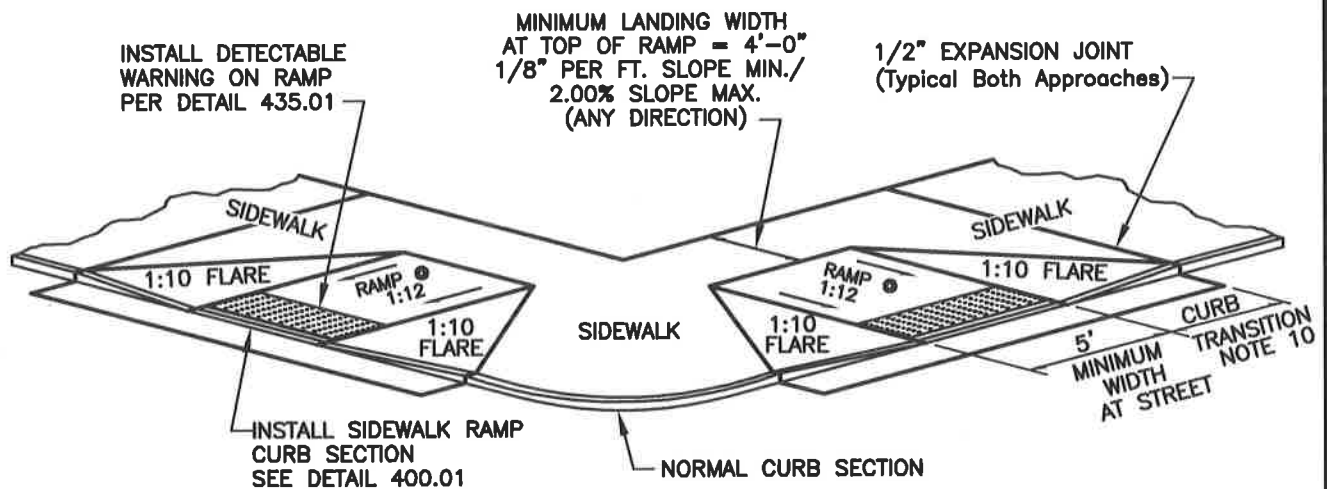
1. RAMP SHALL BE 6" THICK MoDOT PAVEMENT CONCRETE WITH #4 BARS AT 12" O.C. EACH WAY
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
4. REPLACE STANDARD CURB SECTION WITH SIDEWALK RAMP CURB SECTION - DETAIL 400.01
5. RAMP LENGTH IS DEPENDENT ON 1:12 MAX. SLOPE. USE FLATTER WHEN POSSIBLE.
6. LANDING AREA AT TOP OF RAMP SHALL BE 4'-0" MIN. WIDTH. SLOPE OF LANDING SHALL BE 1/8" PER FT. MIN./2.00% MAX (ANY DIRECTION)
7. TYPE "A" RAMP NOT APPLICABLE IF PARKWAY WIDTH DOES NOT PROVIDE ENOUGH LENGTH FOR PERPENDICULAR RAMP AT 1:12 SLOPE.
8. FLARES ARE REQUIRED AT RAMPS TO KEEP GRASS PARKWAY SLOPES IN CONFORMANCE WITH THE TYPICAL CROSS SECTION.
9. CURB TRANSITION LENGTH IS DEPENDENT ON FLARE SLOPE.

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## MIDBLOCK SIDEWALK RAMP Sidewalk with Grass Parkway

431.01



**NOTE:**

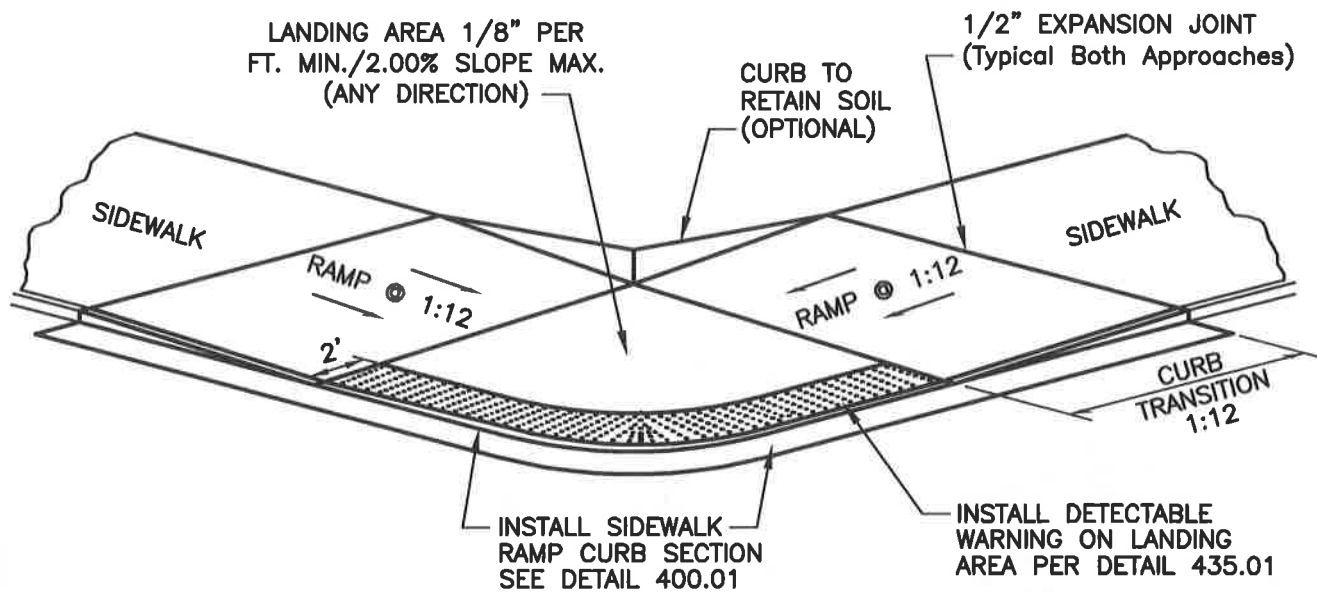
1. RAMP SHALL BE 6" THICK MoDOT PAVEMENT CONCRETE WITH #4 BARS AT 12" O.C. E.W.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. REPLACE STANDARD CURB SECTION WITH SIDEWALK RAMP CURB SECTION - DETAIL 400.01
6. RAMP LENGTH IS DEPENDENT ON 1:12 MAX. SLOPE. USE FLATTER WHEN POSSIBLE.
7. LANDING AREA AT TOP OF RAMP SHALL BE 4'-0" MIN WIDTH, CROSS SLOPE OF LANDING SHALL NOT EXCEED 2.00%.
8. TYPE "A" RAMP NOT APPLICABLE IF SIDEWALK WIDTH DOES NOT PROVIDE 4'-0" LANDING AT THE TOP OF RAMP. USE TYPE "B" RAMP.
9. RAMP EXTENDS INTO SIDEWALK, FLARE SLOPE MUST NOT EXCEED 1:10.
10. CURB TRANSITION LENGTH IS DEPENDENT ON 1:10 FLARE SLOPE

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**SIDEWALK RAMP**  
Sidewalk at Back of Curb  
(Type A)

432.01



#### NOTES:

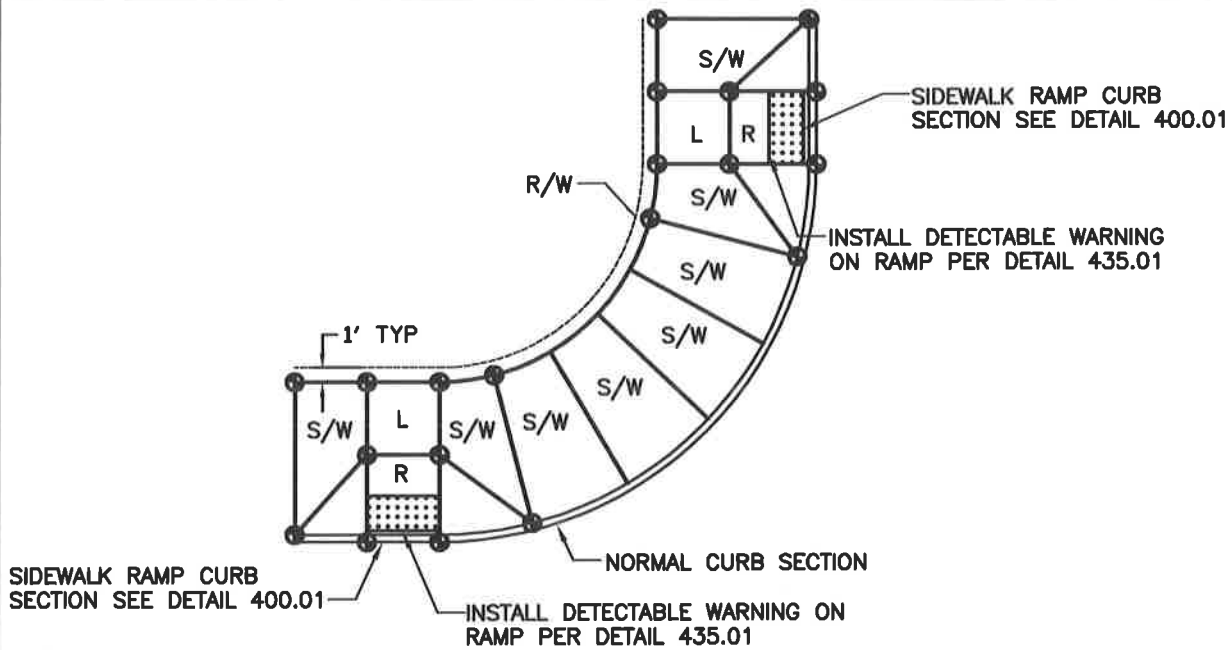
1. RAMP AND LANDING SHALL BE 6" THICK REINFORCED MoDOT PAVEMENT CONCRETE W/#4 BARS @ 12" O.C.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. REPLACE STANDARD CURB SECTION WITH SIDEWALK RAMP CURB SECTION - DETAIL 400.01
6. RAMP LENGTH IS DEPENDENT ON 1:12 MAX. SLOPE. USE FLATTER WHEN POSSIBLE.
7. LANDING AREA SHALL BE 4'-0" MIN WIDTH.
8. USE TYPE "B" RAMP ONLY IF TYPE "A" IS NOT FEASIBLE.

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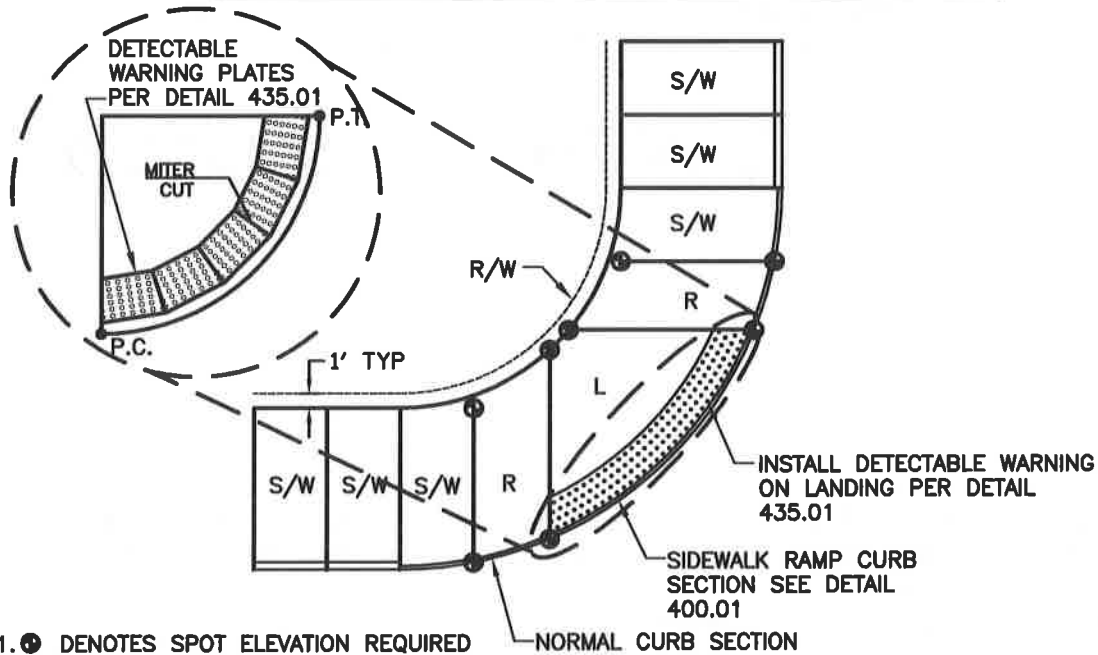
## SIDEWALK RAMP Sidewalk at Back of Curb (Type B)

432.02



1. ● DENOTES SPOT ELEVATION REQUIRED

### TYPE "A" SIDEWALK AT BACK OF CURB



1. ● DENOTES SPOT ELEVATION REQUIRED

2. DETECTABLE WARNING PLATES ARE TO BE MITERED EQUALLY ON BOTH SIDES TO BE FLUSH.

### TYPE "B" SIDEWALK AT BACK OF CURB

R = RAMP AT 1:12 RUNNING SLOPE MAX

L = LANDING AT 1/8" PER FT. SLOPE MIN./2.00% SLOPE MAX. (ANY DIRECTION)

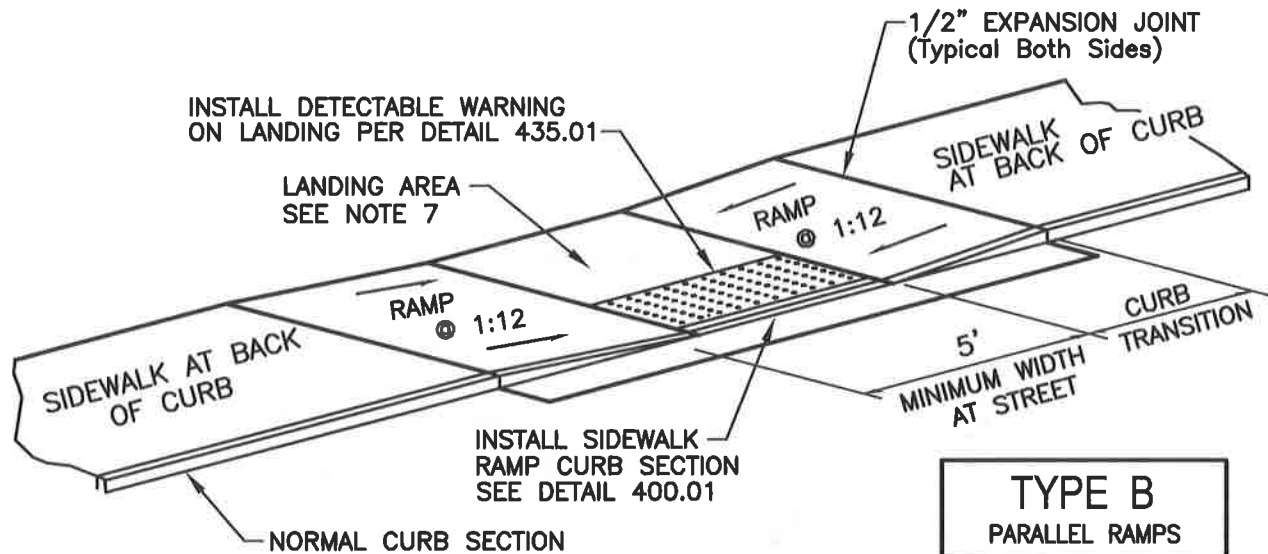
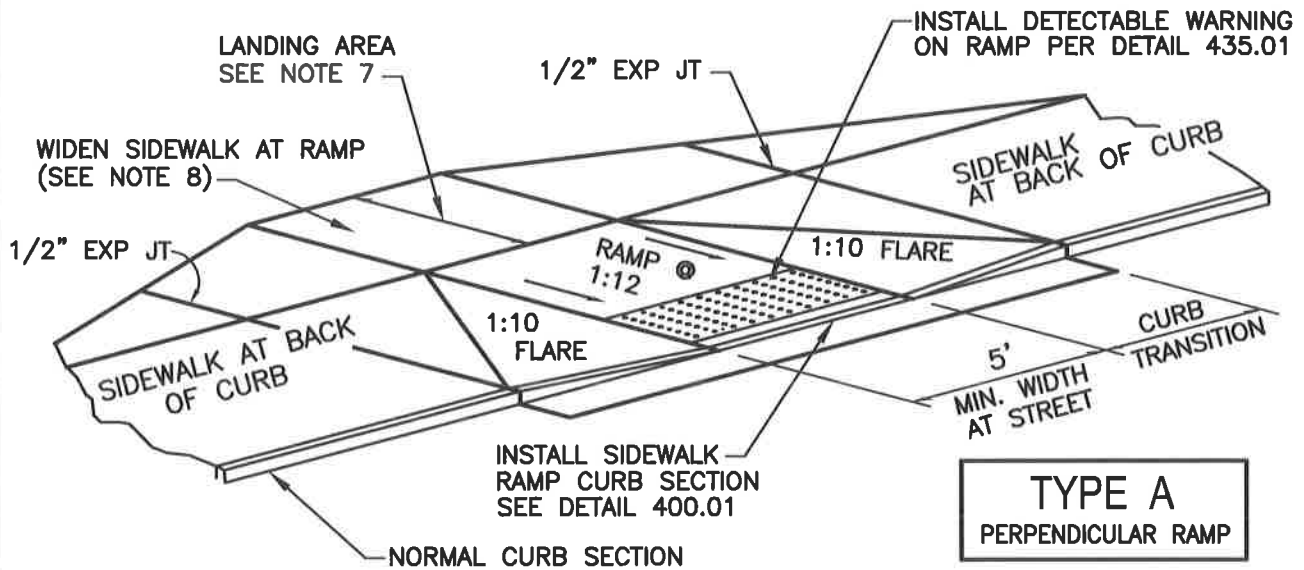
S/W = SIDEWALK AT 1/8" PER FT. CROSS SLOPE MIN./2.00% CROSS SLOPE MAX.

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**SIDEWALK RAMP PLAN VIEW**  
**Sidewalk at Back of Curb**  
**(Type A & B)**

432.03



#### NOTE:

1. RAMP SHALL BE 4" THICK REINFORCED MoDOT PAVEMENT CONCRETE SAME AS SIDEWALK.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. REPLACE STANDARD CURB SECTION WITH SIDEWALK RAMP CURB SECTION - DETAIL 400.01
6. RAMP LENGTH IS DEPENDENT ON 1:12 MAX. SLOPE. USE FLATTER WHEN POSSIBLE.
7. LANDING AREA SHALL BE 4'-0" MIN. WIDTH. SLOPE OF LANDING SHALL BE 1/8" PER FT. MIN./2.00% MAX. (ANY DIRECTION)
8. TYPE "A" RAMP NOT APPLICABLE WHEN NORMAL SIDEWALK WIDTH DOES NOT PROVIDE 4'-0" LANDING AT THE TOP OF RAMP, WIDEN SIDEWALK OR USE TYPE "B" RAMP.
9. 1:10 FLARES ARE REQUIRED ON TYPE "A" RAMPS.

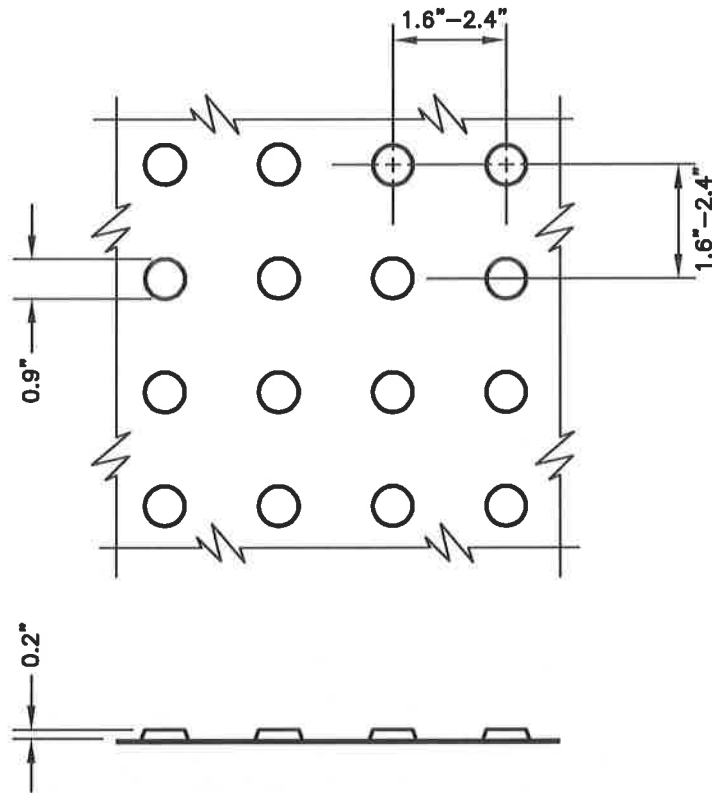
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Revisions	



## MIDBLOCK SIDEWALK RAMP Sidewalk at Back of Curb

433.01





**NOTE:**

1. DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF 0.9", A HEIGHT OF NOMINAL 0.2", AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35", AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, ACHIEVED BY THE INSTALLATION OF ADA SOLUTIONS 2436 REPBR, 2448 REPBR, OR 2460 REPBR (OR APPROVED EQUAL) AND SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
2. ADA SOLUTIONS 24RADREPBR OR APPROVED EQUAL TO BE USED WITH DETAIL 430.02, 432.02, AND 1000.08.
3. STAMPED CONCRETE IS NOT AN APPROVED EQUAL.
4. DOWNTOWN DETECTABLE WARNINGS MAY BE ADA 2004 COMPLIANT DETECTABLE WARNING PAVERS.
5. DETECTABLE WARNING PLATES ARE TO BE COLONIAL OR BRICK RED IN COLOR OR APPROVED EQUAL.
6. DETECTABLE WARNING SURFACES SHALL BE 24" WIDE AND EXTEND THE FULL LENGTH OF THE PUBLIC USE AREA.

*[Signature]*  
Approved

10/01/16  
Date

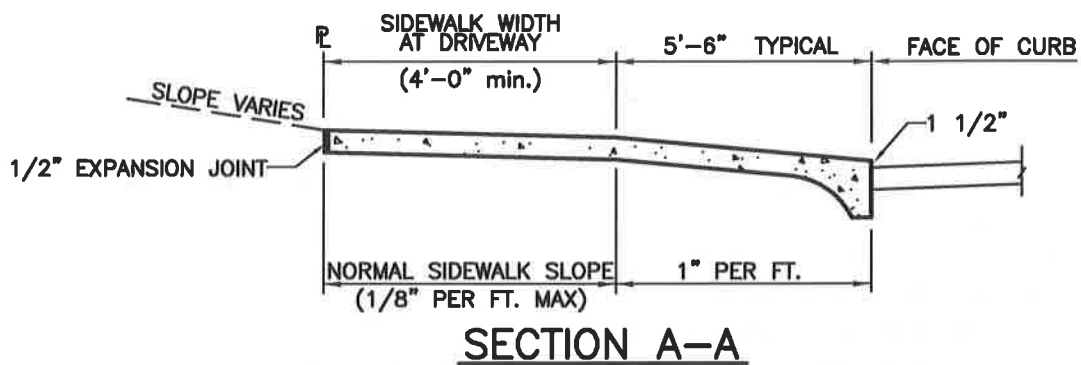
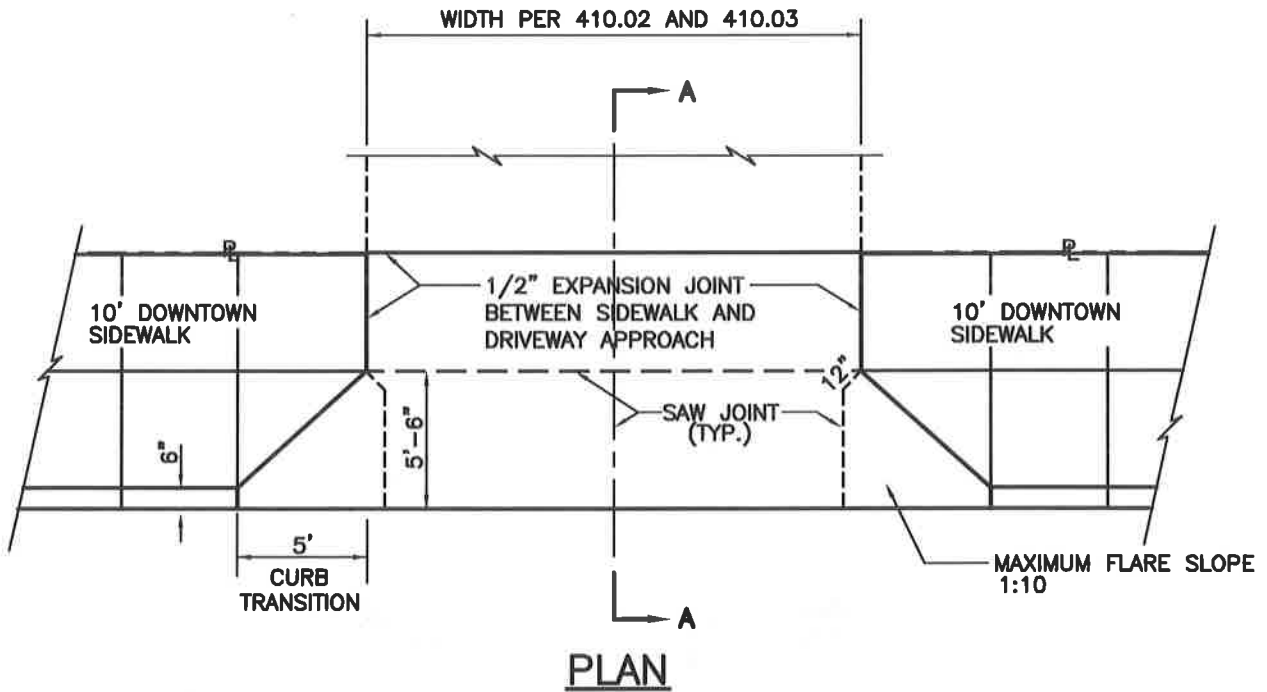
Revisions



City of Columbia  
Public Works Department


DETECTABLE WARNING

435.01



**NOTES:**

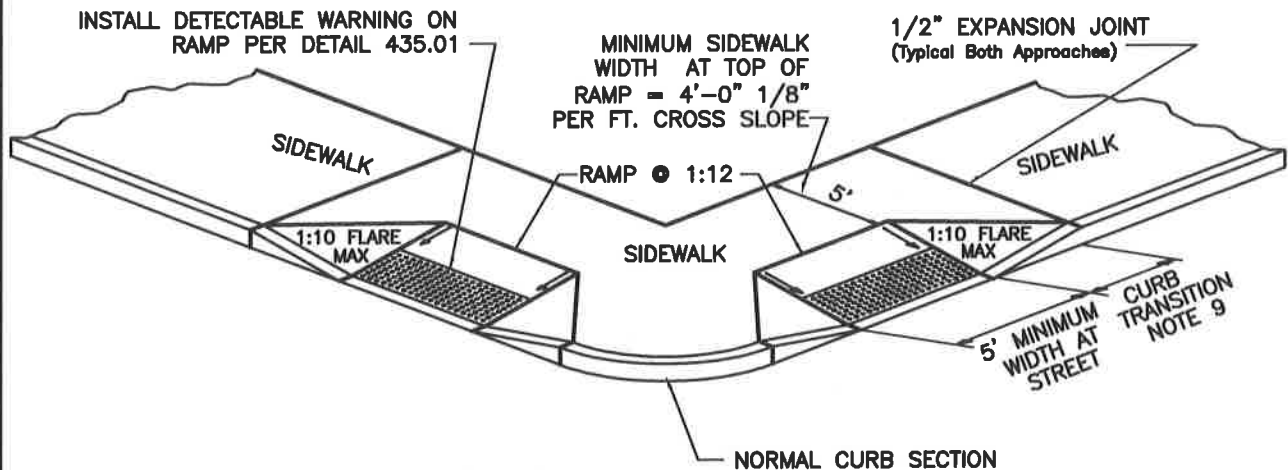
1. DRIVEWAY APPROACH SHALL BE 7" THICK MoDOT PAVEMENT CONCRETE.
2. SEE JOINT DETAILS - 1000.03.
3. ALL DRIVEWAY APPROACHES SHALL SLOPE TOWARD THE STREET.
4. ALL DRIVEWAY APPROACHES SHALL BE CONSTRUCTED TO ACCOMODATE SIDEWALKS. (EXISTING AND FUTURE)
5. OMIT 1 1/2" EDGE AT GUTTER IF DRIVE APPROACH ALSO SERVES AS ACCESSIBLE SIDEWALK RAMP.
6. DRIVEWAY MAY BE REINFORCED AT OWNERS OPTION. DO NOT REINFORCE ON CITY BID PROJECTS.
7. SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.00%.

 Approved	10/01/16 Date
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## DRIVEWAY AND ALLEY (Downtown)

1000.05



**NOTE:**

1. RAMP, LANDING AND AREA BETWEEN RAMPS SHALL BE 6" THICK REINFORCED W/ #4 @ 12" O.C. MODOT PAVEMENT CONCRETE.
2. SEE DETAIL 1000.03 FOR JOINT DETAILS.
3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. RAMP LENGTH IS DEPENDENT ON 1:12 MAX. SLOPE. USE FLATTER WHEN POSSIBLE.
6. LANDING AREA AT TOP OF RAMP SHALL BE 5'-0" MIN WIDTH, CROSS SLOPE OF LANDING SHALL NOT EXCEED 2.00%.
7. TYPE "A" RAMP NOT APPLICABLE IF SIDEWALK WIDTH DOES NOT PROVIDE 5'-0" LANDING AT THE TOP OF RAMP. USE TYPE "B" RAMP.
8. RAMP EXTENDS INTO SIDEWALK, FLARE SLOPE MUST NOT EXCEED 1:10.
9. CURB TRANSITION LENGTH IS DEPENDENT ON 1:10 FLARE SLOPE

  
 Approved \_\_\_\_\_ Date 10/01/16

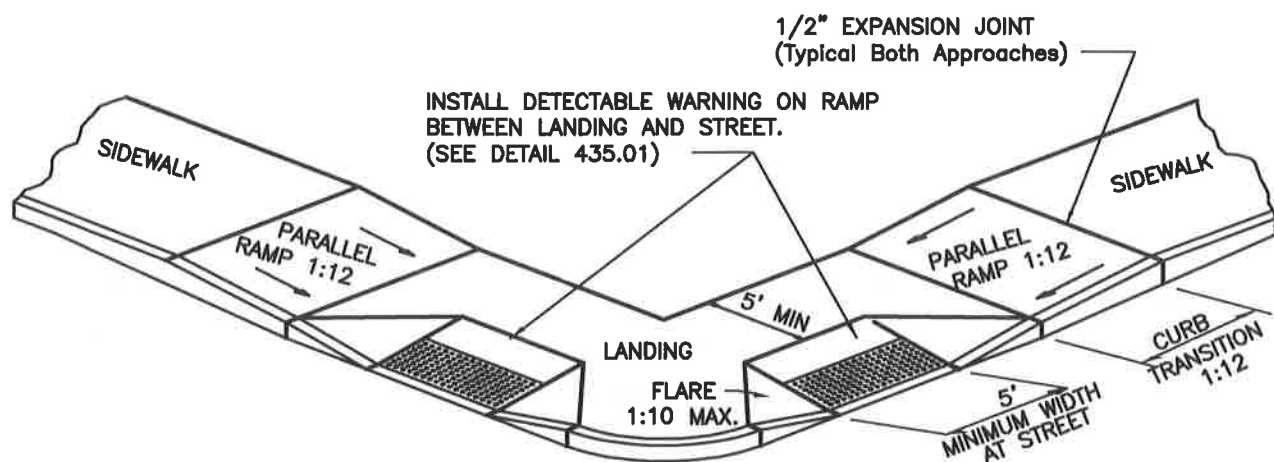
Revisions



City of Columbia  
 Public Works Department


**SIDEWALK RAMP**  
**Sidewalk at Back of Curb**  
**(Type A)**

1000.06



**NOTE:**

1. RAMP, LANDING AND AREA IN BETWEEN SHALL BE 6" THICK REINFORCED W/#4@12" O.C. MoDOT PAVEMENT CONCRETE.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. RAMP SLOPE 1:12 MAX. USE FLATTER WHEN POSSIBLE.
6. LANDING AREA SHALL BE 5'-0" MIN WIDTH, CROSS SLOPE OF LANDING SHALL NOT EXCEED 2.00%.
7. TYPE "B" RAMP PROVIDES PARALLEL RAMPs TO REDUCE THE PERPENDICULAR RAMP LENGTH AND PROVIDE ADEQUATE LANDING.
8. RAMP EXTENDS INTO SIDEWALK, FLARE SLOPE MUST NOT EXCEED 1:10.

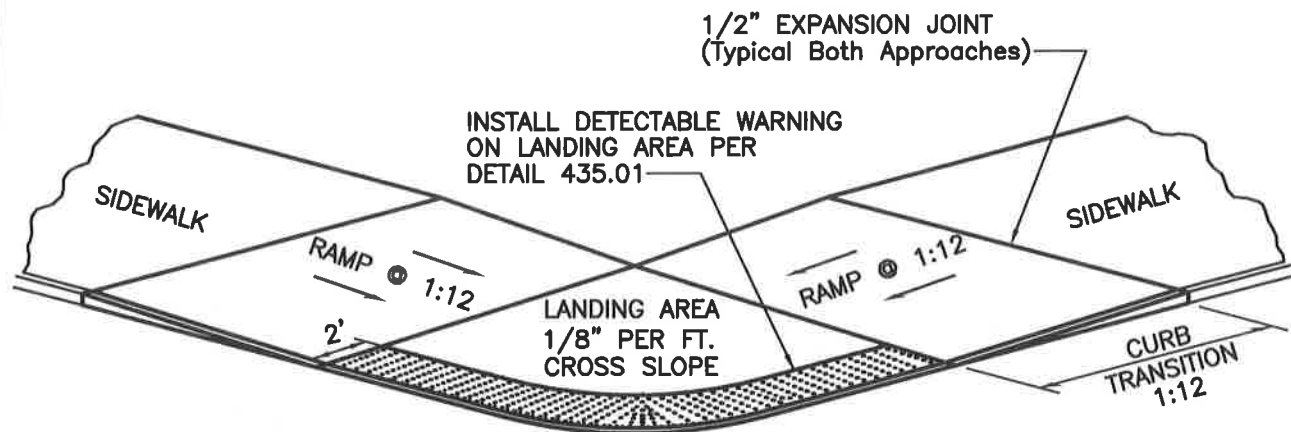
	10/01/16
Approved	Date
Revisions	



## SIDEWALK RAMP


### Sidewalk at Back of Curb (Type B)

1000.07



**NOTE:**

1. RAMP AND LANDING SHALL BE 6" THICK REINFORCED W/#4@12" O.C. MODOT PAVEMENT CONCRETE.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. RAMP LENGTH IS DEPENDENT ON 1:12 MAX. SLOPE. USE FLATTER WHEN POSSIBLE.
6. LANDING AREA SHALL BE 5'-0" MIN WIDTH, CROSS SLOPE OF LANDING SHALL NOT EXCEED 2.00%.
7. USE TYPE "C" RAMP ONLY IF TYPE "A" & "B" ARE NOT FEASIBLE.

  
 Approved \_\_\_\_\_ Date 10/01/16

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City of Columbia  
 Public Works Department

**SIDEWALK RAMP**  
**Sidewalk at Back of Curb**  
**(Type C)**

1000.08




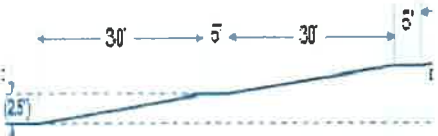


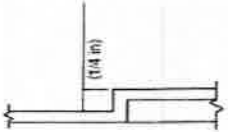
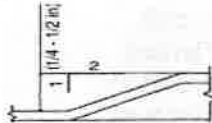

# ADA CHECKLIST

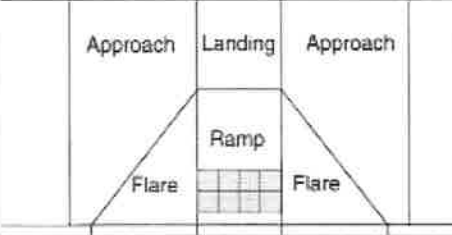
Revised April 22, 2015

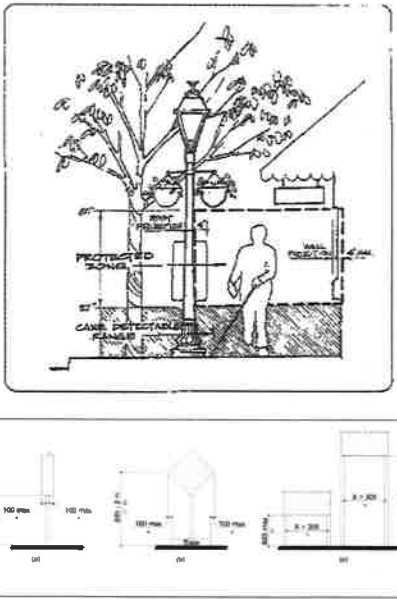
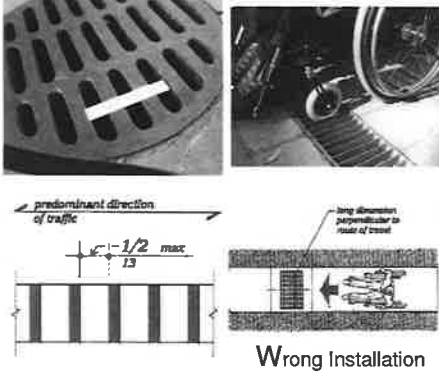
Job No. \_\_\_\_\_ Route \_\_\_\_\_ County \_\_\_\_\_ Location \_\_\_\_\_


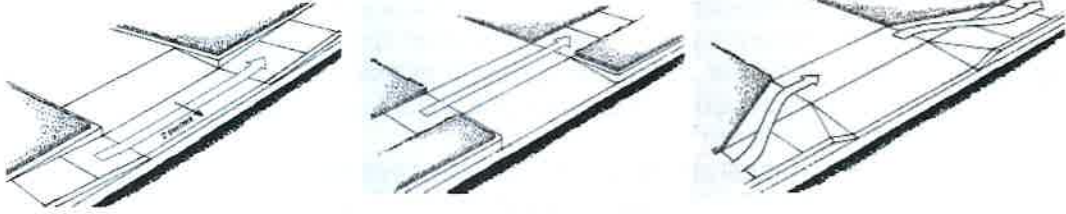
Pedestrian Access Route (PROWAG R204)				
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
Sidewalk Width 	<ul style="list-style-type: none"> <li>The minimum continuous and unobstructed clear width of a pedestrian access route shall be 4.0 feet, exclusive of the width of the curb.</li> <li>The continuous clear width of pedestrian access routes for medians and pedestrian refuge islands must be 5 feet minimum in order to allow for passing space.</li> <li>MoDOT Sidewalks shall be 5 feet wide minimum. <sup>2</sup></li> <li>MoDOT Sidewalks located within 2 feet of the back of curb are to be constructed 6 feet wide minimum and constructed adjacent to the back of the curb. <sup>2</sup></li> <li>Exception: an unaltered, existing sidewalk shall be 3 feet wide minimum and shall provide 5 foot x 5 foot passing spaces at intervals of 200 feet maximum. <sup>2</sup></li> <li>Detectable warning surfaces shall be provided, where a curb ramp, landing, or blended transition connects to a street. Where commercial driveways are provided with traffic control devices or otherwise are permitted to operate like public streets, detectable warnings should be provided at the junction between the pedestrian route and the street.</li> <li>Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions, and gutters within the pedestrian access route.</li> <li>Grade breaks shall not be permitted on the surface of curb ramps, blended transitions, landings, and gutter areas within the pedestrian access route. Surface slopes that meet at grade breaks shall be flush.</li> </ul>			
Passing Spaces	<ul style="list-style-type: none"> <li>Walkways in pedestrian access routes that are less than 5 feet in clear width shall provide passing spaces at intervals of 200 feet maximum.</li> <li>Pedestrian access routes at passing spaces shall be 5 feet wide for a distance of 5 feet.</li> </ul>			
Sidewalk Running Slope The grade that is parallel to the direction of travel, expressed as a ratio of rise to run or as a percent.	<ul style="list-style-type: none"> <li>The running slope of a pedestrian access route shall be 5 percent maximum.</li> </ul> <p><b>Roadway Grade Exception:</b> Where pedestrian access routes are contained within a street or highway right-of-way, the grade of the pedestrian access route is permitted to equal the general grade established for the adjacent street or highway.</p> <ul style="list-style-type: none"> <li>Running Slopes shall be measured using a calibrated 2 foot long digital level.</li> </ul>			

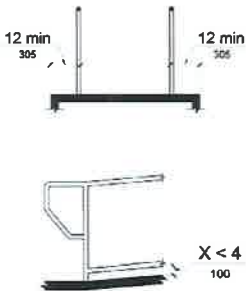
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
<p><b>Sidewalk Cross Slope</b>  The grade that is perpendicular to the direction of accessible pedestrian travel, measured perpendicular to the curb line or edge of the street or highway, or measured perpendicular to the running grade.</p>	<ul style="list-style-type: none"> <li>• The cross slope of the walkway of a pedestrian access route shall be 2 percent maximum. (Roadway Grade Exception may be considered)</li> <li>• 2010 ADA/ABA allows for cross slopes of up to ¼ inch per foot (2.08 percent).</li> <li>• In either case, a cross slope measurement of 2.1percent or greater is not ADA compliant.</li> <li>• Cross Slopes shall be measured using a calibrated 2 foot long digital level.</li> </ul>			
<p><b>Sidewalk Ramps</b>  For example, a ramp segment with the maximum allowed running slope of 8.33% would require 5' x 5' landing after every 30' of run.</p> 	<ul style="list-style-type: none"> <li>• A sidewalk segment (not contained within a street or highway border) with a running grade in excess of 5 percent but less than 8.33 percent is by definition a sidewalk ramp.</li> <li>• The clear width of landings, blended transitions, and curb ramps, excluding flares, shall be 4.0 feet minimum.</li> <li>• Cross slope of ramp runs shall be 2 percent maximum.</li> <li>• The rise for any ramp run shall be 30 inches maximum.</li> <li>• Ramps shall have landings at the top and the bottom of each ramp run.</li> <li>• Ramp runs with a rise greater than 6 inches shall have handrails.</li> <li>• Handrails shall be provided on both sides of stairs and ramps.</li> <li>• Edge protection shall be provided on each side of ramp runs.</li> <li>• Detectable warning surfaces shall be provided, where a curb ramp, landing, or blended transition connects to a street.</li> <li>• Gratings, access covers, and other appurtenances shall not be located on ramps, landings, blended transitions, and gutters within the pedestrian access route.</li> <li>• Grade breaks shall not be permitted on the surface of ramps, blended transitions, landings, and gutter areas within the pedestrian access route. Surface slopes that meet at grade breaks shall be flush.</li> </ul>			

Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
Vertical Alignment	<ul style="list-style-type: none"> <li>Vertical alignment shall be planar within curb ramp runs, blended transitions, landings, and gutter areas within the pedestrian access route, and within clear spaces required for accessible pedestrian signals, street furniture, and operable parts.</li> <li>Grade breaks shall not be permitted on the surface of curb ramps, blended transitions, landings, and gutter areas within the pedestrian access route.</li> <li>Grade breaks shall be flush.</li> <li>Running Slopes and Cross Slopes shall be measured using a calibrated 2 foot long digital level.</li> <li>Where the pedestrian access route crosses rail tracks at grade, the surface of the pedestrian access route shall be level and flush with the top of the rail at the outer edges of the rail. The surface between the rails shall be aligned with the top of the rail.</li> </ul>			
Changes in Level   	<ul style="list-style-type: none"> <li>Changes in level at grade breaks shall be flush.</li> <li>Changes in level of ¼ inch high maximum shall be permitted to be vertical.</li> <li>Changes in level between ¼ inch high maximum and ½ inch high maximum shall be beveled with a slope not steeper than 1v:2h.</li> <li>The bevel shall be applied across the entire level change.</li> <li>Changes in level greater than ½ inch high shall be ramp grade or flatter, a slope of 8.33 percent or less.</li> </ul>			

Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
<p><b>Landing</b> A required level space required at both ends of a ramp. An area 5' x 5' with no slope greater than 2 percent. This space can be used as a place to rest, turn or pass another user.</p> <p>Landings that are contained within a street or highway border are permitted to use the Roadway Grade Exception for running slopes or cross slopes in the direction of the roadway travel being matched.</p>  <p>The diagram illustrates a cross-section of a ramp and its surrounding areas. It is divided into five vertical sections: 'Approach' on the far left, 'Landing' in the center, 'Ramp' in the middle of the 'Landing' section, 'Flare' on either side of the 'Ramp', and 'Gutter' at the bottom. The 'Landing' and 'Ramp' sections are shaded with a grid pattern. The 'Approach' and 'Flare' sections are unshaded. The 'Gutter' is indicated by a horizontal line at the bottom of the diagram.</p>	<ul style="list-style-type: none"> <li>• The landing clear width shall be at least as wide as the widest ramp run leading to the landing.</li> <li>• The clear width of landings, blended transitions, and curb ramps, excluding flares, shall be 4 feet minimum.</li> <li>• The landing clear length shall be 5 feet long minimum.</li> <li>• Landing slopes shall be 2 percent maximum.</li> <li>• Changes in level at grade breaks shall be flush.</li> <li>• Detectable warning surfaces shall be provided, where a curb ramp, landing, or blended transition connects to a street. Detectable warning shall be located on the landing or blended transition at the back of curb.</li> <li>• Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions, and gutters within the pedestrian access route.</li> <li>• Grade breaks shall not be permitted on the surface of curb ramps, blended transitions, landings, and gutter areas within the pedestrian access route. Surface slopes that meet at grade breaks shall be flush.</li> </ul> <p><b>Roadway Grade Exception:</b> The grade of pedestrian access routes within sidewalks is permitted to equal the general grade established for the adjacent street or highway. The cross slope of curb ramps, blended transitions, landings, and turning spaces at pedestrian street crossings without yield or stop control where vehicles can proceed through the intersection without slowing or stopping, and at midblock pedestrian street crossings are permitted to equal the street or highway grade.</p> <ul style="list-style-type: none"> <li>• Running Slopes and Cross Slopes shall be measured using a calibrated 2 foot long digital level.</li> </ul>			


Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
	<ul style="list-style-type: none"> <li>Protruding objects on sidewalks and other pedestrian circulation paths shall not reduce the clear width required for pedestrian accessible routes.</li> <li>Objects with leading edges more than 27 inches and not more than 80 inches above the finish floor or ground shall protrude 4 inches maximum horizontally into the circulation path.</li> <li>Free-standing objects mounted on posts or pylons shall overhang circulation paths 4 inches maximum measured horizontally from the post or pylon base when located 27 inches minimum and 80 inches maximum above the finish floor or ground. The base dimension shall be 2.5 inches thick minimum. (2011 PROWAG R402.3)</li> <li>Where a sign or other obstruction is mounted between posts or pylons and the clear distance between the posts or pylons is greater than 12 inches, the lowest edge of such sign or obstruction shall be 27 inches maximum or 80 inches minimum above the finish floor or ground.</li> <li>Vertical clearance shall be 80 inches high minimum. Guardrails or other barriers shall be provided where the vertical clearance is less than 80 inches high. The leading edge of such guardrail or barrier shall be located 27 inches maximum above the finish floor or ground.</li> <li>Guardrails or other barriers shall be provided where the vertical clearance is less than 80 inches high. The leading edge of such guardrail or barrier shall be located 27 inches maximum above the finish surface or ground.</li> </ul>			
 <p>Wrong Installation</p>	<ul style="list-style-type: none"> <li>Openings in floor and ground surfaces shall not allow passage of a sphere more than 1/2 inch diameter. Elongated openings shall be placed so that the long dimension is perpendicular to the dominant direction of travel.</li> <li>Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions, and gutters within the pedestrian access route.</li> <li>Lift holes for manhole/utility covers shall not have an opening greater than 1/2 inch. Plugging of holes greater than 1/2 inch with a material approved by the engineer is acceptable as long as it complies with the changes in level requirements.</li> </ul>			

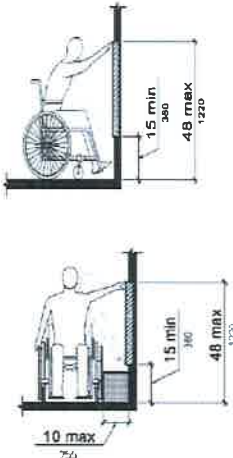
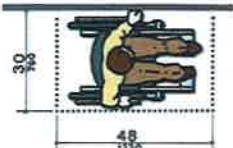
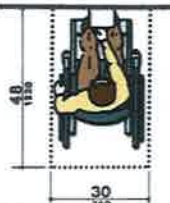
ENTRANCES (PROWAG R301)				
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
	<ul style="list-style-type: none"> <li>The minimum continuous and unobstructed clear width of a pedestrian access route provided across commercial and residential entrances shall be 4 feet minimum.</li> <li>Cross slope shall be 2 percent maximum.</li> <li>Be cautious with the transition from the driveway to the roadway to avoid grade combinations that will cause vehicles to bottom out when driving over the transition.<sup>2</sup></li> </ul> 			

EDGE PROTECTION (PROWAG R406.8)				
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
	<ul style="list-style-type: none"> <li>Edge protection shall be provided on each side of ramp runs and at each side of ramp landings.</li> <li>A curb or barrier shall be provided that prevents the passage of a 4 inch diameter sphere, where any portion of the sphere is within 4 inches of the finish floor or ground surface.</li> <li>Edge-protection shall not be required when the floor or ground surface of the ramp run or landing extends 12 inches minimum beyond the inside face of a handrail.</li> <li>Edge protection shall not be required on curb ramps and their landings.</li> <li>Edge protection shall not be required on ramps that are not required to have handrails and have flares not steeper than 1:10.</li> <li>Edge protection shall not be required on the sides of ramp landings having a vertical drop-off of ½ inch maximum within 10 inches horizontally of the minimum landing area.</li> </ul>			

HANDRAIL AND PEDESTRIAN GUARDRAIL (PROWAG R408)				
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
	<ul style="list-style-type: none"> <li>The clear width of walking surfaces shall be 4.0 feet minimum.</li> <li>Handrails are required on ramp runs with a rise greater than 6 inches and on certain stairways. Handrails are not required on walking surfaces with running slopes less than 1:20. Where required, handrails shall be provided on both sides of stairs and ramps.</li> <li>Handrails shall be continuous within the full length of each stair flight or ramp run. Inside handrails on switchback or dogleg stairs and ramps shall be continuous between flights or runs.</li> <li>Top of gripping surfaces of handrails shall be 34 inches minimum and 38 inches maximum vertically above walking surfaces, stair nosings, and ramp surfaces. Handrails shall be at a consistent height above walking surfaces, stair nosings, and ramp surfaces.</li> <li>Clearance between handrail gripping surfaces and adjacent surfaces shall be 1 1/2 inches minimum.</li> <li>Handrail gripping surfaces with a circular cross section shall have an outside diameter of 1 1/4 inches minimum and 2 inches maximum.</li> <li>Handrail gripping surfaces with a non-circular cross section shall have a perimeter dimension of 4 inches minimum and 6 1/4 inches maximum, and a cross-section dimension of 2 1/4 inches maximum.</li> <li>Handrail gripping surfaces and any surfaces adjacent to them shall be free of sharp or abrasive elements and shall have rounded edges.</li> <li>Handrails shall not rotate within their fittings.</li> <li>Ramp handrails shall extend horizontally above the landing for 12 inches minimum beyond the top and bottom of ramp runs. Extensions shall return to a wall, guard, or the landing surface, or shall be continuous to the handrail of an adjacent ramp run.</li> <li>At the top of a stair flight, handrails shall extend horizontally above the landing for 12 inches minimum beginning directly above the first riser nosing. Extensions shall return to a wall, guard, or the landing surface, or shall be continuous to the handrail of an adjacent stair flight.</li> <li>At the bottom of a stair flight, handrails shall extend at the slope of the stair flight for a horizontal distance at least equal to one tread depth beyond the last riser nosing. Extension shall return to a wall, guard, or the landing surface, or shall be continuous to the handrail of an adjacent stair flight.</li> <li>See Edge Protection section above (also PROWAG 406.8) for additional details.</li> </ul>			

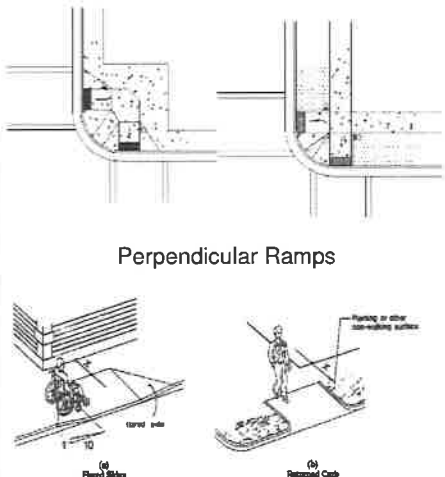


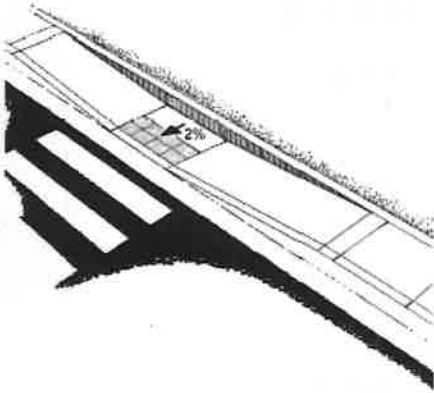
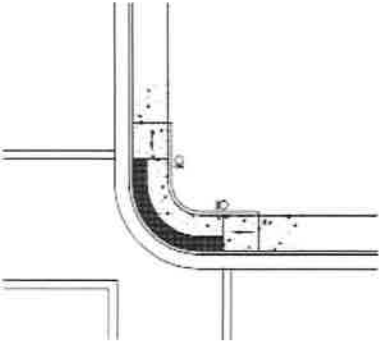
STAIRWAYS (PROWAG R407)				
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
	<ul style="list-style-type: none"> <li>All steps on a flight of stairs shall have uniform riser heights and uniform tread depths. Risers shall be 4 inches high minimum and 7 inches high maximum. Treads shall be 11 inches deep minimum.</li> <li>Open risers are not permitted.</li> <li>The radius of curvature at the leading edge of the tread shall be 1/2 inch maximum. Nosings that project beyond risers shall have the underside of the leading edge curved or beveled. Risers shall be permitted to slope under the tread at an angle of 30 degrees maximum from vertical. The permitted projection of the nosing shall extend 1 1/2 inches maximum over the tread below.</li> <li>Stairs shall have handrails complying with PROWAG 2005 R408.</li> </ul>			


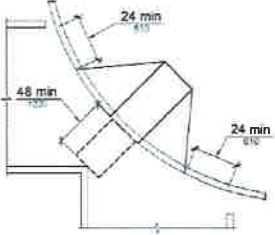
UNOBSTRUCTED REACH RANGES (PROWAG R404)				
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
	<p><b>Forward Reach</b></p> <ul style="list-style-type: none"> <li>Where a forward reach is unobstructed, the high forward reach shall be 48 inches maximum and the low forward reach shall be 15 inches minimum above the finish floor or ground.</li> </ul> <p><b>Side Reach</b></p> <ul style="list-style-type: none"> <li>Where a clear floor or ground space allows a parallel approach to an element and the side reach is unobstructed, the high side reach shall be 48 inches maximum and the low side reach shall be 15 inches minimum above the finish floor or ground.</li> <li>EXCEPTION: An obstruction shall be permitted between the clear floor or ground space and the element where the depth of the obstruction is 10 inches maximum. (2011 PROWAG R406.3)</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Parallel Approach</p>  </div> <div style="text-align: center;"> <p>Forward Approach</p>  </div> </div>			



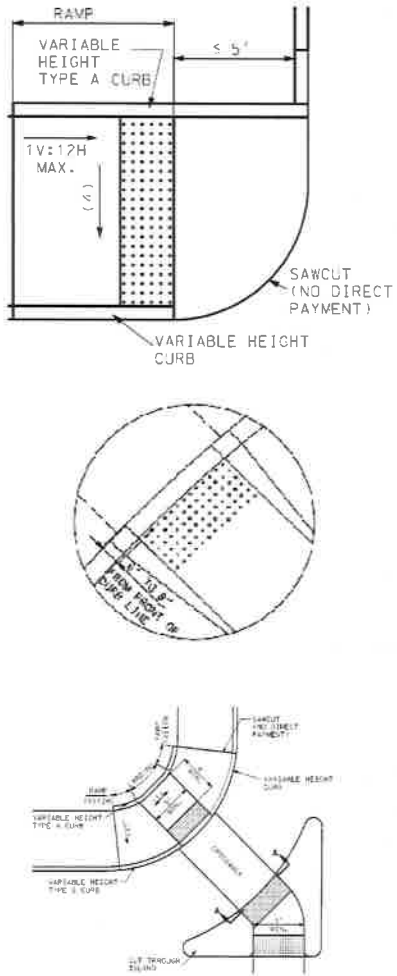
Figures/Examples	CURB RAMPS (PROWAG R303) Requirements <sup>1</sup>	YES	NO	NA
<p>A curb ramp, blended transition, or a combination of curb ramps and blended transitions shall connect the pedestrian access routes at each pedestrian street crossing.</p> <p><b>15 Foot Rule:</b> For a compliant curb ramp to exceed 8.33 percent running grade, its constructed length must exceed 15.0 feet.</p>	<ul style="list-style-type: none"> <li>The clear width of ramps, excluding the flares, shall be 4.0 feet minimum.</li> <li>Ramp runs shall have a running slope between 5 percent minimum and 8.33 percent maximum but shall not require the ramp length to exceed 15.0 feet.</li> </ul> <p><b>Exception: 15 Foot Rule:</b> The running slope for a curb ramp is not limited to 8.33 percent maximum if the constructed curb ramp length exceeds 15 feet in length.</p> <ul style="list-style-type: none"> <li>Cross slope of ramp runs shall be 2 percent maximum. (Roadway Grade Exception may be considered)</li> <li>The cross slope at midblock crossings shall be permitted to be warped to meet street or highway grade.</li> <li>Ramps shall have landings at the top and the bottom of each ramp run. <ul style="list-style-type: none"> <li>The landing clear width shall be at least as wide as the widest ramp run leading to the landing.</li> <li>The landing clear length shall be 5.0 feet long minimum.</li> <li>Ramps that change direction between runs at landings shall have a clear landing 5.0 feet minimum by 5.0 feet minimum.</li> </ul> </li> <li>Handrails and Edge protection shall not be required on curb ramps and their landings.</li> <li>Curb height = 0 inches within curb ramp spaces. 2</li> <li>Curb ramps must be flush with street.</li> <li>The counter slope of the gutter or street at the foot of a curb ramp, landing, or blended transition shall be 5 percent maximum. (R303.3.5)</li> <li>The adjacent surfaces at transitions at curb ramps to walks, gutters, and streets shall be at the same level.</li> <li>Flared sides with a slope of 10 percent maximum, measured parallel to the curb line, shall be provided where a pedestrian circulation path crosses the curb ramp. <ul style="list-style-type: none"> <li>In alterations, where there is no landing at the top of curb ramps, curb ramp flares shall be provided and shall not be steeper than 1:12.</li> </ul> </li> <li>Detectable warning surfaces shall be provided, where a curb ramp, landing, or blended transition connects to a street.</li> <li>Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions, and gutters within the pedestrian access route.</li> <li>Grade breaks shall not be permitted on the surface of curb ramps, blended transitions, landings, and gutter areas within the pedestrian access route. Surface slopes that meet at grade breaks shall be flush.</li> <li>Grade Breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run.</li> </ul>			

Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
 <p data-bbox="256 483 474 506">Perpendicular Ramps</p> <p data-bbox="151 727 550 799">X = 4' Min. Flared Sides in Pathway    Flared Sides Not in Pathway</p> <p data-bbox="172 852 499 880"><b>Roadway Grade Exception:</b></p> <p data-bbox="172 885 583 1112">Where curb ramps, landings and blended transitions are contained within a street or highway right-of-way, the grade of the pedestrian access route is permitted to be modified to equal the general grade established for the adjacent street or highway.</p>	<ul style="list-style-type: none"> <li>• Perpendicular curb <b>ramps</b> shall have a running slope that cuts through or is built up to the curb at right angles or meets the gutter grade break at right angles.</li> <li>• The clear width of landings, blended transitions, and curb ramps, excluding flares, shall be 4.0 feet minimum.</li> <li>• The running slope shall be 5 percent minimum and 8.33 percent maximum but shall not require the ramp length to exceed 15.0 feet.</li> <li>• The cross slope at intersections shall be 2 percent maximum. (Roadway Grade Exception may be considered)</li> <li>• The cross slope at midblock crossings shall be permitted to be warped to meet street or highway grade.</li> </ul> <p data-bbox="661 522 1711 711"><b>Roadway Grade Exception:</b> The grade of pedestrian access routes within sidewalks is permitted to equal the general grade established for the adjacent street or highway. The cross slope of curb ramps, blended transitions, landings, and turning spaces at pedestrian street crossings without yield or stop control where vehicles can proceed through the intersection without slowing or stopping, and at midblock pedestrian street crossings are permitted to equal the street or highway grade.</p> <ul style="list-style-type: none"> <li>• A landing 4.0 feet minimum by 4.0 feet minimum shall be provided at the top of the curb ramp and shall be permitted to overlap other landings and clear space.</li> <li>• Flared sides with a slope of 10 percent maximum, measured parallel to the curb line, shall be provided where a pedestrian circulation path crosses the curb ramp.</li> <li>• If the flared sides are not in the pathway (grass next to ramp), then there is no maximum slope and can be vertical curbs. (See adjacent figure for further explanation.)</li> <li>• Detectable warning surfaces shall be provided, where a curb ramp, landing, or blended transition connects to a street.</li> <li>• Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions, and gutters within the pedestrian access route.</li> <li>• Grade breaks at the top and bottom of perpendicular curb ramps shall be perpendicular to the direction of ramp run. At least one end of the bottom grade break shall be at the back of curb.</li> <li>• Grade breaks shall not be permitted on the surface of curb ramps, blended transitions, landings, and gutter areas within the pedestrian access route. Surface slopes that meet at grade breaks shall be flush.</li> <li>• Where both ends of the bottom grade break are 5.0 feet or less from the back of curb, the detectable warning shall be located on the ramp surface at the bottom grade break. Where either end of the bottom grade break is more than 5.0 feet from the back of curb, the detectable warning shall be located on the lower landing.</li> </ul>			


Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
 <p>Curb Ramps and landings that are contained within a street or highway border may use the Roadway Grade Exception for slopes or cross slopes in the direction of the roadway travel being matched.</p>	<ul style="list-style-type: none"> <li>• <b>Parallel curb ramps</b> shall have a running slope that is in-line with the direction of sidewalk travel.</li> <li>• The clear width of landings, blended transitions, and curb ramps, excluding flares, shall be 4.0 feet minimum.</li> <li>• The running slope shall be 5 percent minimum and 8.33 percent maximum but shall not require the ramp length to exceed 15.0 feet.</li> <li>• The cross slope shall be 2 percent maximum. (Roadway Grade Exception may be considered)</li> </ul> <p><b>Roadway Grade Exception:</b> The grade of pedestrian access routes within sidewalks is permitted to equal the general grade established for the adjacent street or highway. The cross slope of curb ramps, blended transitions, landings, and turning spaces at pedestrian street crossings without yield or stop control where vehicles can proceed through the intersection without slowing or stopping, and at midblock pedestrian street crossings are permitted to equal the street or highway grade.</p> <ul style="list-style-type: none"> <li>• A landing 4.0 feet minimum by 4.0 feet minimum shall be provided at the bottom of the ramp run and shall be permitted to overlap other landings and clear floor or ground space.</li> <li>• Where a parallel curb ramp does not occupy the entire width of a sidewalk, drop-offs at diverging segments shall be protected.</li> <li>• Detectable warning surfaces shall be provided, where a curb ramp, landing, or blended transition connects to a street.</li> <li>• Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions, and gutters within the pedestrian access route.</li> <li>• Grade breaks shall not be permitted on the surface of curb ramps, blended transitions, landings, and gutter areas within the pedestrian access route. Surface slopes that meet at grade breaks shall be flush.</li> </ul>			
	<ul style="list-style-type: none"> <li>• <b>Blended Transitions</b> shall have a running slope of 5 percent maximum and cross slope shall be 2 percent maximum.</li> <li>• The clear width blended transitions, excluding flares, shall be 4.0 feet minimum.</li> <li>• Detectable warning surfaces shall be provided where a blended transition connects to a street.</li> <li>• Gratings, access covers, and other appurtenances shall not be located on blended transitions within the pedestrian access route.</li> <li>• Grade breaks at the top and bottom of perpendicular curb ramps shall be perpendicular to the direction of ramp run. At least one end of the bottom grade break shall be at the back of curb. Grade breaks shall not be permitted on the surface of blended transitions and gutter areas within the pedestrian access route. Surface slopes that meet at grade breaks shall be flush.</li> </ul>			

Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
 	<ul style="list-style-type: none"> <li>• <b>Diagonal Curb Ramps or corner type curb ramps are no longer preferred design types. A design that provides individual ramps for each crossing direction is recommended by the US Access Board.</b></li> <li>• Diagonal Curb Ramps or corner type curb ramps with returned curbs or other well-defined edges shall have the edges parallel to the direction of pedestrian flow.</li> <li>• The bottom of diagonal curb ramps shall have a clear space 48 inches minimum outside active traffic lanes of the roadway.</li> <li>• Diagonal curb ramps provided at marked crossings shall provide the 48 inches minimum clear space within the markings.</li> <li>• Diagonal curb ramps with flared sides shall have a segment of curb 24 inches long minimum located on each side of the curb ramp and within the marked crossing.</li> </ul> <p><b>Roadway Grade Exception:</b> The grade of pedestrian access routes within sidewalks is permitted to equal the general grade established for the adjacent street or highway. The cross slope of curb ramps, blended transitions, landings, and turning spaces at pedestrian street crossings without yield or stop control where vehicles can proceed through the intersection without slowing or stopping, and at midblock pedestrian street crossings are permitted to equal the street or highway grade.</p> <ul style="list-style-type: none"> <li>• Detectable warning surfaces shall be provided, where a curb ramp, landing, or blended transition connects to a street.</li> <li>• Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions, and gutters within the pedestrian access route.</li> <li>• Grade breaks shall not be permitted on the surface of curb ramps, blended transitions, landings, and gutter areas within the pedestrian access route. Surface slopes that meet at grade breaks shall be flush.</li> <li>• Running and cross slope at midblock crossings shall be permitted to be warped to meet street or highway grade.</li> </ul>			






# DETECTABLE WARNINGS DEVICES (TRUNCATED DOMES) (PROWAG R304)



Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
<p>A surface feature of truncated dome material built in or applied to the walking surface to advise of an upcoming change from pedestrian to vehicular way.</p> 	<ul style="list-style-type: none"> <li>• Detectable warnings shall consist of a surface of truncated domes aligned in a square or radial grid pattern complying with 2010 ADA Standards. Detectable warning surfaces shall contrast visually with adjacent gutter, street or highway, or walkway surfaces, either light-on-dark or dark-on-light.</li> <li>• Detectable warning surfaces shall extend 24 inches minimum in the direction of travel and the full width of the curb ramp (exclusive of flares), the landing, or the blended transition. Detectable warning surfaces are required where curb ramps, blended transitions, or landings provide a flush pedestrian connection to the street.</li> <li>• Sidewalk crossings of residential driveways should not generally be provided with detectable warnings, since the pedestrian right-of-way continues across most driveway aprons and overuse of detectable warning surfaces should be avoided in the interests of message clarity. However, where commercial driveways are provided with traffic control devices or otherwise are permitted to operate like public streets, detectable warnings should be provided at the junction between the pedestrian route and the street.</li> <li>• Perpendicular Curb Ramps: Where both ends of the bottom grade break are 5 feet or less from the back of curb, the detectable warning shall be located on the ramp surface at the bottom grade break. Where either end of the bottom grade break is more than 5 feet from the back of curb, the detectable warning shall be located on the lower landing.</li> <li>• Landings and Blended Transitions: The detectable warning shall be located on the landing or blended transition at the back of curb.</li> <li>• Rail Crossings: The detectable warning surface shall be located so that the edge nearest the rail crossing is 6 feet minimum and 15 feet maximum from the centerline of the nearest rail. The rows of truncated domes in a detectable warning surface shall be aligned to be parallel with the direction of wheelchair travel.</li> <li>• Detectable warnings at cut-through islands shall be located at the curb line in-line with the face of curb and shall be separated by a 2.0 foot minimum length of walkway without detectable warnings. Where the island has no curb, the detectable warning shall be located at the edge of roadway.</li> <li>• Exception, when detectable warnings are required by a manufacturer's installation specifications to be embedded into concrete with a surrounding edge, domes may be installed at less than the required full width. Under this exception, the detectable warning surface shall never be more than 2 inches from the edge of the curb ramp, the landing, or the blended transition.<sup>2</sup></li> <li>• Detectable warnings shall not be stamped into concrete.</li> </ul>			

# ISLANDS AND MEDIANS (PROWAG R305.4)


Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
 <p>The figure block contains three visual elements:          1. Two schematic diagrams at the top. Diagram (a) shows a 'cut through at island' with a vertical double-headed arrow indicating pedestrian travel. Diagram (b) shows a 'curb ramp at island' with dimensions: a 36 inch wide area and a 48 inch long area.         2. A photograph in the middle showing a perspective view of a street with a median island. The island has a yellow-painted curb ramp area.         3. A schematic diagram at the bottom showing a street intersection with a median island, including labels for 'CROSSWALK', 'CROSSWALK', 'CROSSWALK', and 'CROSSWALK'.</p>	<ul style="list-style-type: none"> <li>Medians and pedestrian refuge islands in crosswalks shall contain a pedestrian access route, including passing space and connecting to each crosswalk.</li> <li>Raised islands in crossings shall be cut through level with the street or have curb ramps and required landings at both sides.</li> <li>All median island passage spaces shall provide a clear width of 5 feet minimum.<sup>2</sup></li> <li>Medians and pedestrian refuge islands shall be 6.0 feet minimum in length in the direction of pedestrian travel.</li> </ul> <p><b>Roadway Grade Exception:</b> The grade of pedestrian access routes within sidewalks is permitted to equal the general grade established for the adjacent street or highway. The cross slope of curb ramps, blended transitions, landings, and turning spaces at pedestrian street crossings without yield or stop control where vehicles can proceed through the intersection without slowing or stopping, and at midblock pedestrian street crossings are permitted to equal the street or highway grade.</p> <ul style="list-style-type: none"> <li>Each curb ramp shall have a level area 48 inches long minimum by 36 inches wide minimum at the top of the curb ramp in the part of the island intersected by the crossings.</li> <li>Each 48 inch minimum by 36 inch minimum area shall be oriented so that the 48 inch minimum length is in the direction of the running slope of the curb ramp it serves. The 48 inch minimum by 36 inch minimum areas and the accessible route shall be permitted to overlap.</li> <li>Detectable warning surfaces shall be provided, where a curb ramp, landing, or blended transition connects to a street. Medians and pedestrian refuge islands shall have detectable warnings at curb ramps and blended transitions.</li> <li>Detectable warnings at cut-through islands shall be located at the curb line in-line with the face of curb and shall be separated by a 2.0 foot minimum length of walkway without detectable warnings. Where the island has no curb, the detectable warning shall be located at the edge of roadway.</li> <li>Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions, and gutters within the pedestrian access route.</li> <li>Grade breaks shall not be permitted on the surface of curb ramps, blended transitions, landings, and gutter areas within the pedestrian access route. Surface slopes that meet at grade breaks shall be flush.</li> </ul>			

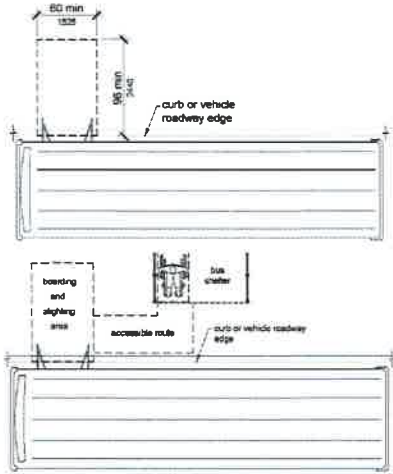


ACCESSIBLE PEDESTRIAN SIGNALS (PUSHBUTTONS) (PROWAG R306)				
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
    	<ul style="list-style-type: none"> <li>Each crosswalk with pedestrian signal indication shall have an accessible pedestrian signal which includes audible and vibrotactile indications of the WALK interval. Where a pedestrian pushbutton is provided, it shall be integrated into the accessible pedestrian signal. <b>← ON HOLD waiting for MoDOT Specs and APL</b></li> <li>Accessible pedestrian signals shall be located so that the vibrotactile feature can be contacted from the level landing serving a curb ramp, if provided, or from a clear floor or ground space that is in line with the crosswalk line adjacent to the vehicle stop line.</li> <li>Accessible pedestrian pushbuttons shall be located within a reach range complying with PROWAG 2005 R404.</li> <li>A clear floor or ground space shall be provided at the pushbutton and shall connect to or overlap the pedestrian access route.</li> </ul> <p><b>Roadway Grade Exception:</b> Clear spaces required at accessible pedestrian signals and pedestrian pushbuttons and at other accessible elements are permitted to have a running slope or cross slope consistent with the grade of the adjacent pedestrian access route.</p> <ul style="list-style-type: none"> <li>Pedestrian signals shall comply with PROWAG 2005 R306. <ul style="list-style-type: none"> <li>Pushbuttons are a minimum 2 inches across in one dimension, raised (not recessed), contrast visually with the housing or mounting, and have a maximum force of 5 pounds to activate operable parts.</li> <li>The control face of the pushbuttons is installed parallel to the direction of the crosswalk it serves.</li> <li>The location of pushbuttons for new construction are within a longitudinal distance of 5 feet maximum from the crosswalk line, and 30 inches minimum to 6 feet maximum from the curb line.</li> <li>For audible pedestrian signal devices only, pushbuttons are a minimum 10 feet apart at crossings and a minimum 5 feet apart at islands or medians. This minimum distance may be waived for audible pushbuttons in medians and islands with the use of voice commands.</li> <li>Pushbuttons are located no higher than 42 inches from the ground and within 10 inch reach from a level paved landing with minimum dimensions of 48 inches x 30 inches positioned for a parallel approach to the pushbutton. For a forward approach space (30 x 48 inches) the allowed reach range is 0 inches.</li> <li>Where pushbuttons for the visually impaired are installed, tactile signs are to be provided that meet ADA requirements.</li> </ul> </li> </ul>			

PEDESTRIAN STREET CROSSINGS (PROWAG R305)				
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
 	<ul style="list-style-type: none"> <li>• Crosswalks shall contain a pedestrian access route that connects to departure and arrival walkways through any median or pedestrian refuge island.</li> <li>• Marked crosswalks shall be 6 feet wide minimum.</li> <li>• The grade of the pedestrian access route is permitted to equal the general grade established for the adjacent street or highway, except that where pedestrian access routes are contained within pedestrian street crossings a maximum grade of 5 percent is required.</li> <li>• A 5 percent maximum cross slope is specified for pedestrian access routes contained within pedestrian street crossings without yield or stop control.</li> <li>• Crossings with Stop Control: The cross slope shall be 2 percent maximum.</li> <li>• The cross slope at midblock crossings shall be permitted to be warped to meet street or highway grade.</li> <li>• The running slope shall be 5 percent maximum, measured parallel to the direction of pedestrian travel in the crosswalk.</li> <li>• Where pedestrian signals are provided at pedestrian street crossings, they shall include accessible pedestrian signals and pedestrian pushbuttons complying with sections 4E.08 through 4E.13 of the MUTCD. Operable parts shall comply with R403. (2011 PROWAG R209.1) <b>← ON HOLD waiting for MoDOT Specs and APL</b></li> <li>• Crosswalk pavement marking is 6 inches wide white.</li> <li>• Stop bar is at minimum 4 feet from the crosswalk.</li> <li>• Curb ramps at marked crossings shall be wholly contained within the markings, excluding any flared sides.</li> <li>• Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions, and gutters within the pedestrian access route.</li> <li>• Grade breaks shall not be permitted on the surface of curb ramps, blended transitions, landings, and gutter areas within the pedestrian access route. Surface slopes that meet at grade breaks shall be flush.</li> <li>• Beyond the curb face, a clear space of 4.0 feet minimum by 4.0 feet minimum shall be provided within the width of the crosswalk and wholly outside the parallel vehicle travel lane.</li> </ul>			



ALTERNATE CIRCULATION PATH (PROWAG R302)				
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
	<ul style="list-style-type: none"> <li>• Alternate circulation paths shall contain a pedestrian access route.</li> <li>• To the maximum extent feasible, the alternate circulation path shall be provided on the same side of the street as the disrupted route.</li> <li>• Where the alternate circulation path is exposed to adjacent construction, excavation drop-offs, traffic, or other hazards, it shall be protected with a pedestrian barricade or channelizing device complying with MUTCD 6F-58, 6F-63, and 6F-66.</li> <li>• Pedestrian barricades and channelizing devices shall be continuous, stable, and non-flexible and shall consist of a wall, fence, or enclosures specified in section 6F-58, 6F-63, and 6F-66 of the MUTCD (incorporated by reference; see PROWAG 2005 R104.2.4).</li> <li>• A detectable continuous bottom edge shall be provided 2 inches maximum above the ground or walkway surface.</li> <li>• Devices shall provide a continuous surface or upper rail at 3.0 feet minimum above the ground or walkway surface.</li> <li>• Support members shall not protrude into the alternate circulation path.</li> </ul>			

BUS BOARDING AND ALIGHTING AREAS (PROWAG R410)				
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
	<ul style="list-style-type: none"> <li>• Bus stop boarding and alighting areas shall have a firm, stable surface.</li> <li>• Bus stop boarding and alighting areas shall provide a clear length of 8 feet minimum, measured perpendicular to the curb or vehicle roadway edge, and a clear width of 5 feet minimum, measured parallel to the vehicle roadway.</li> <li>• Bus stop boarding and alighting areas shall be connected to streets, sidewalks, or pedestrian paths by an accessible route.</li> <li>• Parallel to the roadway, the slope of the bus stop boarding and alighting area shall be the same as the roadway, to the maximum extent practicable. Perpendicular to the roadway, the slope of the bus stop boarding and alighting area shall not be steeper than 2 percent.</li> <li>• Bus shelters shall provide a minimum 30 inch by 48 inch clear floor or ground space entirely within the shelter.</li> <li>• Bus shelters shall be connected by an accessible route to a boarding and alighting area.</li> </ul>			



**A Policy Resolution of the Columbia Area Transportation Study  
Organization (CATSO) Adopting a Complete Streets Policy**

**WHEREAS**, the term "Complete Streets" describes a comprehensive, integrated transportation network with infrastructure and design that allows safe and convenient travel along and across streets for all users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation and emergency service providers;

**WHEREAS**, the Columbia Area Transportation Study Organization acknowledges the benefits and value for the public health and welfare of reducing vehicle miles traveled and increasing transportation by walking, bicycling, and public transportation;

**WHEREAS**, the Columbia Area Transportation Study Organization recognizes that the planning and coordinated development of Complete Streets infrastructure provides benefits for local governments in the areas of infrastructure cost savings; public health; and environmental sustainability;

**WHEREAS**, the 2040 Long Range Transportation Plan adopted by the Coordinating Committee on February 27, 2014 recommends the Columbia Area Transportation Study Organization "Support the adoption of a Complete Streets policy for the Columbia Metro Area to reflect public input and LRTP emphasis on non-motorized transportation modes";

**WHEREAS**, the Columbia Area Transportation Study Organization therefore, in light of the foregoing benefits and considerations, wishes to state its commitment to a comprehensive and integrated transportation network promoting safe, equitable, and convenient travel for all users while preserving flexibility, recognizing community context, and using the latest and best design guidelines and standards;

**NOW, THEREFORE, BE IT RESOLVED**, by the Columbia Area Transportation Study Organization Coordinating Committee as follows:

1. That the Columbia Area Transportation Study Organization adopts a Complete Streets Policy by this policy resolution.

**PASSED AND ADOPTED** by the Columbia Area Transportation Study Organization Coordinating Committee on August 28, 2014.

Attest:



Mike Matthes, Chair, CATSO Coordinating Committee



Date:

# City of Columbia

701 East Broadway, Columbia, Missouri 65201



**Agenda Item Number:** REP 96-15

**Department Source:** Community Development - Planning

**To:** City Council

**From:** City Manager & Staff

**Council Meeting Date:** 10/5/2015

**Re:** Case # 15-221: Bicycle & Pedestrian Commission Report on Complete Streets/Intersections

## Documents Included With This Agenda Item

Council memo

**Supporting documentation includes:** Letters from Bicycle & Pedestrian Commission, Public Transit Advisory Commission, and Disabilities Commission

## Executive Summary

This report consists of letters from the Bicycle & Pedestrian Commission, Disabilities Commission, and Public Transit Advisory Commission. The commissioners urge that the Council adopt a complete intersections policy to supplement/clarify the existing complete streets policy.

## Discussion

The Bicycle & Pedestrian Commission is fully supportive of the current City street standards, adopted in 2004, which are in effect a "Complete Streets" policy. The Commission would like the street standards to include additional emphasis on intersections specifically, in order to ensure that intersection design is also comprehensive in its impact, effectively a "Complete Intersections" policy in accommodating all modes of travel. The Commission also has asked for support from the Public Transit Advisory Commission and the Disabilities Commission on this topic by means of the attached letters from those respective commissions. A "complete intersection" would include crosswalks on all four legs of the intersection and offer accessible crossings and connections for pedestrians, bicyclists, and the disabled.

## Fiscal Impact

Short-Term Impact: NA

Long-Term Impact: NA

## Vision, Strategic & Comprehensive Plan Impact

Vision Impact: Transportation

Strategic Plan Impact: Infrastructure...Connecting the Community

Comprehensive Plan Impact: Infrastructure, Mobility, Connectivity, and Accessibility

## Suggested Council Action

Acceptance of the report.


# City of Columbia

701 East Broadway, Columbia, Missouri 65201



## Legislative History

NA

  
Department Approved

  
City Manager Approved

# City of Columbia

701 East Broadway, Columbia, Missouri 65201



## SUPPORTING DOCUMENTS INCLUDED WITH THIS AGENDA ITEM ARE AS FOLLOWS:

Letters from Bicycle & Pedestrian Commission, Public Transit Advisory Commission,  
and Disabilities Commission

Bicycle/Pedestrian Commission  
City of Columbia, Missouri

Memorandum

To: Columbia City Council  
From: Bicycle/Pedestrian Commission  
Date: September 18, 2015  
Subject: Complete Intersection Policy for the City of Columbia

Dear Council Members,

Over recent years, the City of Columbia has made great strides in developing a community that allows its citizens to safely travel to and from work, leisure, and other activities by a variety of transportation modes. These modes include motor vehicles, buses, bicycles, wheelchairs, and walking. While significant investments have been made to increase traffic safety, many intersections still pose serious hazards and barriers to travel without a motor vehicle. This also applies to the use of COMO Connect, since bus transportation requires walking, cycling, or wheeling to and from bus stops.

A truly walkable community provides a well-connected network of sidewalks and bike lanes throughout the metropolitan area. Such a network must include intersections to its full extent to increase traffic safety and connectivity for all participants. Recognizing the importance of improving safety within the City of Columbia, Mayor McDavid recently signed on to the U.S.DOT's Mayor's Challenge for Safer People, Safer Streets. This challenge calls for the adoption of a complete streets approach to provide safety and convenience, whether travelling by car, train, bicycle, wheelchair, or on foot.

As you are probably aware, there are numerous intersections within the Columbia metropolitan area, many of them on major roads, which are pinch points for those traveling by foot, bicycle, or wheelchair. For example, some intersections do not have crosswalks on each leg of the intersection. This is sometimes done in an effort to allocate dwindling resources in the areas of greatest need or to comply with MoDOT policy that requires connecting sidewalk on both sides of the street before crosswalks are installed.

The most efficient way to reduce gaps and barriers in our pedestrian and bicycling network is to design intersections to accommodate pedestrians and bicyclists when the intersection is being built, renovated, or maintained. This may include crosswalks, pedestrian walk signals, appropriate lighting, curb ramps, narrower crossing widths, and other design elements. The MoDOT policy to only install crosswalks to existing sidewalks is short-sighted and does not align with regional and City priorities to promote walking and bicycling. Just as the installation of a sidewalk will increase the likelihood of the addition of a crosswalk, the reverse is true. The City has an ordinance in place that requires each lot developed within the city limits to be equipped with a sidewalk. We want to hold the City, the County and the State to the same standards as private developers.

Just as Complete Streets are designed with consideration of the needs of all users of the roadway, intersections should be designed similarly. The Bicycle/Pedestrian Commission is thus asking City Council to expand our existing Complete Streets policy to specifically include intersections. The City maintains standard details for roadway cross sections and plan views. While these details include marking and signing plans for roundabouts, the City does not have similar details for traditional intersections. We hereby request that Council direct the Public Works Department to adopt similar standard details for intersections, compatible with the Complete Streets approach. Completion during the one-year timeframe of the Mayor's Challenge would go a long way towards fulfilling the goals of this initiative.

We appreciate the City's past efforts to provide improved connectivity and are looking forward to continued improvements.

Sincerely,

CITY OF COLUMBIA BICYCLE/PEDESTRIAN COMMISSION

August 26, 2015

Mayor Robert McDavid and Columbia Councilpersons  
701 E. Broadway  
Columbia, MO 65205

RE: "Complete Intersections" Policy for the City of Columbia

Dear Mayor McDavid and Columbia Councilpersons:

I'm writing on behalf of the Public Transit Advisory Commission (PTAC) to offer our unanimous support (passed at our August monthly meeting) of the Bicycle/Pedestrian Commission's request for the development of a "Complete Intersections" Policy to expand Columbia's Complete Streets Policy. Every transit trip in Columbia includes a walk at the beginning and the finish of that journey and "Complete Intersections" can only add to keeping our transit users safe. Mayor McDavid, you were one of our country's first Mayors to sign on to Transportation Secretary Foxx's' Mayor's Challenge for Safer People, Safer Streets, and we greatly appreciate that. That challenge calls for safety initiatives, including the adoption of a complete streets approach, which needs to include "Complete Intersections" to provide safety and convenience for all of our citizens, as well as addressing barriers to safety at our intersections.

Columbia needs a comprehensive approach to safety. A safe city is central to the quality of life for all of our citizens. Supporting the engineering work to accomplish "Complete Intersections" and construction coordination between Columbia and MODoT, will lead to a truly "walkable community", which is what we all want.

We ask you to join us, along with the Bicycle/Pedestrian Commission in our request to expand our existing Complete Streets policy to include intersections also. Complete Streets are designed with the needs of motorist's users of the roadway. The design of "Complete Intersections" should be included to address the needs of ALL users.

Please don't hesitate to contact me if you have any questions. Thank you very much for your time, consideration and support.

Cheryl Price

*Cheryl Price*

*CHAIR, PUBLIC TRANSIT ADVISORY COUNCIL (PTAC)*





## CITY OF COLUMBIA, MISSOURI

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### Disabilities Commission

August 17, 2015

To: Mayor and Members of City Council

From: Columbia Disabilities Commission

Subject: Complete Intersection Policy for the City of Columbia

The Disabilities Commission is in support of expanding our existing Complete Streets policy to include intersections. Building complete intersections with crosswalks, pedestrian signals and curb ramps is consistent with this Commission's interests in expanding the community's safe and accessible pedestrian facilities for all members of the public. The Disabilities Commission supports the Bicycle/Pedestrian Commission's request for action.

Chuck Graham  
Chair  
Columbia Disabilities Commission

**AN ORDINANCE**

establishing a sidewalk maintenance and construction policy; and fixing the time when this ordinance shall become effective.

BE IT ORDAINED BY THE COUNCIL OF THE CITY OF COLUMBIA, MISSOURI, AS FOLLOWS:

SECTION 1. Policy Resolutions PR 354-82, PR 93-91A, R 386-80 and R 387-80 are hereby repealed and replaced with this ordinance.

SECTION 2. The City Manager shall periodically submit a list of sidewalk maintenance, repair and reconstruction priorities and funding recommendations to the City Council.

SECTION 3. The Director of Public Works is authorized to use city employees without specific City Council authorization to repair hazardous sidewalks less than one-half block in length.

SECTION 4. The following policies shall apply to maintenance, repair and construction of sidewalks in the central business district, which consists of the area bounded by College Avenue on the east, Elm Street and Elm Street extended on the south, Garth Avenue on the west, and Park Avenue and Park Avenue extended on the north:

- (1) Improvements shall conform to specifications for sidewalk, curb and guttering; plantings (including standard grates, soil mix and types of trees); conduits and outlets; and sidewalk furnishings established by the Director of Public Works.
- (2) Abutting property owners in the central business district shall be required to pay for fifty percent (50%) of defective sidewalk and curb and guttering replacement. Property owners shall also provide trenching for required conduits.
- (3) Unless donated by the abutting property owner, the City shall provide and pay for installation of: non-defective sidewalk replacement; trees and soil mix; grates; conduits, outlets; and street furnishings.
- (4) The City shall maintain all beautification projects within the right-of-way in the central business district.

(5) Approval by the Director of Public Works shall be required before any beautification project or improvement within the public right-of-way in the central business district is begun.

SECTION 5. The City shall be responsible for construction or repair of handicap ramps at the intersection of public streets or alleys.

SECTION 6. The City shall develop and maintain a Master Sidewalk Plan. Sidewalks shown on the plan shall be constructed at the City's expense, subject to the availability of funds, except that this provision shall not relieve any property owner of responsibilities for sidewalk construction associated with new development.

SECTION 7. Sections of sidewalks shown on the Master Sidewalk Plan in need of reconstruction shall be reconstructed at the expense of the property owner except that the City may pay up to one hundred percent (100%) of the cost of reconstruction subject to the availability of funds.

SECTION 8. Sections of sidewalks in single family areas or "affordable housing" areas shall be reconstructed up to one hundred percent (100%) by the City without tax billing the adjacent property owners.

SECTION 9. Sections of sidewalks in the Community Development Block Grant (CDBG) area will be constructed or reconstructed in the same manner as other areas except that CDBG funds will be used for the construction or reconstruction of sidewalks in the eligible areas whenever possible and property owners may obtain relief from any tax bills in the form of CDBG grants provided they meet residency and income eligibility requirements.

SECTION 10. Sections of sidewalks in subdivisions, platted after the enactment of the subdivision regulations requiring sidewalks on both sides of all streets shall be constructed at the property owners' expense, and if property owners fail to construct such sidewalks within a reasonable time after receiving notice, the sidewalks may be constructed by the City with special assessments levied against the properties for the entire cost of the construction.

SECTION 11. The cost for sections of sidewalks constructed or reconstructed as part of a street construction project will not be tax billed against adjacent property owners.

SECTION 12. This ordinance shall be in full force and effect from and after its passage.

PASSED this 3rd day of December, 2007.



## Completed Curb Ramps Improvements:

The following list summarizes the curb ramps that were replaced or repaired in order to meet ADA standards in conjunction with the road segments that have been overlaid since 2015.

### Work Completed Fall 2015 thru Spring 2016:

Street Name	From	To	# of Ramps
Bearfield Road	Old Nifong	Grindstone Parkway	28
Fairview Road	Chapel Hill Road	Malibu Court	12
Green Meadows Road	Lynwood Drive	Bethel Street	14
Broadway	Waugh Street	Waugh Street	1
Stewart Road	West Boulevard	Glenwood Avenue	8
Skylark Drive	Cumberland Road	Cumberland Road	2
Sunset Drive	Rollins Road		1
Hulen Drive	Luan Court	Bayonne Court	3
Shepard Boulevard	Audubon Drive	Danforth Drive	12
Total Number of Ramps Replaced =			81

### Work Completed Fall 2016 through Spring 2017:

Street Name	From	To	# of Ramps
Highlands Parkway	Sutton Drive	Strathmore Drive	8
Larail Drive	Westbrook Way	Vista View/North Shore	13
Apple Tree Court	Southampton Drive		2
Shingo Court	Pineview Drive	Pineview Drive	4
Gene Drive	Shingo Court	Brown Station	3
Rollins Road	Stalcup Street	Rothwell Drive	14
Rollins Road	Scott's Branch Trail	Hulen Drive	21
Rollins Road	Martin Drive	Bourn Avenue	6
Oak Cliff Drive	Chapel Hill Road	Mahogany Street	7
Stewart Road	Glenwood Avenue	Providence Road	14
Remington Drive	Creasy Springs Road	Concrete	2
Dustin Drive	Bethel Street	Cedar Ridge	4
Glencairn Court	Glencairn Drive		2
Total Number of Ramps Replaced =			100

**Work Completed Fall 2017 through Spring 2018:**

<b>Street Name</b>	<b>From</b>	<b>To</b>	<b># of Ramps</b>
Texas Ave	Creasy Springs Road	Garth Avenue	16
Worley Street	Lindy Lane	Entrance/Drive approach	2
Worley Street	Auburn Drive	Entrance/Drive Approach	2
Providence Road	Blue Ridge Road	Cheetah Drive	22
Blue Ridge Road	Garth Avenue	Caribou Drive	10
Chadwick Drive	Forum Boulevard	Concrete Section	1
Brown School Road	Rangeline Road	Interstate Drive	6
Glencarin Drive	Prestwick Drive	Kinlock Court	6
Torrey Pines Drive	Green Meadows Road	South End	4
Northridge Drive	Woodland Drive	Oakland Gravel Road	9
Leeway Drive	Woodland Drive	Brown Station Road	2
Laramie Court	Chadwick Drive	South End	2
Woodland Drive	Blue Ridge Road	Pine Drive	7
Shepard Boulevard	Audubon Drive		4
Olympic Boulevard	Hanover Boulevard	Clark Lane	15
Hanover Boulevard	Clark Lane	Rice Road	13
Forum/Chapel Hill	SE Corner		1
Bull Run Roundabout			8
Clinton Drive	Broadway	Ash Street	2
Garth Avenue	Stewart Road	Broadway	9
10th Street	Park Avenue	Broadway	10
Maple Grove Way	Apple Tree Lane	Bethel Street	2
Dustin Drive	Bethel Street		2
Glencairn Drive	Prestwick Drive		2
Fourth Street	Wilkes Boulevard	Hickman Drive	12
Garth Avenue	Allen Street		2
<b>Total Number of Ramps Replaced =</b>			<b>171</b>



## Completed Roadway Improvement Projects:

The following list summarizes the roadway improvement projects that have been completed since 2015. The roadway improvements included construction of curb ramps, sidewalks, and/or crosswalks that meet ADA standards.

### Year 2015:

*Scott Blvd Phase III:* This project included the total reconstruction of the roadway between Vawter School and Route KK. The reconstruction included bike lanes and sidewalk on each side of the road. Also, the project included a roundabout with crosswalks at the Scott/Route KK intersection and a crosswalk with a pedestrian island at the elementary school.

### Year 2017:

*Discovery Drive Roadway Extension:* This project included the extension of Discovery Drive to the south from the Discovery Parkway intersection. The project also included sidewalks, and crosswalks with pedestrian islands at the intersection with Discovery Parkway.

### Year 2018:

*Vandiver and Parker Roundabout:* This project included the reconstruction of the intersection of Vandiver Drive with Parker Street. The project included a roundabout with sidewalks and crosswalks. The project also included removing a hump in along Vandiver Drive to improve sight distance.

## Roadway Projects: Summary of ADA Improvements

Project Name	Sidewalk (LF)	Curb Ramp (#)	Pedestrian Signal	Crosswalk (LF)
Scott Blvd, Phase III	14,900	32	NA	295
Discovery Drive	290	2	NA	89
Vandiver/Parker Roundabout	1,130	12	NA	420





## Completed Sidewalk Improvement Projects:

The following list summarizes the sidewalk improvement projects that have been completed since 2015. The sidewalk improvements include construction of curb ramps, sidewalks, and/or crosswalks to meet ADA standards.

### Year 2015:

*Old Fire Station #7 Sidewalk:* This project included the installation of 5-foot wide sidewalk along the frontage of the City property on South Providence outer roadway.

*Fairview Sidewalk:* This project included the installation of 6-foot wide sidewalk at back of curb along the east side of Fairview from Highland to Broadway. The improvements also included construction of curb ramps at each intersection.

*Bernadette Sidewalk:* This project included the installation of 6-foot wide sidewalk at back of curb along the east side of Bernadette from Ash to Tiger. The improvements also included construction of curb ramps at each intersection.

### Year 2016:

*Avenue of the Columns:* This project included brick sidewalk and crosswalk improvements along 8<sup>th</sup> Street from Walnut to Elm. The improvements included decorative bumpouts at intersections to reduce pedestrian crossing distance, decorative crosswalks, and new signals with countdown timers at the Elm intersection.

*Garth Avenue Sidewalk – Worley to Sexton:* This project included construction of 5-foot wide sidewalk along the east side of Garth between Worley and Sexton. The improvements also included construction of curb ramps at each intersection and signal improvements at the intersection of Garth and Worley.

*Elleta Boulevard Sidewalk:* This project included construction of 5-foot wide sidewalk along the south side of Elleta from Rangeline eastward to the existing sidewalk. The improvements also included construction of curb ramps at the intersection.

*Green Meadows Circle Sidewalk:* This project included construction of 5-foot wide sidewalk along the south side of Green Meadows Circle along the frontage of City property (Fire Station #7).

*Providence Road Boardwalk Replacement (MoDOT ROW):* This project included construction to replace a collapsed boardwalk. Construction included a 6-foot

wide concrete sidewalk with a handrail and retaining wall. The sideslope was planted with trees and shrubs.

*Hominy Trail East (Phase II):* This project included construction of 10-foot wide concrete shared-use path that connected the Hominy Trail Phase I at Woodridge subdivision to sidewalk in The Links subdivision. The project also includes a low-water bridge to connect to Rebel Hill Drive (Richland Heights Mobile Home Park).

*Manor Drive Sidewalk:* This project included the installation of 6-foot wide sidewalk at back of curb along the east side of Manor from Rollins to Manor Court, then crossing to the west side of Manor and continuing toward Broadway; finally tying into existing sidewalk near Broadway. The improvements also included construction of curb ramps at each intersection and a crosswalk where the sidewalk transitions from the east side to the west side of the road.

*Forum Boulevard Pedestrian Bridge:* This project included the installation of a 10-foot wide shared-use path from the MKT trail to the shoulder along Forum near Wilsons Fitness. A pedestrian bridge was constructed across Hinkson Creek as part of the project.

#### **Year 2017:**

*Worley Sidewalk and Bus Shelter:* This project included construction of 5-foot wide sidewalk along the north side of Worley to replace existing failed sidewalk on City property and the installation of a bus shelter. The sidewalk tied into existing sidewalk on each end of the property.

*Worley Crossing at Health Department:* This project included construction of curb ramps, crosswalk, and flashing pedestrian beacons for crossing to the Health Department between the bus shelters on each side of the road.

#### **Year 2018:**

*Clark Lane Sidewalk:* This project included the installation of 6-foot wide sidewalk at back of curb along the north side of Clark Lane from Paris to east of Lambeth. The improvements included construction of curb ramps at each intersection and stormwater improvements. The project also included sidewalk, crosswalks, and pedestrian signal improvements at the connection of Clark with the Highway 63 connector.

*Bike Boulevard (MKT to Parkade):* This project included Bike Boulevard street markings and signage to connect the MKT trail to Parkade Center and to Hickman High School. The improvements also included the installation of 8-foot

wide sidewalk along the north side of Worley from Alexander to Banks. At the intersection of Broadway and Aldeah curb ramps, a center pedestrian island, crosswalks, and flashing pedestrian beacons were installed. At the intersection of Providence with Forest curb ramps, a center pedestrian island, crosswalks, and the pedestrian signal were installed. At the intersection of Business Loop 70 with Parkade, crosswalks and pedestrian signal improvements were installed. Finally, at the intersection of Worley and Alexander/Banks, the curb ramps were reconstructed.

*Oakland Gravel Road Sidewalk:* This project included construction of 6-foot wide sidewalk at back of curb along the west side of Oakland Gravel from Blue Ridge to Edris. The improvements also included construction of curb ramps at each intersection.

*Nifong Crossing at Woods Edge:* This project included construction of curb ramps, a center pedestrian island, crosswalks, and flashing pedestrian beacons for a crossing to Mill Creek Elementary.

*Chapel Hill Sidewalk:* This project included construction of 5-foot wide sidewalk along the north side of Chapel Hill to fill in a sidewalk gap just east of the Scott Blvd intersection.

*Sinclair Road Sidewalk:* This project included construction of 5-foot wide sidewalk along the east side of Sinclair starting at Muirfield southward to the existing sidewalk. The improvements also included construction of a curb ramp at the intersection.

### Sidewalk Projects: Summary of ADA Improvements

Project Name	Sidewalk (LF)	Curb Ramp (#)	Pedestrian Signal	Crosswalk (LF)
Old Fire Station #7 Sidewalk	110	0	No	NA
Fairview Sidewalk	1,025	2	No	0
Bernadette Sidewalk	680	2	No	0
Avenue of the Columns	640	8	Yes	125
Garth Sidewalk	700	10	Yes	51
Elleta Sidewalk	452	1	No	NA
Green Meadows Sidewalk	295	0	No	NA
Hominy Trail East (Phase II)	6,180	3	No	NA
Manor Sidewalk	2,525	3	No	20
Forum Pedestrian Bridge	2,325	4	No	NA
Worley Sidewalk	90	0	No	NA
Worley at Health Dept	0	2	Yes	35
Clark Lane Sidewalk	3,750	21	Yes	185
Bike Blvd (MKT to Parkade)	200	17	Yes	270
Oakland Gravel Sidewalk	700	4	No	0
Nifong at Woods Edge	0	2	Yes	30
Chapel Hill Sidewalk	480	0	No	NA
Sinclair Sidewalk	655	1	No	0



## Completed Signalized Intersection Improvement Projects:

The following list summarizes the signalized intersection improvement projects that have been completed since 2015. The signalized intersection improvements have been completed as standalone projects or as part of larger roadway improvement projects. The improvements include installation or upgrade of curb ramps, crosswalks, and push buttons to meet ADA standards.

### Year 2015:

*Collage Avenue Crosswalks (MoDOT ROW):* This project included the installation of a barrier median on College (south of University to north of Rosemary); plus installation of two mid-block pedestrian crosswalks. At each mid-block crosswalk, the High-intensity Activated Crosswalk beacons, or HAWK signalized crossing were used. The HAWK signal stops traffic to allow pedestrians to cross College.

*Collage and Broadway Pedestrian Signals (MoDOT ROW):* This project included the installation of audible pedestrian signals on all corners of the intersection. The signals included countdown timers similar to other intersections around Columbia.

### Year 2016:

*Worley and Clinkscales Intersection Improvements:* This project included the installation of crosswalks and curb ramps on all four legs of the intersection. The project also included new signal equipment including audible pedestrian signals with countdown timers.

### Year 2017:

*Stadium and Old 63 Intersection Improvements (MoDOT ROW):* This project included the installation of sidewalks, curb ramps, crosswalks, pedestrian islands, and new signals with pedestrian countdown timers.

*Waco and Route B Intersection Improvements (MoDOT ROW):* This project included the installation of sidewalks, curb ramps, crosswalks, pedestrian islands, and signals with pedestrian countdown timers.

*Providence Road Improvements – Stewart to Stadium (MoDOT ROW):* This project included the improvements at the intersections of Turner, Rollins, Burnam, Bingham, Kentucky, and Brandon. Curb ramps, crosswalks, and pedestrian islands were constructed at each intersection. The intersections of

Turner/Providence and Burnam/Providence included the installation of sidewalks, curb ramps, crosswalks, pedestrian islands, and audible pedestrian signals with countdown timers. Existing sidewalk was reconstructed where acceleration and deceleration lanes were constructed. Six-foot wide sidewalk at back of curb was also constructed along Burnam between Providence and Birch.

### **Year 2018:**

*Clark Lane Sidewalk at Highway 60 Connector (MoDOT ROW):* This project included the installation of sidewalks, curb ramps, crosswalks, pedestrian islands, and pedestrian signals. The project also included sidewalk along Clark Lane.

*Bike Boulevard (MKT to Parkade) (MoDOT ROW):* This project included Bike Boulevard street markings and signage to connect the MKT trail to Parkade Center and to Hickman High School. At the intersection of Broadway and Aldeah curb ramps, a center pedestrian island, crosswalks, and flashing pedestrian beacons were installed. At the intersection of Providence with Forest curb ramps, a center pedestrian island, crosswalks, and the pedestrian signal were installed. The project also included sidewalk, crosswalks, and pedestrian signal improvements at the intersection of Business Loop 70 with Parkade Boulevard.

### **Signal Projects: Summary of Improvements (in City ROW)**

<b>Project Name</b>	<b>Sidewalk (LF)</b>	<b>Curb Ramp (#)</b>	<b>Pedestrian Signal</b>	<b>Crosswalk (LF)</b>
Worley and Clinkscates Intersection	90	4	Yes	150





## **Completed Bus Shelter Installation Projects:**

The following list summarizes the bus shelter projects that have been completed since 2016. The bus shelter installations include the construction of the shelter pad and in some cases adjoining sidewalk to meet ADA standards.

### **Year 2016:**

*Conley Road (East Side)*  
*Worley and Woodlawn*  
*Forum and Nifong*  
*Worley and Oak*  
*Worley and Garth (Includes sidewalk)*

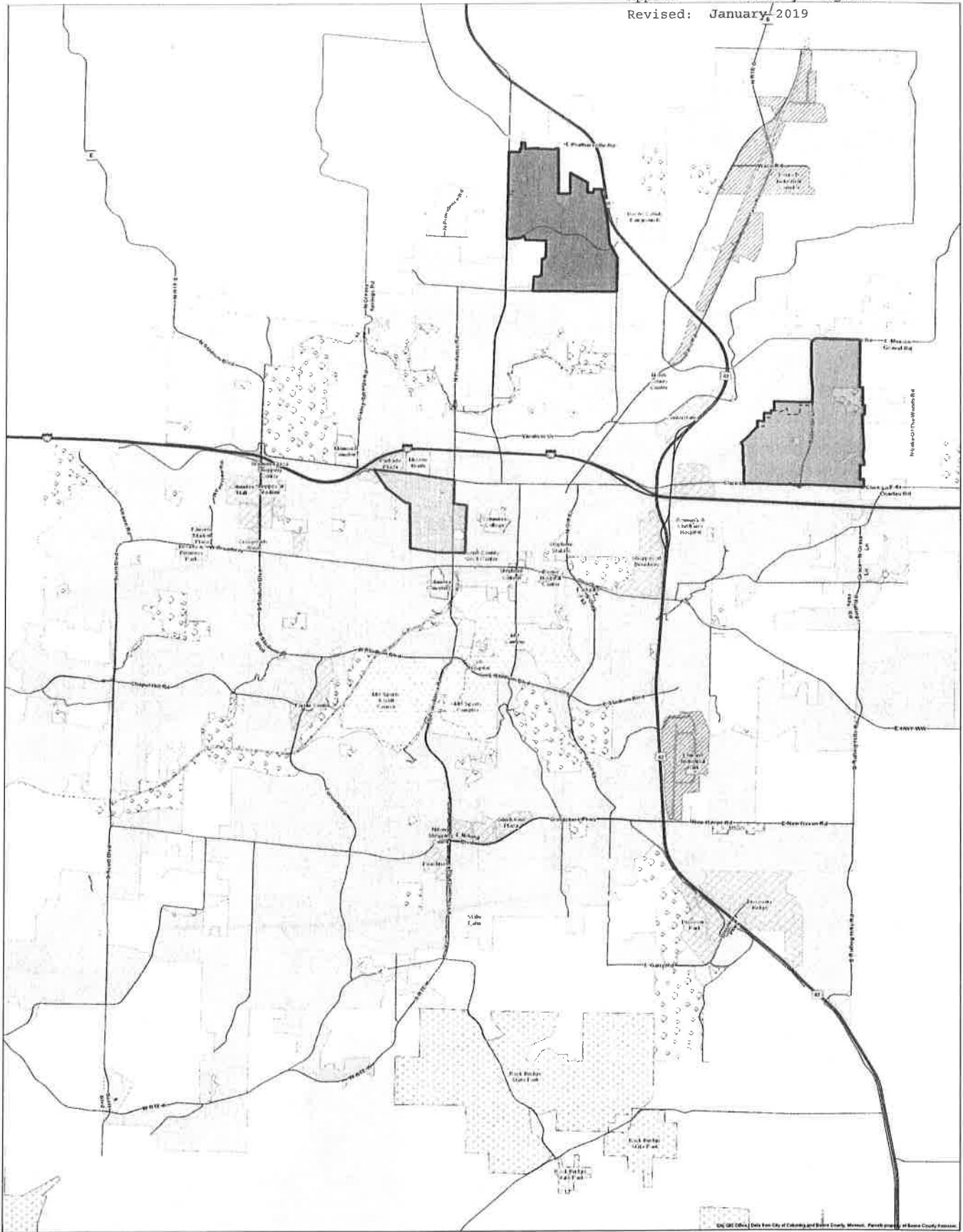
### **Year 2017:**

*Broadway west of Stadium*  
*Worley at the Health Department (Includes crosswalk, curb ramps, and flashing pedestrian beacon) (2 shelters)*  
*Southampton at University Medical Center*

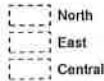
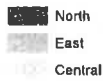
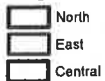
### **Year 2018:**

*Conley Road (West Side).*  
*Bernadette at the Holiday Inn*





Neighborhood Service Area Outlines Neighborhood Service Areas Census Data Area

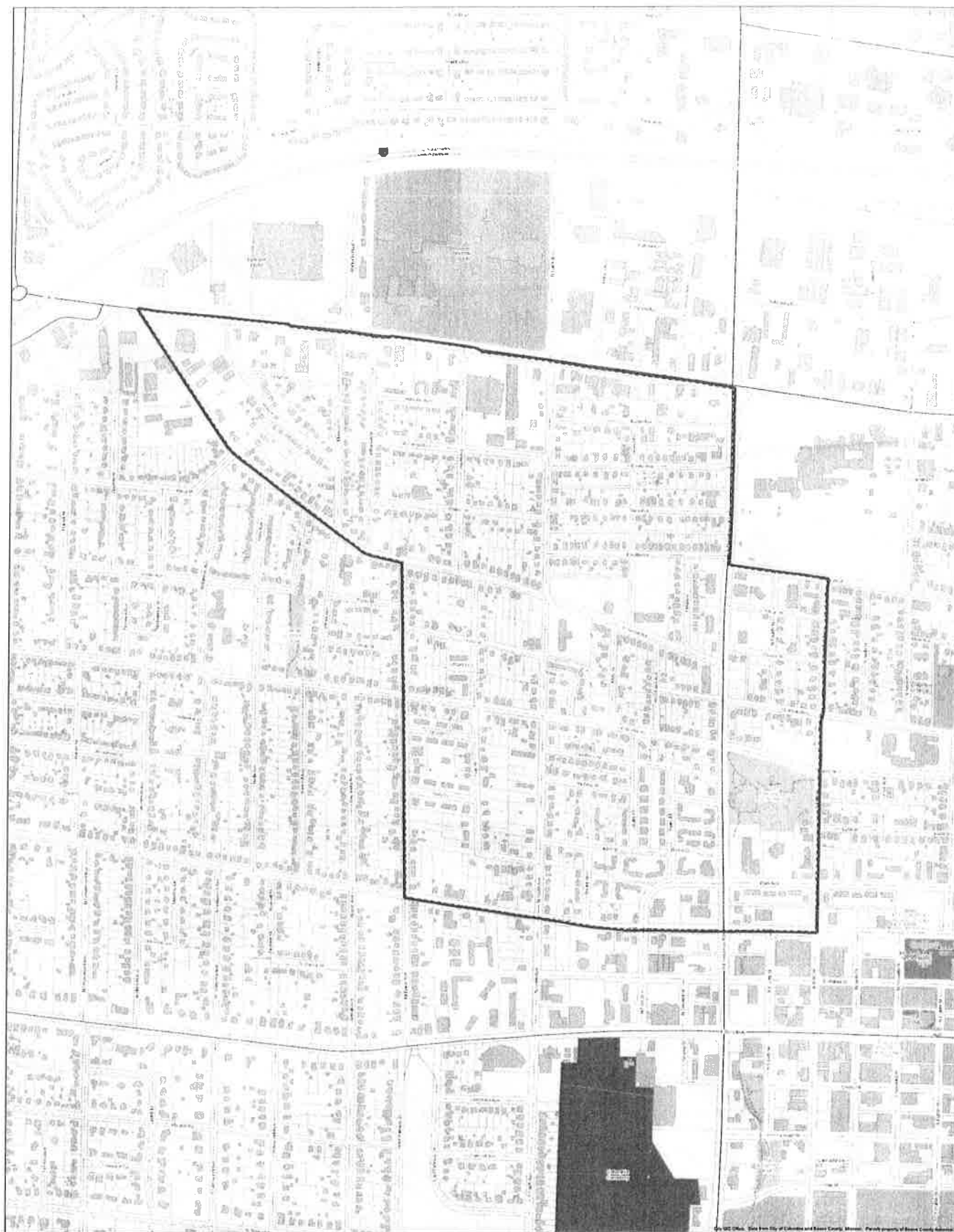


*Strategic Plan  
Neighborhoods 2016 - 2019*

CITY of COLUMBIA, MISSOURI




Category	0	0.5	1	2	3	4
No	~10%	~10%	~10%	~10%	~10%	~10%
Small	~10%	~10%	~10%	~10%	~10%	~10%
Medium	~10%	~10%	~10%	~10%	~10%	~10%
Large	~10%	~10%	~10%	~10%	~10%	~10%

11/20/2015



**Neighborhood Service Area Outlines Census Data Area**

-  North
-  East
-  Central

-  North
-  East
-  Central



0 0.05 0.1 0.2 0.3 0.4 Miles

11/20/2015

***Strategic Plan Central  
Neighborhood 2016 - 2019***

**CITY of COLUMBIA, MISSOURI**



**Neighborhood Service Area Outlines Census Data Area**

☐ North  
☐ East  
☐ Central

☐ North  
☐ East  
☐ Central

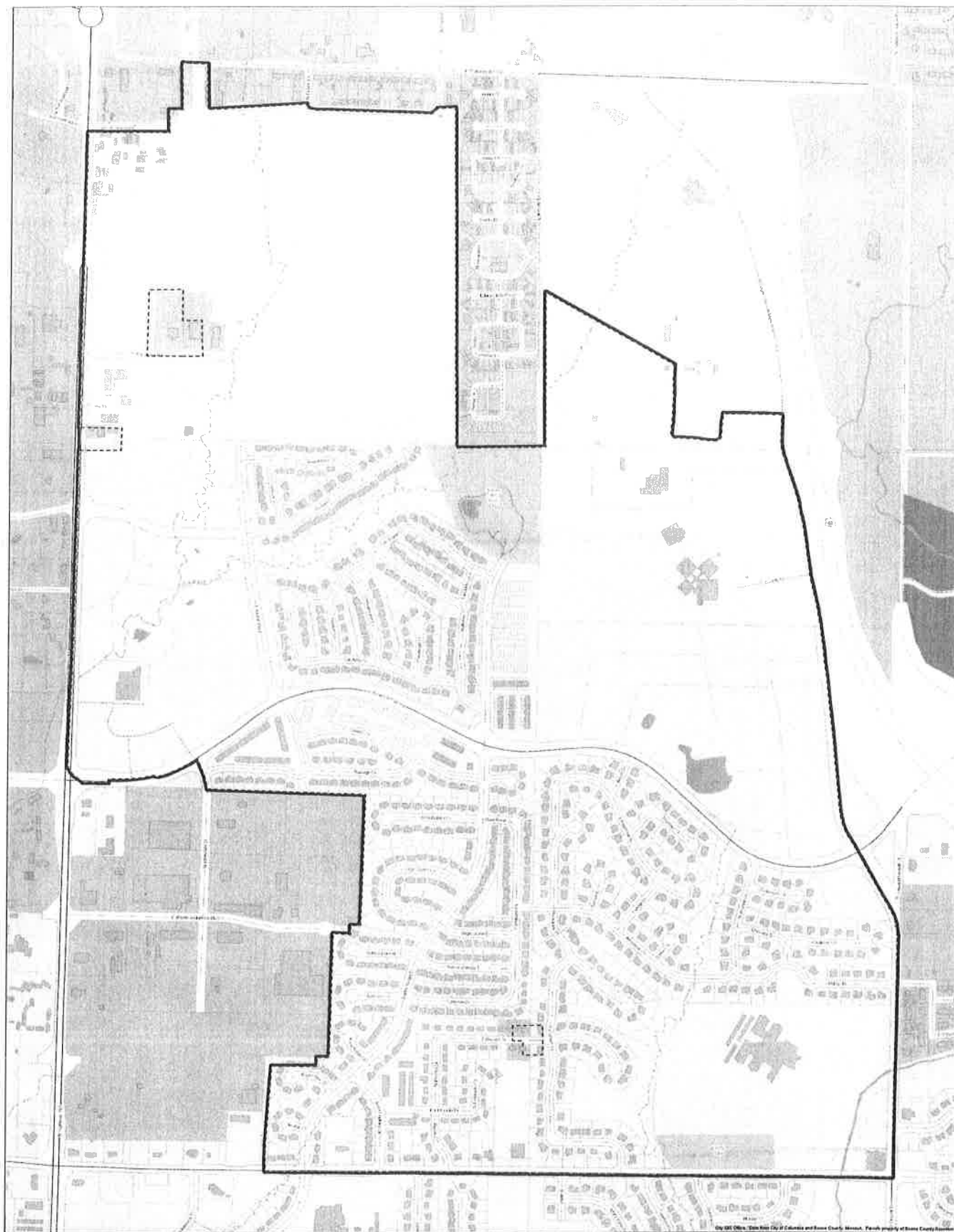


0 0.05 0.1 0.2 0.3 0.4 Miles

11/20/2015

***Strategic Plan East  
Neighborhood 2016 - 2019***

**CITY of COLUMBIA, MISSOURI**



**Neighborhood Service Area Outlines Census Data Area**

-  North
-  East
-  Central

-  North
-  East
-  Central



0 0.05 0.1 0.2 0.3 0.4 Miles

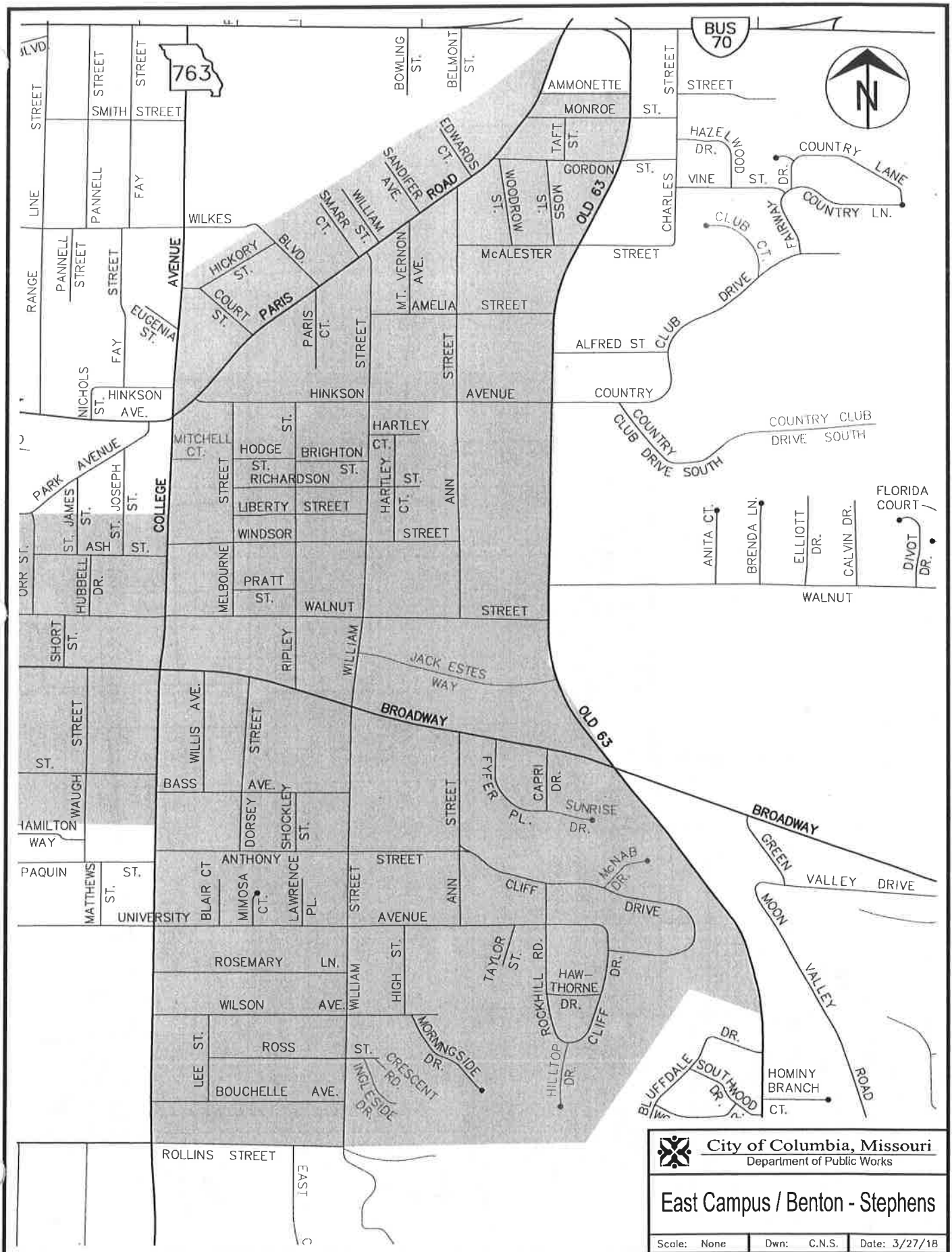
11/20/2015

***Strategic Plan North  
Neighborhood 2016 - 2019***

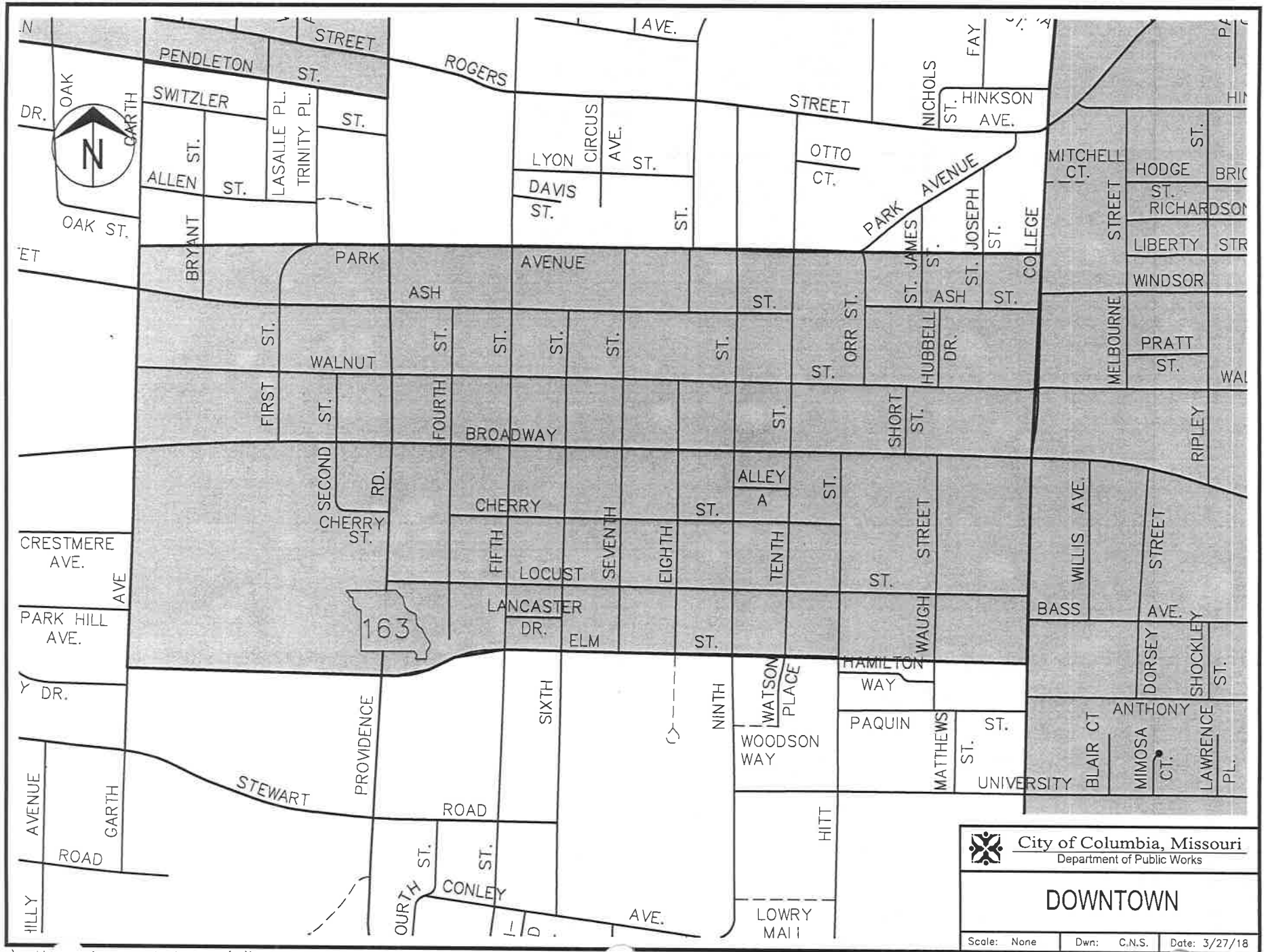
**CITY of COLUMBIA, MISSOURI**

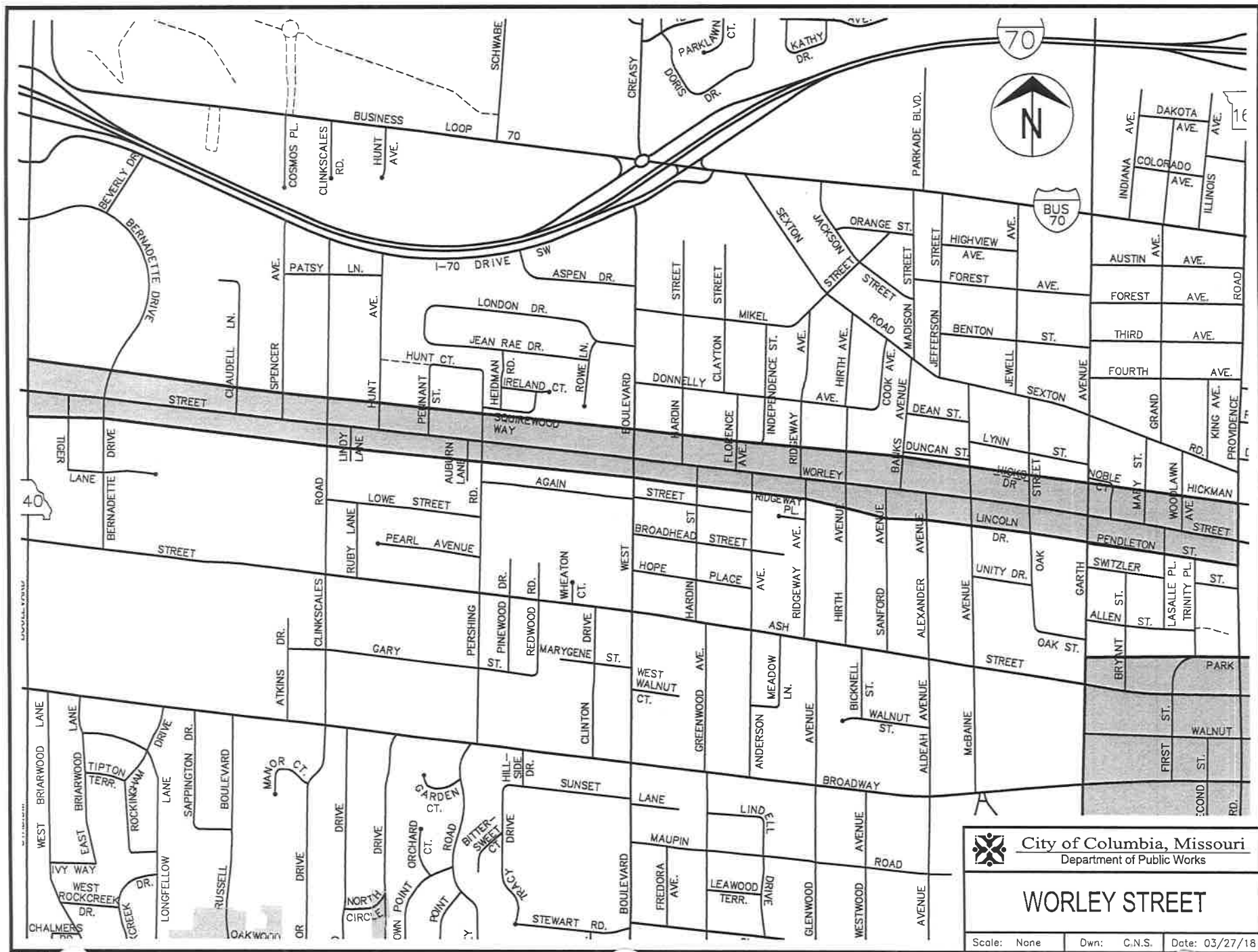


# Appendix I. Inventory and Priority Order Diagrams











## Inventory Checklists and Rankings:

The following shows the checklist used to inventory the sidewalk facilities. In order to inventory the pedestrian facilities, Public Works staff will use an electronic app to record and rank particular features of each facility.

### Sidewalk and Driveway Inventoried Information:

Sidewalk Width: Input width in inches  
Cross Slope: Input cross slope in percent  
Obstruction: Input obstruction location, type, and any additional measurements.\*  
Photographs and notes can be added if needed for clarification.

### Curb Ramp Inventoried Information:

Ramp Width: Input width in inches  
Ramp Length: Input length in inches  
Running Slope: Input running slope in percent  
Cross Slope: Input cross slope in percent  
Truncated Domes: Pick Yes or No  
Obstruction: Input obstruction location, type, and any additional measurements.\*  
Photographs and notes can be added if needed for clarification.

### Signalized Pedestrian Crossing Inventoried Information:

Type of Crossing: Pick Signalized or Flashing Beacon  
Audible Features: Pick Yes or No  
Height of Button: Input height in inches  
Distance from Landing: Input distance in inches  
Parallel to Crosswalk: Pick Yes or No  
Photographs and notes can be added if needed for clarification.

### Bus Shelter Inventoried Information:

Boarding Pad Length: Input length in inches  
Boarding Pad Width: Input width in inches  
Boarding Pad Running Slope: Input running slope in percent  
Shelter Clear Floor Width: Input clear floor width in inches  
Shelter Clear Floor Length: Input clear floor length in inches  
Photographs and notes can be added if needed for clarification.

\*Sidewalk Obstructions:

Deficiency Type: Pick from the following:

- Significant Cross Slope  
Input cross slope in percent
- Significant Running Slope  
Input running slope in percent
- Trip Hazard  
Input trip height in inches
- Gap/Crack Hazard  
Input crack width in inches
- Needs Landing  
Pick Top or Bottom
- Protruding Object/Obstruction (Vegetation, Utility Pole, Other)  
Input Protruding Reach in inches  
Input Protruding Vertical in inches

Photographs and notes can be added if needed for clarification.

The following shows the rankings used to inventory the sidewalk facilities.

#### Sidewalk and Driveway Ranking:

Width Rating			Cross Slope Rating			Ranking		
Width Range (in)		Rating	Cross Slope Range (%)		Rating	Total Rating Range		Ranking
Low	High		Low	High		Low	High	
60	-	0	0	2	0	0	0	Compliant
48	59	1	2.01	4	1	1	4	Substantially Compliant
36	47	3	4.01	5	3	5	10	Correction Recommended
-	35	5	5.01	-	5			

#### Curb Ramp Ranking:

Ramp Width Rating			*Ramp Running Slope Rating			Ramp Cross Slope Rating		
Width Range		Rating	Running Slope Range		Rating	Cross Slope Range		Rating
Low	High		Low	High		Low	High	
48	-	0	0	4.99	0	0	1.99	0
36	47	2	5	8.33	0	2	3.99	1
0	35	5	8.34	10.99	3	4	5.99	3
			11	-	5	6	-	5

\*A ramp is allowed to exceed 8.33% running slope if it is > 15' long

Ramp Obstructions Rating		Ramp Dome Type Rating		Ranking		
Obstructions	Rating	Dome Type	Rating	Total Rating Range		Ranking
				Low	High	
0	0	Rubber	0	0	0	Compliant
1	1	Stamped	2	1	4	Substantially Compliant
2	3	None	5	5	25	Correction Recommended
3	5					

### Pedestrian Crossing Ranking:

Height Rating		Distance Rating		Parallel Rating	
Button < 48" high?	Rating	Button <10" from landing?	Rating	Button parallel to crossing?	Rating
Yes	0	Yes	0	Yes	0
no	1	No	1	No	1

Ranking		
Total Rating Range		Ranking
Low	High	
0	0	Compliant
1	2	Substantially Compliant
3		Correction Recommended

### Bus Shelter Ranking:

Pad Length Rating			Pad Width Rating			Pad Slope Rating		
Pad Length Range (in)		Rating	Pad Width Range (in)		Rating	Pad Slope Range (%)		Rating
Low	High		Low	High		Low	High	
96	-	0	60	-	0	0	2	0
84	95	2	48	59	1	2.01	3	1
72	83	3	36	47	3	3.01	4	2
60	71	4	0	35	5	4.01	5	3
0	59	5				5.01	-	5

Shelter Width Rating			Shelter Length Rating			Ranking		
Shelter Width Range (in)		Rating	Shelter Length Range (in)		Rating	Total Rating Range		Ranking
Low	High		Low	High		Low	High	
30	-	0	48	-	0	0	0	Compliant
24	29	3	36	47	3	1	4	Substantially Compliant
0	23	5	0	35	5	5	25	Correction Recommended

Sidewalk Obstructions Ranking:

- **Significant Cross Slope:** Quantity divided by the following criteria.
  - 2% to 4% (*Substantially Compliant*)
  - 4.1% to 10% (*Correction Recommended*)
  - Greater than 10% (*Correction Recommended*)
- **Significant Running Slope:** Quantity divided by the following criteria.
  - 5% to 7.9% (*Substantially Compliant*)
  - 8% to 10% (*Correction Recommended*)
  - Greater than 10% (*Correction Recommended*)
- **Trip Hazard:** Quantity divided by the following criteria.
  - 0.25 inches to 0.5 inches (*Substantially Compliant*)
  - 0.6 inches to 1 inch (*Substantially Compliant*)
  - Greater than 1 inch (*Correction Recommended*)
- **Gap/Crack Hazard:** Quantity divided by the following criteria.
  - 0.5 inches to 1 inch (*Substantially Compliant*)
  - 1.1 inches to 2 inches (*Correction Recommended*)
  - Greater than 2 inches (*Correction Recommended*)
- **Needs Landing (Top or Bottom):** Total quantity, *Substantially Compliant* or *Correction Recommended* will be determined per field review of each site.
- **Protruding Object/Obstruction (Vegetation, Utility Pole, Other):** Quantity divided into Vegetation or Fixed Object, *Substantially Compliant* or *Correction Recommended* will be determined per field review of each site.





## Inventory Summary:

The following summarizes the inventories completed for each structure type and diagrams showing the areas where the structures were inventoried.

### Sidewalks:

In 2018, there were a total of 1867 sidewalk sections were inventoried. Of those sidewalks, 687 segments were ranked as *Compliant*, 1124 segments were ranked as *Substantially Compliant*, and 56 segments were ranked as *Correction Recommended*.

### Driveways:

In 2018, there were a total of 1203 driveway sections were inventoried. Of those driveways, 287 segments were ranked as *Compliant*, 587 segments were ranked as *Substantially Compliant*, and 329 segments were ranked as *Correction Recommended*.

### Curb Ramps:

In 2018, there were a total of 645 curb ramps were inventoried. Of those curb ramps, 89 segments were ranked as *Compliant*, 186 segments were ranked as *Substantially Compliant*, and 370 segments were ranked as *Correction Recommended*.

### Signalized Pedestrian Crossings:

In 2018, there were a total of 242 signalized pedestrian crossings were inventoried. Of those crossings, 182 segments were ranked as *Compliant*, 60 segments were ranked as *Substantially Compliant*, and 0 segments were ranked as *Correction Recommended*.

### Bus Shelters:

In 2018, there were a total of 35 bus shelter pads were inventoried. Of those bus shelter pads, 14 pads were ranked as *Compliant*, 15 pads were ranked as *Substantially Compliant*, and 6 pads were ranked as *Correction Recommended*.

### Obstructions:

In 2018, there were a total of 4892 obstructions inventoried. Of those obstructions, 100 had a significant cross slope, 102 had a significant running slope, 3019 had a trip hazard, 877 had a gap or crack hazard, 116 needed a

bottom landing, 156 needed a top landing, 236 had a fixed protruding object, and 286 had protruding vegetation.



## Proposed *Correction Recommended* Structures on City Properties, Signalized Pedestrian Crossings, and Bus Shelters:

The following list summarizes the structures that are ranked as *Correction Recommended* for each inventoried area.

### Driveway & Sidewalk Structures on City Property:

Location	Property Name	Width (in)	Width Rating	Cross Slope (%)	Cross Slope Rating	Total Rating	Type
Cherry east of 5th	Parking Lot	72	0	6.5	5	5	Driveway
10th south of Cherry	Parking Garage	72	0	5.5	5	5	Driveway
Walnut east of 10th	Parking Lot	72	0	10.5	5	5	Driveway
Worley west of West	Health Department	72	0	9.2	5	5	Driveway
Nifong west of Bearfield	Fire Station 8	60	0	6	5	5	Driveway
Bethal north of Southampton	Bethal Park	48	1	6.8	5	6	Driveway
Bethal north of Southampton	Bethal Park	48	1	8.8	5	6	Driveway
I-70 Dr NE west of Stadium	Cosmo Park	48	1	6.2	5	6	Driveway
Blue Ridge east of Parker	Oakland Park	48	1	7.9	5	6	Driveway
Northeast corner of Ash & Sanford	Home Buyout	48	1	6.5	5	6	Driveway
Wilkes east of Rangeline	Field Park	48	1	6.1	5	6	Driveway
Bethal north of Southampton	Bethal Park	48	1	6.7	5	6	Sidewalk

Curb Ramps on City Property:

Location	Property Name	Ramp Width (in)	Width Rating	Ramp Length (in)	Running Slope (%)	Running Slope Rating	Cross Slope (%)	Cross Slope Rating	Obstructions (#)	Obstructions Rating	Truncated Dome Type	Dome Rating	Total Rating
Northeast corner of 5th and Locust	Parking Lot	72	0	72	3.9	0	0.6	0		0	None	5	5
NW corner: Park & 8th	The Wardrobe	72	0	84	5.9	0	5.2	5	1	1	None	5	11
SE corner: 10th & Cherry	Parking Garage	120	0	48	2.6	0	0.7	0	1	1	None	5	6
NW corner: Ash & 8th	Armory Parking Lot	72	0	60	1.5	0	2.9	1		0	None	5	6
Northwest corner of 9th and Ash	Parking Lot	0	0	72	2.8	0	1.9	0		0	None	5	5
West of NW corner: Wilkes & Pannell	Field Park	48	0	92	2.6	0	5.6	5	1	1	None	5	11
West of NW corner: Park & 8th	The Wardrobe	48	0	36	9.3	3	3.3	1	2	2	None	5	11
SE Corner: 6th & Walnut	Police Station	120	0	60	11.5	5	2.8	1		0	None	5	11
Southeast corner of 7th and Park	Armory	120	0	60	4.6	0	1	0		0	None	5	5
SW corner: Park & 8th	Armory Parking Lot	48	0	48	6.7	0	2.5	1		0	None	5	6
SE Corner: Windsor & William	Lions Stephens Park	96	0	48	4.7	0	3.1	1	2	2	None	5	8
SE Corner: Worley & Pershing	Fire Station 2	48	0	60	7.5	0	3.3	1	1	1	None	5	7
SW Corner: Churchill & Bearfield	Fire Station 8	120	0	48	13	5	2.4	1	1	1	Rubber_Dome	0	7
NW Corner: Nifong & Bearfield	Fire Station 8	60	0	44	13.9	5	3.7	1	1	1	Stamped_Dome	2	9
NE Corner: Behtel & Southampton	Bethel Park	72	0	94	6.8	0	5.4	5	1	1	None	5	11
SW Corner: Chapel Hill & Wallace	Fire Station 6	48	0	96	11.9	5	1.7	0	2	2	None	5	12
SE Corner: Blue Ridge & Parker	Oakland Park	48	0	72	11.2	5	0.6	0	2	2	None	5	12
NE Corner: Wilkes & Rangeline	Field Park	120	0	60	8.6	3	2.1	1	1	1	Stamped_Dome	2	7
Northeast corner of Ash and Sanford	2	0	0	60	7.3	0	1.7	0		0		5	5
SW Corner: Hitt & Cherry	Parking Garage	120	0	60	6.4	0	3.7	1	2	2	None	5	8
Southwest corner of Oakland Gravel and Edris	Oakland Park	60	0	72	7.2	0	4	3		0	Stamped_Dome	2	5
NE Corner: Vandiver & Oakland Gravel	Fire Station 4	60	0	96	6.1	0	4.7	3	1	1	Stamped_Dome	2	6
North Side of Alaska north or cul de sac	Bear Creek Trail Access	72	0	48	15.8	5	0.2	0	1	1	Rubber_Dome	0	6
North side Lansing east of Dene	Woodridge Park	60	0	48	17.3	5	3.1	1	1	1	Rubber_Dome	0	7
NE Corner: Gans & Bristol Lake	Phillips Park	60	0	106	8.9	3	2.4	1	1	1	Stamped_Dome	2	7
Cul de sac of Jackal	Smiley Lane Park	120	0	50	9.8	3	0.7	0	2	2	None	5	10
Cul de sac of Jackal	Smiley Lane Park	120	0	48	9.8	3	1.9	0	2	2	Stamped_Dome	2	7
East side of Providence north of Blue Ridge	Fire Station 9	60	0	84	14.8	5	1.7	0		0	None	5	10
North side of Wilkes east of Rangeline	Field Park	48	0	90	8.7	3	5.9	5		0	None	5	13
Southwest corner, Orr and Park	Fire Admin	48	0	48	6.7	0	1.3	0		0	None	5	5

Bus Shelter Pads:

Location	Boarding Pad Length (in)	Pad Length Rating	Boarding Pad Width (in)	Pad Width Rating	Boarding Pad Running Slope (%)	Pad Slope Rating	Shelter Clear Floor Width (in)	Shelter Width Rating	Shelter Clear Floor Length (in)	Shelter Length Rating	Total Rating
Reactor Park	42	5	208	0	3.4	2	84	0	168	0	7
Rock Quarry Rd & The Pointe	240	0	72	0	0.7	0	18	5	72	0	5
Buttonwood Dr & Gateway	0	5	0	5		0	60	0	156	0	10
Worley St & Lasalle Ln	108	0	48	1	5.2	5	48	0	60	0	6
Paris Rd & Gerbs	144	0	60	0	11.3	5	60	0	60	0	5
Keene St & Women's and Children's Hospital	108	0	144	0	6.5	5	60	0	60	0	5

Obstructions: Significant Cross Slope on City Property (Cross Slope > 4 percent):

Location	Property Name	Cross Slope (%)	Slope Rating
South side of Churchill, east of Pimlico	Fire Station 8	8.9	1
North side of Wilkes, east of Rangeline	Field Park	7.5	1
East side of Rangeline, north of Wilkes	Field Park	8.2	1
East side of Parker south of Blue Ridge	Oakland Park	5	1
North side of Vandier, west of Oakland Gravel	Fire Station 4	8	1
East side of Parker, south of Blue Ridge	Oakland Park	8.4	1
North side of Worley, near west driveway	Health Department	9.5	1
North side of Worley, near west driveway	Health Department	7.2	1
North side of Worley, west of Woodlawn	Public Works Property	14.1	2
South side of Windsor, center of block	Lion-Stephens Park	9.8	1
South side of Park, west of Orr	Fire Admin	4.6	1
North side of Locust, center of block	Parking Lot	5.3	1
East side of 5th, near center of block	Parking Lot	10	1
East side of 10th, near center of block	10th & Cherry Parking Garage	9.7	1
East side of 10th, south of Cherry	Parking Garage	8	1
West side of Hitt, near center of block	Parking Garage	4.3	1
West side of Hitt, south of Cherry	Parking Garage	4.5	1
West side of Fairview, north of Bray	Fairview Park	6	1

Obstructions: Significant Running Slope on City Property (Running Slope > 5 percent):

Location	Property Name	Running Slope (%)	Slope Rating
South side of Churchill, east of Pimlico	Fire Station 8	8.9	1
South side of Blue Ridge east of Parker	Oakland Park	14.4	2
West side of 6th, south of Cherry	Parking Garage	9.2	1
East side of Garden, south of Hollyhock	Valleyview Park	10.9	2
North side of Rollins, west of roundabout	Bonnie View Nature Sanc.	10.5	2
East side of Bristol Lake, north of Gans	Phillips Park	8.9	1
West side of Orr, south of Ash	Fire Admin	8.6	1



Obstructions: Trip Hazard on City Property (Trip Height >= 1 inch):

Location	Property Name	Tripping Height (in)	Trip Rating
North side of Huntridge, west of Bluegrass	Highpoint Park	1.75	2
West side of Bethal, north of Nifong	W&L Storage Tank	1.5	2
East side of Bethal, north of Southampton	Bethel Park	1.5	2
South side of Churchill, west of Bearfield	Fire Station 8	1.25	2
West side of Port, north of Canaveral	Park	2.75	2
North side of Ulster, east of Younger	Eastport Park	1.38	2
West side of Old 63 towards south end of park	Grindstone Nature Area	2.5	2
South side of Ulster, east of Younger	Eastport Park	1.13	2
East side of College Park, north of Princeton	Kiwanis Park	1.25	2
East side of College Park, north of Princeton	Kiwanis Park	1.25	2
East side of College Park, north of Princeton	Kiwanis Park	1.38	2
East side of College Park, north of Princeton	Kiwanis Park	1.25	2
South side of Rollins, east of roundabout	Bonnie View Nature Sanctuary	1.75	2
North side of Rollins, east of roundabout	Bonnie View Nature Sanctuary	1.25	2
West side of Oakland Gravel, south of Edris	Oakland Park	1.5	2
East side of Blue Ridge, north of Piranha	Garth Nature Area	1.5	2
North side of Ash, east of Bernadette	W&L Storage Tank	1.25	2
North side of Ash, east of Bernadette	W&L Storage Tank	1.5	2
West side of Clinkscales, north of Ash	Clay-Shy Park	1.5	2
South side of Tiger, north of Ash	W&L Storage Tank	1.5	2
North side of Worley near west entrance	Health Department	1.25	2
East side of Pershing, south of Worley	Fire Station 2	1.25	2
South side of Worley, east of Pershing	Fire Station 3	1.25	2
East side of William, north of Walnut	Lions-Stephens Park	1.25	2
East side of William, north of Walnut	Lions-Stephens Park	1.5	2
South side of Cherry, east of 5th	Parking Garage	2	2
West side of 9th, north of Ash	Parking Lot	2.25	2
West side of 8th, near center of block	Armory	1.25	2
South side of Locust, near center of block	Flat Branch Park	1.5	2
West side of Hitt, south of Cherry	Parking Garage	1.5	2
West side of Hitt, north of alley	Parking Garage	1.25	2

Obstructions: Gap/Crack Hazard on City Property (Gap/Crack > 1 inch):

Location	Property Name	Crack Width (in)	Crack Rating	Notes
East side of Bethel, north of Southampton	Bethel Park	3	2	
East side of Bethel, north of Southampton	Bethel Park	3	2	
West side of Bethel, north of Nifong	Water Pump Station	1.5	1	
West side of Bethel, north of Nifong	Water Pump Station	4	2	
West side of Bethel, north of Nifong	Water Pump Station	1.5	1	Busted slab
East side of Bethel, north of Southampton	Bethel Park	1.5	1	
East side of Bristol Lake, north of Gans	Philips Park	3	2	Destroyed slabs
East side of Lemone Industrial, south of Emily		2	1	
South side of Chapel Hill, west of Chapel Ridge	Fire Station 6	2	1	
East side of Crystal Rock, east of Round Rock	Stormwater Management	2.5	2	Chi crack
West side of Scott Blvd, south of Mesa	W&L Deep Well	2.5	2	
East side of Fairview, north of Bray	Fairview Park	4	2	Chipped
North side of Zinnia, east of Hibiscus	Barberry Park	20	2	Missing part of sidewalk
East side of Mayflower, south of Hollyhock	Valleyview Park	1.5	1	
East side of Fairview, north of Bray	Fairview Park	3	2	Busted slabs
North side of I-70 Dr, east of Stadium	Cosmo Park	3	2	Destroyed slabs around inlet
North side of I-70 Dr, east of Stadium	Cosmo Park	2.5	2	
Sandrock cul de sac	Indian Hills Park	3	2	
North side of Vandiver at Oakland Gravel	Fire Station 4	2	1	Completely destroyed slabs
South side of Blue Ridge, east of Parker	Oakland Park	2	1	
South side of Blue Ridge at Parker	Oakland Park	2	1	
East side of Blue Ridge at Piranha	P&R Property	3	2	5 busted slabs
Jackal Dr cul de sac	Smiley Ln Park	2	1	Chipped crack
North side of Ash, east of Bernadette	W&L Water Storage Tank	2	1	Chip crack
Bus Loop 70, east of College	W&L Storage Yard	3	2	Chip crack
East side of Old 63, north of Walnut	Stephens Lake Park	1.5	1	Busted slabs
South side of Windsor, near center of block	Lions-Stephens Park	4	2	
South side of Windsor, near center of block	Lions-Stephens Park	2	1	Busted slabs
North side of Walnut, near center of block	Water Towner	2	1	
Northwest corner, 8th and Broadway	City Hall	12	2	
South side of Cherry, east of 5th	Parking Lot	5	2	
South side of Cherry, east of 5th	Parking Lot	3	2	
South side of Cherry, near center of block	Parking Garage	16	2	
South side of Walnut, near center of block	Police Station	5	2	
South side of Walnut, near center of block	Police Station	3	2	
Southwest corner of 6th and Walnut	Parking Garage	2	1	
South side of Walnut, near center of block	Police Station	6	2	
North side of Ash, near center of block	Armory	2	1	Busted
Northwest corner, 9th and Ash	Parking Lot	2	1	
Northwest corner, 9th and Ash	Parking Lot	5	2	
North side of Ash, west of 9th	Parking Lot	3	2	
Northwest corner, 8th and Ash	Armory	2	1	
Northwest corner, 8th and Ash	Armory	4	2	
North side of Ash, near center of block	Armory	2	1	
Northwest corner, 9th and Ash	Parking Lot	3	2	Busted
Southeast corner, 7th & Park	Armory	3	2	
South side of Park, near center of block	Armory	2	1	busted
South side of Park, near center of block	Armory	6	2	
East side of 8th, near center of block	Parking Lot	3	2	

Obstructions: Gap/Crack Hazard on City Property (Gap/Crack > 1 inch): Continued

Location	Property Name	Crack Width (in)	Crack Rating	Notes
East side of 8th, near center of block	Parking Lot	5	2	
South side of Park, west of Orr	Fire Station 1	4	2	Busted
Northeast corner, 5th and Locust	Parking Lot	6	2	
North side of Elm, near center of block	Flat Branch Park	8	2	
East side of 4th, near center of block	P&R, Blind Boone Home	5	2	Busted
West side of 7th, south of Park	Armory	8	2	
West side of 7th, north of Ash	Armory	8	2	
West side of 9th, near center of block	Parking Lot	4	2	
East side of 10th, at Ash intersection	Wabash Station	4	2	
West side of Orr, south of Ash	Wabash Station	3	2	
West side of Orr, south of Park	Fire Admin	2	1	
East side of 10th, south of Cherry	Parking Garage	6	2	
North side of I-70 Dr, east of Cosmos	Cosmo Park	4	2	Deteriorating concrete
East side of 10th, south of Ash	Wabash Station	8	2	
East side of 10th, south of Ash	Wabash Station	2.5	2	

Obstructions: Needs Landing on City Property:

Location	Property Name	Ramp Type
Northeast corner, Bethal and Southampton	Bethal Park	Needs Top Landing
West side of Port Way at Canaveral	Parks & Rec Property	Needs Top Landing
West side of Port Way at Canaveral	Parks & Rec Property	Needs Top Landing
Southwest corner, Chapel Hill and Chapel Ridge	Fire Station 6	Needs Top Landing
North side of Rollins, west of roundabout	Bonnie View Nature Sanctuary	Needs Top Landing
North side of Rollins, east of roundabout	Bonnie View Nature Sanctuary	Needs Top Landing
Northeast corner of Vandiver and Oakland Gravel	Sewer Utility	Needs Top Landing
Southeast corner of Blue Ridge and Parker	Oakland Park	Needs Top Landing
North side of Park, west of 8th	The Wardrobe	Needs Top Landing
Northwest corner, 8th and Park	The Wardrobe	Needs Top Landing
East side of Old 63, south of Walnut	Stephens Lake Park	Needs Top Landing
Southeast corner of Worley and Pershing	Fire Station 2	Needs Top Landing

Obstructions: Protruding Objects on City Property:

Location	Property Name	Notes
East side of Bethel north of Southampton	Bethel Park	
East side of Parker south of Blue Ridge	Oakland Park	Dried concrete
South side of Business Loop west of Bowling	W&L Storage Yard	
South side of Business Loop west of Bowling	W&L Storage Yard	Stairs
South side of Business Loop west of Bowling	W&L Storage Yard	Railroad tracks
South side of Business Loop west of Bowling	W&L Storage Yard	Stairs



## Proposed CIP Projects that include Pedestrian Facility Improvements:

The following list summarizes the upcoming improvement projects that will include improvements to the pedestrian facilities. Pedestrian facility improvements include installation or upgrade of sidewalks, curb ramps, and intersections to meet ADA standards.

### Construction Year 2019

#### Street Projects

***Ballenger Road Improvement:*** This project includes the construction of 6-foot wide shoulders along both sides of Ballenger between Ria and Mexico Gravel. The shoulders are designated for non-motorized use and will tie in with subdivision sidewalks along the road corridor. Curb ramps will be reconstructed at the sidewalks where needed.

#### Intersection Projects

***Forum and Green Meadows Roundabout:*** This project includes the construction of a roundabout at the intersection of Forum and Green Meadows. The roundabout will include sidewalk, curb ramps, pedestrian islands, and crosswalks.

***Nifong and Old Mill Creek Roundabout:*** This project includes the construction of a roundabout at the intersection of Nifong and Old Mill Creek. The roundabout will include sidewalk, curb ramps, pedestrian islands, and crosswalks.

***Keene and I-70 Drive Roundabout:*** This project includes the construction of a roundabout at the intersection of Keene and I-70 Drive. The roundabout will include sidewalk, curb ramps, pedestrian islands, and crosswalks.

***9<sup>th</sup> and Elm Pedestrian Scramble:*** This project includes the modification of the intersection signals to all an all-red time for pedestrian movement. The project also include the construction of curb ramps.

#### Sidewalk Projects

***Carter Lane Sidewalk:*** This project includes the construction of 6-foot wide sidewalk along the back of curb and curbs ramps on the east side of Carter Lane between Huntridge and Foxfire.

*Lynn, Oak, Sexton Sidewalk:* This project includes the construction of 6-foot wide sidewalk along the back of curb and curbs ramps to tie into existing sidewalk along the square block of Lynn, Oak, Sexton, and Garth.

*Shepard to Rollins Trail:* This project includes the construction of 10-foot wide shared use path that connects Bluffdale with Rollins. The project also includes curb ramps at each end of the path.

## Construction Year 2020

### Street Projects

*Nifong Road Improvements:* This project includes the construction of an additional thru lane for eastbound and westbound traffic between Providence and Willowcreek. The project also includes construction of  $\frac{3}{4}$ -access at most intersections between Providence and Bethel, installation of a traffic signal at Nifong/Monterey and Nifong/Aurora, intersection improvements at Nifong/Bethel and Nifong/Forum, bike lanes, and sidewalks. Finally, the project includes construction of an additional thru lane for northbound and southbound traffic on Forum between Green Meadows and Nifong with bike lanes and sidewalks.

### Intersection Projects

*Sinclair and Route K Roundabout:* This project includes the construction of a roundabout at the intersection of Sinclair and Route K. The roundabout will include sidewalks, curb ramps, pedestrian islands, and crosswalks.

*Nifong and Sinclair Roundabout:* This project includes the construction of a roundabout at the intersection of Nifong and Sinclair. The roundabout will include sidewalk, curb ramps, pedestrian islands, and crosswalks.

### Sidewalk Projects

*Sinclair Road Sidewalk at Nifong:* This project includes the construction of 6-foot wide sidewalk along the back of curb on the east side of Sinclair between Southampton and Nifong.

*Sexton Sidewalk at Mary:* This project includes the construction of 5-foot wide sidewalk along the south side of Sexton west of Mary. The project will replace existing sidewalk that has failed. The project will also include curb ramps and a pedestrian crossing to Ridgeway Elementary.

*McKee Street Sidewalk:* This project includes the construction of 5-foot wide sidewalk along the east side of McKee between Nick Court and the McKee Street Park. The project will also include curb ramps at the intersections.

*Leslie Lane Sidewalk:* This project includes the construction of 5-foot wide sidewalk along the north side of Leslie between Garth and Newton. The project will also include curb ramps at the Leslie and Newton intersection.

## **Construction Year 2021**

### **Street Projects**

*Discovery Parkway Extension:* This project includes the construction of a new roadway connection between the Highway 63/Discovery Parkway interchange and the New Haven/Rolling Hills intersection. The project will include construction of sidewalks along the new roadway.





## Proposed Curb Ramp Improvements Associated with Asphalt Overlay Projects:

The following list summarizes the curb ramps that need to be modified to meet ADA compliance associated with the asphalt overlay projects.

### Curb Ramps to be Improved:

Street Name	From	To	# of Ramps
Locust Street	Providence Road	9th Street	18
Richmond Avenue	Rollins Road	Kentucky Boulevard	4
Cocoa Court	Hanover Boulevard	South End	2
Grace Ellen Drive	Oakland Gravel Road	Oakland Gravel Road	1
Anthony Street	Williams Street	College Avenue	8
9th Street	Walnut Street	Broadway	4
8th Street	North Boulevard	Ash Street	24
North Cedar Lake Drive	Bethel Street	Lake Valley Lane	2
South Park Drive	College Avenue	Ashland Road	1
Red Castle Court	Strathmore Drive	South End	2
Blue Ridge Road	Garth Avenue	Caribou Drive	10
Hubbell	Ash	Walnut	1
Cedar Ridge Drive	S Cedar Lake	Dustin	2
McKee Street	Clark Lane	Rice Road	7
Elm Street	Providence Road	Hitt Street	9
Thornridge Drive	S Cedar Lake Drive	Dustin Drive	2
Dustin (Intersection)	Dustin Drive	S Cedar Lake Drive	4
Laurel Drive	Summit Road	Fairview Road	4
Summit Drive	Fairview Road	Walther Court	2
Sable Court	Ivanhoe Boulevard	South End	2
Godas Drive	Trikalla Drive	Valley Creek Lane	4
Worley Street	Garth Avenue	Providence Road	10
Ivanhoe Blvd	Worley Street	West End	6
Fourth Street	Stewart Road	Conley Road	2
Forum Boulevard	Stadium Boulevard	Chapel Hill Road	4
Sheffield Court	Forum Boulevard	East End	2
Burrwood Drive	Oakhaven Drive	North End	2
Gillespie Bridge	Scott Boulevard	Chapel Hill Road	1
Country Club Drive	Alfred Street	Old 63 Highway	1
Total Number of Ramps Replaced =			141



## **Proposed Bus Shelter Installation Projects:**

The following list summarizes the upcoming bus shelter projects. The bus shelter installations include the construction of the shelter pad and in some cases adjoining sidewalk to meet ADA standards.

### **Year 2019:**

*Providence/Carter Lane*

*White Gate (Parks and Recreation property)*





**CITY OF COLUMBIA, MISSOURI**

**Title II of the Americans with Disabilities Act  
Section 504 of the Rehabilitation Act of 1973  
Discrimination Complaint Form**

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**Instructions: Please fill out this form completely, in black ink or type. Sign and return to the address on page 3.**

Complainant: \_\_\_\_\_

Address: \_\_\_\_\_

City, State and Zip Code: \_\_\_\_\_

Telephone: Home: \_\_\_\_\_ Business/Other: \_\_\_\_\_

Person Discriminated Against: \_\_\_\_\_  
(if other than the complainant)

Address: \_\_\_\_\_

City, State, and Zip Code: \_\_\_\_\_

Telephone: Home: \_\_\_\_\_ Business/Other: \_\_\_\_\_

Government, or organization, or institution which you believe has discriminated:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

County: \_\_\_\_\_

City: \_\_\_\_\_

State and Zip Code: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

## Discrimination Complaint Form

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When did the discrimination occur? Date: \_\_\_\_\_

Describe the acts of discrimination providing the name(s) where possible of the individuals who discriminated (use space on page 3 if necessary):

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Have efforts been made to resolve this complaint through the internal grievance procedure of the government, organization, or institution?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes: what is the status of the grievance?

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Has the complaint been filed with another bureau of the Department of Justice or any other Federal, State, or local civil rights agency or court?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes:

Agency or Court: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, and Zip Code: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Date Filed: \_\_\_\_\_

## Discrimination Complaint Form

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Do you intend to file with another agency or court?

Yes \_\_\_\_\_ No \_\_\_\_\_

Agency or Court: \_\_\_\_\_

Address: \_\_\_\_\_

City, State and Zip Code: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Additional space for answers:

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Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**Return to:**

City of Columbia  
Law Department  
ADA Coordinator  
701 E. Broadway, 2nd Flr.  
P.O. Box 6015  
Columbia, MO 65205