

Americans with Disabilities Act (ADA)

Sidewalk Transition Plan

City of Columbia, Missouri

Public Works Department

January 2024

(6<sup>th</sup> Revision, Original Draft 2018)



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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) and follows the current Public Right of Way Accessibility Guidelines (PROWAG).

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 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 City's sidewalk closure policy for construction activities, 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 Projects (CIP) and the City's maintenance projects. The ADA Sidewalk Transition Plan will be used in conjunction with the Sidewalk Master Plan as guidance to prioritize sidewalk improvement projects to be funded by the City. This sidewalk transition plan is 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 the 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 MoDOT ADA compliance checklist; (3) the City's

Complete Street and Complete Intersection policies; 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, were significantly revised in January of 2012, and then updated again in October of 2016. An addendum revising various specifications and standard details was issued in October of 2018. A second addendum was issued in July of 2020. 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 current 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 the Public Right-of-Way Accessibility Guidelines (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 Policies:*** 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 in 2004 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) 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 including 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 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 fulfilling 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. The legislation for the Vision Zero policy is included in Appendix C.

## 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 improvements, signalized crossing improvements, 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 usually 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 completes 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:** Sidewalk improvements include constructing sidewalk where there are gaps along the sidewalk network and repairing existing sidewalk panels that are deficient.

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 ramp and panel repairs using their annual operations budget. 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 and sidewalk renovation cost share projects that have been completed since 2015 is located in [Appendix F](#).

**Signalized Pedestrian Crossing Improvements:** Public Works follows their Council approved CIP planning document to prioritize and fund signalized pedestrian crossing improvement projects. These include both crossing at signalized intersections and mid-block crossings. These are usually high pedestrian volume signalized locations 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 or as part of a larger project. A list of signalized pedestrian crossing improvement projects that have been 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. In addition, sidewalks and crosswalks connecting to the bus shelters and bus stops are being prioritized for reconstruction if they do not currently meet ADA standards and are high use locations for paratransit customers. A list of bus shelter pads that have been constructed or improved since 2016 is located in [Appendix H](#).

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

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 3,676,000 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 and evaluated is as follows:

1. City owned properties. **(completed)**
2. The following locations of high pedestrian use, particularly by people with disabilities: **(completed)**
  - a. East Campus/Benton-Stephens neighborhoods
  - b. Downtown
  - c. Worley Street between Providence and Stadium
3. Locations called in from concerned citizens. **(on going)**
4. Specific locations identified as a priority for pedestrians with disabilities and the City's Disabilities Commission. **(on going)**
5. Locations of sidewalks within walking distance of the bus routes.
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 inventoried 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 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](#). Also, an interactive map has been developed that can query and locate the inventoried structures.

An estimated cost for repair of the structures ranked as *Correction Recommended* includes an average cost of \$1,300 per curb ramp, \$800 per obstruction, \$6,500 per driveway, and \$5,500 per sidewalk. It should be noted that the estimate is very general.

## Improvement Plan to Address ADA Compliance

Public Works reviews all structures that receive a ranking of *Correction Recommended* to determine priority and funding sources for improvements.

**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 is responsible for improvements to structures located on City property, curb ramps, 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 along their property. Public Works has developed a cost share program to assist residential property owners and downtown property owners with sidewalk repairs.

The 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 renewal 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 and community development block grants.

**Tracking Improvements:** Each of the following appendices includes a list of proposed improvement projects to be completed. The appendices are updated each year.

- Appendix L includes a summary of repairs for structures that were inventoried and ranked as *Correction Recommended* on City properties. The appendix also

includes as summary of repairs for bus shelters and signalized pedestrian crossings that were ranked as *Correction Recommended*. Finally, the appendix includes a list of sidewalk repairs proposed by the Disabilities Commission and a list of sidewalk renovation cost share projects. Over the next few years additional improvements will be made as part of larger projects and/or as funding becomes available.

- 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.

## Sidewalk Closure Policy for Construction Projects

In the fall of 2023, a City Sidewalk Closure policy was draft to provide guidance for sidewalk closure for both private development and City improvement project construction. The guidance outlines necessary items to address in order to meet ADA requirements for temporary pedestrian accessible routes. The sidewalk closure policy is included in Appendix P.

## 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:

Shane Creech, P.E.  
Public Works Director  
701 E. Broadway  
Columbia, Missouri 65205-6015  
Phone: (573) 874-CITY (2489)  
Email: PubW@CoMo.gov

The ADA Coordinator's contact information is:

Adam Kruse  
ADA Coordinator  
701 E. Broadway  
Columbia, Missouri 65205-6015  
Phone: (573) 874-CITY (2489)  
Email: DisabilityServices@CoMo.gov

## Grievance Procedure

The City of Columbia has adopted a 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 Q](#). 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-CITY (2489)  
Email: 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 Commission 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



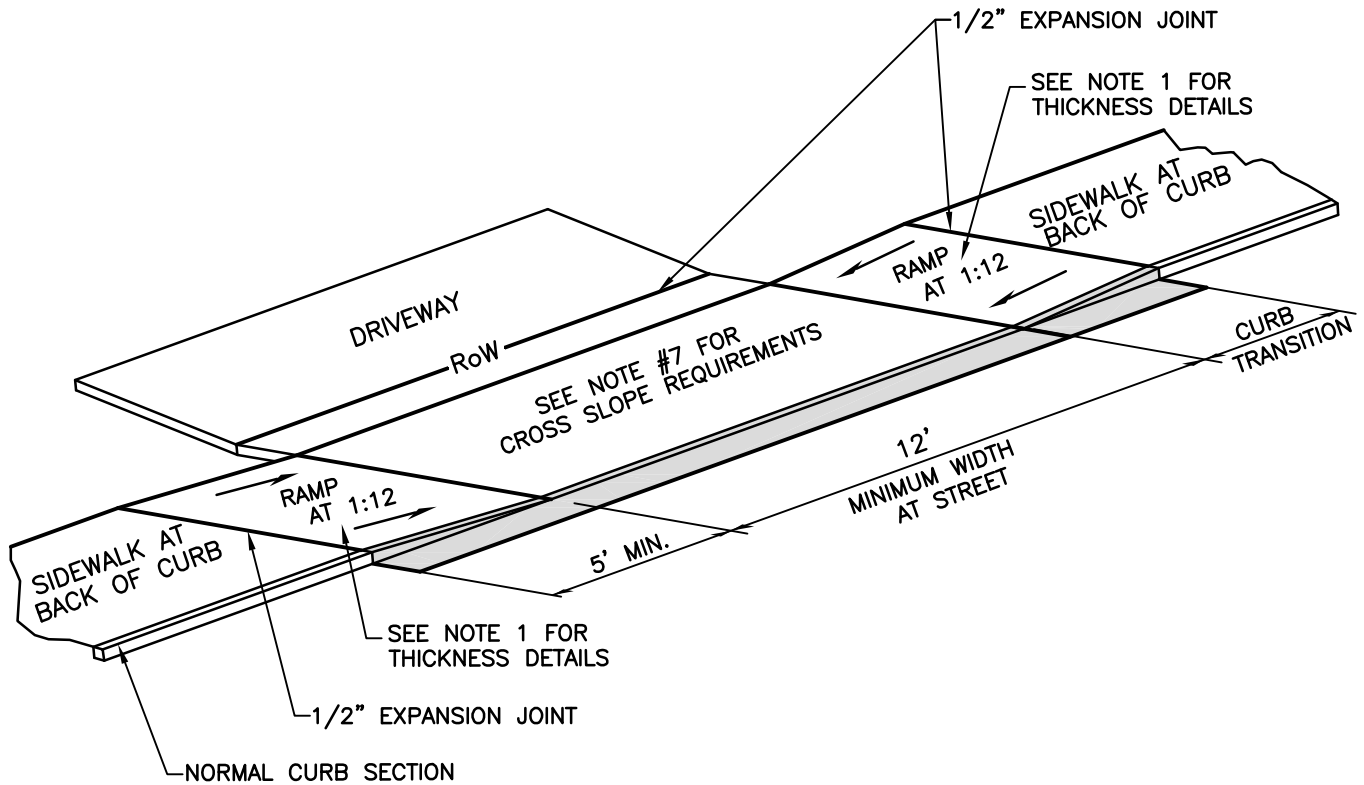
completed for the year, and the updated list of the improvement projects that still need to be completed with target years for the improvements. Both City Council and the Disabilities Commission asked for an update on the plan once it had been implemented; therefore, the January 2019 updated transition plan was presented to City Council at a work session on June 3, 2019 and to the Disabilities Commission on July 11, 2019. The inventory, evaluation, and how to prioritize and fund improvements were discussed.

Individual improvement projects go through a public engagement process that includes an interested parties meeting and a public hearing. The CIP projects are also included in the City's annual budget document which goes through a public engagement process each year, as well.

## Appendices


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Appendix A: City's Street, Storm Drain, and Sanitary Sewer Standard Details for Sidewalks  
Revised: January 2021



NOTE:

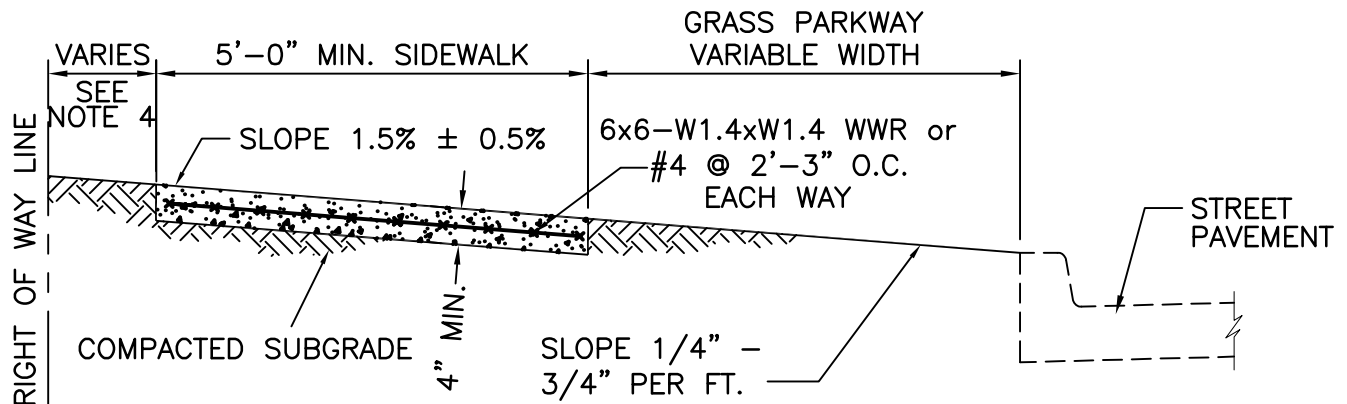
1. RAMP SHALL BE 6" THICK MoDOT PAVEMENT CONCRETE FOR RESIDENTIAL, 7" THICK MoDOT PAVEMENT CONCRETE FOR COMMERCIAL.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. DRIVEWAY CROSS SLOPE SHALL NOT EXCEED 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. 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 CROSS SLOPE OF 1.5%  $\pm$  0.5% (MAXIMUM CROSS SLOPE OF 2.0%).
8. DRIVEWAY MAY BE REINFORCED AT OWNERS OPTION. ON CITY BID PROJECTS DO NOT REINFORCE.

	07/01/20
Approved	Date
Revisions	



SIDEWALK DRIVEWAY DETAIL  
Sidewalk at Back of Curb


410.07



## SIDEWALK WITH GRASS PARKWAY

### NOTE:

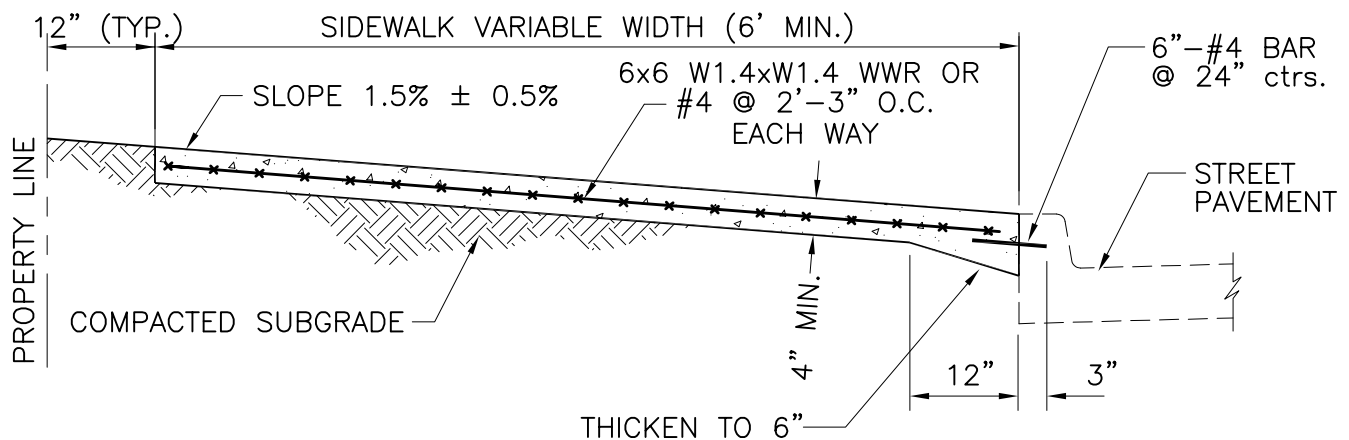
1. SIDEWALK SHALL BE 4" THICK MoDOT PAVEMENT CONCRETE.
2. INSTALL 1/2" EXPANSION JOINTS AT INTERSECTIONS, RAMPS, STRUCTURES, DRIVEWAY APPROACHES, OR EVERY 100'.
3. INSTALL TRANSVERSE SAW JOINTS AT SPACING EQUAL TO SIDEWALK WIDTH.
4. STANDARD SIDEWALK PLACEMENT IS 12" FROM RIGHT OF WAY LINE.
5. NO STEEL 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	07/01/20 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

07/01/20

Date

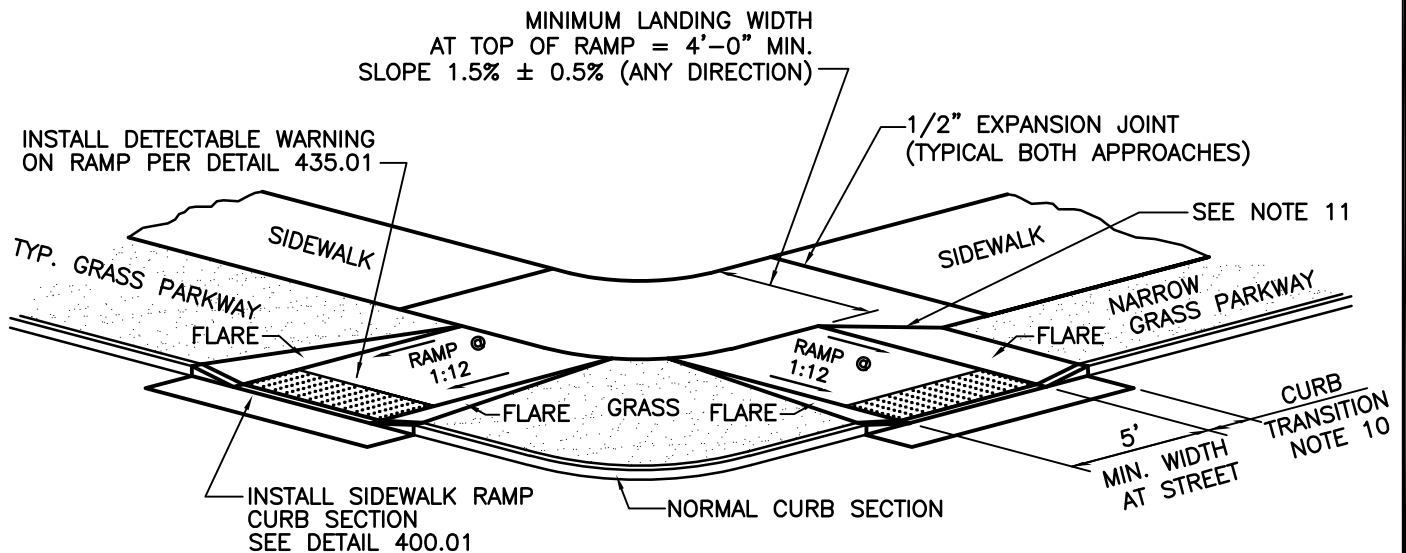
Revisions



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.

  
Approved

07/01/20  
Date

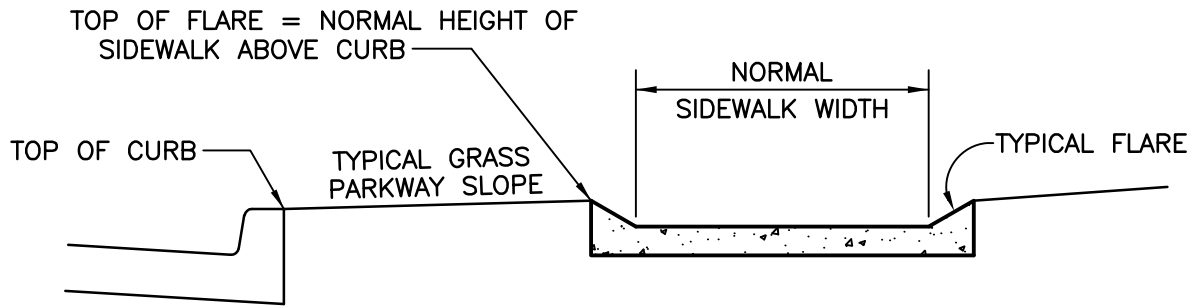
Revisions



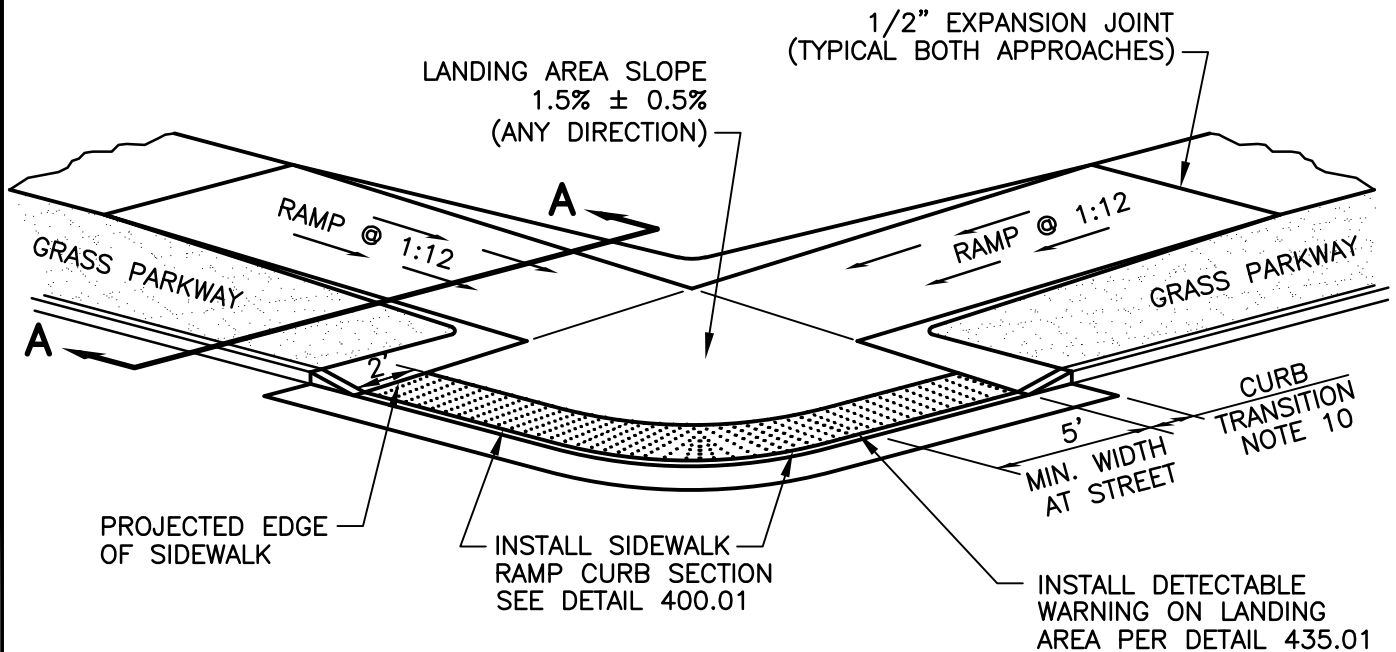
City of Columbia  
Public Works Department

SIDEWALK RAMP  
Sidewalk with Grass Parkway  
(Type A)

430.01

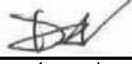


**SECTION A-A**



**NOTES:**

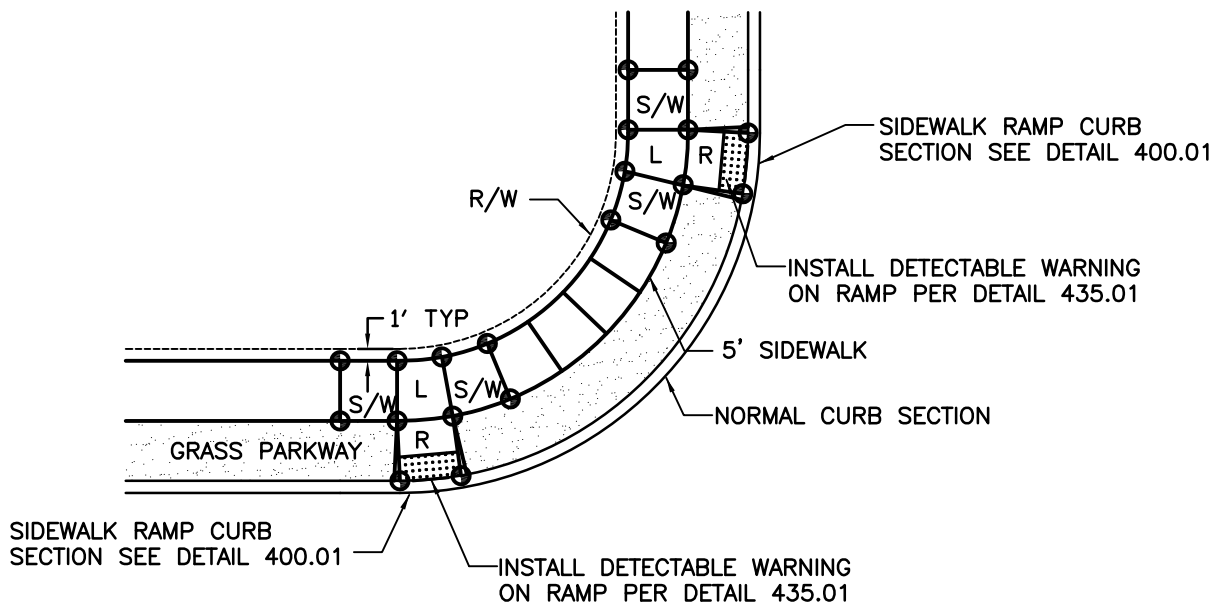
1. RAMP AND LANDING SHALL BE 6" THICK MoDOT PAVEMENT CONCRETE WITH #4 BARS AT 12" O.C. E.W.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. REPLACE STANDARD CURB SECTION WITH 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. MAXIMUM RAMP SLOPE 2.0% ANY DIRECTION.
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.

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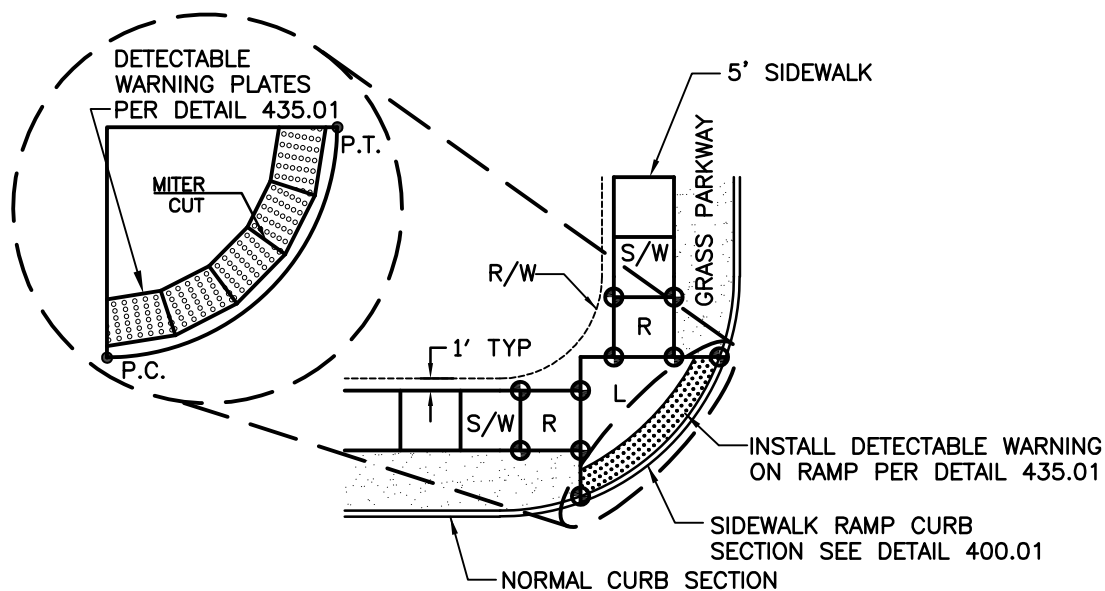
**SIDEWALK RAMP**  
Sidewalk with Grass Parkway  
(Type B)

**430.02**



1. ① DENOTES SPOT ELEVATION REQUIRED

## TYPE "A" SIDEWALK WITH GRASS PARKWAY



1. 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 RUNNING SLOPE 1:12 (8.3%) MAXIMUM

L = LANDING SLOPE 1.5% ± 0.5% (2.0% SLOPE MAXIMUM ANY DIRECTION)

S/W = SIDEWALK CROSS SLOPE 1.5% ± 0.5% (2.0% CROSS SLOPE MAXIMUM)

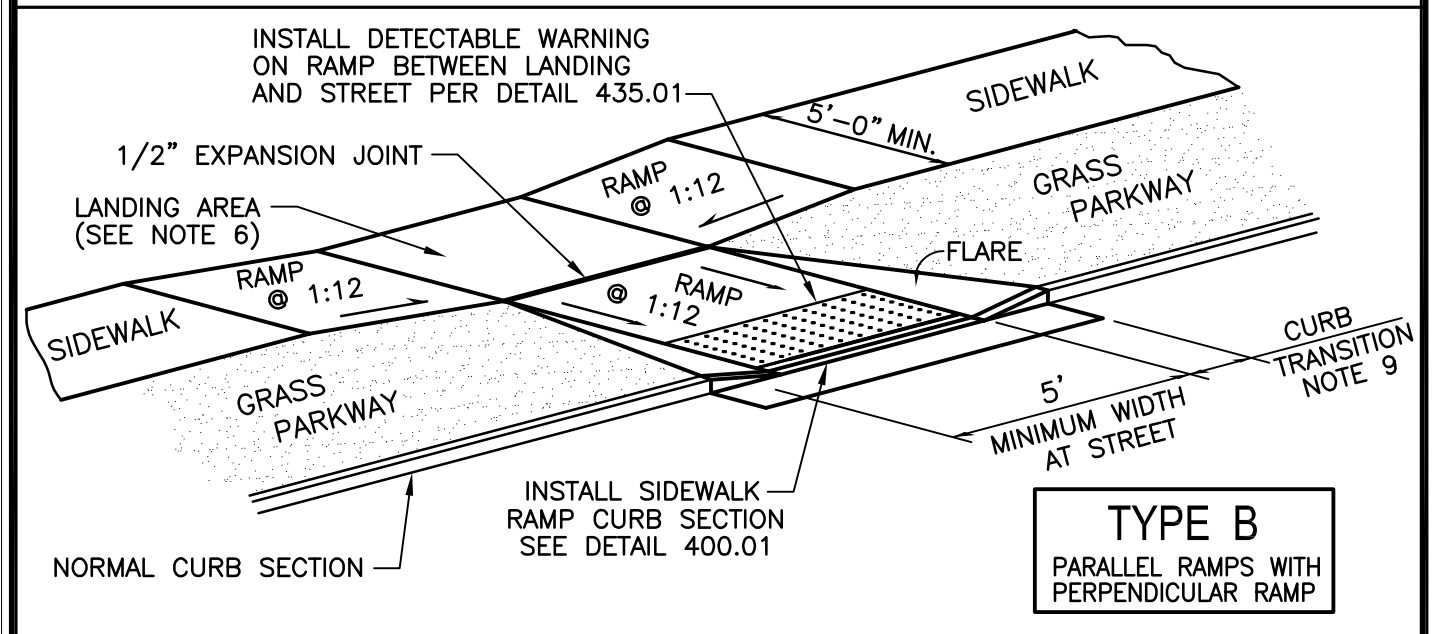
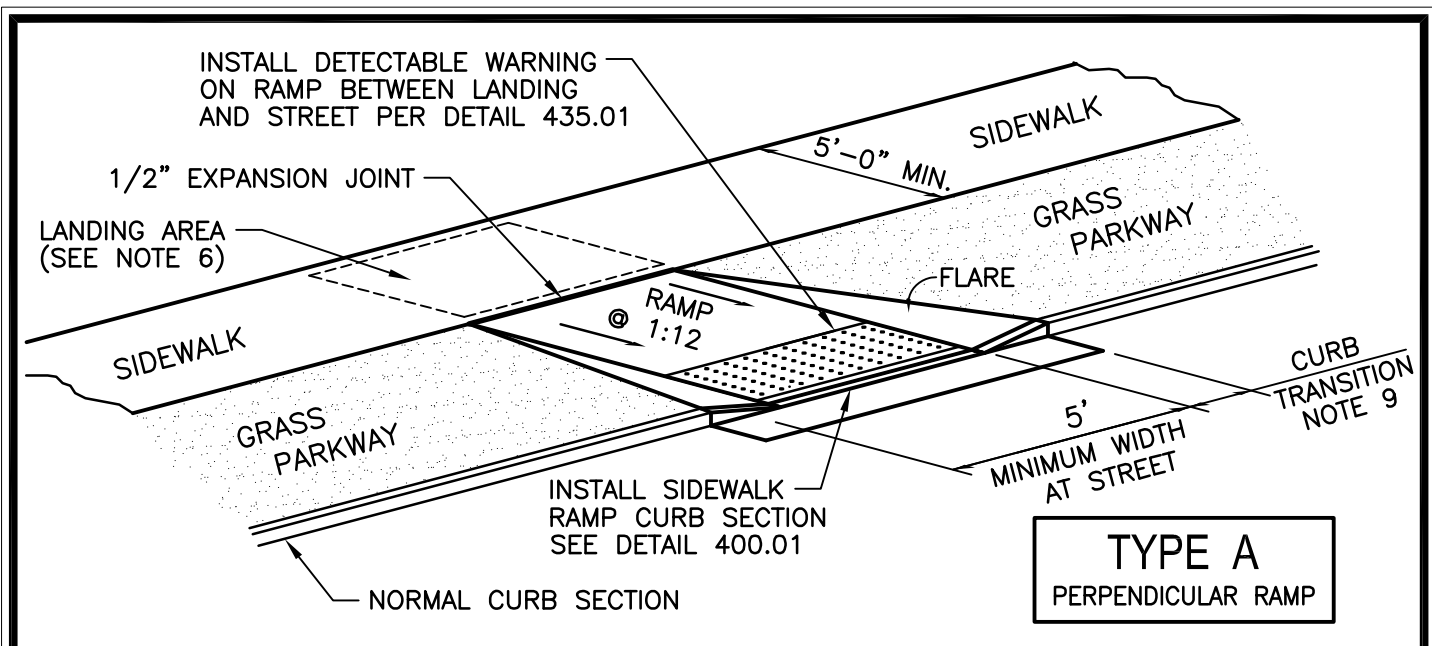
	07/01/20
Approved	Date
Revisions	



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 1.5% ± 0.5% (2.0% MAXIMUM 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.

*[Signature]*  
Approved

07/01/20  
Date

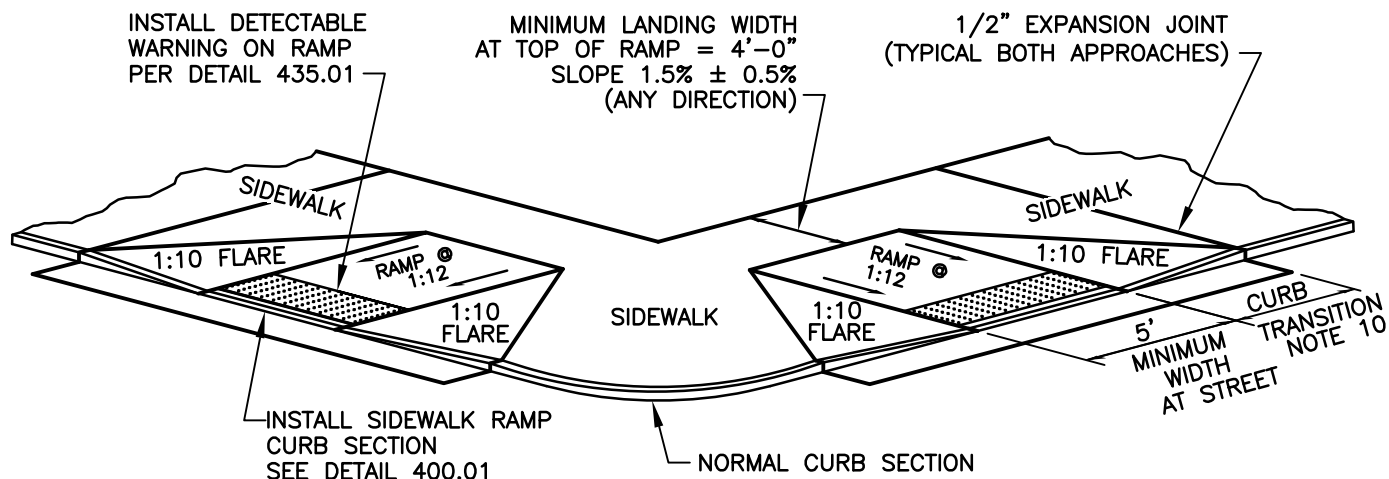
**Revisions**



City of Columbia  
Public Works Department


# MIDBLOCK SIDEWALK RAMP Sidewalk with Grass Parkway

431.01



**NOTE:**

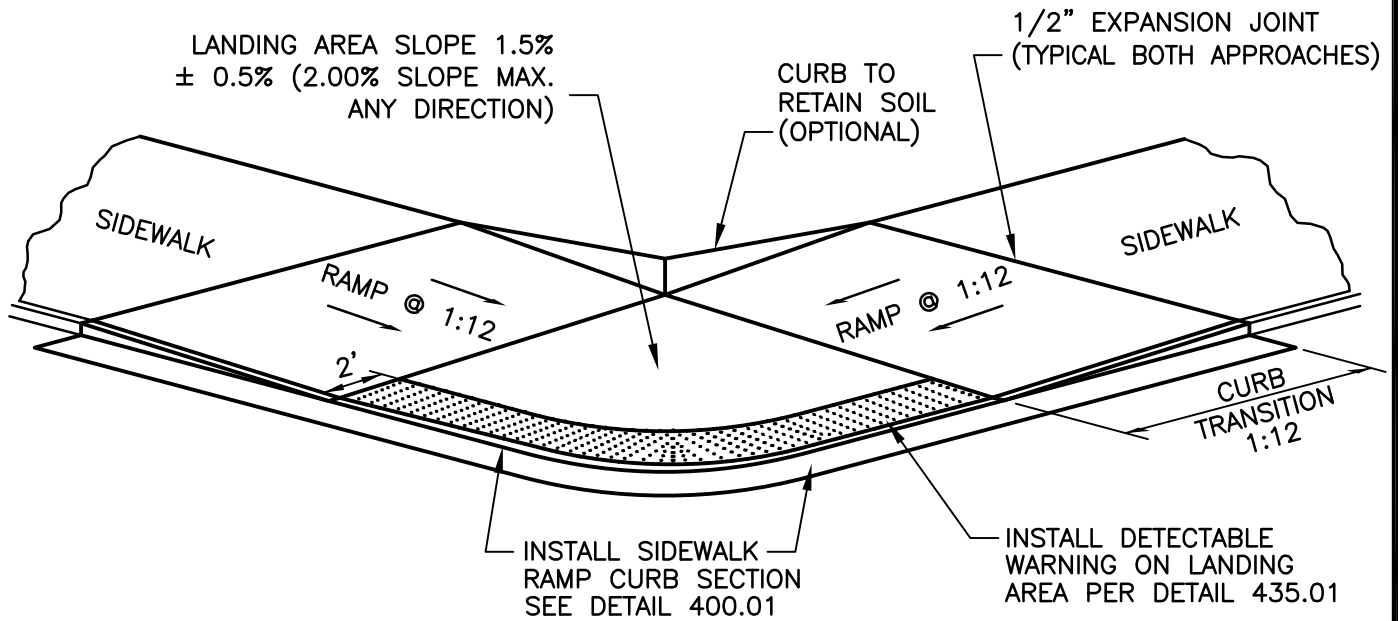
1. RAMP SHALL BE 6" THICK MoDOT PAVEMENT CONCRETE WITH #4 BARS AT 12" O.C. E.W.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. REPLACE STANDARD CURB SECTION WITH SIDEWALK 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.

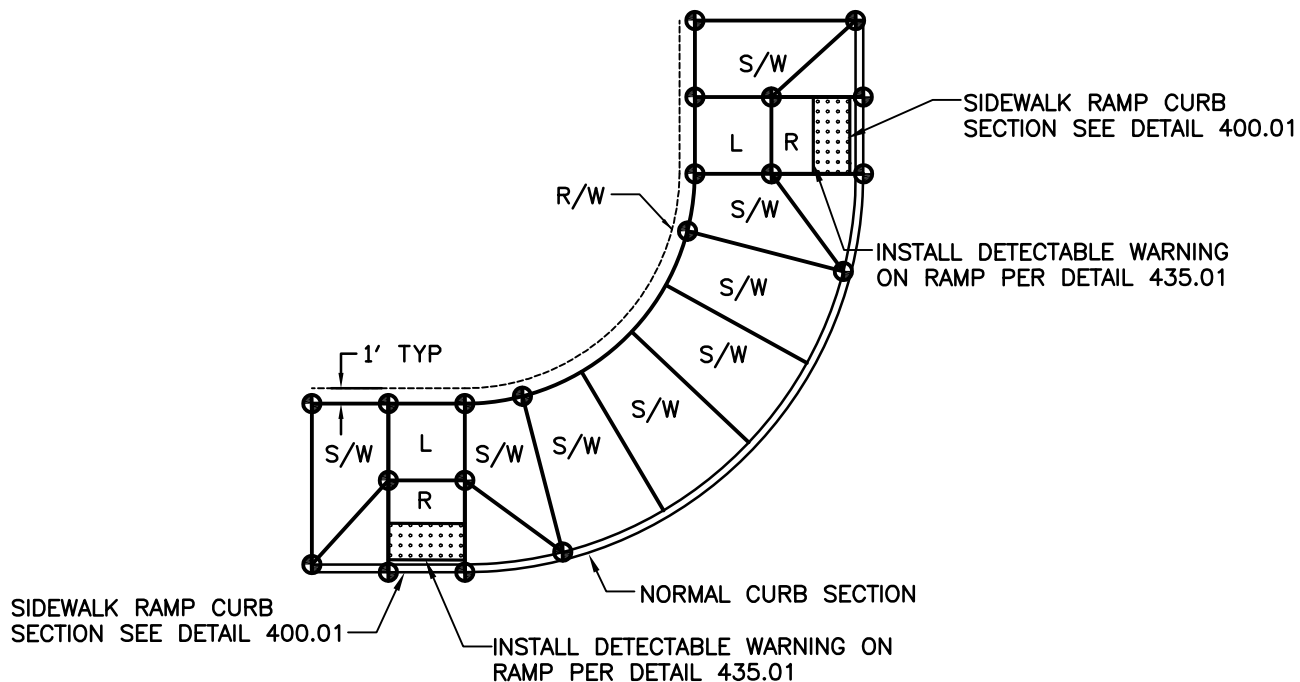
	07/01/20
Approved	Date
Revisions	



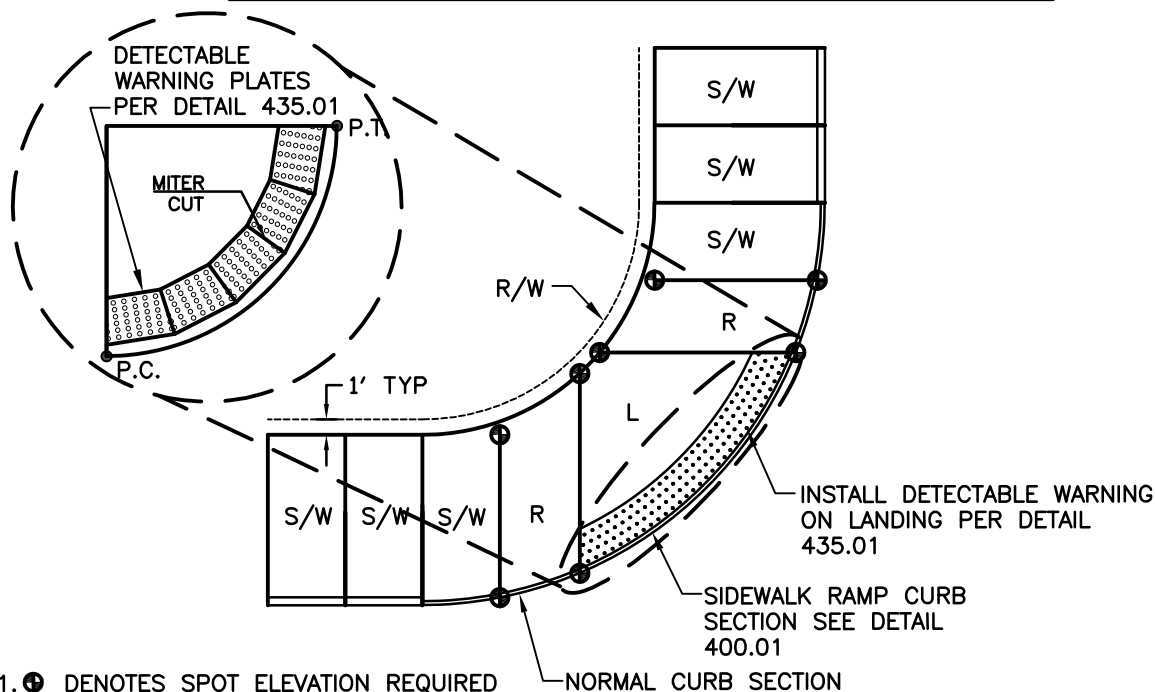
## SIDEWALK RAMP

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

432.02



## TYPE "A" SIDEWALK AT BACK OF CURB




## TYPE "B" SIDEWALK AT BACK OF CURB

R = RAMP RUNNING SLOPE 8.3% (1:12) MAXIMUM

L = LANDING SLOPE 1.5% ± 0.5% (2.0% MAXIMUM ANY DIRECTION)

S/W = SIDEWALK CROSS 1.5% ± 0.5% (2.0% MAXIMUM)

Approved:  07/01/20  
Date

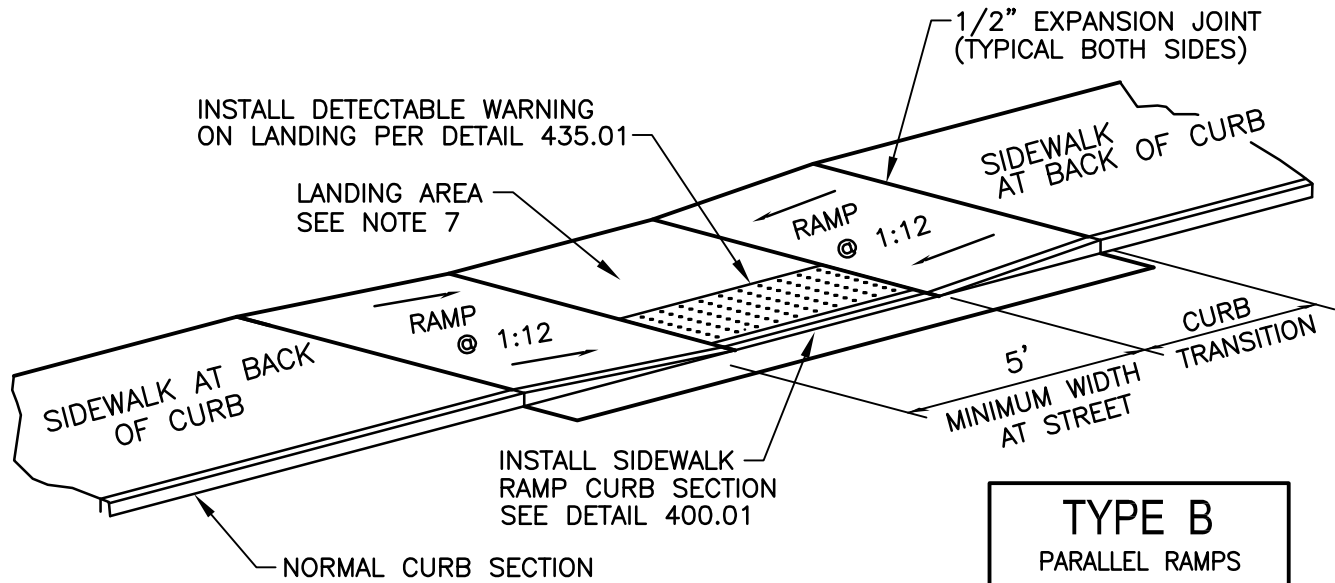
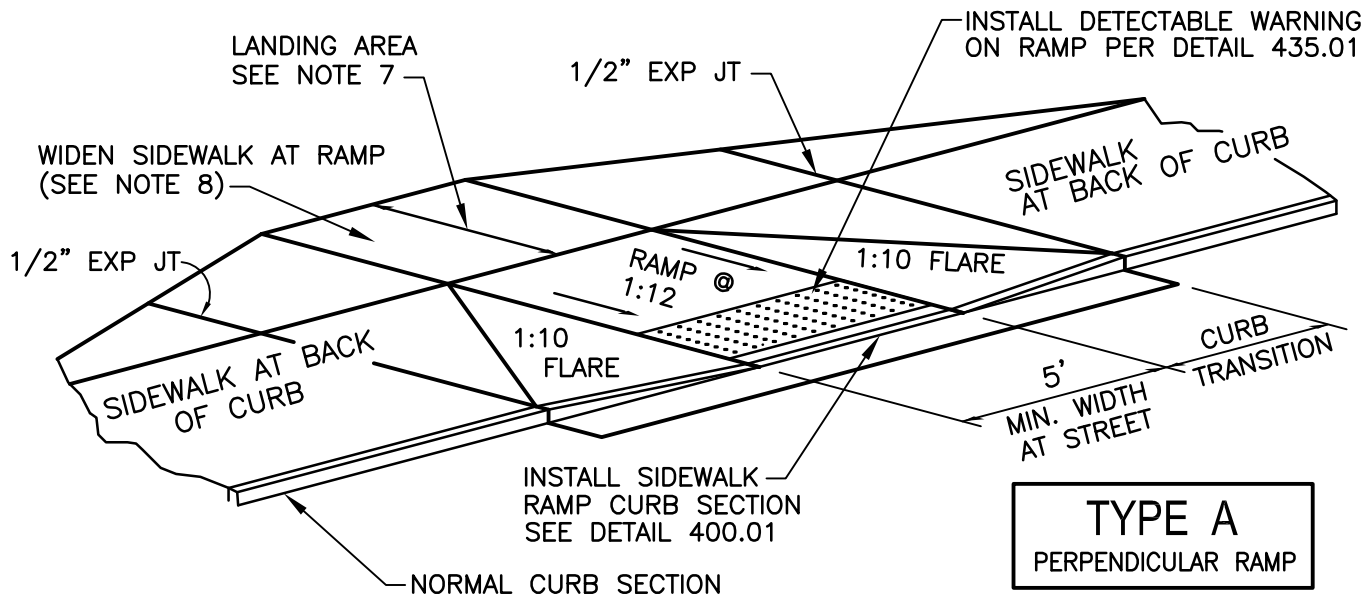
Revisions



City of Columbia  
Public Works Department

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 1.5% ± 0.5% (2.0% MAXIMUM 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.

  
Approved

07/01/20  
Date

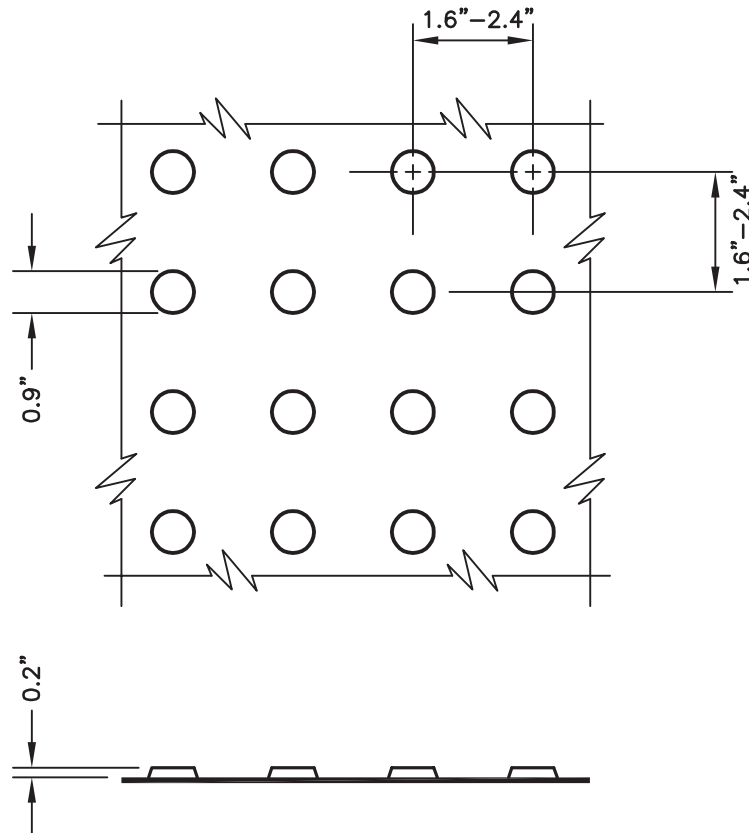
**Revisions**



City of Columbia  
Public Works Department

# 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.

  
Approved

10/01/16  
Date

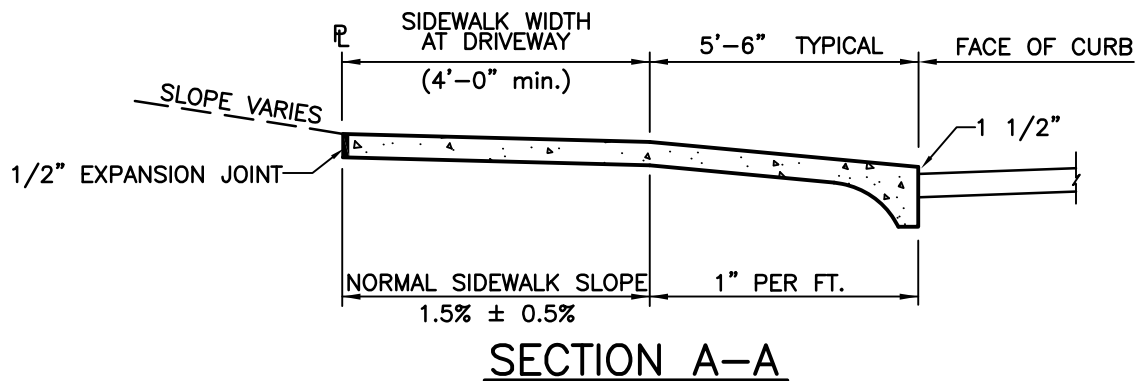
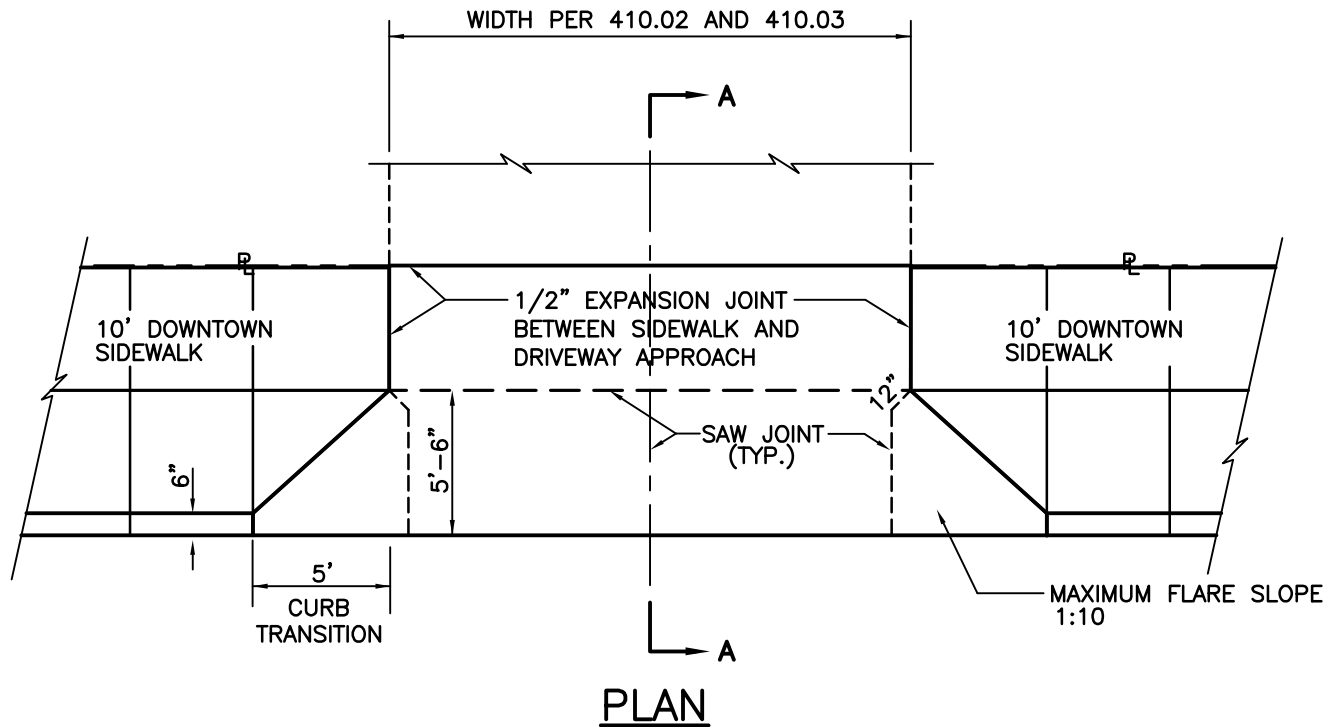
Revisions



City of Columbia  
Public Works Department

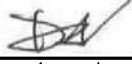
DETECTABLE WARNING

435.01



**NOTES:**

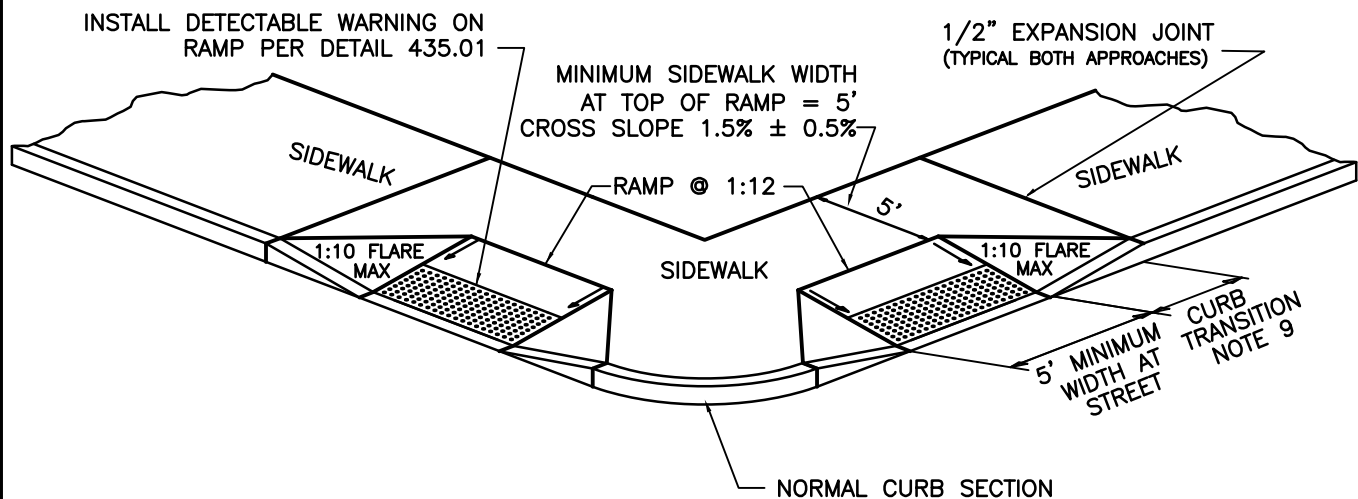
1. DRIVEWAY APPROACH SHALL BE 7" THICK M&D PAVEMENT CONCRETE.
2. SEE JOINT DETAILS - 1000.03.
3. ALL DRIVEWAY APPROACHES SHALL SLOPE TOWARD THE STREET.
4. ALL DRIVEWAY APPROACHES SHALL BE CONSTRUCTED TO ACCOMMODATE SIDEWALKS. (EXISTING AND FUTURE)
5. OMIT 1 1/2" EDGE AT GUTTER IF DRIVE APPROACH ALSO 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	07/01/20 Date
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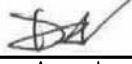
## DRIVEWAY AND ALLEY (Downtown)

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' MIN WIDTH, CROSS SLOPE OF LANDING SHALL NOT EXCEED 2.00%.
7. TYPE "A" RAMP NOT APPLICABLE IF SIDEWALK WIDTH DOES NOT PROVIDE 5' 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

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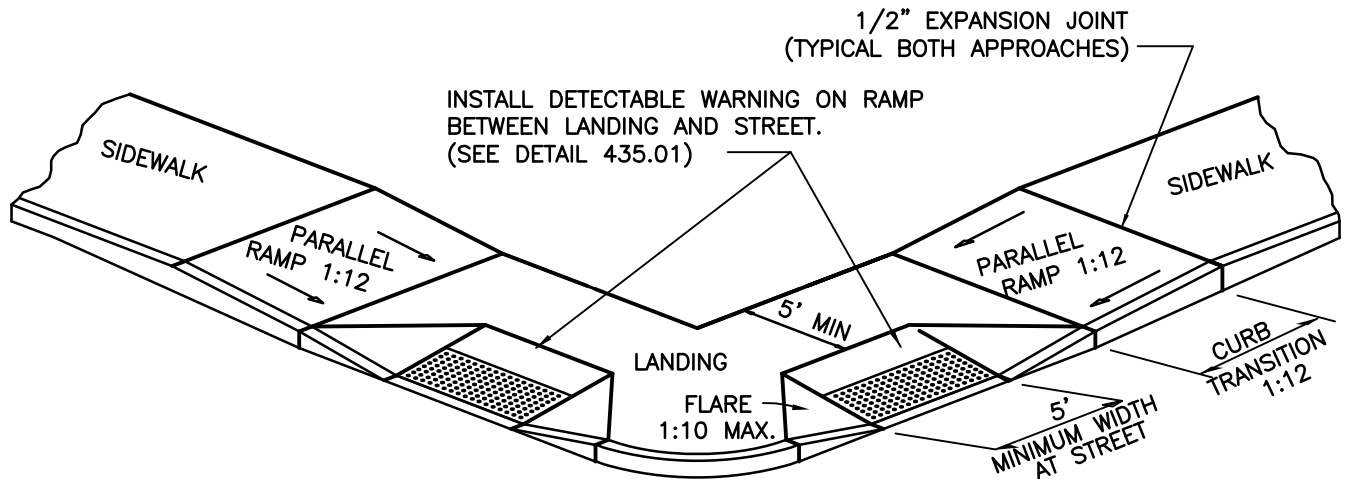


## SIDEWALK RAMP

### 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, LANDING CROSS SLOPE 1.5% ± 0.5% (2.0% MAXIMUM ANY DIRECTION).
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.

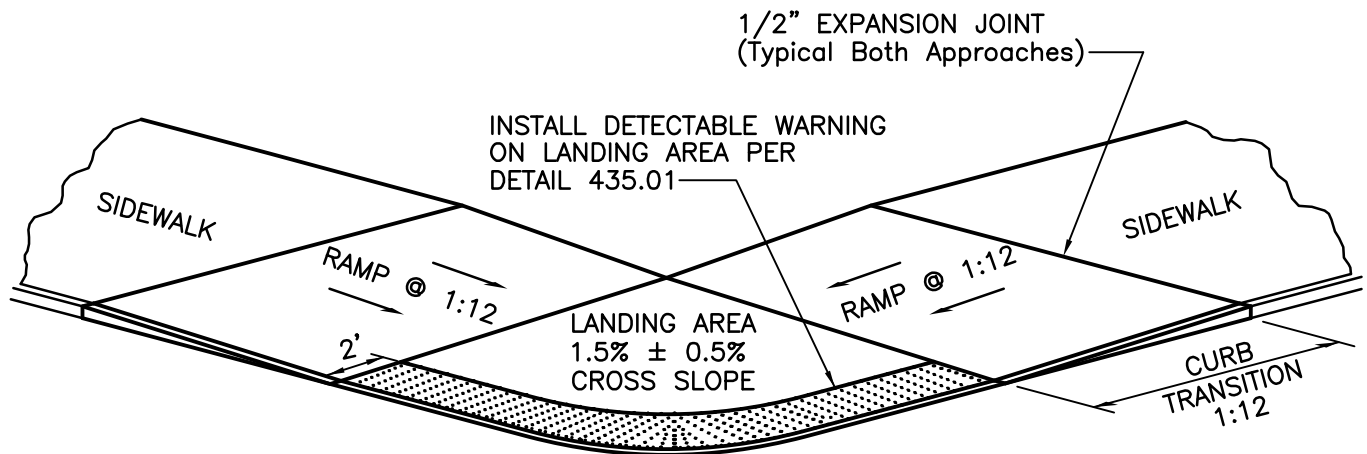
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Revisions	



## SIDEWALK RAMP


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

1000.07



**NOTE:**

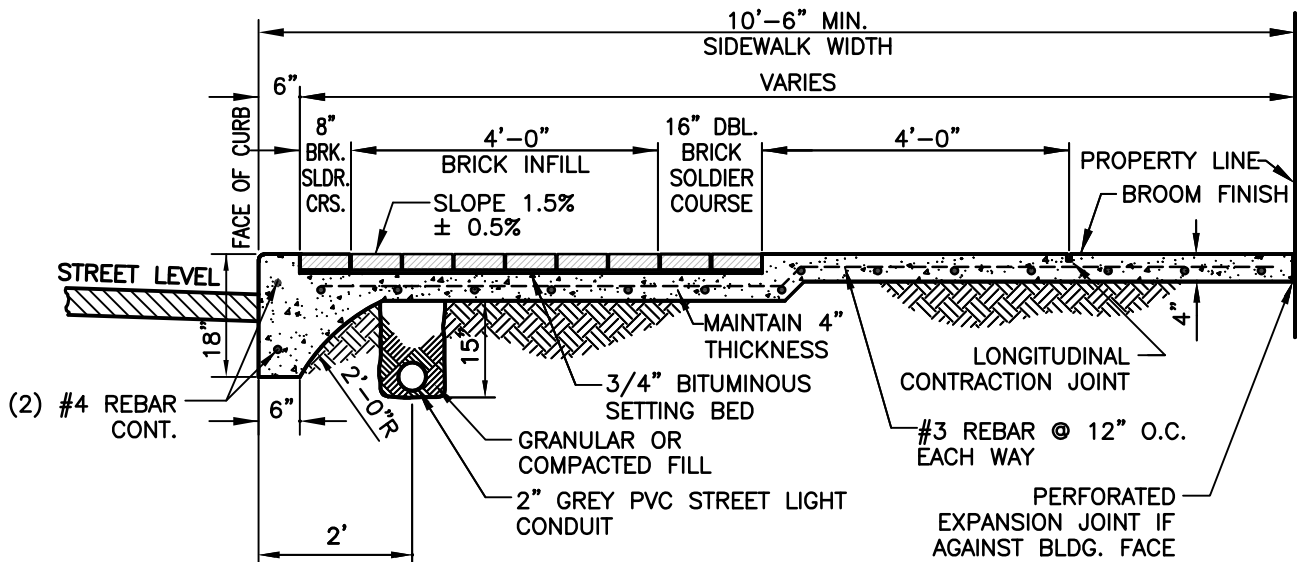
1. RAMP AND LANDING SHALL BE 6" THICK REINFORCED W/#4@12" O.C. MoDOT PAVEMENT CONCRETE.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
5. RAMP LENGTH IS DEPENDENT ON 1:12 MAX. 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.

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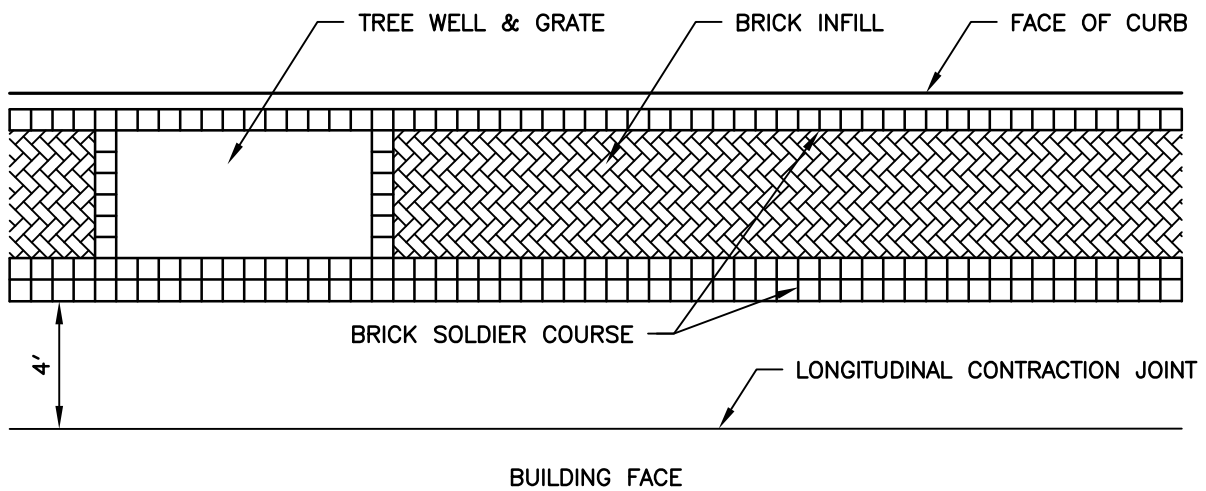


**SIDEWALK RAMP**  
**Sidewalk at Back of Curb**  
**(Type C)**

1000.08




**TYPICAL SECTION**



**PLAN VIEW**

**NOTES:**

1. SIDEWALK CROSS SLOPE 1.5% ± 0.5% (2.0% MAXIMUM).
2. SAW AND PATCH STREET PAVEMENT AS NECESSARY FOR CONSTRUCTION OF NEW CURB.
3. SEE JOINT DETAILS - 1000.03.
4. SEE SPECIFICATIONS - 1000.01
5. NO STEEL TO BE PLACED THROUGH EXPANSION JOINT
6. FOR SIDEWALK SECTIONS LESS THAN 10'-6" A MODIFIED DETAIL WILL BE REQUIRED.

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**DOWNTOWN SIDEWALK -  
ALONG 8th STREET & BROADWAY**

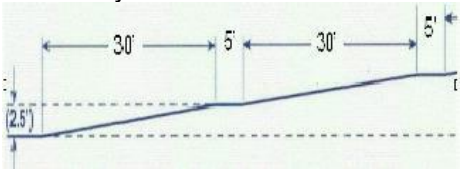
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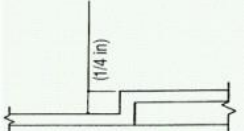
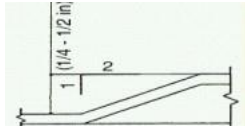

# ADA CHECKLIST

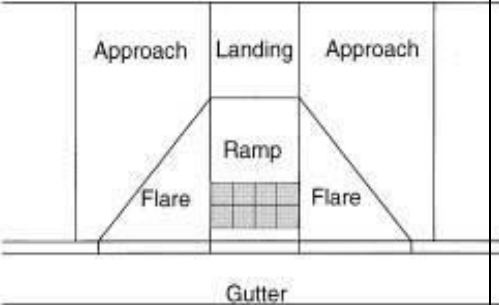
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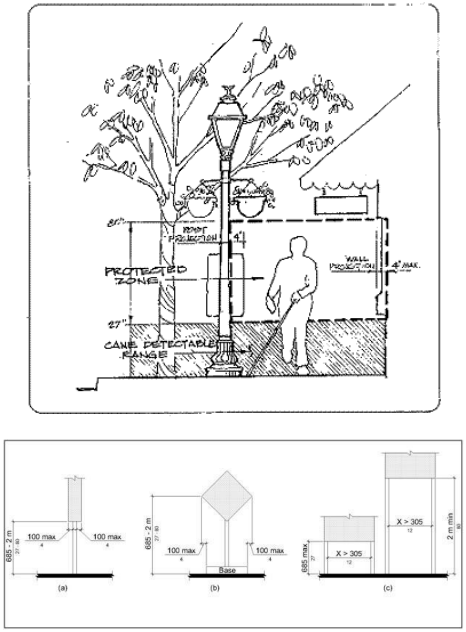
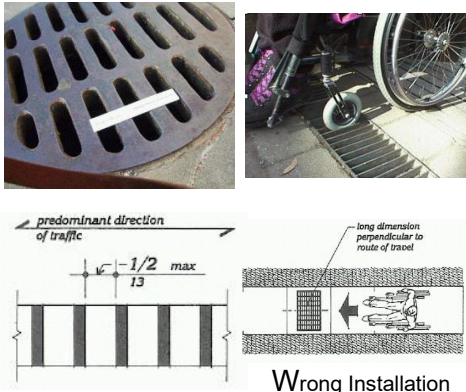
Job No. \_\_\_\_\_ Route \_\_\_\_\_ County \_\_\_\_\_ Location \_\_\_\_\_

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> <li><b><u>Roadway Grade Exception:</u></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.</li> <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 2.1 percent 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>			


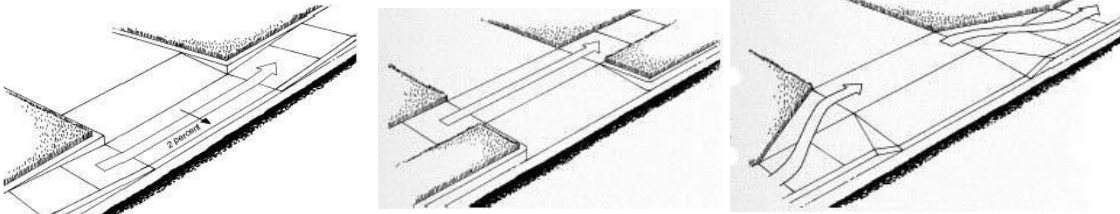
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
<p>Vertical Alignment</p>	<ul style="list-style-type: none"> <li>Vertical alignment shall be planar within curb ramp runs, blended transitions, landings, and gutter areas within the pedestrian access route, and within clear spaces required for accessible 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>			
<p>Changes in Level</p>   	<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 pedestrian access route. It shows a central 'Landing' area flanked by 'Approach' areas. A 'Ramp' is shown within the landing area, with 'Flare' areas on either side. Below the landing area is a 'Gutter'.</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><u>Roadway Grade Exception:</u></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>			

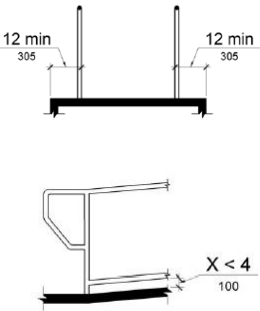
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
	<ul style="list-style-type: none"> <li>Protruding objects on sidewalks and other pedestrian circulation paths shall not reduce the clear width required for pedestrian accessible routes.</li> <li>Objects with leading edges more than 27 inches and not 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)

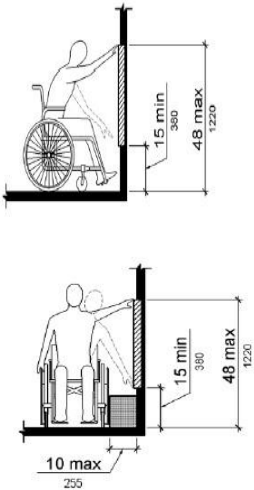
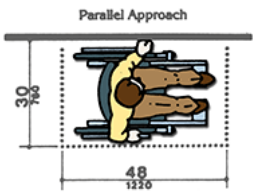
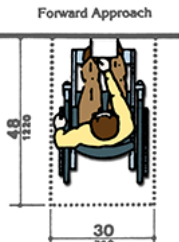
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
	<ul style="list-style-type: none"> <li>Edge protection shall be provided on each side of ramp runs and at each side of ramp landings.</li> <li>A curb or barrier shall be provided that prevents the passage of a 4 inch diameter sphere, where any portion 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>			

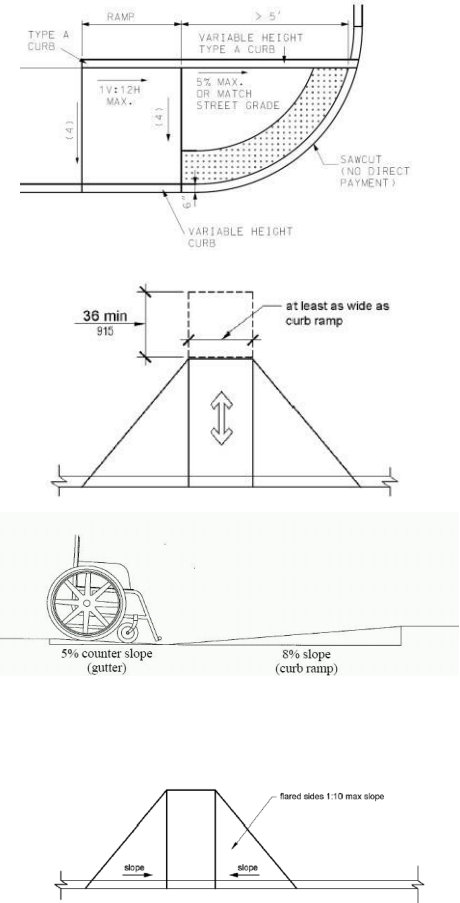
## STAIRWAYS (PROWAG R407)

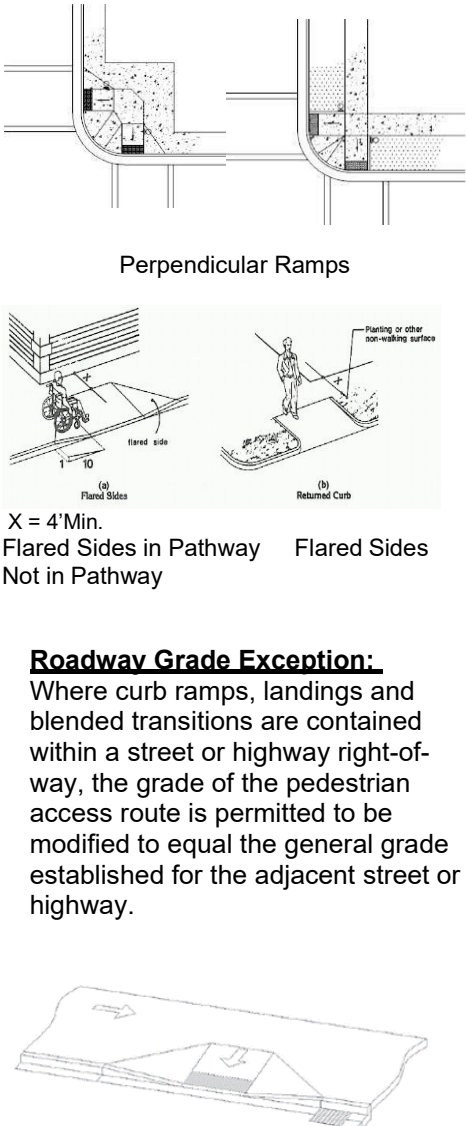
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
	<ul style="list-style-type: none"> <li>All steps on a flight of stairs shall have uniform riser heights and uniform tread depths. Risers shall be 4 inches high minimum and 7 inches high maximum. Treads shall be 11 inches deep minimum.</li> <li>Open 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>			

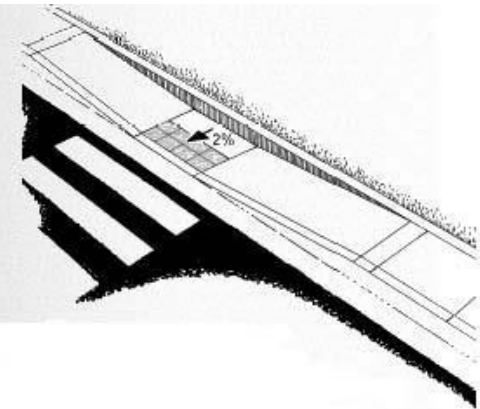
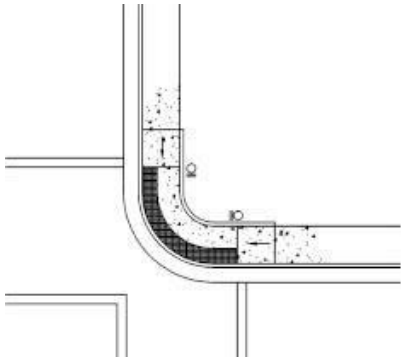
## UNOBSTRUCTED REACH RANGES (PROWAG R406)

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><b>EXCEPTION:</b> 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>			


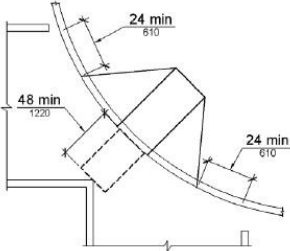
# CURB RAMPS (PROWAG R303)

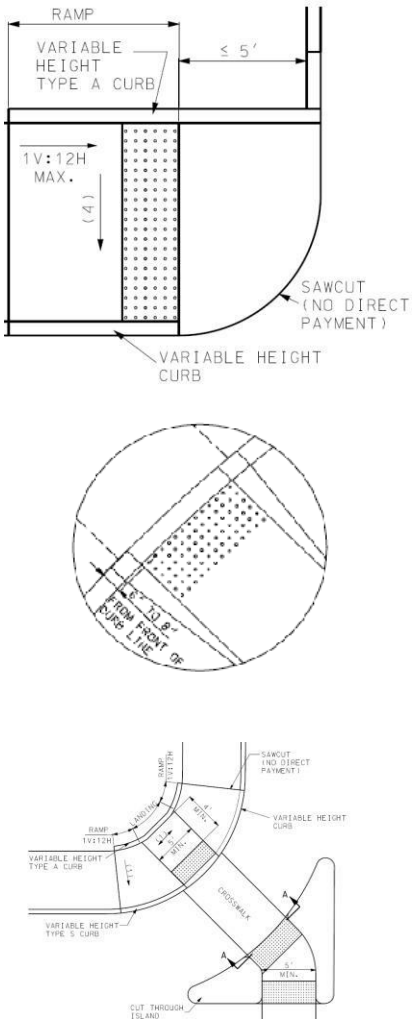
Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
<p>A curb ramp, blended transition, or a combination of curb ramps and blended transitions shall connect the pedestrian access routes at each pedestrian street crossing.</p>  <p><b>15 Foot Rule:</b> For a compliant curb ramp to exceed 8.33 percent 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 curbline, 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>Perpendicular Ramps</p> <p>(a) Flared Sides X = 4' Min. Flared Sides in Pathway    Flared Sides Not in Pathway</p> <p>(b) Returned Curb Planting or other non-walking surface</p> <p><b>Roadway Grade Exception:</b> 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><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 curbline, 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>			

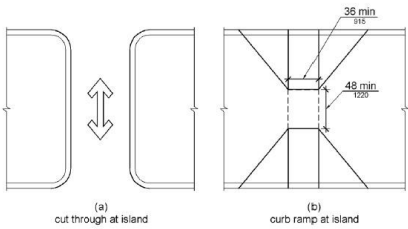

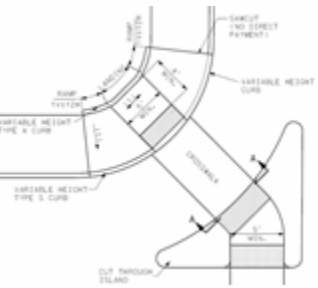


Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
 	<ul style="list-style-type: none"> <li>• <b>Diagonal Curb Ramps or corner type curb ramps are no longer preferred design types. A design that provides individual ramps for each crossing direction is recommended by the US Access Board.</b></li> <li>• 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><u>Roadway Grade Exception:</u></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>  <p>The diagrams illustrate the application of truncated dome detectable warnings. The top diagram shows a ramp with a variable height curb (Type A) and a sawcut (no direct payment) with a slope of 1V:12H MAX. and a width of 5'. The middle diagram is a circular detail showing a curb with a 1V:12H slope and a width of 5'. The bottom diagram shows a cut-through island with variable height curbs (Type A and Type S) and a sawcut (no direct payment) with a slope of 1V:12H MAX. and a width of 5'.</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>			



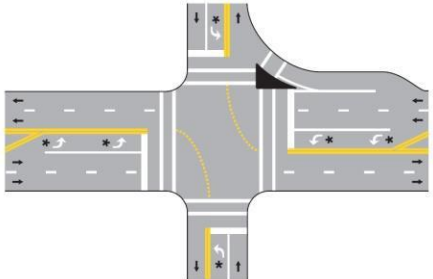

# ISLANDS AND MEDIANS (PROWAG R305.4)

Figures/Examples	Requirements <sup>1</sup>	YES	NO	NA
 <p>(a) cut through at island</p> <p>(b) curb ramp at island</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 and EPG 902.6.1 – EPG 902.6.15)

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 at new signalized intersections and shall be considered at existing intersections being altered or are needing maintenance applications. Where a pedestrian pushbutton is provided, it shall be integrated into the accessible pedestrian signal.</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 EPG 642.</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 and EPG 902.6.1 through 902.6.15. <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 3.5 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.</li> <li>Pushbuttons are located at a height of approximately 42 inches, but no higher than 48 inches from the ground and within 10 inch reach from a level paved clear floor or ground space 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>			

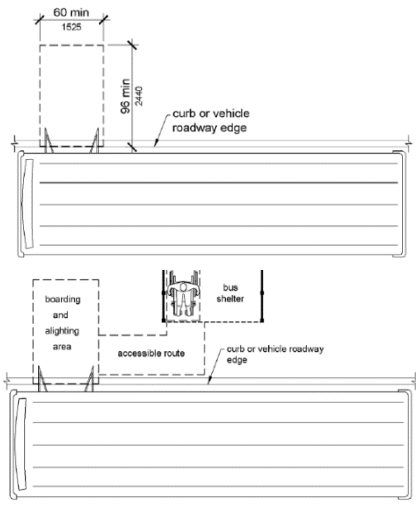
## PEDESTRIAN STREET CROSSINGS (PROWAG R305 and EPG 642)

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>• Accessible pedestrian signals and pedestrian pushbuttons provided at pedestrian crossings with pedestrian signals (See EPG 642 for applicability) shall comply with EPG 902.6.8 through 902.6.15. Operable parts shall comply with EPG 902.6.9 – 902.6.15.</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>			

<sup>1</sup> Any “NO” answer means that location is ADA non-compliant and needs to be corrected before final acceptance of the work, except as follows. Although exceptions listed in the above requirements may not meet MoDOT current policy standards, work that does meet the minimum ADA standards will be accepted as ADA compliant. Where it is technically infeasible to correct deficiencies as part of the current work, those locations will be labeled as non-compliant and marked “NO”. These items will be added to the Transition Plan Inventory for correction at a later date. (Guidance is provided in ADA documents and in the EPG on what may be considered as technically infeasible.)

<sup>2</sup> A MoDOT requirement.

**Unless otherwise noted, all notes on this form are direct ADA requirements as published in either the PROWAG dated November 23, 2005 or ADA/ABA Standards from 2010.**

All exceptions and technically infeasible locations should be discussed with the project manager and/or area engineer prior to acceptance of the work. All exceptions and technically infeasible locations will need to be thoroughly documented by the engineer, and that documentation will be attached to this form and retained as part of the final acceptance records.

All slope and grade measurements for ADA compliance will be made using a calibrated 2 foot long digital level.

#### **US Access Board PROWAG**

**R202.3.1 Prohibited Reduction in Required Access.** An alteration shall not decrease or have the effect of decreasing the accessibility of a facility or an accessible connection to an adjacent building or site below the requirements for new construction in effect at the time of the alteration.

<b>Inspector Name:</b> _____ <b>Inspector Signature:</b> _____	<b>Date:</b>
<b>Contractor Representative Name:</b> _____ <b>Contractor Representative Signature:</b> _____	<b>Date:</b>
<b>Resident Engineer or Area Engineer Name:</b> _____ <b>Resident Engineer or Area Engineer Signature:</b> _____	<b>Date:</b>
<b>Distribution:</b> <input type="checkbox"/> <b>Project Office</b> <input type="checkbox"/> <b>District Permit Office</b>	

# ***SAMPLE***

## **ADA EXCEPTIONS DOCUMENTATION**

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

<b><u>Item</u></b>	<b><u>Location</u></b>	<b><u>Standard</u></b>	<b><u>As Built</u></b>	<b><u>Discussion</u></b>
Sidewalk Width	Third Street Sta 3+00 to 7+00 RT	5' wide	Exist 3' wide	Required 5' x 5' Passing Space added at 5+00
Curb Ramp Grade	SE Quad of Main & First	8.33%	11.2%	As-built Curb Ramp is 16.0' long
Parallel Ramp Landing running grade (turning space)	Sta 35+20 to 35+25 Rt Rte 14	2.00%	2.6%	Landing running grade matches existing roadway grade
Sidewalk Grade	Sta 23+45 to 23+52	5.0%	8.4%	Match existing floor at two exist doorways, Straight grade between fixed elevations

<b>Inspector Name:</b> _____	
<b>Inspector Signature:</b> _____	<b>Date:</b>
<b>Resident Engineer or Area Engineer Name:</b> _____	
<b>Resident Engineer or Area Engineer Signature:</b>	<b>Date:</b>
<b>Distribution:</b> <input type="checkbox"/> Project Office <input type="checkbox"/> District Permit Office	



**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

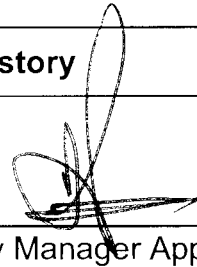
701 East Broadway, Columbia, Missouri 65201



<b>Legislative History</b>
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NA

  
\_\_\_\_\_  
Department Approved

  
\_\_\_\_\_  
City Manager Approved



## 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.

Introduced by Hindman

First Reading	<u>4-5-04</u>	Second Reading	<u>4-19-04</u>
Third Reading	<u>5-3-04</u>	Fourth Reading	<u>6-7-04</u>
Ordinance No.	<u>018097</u>	Council Bill No.	<u>B 92-04 A</u>

## AN ORDINANCE

amending Chapter 25 of the City Code relating to subdivisions; adopting design standards for streets, sidewalks and bikeways; 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. Chapter 25 of the Code of Ordinances of the City of Columbia, Missouri, is hereby amended as follows:

Material to be deleted in ~~strikeout~~; material to be added underlined.

Sec. 25-3. Definitions; rules of construction.

For the purposes of this chapter, the following words, phrases, terms and their derivations shall have the meaning given herein and if not defined herein, shall have the definition as set forth in the zoning ordinance of the city.

. . . .

*Owner.* Any person or other entity having legal title to or a sufficient proprietary interest to legally effectuate transfer of the property sought to be subdivided. Proprietary interest shall include but not be limited to estate administration, trusteeship, guardianship, and actions under a valid power of attorney. Proprietary interest shall not include an agency or a bare employment relation.

*Pedway.* A path that is physically separated from the roadway and intended for shared use by pedestrians, joggers, skaters and bicyclists.

. . . .

*Private drive.* A nondedicated entrance to a lot, or an interior circulation driveway within a lot, not itself a public right-of-way.



Private Street. A thoroughfare designed to provide vehicular access to two or more lots or parcels which is not dedicated for public use.

. . .

Sec. 25-35. Conformance with applicable laws, rules and regulations.

The subdivider shall adhere to design standards as established in these regulations. In addition, all subdivisions shall comply with the following laws, rules and regulations:

. . .

- (4) *City of Columbia regulations.* The standards and regulations promulgated by the city including street and storm sewer specifications and design standards; the sanitary sewer specifications, the specification for water main construction, extensions and alterations; design standards for streets, sidewalks and bikeways; and specifications for all other public improvements and utilities which are hereafter promulgated by the city. The director of public works and the director of the water and light department are hereby authorized to promulgate and establish design standards and specifications for the construction of public improvements and utilities in subdivisions in the city, which shall ensure a high quality construction of such public improvements and utilities such that these public improvements and utilities will serve the public need and be suitable for acceptance and maintenance by the city. The design standards and specifications shall be in substantial conformance with design standards and specifications for construction of similar public improvements and utilities by the city. All promulgated design standards and specifications shall be on file in the office of the city clerk.

. . .

Sec. 25-42. Street improvements generally.

Streets and curbs and gutters shall be improved to comply with the standards contained herein, and in the city street and storm sewer specifications and design standards, and all design standards and specifications now or hereafter promulgated by the director of public works or adopted by the council, in accordance with the final construction plans required to be approved prior to final plat approval.

. . . .

(2) *Arrangement.* All streets shall be located properly with respect to extending existing and platted streets, to traffic generators, to population densities, and to the pattern of existing and proposed land uses.

- a. Local streets shall be designed to provide convenient and safe access to all properties and to permit efficient drainage and utility systems. The use of through streets shall be encouraged to connect adjoining areas and to facilitate the delivery of public and emergency services; however, straight streets more than eight hundred (800) feet long shall be avoided to discourage speeding. Individual local residential street segments should serve no more than fifty (50) dwelling units without additional street connections. Local streets with connections to arterial and collector streets shall be designed to avoid cut-through traffic. Curvilinear streets are encouraged to minimize speeding and the amount of grading. Cul-de-sacs and loop (U-shaped) streets should be short in length, less prevalent than through streets, and may be especially appropriate to avoid steep slopes, major creeks, floodplains, wetlands and other sensitive environmental areas. A street connectivity index (consisting of the number of intersections divided by the combined number of intersections and cul-de-sacs) shall be calculated for proposed new subdivisions.

. . . .

Sec. 25-43. Street widths.

The right-of-way width required to be dedicated and the pavement width required to be constructed for streets, according to street classification, shall be:

<i>Type of Street</i>	<i>Minimum Feet Right-of-Way</i>	<i>Pavement Width (back to back of curb)</i>	
		<i>Maximum (Feet)</i>	<i>Minimum (Feet)</i>
Freeway	Variable	96*	48*
Expressway	Variable	72*	48*
Arterial, <del>urban</del> <u>major**</u>	<del>80-106</del> <u>110</u>	68	<del>49</del> <u>60</u>
Arterial, <del>rural</del> <u>minor**</u>	<del>80-106</del> <u>84-100</u>	<del>68</del> <u>52</u>	<del>24*</del> <u>40</u>
Collectors, <u>major**</u>	<u>66-76</u>	<u>44</u>	<u>38</u> <u>32</u>

<u>Collectors, neighborhood**</u>	<u>60</u>	<u>34</u>	<u>30</u>
Local, nonresidential, central traffic zone	<del>70</del> <u>66</u>		44
Local, nonresidential, all other**	<u>60-66</u>	<u>38</u>	38 <u>30</u>
Local, residential**	<u>40-50</u>	<u>32</u>	<u>20-32</u>
Cul-de-sacs, residential (stem portion)**	<u>44-50</u>	<u>32</u>	<u>24-28</u>
<u>Alleys</u>	<u>18</u>		<u>16</u>
Estate lanes	50		28
Frontage roads	30		20

\*In addition to road pavement, two (2) paved, ten-foot shoulders are required.

\*\*See Appendix A - "Design Standards for Streets, Sidewalks and Bikeways," which is filed in the office of planning and development and in the office of the city clerk, for additional standards and criteria for the application of these requirements.

- (1) Proposed subdivisions that include existing street rights-of-way narrower than required herein shall provide for dedication of appropriate additional width along one (1) or both sides of the street. Proposed subdivisions abutting only one (1) side of such streets shall provide for dedication of additional width to constitute one-half of the right-of-way required.
- ~~(2) In commercial areas where heavy vehicular traffic will be produced, the commission may require dedication of additional street right-of-way width and construction of additional pavement to serve as access to the intended commercial area and to ensure the free flow of through traffic on the street involved. This requirement shall be at the expense of the subdivider and shall be so indicated on the preliminary plat prior to its endorsement by the commission.~~
- (32) In low density, single-family residential subdivisions, the width of local residential streets may be reduced from thirty-two (32) feet to twenty-eight (28) feet (estate lanes) if the subdivision complies with all of the following criteria:

. . . .

Sec. 25-47. Terminal streets.

(a) Permanent terminal streets shall not be longer than seven hundred fifty (750) feet, measured from the center of any cul-de-sac to the right-of-way line of the nearest through street from which it derives.

(b) Terminal streets shall also have a turnaround at the closed end with an outside roadway diameter of at least seventy-six (76) feet and right-of-way diameter of at least ninety-four (94) feet.

(c) Residential alleys shall ~~not be permitted in single-family~~ all residential areas.

(d) Nonresidential alleys shall be provided in commercial and industrial districts when off-street loading and parking are not otherwise provided.

(1) The right-of-way width of an alley shall be twenty (20) feet and the pavement width shall be sixteen (16) feet.

(2) When alleys intersect, the intersection right-of-way lines shall be rounded by a curve with a radius of five (5) feet in length.

. . . .

Sec. 25-48.1. Sidewalks generally (plats approved after January 1, 2001).

(a) Sidewalks shall be constructed within all pedestrian easements and on both sides of all internal streets and on the abutting side of any adjacent street unless otherwise specified in this chapter. ~~Sidewalks shall be a minimum of five (5) feet in width or they may be four (4) feet in width when located along a local residential street that does not adjoin an existing or proposed park, school, church or other high pedestrian traffic generating use.~~ A sidewalk shall not be required along a residential access street which is less than two hundred-fifty (250) feet in length and terminates in a cul-de-sac. Sidewalks shall be a minimum of five (5) feet in width along all other streets.

. . . .

Sec. 25-52. ~~Reserved~~ Bike lanes and pedways.

Bicycle lanes and pedways shall be designed and constructed in accordance with Appendix A - "Design Standards for Streets, Sidewalks and Bikeways" and all applicable design standards and specifications now or hereafter promulgated by the director of public works or adopted by the council.



. . . .

#### Sec. 25-55. Drainage and storm sewers.

(a) *Flood-prone areas.* Any portion of land being subdivided which is located within the limits of maximum flooding of the 100-year flood, as determined by December 1, 1981, flood insurance rate maps and amendments thereto on file with the director of public works, shall be developed so as not to endanger the health, safety and general welfare of the inhabitants thereof, and in compliance with the provisions of the zoning ordinance related thereto.

(b) *Storm sewers.* Storm sewers with curbs and gutters shall be provided for lots; however, open channels may be allowed where deemed appropriate and when design features, such as vegetated swales and check dams, are used to reduce runoff velocity and allow infiltration. Sidewalks and pedways shall not be located between the street and open channel. Improvements ~~and~~ shall conform to standards contained in the city street and storm sewer specifications and design standards, and the city storm drainage standards, and all applicable design standards and specifications now or hereafter promulgated by the director of public works or adopted by the council.

(c) *Driveways across drainage features.* Driveways that cross drainageways or ditches to connect to public streets shall be constructed in a manner and method approved by the director of public works consistent with the public health, safety and welfare.

(d) *Streets crossing streams.* Streets that cross streams shall be designed and constructed in a manner that minimizes the disruption to the stream channel and buffer zone. Streams should be crossed only when necessary to connect the street network.

#### Sec. 25-56. Utilities.

Utilities, including but not limited to water, sewer, natural gas, electric and telephone lines, and fire hydrants, shall be provided to lots in accordance with standards and specifications governing the construction and installation of such utilities which have been or are hereafter adopted by the council or promulgated by the city departments or utility companies responsible therefor. Easements for public and private utilities shall be provided adjacent to all street right-of-way and in other locations in accordance with facility requirements and design standards. To the maximum extent feasible, utilities shall be located in designated easements and not in street right-of-way.

. . .


SECTION 2. The City Council hereby adopts "Appendix A, Design Standards for Streets, Sidewalks and Bikeways" a copy of which is attached to and made a part of this ordinance. A copy of Appendix A shall be on file in the office of planning and development and in the office of the city clerk.

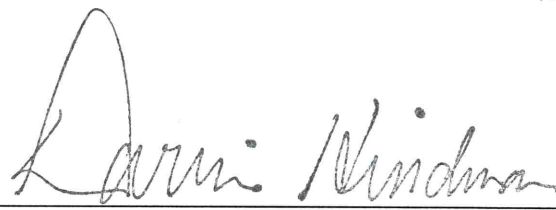
SECTION 3. Preliminary plats filed with the department of planning and development within two months following passage of this ordinance may follow either the street standards adopted by this ordinance or the street standards in effect immediately before passage of this ordinance.

SECTION 4. This ordinance shall be in full force and effect from and after its passage.

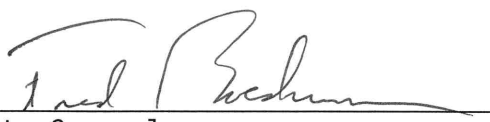
PASSED this 7th day of June, 2004.

ATTEST:

  
\_\_\_\_\_  
City Clerk

  
\_\_\_\_\_  
Mayor and Presiding Officer

APPROVED AS TO FORM:

  
\_\_\_\_\_  
City Counselor

## **APPENDIX A**

### **Design Standards for Streets, Sidewalks and Bikeways – 6/07/04**

#### **Purpose and Intent**

The 2025 Transportation Plan established a functional classification system consisting of Major Arterials, Minor Arterials, Major Collectors and Neighborhood Collectors. In developing new design standards, it was determined that local residential and local non-residential streets should also be included. This provides for an integrated street system.

A roadway system must balance the conflicting goals of traffic movement and access to land. Arterials are primarily for the movement of through traffic; collectors provide equal attention to land access and through traffic; and local streets provide access to individual parcels of land at the expense of through traffic. Selecting the proper roadway design for each functional classification is vital to development of a system of roadways which provides the needed connectivity between all areas of the city as well as the capacity to handle future traffic volume.

Design elements encompassing right of way width, pavement width, number of travel lanes, bike lane width, use of curb and gutter, sidewalk and pedway width, parking, driveways, buffer strip width, and utility easements must be appropriately selected to provide the function, character, traffic volume and speed desired.

Major streets serve a development pattern that ranges from low density residential to intensely developed commercial centers and corridors. To meet such varied conditions and address neighborhood livability factors requires an array of design approaches. A “one standard fits all” is not consistent with traffic needs or the wide variety of situations encountered.

In several of the street types, an alternative design will be considered or may be required when conditions specified in the standards are found to exist. This language was drafted specifically to allow a design appropriate for the land use and traffic conditions being created by a proposed development. The alternative design may be requested by the developer or recommended by city staff or the Planning and Zoning Commission. Criteria are included to provide guidance in selecting the proper street design to match the expected conditions. If the alternative design exceeds the standard design for a particular street type, it shall be presumed to satisfy these requirements. In all other cases, the final decision shall rest with the City Council.

#### **Application of Design Standards**

The design standards are intended to result in a more predictable and acceptable outcome for street improvements. Due to the wide range of circumstances, however, the standards need to be applied with a certain amount of flexibility. Street construction activity consists of building completely new streets as well as making minor improvements to existing streets. Many existing streets will not be changed at all in the next several years while others will be candidates for additional lanes, intersection reconfiguration, or major reconstruction. Unlike new streets, existing streets have physical constraints to being retrofitted to meet new standards due to a narrow right of way or the proximity of buildings, utilities or mature trees. Additionally, adjacent property owners often voice concern about more traffic, speeding, noise, storm water runoff, and other issues.



To deal with the application issue, two categories of improvements have been developed. Major projects consist of significant improvements to the street system and the design standards are to be interpreted as requirements. In situations where it is not feasible, practical or desirable for a proposed street improvement to meet the required standards, a design exception may be considered and approved by the City Council as part of the public hearing process. Major projects include:

- Construction of a new street
- Major reconstruction of an existing street (e.g. upgrade to city standards)
- Major widening of an existing street (e.g. addition of one or more lanes)

For minor improvements the design standards are regarded as a guideline rather than an absolute requirement. In such cases, if the standards are not attainable a design exception will not be required. Minor projects include:

- Resurfacing or partial reconstruction of the pavement
- Installation of traffic calming devices
- Intersection improvements (e.g. traffic signals, turn lanes, etc.)
- Reconstruction resulting in incidental widening
- Installing bike lanes or sidewalks on existing streets

Major projects typically entail significant citizen input in evaluating location and design alternatives. Meetings are held with interested parties such as property owners and residents followed by public hearings by the City Council. Citizen input on Minor projects varies. Resurfacing usually involves public notice but little citizen involvement whereas traffic calming measures can entail extensive citizen participation in the location and design process.

In regards to private development, the proposed standards would normally only apply to undeveloped land that is being platted for the first time. The standards could, however, apply to a previously developed area under two circumstances: 1) the area is being replatted to create a different street and lot layout for redevelopment and the construction of new buildings; and 2) the area is being rezoned to allow more intensive development (e.g. changing from residential to commercial and thus from residential to non-residential streets).

### **Local Residential Street Design Standards**

**Residential Streets** provide direct access to residential dwellings and other allowed uses. They should be designed for this intended function and exhibit characteristics which contribute to a safe and attractive living environment. This can be achieved by providing a diversity of street types, each serving a specific role. Right of way and pavement widths less than the general standard should provide acceptable levels of access, safety and convenience for all users, including emergency service providers, while enabling enhanced site design and creation of attractive streetscapes. Subdivision layouts should avoid the creation of pass through routes for external traffic while allowing local drivers to move easily to and from higher order streets.

The design standard for a **Residential Street** shall be as follows:

1. Right-of-way: 50 feet wide



2. Pavement: 28 feet wide measured from back of curb
3. Turnarounds: Terminal streets shall have a turnaround at the closed end with an outside right-of-way diameter of 94 feet and a roadway pavement diameter of 76 feet.
4. Drainage: Curb and gutter system.
5. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.
6. Parking: Permitted on both sides of the street.
7. Buffer Strip: 5 feet wide with trees permitted in the right-of-way subject to compliance with city policies and regulations.
8. Utility Easements: 10 feet on both sides adjacent to the right-of-way. The city and public utility providers will not be responsible for the restoration of any landscaping placed within utility easements that is removed or damaged as a result of constructing, repairing or maintaining public utilities.

In place of the typical Residential Street, a request may be submitted at the time of preliminary plat review for approval of one or more of the following alternative streets:

A **Residential Feeder** will be considered or may be required when one or more of the following conditions exist: 1) the intended use and adjacent zoning allows duplex or multi-family dwellings; 2) the expected average daily traffic (ADT) exceeds 500; or 3) the street collects localized traffic within a subdivision and leads to a collector or arterial street. A Residential Feeder shall conform to the following design standards:

1. Right-of-way: 50 feet wide
2. Pavement: 32 feet wide measured from back of curb
3. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.
4. Buffer Strip: 3 feet wide with only ornamental trees permitted.
5. Other Features: Same as a Residential Street

An **Access Street** will be considered when all of the following conditions exist: 1) the intended use and adjacent zoning is single-family detached dwellings; 2) the street is not longer than 750 feet, and 3) the expected average daily traffic (ADT) is less than 250. An Access Street shall conform to the following design standards:

1. Right-of-way: 44 feet wide
2. Pavement: 24 feet wide measured from back of curb
3. Turnarounds: Terminal streets shall have a turnaround at the closed end with an outside right-of-way diameter of 94 feet and a roadway diameter of 76 feet.

4. Sidewalks: Same as a Residential Street, except sidewalks shall not be required on cul-de-sacs less than 250 feet in length.
5. Parking: Permitted on one side only
6. Other Features: Same as a Residential Street

The design standard for **Residential Alleys** shall be as follows:

1. Right of Way: 18 feet wide
2. Pavement: 16 feet wide measured from edge of pavement (no curb and gutter)
3. Travel Lanes: Two-way traffic allowed
4. Maximum Length: 500 feet between connecting streets
5. Parking: Parking in alley prohibited
6. Setbacks: Garages, carports and open parking spaces shall be set back at least 5 feet from the right of way.
7. Utility Lines: Both overhead and underground utility lines may be installed in the right of way.

### **Local Non-Residential Street Design Standards**

A **Non-Residential Street** is a low volume, low speed street which provides access to commercial, industrial, institutional, and other intensive land uses. Generally, only two travel lanes are needed. In some cases, these streets may carry considerable truck traffic, require wider driveways for access to loading docks, and have a need for on-street parking. Direct connections to collector and arterial streets are essential.

The design standard for a **Non-residential Street** shall be as follows:

1. Right-of-way: 66 feet wide
2. Pavement: 36 feet wide measured from back of curb
3. Turnarounds: Terminal streets shall have a turnaround at the closed end with an outside right-of-way diameter of 94 feet and a roadway diameter of 76 feet.
4. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.
5. Parking: Permitted on both sides of the street.
6. Buffer Strip: 9 feet wide with trees permitted in the right-of-way subject to compliance with city policies and regulations.
7. Utility Easements: Same as a standard Residential Street

In place of the typical Non-residential Street, a request may be submitted at the time of preliminary plat review for approval of one or more of the following alternatives:

An **Option A** street will be considered when two or more of the following conditions exist: 1) the intended use and adjacent zoning is commercial, light industrial, office, and/or multi-family residential; 2) the expected average daily traffic (ADT) is less than 4,000; 3) the street is primarily intended to provide access to property and secondarily to serve through traffic; and 4) there is a nearby collector or arterial street to accommodate future traffic from surrounding land.

Option A streets shall conform to the following design standards:

1. Right-of-way: 60 feet wide
2. Pavement: 30 feet wide measured from back of curb
3. Parking: Not permitted on either side.
4. Other features: Same as a typical Non-residential Street

An **Option B** street will be considered when all of the following conditions exist: 1) the intended use and adjacent zoning is office and/or multi-family residential; 2) the street is not longer than 750 feet; 3) the expected average daily traffic is less than 1,000; 4) the street is intended to provide access to property and not serve through traffic; and 5) there is a nearby collector or arterial street to accommodate future traffic from the development of surrounding land.

Option B streets shall conform to the following design standards:

1. Right-of-way: 60 feet wide
2. Pavement: 30 feet wide measured from back of curb
3. Parking: Permitted on one side only
4. Buffer Strip: 9 feet wide with trees permitted as a typical Non-residential Street
5. Other features: Same as a typical Non-residential Street

An **Option C** street will be considered or may be required when two or more of the following conditions exist: 1) the intended use and adjacent zoning is intensive commercial and/or industrial; 2) the expected average daily traffic exceeds 4,000; 3) the street will serve a significant amount of through traffic; 4) the street will connect to two collector or arterial streets; 5) there will be a significant number of left turns to and from abutting driveways; and 6) there will be a significant amount of truck traffic.

Option C streets shall conform to the following design standards:

1. Right-of-way: 66 feet wide
2. Pavement: 38 feet wide measured from back of curb to provide for two 13' travel

lanes and a 12' two-way center turn lane.

3. Turnarounds: Terminal streets are not permitted
4. Parking: Not permitted on either side
5. Other Features: Same as a typical Non-residential Street

### **Neighborhood Collector Street Design Standards**

A **Neighborhood Collector** is intended to collect traffic from surrounding residential areas and connect to major streets; serve local, non-residential land uses such as schools, churches, and parks; and promote neighborhood livability. These streets provide two traffic lanes for shared use by vehicles and bicycles at low to moderate driving speeds (30 mph), accommodate an average daily traffic volume of 1,500-3,500 vehicles, and generally, connect to only one arterial or major collector street. They may also provide direct access to property and contain on-street parking. Two types of Neighborhood Collector streets are allowed. Either type may be required or proposed provided a statement of justification is submitted for the subject location.

**Option A** streets are intended to provide direct access to property and provide some periodic on-street parking for abutting uses. The design standard shall be as follows:

1. Right-of-way: 60 feet wide
2. Pavement: 34 feet wide measured from back of curb
3. Travel Lanes: Two travel lanes each 13.5 feet wide
4. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.
5. Parking: Permitted on one side of the street only. A bulb-out may be built near intersections to create recessed parking, calm traffic and assist pedestrians.
6. Driveways: Permitted on both sides of the street.
7. Buffer Strip: 7 feet wide with trees permitted in the right-of-way subject to compliance with city policies and regulations.
8. Utility Easements: Same as a standard Residential Street

**Option B** streets are intended to primarily collect neighborhood traffic and not provide direct access to property. The design standard shall be as follows:

1. Right-of-way: 60 feet wide
2. Pavement: 30 feet wide measured from back of curb
3. Travel Lanes: Two shared travel lanes each 15 feet wide
4. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.

5. Parking/Driveways: Not permitted on either side
6. Buffer Strip: 9 feet wide with trees allowed as for Option A streets
7. Other features: Same as Option A streets

### **Major Collector Street Design Standards**

A **Major Collector** is a mid-volume, multi-modal street (average daily traffic of 3,500-8,500 vehicles) which collects traffic from several neighborhoods and moves the traffic to the arterial network. These streets provide access to retail centers, office complexes, institutional uses such as colleges and hospitals, and multi-family residential areas. Major collectors typically have two, undivided travel lanes with a left turn lane at key intersections. A two-way center turn lane or intermittent raised median may be provided to manage access at high traffic locations. Typically, direct access to one and two-family residences is prohibited with consolidated driveways allowed for other uses when controlled as to location. No on-street parking is permitted.

The design standard for a **Major Collector** street shall be as follows:

1. Right-of-way: 66 feet wide
2. Pavement: 36 feet wide measured from back of curb
3. Travel Lanes: Two lanes each 12 feet wide
4. Bike Lanes: Striped bike lane on both sides 6 feet from back of curb
5. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.
6. Parking: Not permitted on either side
7. Driveways: Controlled as to location and width for access management purposes.
8. Buffer Strip: 9 feet wide with trees permitted in the right-of-way located 4 feet from edge of street and sidewalk subject to compliance with city policies and regulations.
9. Utility Easements: Same as a standard Residential Street

In place of the typical Major Collector, a request may be submitted at the time of preliminary plat review for approval of one or more of the following alternative streets:

An **Option A** street will be considered or may be required when the following conditions exist: 1) the intended use and zoning of nearby land is one or two-family residential and/or large open land areas such as parks, churches, and schools; and 2) the street is intended to serve through traffic and not provide direct access to property.

Option A streets shall conform to the following design standards:

1. Right-of-way: 66 feet wide



2. Pavement: 32 feet wide measured from back of curb
3. Travel Lanes: Two shared use travel lanes each 16 feet wide
4. Bike Lanes: No striped bike lanes
5. Sidewalk/Pedway: A 5 foot wide sidewalk on one side and an 8 foot wide pedway on the other side constructed 1 foot inside the right of way.
6. Parking: Not permitted on either side
7. Driveways: Not permitted on either side
8. Buffer Strip: 9-10 feet wide with trees permitted as for a typical Major Collector
9. Other features: Same as a typical Major Collector

An **Option B** street will be considered or may be required when one or more of the following conditions exist: 1) the intended use and/or zoning of adjacent land is retail commercial, office, institutional or multi-family residential; 2) the expected average daily traffic exceeds 6,000; and 3) the street will or is likely to connect to two arterial streets.

Option B streets shall conform to the following design standards:

1. Right-of-way: 76 feet wide
2. Pavement: 44 feet wide measured from back of curb
3. Travel Lanes: Two shared use travel lanes each 16 feet wide plus a center two-way left-turn lane 12 feet wide.
4. Bike Lanes: No striped bike lanes
5. Pedway/Sidewalk: An 8 foot wide Pedway on one side and a 5 foot wide sidewalk on the other side constructed 1 foot inside the right of way.
6. Parking: Not permitted on either side
7. Driveways: Controlled as to location and width for access management purposes.
8. Buffer Strip: 8-9 feet wide with trees permitted as for a typical Major Collector
9. Other features: Same as a typical Major Collector

### **Minor Arterial Street Design Standards**

A **Minor Arterial** is a mid-to-high volume multi-modal street (average daily traffic of 7,500-20,000 vehicles) which moves a large portion of internal city traffic. Minor Arterials usually connect to Major Arterials or Expressways and provide access to such traffic destinations as retail

shopping areas, employment centers, and many residential neighborhoods. These streets have a minimum of two, undivided travel lanes but may have up to four travel lanes with a raised median and left turn lane at intersections to manage traffic access. Typically, direct access to property is restricted and no on-street parking is permitted.

Three types of Minor Arterial streets are permitted. Each type may be allowed or required depending upon the surrounding land use pattern, traffic conditions or other circumstances.

An **Option A** street will be considered or may be required when the intended use or zoning of nearby land is predominantly residential or large open land areas such as parks, churches, and schools. Option A streets shall conform to the following design standards:

1. Right of way: 84 feet wide
2. Pavement: Total width is 40 feet measured from edge of shoulder.
3. Travel Lanes: Two lanes, each 12 feet wide.
4. Paved Shoulder: 8 feet on each side for bikes and emergency parking.
5. Drainage: Open channel or swale system without curb and gutter.
6. Sidewalk: 5 feet wide on one side constructed 1 foot inside the right-of-way.
7. Pedway: 8 feet wide on one side constructed 1 foot inside the right of way.
8. Parking: Not permitted on either side.
9. Driveways: Controlled as to location and width for access management purposes.
10. Buffer Strip: 14-15 feet wide on each side. Trees permitted in the right of way when located outside of the drainage channel and 4 feet from edge of sidewalk or Pedway subject to compliance with city policies and regulations.
11. Utility Easements: Same as a standard Residential Street.

An **Option B** street will be considered or may be required when the following conditions exist: 1) the intended use or zoning of nearby land is residential or large open land areas such as parks, churches, and schools; and 2) the average daily traffic volume of the street is projected to exceed 15,000 vehicles in 20 years. Option B streets shall conform to the following design standards:

1. Right of way: 100 feet wide
2. Pavement: Total width is 40 feet measured from edge of shoulder.
3. Travel Lanes: One 12 feet wide lane on each side of a 12 feet center median.

4. Other Features: Same as Option A

An **Option C** street will be considered or may be required when the intended use or zoning of adjacent land is predominantly commercial, industrial, office, or institutional. Option C streets shall conform to the following design standards:

1. Right-of-way: 84 feet wide
2. Pavement: 48 feet wide measured from back of curb
3. Travel Lanes: Two 12 feet wide travel lanes plus a 12 feet wide center, two-way left turn lane.
4. Bike Lanes: Striped 6 feet wide bike lane on each side measured from back of curb
5. Drainage: A curb and gutter system is most common
6. Buffer Strip: 10 feet wide on each side. Trees permitted in the right of way when located 6 feet from edge of street and 4 feet from edge of sidewalk or Pedway subject to compliance with city policies and regulations.
7. Other Features: Same as Option A

### **Major Arterial Street Design Standards**

A **Major Arterial** is a high volume multi-modal street (average daily traffic of 15,000 or more vehicles) which handles the bulk of through traffic within the city. Major Arterials connect to expressways and freeways as well as provide access to major traffic destinations such as regional shopping centers and major universities. These streets usually have at grade intersections which are spaced well apart. It is very common for Major Arterials to have four lanes with a continuous raised median except for a left turn lane at major intersections. Direct access to property is usually prohibited or limited to right-in, right-out and no on-street parking is permitted.

Two types of Major Arterial streets are permitted. Each type may be allowed or required depending upon the surrounding land use, traffic conditions or other circumstances.

An **Option A** will be considered or may be required when vehicle speeds are moderate, right of way is limited, and access is restricted thereby mitigating the need for a median. Option A streets shall conform to the following design standards:

1. Right of way: 106 feet wide
2. Pavement: Total width of 60 feet measured from back of curb or edge of pavement
3. Travel Lanes: Four lanes each 12 feet wide
4. Bike Lanes: Striped 6 feet wide bike lane on each side measured from back of curb
5. Drainage: May be built with curb and gutter or an open swale

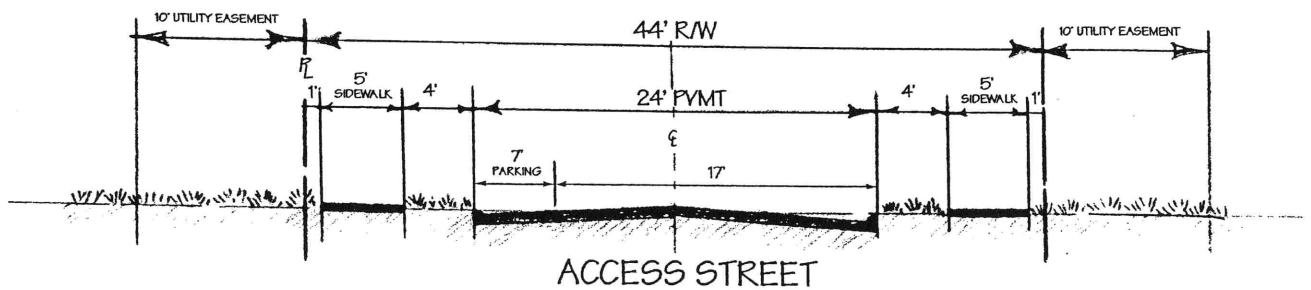
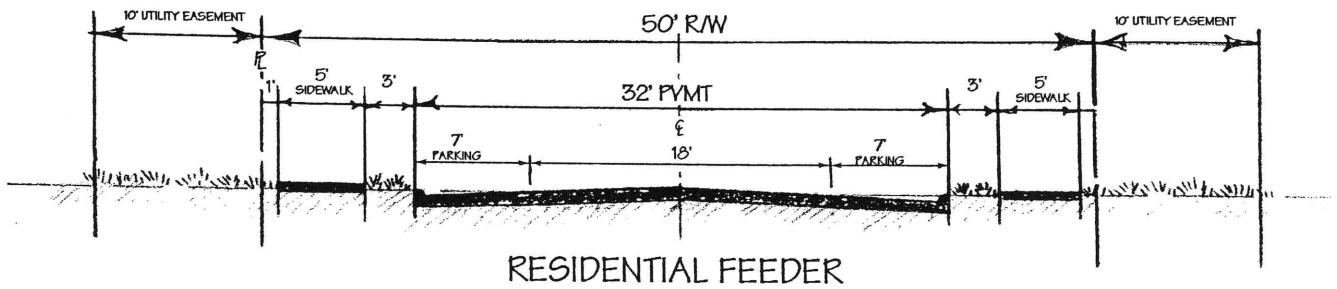
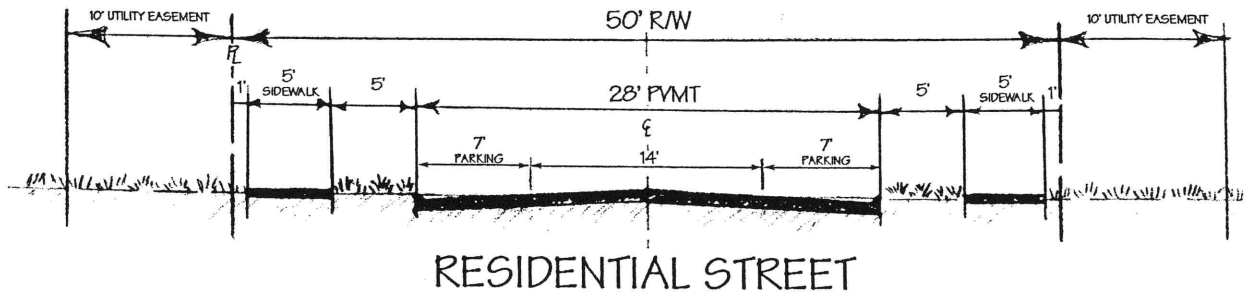


6. Sidewalk: 5 feet wide on one side constructed 1 foot inside the right-of-way
7. Pedway: 8 feet wide on one side constructed 1 foot inside the right of way
8. Parking: Not permitted on either side
9. Driveways: Controlled as to location and width for access management purposes.
10. Buffer Strip: 14-17 feet wide on each side. Trees permitted in the right of way located 10 feet from edge of street and 4 feet from edge of sidewalk or Pedway subject to compliance with city policies and regulations.
11. Utility Easements: Same as a standard Residential street.

An **Option B** street will be considered or may be required when the projected average daily traffic volume of the street could reasonably exceed 20,000 vehicles in 20 years and/or the street connects to a freeway or expressway. Option B streets shall conform to the following design standards:

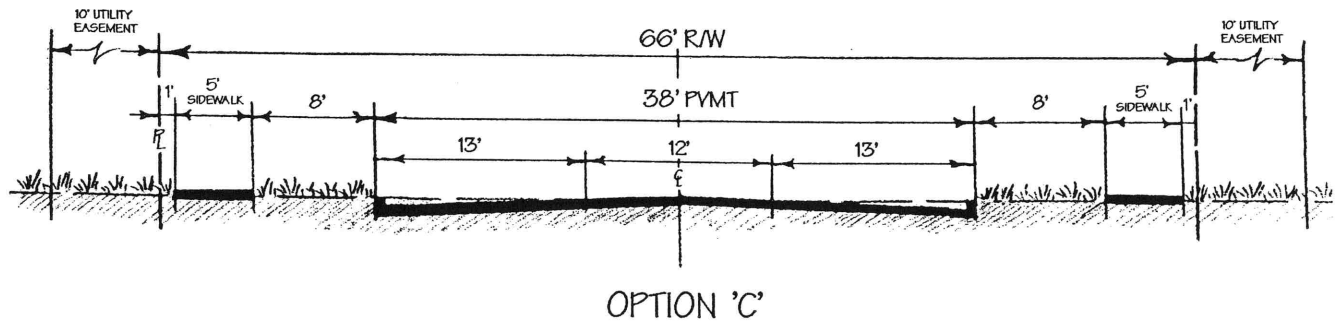
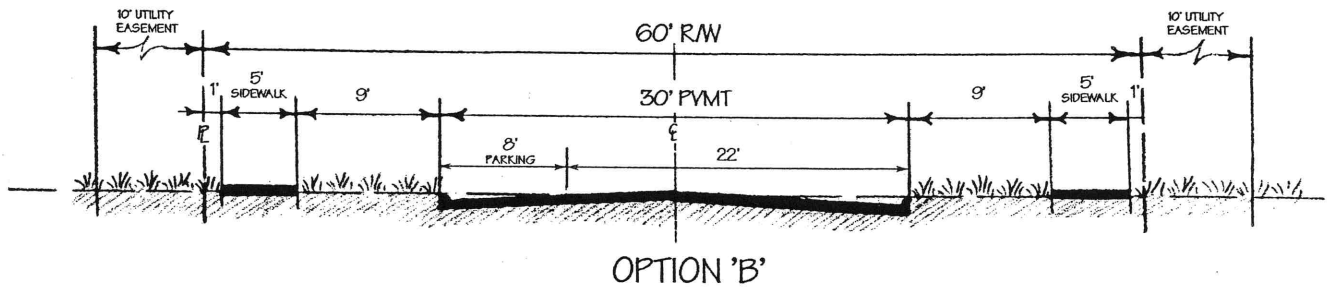
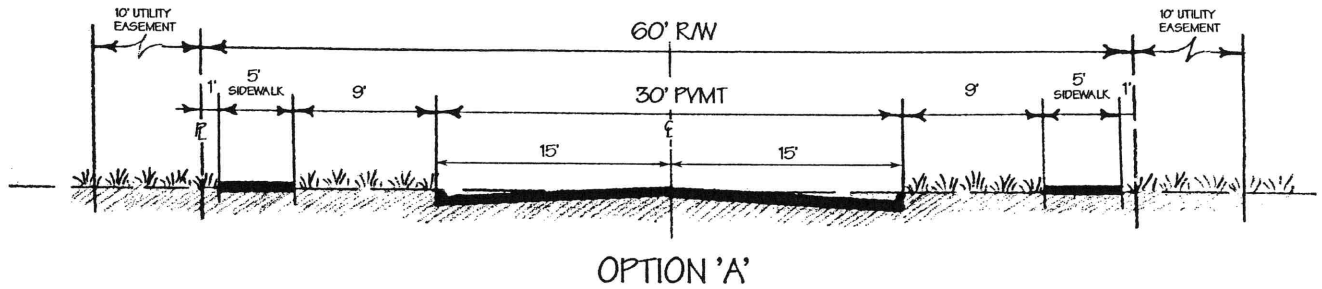
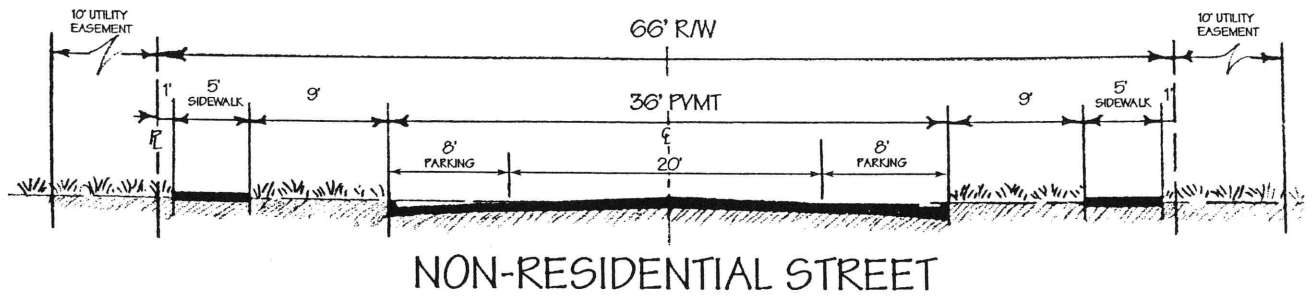
1. Right of way: 110 feet wide
2. Pavement: Total width of 52 feet measured from back of curb or edge of pavement
3. Travel Lanes: One 12 feet wide inner lane and one 14 feet wide outer lane on each side of a 16 feet wide center median which may include a 12' wide left-turn lane at intersections.
4. Bike Lanes: No bike lane on either side
5. Sidewalk: 5 feet wide on one side constructed 1' inside right of way
6. Pedway: 10' wide on one side constructed 1' inside right of way
7. Buffer Strip: 12-13 feet wide on each side. Trees permitted in the right-of-way located 8 feet from edge of street and 4 feet from edge of sidewalk or Pedway subject to compliance with city policies and regulations.
8. Other Features: Same as Option A

Requests for exceptions to the above design standards may be submitted at the time of preliminary plat review and shall be processed as a variance as provided by the Subdivision Regulations.

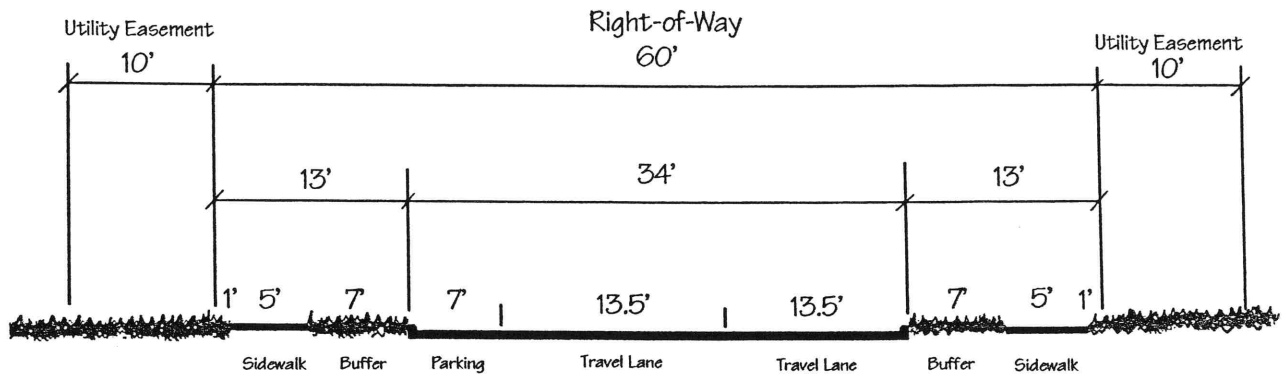


## Local Residential Street Standards

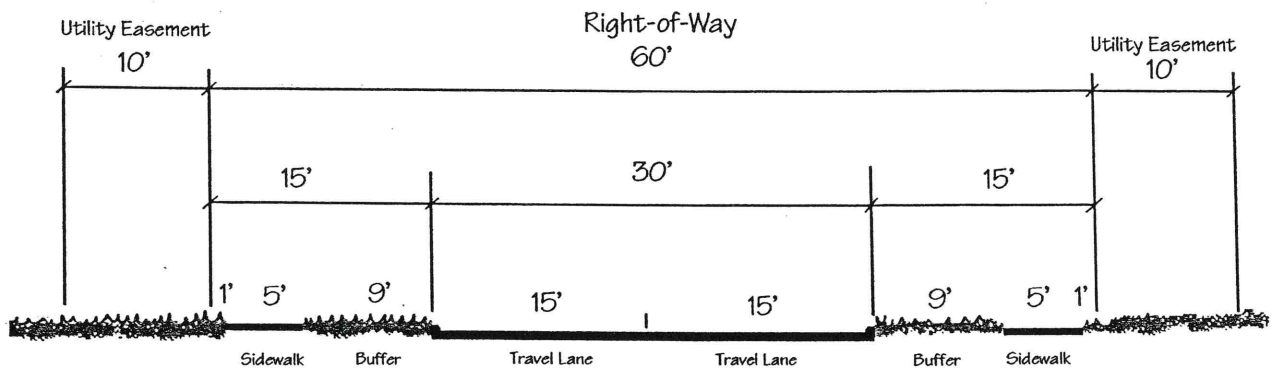
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## Local Non-Residential Street Standards

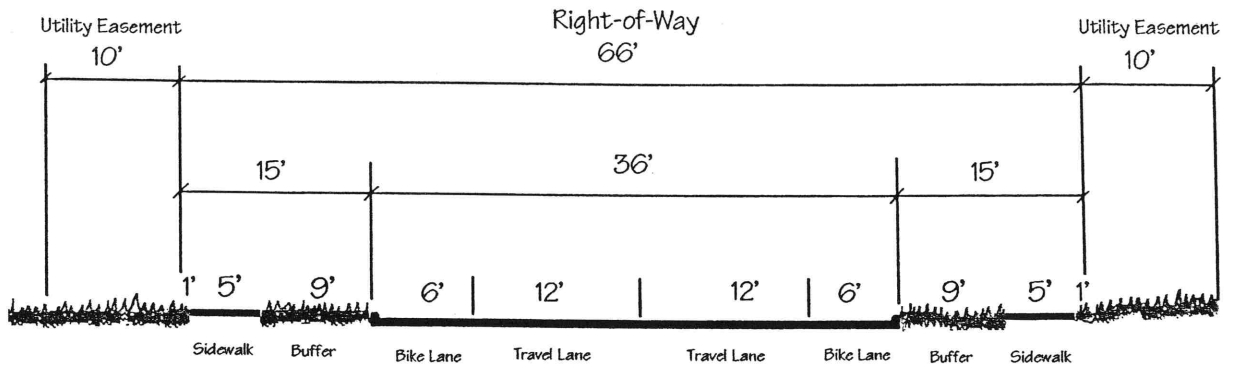


Neighborhood Collector 'Option A'

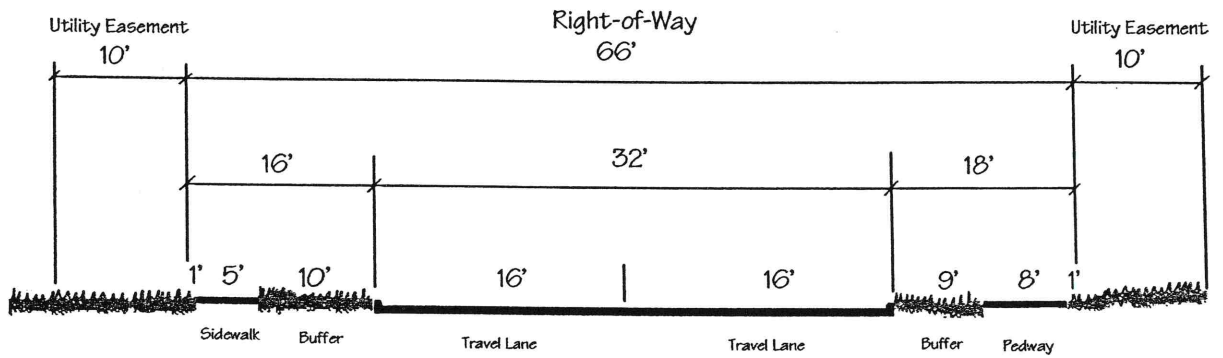


Neighborhood Collector 'Option B'

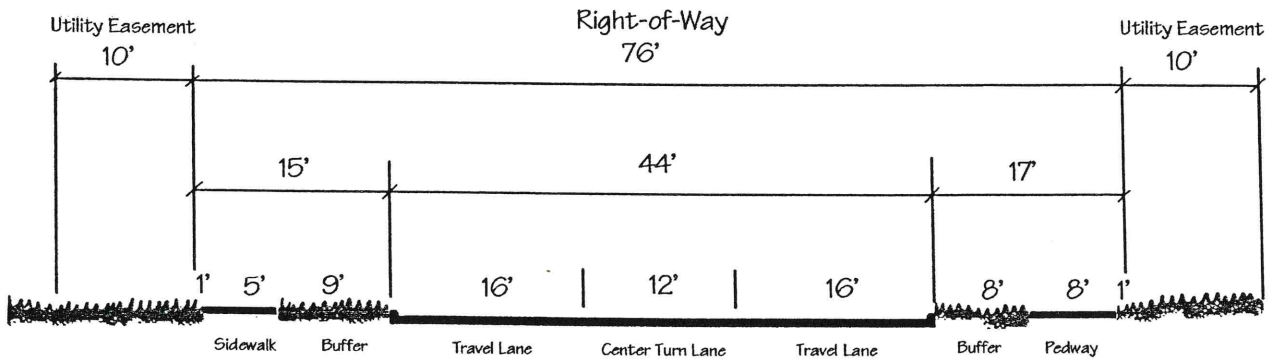
## Neighborhood Collectors



Major Collector

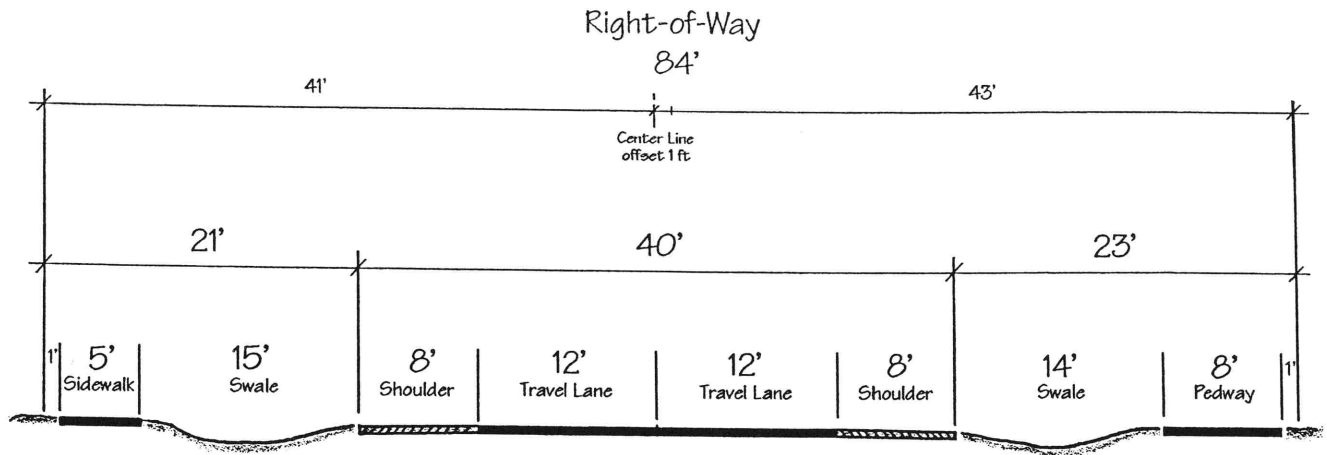


Major Collector 'Option A'

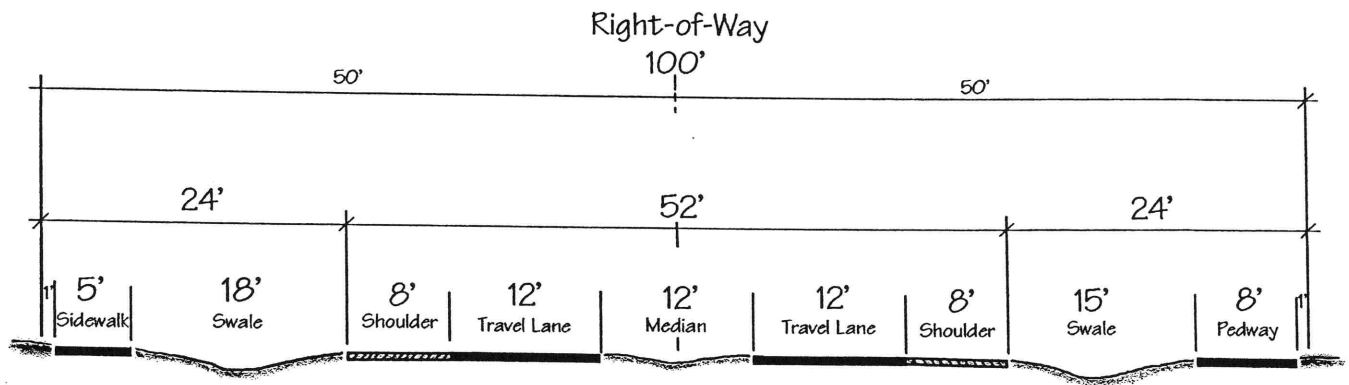


Major Collector 'Option B'

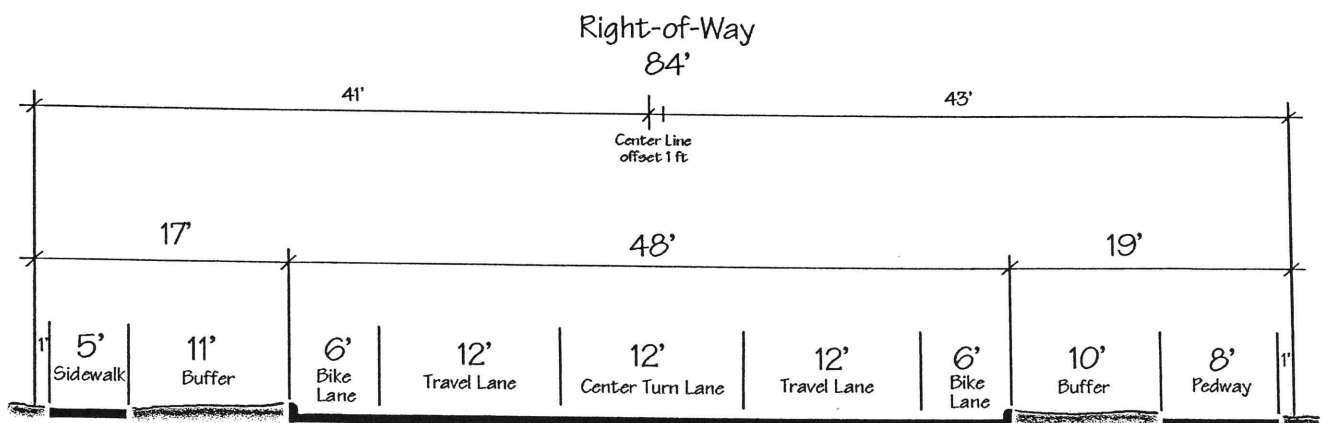
## Major Collectors



Minor Arterial - Option 'A'

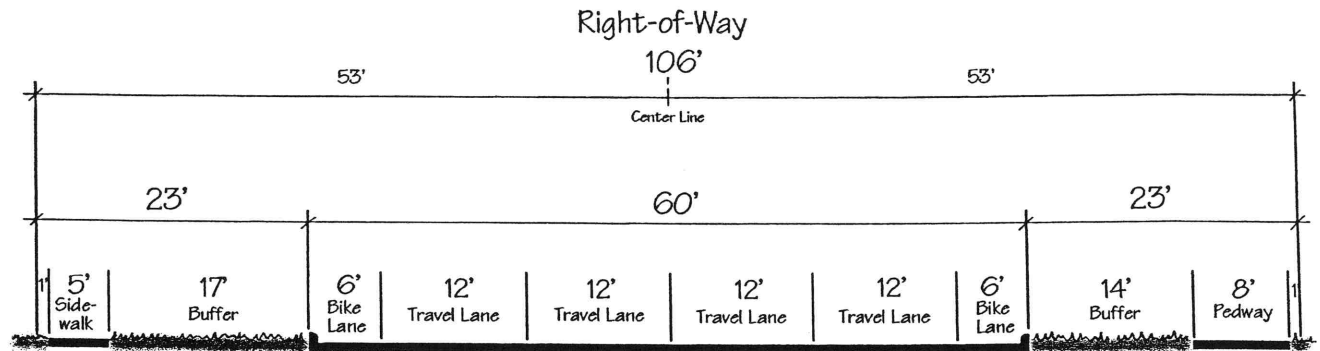


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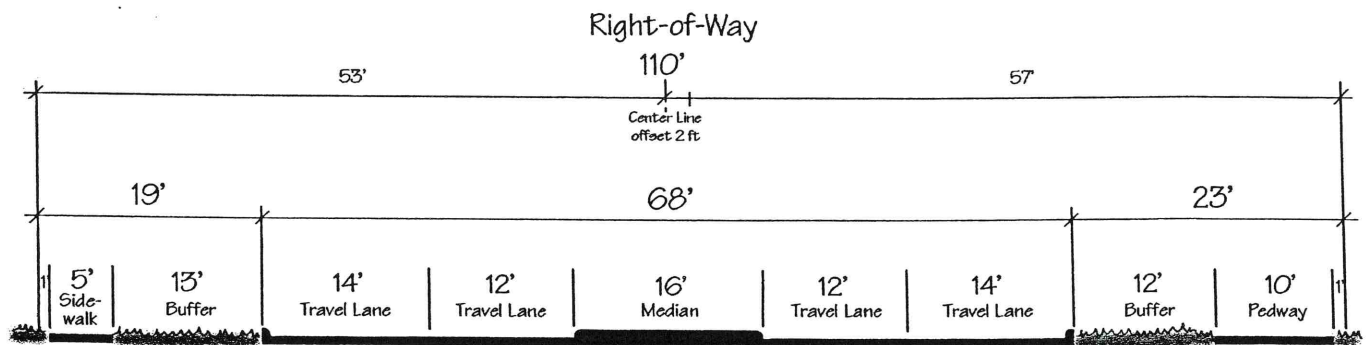


Minor Arterial - Option 'C'

## Minor Arterials

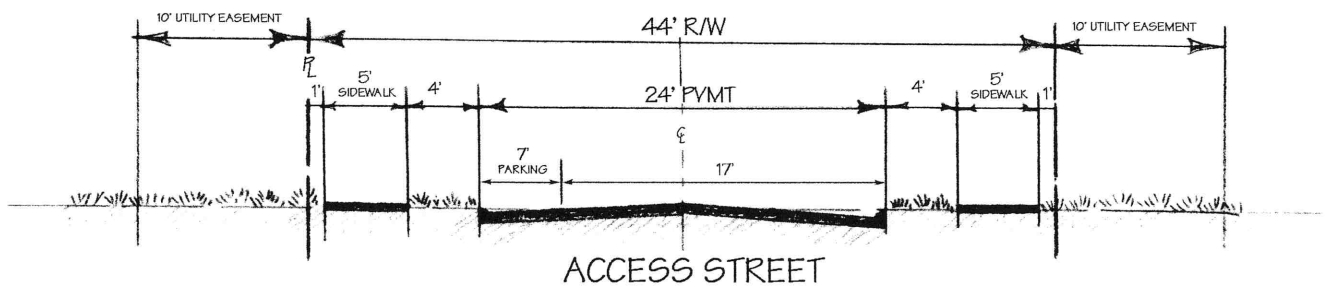
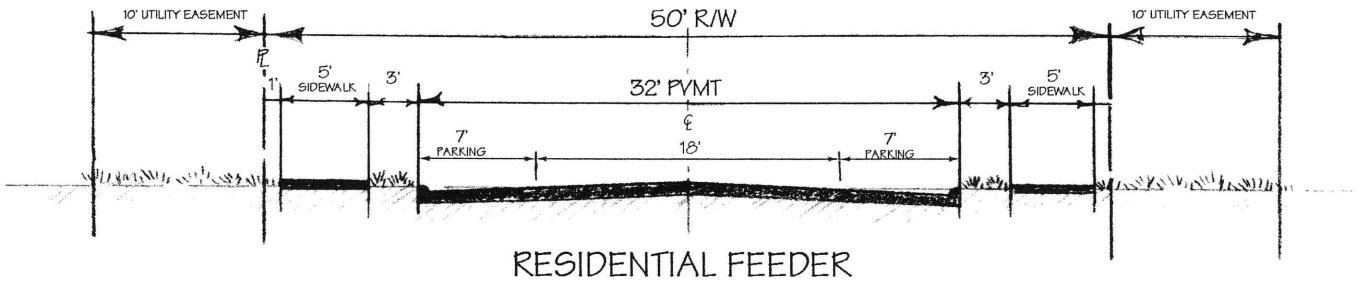
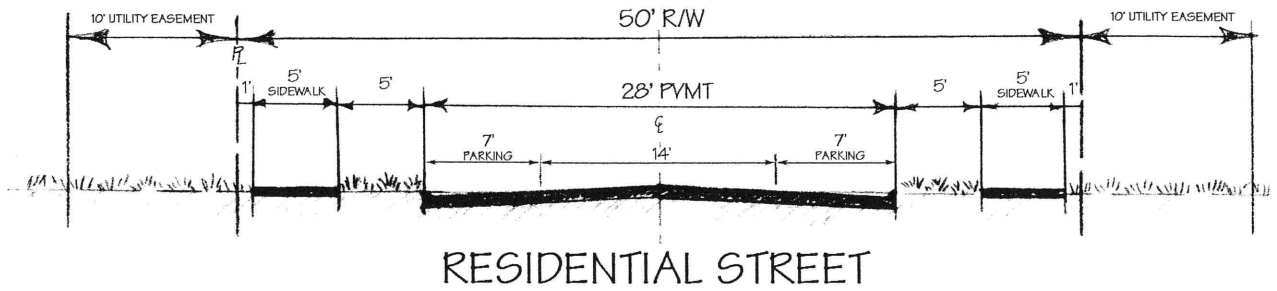


Major Arterial - Option 'A'



Major Arterial - Option 'B'

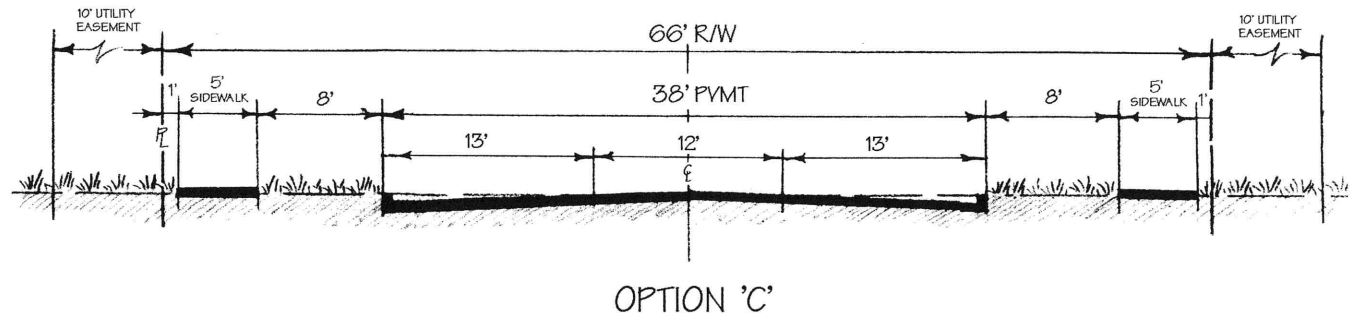
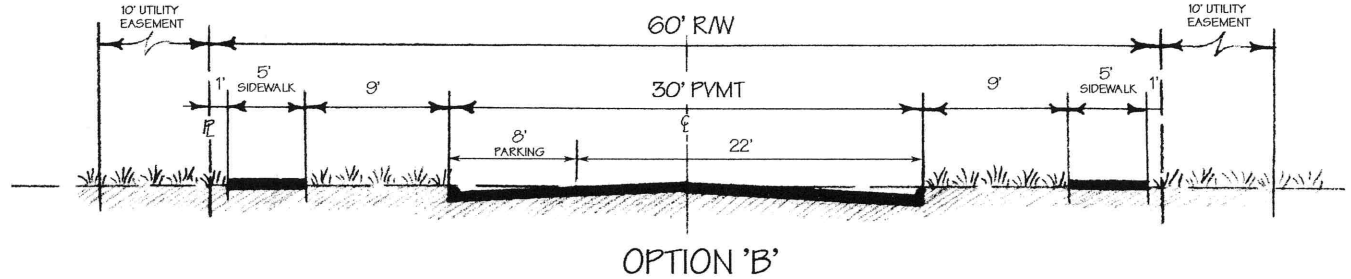
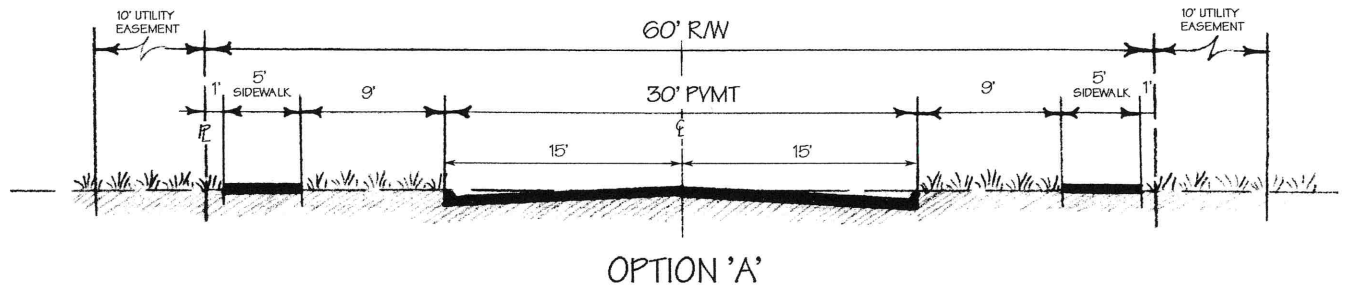
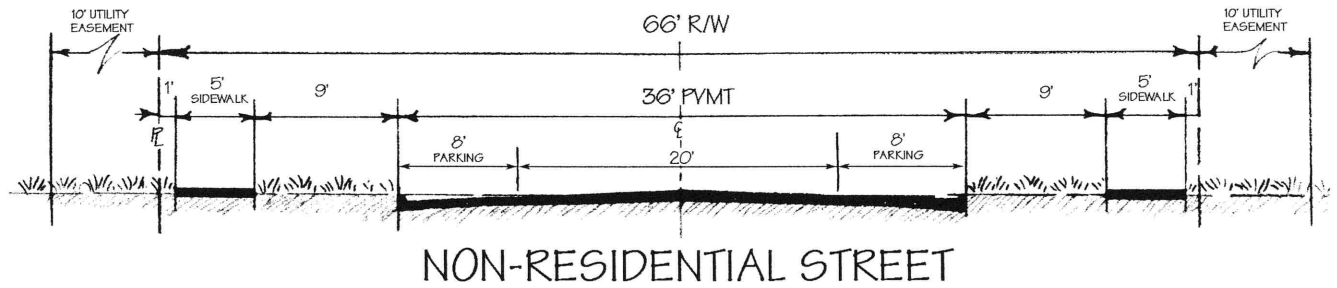
## Major Arterials



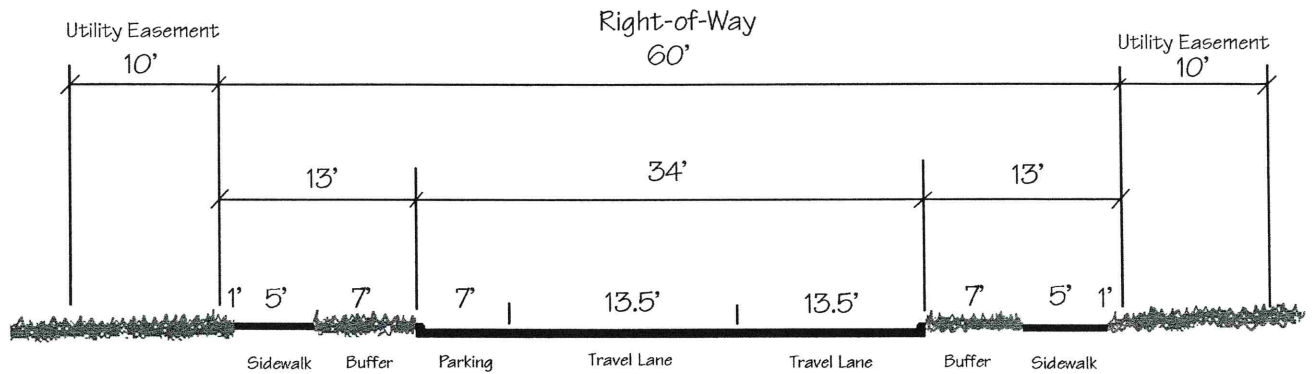
## Local Residential Street Standards

(Revised 6/7/04)

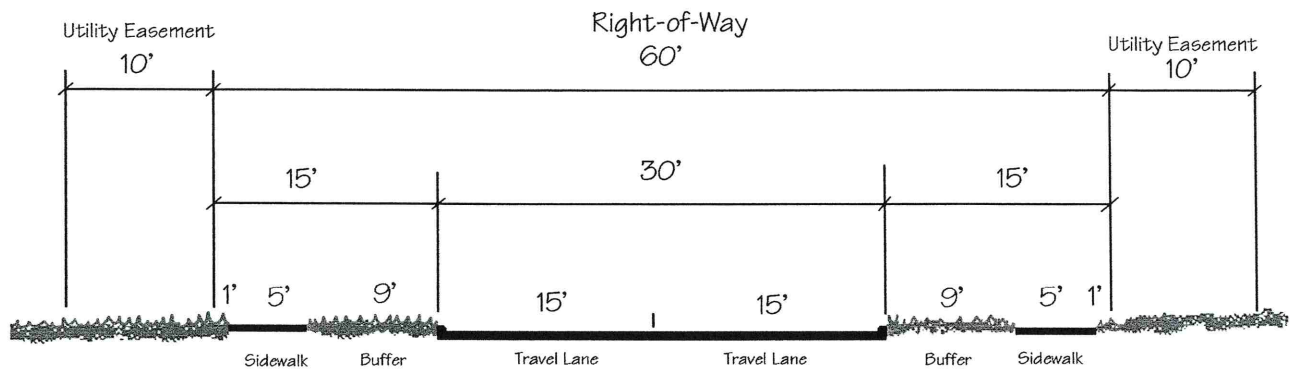




## Local Non-Residential Street Standards

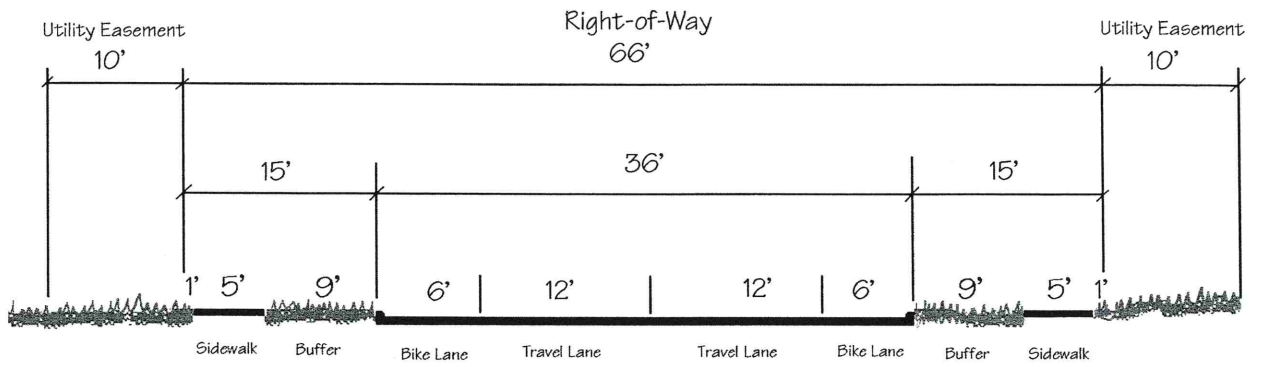


Neighborhood Collector 'Option A'

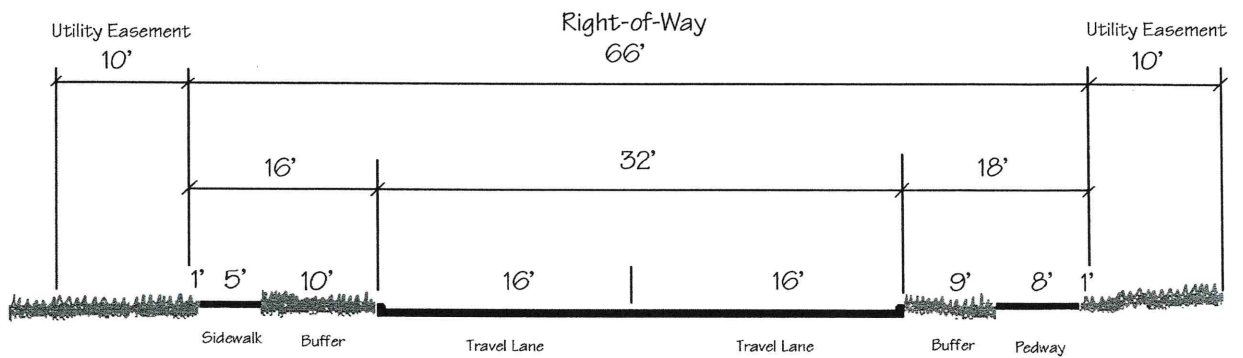


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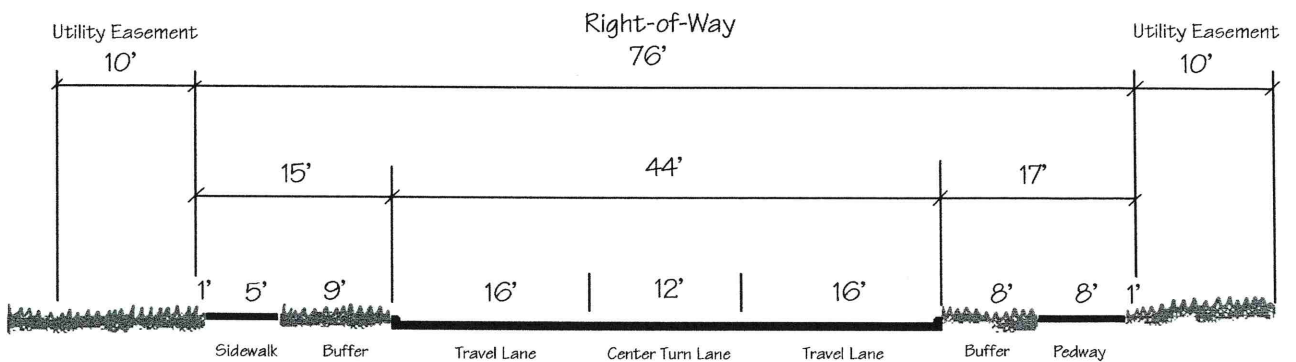
## Neighborhood Collectors



Major Collector

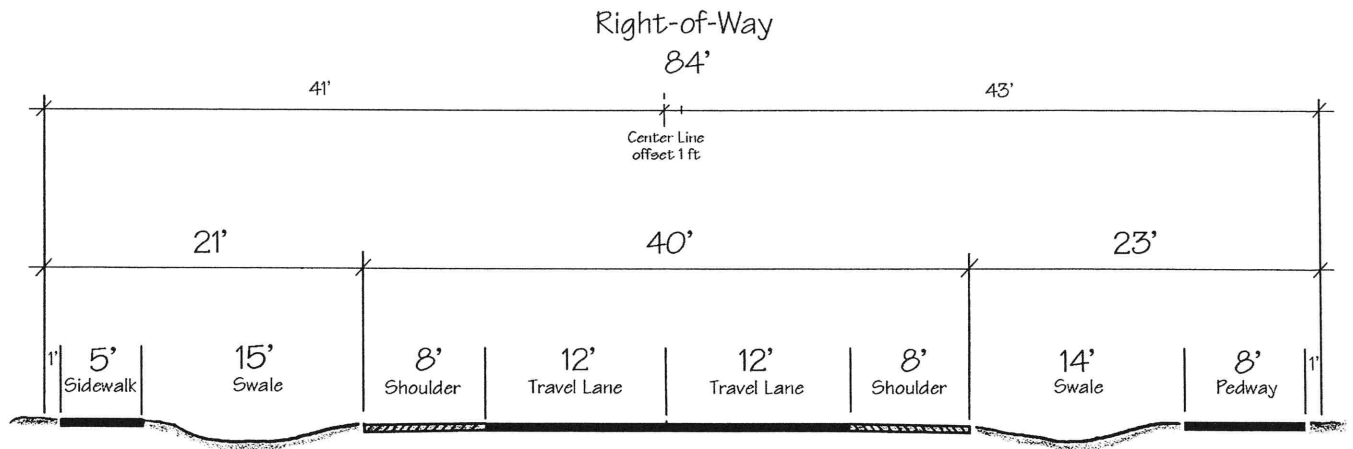


Major Collector 'Option A'

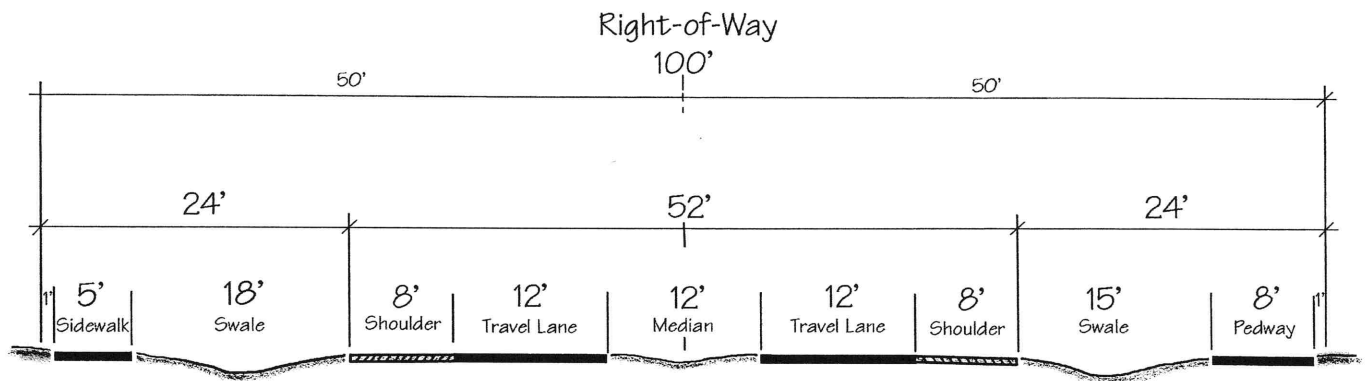


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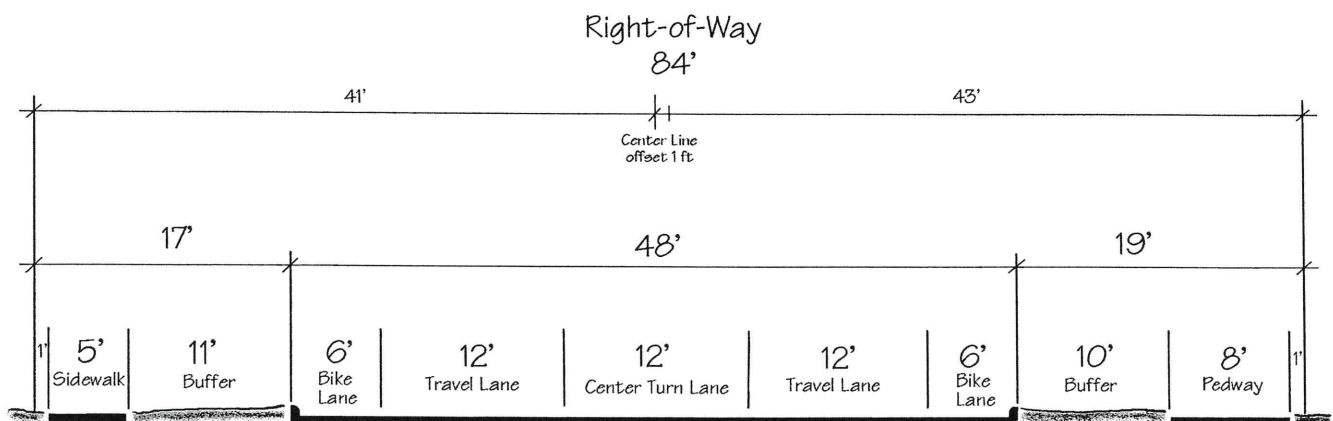
## Major Collectors



Minor Arterial - Option 'A'

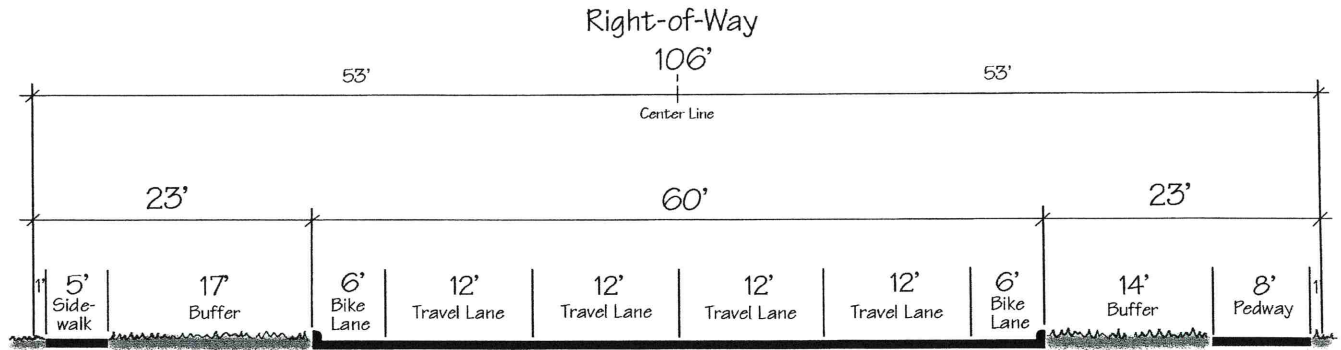


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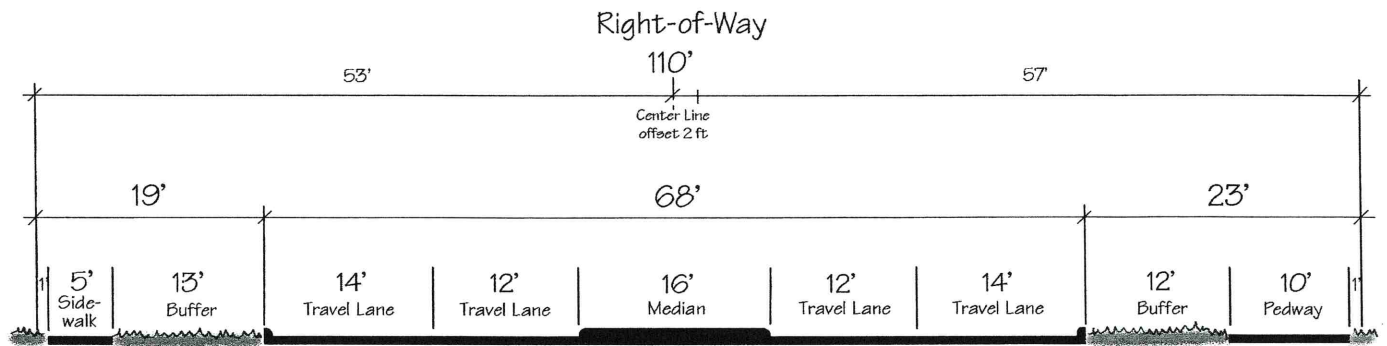


Minor Arterial - Option 'C'

## Minor Arterials



Major Arterial - Option 'A'



Major Arterial - Option 'B'

## Major Arterials

Introduced by Treece Council Bill No. PR 178-16 A

### A POLICY RESOLUTION

adopting a "Vision Zero" Policy, and setting a goal of eliminating traffic deaths and serious injuries in Columbia by 2030.

WHEREAS, the primary responsibility of the City of Columbia government is to ensure the safety and health of all of Columbia's residents; and

WHEREAS, there have been 68 deaths and 454 serious injuries on Columbia's roads in the last ten years, making traffic safety a critical public safety and health issue; and

WHEREAS, the City of Columbia government believes that no one should die or suffer serious injury while traveling on our city streets - whether by foot, bicycle, wheelchair, motorcycle, automobile, public transit, or any other mode; and

WHEREAS, the Columbia Public School District has policies that "promote safe walking and bicycling to school" and "encourage bus routes that incorporate a short distance of safe walking" for the thousands of children attending its schools; and

WHEREAS, vulnerable road users such as people walking, bicycling, or using a wheelchair, children, older adults, people with disabilities, people of color, and people living in low-income neighborhoods are all disproportionately affected by traffic deaths and serious injuries; and

WHEREAS, vehicle speed is, by far, the most important factor that determines whether a collision with a person walking, bicycling, using a wheelchair, riding a motorcycle, or riding in another vehicle will result in a death or serious injury; and

WHEREAS, the U.S. Department of Transportation launched its *Mayors' Challenge for Safer People, Safer Streets* in 2015 to urge mayors to improve transportation safety, and Columbia Mayor Bob McDavid accepted that challenge; and

WHEREAS, the Missouri Department of Transportation, which operates streets in Columbia where the highest speeds are recorded and most serious crashes occur, recently announced its new strategic plan, titled *Missouri's Blueprint – A Partnership Toward Zero Deaths*; and

WHEREAS, "Vision Zero" is a philosophy of transportation planning and operation based on the assertion that traffic deaths and serious injuries are preventable and, therefore, ethically unacceptable; and

WHEREAS, in the last two years, Vision Zero policies have been adopted in eighteen cities to include: New York City, NY; San Francisco, CA; Seattle, WA; Denver, CO; Austin, TX; Ann Arbor, MI; and Eugene, OR, and about 20 other cities are considering adoption; and

WHEREAS New York City adopted a Vision Zero Policy in 2014 and, the following year, achieved its lowest traffic fatality rate since record-keeping began in 1910; while in Sweden, where Vision Zero originated, traffic fatalities have declined 73% in 20 years; and

WHEREAS, adopting a Vision Zero policy in Columbia would support the goals of numerous existing City of Columbia plans, including:

- Goals for "Safety and Security of Transportation Infrastructure" and "Integration of all Travel Modes" in the *CATSO 2040 Long Range Transportation Plan*
- Goals for "Livable and Sustainable Communities," "Mobility, Connectivity, and Accessibility," and "Inter-Governmental Cooperation" in *Columbia Imagined: The Plan for How We Live and Grow*
- Goals for "Safe and Healthy Neighborhoods" and "Healthy Lifestyles" in the *Columbia/Boone County Community Health Improvement Plan*
- Goals for "Public Safety," "Infrastructure," and "Social Equity" in the *City of Columbia Strategic Plan, 2016-19*; and

WHEREAS, the City Council established the Mayor's Task Force on Pedestrian Safety on May 18, 2015, to "provide recommendations on what can be done by the City government and by citizens themselves working in a cooperative way to decrease collisions between automobiles and pedestrians"; and

WHEREAS, the Task Force delivered its Final Report and Recommendations to the City Council on April 4, 2016, titled *A Vision Zero Policy for Columbia*, and including, as its first recommendation, to adopt a Vision Zero Policy

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF COLUMBIA, MISSOURI, AS FOLLOWS:

SECTION 1. The City Council hereby adopts a Vision Zero Policy with a goal of eliminating traffic deaths and serious injuries in Columbia by 2030.

SECTION 2. The City Council hereby declares that in implementing a Vision Zero Policy, the following findings and considerations are hereby acknowledged and should be guiding principals in transportation system planning, design and operations:




- (1) Safety is the most important factor in all decision-making processes;
- (2) Traffic deaths and serious injuries are preventable and, therefore, ethically unacceptable;
- (3) Transportation systems should be designed and operated so that user errors are not fatal.

SECTION 3. The City Council hereby directs the City Manager to review the Final Report and Recommendations of the Mayor's Task Force on Pedestrian Safety, titled *A Vision Zero Policy for Columbia* with the Police Chief, Public Works Director, Parks and Recreation Director, Public Health Director, and other relevant staff; as well as partners at Missouri Department of Transportation, University of Missouri, Columbia Public Schools, and PedNet; and design a *Vision Zero Implementation Plan* which may include the guidelines attached hereto and marked "Exhibit A," attached hereto.

SECTION 4. The City Council hereby directs the City Manager to present the *Vision Zero Implementation Plan* to the City Council no later than April 30, 2017.


ADOPTED this 19<sup>th</sup> day of December, 2016.

ATTEST:

  
\_\_\_\_\_  
City Clerk

  
\_\_\_\_\_  
Mayor and Presiding Officer

APPROVED AS TO FORM:

  
\_\_\_\_\_  
City Counselor



## **EXHIBIT A**

### **Guidelines for a Vision Zero Implementation Plan**

The Vision Zero Implementation Plan may include the following components (bullet points are intended to be suggestions):

#### **Overall Goal:**

- To eliminate traffic deaths and serious injuries in Columbia by 2030

#### **Evaluation Strategy:**

- User-friendly "dashboard" for tracking traffic deaths, serious injuries, other injuries, and property damage
- Annual report to the City Council that provides numbers of traffic deaths and serious injuries in the previous year, goals for upcoming years, and status of implementation plan

#### **Funding Strategy:**

- Initial, short-term funding partnership with PedNet Coalition
- "One Percent for Safety" program, under which 1% of estimated project costs for all capital streets projects costing \$500,000 or more will be dedicated to the Vision Zero Implementation Plan (estimated to generate \$40,000/year)
- New CPD funding for a modern traffic safety enforcement program that explicitly disavows racial profiling, and is developed in partnership with a stakeholder group that includes people of color and those living in poor neighborhoods
- New annual funding allocation starting with the FY 2018 budget

#### **Program Management:**

- Vision Zero Program Manager, at least 0.50 FTE located in suitable City department/office
- Extensive coordination with other departments, boards and commissions, and community partners
- Some Vision Zero funding provided to other departments for specific programs

#### **Educational Implementation Strategies, such as:**

- Develop a comprehensive traffic safety education and communication campaign
- Work with other organizations to develop education campaigns and policies
- Promote all traffic safety innovations and improvements

#### **Enforcement Implementation Strategies, such as:**

- Prohibit cellular phone use and texting while driving
- Reduce legal, posted speed limits
- Improve and reform enforcement of speed limits and prosecution of violators

- Utilize automated enforcement such as red light cameras and speed cameras
- Improve coordination and data-sharing among law enforcement, other agencies and the public
- Provide routine bicycle and pedestrian safety training for law enforcement officers

Engineering Implementation Strategies, such as:

- Start a new program of road safety audits and assessments
- Create a new position of Traffic Safety Engineer/Crash Analyst
- Identify engineering design parameters that contribute to pedestrian deaths and serious injuries
- Improve and reform road design and engineering standards to increase safety

Roles for City departments, including:

- Community Development Department
- Columbia Police Department
- Public Works Department
- Parks and Recreation Department
- Public Health and Human Services Department
- Civic Relations Department

Roles for City Commissions, including:

- Disabilities Commission
- Bicycle and Pedestrian Commission
- Public Transit Advisory Commission
- Parks and Recreation Commission
- Human Rights Commission
- Citizens Police Review Board
- Board of Health

Roles for community partners, including:

- PedNet Coalition
- Missouri Department of Transportation
- Columbia Public Schools
- University of Missouri
- Columbia College
- Stephens College

Bibliography:

List of key documents that have been reviewed during development of the Implementation Plan

## 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:

Street Name	From	To	# of Ramps
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
Total Number of Ramps Replaced =			121

### Work Completed Fall 2018 through Spring 2019:

Street Name	From	To	# of Ramps
Forum Boulevard	Chapel Hill Road	Intersection	1
Bull Run Drive	Port Way	Roundabout	8
Clinton Drive	Broadway	Ash Street	2
Garth Avenue	Stewart Road	Broadway	9
Maple Grove Way	Apple Tree Lane	Bethel Street	2
Dustin Drive	Bethel Street	Cedar Ridge Drive	6
Glencairn Drive	Prestwick Drive	Intersection	2
Cocoa Court	Hanover Boulevard	South End	2
Thornridge Drive	S Cedar Lake Drive	Intersection	2
Cedar Ridge Drive	S Cedar Lake Drive	Intersection	2
Fourth Street	Wilkes Boulevard	Hickman Drive	12
10 <sup>th</sup> Street	Ash Street	Intersection	2
Garth Avenue	Allen	Intersection	2
10th Street	Park Avenue	Broadway	10
Godas Drive	Valley Creek Lane	Trikalla Drive	4
McKee Street	Ria Street	Orchard Lane	7
Total Number of Ramps Replaced =			73

### Work Completed Fall 2019 through Spring 2020:

Street Name	From	To	# of Ramps
Elm Street	Providence Road	Hitt Street	9
Locust Street	4 <sup>th</sup> Street	6 <sup>th</sup> Street	10
Grace Ellen Drive	Oakland Gravel Rd	Oakland Gravel Rd	1
Dustin Drive	Dusting Court	Cedar Lake Court	2
Katy Lane	Limerick Lane	Intersection	2
Russell Boulevard	Broadway	Rollings Road	3
College Park Drive	Rollin Road	Oxford Drive	6
Smiley Lane	Derby Ridge Drive	Riviera Drive	8
Mayflower Drive	Iris Drive	Rose Drive	4
Iris Drive	Poppy Way	Intersection	2
Sheffield Court	Forum Boulevard	East End	2
Glencairn Drive	Whiteburn Drive	Intersection	2
Thornbrook Parkway	Beacon Falls	Regal Way	4
Total Number of Ramps Replaced =			55

### Work Completed Fall 2020 through Spring 2021:

No curb ramps were replace or repaired in conjunction with the road segments that have been overlaid. During this timeframe, the City re-bid the term and supply sidewalk repair contract that is used for the contractors to complete the repairs and due to COVID, the process too much longer than anticipated.

### Work Completed 2022:

Street Name	From	To	# of Ramps
8th Street	North Boulevard	Ash Street	24
Worley Street	Providence Road	Stadium Boulevard	36
Rogers Street	Rangeline Street	Providence Road	10
Walnut Street	Providence Road	College Avenue	18
Regal Way	Thornbrooke Parkway	East End	2
Beacan Falls Drive	Thornbrooke Parkway	East End	2
Kennesaw Ridge Road	Saddlebrook Place	War Admiral Drive	3
Discovery Drive	Discovery Parkway	Lenoir Street	2
Total Number of Ramps Replaced =			97

**Work Completed 2023:**

<b>Street Name</b>	<b>From</b>	<b>To</b>	<b># of Ramps</b>
Worley Street	Providence Road	Stadium Boulevard	8
West Boulevard	I-70 Drive SW	Stadium Boulevard	14
Smith Drive	Louisville Drive	Scott Boulevard	11
Hitt Street	Cherry Street	Intersection	2
Total Number of Ramps Replaced =			35

## 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 Road 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 Boulevard/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 construction of a roundabout at the intersection of Vandiver Drive with Parker Street. The construction included sidewalks, curb ramps, pedestrian islands, and crosswalks. The project also included removing a hump along Vandiver Drive to improve sight distance.

### Year 2019:

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

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

## Year 2020:

*Providence-Broadway Turn Lane:* This project included the extension of the northbound to eastbound turn lane at the intersection of Providence Road and Broadway. The improvement included 10-foot wide sidewalk at back of curb along the roadway extension.

*Keene and I-70 Drive Southeast Roundabout:* This project included the construction of a roundabout at the intersection of Keene Street and I-70 Drive Southeast. The construction included sidewalks, curb ramps, pedestrian islands, and crosswalks.

*Nifong and Sinclair Roundabout:* This project included the construction of a roundabout at the intersection of Nifong Boulevard and Sinclair Road. The construction included sidewalks, curb ramps, pedestrian islands, and crosswalks.

*Nifong and Old Mill Creek Roundabout:* This project included the construction of a roundabout at the intersection of Nifong Boulevard and Old Mill Creek Road. The construction included sidewalks, curb ramps, pedestrian islands, and crosswalks.

*Nifong Boulevard Improvements:* This project included the construction of additional driving lanes, bike lanes, sidewalks, and intersection improvements of between Providence Road and Willowcreek Lane.

*Forum Boulevard Improvements:* This project included the construction of additional driving lanes, bike lanes, and sidewalks of between Green Meadows Road and Forum Boulevard.

*Third Avenue Alley Restoration:* This project included clearing and paving the Third Avenue Alley. The project included reconstructing the sidewalk at each end of the alley.

## Year 2021:

*Sinclair and Route K Roundabout:* This project included the construction of a roundabout at the intersection of Sinclair Road, Old Plank Road, and Route K. The construction included sidewalks, curb ramps, pedestrian islands, and crosswalks.

*Lenoir Street Improvement:* This project included the reconstruction of the roadway to lessen the curve along the University property where Lenoir Street transitions to Discovery Drive. The reconstruction included bike lanes and sidewalk.



*Discovery Parkway Extension:* This project included the construction of a new roadway extending the northeast end of Discovery Parkway to Rolling Hills Road. The reconstruction included bike lanes on both sides of the road and a wide sidewalk along the northern side of the road.

### Year 2022:

There were no road projects completed this year that included sidewalk facilities.

### Year 2023:

*Walnut Street Resurfacing:* This project included reconstruction of pavement, curb and gutter, sidewalk and driveway approaches in various locations along Walnut Street between College Avenue and Old Highway 63, and an asphalt overlay along the entire length of the project.

### Roadway Projects: Summary of ADA Improvements

Project Name	Sidewalk (LF)	Curb Ramp (#)	Pedestrian Signal	Crosswalk (LF)
Scott Blvd, Phase III	14,900	32	Flashing Beacon	295
Discovery Drive	290	2	NA	89
Vandiver and Parker	1,130	8	NA	420
Ballenger Lane	820	8	NA	0
Forum and Green Meadows	1,850	8	NA	220
Providence-Broadway	335	0	NA	0
Keene and I-70 Drive	485	5	NA	36
Nifong and Sinclair	1,755	8	NA	115
Nifong and Old Mill Creek	2,195	9	NA	105
Nifong Boulevard	7,078	70	4 Intersections	845
Forum Boulevard	945	4	NA	0
Third Ave Alley	24	0	NA	0
Sinclair and Rt. K	1,250	8	NA	210
Lenoir Street	1,470	0	NA	0
Discovery Parkway	7,590	0	NA	0
Walnut Street	270	3	NA	260

## 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 construction of 5-foot wide sidewalk along the frontage of the City property on South Providence outer roadway.

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

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

### Year 2016:

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

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

*Elleta Boulevard Sidewalk:* This project included construction of 5-foot wide sidewalk along the south side of Elleta Boulevard from Rangeline Street 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 along Providence Road north of Stewart Road. 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 that connected 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 Drive from Rollins Road to Manor Court, then crossing to the west side of Manor Drive 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 Boulevard 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 Street 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 along Worley Street.

## Year 2018:

*Clark Lane Sidewalk:* This project included the construction of 6-foot wide sidewalk at back of curb along the north side of Clark Lane from Paris Road to east of Lambeth Drive. 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 Lane with the Highway 63 Connector.

*Bike Boulevard (MKT to Parkade):* This project included installation of bike boulevard street markings and signage to connect the MKT trail to Parkade Center and to Hickman High School. The improvements also included the construction of 8-foot wide sidewalk along the north side of Worley Street from Alexander Avenue to Banks Avenue. At the intersection of Broadway and Aldeah Avenue curb ramps, a center pedestrian island, crosswalks, and flashing pedestrian beacons were installed. At the intersection of Providence Road with Forest Avenue curb ramps, a center pedestrian island, crosswalks, and a pedestrian signal were installed. At the intersection of Business Loop 70 with Parkade Boulevard, crosswalks and pedestrian signal improvements were installed. Finally, at the intersection of Worley Street 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 Road from Blue Ridge Road to Edris Drive. 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 crossing Nifong Boulevard to Mill Creek Elementary.

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

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

## Year 2019:

*Whitegate Sidewalk and Bus Shelter:* This project included the construction of 5-foot wide sidewalk on the north side of Whitegate Drive east of Towne Drive.

*Southampton and Sinclair Road Sidewalk Gaps:* This project included the construction of 5-foot wide sidewalk to fill in sidewalk gaps in two locations. On Southampton Road, the gap was approximately 35 linear feet long along the backyards of 1805 and 1807 Kenilworth Drive. On Sinclair Road, the gap was approximately 65 linear feet long along the backyard of 5109 Covington Court.

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

*Lynn, Oak, Sexton Sidewalk:* This project included 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 Street, Oak Street, Sexton Road, and Garth Avenue.

## Year 2020:

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

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

*Hitt Street Sidewalk:* This project included the construction of 10-foot wide sidewalk with integral curb along the east side of Hitt Street between Locust Street and the alley. The project also included curb ramps at the intersection with Hitt Street.

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

## Year 2021:

*Leslie Lane Sidewalk:* This project included the construction of 5-foot wide sidewalk along the north side of Leslie Lane between Parkade Boulevard and

Newton Drive. The project also included replacing the curb ramps at the Newton Drive intersection.

*St. Charles Road Sidewalk:* This project included the construction of 8-foot wide sidewalk along the back of curb on the north side of St. Charles Road between Demaret Drive and Battle Avenue. The project also included a crosswalk with a rapid flashing beacon at Demaret Drive.

### **Year 2022:**

There were no sidewalk projects completed this year.

### **Year 2023:**

*North Stadium Sidewalk:* This project included the construction of 5-foot wide sidewalk along the west side of Stadium Boulevard between the Interstate 70 overpass and Primrose Drive, a pedestrian crossing across Stadium Boulevard to connect to the Cosmo Park trail, and a sidewalk and pedestrian crossing along Business Loop to connect Cosmo Park to the Interstate 70 overpass. In addition, the project filled in two sidewalk gaps; one on Rose Drive and one on Aaron Drive.

*Oakland Gravel Road Sidewalk:* This project included the construction of 5-foot wide sidewalk along the west side of Oakland Gravel Road between Vandiver Drive and Grizzly Court. The project also included a signalized pedestrian crossing across Oakland Gravel Road at the intersection with Vandiver Drive.

*Maguire Boulevard Sidewalk:* This project included the stabilization of the rock face and the re-construction of 5-foot wide sidewalk along both sides of Maguire Boulevard between the two bridges.

*Sidewalk Renovation Cost Shares:* The renovation cost share projects include repairing sidewalk on the west side of 9<sup>th</sup> Street between Broadway and Alley A and repairing sidewalk on the north side of Walnut Street between Providence Road and 1<sup>st</sup> Street.

## Sidewalk Projects: Summary of ADA Improvements

Project Name	Sidewalk (LF)	Curb Ramp (#)	Pedestrian Signal	Crosswalk (LF)
Old Fire Station #7 Sidewalk	110	0	No	0
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	0
Green Meadows Sidewalk	295	0	No	0
Hominy Trail East (Phase II)	6,180	3	No	0
Manor Sidewalk	2,525	3	No	20
Forum Pedestrian Bridge	2,325	4	No	0
Worley Sidewalk	90	0	No	0
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 Crossing-Woods Edge	0	2	Yes	30
Chapel Hill Sidewalk	480	0	No	0
Sinclair Sidewalk (Muirfield)	655	1	No	0
Whitegate Sidewalk	1,890	2	No	0
Southampton & Sinclair Gaps	0	0	No	0
Carter Lane Sidewalk	925	7	No	0
Lynn, Oak, Sexton Sidewalk	950	2	No	0
Shepard to Rollins Trail	3,170	2	No	0
Sinclair Sidewalk (Nifong)	2,575	1	No	0
Hitt Street Sidewalk	130	1	No	0
McKee Street Sidewalk	1,215	2	No	0

Leslie Lane Sidewalk	800	2	No	0
St. Charles Sidewalk	3,205	4	Yes	48
North Stadium Boulevard	2,330	22	2 RFB, 1 Signal	400
Oakland Gravel Road	1,695	11	1 Signal	65
Maguire Boulevard	645	0	NA	0
2023 Sidewalk Cost Shares	425	0	0	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 Avenue (south of University Avenue to north of Rosemary Lane); plus installation of two mid-block pedestrian crosswalks. At each mid-block crosswalk, the High-intensity Activated Crosswalk beacons (HAWK) signalized crossing were used. The HAWK signal stops traffic to allow pedestrians to cross College Avenue.

*Collage and Broadway Pedestrian Signals (MoDOT ROW):* This project included the installation of audible pedestrian signals on all corners of the intersection of Collage Avenue and Broadway. The signals included audible 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 of Worley Street and Clinkscales Road. 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 at the intersection of Stadium Boulevard and Old Highway 63.

*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 at the intersection of Waco Road and State Route B.

*Providence Road Improvements – Stewart to Stadium (MoDOT ROW):* This project included the improvements at the intersections of Providence Road with

Turner Avenue, Rollins Street, Burnam Avenue, Bingham Road, Kentucky Boulevard, and Brandon Road. Curb ramps, crosswalks, and pedestrian islands were constructed at each intersection. The intersections of Turner/Providence and Burnam/Providence also included the installation of audible pedestrian signals with countdown timers. In addition, existing sidewalk was reconstructed where acceleration and deceleration lanes were constructed. Finally, 6-foot wide sidewalk at back of curb was constructed along Burnam Avenue between Providence Road and Birch Road.

*Worley at the Health Department):* This project included the installation of curb ramps, crosswalk, and pedestrian flashing beacons crossing Worley to connect the two bus stops at the City/County Health Department.

### **Year 2018:**

*Clark Lane Sidewalk at Highway 63 Connector (MoDOT ROW):* This project included the installation of sidewalks, curb ramps, crosswalks, pedestrian islands, and pedestrian signals on the north crossing of the Highway 63 Connector at Clark Lane. The project also included sidewalk along Clark Lane.

*Bike Boulevard (MKT to Parkade) (MoDOT ROW/City ROW):* This project included the installation of 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 Avenue curb ramps, a center pedestrian island, crosswalks, and flashing pedestrian beacons were installed. At the intersection of Providence Road with Forest Avenue 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.

### **Year 2019:**

*Nifong at Woods Edge Road:* This project included the installation of curb ramps, crosswalk, a pedestrian island, and pedestrian flashing beacons crossing Nifong at Woods Edge Road to serve Mill Creek Elementary School.

### **Year 2020:**

No intersections projects were completed this year.

## Year 2021:

### *Rangeline (Route 763) and Smiley Intersection Improvements (MoDOT ROW):*

This project included the installation of audible pedestrian signals and replacing curb ramps and crosswalks at the intersection of Rangeline Street and Smiley Lane.

## Year 2022:

*4<sup>th</sup> Street and Broadway Pedestrian Crossing:* This project included the construction of curb ramps, cross walks, pedestrian islands, and flashing beacons at the intersection of 4<sup>th</sup> Street and Broadway.

## Year 2023:

*Worley at West and Worley at Bernadette:* This project included the modification of the intersection pedestrian signals to include the audible feature at two locations along Worley Street. The improvements also included replacing curb ramps that do not meet ADA criteria.

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

Project Name	Sidewalk (LF)	Curb Ramp (#)	Pedestrian Signal	Crosswalk (LF)
Worley and Clinkscates	90	4	Intersection	150
Worley at Health Department		2	Flashing Beacon	36
Broadway and Aldeah		2	Flashing Beacon	50
Nifong at Woods Edge Rd		2	Flashing Beacon	45
4 <sup>th</sup> St at Broadway	90	2	Flashing Beacon	75
Worley at West	140	7	Intersection	225
Worley at Bernadette	95	6	Intersection	275

## **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. The list also includes repair of existing bus shelter pads.

### **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
- White Gate (Parks and Recreation property, includes sidewalk)

### **Year 2019:**

- Broadway at Broadway Shopping Center
- Clark Lane at Lakeview Mall
- Providence/Carter Lane
- Worley Street at Lasalle Lane (Repair of existing boarding pad and sidewalk)

### **Year 2020:**

- Clark Lane at Pine Grove Village

### **Year 2021:**

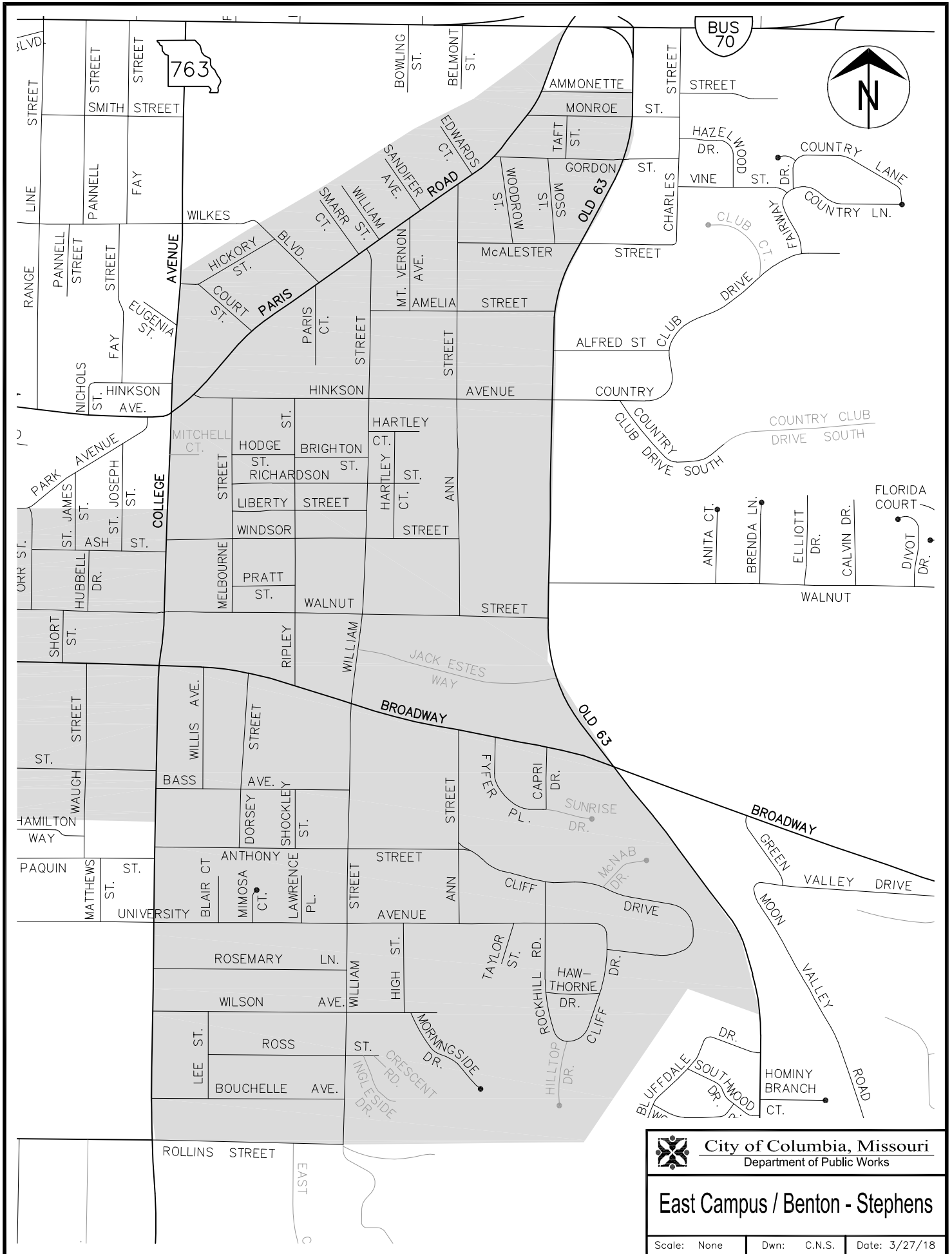
- Worley Street at the Health Department (south side of Worley) replaced existing bus shelter with a MU student designed larger/eco-friendly bus shelter.

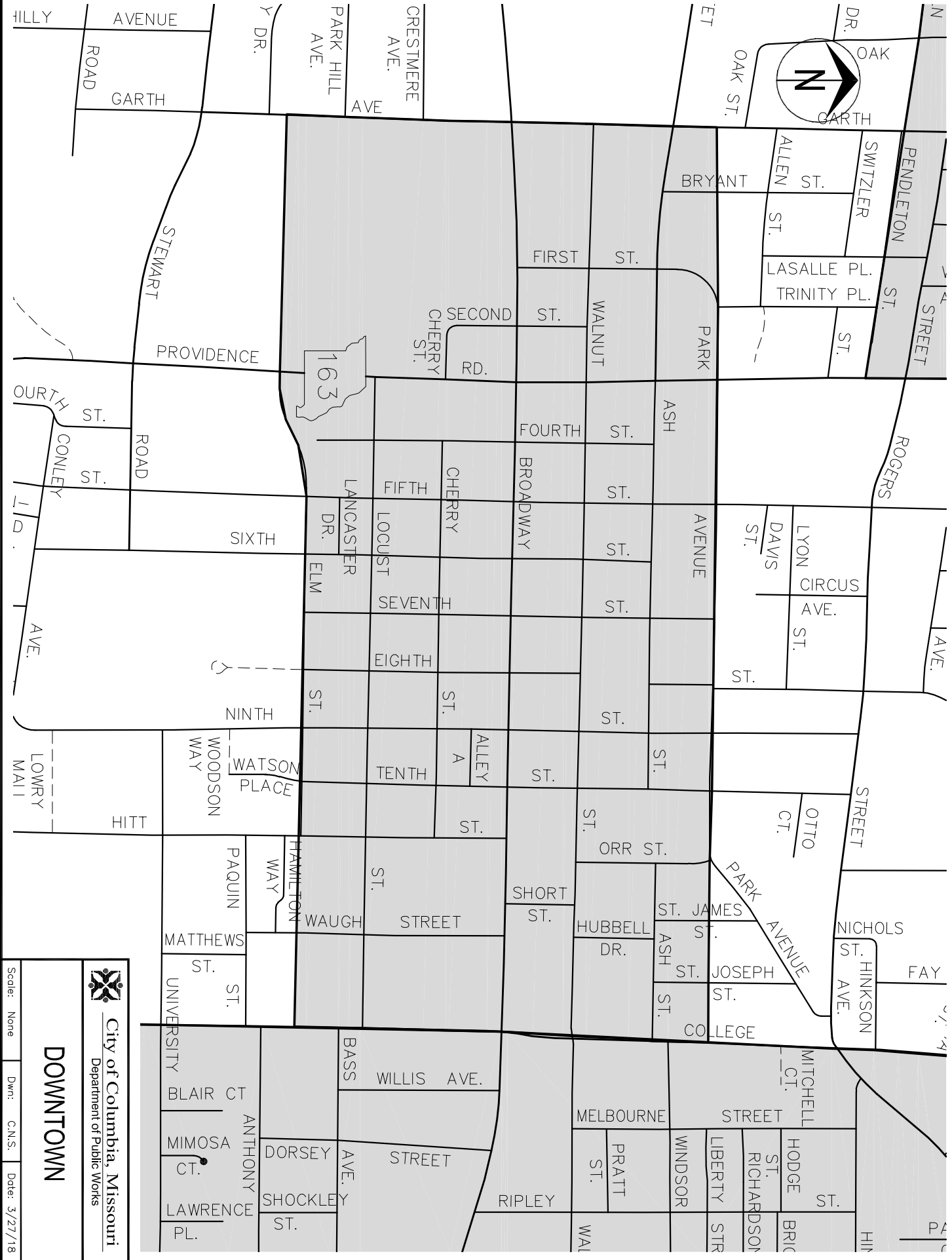
**Year 2022:**

No bus shelter projects were completed this year.

**Year 2023:**

Tiger Avenue at Rollins Street  
Garth Avenue at Oak Towers  
Paris Road at Hinkson Avenue



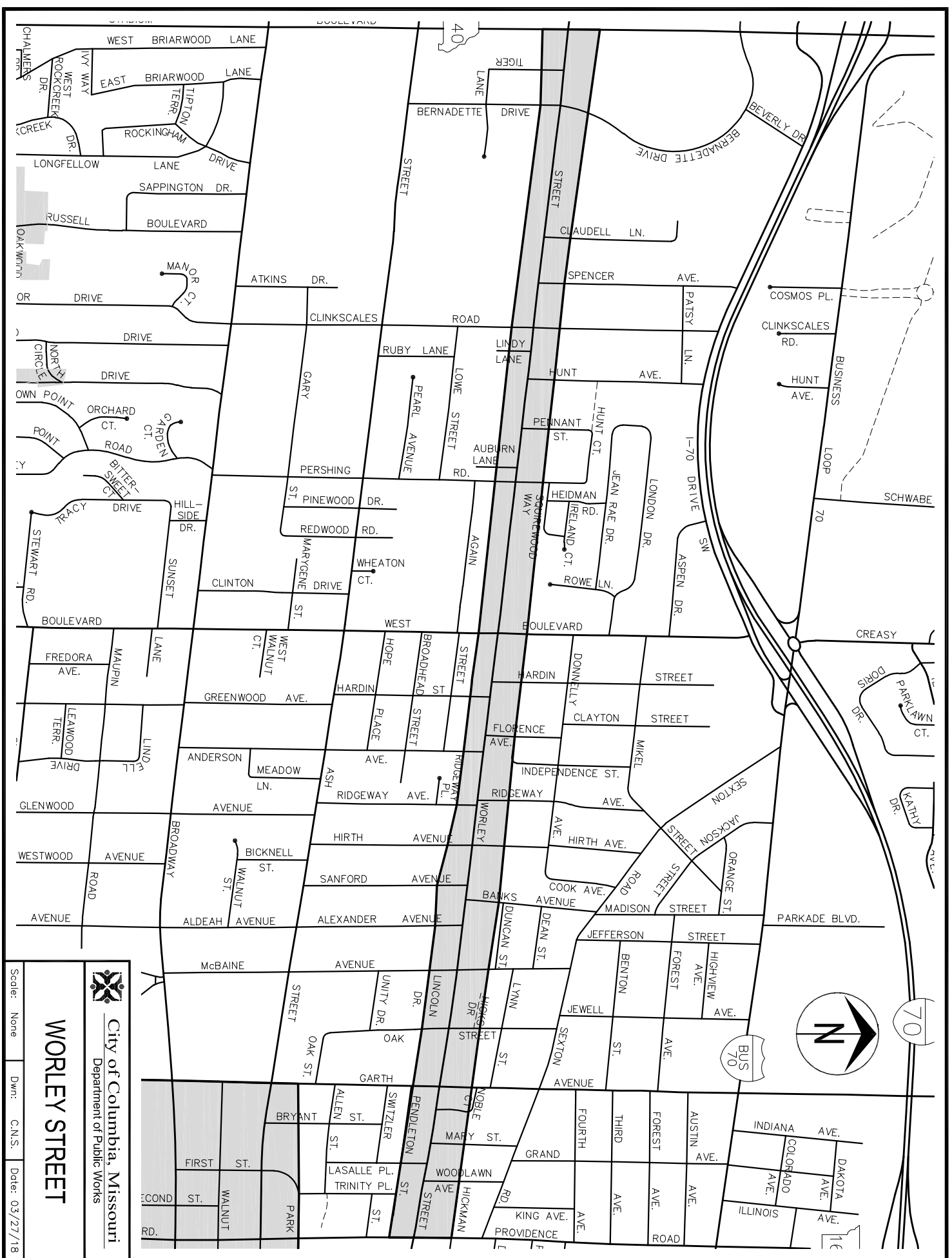


City of Columbia, Missouri  
Department of Public Works

# DOWNTOWN

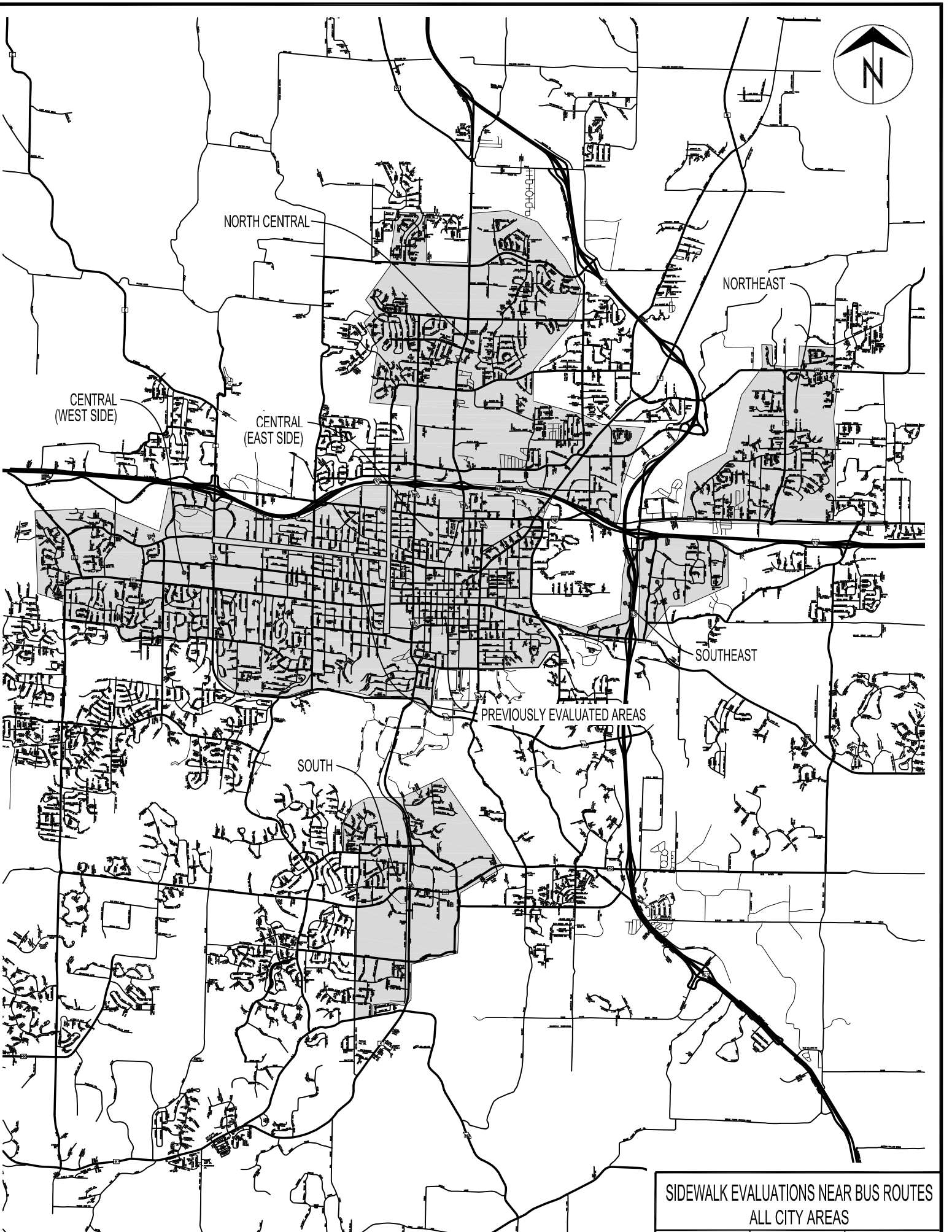
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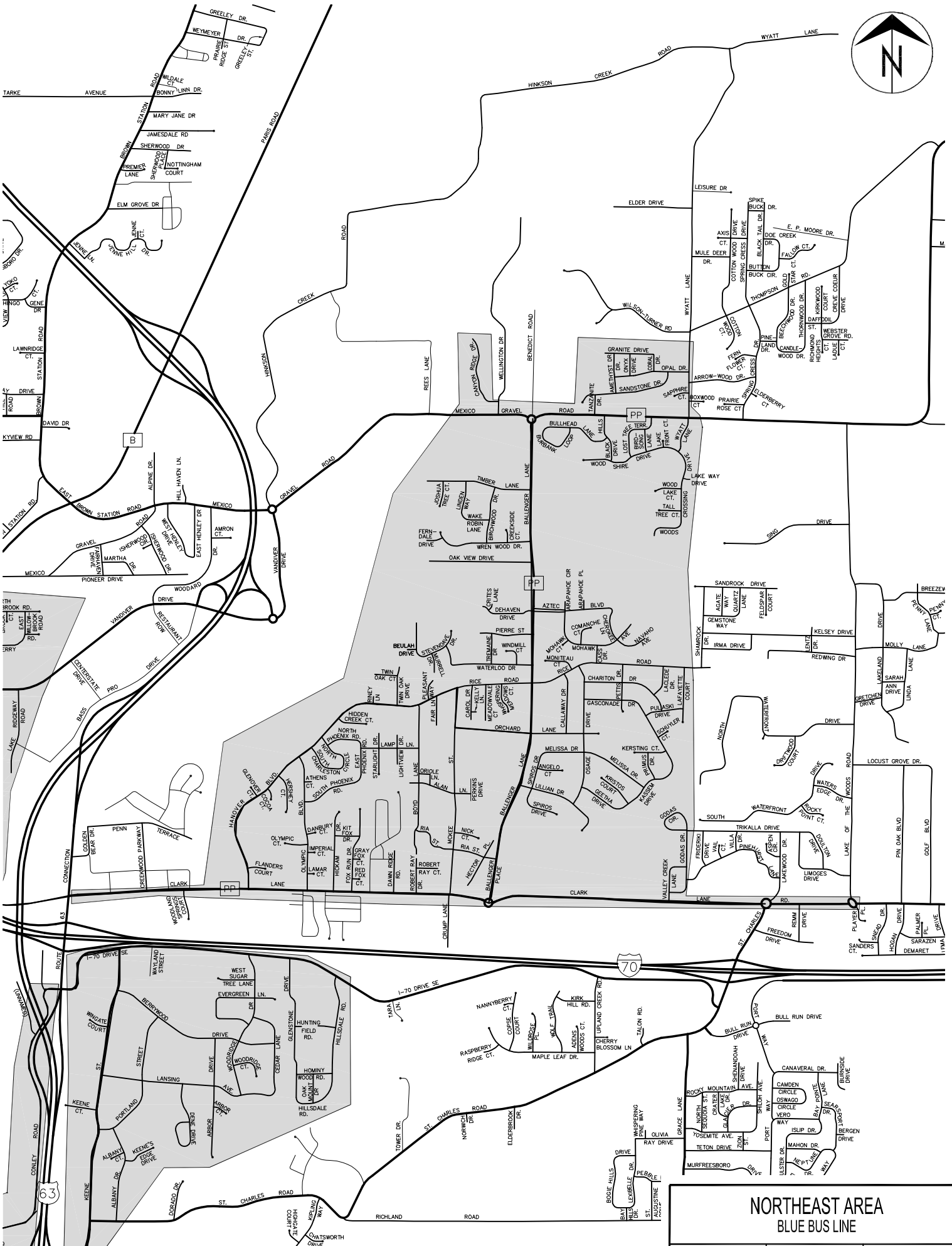
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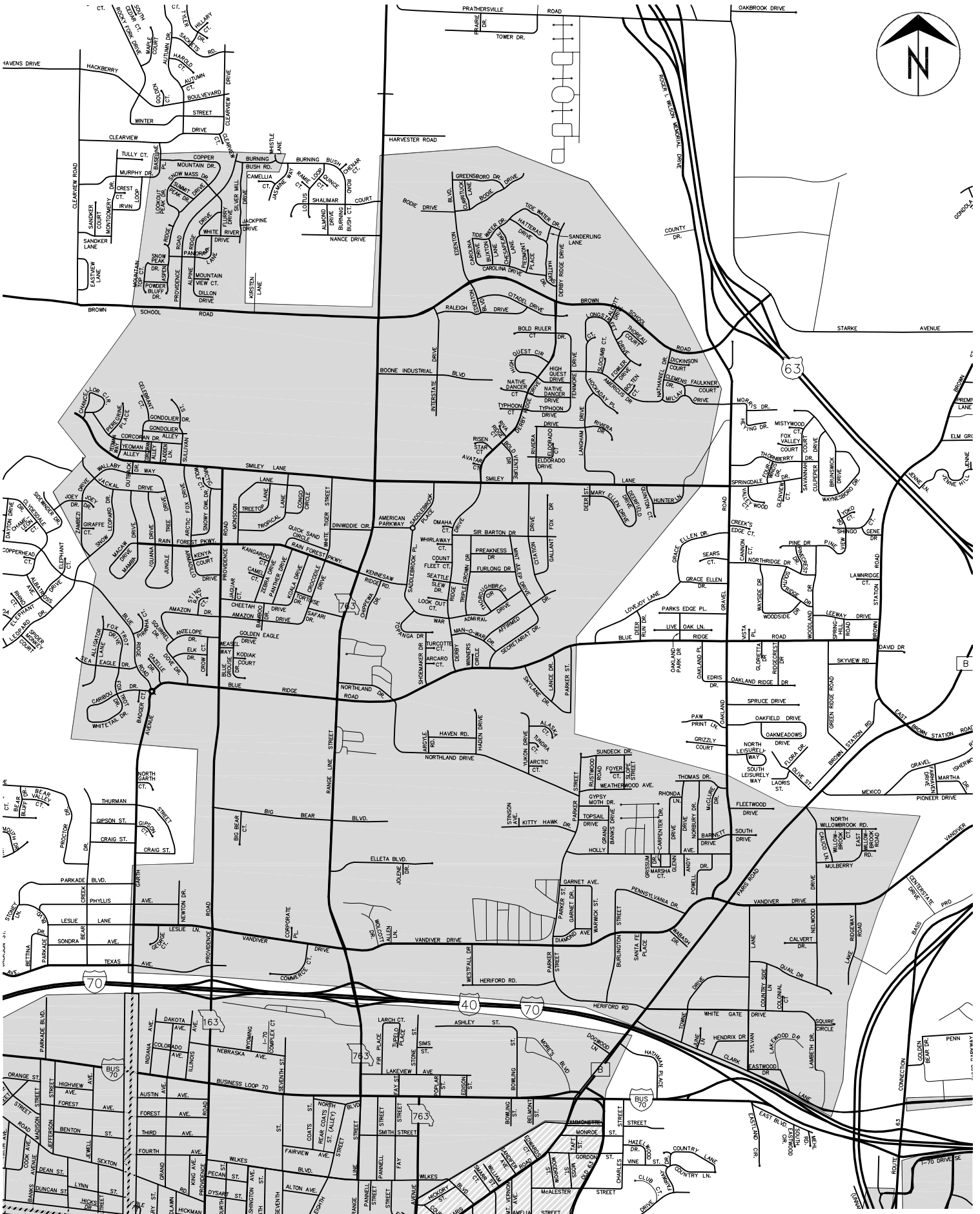
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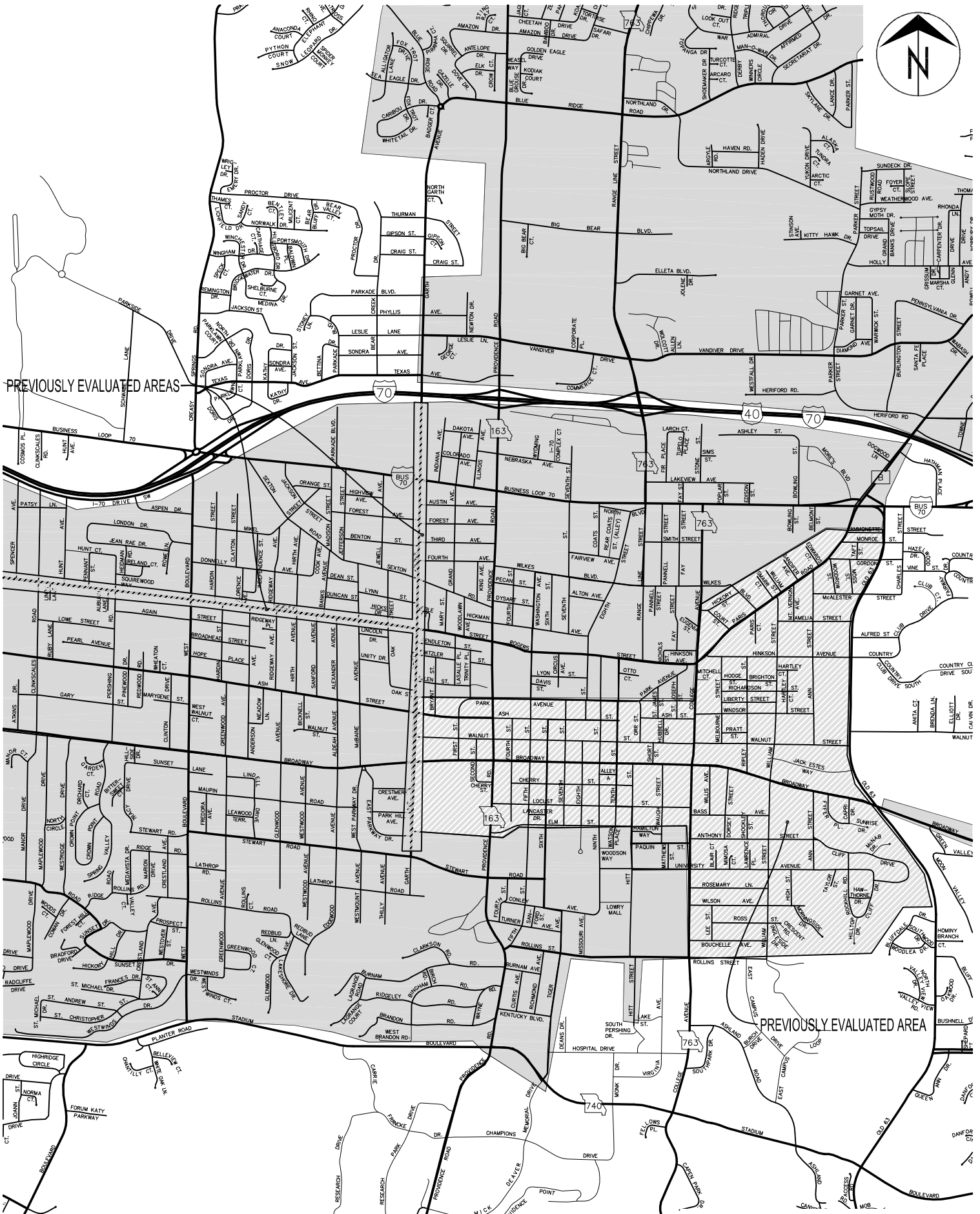


**NORTHEAST AREA  
BLUE BUS LINE**

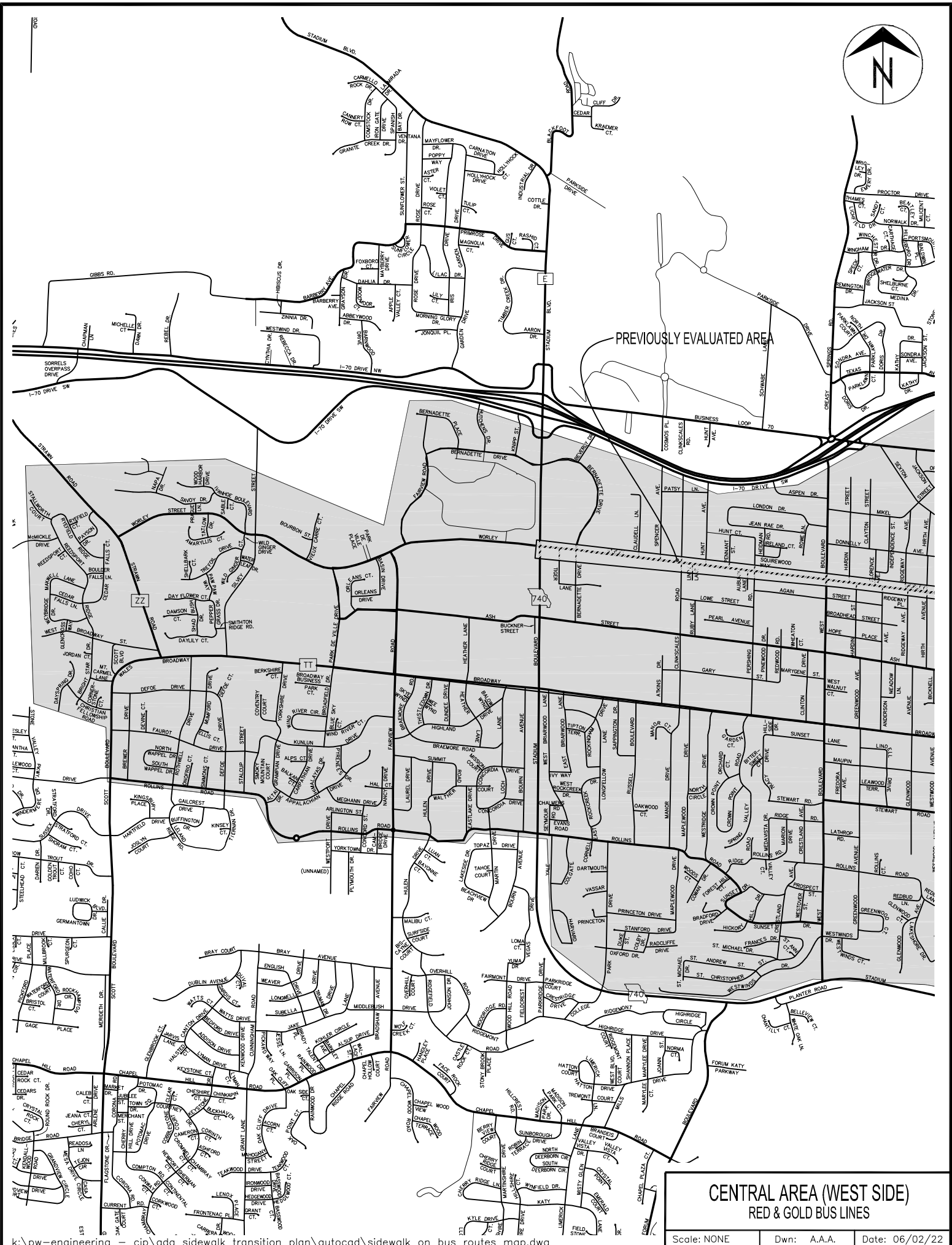


**NORTH CENTRAL AREA**  
**ORANGE & GOLD BUS LINES**

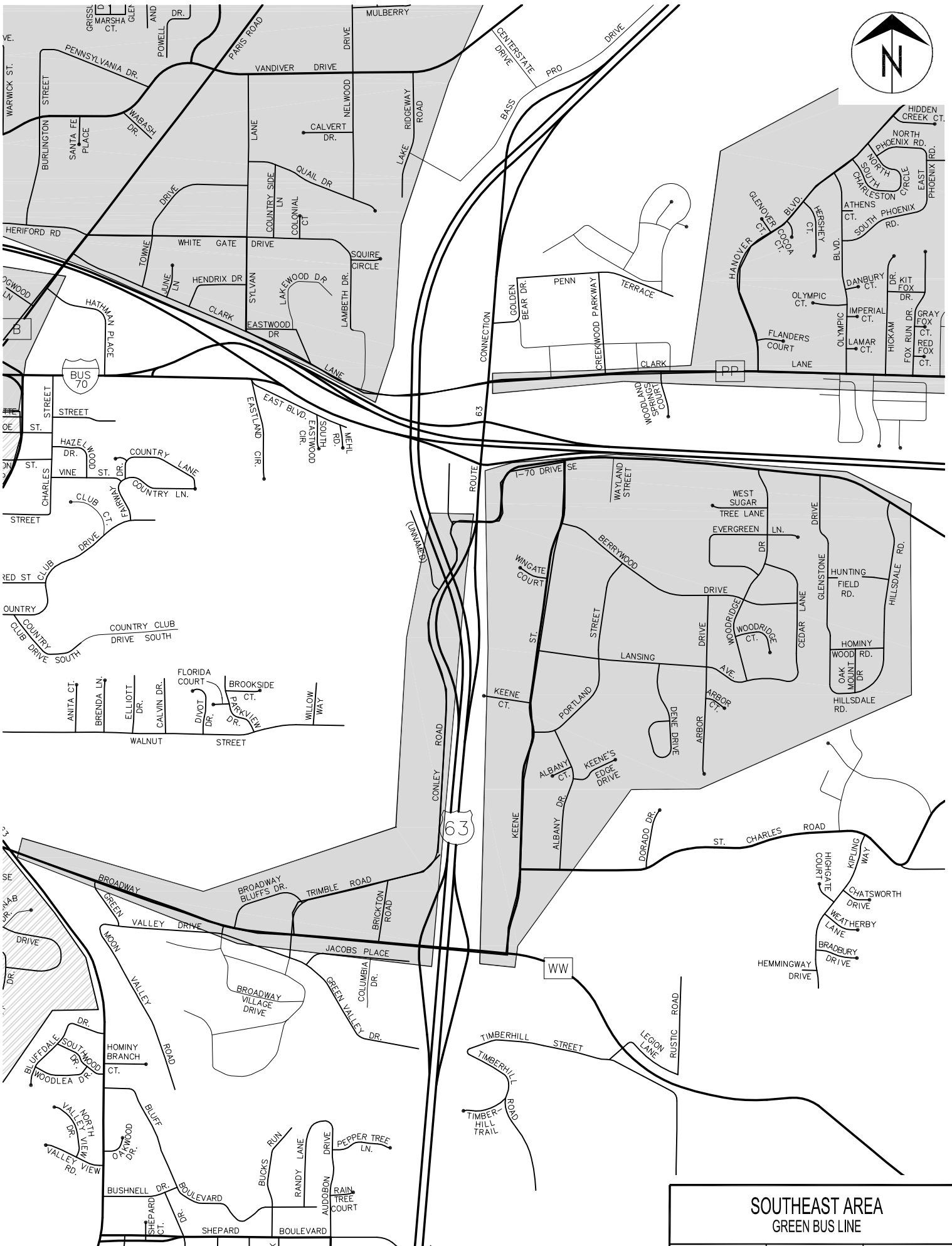
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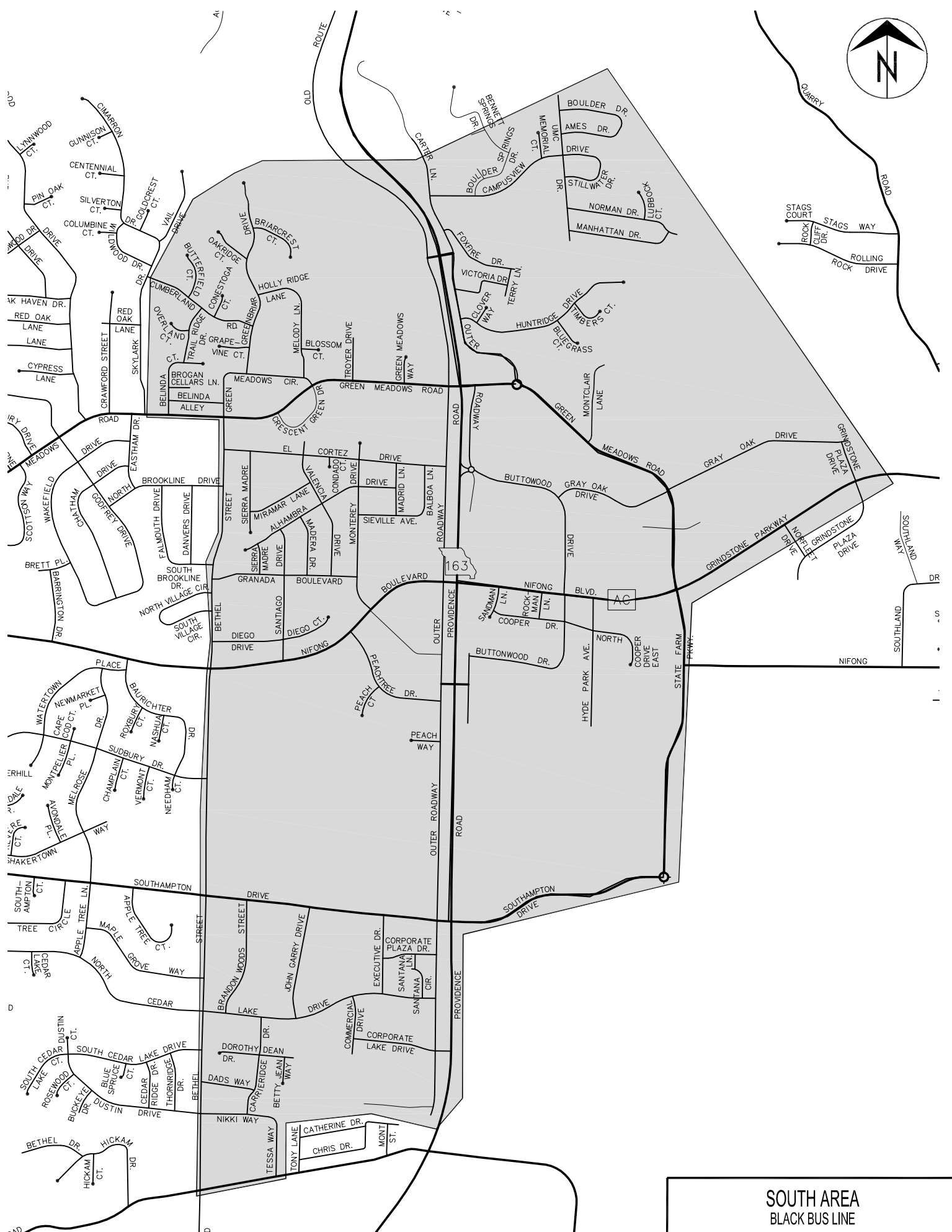


CENTRAL AREA (EAST SIDE)  
RED & GOLD BUS LINES



CENTRAL AREA (WEST SIDE)  
RED & GOLD BUS LINES





**SOUTH AREA  
BLACK BUS LINE**

Scale: NONE	Dwn: A.A.A.	Date: 06/02/22
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## 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 uses an app developed by the GIS Department 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.

### Sidewalks:

In 2018, there were a total of 1867 sidewalk sections 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*.

No additional sidewalk sections were inventoried using the app from 2019 through 2023, but existing sidewalk segments are evaluated when designing road and sidewalk improvement projects and repairs to the existing sidewalks are included in the design.

On average, it costs approximately \$5,500 per location to repair the sidewalk when replacing a block run of sidewalk.

### Driveways:

In 2018, there were a total of 1203 driveway sections inventoried. Of those driveways, 287 segments were ranked as *Compliant*, 637 segments were ranked as *Substantially Compliant*, and 279 segments were ranked as *Correction Recommended*.

No additional driveway sections were inventoried using the app from 2019 through 2023, but existing driveway sections are evaluated when designing road and sidewalk improvement projects and repairs to the existing driveway segments are included in the design.

On average, it costs approximately \$6,500 per location to repair the driveway.

### Curb Ramps:

In 2018, there were a total of 645 curb ramps 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*.

In the summer of 2023, various curb ramps were evaluated in relation to the asphalt overlays as part of the pavement management program. As Public Works complete asphalt overlay projects each summer, staff evaluates the curb ramps along the road corridor that was overlain to determine which curb ramps do not meet ADA requirements. The replacement of these curb ramps are being

compiled into a bid document to be repaired through acquiring a contractor using the competitive bid process.

On average, it costs approximately \$1,300 per location to repair each curb ramp.

#### Signalized Pedestrian Crossings:

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

All the City maintained signalized pedestrian crossing have been evaluated. As Public Works installs additional crossings, they are installed to meet ADA requirements.

The City is working to improve existing signalized crossings with audible pedestrian signals (APS). The City upgraded the signals at Worley/Bernadette and at Worley/West with APS features over the summer of 2023. Additional signals will be upgraded with road improvement projects.

#### 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*.

All the City maintained bus shelters have been evaluated. As Public Works installs additional bus shelter pads, they are installed to meet ADA requirements.

The City reduced the bus routes in 2019 due to budget and ridership. Thus, of the 6 pads ranked as *Correction Recommended*, only two remained in the bus system. One of the pads has been repaired. The estimated cost for repairing the other bus shelter pad is \$5,000.

#### Obstructions:

In 2018, there were a total of 4892 obstructions inventoried. Of those obstructions that ranked as *Correction Recommended*, 84 had a significant cross slope, 66 had a significant running slope, 2,420 had a trip hazard, 471 had a gap or crack hazard, 116 needed a bottom landing, 156 needed a top landing, and 236 had a fixed protruding object. On average, it costs approximately \$800 per location to repair each obstruction that is ranked as *Correction Recommended*.

## Proposed Sidewalk Repairs Based on Inventory, Requests, and Cost Share Projects:

### Bus Shelter Pads Summary:

The City's bus routes were largely condensed in June of 2019. Bus shelters were removed in locations where the buses no longer had routes. The bus routes are once again being reviewed by a consultant in 2023 to review the existing routes and make recommendations to improve the system. Once the Transit study has been completed, additional locations for bus shelters may be determined. Any bus shelter pads will be constructed to ADA standards.

The bus shelter pad at the Keene St & Women's and Children's Hospital is the one pad that is still in need of improvement. This location is a shelter with the boarding pad offset from the shelter. The existing boarding pad has a slope of 6.5% perpendicular to the road. The boarding pad and a portion of the sidewalk needs to be replaced in order to meet the required cross slope. Due to the complexity of the project, and the review of the bus system, it has not been determined when this pad will be repaired.

### Signalized Pedestrian Crossings Summary:

All of the inventoried signalized pedestrian crossings were ranked as *Compliant* or *Substantially Compliant*. The City has been working to improve the existing signalized pedestrian crossing with assessable pedestrian signals (APS) at locations requested by the Disabilities Commissions and the local chapter of the Missouri Federation of the Blind. The improvements cost approximately \$80,000 per intersection.

Locations where APS are planned to be installed or have been installed include:

1. Rangeline Road and Smiley Lane (Construction in 2021)
2. Worley Street and West Boulevard (Construction in 2023)
3. Worley Street and Bernadette Drive (Construction in 2023)
4. Worley Street and Garth Avenue (Construction date undetermined)
5. Garth Avenue and Business Loop 70 (Construction with Business Loop corridor improvements)

MoDOT is planning to install APS improvements at Providence Road and Green Meadows Road; Worley Street and Stadium Boulevard; and Mick Deaver Drive and Stadium Boulevard. The City may install APS at these locations if MoDOT is not able to complete the improvements.

### City Properties Summary:

Improvements to renovate sidewalks, curb ramps, and driveway accesses within right of way on city properties have been completed on the City properties maintained by Public Works, Utilities, Fire, Police, and Health departments. The improvements were completed through the first half of 2022. The Parks and Recreation department is in the process of repairing the sidewalks along their properties.

### Disabilities Commission Requests Summary:

The Disabilities Commission has requested that the existing sidewalks be evaluated and renovated along the following streets:

1. Walnut Street between Williams Street and College Avenue (Completed in 2023)
2. Park Avenue between 10<sup>th</sup> Street and Rogers Street
3. Fay Street between Business Loop 70 and Hinkson Avenue
4. Stadium Boulevard & Broadway - Northwest corner curb cut and walkway
5. Broadway & Waugh Street Pedestrian Crossing ramps (To be completed early 2024)
6. Stadium Boulevard between Ash Street and Bernadette – Push buttons

Sidewalk improvements have been completed on Walnut Street between Williams Street and College Avenue. The curb ramps serving the pedestrian crossing at Broadway and Waugh Street Pedestrian are included in a bid package to repair downtown curb ramp to be completed early 2024. The remaining locations are being evaluated.

### Sidewalk Renovation Cost Share Program Summary:

On November 6, 2023 the City Council approved revising the sidewalk ordinance to include a residential sidewalk renovation cost share program. The City also has a downtown sidewalk renovation cost share project that is outlined in the sidewalk ordinance. The cost share program reimburses property owners 50 percent for sidewalk repairs and 100 percent for curb ramp repairs within the City right of way or easement.



## 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 2024

#### Street Projects

*Ridgemont Bridge:* This project includes the replacement of the Ridgemont bridge over County house Branch. The project will also include the construction of 8-foot wide sidewalk along the south side of Ridgemont between College Park Drive and Highridge Drive.

#### Sidewalk Projects

*Scott-Broadway Sidewalk:* This project includes the construction of 6-foot wide sidewalk along the northwest side of Scott Boulevard/Broadway between Christian Fellowship Road and Silvey Street to replace the asphalt shoulder.

*Hinkson Avenue Sidewalk:* This project includes the construction of 5-foot wide sidewalk along the south side of Hinkson Avenue between College Avenue and Nichols Street and the construction of 5-foot wide sidewalk on both sides of Nichols Street.

*Greek Town Sidewalk:* This project includes the construction of 5-foot wide sidewalk to fill in the sidewalk gaps along Curtis Avenue and the repair of the existing sidewalks in Greek Town (bordered by Providence Road, Rollins Street, Kentucky Boulevard, and Tiger Avenue).

*Grindstone Parkway Sidewalk:* This project includes the construction of 5-foot wide sidewalk along the south side of Grindstone Parkway to fill in the sidewalk gap between the existing sidewalk west of the intersection with State Farms Parkway and the existing sidewalk west of Norfleet Drive.

*Sexton Road Sidewalk:* This project includes the removal of the existing sidewalk and construction of 6-foot wide sidewalk along the south side of Sexton Road between Garth Avenue and Mary Street. Two crosswalks that access the elementary school will also be reconstructed.

## Construction Year 2025

### Street Projects

*Ash Street Improvements – Providence to Clinkscales:* This project includes the construction of 8-foot wide sidewalk along the north side of Ash Street and the construction of 5-foot wide sidewalk along the south side of Ash Street between Providence Road and Clinkscales Road. The project also includes a continuous bike lane along the south side of the street.

*Route K and Old Plank Roundabout:* This project includes the construction of a single lane roundabout at the intersection of Route K and Old Plank Road. The project will also include 5-foot wide sidewalks and crosswalks with pedestrian islands on all legs of the roundabout.

*Garth Avenue Major Maintenance – Texas Avenue to Thurman Street:* This project includes dig out repairs and an asphalt overlay of Garth Avenue between Texas Avenue and Thurman Street. The project will also include sidewalk and curb ramp repairs, reconstruction of crosswalks, reconstruction of side street approaches, and curb replacements at various locations along both sides of Garth Avenue.

### Sidewalk Projects

*St. Charles Sidewalk:* This project includes the construction of an 8-foot wide sidewalk along the north side of St. Charles Road between Clark Lane and Demaret Drive. The project also includes a crosswalk with flashing beacons at Golf Drive.

*Oakland Gravel Road Sidewalk:* This project includes the construction of a 5-foot wide sidewalk along the west side of Oakland Gravel Road between Blue Ridge Road and Smiley Lane to fill in the sidewalk gaps.

*Vandiver Drive Sidewalk:* This project includes the construction of a 5-foot wide sidewalk along the south side of Vandiver Drive between Parker Street and Oakland Gravel Road to fill in the sidewalk gaps.

## Construction Year 2026

### Street Projects

*Fairview and Chapel Hill Roundabout:* This project includes the construction of a single lane roundabout at the intersection of Fairview Road and Chapel Hill Road. The project will include 5-foot wide sidewalks and crosswalks with pedestrian islands

on all legs of the roundabout. The project will also include a 5-foot sidewalk along the northeast side of Chapel Hill Road to fill in the sidewalk gap.

*Forum Boulevard Improvements – Chapel Hill to Woodrail:* This project includes the construction of two additional driving lanes, turn lanes, bike lanes, sidewalks, and intersection improvements along Forum Boulevard between Chapel Hill Road and Woodrail Avenue. The project also includes a new bridge over the Hinkson Creek and connections to the MKT trail.

## **Sidewalk Projects**

*Broadway Sidewalk:* This project includes the construction of 5-foot wide sidewalk along the south side of Broadway between West Boulevard and Stadium Boulevard to fill in the sidewalk gaps.

## 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	7th Street	9th Street	7
Anthony Street	Williams Street	College Avenue	5
9th Street	Walnut Street	Broadway	4
Southpark Drive	College Avenue	Ashland Road	1
Redcastle Court	Strathmore Drive	South End	2
Hubbell Drive	Ash Street	Walnut Street	3
Laurel Drive	Summit Road	Fairview Road	2
Summit Drive	Fairview Road	Walther Court	2
Sable Court	Ivanhoe Boulevard	South End	2
Ivanhoe Blvd	Worley Street	West End	6
4th Street	Stewart Road	Conley Road	2
Burrwood Drive	Oakhaven Drive	North End	1
Gillespie Bridge	Scott Boulevard	Chapel Hill Road	1
Country Club Drive	Alfred Street	Old 63 Highway	1
Audubon Drive	Stadium Boulevard	Shepard Boulevard	14
Blue Ridge Road	Roundabout	Piranha Court	4
Towne Drive	Clark Lane	Whitegate Drive	2
Whitegate Drive	Paris Road	Sylvan Lane	2
Blue Ridge Road	Brown Station Road	Intersection	4
Forum Boulevard	Stadium Boulevard	Katy Lane (Bridge)	10
Limerick Lane	South Deerborn Circle	South End	4
Sandman Lane	Nifong Boulevard	South End	4
Cooper Drive	Buttonwood Drive	Sandman Lane	2
Ammonette Street	Paris Road	Old Highway 63	4
State Farm Parkway	Grindstone Pkwy	Nifong Blvd	2
Southampton Drive	Driveway	Roundabout	4
Lynnwood Drive	Green Meadows Road	North End	3
Louisville Drive	Chapel Hill Road	Georgetown Drive	12
Diego Court	Santiago Drive	East End	2
Westridge Drive	West Broadway	Rollins Road	1
Pecan Street	Providence Road	Washington Avenue	2
Dysart Street	Providence Road	Washington Avenue	2
Mikel Street	Sexton Road	Orange Street	2

Forum Katy Parkway	Forum Boulevard	East End	2
Rollins Street	College Avenue	Williams Street	8
Topsail Drive	Parker Street	Grand Banks Drive	4
Christian Fellowship Road	Scott Boulevard	Dayspring Drive	10
Aaron Drive	Stadium Boulevard	Timber Creek Drive	2
Timber Creek Drive	Aaron Drive	Route E	2
Corporate Place	Vandiver Drive	North End	2
Ash Street	Providence Road	Heather Lane	36
Brown School Road	Providence Road	Stark Avenue	17
Total Number of Ramps to Replace =			206

Overlay projects with sidewalk from summer 2021

Street Name	From	To	# of Ramps
Buxton Lane	Carolina Drive	Tide Water Drive	4
Chesapeake Lane	Carolina Drive	Tide Water Drive	4
Carolina Drive	Tide Water Drive	Hatteras Drive	2
Tide Water Drive	Carolina Drive	Derby Ridge Drive	3
Hatteras Drive	Derby Ridge Drive	Tide Water Drive	4
Piedmont Place	Carolina Drive	North End	2
Sanderling Drive	Hatteras Drive	Tide Water Drive	4
Dayspring Drive	North End	South End	3
Bright Star Drive	Broadway	South End	8
Mount Carmel Lane	Bright Star Drive	Scott Boulevard	4
Jordon Court	Bright Star Drive	West End	2
Cornerstone Court	Christian Fellowship	North End	2
Port Way	Canaveral Drive	South End	10
Canaveral Drive	Port Way	Burnside Drive	2
Longfords Mill Drive	Red Bay Creek Road	Red Bay Creek Road	2
Barksdale Mill Drive	Route KK	Longfords Mill Drive	4
Savoy Drive	Ivanhoe Boulevard	Prague Lane	2
Prague Lane	Savoy Lane	Worley Street	2
Heatherstone Court	Regal Way	East End	2
6th Street	Broadway	Elm Street	5
William Street	Paris Road	Broadway	20
Walnut Street	Providence Road	College Avenue	23
Ash Street	Providence Road	10th Street	14
Again Street	West Boulevard	Pershing Road	3
Rain Forest Parkway	Rangeline Street	Concrete Section	52
Vandiver Drive	Providence Road	Route B	2
Parker Street	Vandiver Drive	North End	6

Blue Ridge Road (mid)	Concrete Section	Rangeline Street	12
Blue Ridge Road	Garth Roundabout	Asphalt Section	8
Thornberry Drive	Oakland Gravel Road	Culpepper Drive	10
Vawter School Road	Scott Boulevard	New roundabout	2
Total Number of Ramps to Replace =			253

Overlay projects with sidewalk from summer 2022

East Pointe Drive	Stadium Boulevard	South End	8
Edgewood Avenue	Stewart Road	South End	2
Mexico Gravel Road	Roundabout/PP	End of Concrete	2
Providence Road	Blue Ridge Road	Smiley Lane	1
Derby Ridge Drive	Brown School Road	North End	6
Conley Road	I-70 Connector	Broadway Bluffs	1
Rollins Road	Sunset Drive	Stadium Boulevard	22
Spring Cress Drive	Mexico Gravel Road	North End	15
Broadway	Stephens Lake Park	Brickton Road	8
Broadway	Hitt Street	College Avenue	4
Broadway	College Avenue	Williams Street	6
Broadway	Williams Street	Stephens Lake Park	9
Amazon Drive	Stringray Court	Providence Road	2
Providence Road	Blue Ridge Road	~350 Feet South	1
Mamba Drive	Rain Forest Parkway	Macaw Drive	4
Macaw Drive	Rain Forest Parkway	Mamba Drive	4
Curtis Avenue	Burnam Avenue	Kentucky Boulevard	4
Matthews Street	University Avenue	Pacquin Street	4
Kentucky Blvd	Providence Road	Tiger Avenue	6
Burnam Avenue	Providence Road	Richmond Avenue	2
Broadway	Clinkscales Road	Stadium Boulevard	6
Dorsey Street	Broadway	Anthony Street	6
Willis Avenue	Broadway	Bass Avenue	2
Brickton Road	Broadway	Trimble Road	2
Lakeview Avenue	Rangeline Street	Edison Street	1
Mount Vernon Avenue	Paris Road	Amelia Street	4
Louisville Drive	Smith Drive	County Line	9
Wilkes Boulevard	Providence Road	7 <sup>th</sup> Street	3
7 <sup>th</sup> Street	Business Loop 70	Wilkes Boulevard	2
Garth Avenue	Business Loop 70	I-70 Overpass	1
Rangeline Street	Business Loop 70	Rogers Street	6
Total Number of Ramps to Replace =			162

Overlay projects with sidewalk from summer 2023

Hitt Street	Broadway	Rollins Street	10
Locust Street	Hitt Street	College Avenue	3
Heather Lane	Ash Street	Broadway	2
Ann Street	Walnut Street	Paris Road	9
Sussex Drive	125' east Shoram Court	400' west Damien Drive	4
Henley Drive	Mexico Gravel Road	Entire Length	3
Broadway	Garth Avenue	Providence Road	4
Bernadette Drive	Fairview Road	345' west Knipp Street	1
Upland Creek Road	I-70 Drive Southeast	Entire Length	6
Opal Drive	Amethyst Drive	Wyatt Lane	10
Oak Street	Sexton Road	Garth Avenue	9
Granite Drive	Coral Drive	Entire Length	2
Amethyst Drive	Granite Drive	Sandstone Drive	4
Alsup Drive	Bradshaw Avenue	Talent Drive	6
Wallace Street	Chapel Hill Road	Alsup Drive	2
Kohler Circle	Talent Drive	Entire Length	2
Talent Drive	Chapel Hill Road	Kohler Circle	2
Carter Lane	325' south Foxfire Drive	350' north Campus View	1
Green Meadows Road	Grindstone Parkway	Bethel Street	28
Lynn Street	McBaine Avenue	Garth Avenue	2
Black Hills Drive	Woodshire Drive	Mexico Gravel Road	4
Burbank Loop	Bullhead Lane	Entire Loop	2
Bullhead Lane	Black Hills Drive	Burbank Loop	2
Woodshire Drive	Wood Lake Court	WestEnd/WoodsCrossing	10
Willow Creek Lane	Nifong Boulevard	Entire Length	2
Unity Drive	Oak Street	McBaine Avenue	2
Lincoln Drive	Oak Street	McBaine Avenue	2
Walnut Street	Providence Road	Garth Avenue	6
Kirk Hill Road	Upland Creek Road	Wolf Trail	2
Total Number of Ramps to Replace =			142

## **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 2024:**

Additional bus shelter locations will be determined based on the CoMo Transit Study which should be completed in early 2024.



# City of Columbia - Sidewalk Closure Policy

## I. Introduction

A basic requirement of work zone traffic control, is that the needs of pedestrians, including those with disabilities, must be addressed and in a manner compliant with the Americans with Disabilities Act (ADA). If a sidewalk is closed for construction, then a temporary alternate pedestrian access route (PAR) is required. See Public Rights of Way Accessibility Guidelines (PROWAG) sections R104.2 and R205 and Manual on Uniform Traffic Control Devices (MUTCD) sections 6D.01, 6D.02, 6G.05, 6F.63, 6F.68, and 6F.71 for additional guidance on the alternate PAR. The temporary alternate PAR may be a partial sidewalk closure (a barricaded alternate route through the construction area) or a full sidewalk closure (detoured route around the area), and the alternate PAR shall include basic accessibility features to ensure all pedestrians, including people with disabilities, can reach their destination safely. The purpose of this policy is to ensure sidewalk closures in the community are accessible to all pedestrians.

## II. ADA Compliance for Sidewalk Closures

### A. Sidewalk Closures by City

Any sidewalk closures where the construction being performed is by City staff shall be done in accordance with the ADA, in consideration of the standards and guidance in PROWAG and MUTCD.

### B. Sidewalk Closures by Outside Organization

Any contractor or outside organization closing a sidewalk in the City shall do so in accordance with the ADA, in consideration of the standards and guidance in PROWAG and MUTCD. It is the responsibility of the contractor to ensure its traffic control plan, including barricades, signage, and other temporary traffic control measures, comply with all federal, state, and local laws, including the ADA. The City reserves its authority to monitor closures and suspend construction work on any closures which do not meet these requirements, as well as take any other enforcement action as provided by law.

### C. Training

Additional training for design and installation of temporary alternate PAR for closure of sidewalks during construction can be found at the following link: [ADA pedestrian temporary access](#). This link provides a video developed by the West Virginia LTAP on ADA in temporary traffic control for building accessible and detectable work zones. City staff designing and inspecting the traffic control for temporary alternate PAR will review this video or similar training videos at least once per year and meet once per year to review compliance effort and ADA requirements.

## III. City's Sidewalk Closure Permit Requirements

### A. General

A right of way permit is needed any time work is performed within the public right of way or street/sidewalk easement. When working in the right of way requires the full closure or partial

closure of a sidewalk, the applicant will need to submit the application for Street/Sidewalk Closure and Restriction for Construction & Repairs and obtain a Right of Way Permit from the Community Development Department. A full sidewalk closure should be considered a last resort and the applicant needs to demonstrate why it is impractical to keep the sidewalk at least partially open.

## **B. Application**

With the application for Street/Sidewalk Closure and Restriction for Construction & Repairs, an applicant shall submit a temporary traffic control plan (TCP) which includes temporary traffic control measures for pedestrians. The City may require the plan be prepared by a Professional Engineer licensed to practice in the State of Missouri. The plan must follow MUTCD guidelines and include an alternate pedestrian accessible route (PAR). The plan also needs to maintain pedestrian access to transit stops and to businesses.

In creating the plan, the applicant shall consider minimizing impacts to pedestrians during the design of the traffic control plan. Activities to minimize impacts include locating lay down areas, staging, operations, equipment, etc. on private property when possible; keeping enough width of sidewalk open such that it can be accessed by pedestrians with disabilities, phasing the construction activities to minimize any sidewalk closures; and covering walkways.

When a sidewalk closure is necessary, an alternate PAR shall be provided. If possible, a reasonably safe route that does not cross that street should be provided. When pedestrians are required to cross the street, detour signage shall provide ample warning to minimize backtracking by pedestrians. The route shall be clearly marked and the route shall be detectable by visually impaired pedestrians. Finally, pedestrians should not be put in conflict with construction activities and moving or stationary construction vehicles and equipment.

## **C. Review of Traffic Control Plans**

As part of its permitting process, the City will review the Contractor's traffic control plan prior to approval of the permit. The review will consider the temporary traffic control measures proposed, the impact the proposed plan will have on pedestrians, particularly people with disabilities, and whether the construction should be a full sidewalk closure (detoured route around the construction zone) or a partial sidewalk closure (a barricaded/channelized route along the same side of the street as the construction area). **A full sidewalk closure should be considered a last resort and the applicant needs to demonstrate why it is impractical to keep the sidewalk partially open.** Each traffic control plan will be reviewed on a case-by-case basis. In determining whether a partial closure or a full closure is appropriate, the City will take into consideration the following:

1. Location of closure in consideration of number of pedestrians and significance of nearby destinations impacted;
2. Duration of the closure;
3. Nature of the construction work and pedestrian safety; and
4. Pedestrian impact and conflicts with nearby vehicle traffic.

The extent of traffic control requirements are greater for sidewalk closures in high-pedestrian areas and for longer sidewalk closure periods. The requirements are discussed in more detail in Section IV and are reflected in the compliance checklist. As previously stated, an alternate pedestrian accessible route on the same side of street as the construction work zone should be used whenever possible.

#### **D. Enforcement**

The Contractor will be required to have the temporary pedestrian traffic control structures and signs installed prior to starting work. The City inspector will make periodic inspections of the site to ensure that the structures and signs remain in compliance with the approved temporary traffic control plan. If the site is deemed non-compliant during an inspection, the City inspector will work with the Contractor to gain compliance. The Public Works director may revoke the permit to work in the right of way (issue a Stop Work Order) for any of the following reasons.

1. The Contractor does not maintain the temporary pedestrian traffic control during the work.
2. The Contractor does not comply with the temporary pedestrian traffic control plan that was approved for the permit.
3. The Contractor does not provide adequate protection for the safety of the public.
4. Any other reason authorized by law, code, policy, or rule.

For repeated issues of non-compliance by a Contractor, the City may pursue legal prosecution.

### **IV. Design Requirements for Sidewalk Closures**

When a sidewalk closure is needed for construction activities, an alternate PAR shall be provided. This alternate PAR may be obtained by keeping part of the sidewalk open on the same side of the street, moving the route into the street, or detouring the route to the other side of the street.

#### **A. Requirements: Intermittent sidewalk closures**

A sidewalk may be closed intermittently (less than one day) because of short-term construction activities, deliveries, and movement of construction vehicles. For an intermittent sidewalk closure, a flagger or spotter shall be posted at each end of the closure for the entire duration of the sidewalk being closed. The flagger or spotter shall direct pedestrian traffic to the alternate route or stop work in the vicinity to allow the pedestrian to pass the work zone.

#### **B. Requirements: Alternate PAR along the same side of street as construction work zone**

When a sidewalk closure is needed and the alternate PAR is maintained along the same side of the street as the construction work zone, the route shall be stable, firm, and slip resistant. Pedestrians need to be separated from both construction activities and vehicular traffic. Detectable barricades are required when pedestrians are adjacent to construction activities or vehicular traffic (without a curb). The Contractor shall maintain the PAR in good condition and clear of obstructions.

Detectable barricades are required to separate pedestrians from the construction site and from vehicular traffic. A completely detectable route uses continuous detectable barricades to lead

pedestrians around the construction hazards. Detectable barricades have a continuous upper surface and a lower edge which can be detected by pedestrians with no or limited vision. Construction tape and/or traffic cones are not an acceptable method for directing pedestrians around the construction site.

An alternate PAR located along the same side of the street as the construction site shall meet the following requirements.

1. The PAR should not bring pedestrians in conflict with construction activities and moving or stationary construction vehicles and equipment.
2. Detectable barricades will need to be installed in the following situations: between the PAR and the construction site; between the PAR and vehicle traffic if the PAR is on the street; and around any pedestrian hazards such as protruding objects, large drop offs, etc.
3. The running slope of the PAR shall be less than or equal to the street running slope.
4. Cracks and vertical deflections shall be no greater than 1/4 -inch within the PAR. The contractor will need to mill or patch any vertical deflections or cracks greater than 1/4-inch.
5. Protruding obstructions under the 8-foot height may not extend more than 4 inches into the PAR.
6. The vertical clearance must be a minimum of 8 feet throughout the length of the PAR.
7. A continuous 5-foot width is needed throughout the length of the PAR. If constraints require less than a 5-foot width, there will need to be 5-foot x 5-foot passing spaces every 200 feet for wheelchair accessibility. At single locations (i.e. poles, utility cabinets, etc.) which are less than 2 feet long, the route may be 3 feet wide.
8. Any turns in the PAR will require a 5-foot x 5-foot landing with a maximum cross slope of 2% in each direction.
9. The PAR will need to be adequately lit at nighttime and will require temporary lighting if lights are removed or obstructed as part of the construction project.
10. Ramps will be required if the PAR crosses a curb or step. The ramps will need to be ADA compliant.
11. Protective overhead covering over the PAR may be needed to provide protection from falling objects from the work when the Contractor is working from overhead structures.

### **C. Requirements: Alternate PAR detoured across the street from construction work zone**

When a sidewalk closure is needed for construction activities and the alternate PAR is provided as a detour to the other side of the street or to another street; detour signage and detectable barricades shall be installed to guide pedestrians through the detour. The detour signage shall provide ample warning in order to minimize backtracking by pedestrians. The detectable barricades shall be installed to keep pedestrians separated from the construction work zone.

An alternate PAR that is detoured to the other side of the street from the construction shall meet the following requirements.

1. The traffic control must be readily detectable by a person with limited vision.
2. The detour PAR shall be clearly marked and advanced warning signs mounted on detectable barricades are required for street crossings.

3. Detectable barricades shall be used to close the sidewalk completely at the work zone. Pedestrians shall not be led into direct conflicts with vehicles, equipment, or operations.
4. An intersection crossing for the detour shall include crosswalks and curb ramps that are ADA compliant. It is preferable to cross pedestrian at an intersection instead of mid-block.
5. A mid-block crossing for the detour shall provide temporary crosswalk markings, signage, and curb ramps that are ADA compliant. The crossing shall also include a rapid flashing beacon (RFB) with associated signage.
6. The RFB push buttons shall be ADA audible and accessible. A motion sensor to provide speech message is preferred to provide instruction to pedestrians with low or no vision. A push button that continuously emits a message or chirp is also acceptable.
7. If a temporary traffic signal is used in the project, the signal shall include a pedestrian crossing phase with a push button that provides audible information.

The Contractor shall maintain the temporary traffic control structures and signs by inspecting them daily, keeping them free of debris, and making sure signage has not been moved or fallen over.

## IV. Signs and Detectable Barricades

### A. Signs

The signs used to direct pedestrians to the alternate PAR should conform to the MUTCD standards (sections 6F.13 and 6F.14). Pedestrians should be appropriately directed with advanced signage showing them how to traverse the construction site or where to cross the road. The traffic control devices shall be crashworthy presenting a minimum threat to pedestrians, workers, and vehicles.

Typical sidewalk pedestrian crosswalk and sidewalk closure signage includes the following signs.

- **PEDESTRIAN CROSSWALK (R9-8):** Used to indicate the location of a temporary crosswalk.
- **SIDEWALK CLOSED (R9-9):** Place where sidewalk closure begins.
- **SIDEWALK CLOSED, USE OTHER SIDE (WITH ARROW) (R9-10):** Place at the beginning of the closed sidewalk guiding the pedestrian to use the sidewalk on the other side of the road.
- **SIDEWALK CLOSED AHEAD, CROSS HERE (WITH ARROW) (R9-11):** Place to indicate that sidewalk beyond the sign will be closed and to cross using the crosswalk at that specific location.
- **SIDEWALK CLOSED, CROSS HERE (WITH ARROW) (R9-11A):** Place to indicate that the sidewalk is closed at the sign and to cross using the crosswalk at that location.

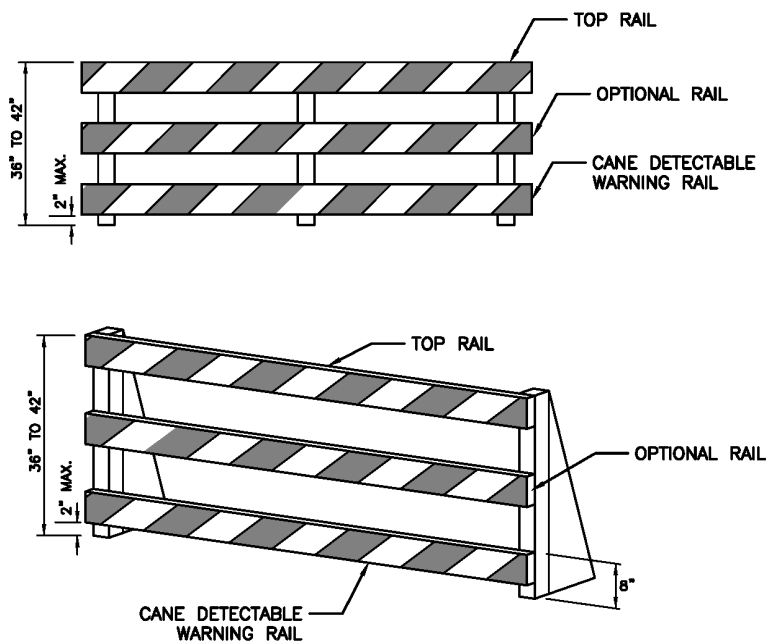
The signs are mounted on detectable barricades to communicate with pedestrians with visual disabilities. The “Sidewalk Closed Ahead” barricade should be placed so that it is visible to pedestrians and still maintain a minimum sidewalk width of 4 feet. The “Sidewalk Closed” barricades should extend the width of the sidewalk closure. Audible information may need to be provided when the detectable barricade for the PAR is not continuous or when the pedestrian

will be required to cross the road in advance of the sidewalk closure and would be required to backtrack if missed the crossing.

## B. Detectable Barricades

The detectable barricades shall include the following features.

1. A top and a bottom rail are required. The bottom rail shall be cane detectable.
2. The bottom edge of the bottom rail shall be 2 inches from the ground. The top edge of the top rail shall be between 36 inches and 42 inches from the ground.
3. Bottom rail and top rail shall be parallel to each other.
4. The rails shall be highly visible with contrasting color from the barricade (colors yellow, orange, or white).
5. The rails shall extend the full width of the barricade.
6. The detectable barricades shall extend the width of the closed sidewalk and/or the entire length of the channelized route with no gaps.
7. The detectable barricades may be a stable/non-flexible prefabricated plastic barrier (examples: Stongwall Barricades, Safety Rail, ADA Wall), a chain linked fence with rails added, or a typical sidewalk barricade with the rails added.
8. The upstream barricades' leading end shall be appropriately flared or protected with crashworthy cushions.



### NOTES:

1. RAILS SHALL BE HIGHLY VISIBLE, YELLOW, ORANGE, OR WHITE CONTRAST FROM THE REST OF THE BARRIER
2. RAILS SHALL EXTEND THE FULL WIDTH OF THE BARRICADE
3. THE BARRICADES SHALL EXTEND THE WIDTH OF THE SIDEWALK CLOSURE AND OR THE LENGTH OF THE ACCESSIBLE ROUTE WITH NO GAPS BETWEEN BARRICADES

### TYPICAL DETECTABLE BARRICADE

N.T.S.

Figure 6H-28 of the MUTCD (p. 689) shows the typical signage layout for sidewalk closure with detoured crossing at intersections and for sidewalk closure with accessible route on the same side of road adjacent to the sidewalk closure.

Figure 6H-29 MUTCD (p. 691) shows the typical signage layout for a sidewalk closure with a temporary midblock crossing and an advanced crossing at an intersection.

## **Pedestrian Traffic Control Plan Checklist**

### **Alternate Pedestrian Accessible Route (PAR) for Sidewalk Closures**

This checklist may be used for the development of the alternate pedestrian access route (PAR) for the temporary traffic control plans for both partial and full sidewalk closures.

**The checklist includes the minimum requirements for the plan. Additional traffic control measures may be required for areas with high pedestrian use and for longer duration closures.** (See PROWAG R104.2 and R205, MUTCD 6D.01, 6D.02, 6G.05, 6F.63, 6F.68, and 6F.71 for additional guidance.)

#### **General Obligations for the Temporary Traffic Control Plans**

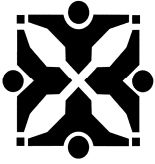
- ☐ Pedestrians shall not be led into direct conflicts with vehicles, equipment, or operations.
- ☐ Cross pedestrians at an intersection instead of mid-block, if possible.
- ☐ Clearly mark detour routes with advanced warning signs mounted on detectable barricades.

#### **Alternate PAR with Protected Partially Open Sidewalk (Preferred)**

- ☐ Continuous, clear pedestrian path along a channelized route:
  - minimum 5 feet width, 8 feet height
  - no protruding objects within clear path
  - no noticeable trip hazards or cracks (greater than 1/4-inch, determined on a case by case basis)
  - ADA compliant ramps if route crosses a curb or step
- ☐ Detectable barricades along the channelized route:
  - solid, continuous bottom rail 2 inches from ground
  - solid, continuous top rail between 36 and 42 inches from ground
  - color contrast between the rails and the barricade
- ☐ Closed, detectable barricades at the entrance to site across the width of the sidewalk except for the open, channelized pedestrian path.
- ☐ Protective overhead covering and adequate lighting for night-time, if needed.

#### **Alternate PAR with Completely Closed Sidewalks and Pedestrian Detour**

- ☐ Continuous barricades across the width of the closed sidewalk.
- ☐ Solid rails across the bottom and top of barricade:
  - solid, continuous bottom rail 2 inches from ground
  - solid, continuous top rail between 36 and 42 inches from ground
  - color contrast between the rails and the barricade
- ☐ Advanced notice signage shall not protrude from its base and not encroach on a 4-foot width pedestrian path.



**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