Active Transportation Plan for the Greater Birmingham Region

BActive
The Active Transportation Plan for the Greater Birmingham Region

REGIONAL PLANNING COMMISSION
OF GREATER BIRMINGHAM

March 2019

RPC Regional Planning Commission of Greater Birmingham

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MPO
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TOOLE DESIGN

VOLKERT

B-ACTIVE PLAN

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

YOU CAN FALL IN LOVE AT FIRST SIGHT WITH A PLACE AS WITH A PERSON.

Alec Waugh

01

INTRODUCTION

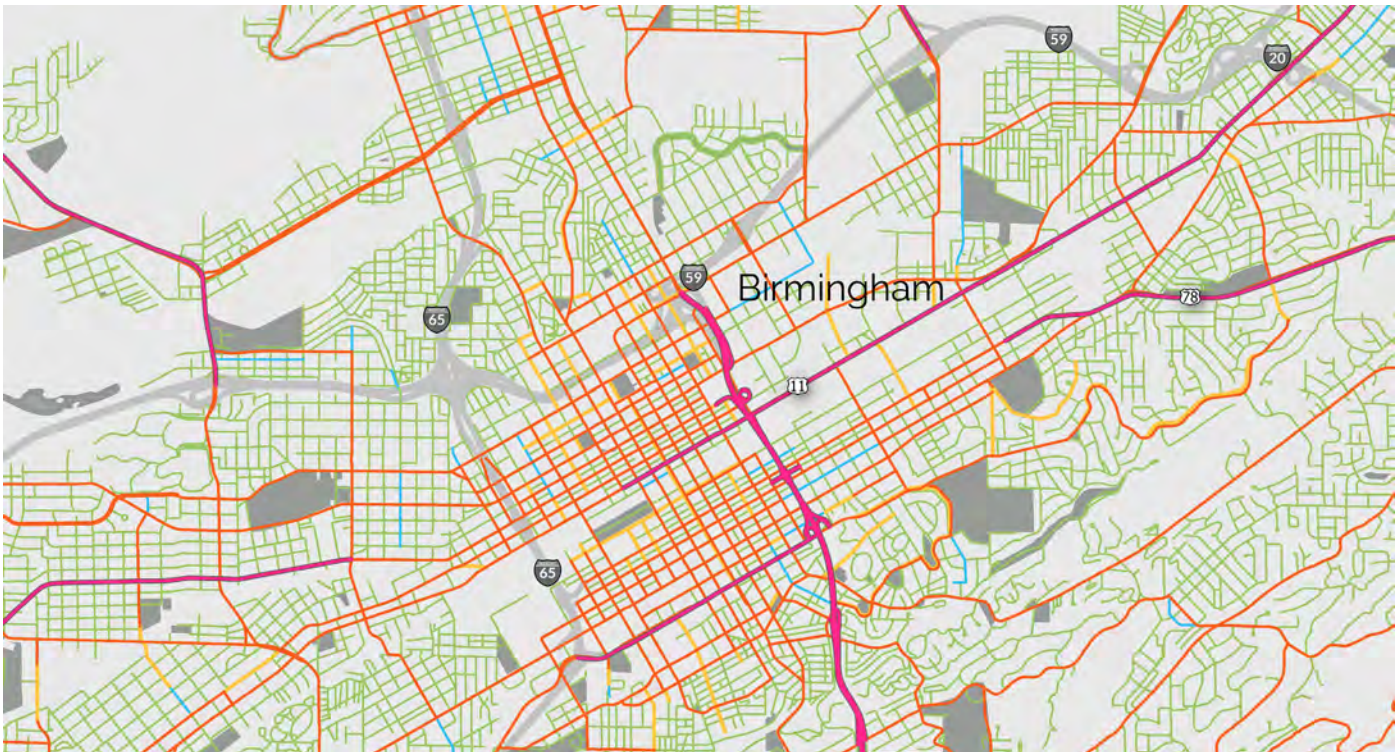
A PLAN FOR ACTIVE TRANSPORTATION

EXISTING CONDITIONS

EXISTING PLAN REVIEW

GOALS & OBJECTIVES

A Plan for Active Transportation



Active transportation:

Refers to the human-powered modes of travel such as walking and biking, primarily.

Introduction

The B-ACTIVE Plan (the Plan) is the Active Transportation Plan for the Greater Birmingham region. The purpose of the Plan is to establish a clear vision for building and expanding a multimodal transportation network in Jefferson and Shelby Counties and parts of Blount and St. Clair Counties, with specific focus on creating a cohesive system of bicycle and pedestrian infrastructure. This Plan identifies and prioritizes strategic projects to build a safer, more connected, and equitable active transportation system for the region.

Developed by the Regional Planning Commission of Greater Birmingham on behalf of the Birmingham Metropolitan Planning Organization (MPO) in conjunction with local municipalities, agencies and stakeholders throughout the region, the Plan serves several purposes:

PLANNING PROCESS

The Plan describes the network planning processes and shares the narrative of engaging with those who live in and care about the Greater Birmingham area.

COLLABORATION

It describes how the region can work together to support active transportation; it will address important transportation issues in the region, such as major barriers/ gaps in the regional system, regional connectivity, and attracting new users.

GUIDANCE

The Plan is a guide for the MPO to plan, fund, and ultimately construct more connected active transportation facilities, providing guidance for the region's local municipalities when developing their bicycle and pedestrian elements.

PLAN STRATEGY

MORE USERS.

A focus on improvements that encourage and attract more people to use active transportation in the Greater Birmingham Area.

SAFE CONNECTIVITY.

Residents of all ages and abilities feel comfortable experiencing the region and all its amenities on foot or by bike through a connected network.

IMPLEMENTATION.

Guidance is provided to enable jurisdictions to move to implementation of the active transportation network.

WHAT IS ACTIVE TRANSPORTATION?

Active transportation, also known as non-motorized transportation, refers to the human-powered modes of travel such as walking and biking, primarily. The greater Birmingham regional transportation system currently lacks sufficient non-motorized provisions along many corridors where bicycling and walking should be viable travel choices–especially for short trips. In light of rising energy costs, an aging population, public health concerns, and an increasing demand for alternatives to motor vehicle travel, there is a growing need for infrastructure and development patterns that support what has widely become known as "active transportation."

Key questions of the B-ACTIVE Plan:

- Where are the major gaps and barriers in the regional bicycle and trail system today?
- What is needed to attract new users to the active transportation network (i.e. to make people feel safer commuting by bicycle)?
- How can we increase regional connectivity?
- What and where are the key projects needed for implementation?

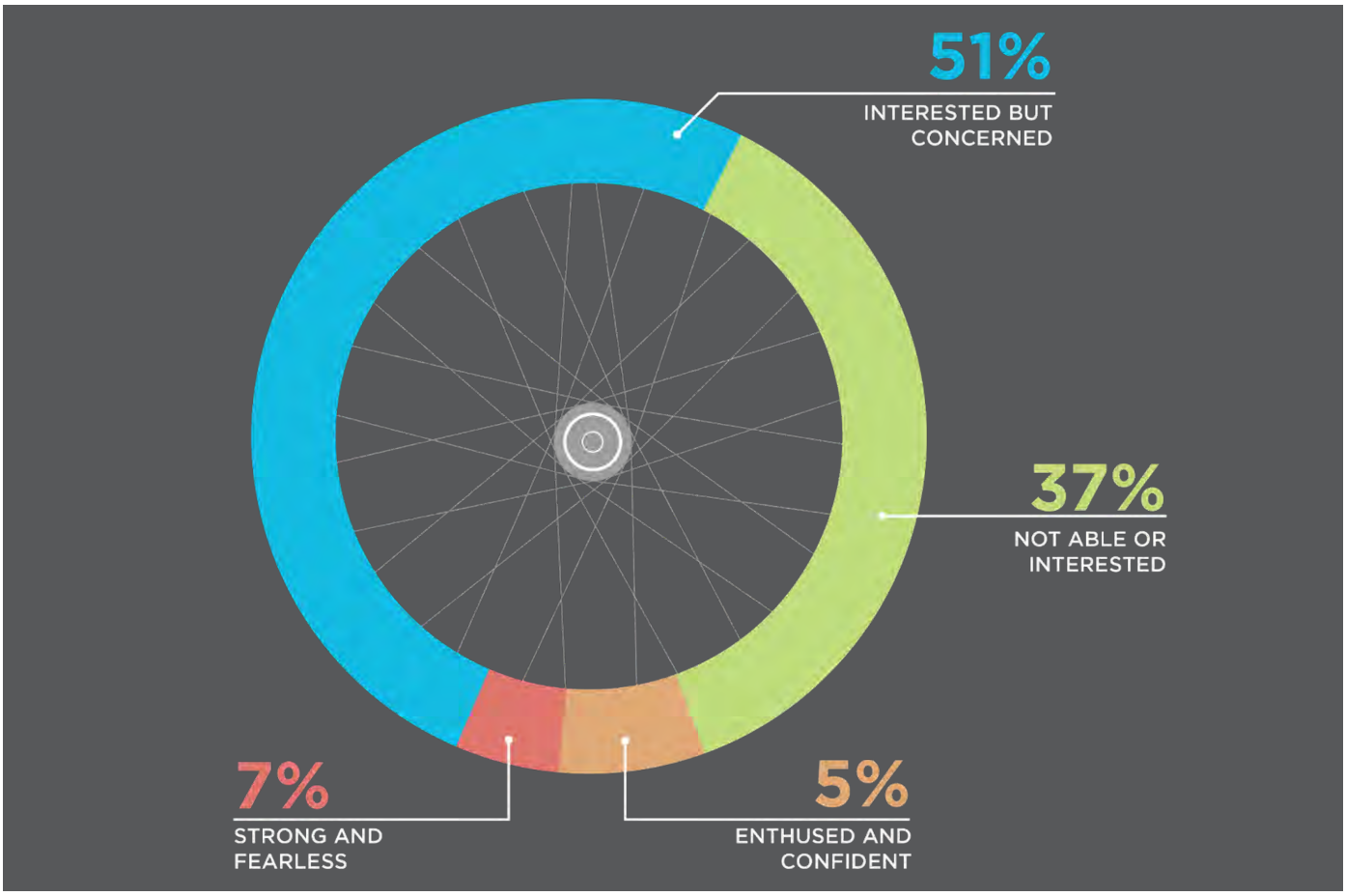
Why is the B-ACTIVE Plan important to the Greater Birmingham region?

Active transportation is an opportunity for everyone. All of us are pedestrians at some point during the day. Even if you are walking between your car in the parking lot to the grocery store's entrance, you are traveling as a pedestrian. People using walking assistance devices such as wheelchairs or walkers are also pedestrians. Whether you are an avid cyclist, occassional rider, or do not ever ride a bicycle, a safe and connected active transportation network benefits for the larger community and region. These benefits include:

PLANNING FOR A LARGER AUDIENCE

The B-ACTIVE Plan was developed with a guiding principle that recommendations and resources of this plan should be focused on creating more users rather than solely providing more lane miles of bicyle or pedestrian infrastructure. A core value of the process was to analyze and provide guidance on active transportation facilities that were attractive, safe, and connected. A larger audience, identified as the "interested but concerned" (Figure 1-1), was the target audience through the planning process. The shift toward planning and designing active transportation facilities for this larger group of community members corresponds with the overall **Goals and Objectives** of the B-ACTIVE Plan.

Figure 1-1: *National Bicycle User Type Statistics* [3]



1 *"The Role of Quality of Life in Business (Re)Location Decisions," Journal of Business Research*

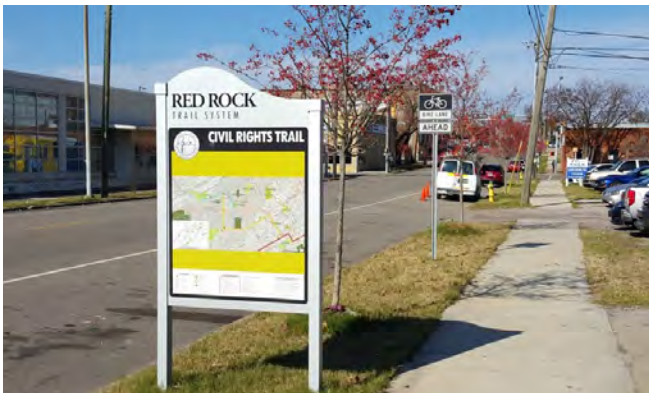
2 *"Physical Activity Guidelines," Center for Disease Control and Prevention*

3 *Dill & McNeil, 2015*

Existing Conditions

PROJECT OVERVIEW

The study limits for the Plan cover the Greater Birmingham MPO region, an area comprised of all of Jefferson and Shelby counties, along with portions of St. Clair and Blount counties. The map in Figure 1-2 shows the study area limits, city names, county lines, and major roadways.



Civil Rights Trail

Rotary Trail

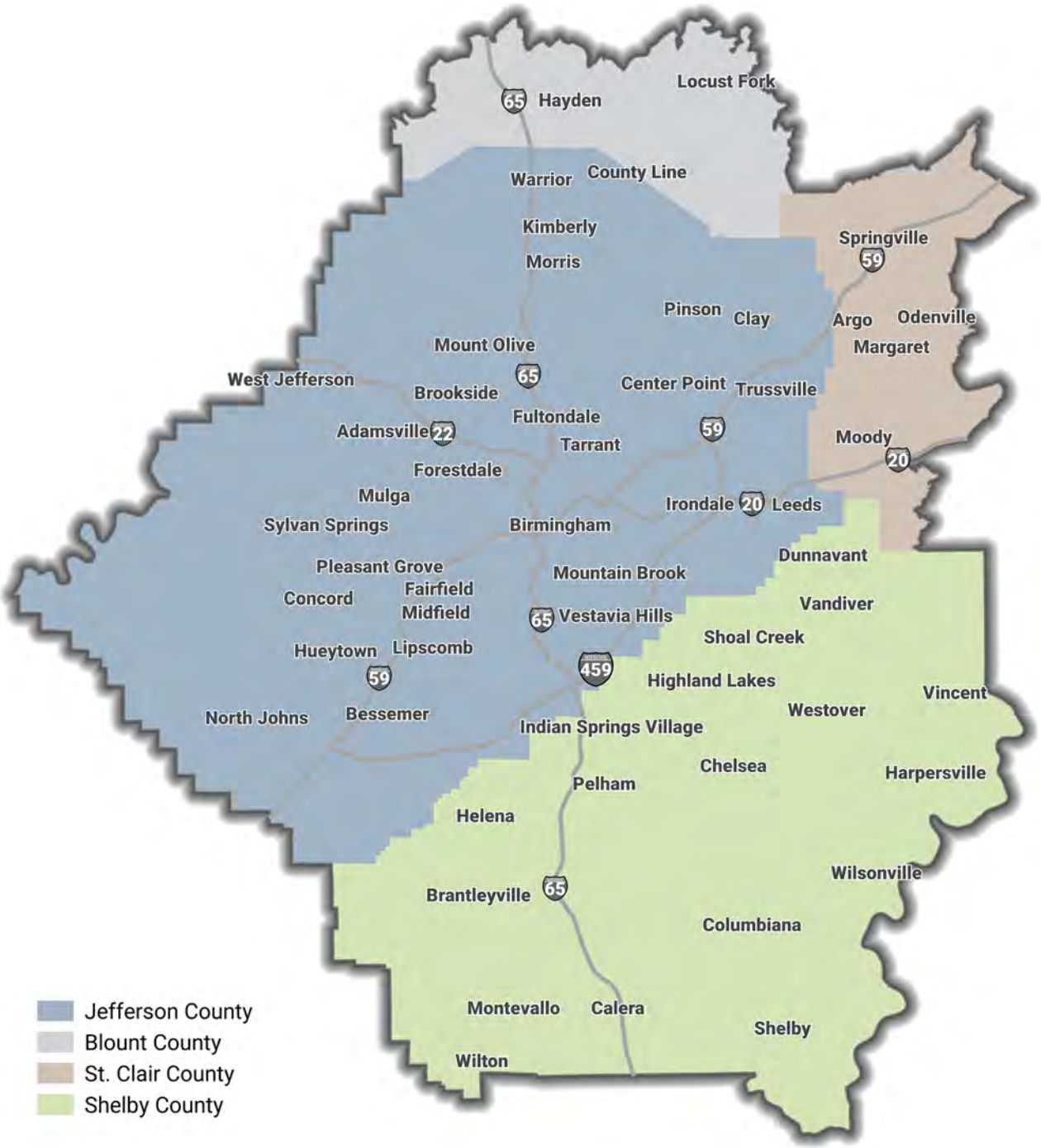
High Ore Line Trail

Enon Ridge Trail

Rotary Trail at Night

High Ore Line Trail Wayfinding

Figure 1-2: *Study Area/Birmingham MPO Region*



Existing Plan Review

The B-ACTIVE Plan considers the existing planning context and supports previous planning efforts from municipalities within the region by encouraging the same types of goals that are currently in a variety of local plans. These common goals include community development, growing the number of people biking and walking, and generating economic development in response to a more bikeable and walkable environment. The review of existing plans and policies provides a baseline understanding of the unique visions for each community and the existing regulatory context, which serves as a foundational element of both the future network design and the recommended implementation strategies. Table 1-1 summarizes key themes based on a thorough plan review.

SUMMARY

A detailed review of existing plans created several takeaways:

- Municipalities within the Birmingham region want to leverage bicycle and pedestrian infrastructure to improve transportation connectivity to and within mixed-use districts, downtowns, and other key destinations for a community (parks, community centers, hospitals, etc.). Several plans also desire to connect cyclists and pedestrians to transit in order to improve mobility across the region, not just bicycle and pedestrian transportation.
- Municipalities and other governing agencies believe that active transportation infrastructure can be used to stimulate economic growth in their jurisdictions. This creates a financial impetus for implementing a more connected and safer network of facilities across the entire region.
- Several plans identified bicycle and pedestrian infrastructure as a powerful means for beautifying communities, conserving local green space and sensitive environments, and creating a strong sense of civic connection and a unique sense of "place" that is reflective of each community.

Table 1-1: *Plan Review*

Plan	Year	Connectivity within key development areas	Economic development	Environmental protection and conservation	Sense of place and community	Safety	Education	Identifying funding and other Implementation changes	Growing ridership
Alabama Statewide Bicycle and Pedestrian Plan	2017	X	X	X	X	X	X	X	
Center Point Tomorrow Comprehensive Plan	2017	X		X		X		X	
City of Birmingham Framework Plans	2015-present	X	X	X	X	X		X	
Homewood Bikeshare Feasibility	2016	X		X					
Bicycle Friendly Community Report from the League of American Bicyclists	2016					X	X		X
Birmingham Sidewalk Master Plan	2016	X						X	

Plan	Year	Connectivity within key development areas	Economic development	Environmental protection and conservation	Sense of place and community	Safety	Education	Identifying funding and other Implementation changes	Growing ridership
Transportation Improvement Program (TIP) for Air Quality Control	2016-19		X	X				X	X
Irondale on the Move Comprehensive Plan	2016	X				X		X	X
RPCGB Active Transportation Plan for 2040	2015	X	X	X		X	X	X	X
Red Rock Ridge Valley Trail System	2010	X	X	X	X	X		X	X
UAB Road Diet/Complete Streets Traffic Study: Phase 1	2016	X				X			
Alabaster Forward Comprehensive Plan	2016	X		X	X			X	
Cahaba/Liberty Trail Feasibility Study: Overton Road & Old Overton Road	2015	X						X	
Pelham Trails and Greenway Study	2015	X	X	X				X	
Dunnavant Valley Greenway Future Phase Feasibility Study	2014	X		X				X	
Birmingham Bikeshare Feasibility Study	2014		X		X	X			X
Clay Community Greenway Feasibility Study	2007	X				X		X	
Plan for Pratt	2015	X							
Gardendale Tomorrow Comprehensive Plan	2014	X	X		X				
City of Montevallo Active Transportation Plan	2013	X		X					
City of Bessemer Master Plan	2012	X	X						
Cahaba Heights Community Plan	2012	X							
Leeds Master Plan: Leading the Way	2012	X	X		X				
Fairfield Master Plan	2011	X	X		X				
Calera Comprehensive Plan	2009	X	X	X	X				X
City of Chelsea Comprehensive Development Plan	2007	X	X	X	X	X			
Trussville Comprehensive Plan	2006	X	X						
Tarrant: A Vision Beyond 2025	2006	X			X				

KEY GOALS OF EXISTING PLANS

CONNECTIVITY WITHIN KEY DEVELOPMENT AREAS

Concentrating active transportation infrastructure around areas that (1) best support biking and walking, like dense commercial areas, residential neighborhoods, and mixed-use facilities; and (2) connect users to important amenities for equity, including transit, community centers, and parks.

ECONOMIC DEVELOPMENT

Utilizing active travel connections as a source of generating revenue and attracting visitors.

ENVIRONMENTAL PROTECTION AND CONSERVATION

Using active transportation as means of conserving or promoting green spaces and reducing pollution caused by automobile/transit travel.

SENSE OF PLACE AND COMMUNITY

Harnessing bicycle and pedestrian infrastructure as a means to grow existing community ties and enhance an area's authenticity.

SAFETY

Implementing design standards or other recommendations to encourage cycling facilities that are safe for all ages and abilities.

EDUCATION

Fostering a population that is educated about the benefits of active travel and safe travelling habits.

IDENTIFYING FUNDING AND OTHER IMPLEMENTATION CHALLENGES

Leveraging other funds, such as state or federal grants, to implement plans in the face of limited funding.

GROWING RIDERSHIP

Generating more ridership from existing active transportation users as well as encouraging others to choose active travel for trips.

"Railroad Park is truly Birmingham's front lawn, and we're grateful to partner with the city of Birmingham to provide a free, international-award-winning attraction to Birmingham's residents and visitors. We love bringing the community together through hundreds of events and by providing an attraction where lasting memories are made. We're proud to be an economic driver, event venue, community builder and, most importantly, a park that means a great deal to people across our great city."

- Camille Spratling, Executive Director of Railroad Park Foundation

Goals & Objectives

The B-ACTIVE Plan crafts a vision for the future of biking and walking in the area through strategic goal setting. It is clear that a growing population within the region hope to see an improved environment for biking and walking . The goals and objectives (Table 1-2) are the building blocks of the approach for creating an active transportation network in the Greater Birmingham area by the municipalities in the region.

Table 1-2: *Goals and Objectives*

	GOAL	OBJECTIVES
CONNECT	The Greater Birmingham area is connected through a network of low-stress bicycle facilities.	- Build connected bicycle facilities. - Remove gaps in the sidewalk network. - Provide active transportation linkages to existing transit routes and stops. - Provide users the choice to make trips to key destinations on a bike or walking.
ACCESS FOR ALL	The future network of facilities improves (1) access to active transportation routes for the entire region and (2) access for more ages and abilities to use the system.	- Provide infrastructure access points all around the region. - Provide guidelines to designing facilities that are safe enough for any type of active transportation user. - Provide users the choice to make trips to key destinations on a bike or walking.
PROTECT USERS	Implementation of the Plan decreases the number of bicycle and pedestrian crashes.	- Record and analyze yearly crash data. - Implement countermeasures at key intersections and streets that have high-density of bike/pedestrian crashes.
MORE USERS	The number of people using active transportation grows as the system is implemented.	- Implement system for measuring the number of people using the existing active transportation system. - Create yearly progress reports in tandem with new active transportation infrastructure.
POLICY SUPPORT	The network of infrastructure is supported by policies that encourage safe travel for all road users.	- Adoption of Complete Streets ordinances and policies by municipalities within the region. - Create design guidelines for facility construction. - Identify funding mechanisms for implementation.
EDUCATE	Residents of all types—students, families, children, etc.—have opportunities to learn about the benefits of active transportation and associated laws and safe practices.	- Host annual safety and encouragement event supporting all modes of transportation. - Implement biking and walking safety training in schools within the region.
PRIORITIZE, IMPLEMENT, & MAINTAIN	Key connections in the network of facilities are strategically prioritized to create a smooth path to implementation. A variety of different funding mechanisms are identified to implement and maintain the network.	- Identify “low-hanging fruit” projects and highly prioritized projects to implement first. - Provide a general timeline for implementing identified projects. - Encourage municipalities to include a maintenance schedule in annual budgets.

THERE IS A COMMUNITY OF THE SPIRIT. JOIN IT, AND FEEL THE DELIGHT OF WALKING DOWN THE NOISY STREET, AND BEING THE NOISE.

Rumi

02

MORE USERS

PUBLIC ENGAGEMENT

OUTREACH FINDINGS

Public Engagement

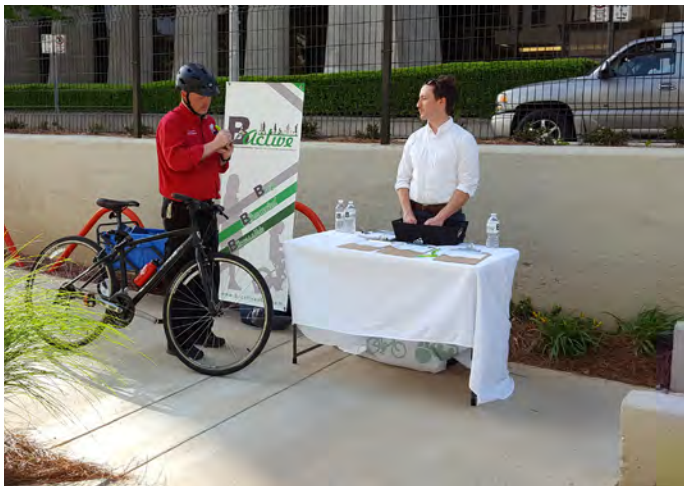
The foundations of the B-ACTIVE Plan—including policy recommendations and the proposed network of bicycle and pedestrian facilities—are the result of continual engagement with the residents, businesses, nonprofit, and other stakeholders within the Greater Birmingham area. Benefits of engaging with the public is two-fold:

» A diverse range of backgrounds, experiences, abilities, and opinions about transportation will create a stronger, more implementable, and better-serving plan and resulting transportation system, and
» Talking about biking and walking with many people helped spread the word about the B-ACTIVE Plan and the benefits of active transportation.

01 PERSONAL CONNECTIONS

The B-ACTIVE Plan used a variety of outreach strategies to hear the concerns and desires of the public throughout the planning process. The outreach resulted in a variety of personal connections, media coverage, completed surveys, and a thorough understanding of what the desired outcome of the plan should be. In addition to open houses, the B-ACTIVE Plan was also presented at other events, including a presentation at the City Parks Alliance meeting and at the Alabama Transportation Planners Association conference.

The public gave input for the B-ACTIVE Plan at several pop-up meetings (informal conversations and tabling held where people are already gathering, such as a park, an event, or trail) and through intercept surveys (engaging with people walking and riding bikes during their trips). Pop-up meetings were informal but valuable means of communicating with the community; they created casual



02 POP UP MEETINGS AND INTERCEPT SURVEYS

settings to talk about biking and walking with people who may be missed in the standard public meeting process. The intercept surveys were designed to engage people biking or walking along active transportation routes during typical commute times through single-question activities. Pop up events/intercept surveys were held in multiple locations, including:

- Birmingham Barons Games
- Rotary Trail
- Shades Creek Greenway
- UAB Campus
- Oak Mountain State Park
- Downtown Homewood
- Weekly group bicycle rides

Public voice shaped the Plan at all stages of development, including collaboration with strategic partners on an Active Transportation Committee that served as a steering committee for the Plan. These partnerships helped illustrate the area's unique landscape and transportation needs. The B-ACTIVE Plan also reflects public input received from face-to-face interaction at open houses and pop up events, as well as online interaction in the form of surveys and interactive mapping tools. The following section provides an overview of the public engagement process and summarized findings from the B-ACTIVE process. The public engagement process was comprehensive and provided a variety of opportunities for input from people throughout the region.

03 OPEN HOUSES

The public received more extensive opportunities to learn about and provide feedback for the B-ACTIVE Plan during open house events. Instead of hosting events at government buildings, the open house events leveraged community amenities within the city, such as Railroad Park and Cahaba Brewery. The open houses were highly interactive; participants could engage in the Plan in several ways, including the following exercises:

- Mapping: Study area maps (including major roads, parks, destinations, and labels) were displayed for participant review during which they noted important routes and areas of concern.
- Priority spectrum: Various types of active transportation priorities (safety, access to transit, connectivity, etc.) were displayed so that participants could identify which priorities were most important to them.
- Facility preference: Participants selected the types of active transportation facilities they most preferred.

04 INTERACTIVE OUTREACH

In addition to in-person contact, the B-ACTIVE Plan also received input from online sources. The project website contained information about the project, such as upcoming meetings, as well as links to other online engagement tools: the Wikimap, an online interactive mapping tool, and the survey. The website was visited by over 575 unique viewers, with more than 1,600 total views.

Figure 2-1: *Public Outreach Numbers*

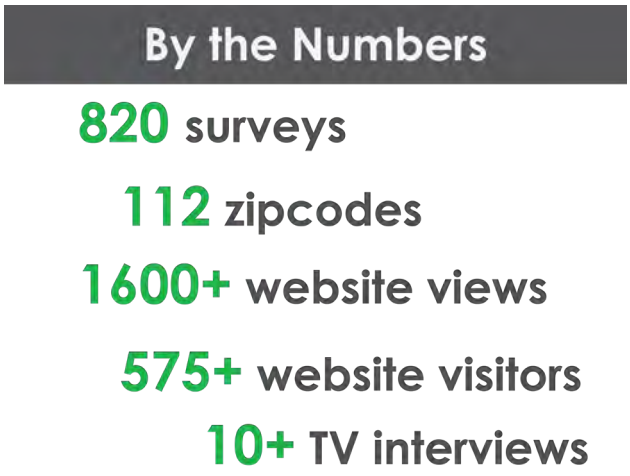
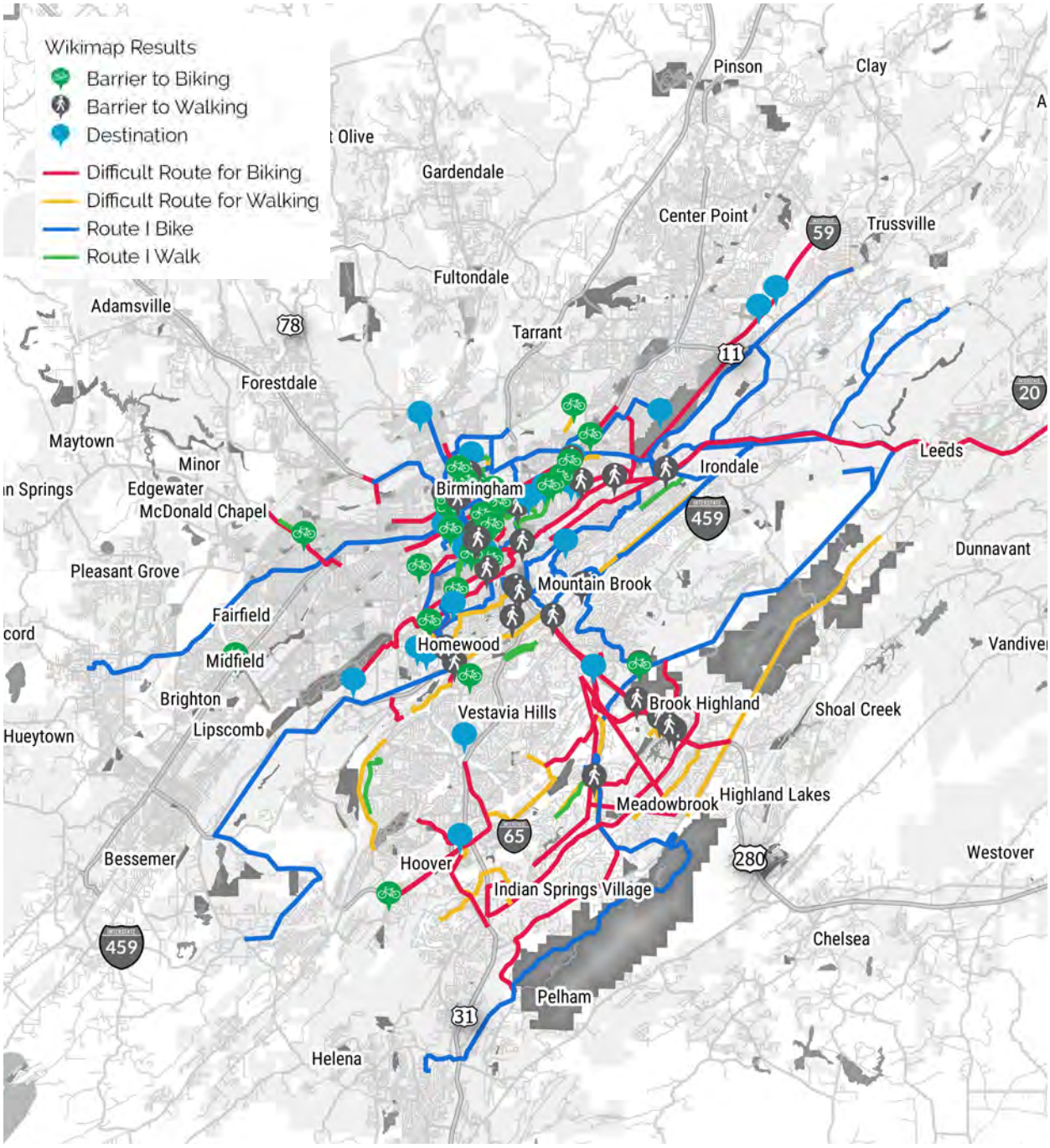


Figure 2-2: *Online Survey Results Example*

05 ONLINE SURVEYS

Participants filled out over 800 surveys. The online surveys directly mirrored the paper surveys distributed at pop up events and open houses. The surveys consisted of several questions (which can be seen in the **Appendix A**), covering themes like demographics, walking and biking barriers, and improvements to the active transportation network that would encourage more users, as well as an open comment space. Results from the survey helped identify facility preferences and areas that need to be more accessible on foot or by bike.

Figure 2-3: *Wikimap Results*



06 WIKIMAP

The B-ACTIVE Wikimap allowed participants to interact with an online map in an easy-to-use format tailored specifically to active transportation public feedback. The maps allowed for "crowdsourcing" of participants' experiences biking and walking in the Greater Birmingham area. Over 300 comments from 158 users served to identify barriers to biking and walking, routes biked and walked most frequently, routes that are presently difficult to bike and walk, and important destinations; these comments served as an additional layer of insight into local concerns and desires. The map was live from February to June 2017 and had over 300 comments.

07 COLLABORATIONS AND PARTNERSHIPS

In addition to gathering perspectives from the general public, the B-ACTIVE Plan used feedback from various stakeholders and entities that have special interest in and unique perspectives on active transportation in the Greater Birmingham area. The following section summarizes how various stakeholders provided feedback, and results from their input.

MPO'S ACTIVE TRANSPORTATION COMMITTEE

The MPO's Active Transportation Committee (ATC) served as a steering committee for the Plan development, network vetting, and public engagement strategies. Members of the ATC included representation from:

- Federal Highway Administration
- Alabama Department of Transportation
- Regional Planning Commission of Greater Birmingham
- County and Municipal Governments
  - Birmingham
  - Homewood
  - Hoover
  - Jefferson County
  - Trussville
  - Mountain Brook
  - Shelby County
- Birmingham Business Alliance
- Freshwater Land Trust
- Community Foundation of Greater Birmingham
- Jefferson County Health Department
- United Way
- University of Alabama at Birmingham (UAB)
- Zyp Bikeshare
- AARP
- Regions Bank
- Alabama Power
- Railroad Park
- Ruffner Mountain Park
- Red Mountain Park
- Engineers and planners from local consulting firms

The ATC met regularly throughout the process of developing the B-ACTIVE Plan to give input and receive updates on the planning process at milestones, during which members helped shape the Plan outcome and recommended network of facilities. The ATC also participated in "partnering workshops," or a group meeting of all key stakeholders. These workshops were often a combination of presenting materials and interactive activities to hear feedback from the larger group of key stakeholders.

ALDOT AND FHWA

During the planning process, multiple presentations were given to staff from the Alabama Department of Transportation (ALDOT) and the Federal Highway Administration (FHWA). The project team shared updates from the B-ACTIVE planning process and explained the methods that were used to create the network, including the Level of Comfort analyses that were used to understand how cyclists feel while bicycling in the area (see **Connectivity**).

STAKEHOLDER MEETINGS

Stakeholder meetings permitted individuals from organizations or people who were particularly interested in active transportation to provide input on specific topic areas. These community members and organizations offered perspectives that were valuable in shaping network and policy recommendations. Fourteen (14) stakeholders provided input for the Plan, including:

Stakeholders:

- AARP
- Alabama Power
- Freshwater Land Trust
- Goodrich Foundation
- Jefferson County Department of Health
- Lakeshore Foundation
- Railroad Park Foundation
- Regions
- Shelby County
- UAB
- UAB Minority Health & Health Disparities Research Center
- United Way
- Zyp Bikeshare

Outreach Findings

People in the region care about biking and walking and do so regularly:

- Over 60% of survey respondents are, at the minimum, interested in biking in the Greater Birmingham area.

- Nearly 75% of respondents walk at least frequently for trips, and over 50% bike at least frequently for trips.

Infrastructure and design matter:

- Some of the top most cited reasons for biking and walking are related to lack of infrastructure, intersection design, and feeling like traffic is too heavy to bike or walk. Good infrastructure design can make people feel safer, more protected from heavy traffic, and more respected on the street.

The community desires safe connections across municipal boundaries:

- Many of the comments from the Wikimap indicated that people want to see safe routes to travel between municipalities.

There is momentum behind active transportation culture in the Greater Birmingham region:

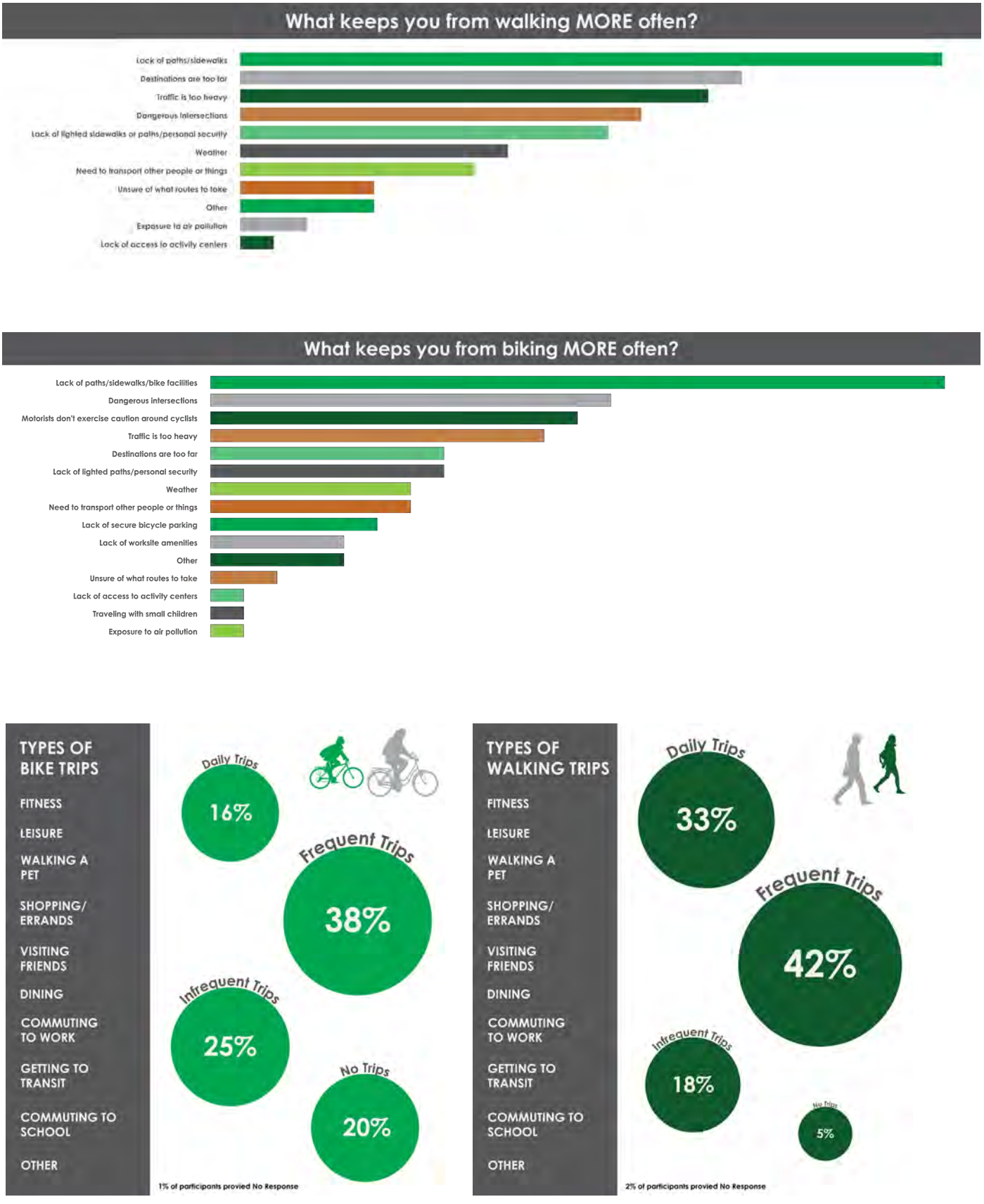
- Based on strong input from stakeholders and the general public, it is clear that biking and walking are a desired form of transportation.

Entities that are interested in biking and walking in the region want to collaborate:

- There are a variety of organizations that have started to implement change at an organizational level and are ready to partner with others to make a larger impact.

The B-ACTIVE Plan won the “2017 Outstanding Media Coverage” Award by the Alabama Chapter of the American Planning Association. Media coverage included 10+ TV interviews and 3 radio interviews.

Figure 2-4: *Survey Results*



NOTHING COMPARES TO THE SIMPLE PLEASURE OF A BIKE RIDE.

John F. Kennedy

03

CONNECTIVITY

NETWORK DESIGN APPROACH

NETWORK DEVELOPMENT

REGIONAL NETWORK

Network Design Approach

The B-ACTIVE Plan recommends a network of connected on-road and off-road bicycle facilities across the four-county region. Selection of roads, types of recommended infrastructure, and project prioritization are governed by several guiding principles:

Figure 3-1: *Illustration of Types of Cyclists*

More users and user safety are related:

Cyclists and pedestrians are more likely to use facilities where they feel safer, and people on bicycles often feel safer in groups. The network in the B-ACTIVE Plan is designed to attract new users on active transportation facilities and improve network safety.

Connected facilities increase mobility:

The B-ACTIVE Plan creates a web, or a network, of strategically selected bicycle and pedestrian facilities that are connected to one another and to existing facilities. Each project in the B-ACTIVE Plan is a vital part of connecting the entire region safely.

The B-ACTIVE network is for everyone:

The facility types (bicycle lane, buffered bicycle lane, separated facility, etc.) identified for each part of the regional network have been selected to make the entire network accessible for all ages and abilities.

Implementation is key:

The roads in the B-ACTIVE Plan are strategically selected, carefully vetted, and prioritized for efficiency in implementation.

Network Development

DEMAND ANALYSIS

For the B-ACTIVE Plan, the demand analysis locates existing demand for bicycle and pedestrian use in the region. This analysis highlights areas within the region that are already (or that could become) hubs of bicycle or pedestrian activity. The demand analysis maps are heatmaps that illustrate these locations by considering multiple weighted input factors. These resulting "hotspots" of activity can serve as connection points for future active transportation infrastructure. The methodological approach and results are discussed below.

METHODOLOGY

The demand analysis created for the B-ACTIVE Plan identifies existing and potential demand for bicycle and pedestrian activity through three analyses (Table 3-1) and multiple weighted factors:

Table 3-1: *Demand Analyses Descriptions*

FACTOR 01	A general demand analysis of active transportation use, existing plans such as the Red Rock Ridge and Valley Trail System (RRRVTS), compatible land uses, and existing bike and pedestrian facilities,
FACTOR 02	A destination demand analysis of employment destinations within the study area that may attract bicycle or pedestrian commuting trips, and
FACTOR 03	A "Strava" demand analysis using bicycling data (time of ride, location, distance, length of ride, etc.) collected by the Strava cell phone application.

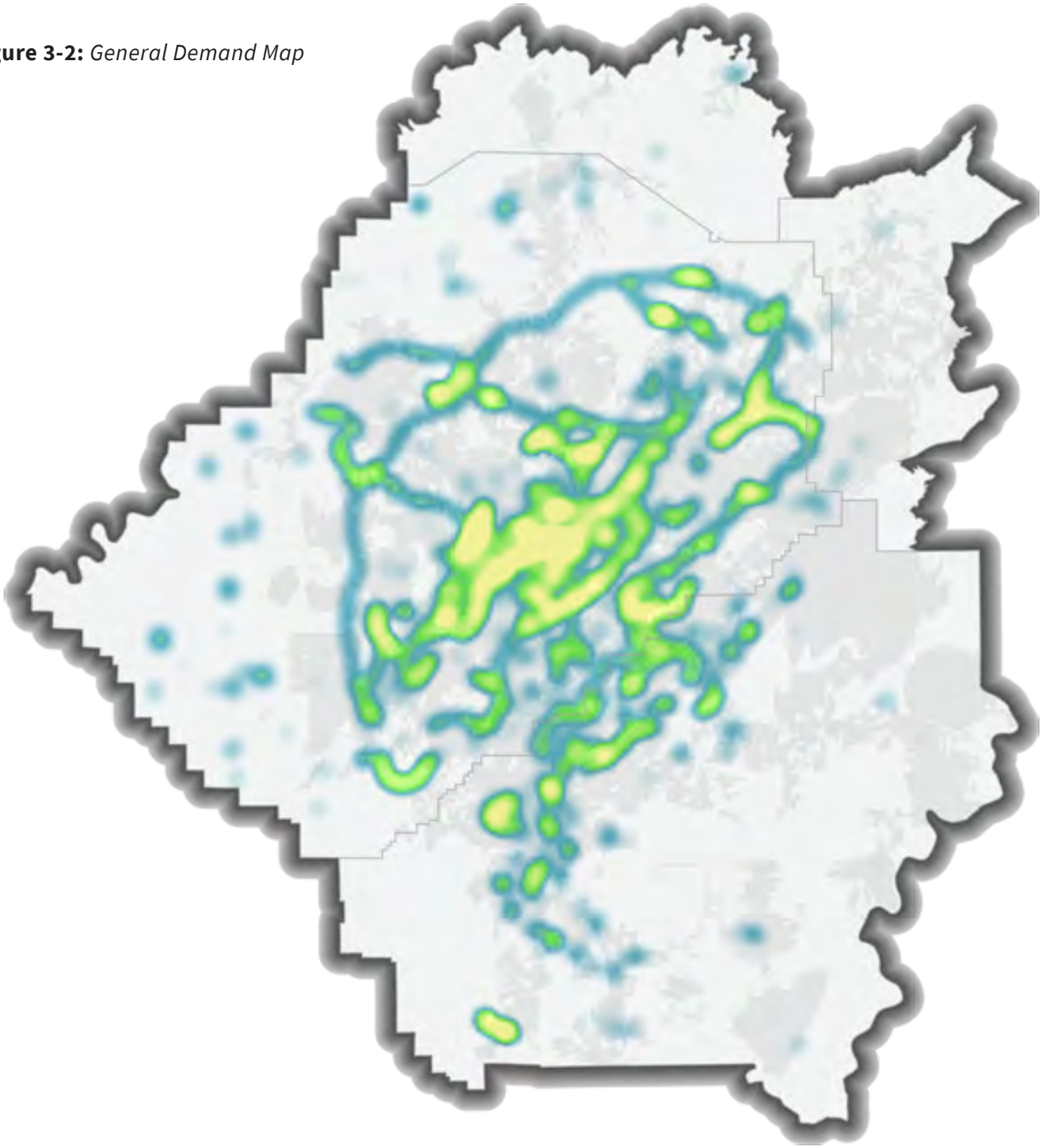
When considered together, these inputs show locations in which future bike and pedestrian infrastructure can be most successful. These analyses, along with public input, have shaped the network recommendations for the B-ACTIVE Plan. Each of the factors from all analyses and their weights were chosen based on their likelihood to generate biking and/or walking trips.

The Strava application is a social media platform designed to connect cycling and running enthusiasts and to track users' cycling progress. Strava's data sharing program—Strava Metro—provides aggregated data and other resources to communities for planning purposes. For the B-ACTIVE Plan, Strava data from 2016 for the entire metropolitan region contributed to the demand analyses and to the overall network development process.

GENERAL DEMAND ANALYSIS

The general demand analysis considers a wide range of types of factors that, when considered together, illustrate on a regional level where there are existing and future hubs of active transportation activity. Results from the demand analysis (Figure 3-2) and the exhaustive list of factors included in the analysis be found in **Appendix A**.

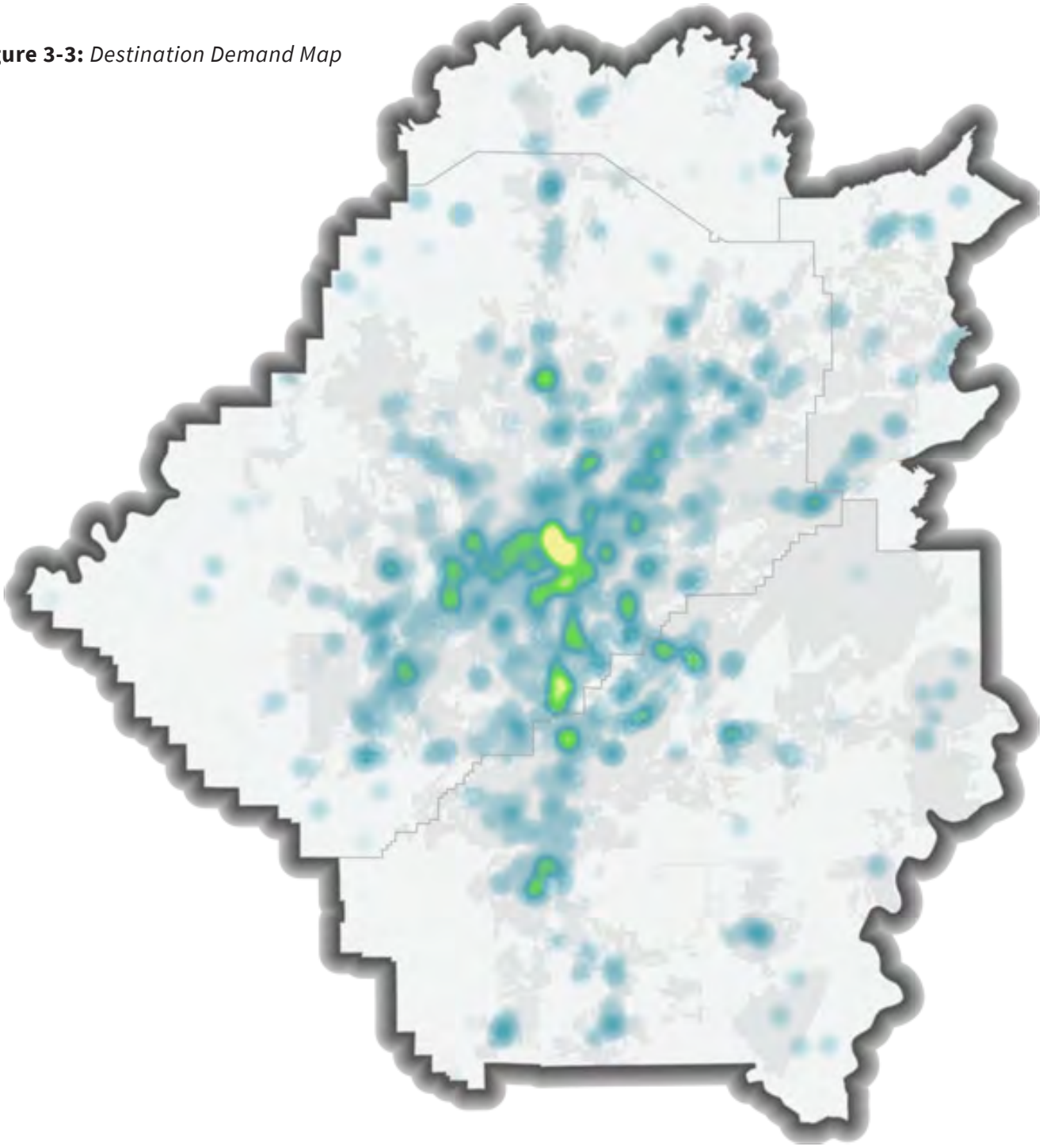
Figure 3-2: *General Demand Map*



DESTINATION DEMAND ANALYSIS

In the destination demand analysis, certain destinations, such as schools, colleges, parks, and grocery stores, are given larger weights as they are more likely to generate bike and pedestrian trips. All the specific employment destinations are included within more general categories in the general demand analysis. Separating the specific employment categories into a standalone demand analysis illustrates the density of employment destinations throughout the study area. The complete list of factors used in this analysis is included in **Appendix A**.

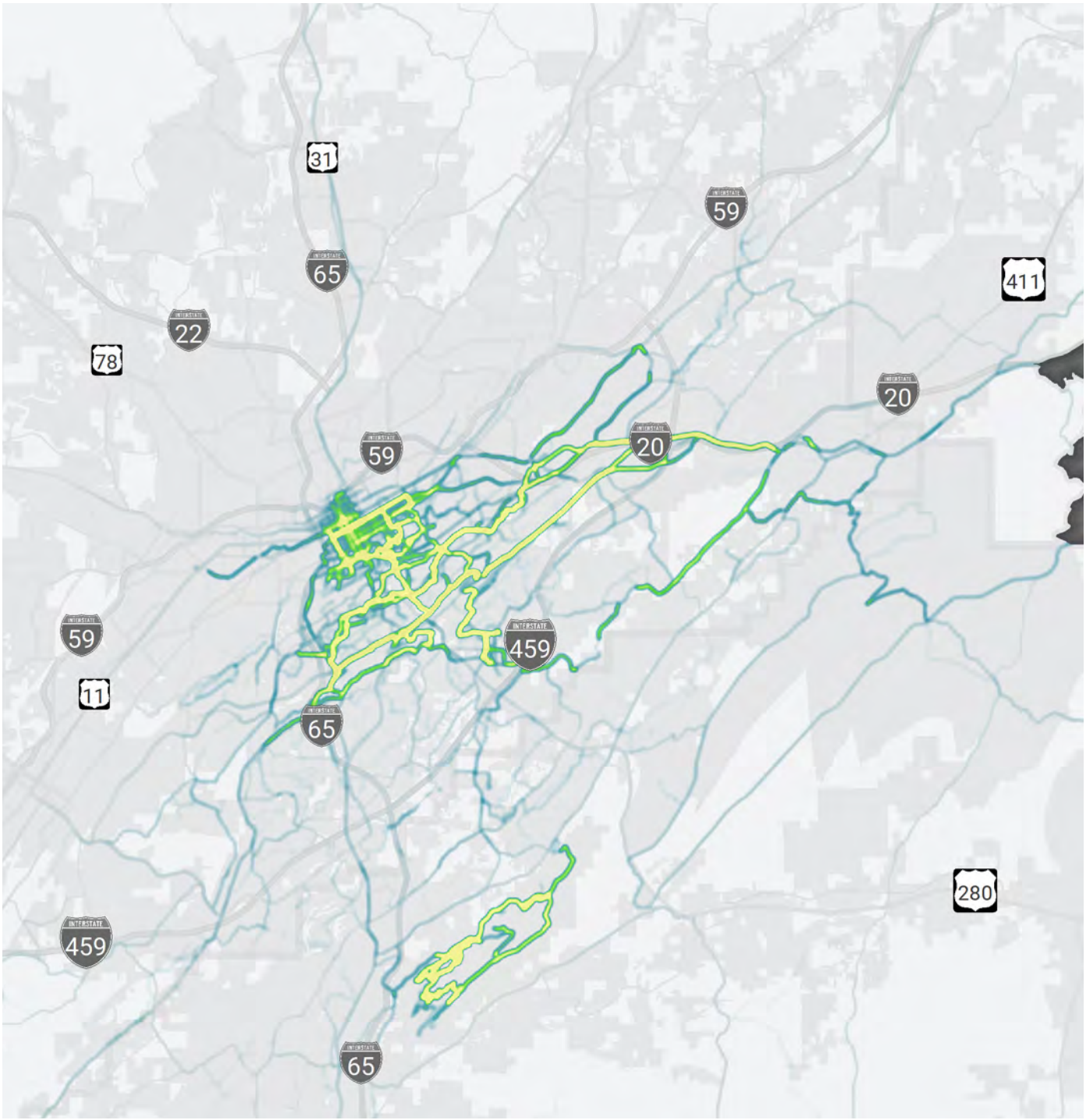
Figure 3-3: *Destination Demand Map*



STRAVA DEMAND ANALYSIS

The Strava demand map considered three factors from the Strava application data: all recorded bicycle rides during (1) AM peak hours and (2) PM peak hours, and (3) routes that had high-volumes of bicycle commuter traffic. The most trafficked commuting routes were selected as routes that had more than 130 rides in the 3rd quarter of 2016. Each of the three factors were weighted equally; the list of weights can be seen in **Appendix A**.

Figure 3-4: *Strava Demand Map*



LEVEL OF COMFORT ANALYSIS

Bicyclists have varying levels of tolerance for traffic and the stress created by volume, speed, and proximity of adjacent traffic. Their tolerance may vary by time of day or trip purpose, and it may change over time. To quantify a cyclist's comfort, the project team conducted a Level of Comfort (LOC) analysis for the B-ACTIVE Plan. The resulting LOC score is a qualitative indicator of the stress felt by a bicyclist using a facility based on a given road's characteristics. Factors that affect LOC include speed, number of adjacent travel lanes, daily traffic conditions, and the level of separation for a bicycle facility from traffic. Five classifications were used to describe the Greater Birmingham area's existing conditions, with LOC 1 indicating the most comfortable riding environments, and LOC 5 indicating riding environments not suitable for bicycle traffic.

METHODOLOGY

LOC is determined based on datasets provided by the Birmingham MPO. These data sets included speed limits, functional classification, existing bicycle facilities, annual average daily traffic (AADT) volumes, and median and shoulder types. These datasets characterize each road in the Greater Birmingham region in terms of cyclists' safety and comfort.

A score of LOC 1 is assigned to roads that are appropriate for most children; the level of attention required from cyclists is minimal, making it safe for all levels of cyclists. These roads are characterized by lower traffic speeds (30 miles per hour or less) and one lane of travel in each direction. Multiuse paths, trails, and greenways are also assigned LOC 1.

The next level, LOC 2, is given to local roads that still have slower traffic speeds (35 miles per hour or less). Based on average annual daily traffic (AADT) counts, local roads can be assigned LOC 2 with either one or two travel lanes in each direction. Major collector roads can also be LOC 2 if they have bicycle lanes and either: one lane of travel per direction and moderate AADT volumes; or more than one travel lane in each direction and very low AADT volumes. These conditions are suitable for the mainstream adult population; these roads require more attention from the riders than LOC 1, but they are still appropriate for most rider skill levels.

Corridors that are well suited for the enthusiastic rider that is confident in his/her abilities are classified as LOC 3. These roads are characterized by traffic speeds of 45 miles per hour or less. Local roads with more than one travel lane in each direction and lower traffic volumes, or those with only one travel lane per direction and moderate traffic volumes can be classified as LOC 3. Minor collector roads with moderate traffic volumes are also classified as LOC 3. Two scenarios on major collectors with bicycle lanes allowed LOC 3 classification: (1) those with only one travel lane in each direction and moderate traffic volumes, or (2) more than one travel lane in each direction and low traffic volumes. Arterial roads can also be classified as LOC 3 with low traffic volumes and lower speeds.

The LOC 4 category roads are those that are only fitting for the most advanced levels of cyclists—those who can be classified as "strong and fearless" riders. Speeds on these roads range from 40 to 55 miles per hour, with several different allowable scenarios. First, local roads with more than one travel lane in each direction AADT volumes greater than 4,000; or only one travel lane in each direction and AADT volumes greater than 8,000, were assigned LOC 4. Minor arterial roads with moderate and high AADT volumes were also given a score of 4.

Major collector roads with the following characteristics were also assigned LOC 4:

A bicycle lane

- and more than one lane in each direction and AADT volumes greater than 4,000,
- or only one lane in each direction and AADT volumes greater than 8,000;

Speed limits of 45 miles per hour:

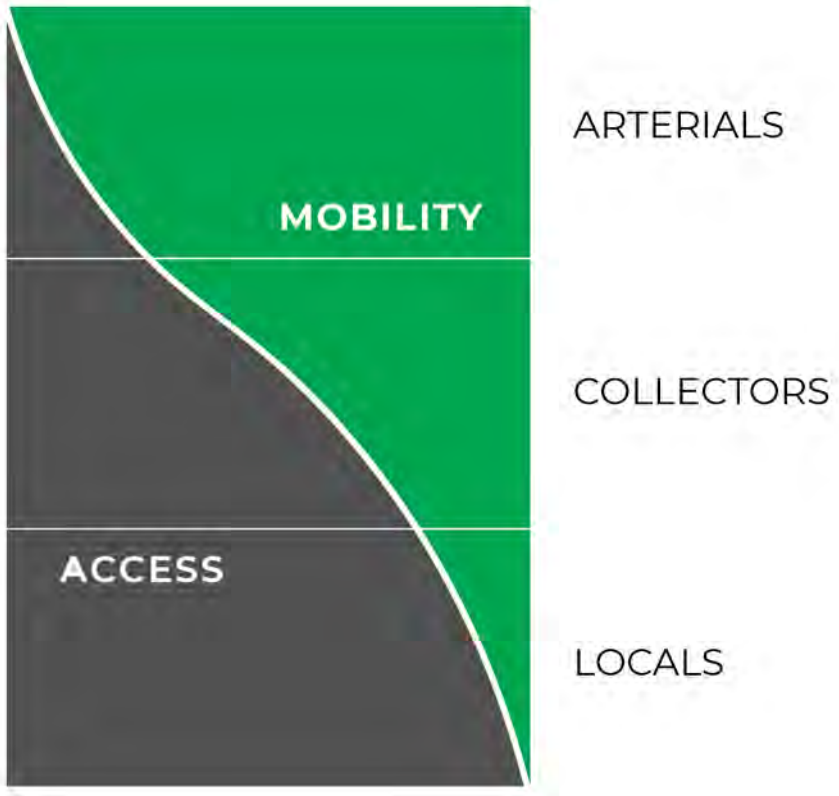
- and more than one travel lane in each direction,
- or only one travel lane in each direction and AADT volumes greater than 2,000;

Speeds of 35 miles per hour and AADT volumes greater than 4,000.

Finally, roads that are not suitable for bicycle traffic are given scores of LOC 5. These roads include principal arterials and US interstates that see high speeds (over 55 miles per hour) with multiple lanes in each direction, and very high daily traffic volumes. A significant buffer and/or barrier would be necessary for any type of facility along streets identified within this category. See **Appendix A** for a full description of the factors that were used for the Level of Comfort Analysis.

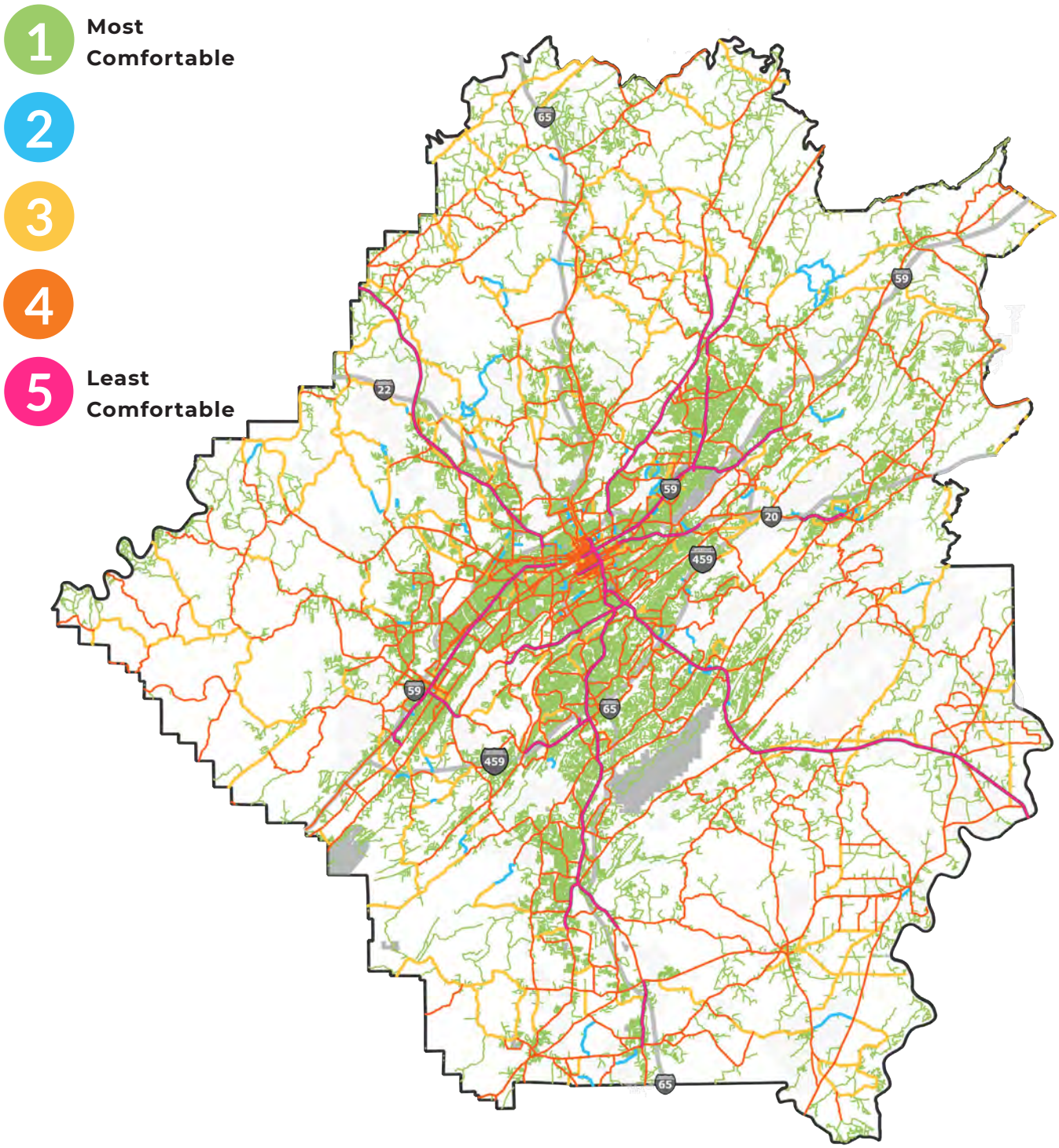
Roads in the B-ACTIVE Plan are characterized by "functional classification," a categorization method used across the United States. Functional classification generally considers 5 classes of roads: local roads, collectors, minor arterials, major arterials, and interstates. The graphic shown in Figure 3-5 shows the relationship between mobility (or the process of moving people/things from place to place) and access (ability to go to specific locations).

Figure 3-5: *Relationship between Mobility and Access*



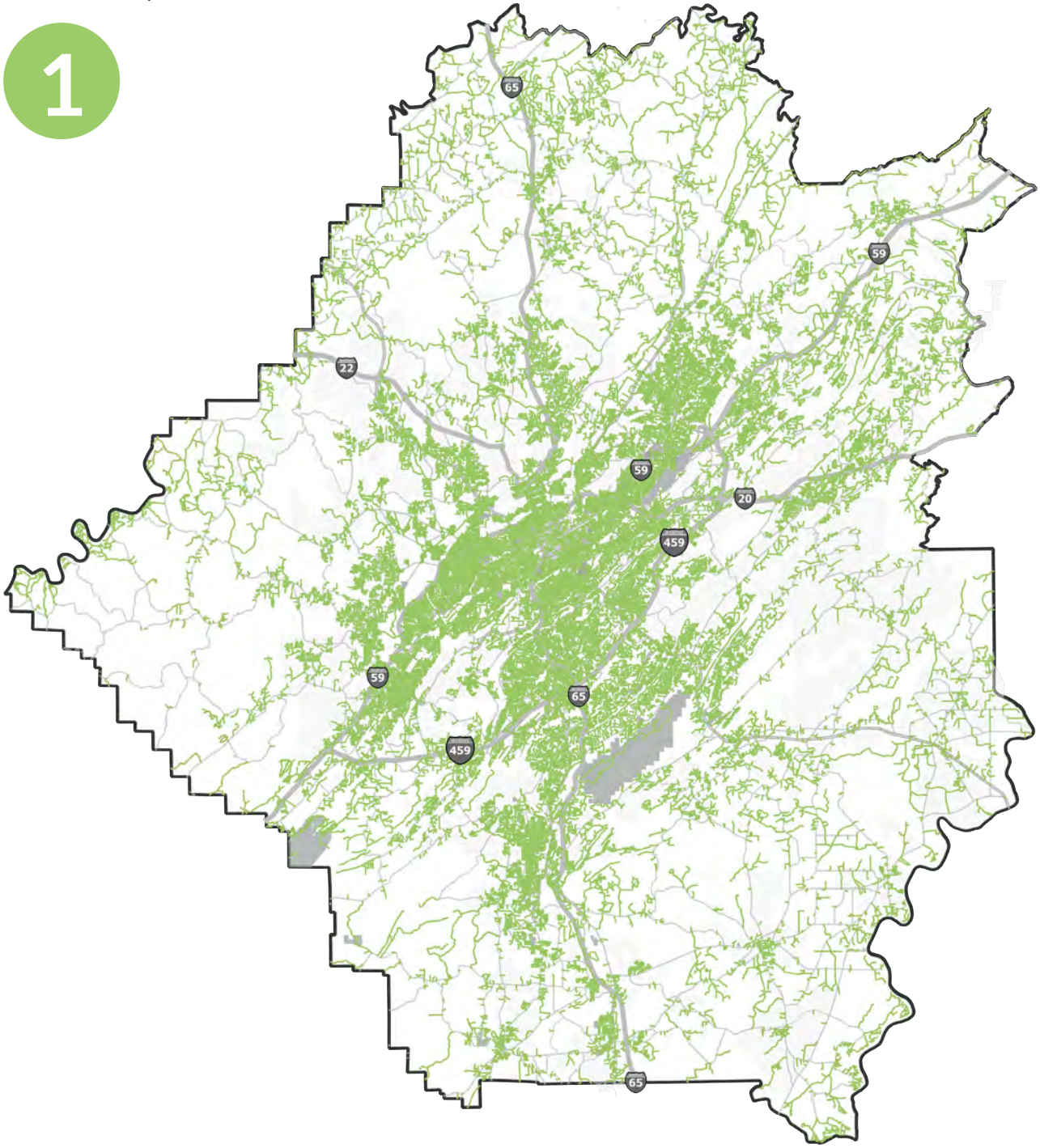
LEVEL OF COMFORT: CURRENT CONDITIONS

Figure 3-6: *LOC Map for Study Area*

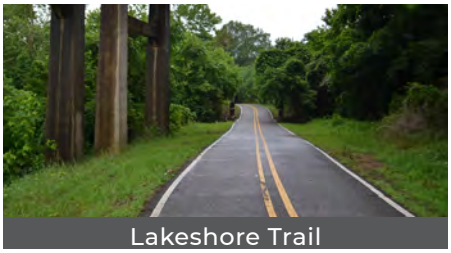


LEVEL OF COMFORT 1

Figure 3-7: *LOC 1 Map*



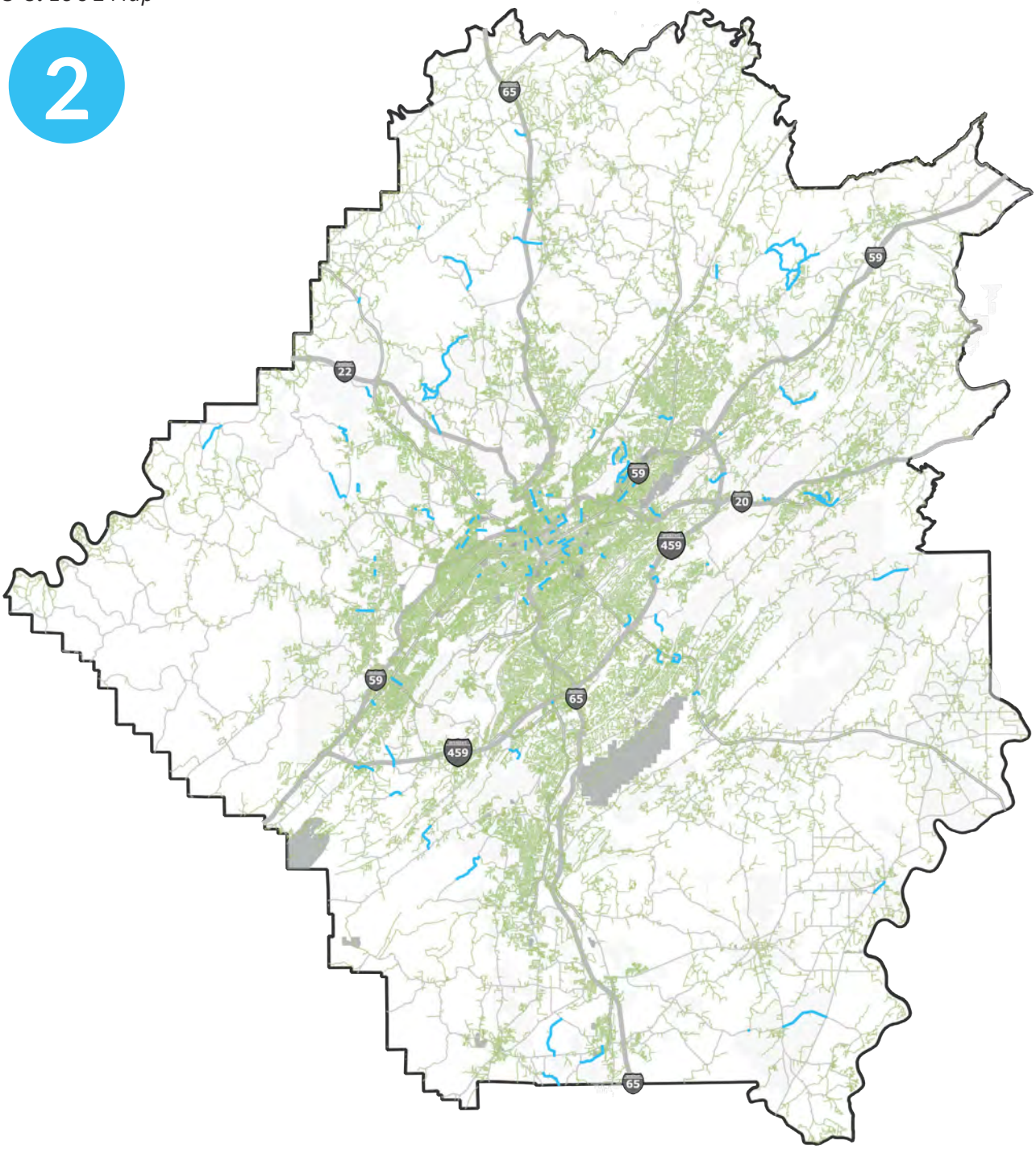

1st Avenue S - Bike Trail


Lakeshore Trail

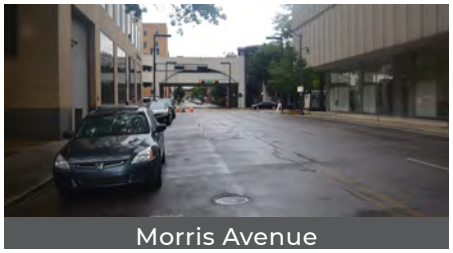

2nd Avenue S

LEVEL OF COMFORT 2

Figure 3-8: *LOC 2 Map*



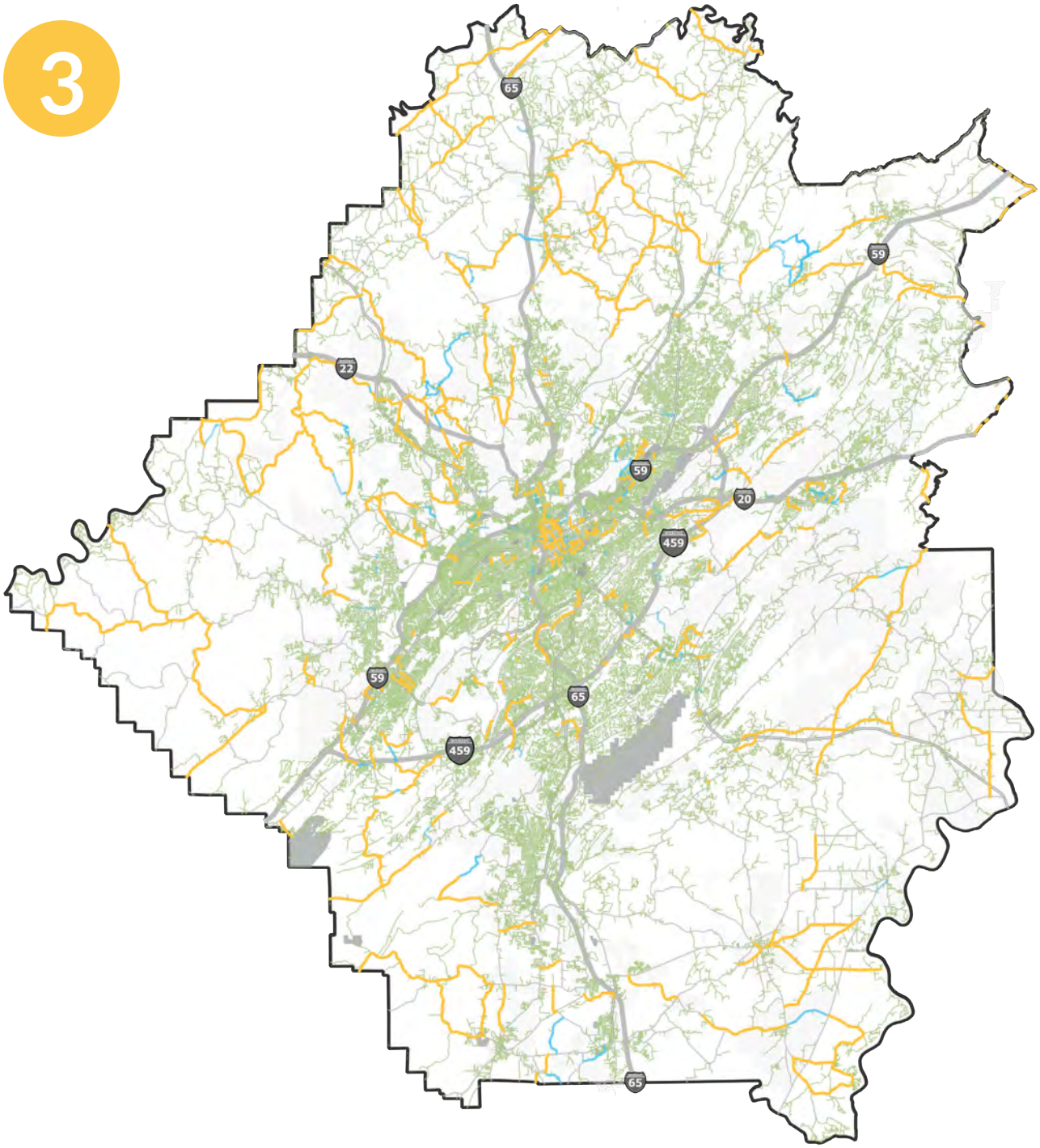

5th Avenue S

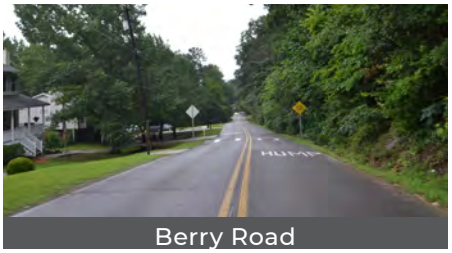

Morris Avenue


23rd Street S

LEVEL OF COMFORT 3

Figure 3-9: *LOC 3 Map*



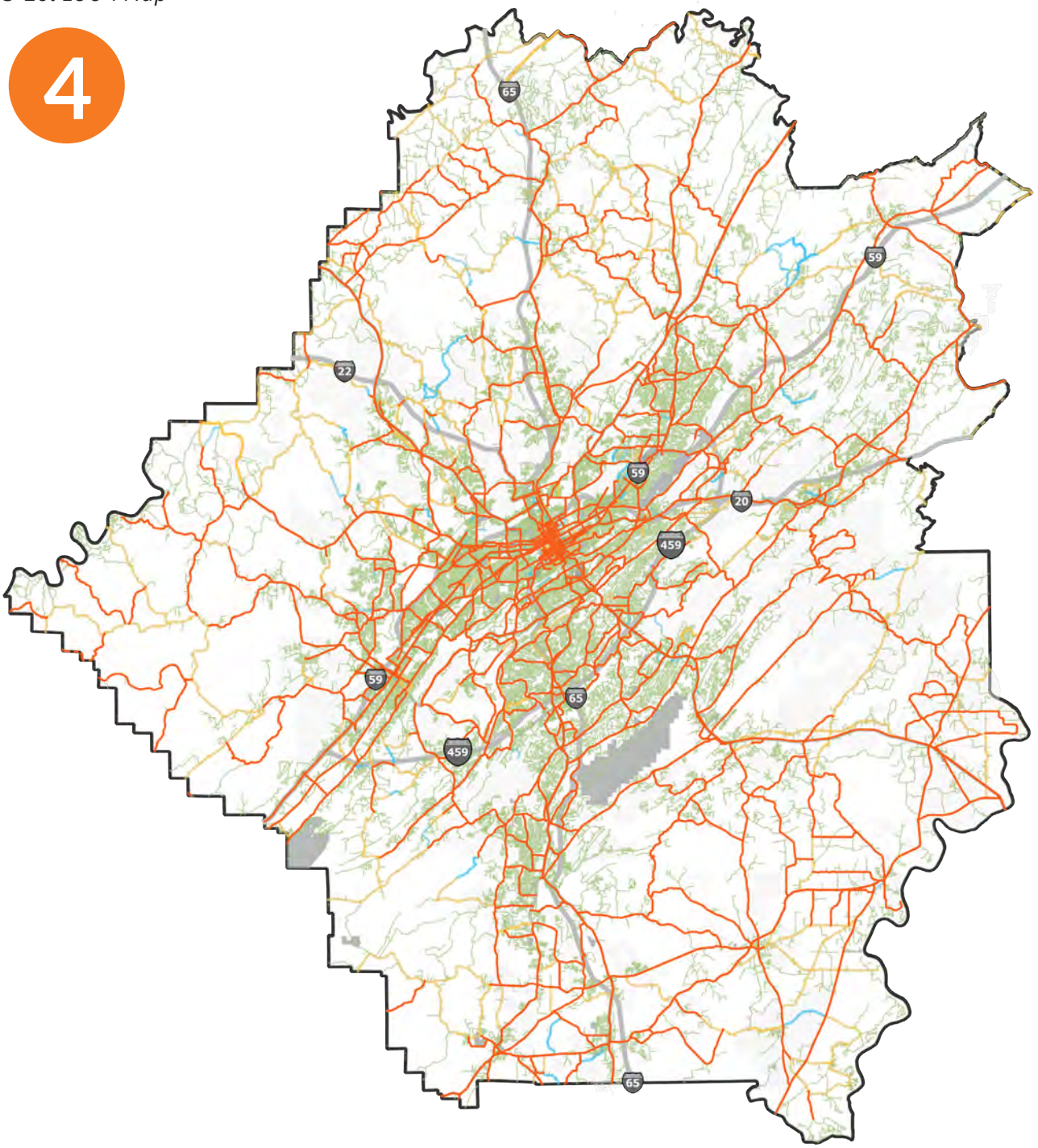

Berry Road


Tuscaloosa Avenue

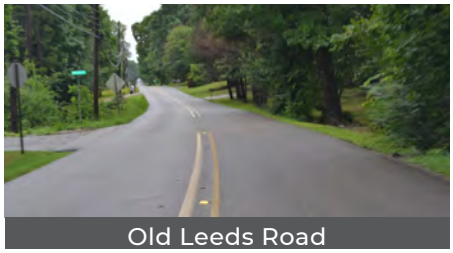

CO Road 97 (Shades Crest Cont.)

LEVEL OF COMFORT 4

Figure 3-10: *LOC 4 Map*



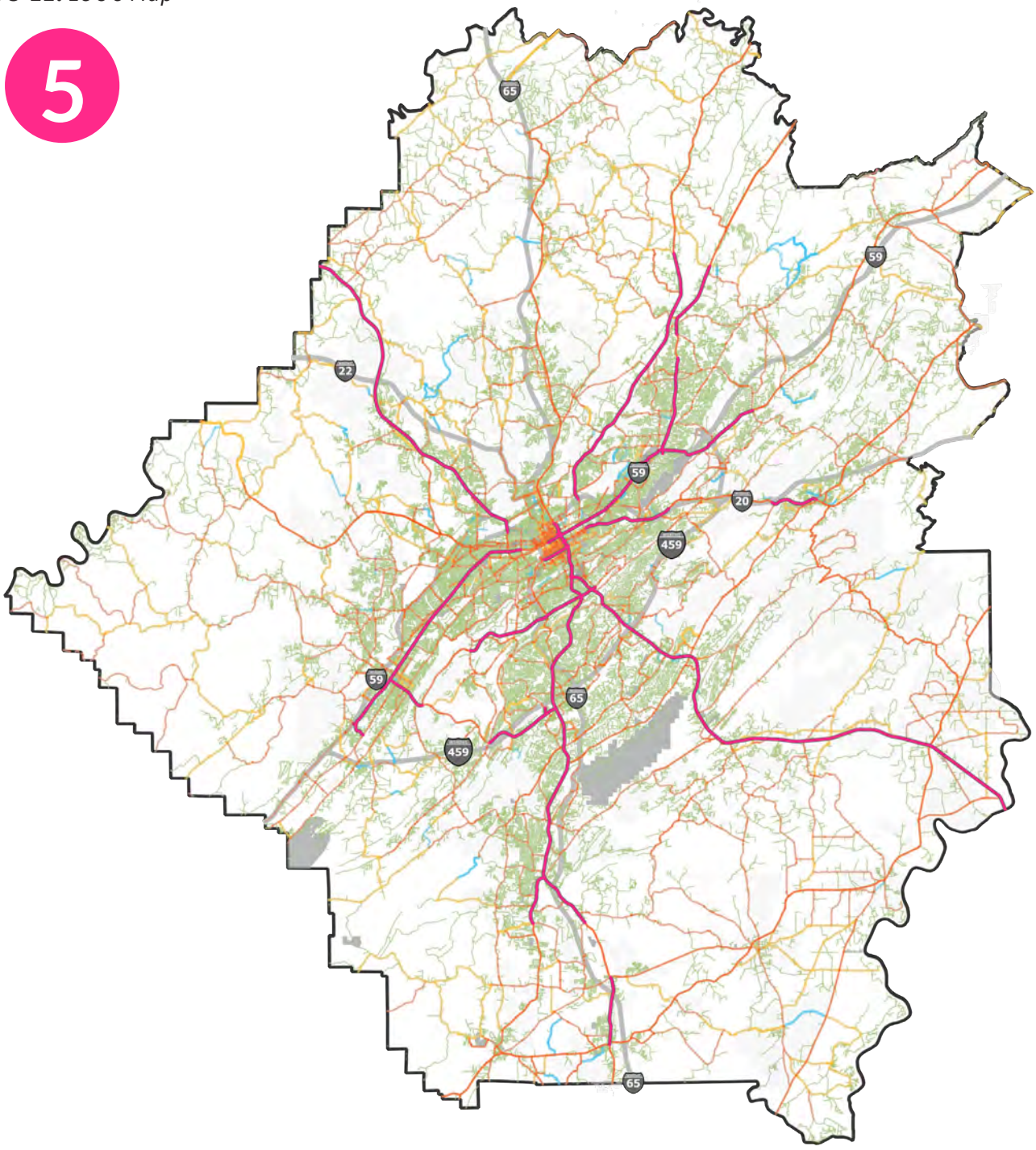

Greensprings Highway

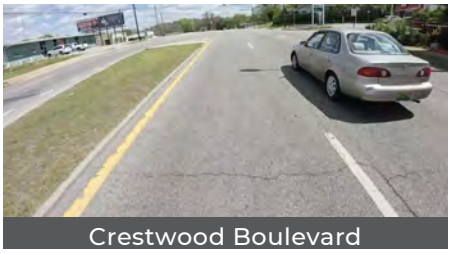

Old Leeds Road


Valley Avenue

LEVEL OF COMFORT 5

Figure 3-11: *LOC 5 Map*



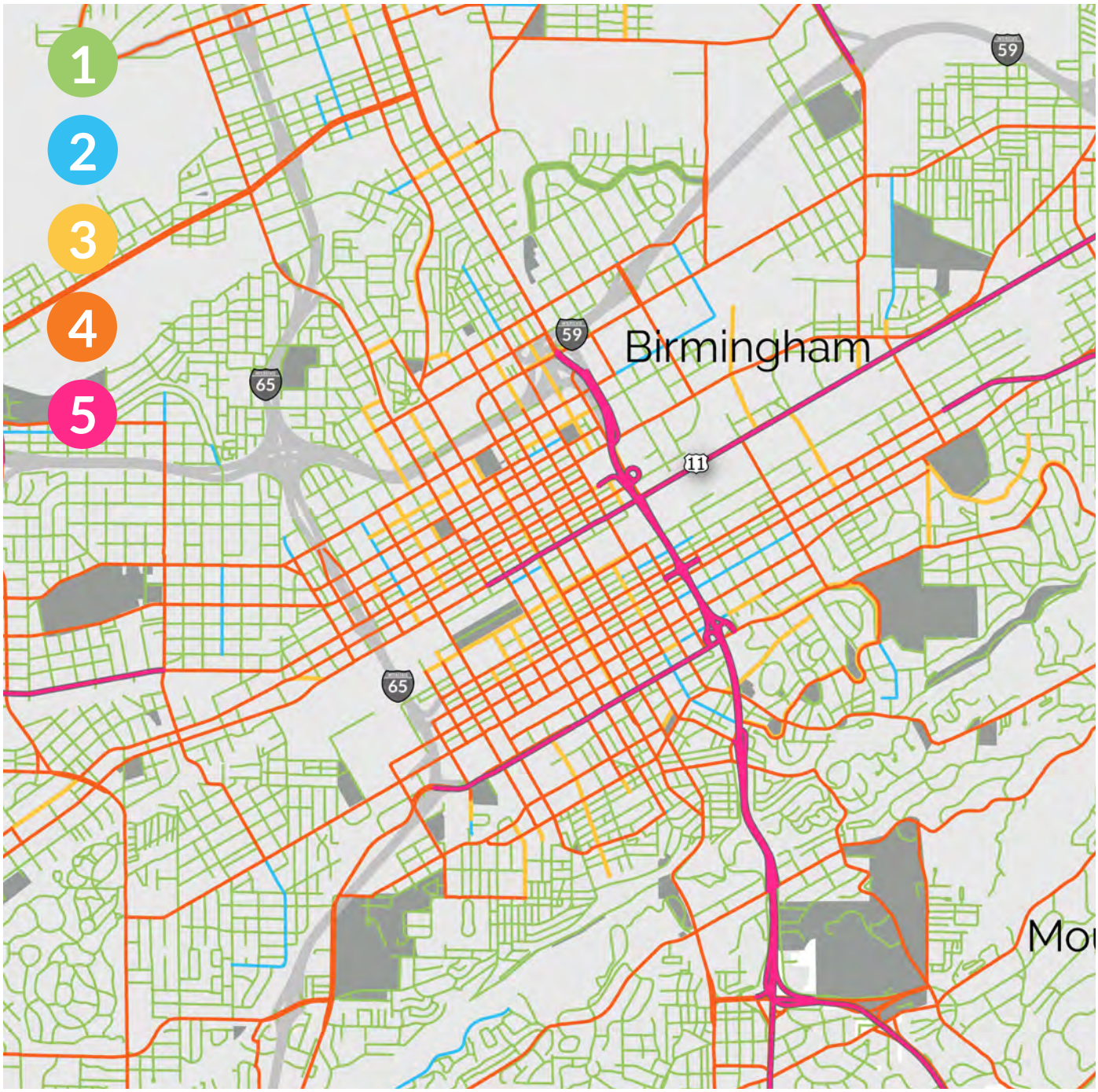

Crestwood Boulevard

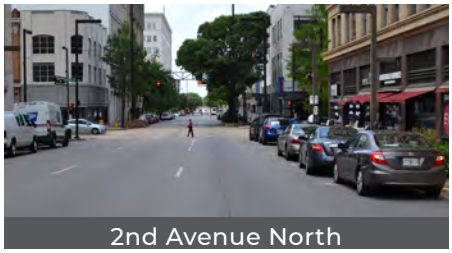

Lakeshore Drive


University Boulevard

LEVEL OF COMFORT: DOWNTOWN BIRMINGHAM

Figure 3-12: *LOC Map for Downtown Birmingham*




2nd Avenue North


19th Street


20th Street

ACCESSIBILITY GRID AND WIKIMAP

The B-ACTIVE Plan uses an accessibility grid as an additional layer of analysis for creating the B-ACTIVE Plan network. The accessibility grid helps ensure spatial equity; consisting of ten square-mile (for rural areas) and five square-mile (for the urban areas surrounding Birmingham) "blocks" overlaid on the study area. The grid, illustrated in Figure 3-13, provides a check during network development; the B-ACTIVE network connects nearly all of the users in each block to the larger network. Public input provided during meetings and the Wikimap (Figure 2-3) are also considered as the public interest factor in the network development. Areas with a notable density of comments or destinations are prioritized in terms of network connectivity in the overall region.

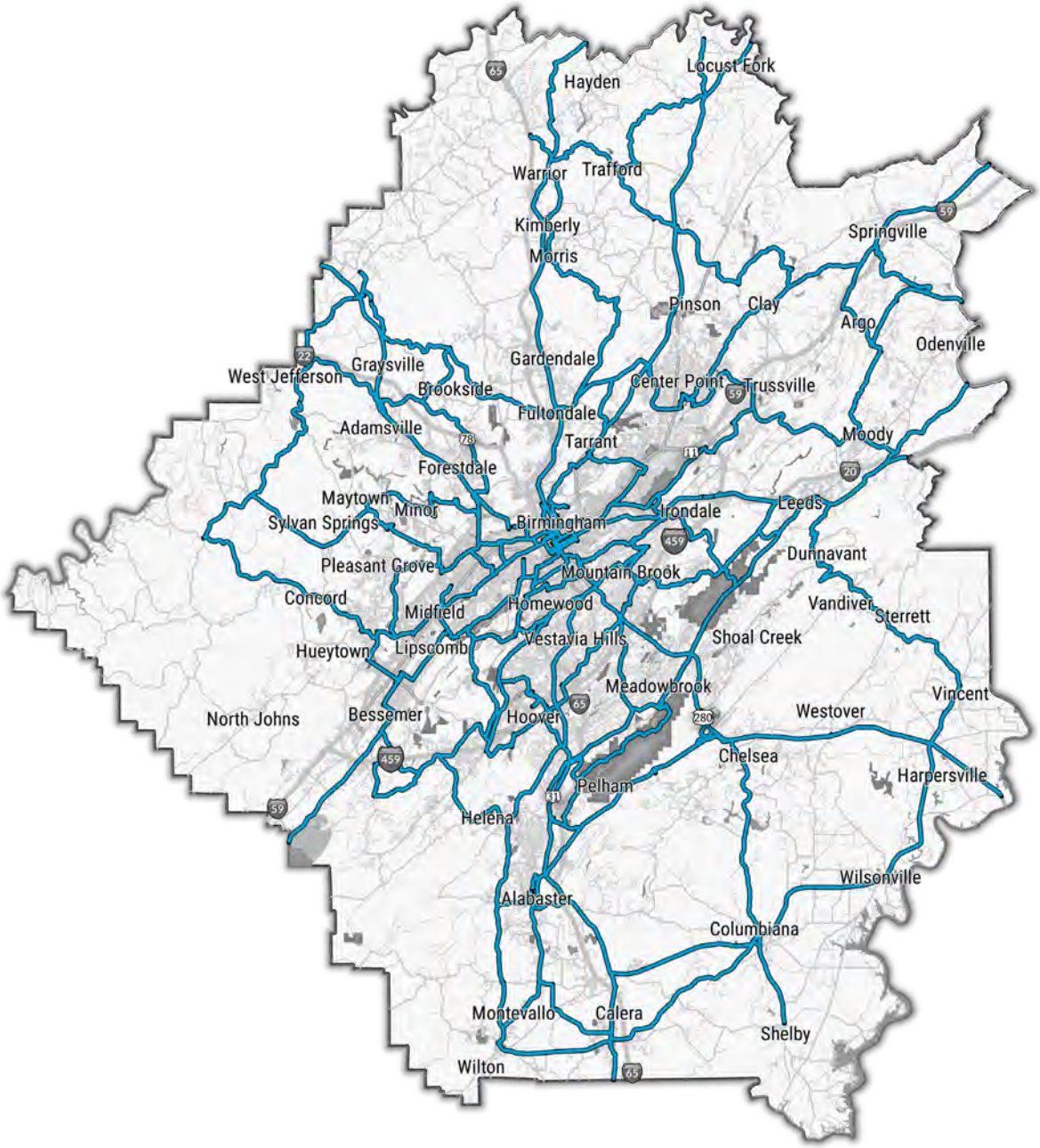
Figure 3-13: *Accessibility Grid Map for Birmingham's Urban Area*

Regional Network

The final regional network is the result of detailed analysis of existing conditions, public and stakeholder input, and iterative vetting. The network consists of proposed on-road and off-road facilities across four counties that connect communities and destinations throughout the region.

Note: This is the entire regional network. The implementation section further describes facility types, phasing, and policy approach to completing the network. See **Appendix C** for the full list of projects and detailed network maps.

Figure 3-14: *Proposed Regional Active Transportation Network*



WHATEVER GOOD THINGS WE BUILD END UP BUILDING US.

Jim Rohn

04

IMPLEMENTATION

PROJECT VETTING METHODS
PROJECT IDENTIFICATION
POLICY ROADS
CONTEXT SENSITIVE DESIGN
FACILITY SELECTION GUIDANCE
PHASING, PROGRAMS, & POLICIES

Project Vetting Methods

"The new Kiwanis Vulcan Trail is the center of Greater Birmingham's growing Red Rock Trail System, a planned 750-mile trail network. As of March 2018, we've helped build 111.8 miles of trails, including popular green spaces like Rotary Trail, Red Mountain Park, Turkey Creek Nature Preserve, and High Ore Line Trail. Our dream is for every community in Greater Birmingham to be connected to each other and to Alabama's beautiful outdoors – through nature trails, parks, sidewalks, and bike lanes."

-Freshwater Land Trust

The Implementation Chapter of the B-ACTIVE Plan is a tool for municipalities and counties within the Greater Birmingham region to implement their specific portions of the B-ACTIVE network. This entire chapter should be taken as a single, cohesive overview of recommended best practices and guidance for prioritizing active transportation projects, facility selection and design, and identifying funding sources for implementation. No section within the chapter should stand alone, as facility selection, financing, and project design is a complex process that should consider the many different factors during implementation.

The B-ACTIVE Plan identifies a large-scale network of facilities to create a regional active transportation network, and it also outlines a strategic approach to implementing this large network. To ensure that proposed projects achieved regional connectivity as well as met the goals set out in the B-ACTIVE Plan, the entire network underwent a strategic vetting process. The approach to vetting the network involved analyzing the network with several quantitative indicators. Portions of the network that were within the indicator parameters received a score. The resulting network projects had a cumulative indicator score. Some of the indicators used in this process included:

- Proximity to a grocery store or park (1/2 mile);
- Part of an existing active transportation facility;
- Inclusion in the Birmingham MPO's Environmental Justice Areas; and
- Proximity to a Birmingham-Jefferson County Transit Authority bus stop (1/4 mile).

A complete list of indicators, their description, and the B-ACTIVE Plan goals that they support are shown in **Appendix B**.

The MPO has identified communities that are more susceptible to adverse impacts from transportation projects as "Environmental Justice areas," or EJ areas. Two main criteria were used to identify EJ areas (on the block group level): (1) non-white population greater than 50%, and (2) median household come is less than $26,460 per year. For more information about EJ areas, please see the Birmingham MPO's Environmental Justice Report at can be found at www.rpcgb.org.

Project Identification

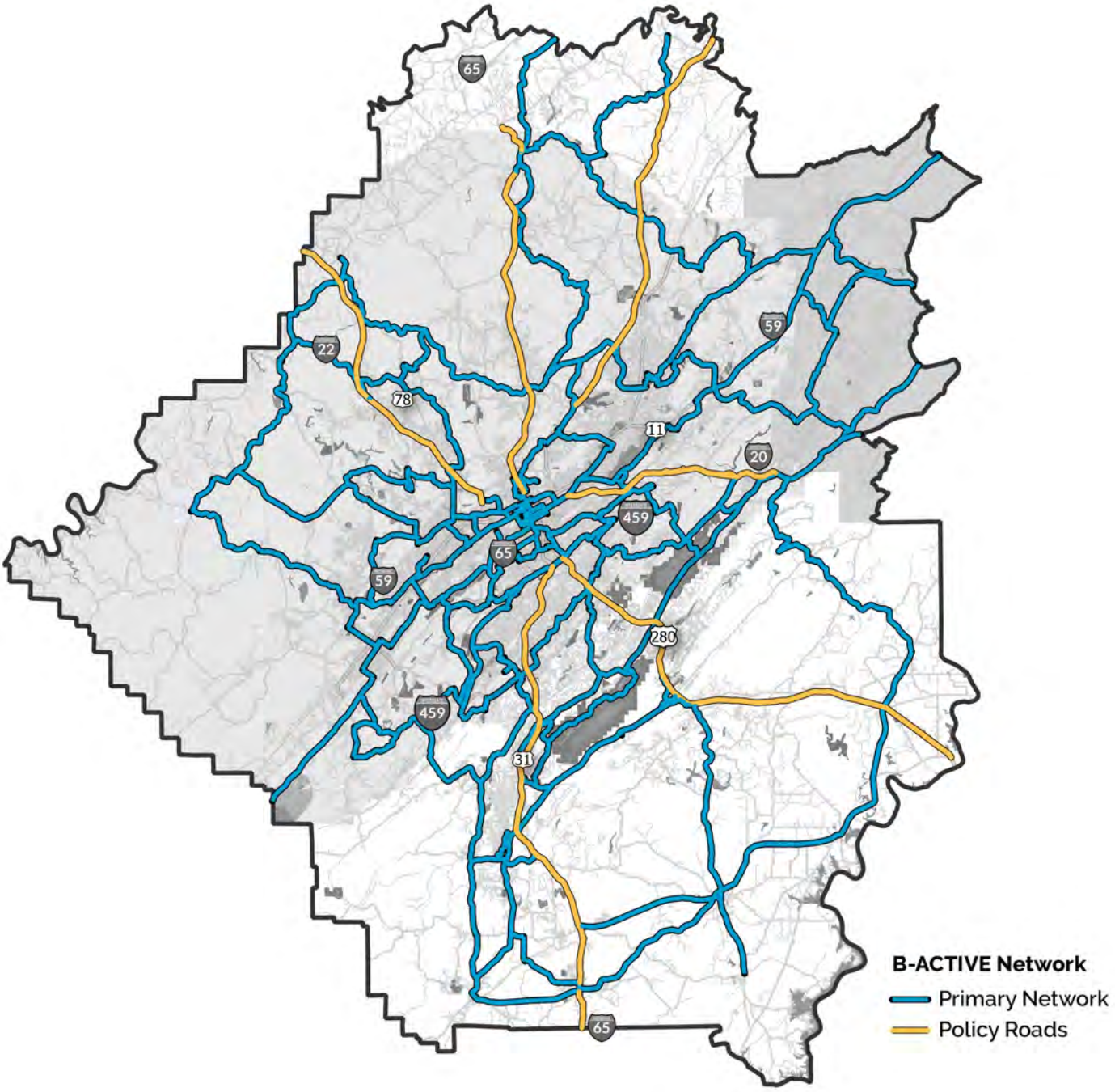
The B-ACTIVE Plan contains a comprehensive list of projects to assist with implementation when funding is available. Project boundaries may be refined based upon partnerships, funding constraints, or available right-of-way. Specific recommendations for bicycle and pedestrian facilities are not included for projects. Facility type decisions should be determined on a project by project basis using the menu of facility types described in the following **Context Sensitive Design** section. The extent of each project is based upon a combination of factors, including key intersections, ownership, municipal boundaries, and regional context. Below is a description of each factor along with summary statistics for the overall network.

Table 4-1: *Project Factors*

INTERSECTIONS	Logical limits for projects often occur at key intersections within the network. While some projects consist of a single roadway, other projects are a combination of roads, the extents of which are instead based upon municipal boundaries and regional context.
OWNERSHIP	Segments along state-owned roadways were considered during the project development. Project limits along state-owned roadways may extend through multiple jurisdictions. Projects along these routes would be implemented and maintained by ALDOT and would benefit users from a variety of municipalities throughout the region.
MUNICIPAL BOUNDARIES	Projects have been classified based upon municipal boundaries. Specifically, when municipalities share a boundary, projects are divided into separate projects for each community. Due to the variety in shape and contiguity, there are several projects that extend from a municipality into parts of the unincorporated county.
CONTEXT	Within each municipality and along state-owned routes, project limits were created based on the context of the proposed network routes. A change in land use context are consistently used as a project terminus, along with key intersections. In rare cases, projects extend between two municipalities; in these cases, the project is continued due to similar contexts that would require similar design considerations.

The overall regional network is classified into two unique categories - “Policy Roads” and “Primary Network”. Figure 4-1 illustrates these two categories.

Figure 4-1: *Primary Network and Policy Roads Map*



Policy recommendations for developing bicycle and pedestrian facilities on the largest arterial roads in the Greater Birmingham Region.

Policy Roads

The B-ACTIVE Plan identifies a set of primary arterial roadways that are considered part of the Active Transportation Network as "Policy Roads." On the plan maps, these roads are classified separately from other recommendations in the "Primary Network" for two key reasons. First, changes to these roadways may be complex in terms of designing facilities and large-scale construction. Facility selection for these roads must be made in conjunction with other roadway planning and land development factors that cannot be predicted at the time of writing the B-ACTIVE Plan.

In general, Policy Roads are multi-lane highways and/or have relatively high speeds (i.e., greater than 45 mph). Other than limited access highways and interstates, Policy Roads carry the largest volumes of daily traffic, including higher percentages of heavy vehicles. They also have a wide range of characteristics that other roads in the region usually do not have, such as large interchanges, service roads, guardrails, lengthy merge lanes, and/or intersections with multiple right- and/or left-turn lanes. Policy Roads traverse a wide variety of land use contexts, some of which may not change in the future, and some of which are likely to change over the next 10-20 years. In most cases, these roads provide the most direct connection between major destinations in the region. Future upgrades to these roads will be driven primarily by traffic management needs and opportunities and needs created by major development or redevelopment in each corridor. Policy Roads include:

- Highway 280
- US 31
- US 78
- SR 79

While it is difficult to currently imagine how bicycle and pedestrian travel should be accommodated on these roads, when significant improvements are made, safe bicycle and pedestrian travel should be considered[1]. At that time, selection of facility or facility combinations must be coordinated with other key planning decisions made regarding the roadway's capacity and operation and the development that occurs along it, specifically the type and configuration of the development and the size and type of roadway selected. At the time of developing the B-ACTIVE Plan, these choices are difficult to predict.

RECOMMENDATIONS

The B-ACTIVE Plan recommends that bicycle and pedestrian facilities should be considered when significant improvements are made on a policy road.

It is acknowledged that in some cases bicycle or pedestrian facilities may be impractical. Consequently, the B-ACTIVE Plan recommends the following exemption scenarios:

» Bicyclist and pedestrians are prohibited by law from using the roadway.

» The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. (Excessively disproportionate is defined as exceeding 20% of the cost of the larger transportation project.)

» Where scarcity of population or other factors indicate an absence of need.

» Where the addition of a bicycle facility would contribute to an overall reduction in vehicular carrying capacity in any direction.

Requests for an exemption from the inclusion of bikeways and walkways shall be documented with supporting data that indicates the basis for the decision.

1 *Design Guidance: Accommodating Bicycle and Pedestrian Travel: A Recommended Approach. A US DOT Policy Statement Integrating Bicycling and Walking into Transportation Infrastructure. https://safety.fhwa.dot.gov/intersection/other_topics/fhwasa09027/resources/Design%20Guidance%20Accommodating%20Bicycle%20and%20Pedestrian%20Travel.pdf*

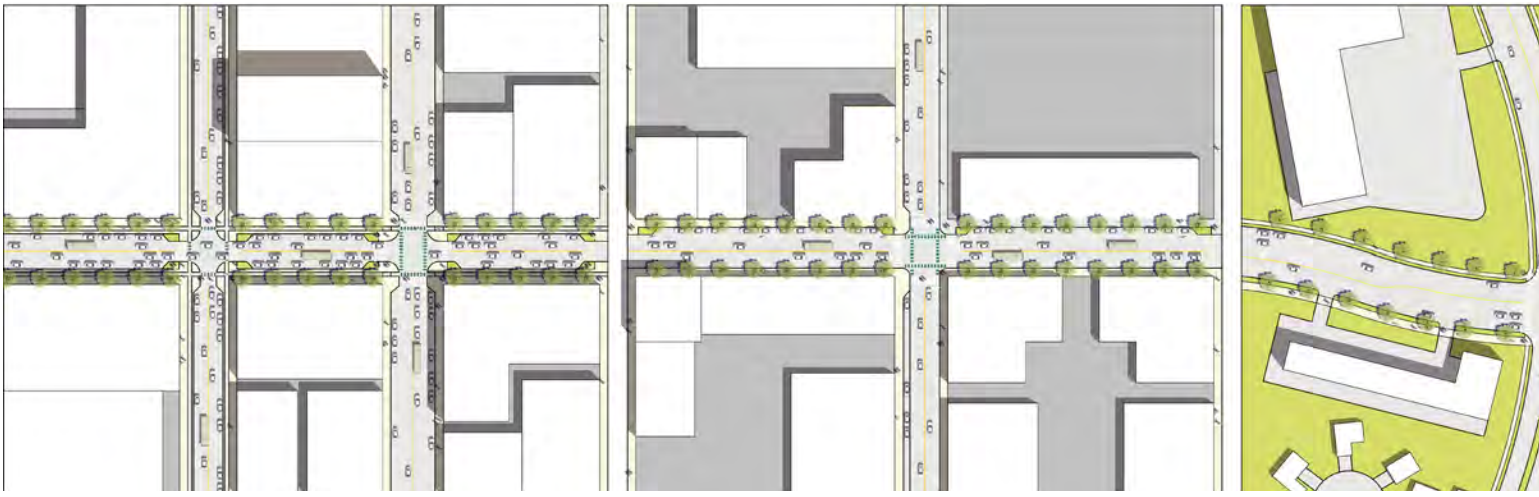
Context Sensitive Design

Facility selection and design for a given road depends on circumstantial factors such as existing right of way, lane widths, budgetary constraints, etc. These details are specific to each project and jurisdiction and were not explored at the time that B-ACTIVE Plan was drafted. Instead, specific facility selection and design should be left to the judgement of local design staff at the time of implementation. The B-ACTIVE Plan does not prescribe specific recommendations for each project in the network. The Plan does, however, provide strategies for design decisions through (1) a series of context-specific design menus and (2) generalized design guidelines for common facility types. Notable benefits to this approach include:

HOW TO USE THIS CONTEXT SENSITIVE DESIGN MENU

The following Context Sensitive Design Menu provides facility recommendations based on five land use context categories: urban core, urban, suburban, rural, and rural town. For each context, the B-ACTIVE Plan provides recommended facility types and typical cross sections. The cross sections should serve as general recommendations for facility/street widths, but it is important to note that actual widths may vary in implementation due to design constraints. It should also be noted that some facility types are applicable to more than one context, but not all types are applicable to all contexts. Please reference **Appendix D** for information about cost estimates for each facility type proposed in the context sensitive design menu.

Figure 4-2: *Urban Core to Rural Town Context Spectrum*

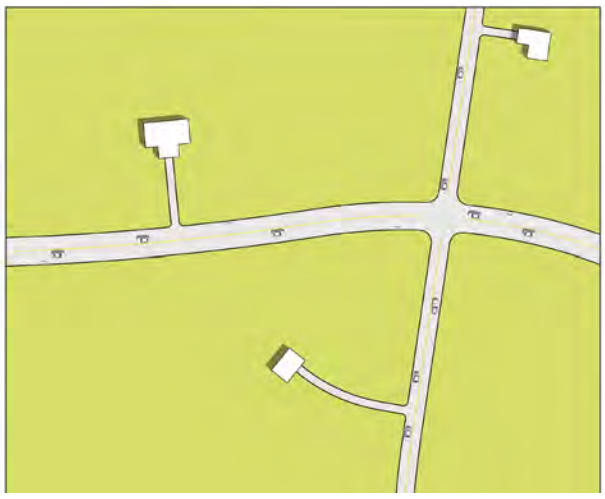


Urban Core | Urban | Subu

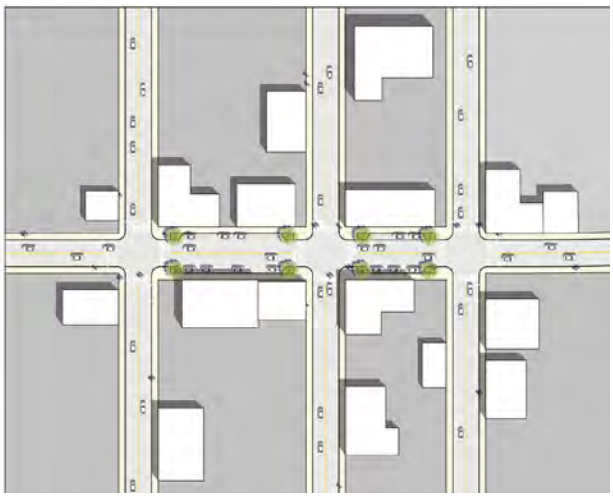
Table 4-2: *Context Sensitive Approach Benefits*

FLEXIBILITY	A generalized approach allows designers the freedom to make certain decisions about facility design that reflect conditions during implementation and engineering judgement. This will ultimately create better-designed and more cost-effective bicycle and pedestrian facilities.
CONSISTENCY	The guidance provided in the B-ACTIVE Plan ensure that facilities are designed with key safety elements to be accessible for many ages and abilities in many contexts.
APPROPRIATENESS	Not all bicycle and pedestrian facilities in the network require the same type of facility; for example, the types of facilities recommended in a densely developed urban area may not be appropriate for a rural or suburban setting due to differences in land uses, road design, typical users, etc. Design recommendations that are delineated based on the type of development around the facility ensure that the type of facility implemented is appropriate for its surroundings.
STREAMLINED IMPLEMENTATION	Creating foundational guidelines for bicycle and pedestrian facility design can expedite design and construction of facilities throughout the region.

rban



Rural



Rural Town

WHAT IS "CONTEXT?"

When selecting bicycle and pedestrian facility types for the multimodal transportation network in B-Active region, the project's "land use context" is one of the most important determining factors. An area's land use context is defined by the type of development patterns that are common in an area. Development patterns that particularly affect bicycling and walking include the distance between signalized intersections, typical building set-backs, the type and quantity of amenities, and the general scale of development (lot sizes, building footprints), and other factors. The Context Sensitive Design Guidelines provides descriptions about five context areas (Urban Core, Urban, Suburban, Rural, and Rural Town) and presents a menu of facility types/cross sections that are appropriate in each context. Appendix D contains more information about facility cross sections.

Figure 4-3: *Land Use Context for the B-Active Region*

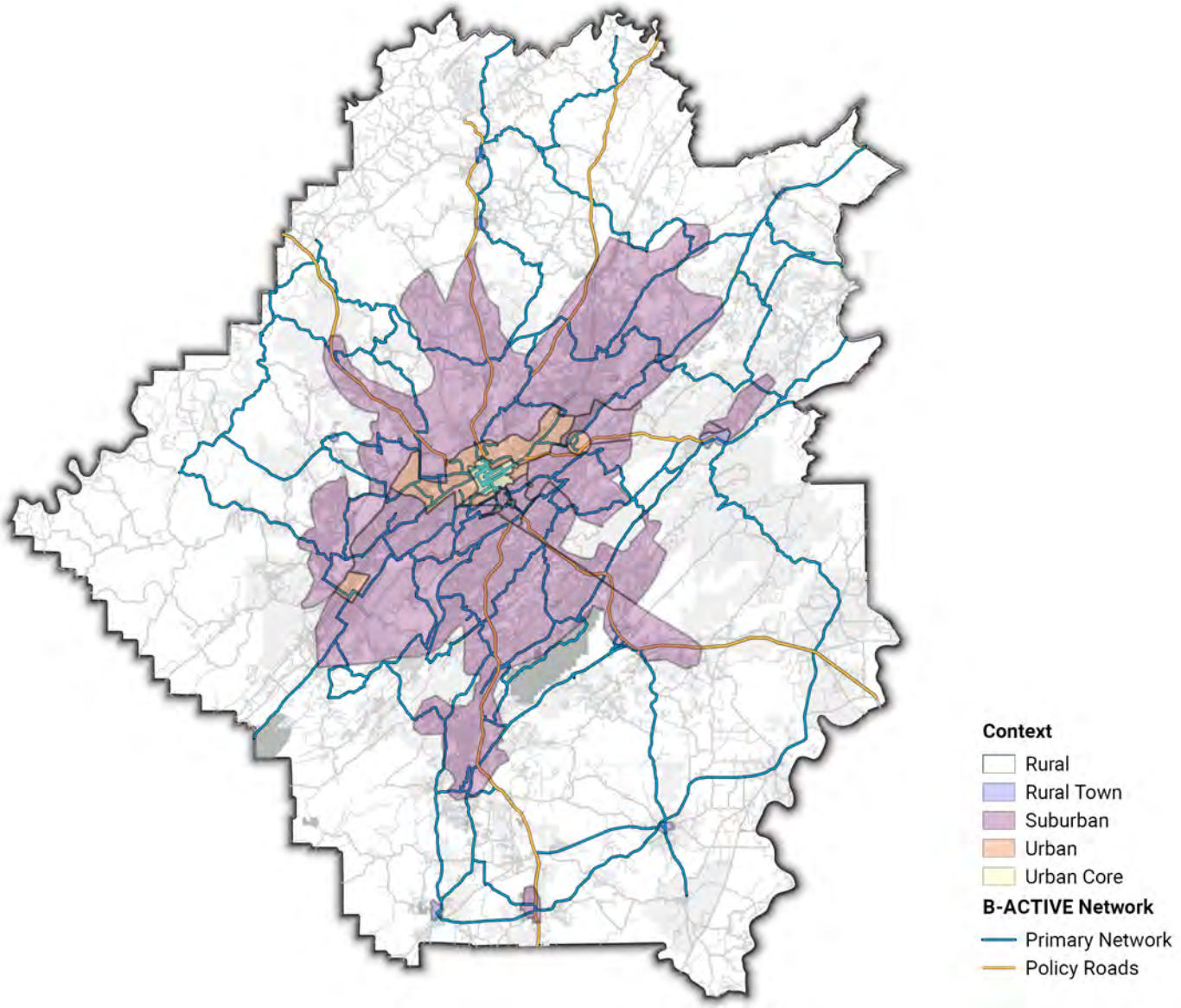
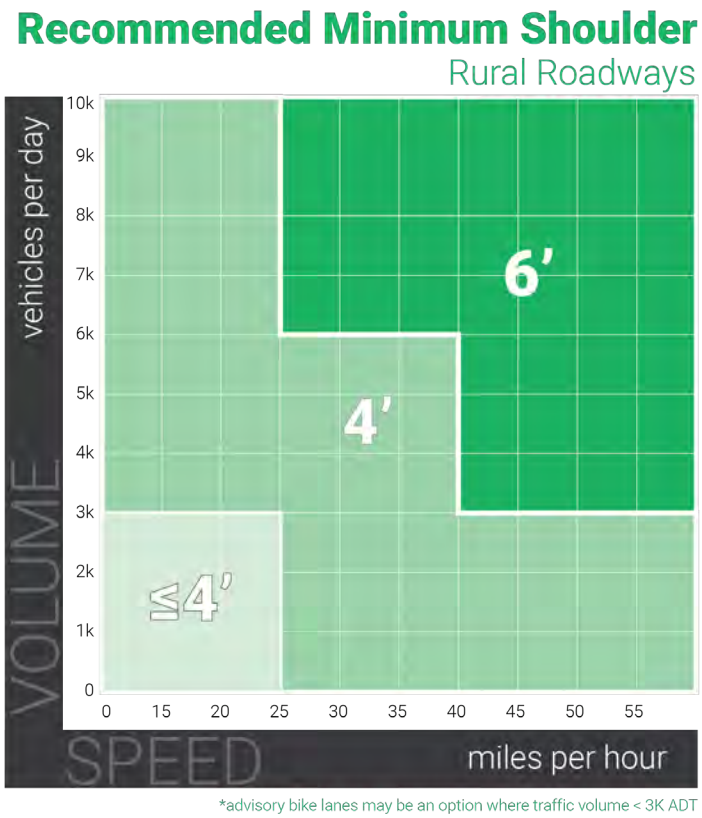
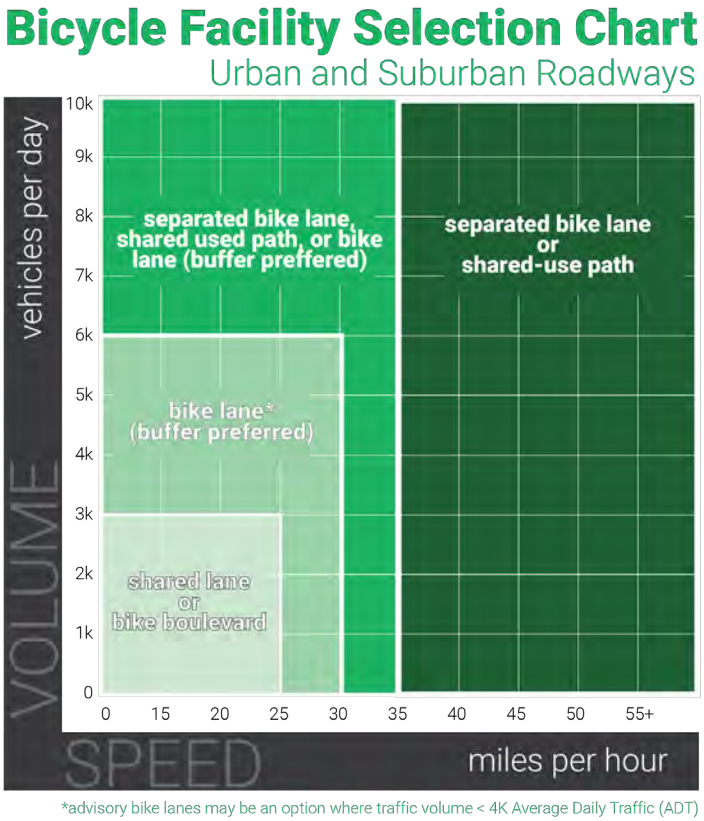


Figure 4-4: *Facility Selection Guidance Charts*



*advisory bike lanes may be an option where traffic volume < 3K ADT



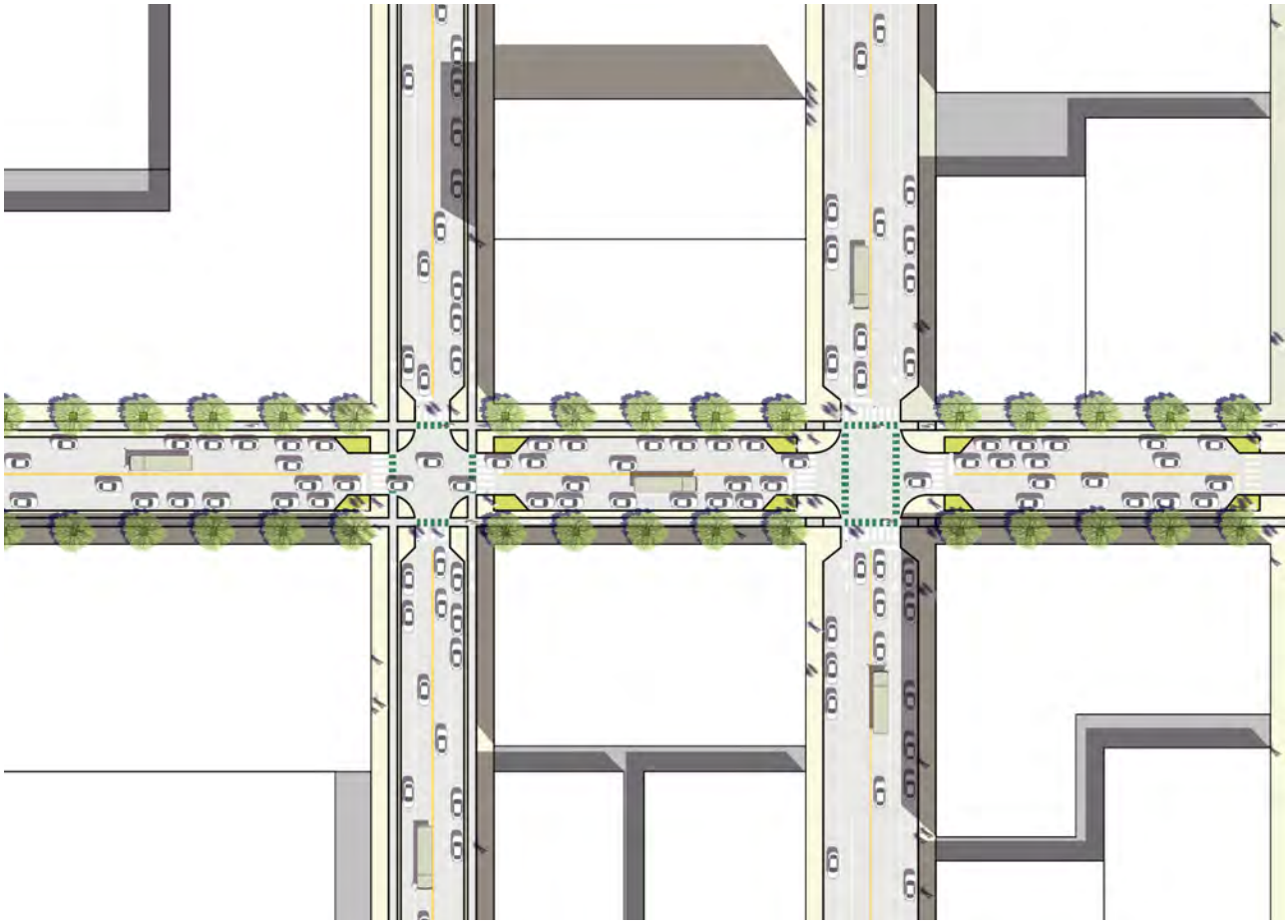
*advisory bike lanes may be an option where traffic volume < 4K Average Daily Traffic (ADT)

NOTE: Each CONTEXT is its own spread with corresponding cross sections.

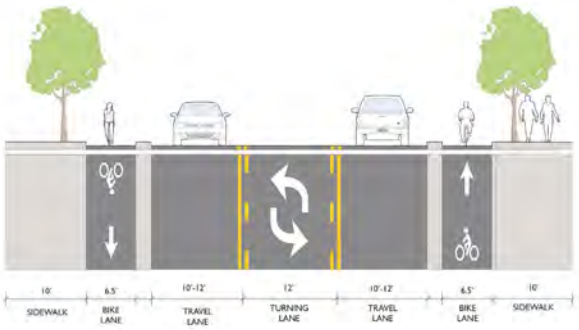
FUNDAMENTALS OF SAFE BICYCLE FACILITY DESIGN:

Not all bicycle facilities are appropriate for all road and traffic scenarios. As traffic speeds and volumes increase, the amount of separation required for safe bicycle facility design increases. Bicycle facility separation also adds to user comfort; cyclists feel safer with higher degrees of separation from motorized traffic. The following graphs (Figure 4-2)illustrate how increasing separation should be considered based upon speed and volume despite the context.

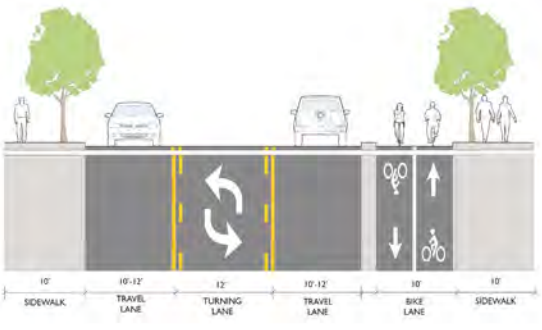
URBAN CORE



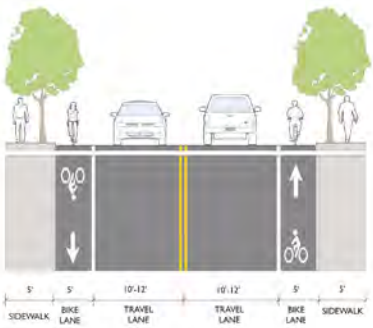
The Urban Core context is the densest development type. It includes a variety of land uses (e.g., retail, office, multi-family residential, etc.), defined city blocks, short distances between signalized intersections, and minimal setbacks or build-to requirements that frame the public space. This context offers a broad mix of amenities and destinations, including large employment centers. Additionally, several mobility choices are available and supported by short travel distances, including biking, walking, transit, and driving personal vehicles. Walking and biking occur regularly, as compact development patterns lend themselves to a network of on-street and adjacent-to-street facilities (e.g., sidewalks, bike lanes, separated bike lanes, etc.). The following are facilities that are most appropriate for the Urban Core context.



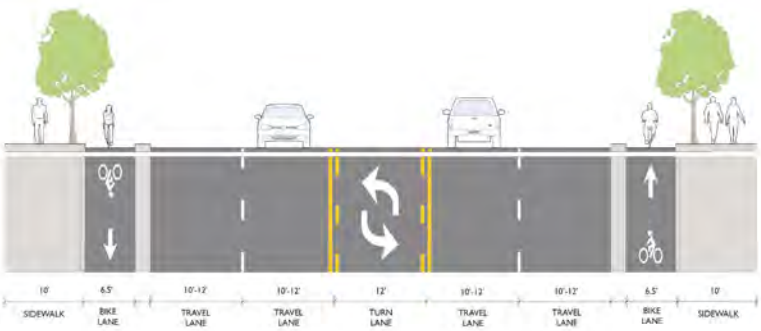
SEPARATED BIKE LANE



TWO-WAY SEPARATED BIKE LANE

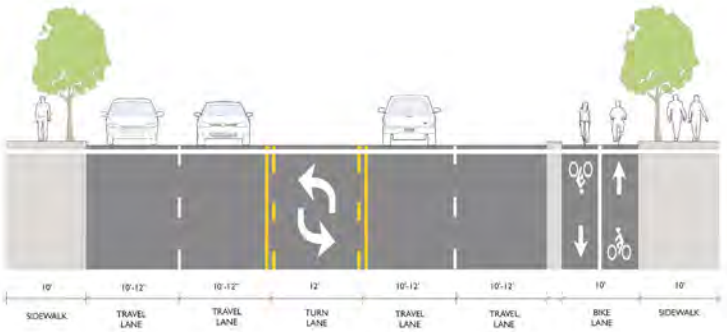


BIKE LANE + SIDEWALK

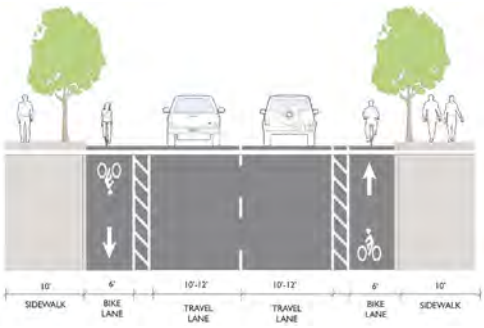


SEPARATED BIKE LANE - 3+ TRAVEL LANES

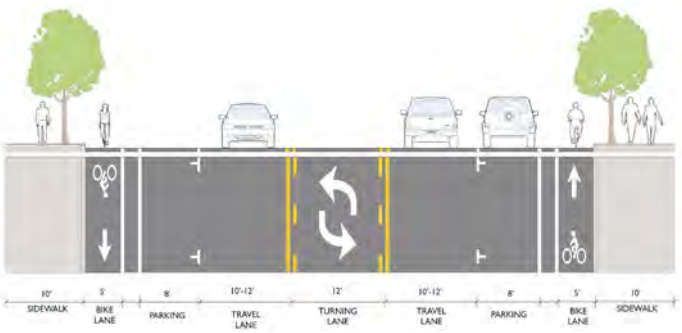
TWO-WAY SEPARATED BIKE LANE ONE-WAY STREET



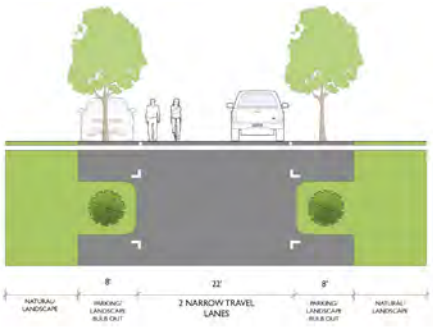
TWO-WAY SEPARATED BIKE LANE - 3+ TRAVEL LANES



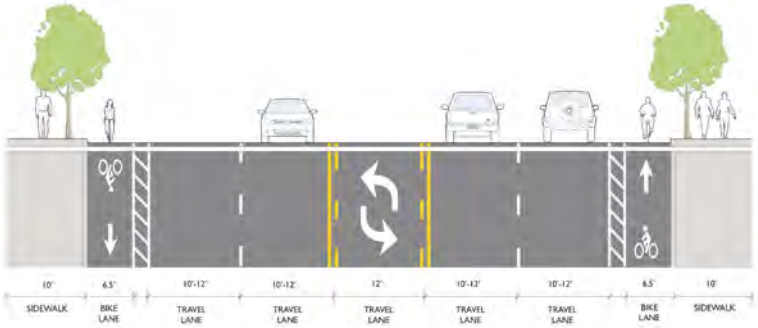
BUFFERED BIKE LANE - ONE-WAY STREET



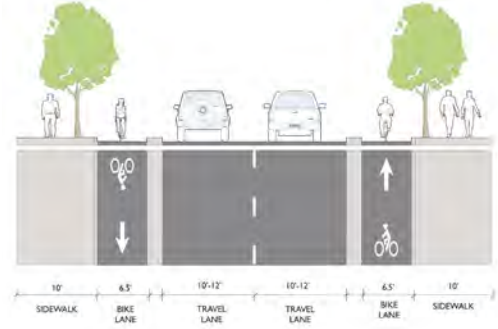
PARKING PROTECTED BIKE LANE



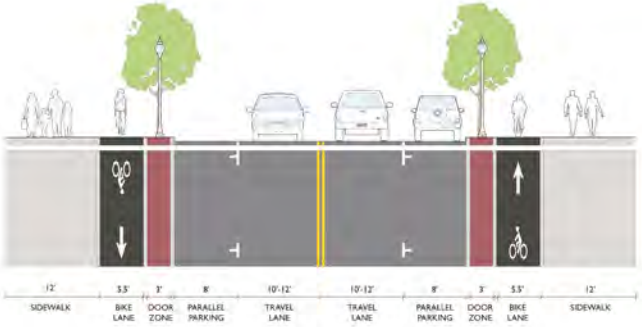
YIELD ROADWAY



BUFFERED BIKE LANE - 3+ TRAVEL LANES

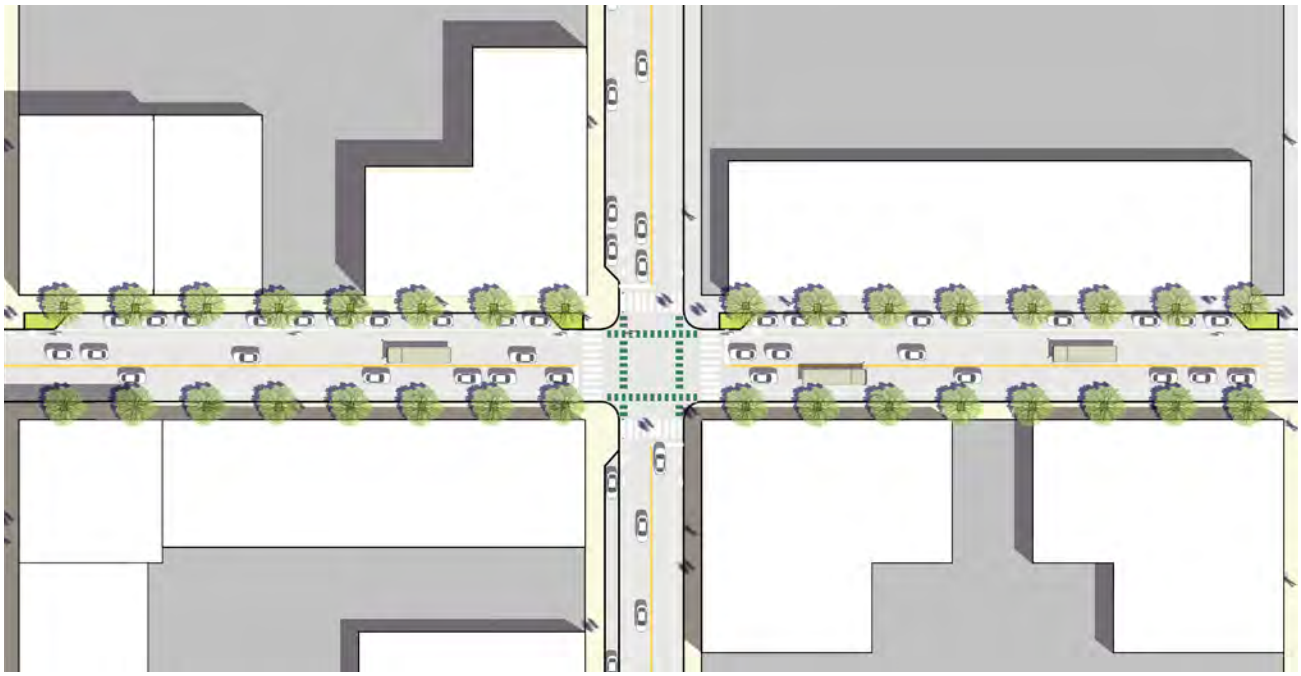


SEPARATED BIKE LANE - ONE WAY STREET

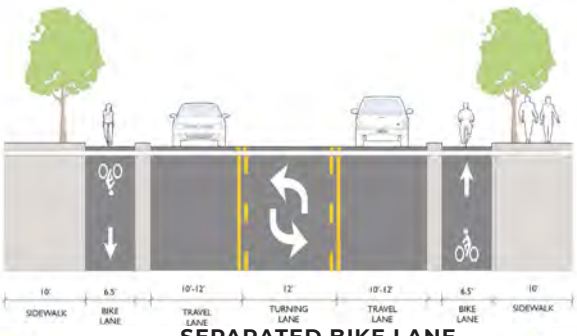


SIDEWALK LEVEL BIKE LANE

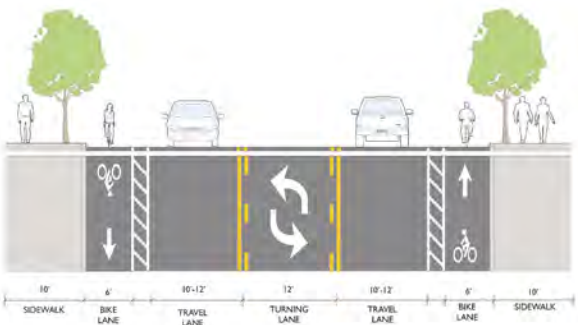
URBAN



The Urban context is a densely-developed context with a variety of land uses like the Urban Core context (e.g., retail, office, multi-family residential, etc.) but with a smaller scale of development. Minimal setbacks or build-to standards may be required in some areas. This context offers multiple amenities and destinations, as well as a variety of mobility choices (e.g., walking, biking, transit, and personal vehicles). Shorter travel distances between destinations and proximity of signalized crossings may encourage walking or biking. While parking is available, it is limited to on-street and surface lots and structures that may not be near destinations; therefore, many find walking and biking to be preferable. The Urban context may exist adjacent to the Urban Core or as a node of compact development surrounded by the Suburban context. The following are facilities that are most appropriate for the Urban context.

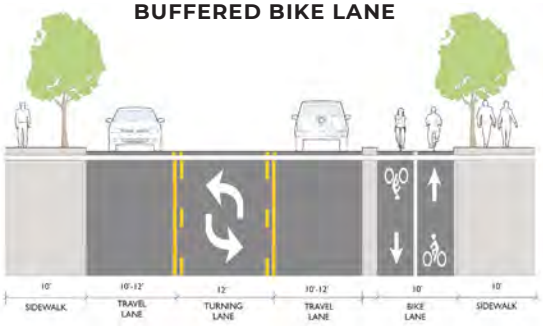


SEPARATED BIKE LANE

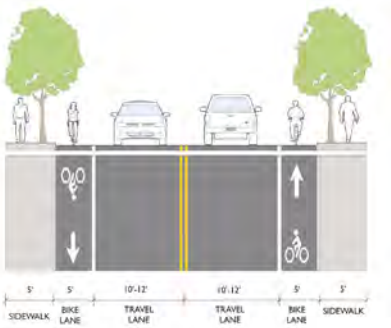


BUFFERED BIKE LANE

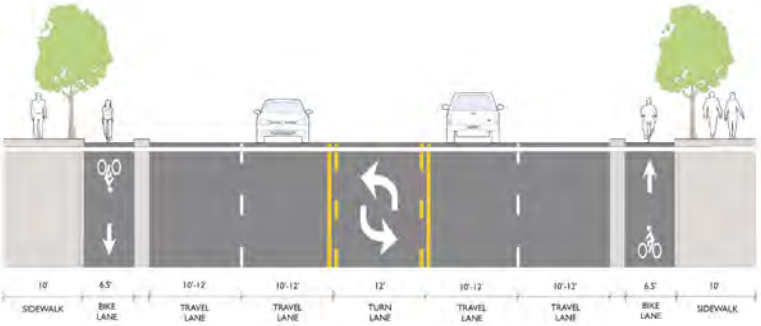
SHARED USED PATH - 3+ TRAVEL LANES



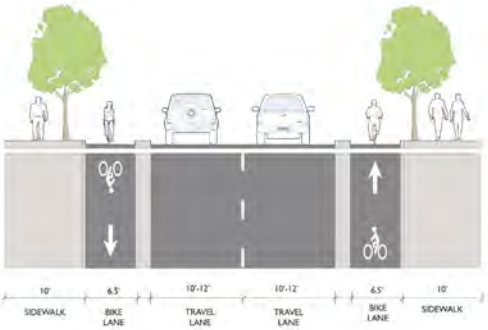
TWO-WAY SEPARATED BIKE LANE



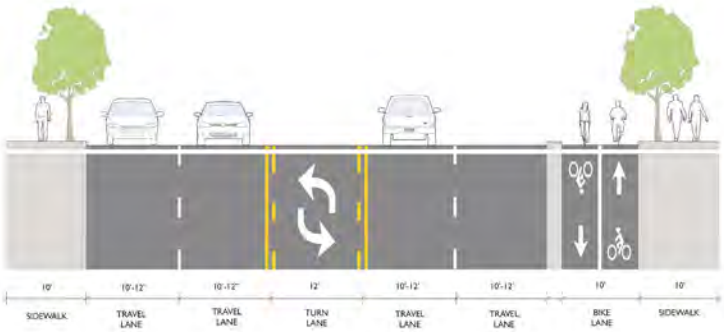
BIKE LANE + SIDEWALK



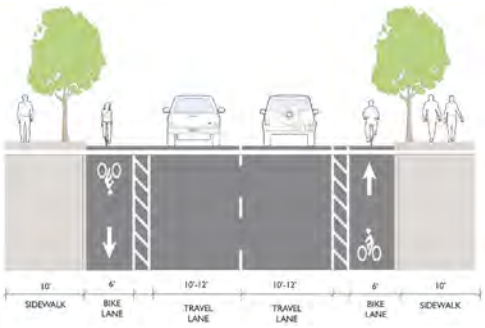
SEPARATED BIKE LANE - 3+ TRAVEL LANES



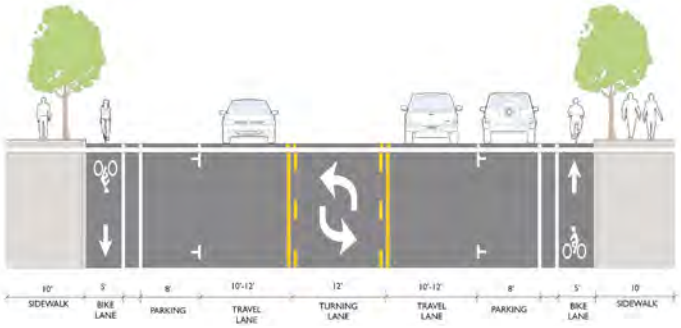
SEPARATED BIKE LANE - ONE-WAY STREET



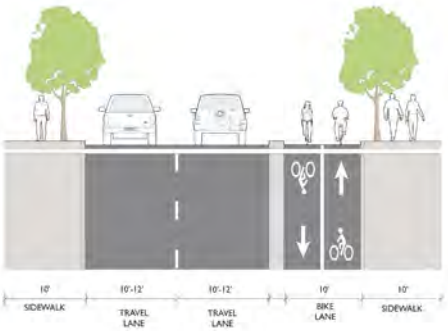
TWO-WAY SEPARATED BIKE LANE - 3+ TRAVEL LANES



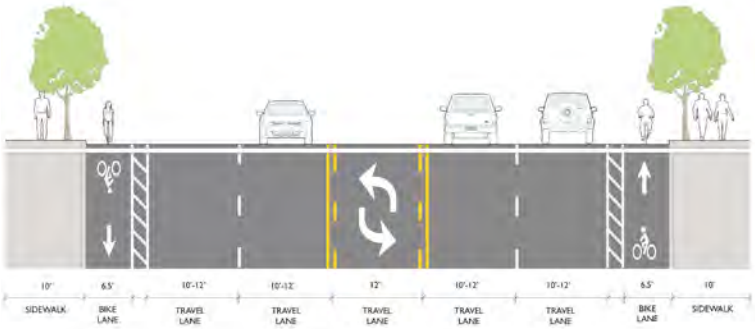
BUFFERED BIKE LANE - ONE-WAY STREET



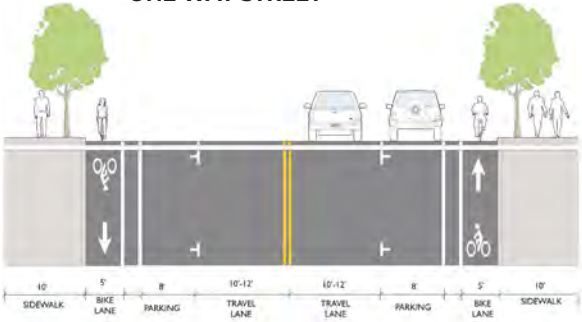
PARKING PROTECTED BIKE LANE



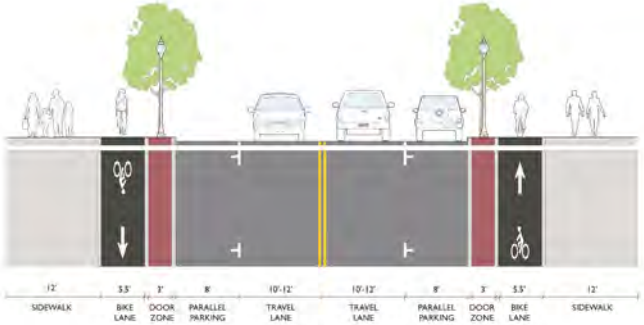
TWO-WAY SEPARATED BIKE LANE ONE WAY STREET



BUFFERED BIKE LANE - 3+ TRAVEL LANES



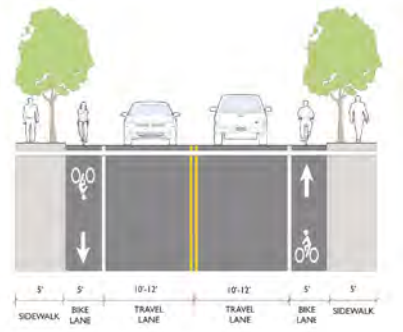
PARKING PROTECTED BIKE LANE - TWO LANES



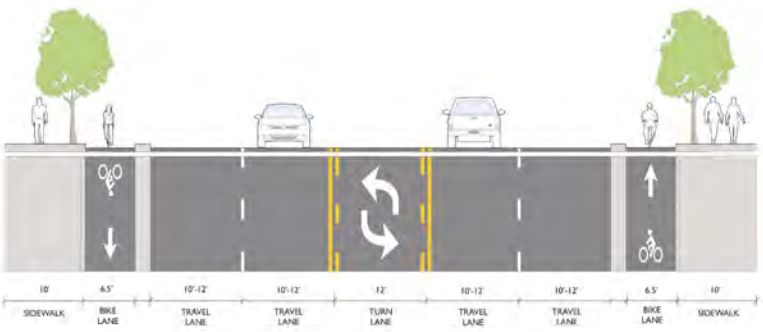
SIDEWALK LEVEL BIKE LANE

SUBURBAN

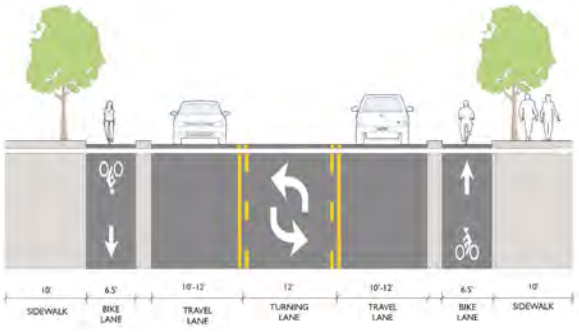
The Suburban Context has a variety of land use types (e.g., residential, retail, office, etc.) that are rarely mixed with one another on a single site, but are connected by a network of arterial and collector streets. Commercial and industrial development is spread out on medium to large parcels with greater minimum setbacks and large surface parking lots. Suburban transportation corridors increase vehicular mobility from the Suburban context into more dense contexts for employment, services, and/or entertainment. Biking and walking opportunities may be available through limited on-street and adjacent-to-street facilities (e.g., sidewalks, bike lanes, etc.) and the development of off-street trails; however, connectivity may be challenging due to increased distances between destinations and/or signalized intersections along arterial and collector streets. The following are facilities that are most appropriate for the Suburban context.



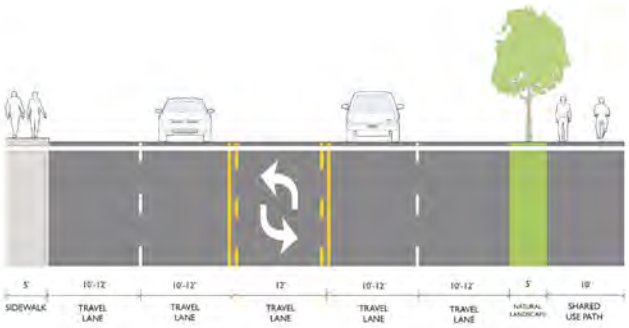
BIKE LANE + SIDEWALK



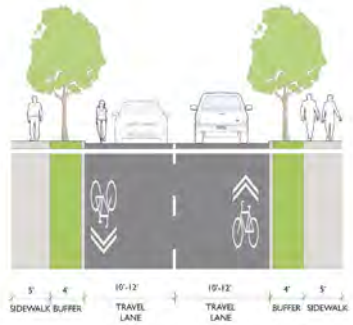
SEPARATED BIKE LANE - 3+ TRAVEL LANES



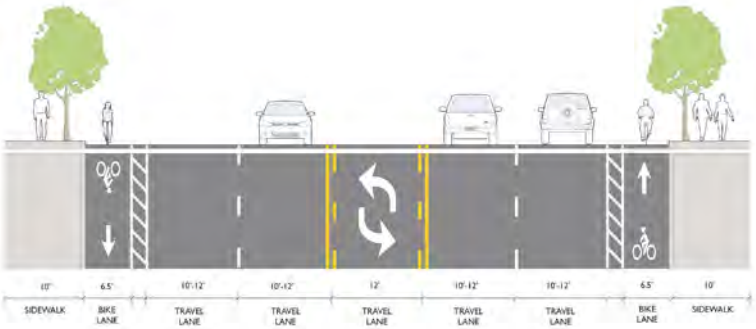
SEPARATED BIKE LANE



SHARED USE PATH + SIDEWALK
3+ TRAVEL LANES



BIKE BOULEVARD
NEIGHBORHOOD STREET

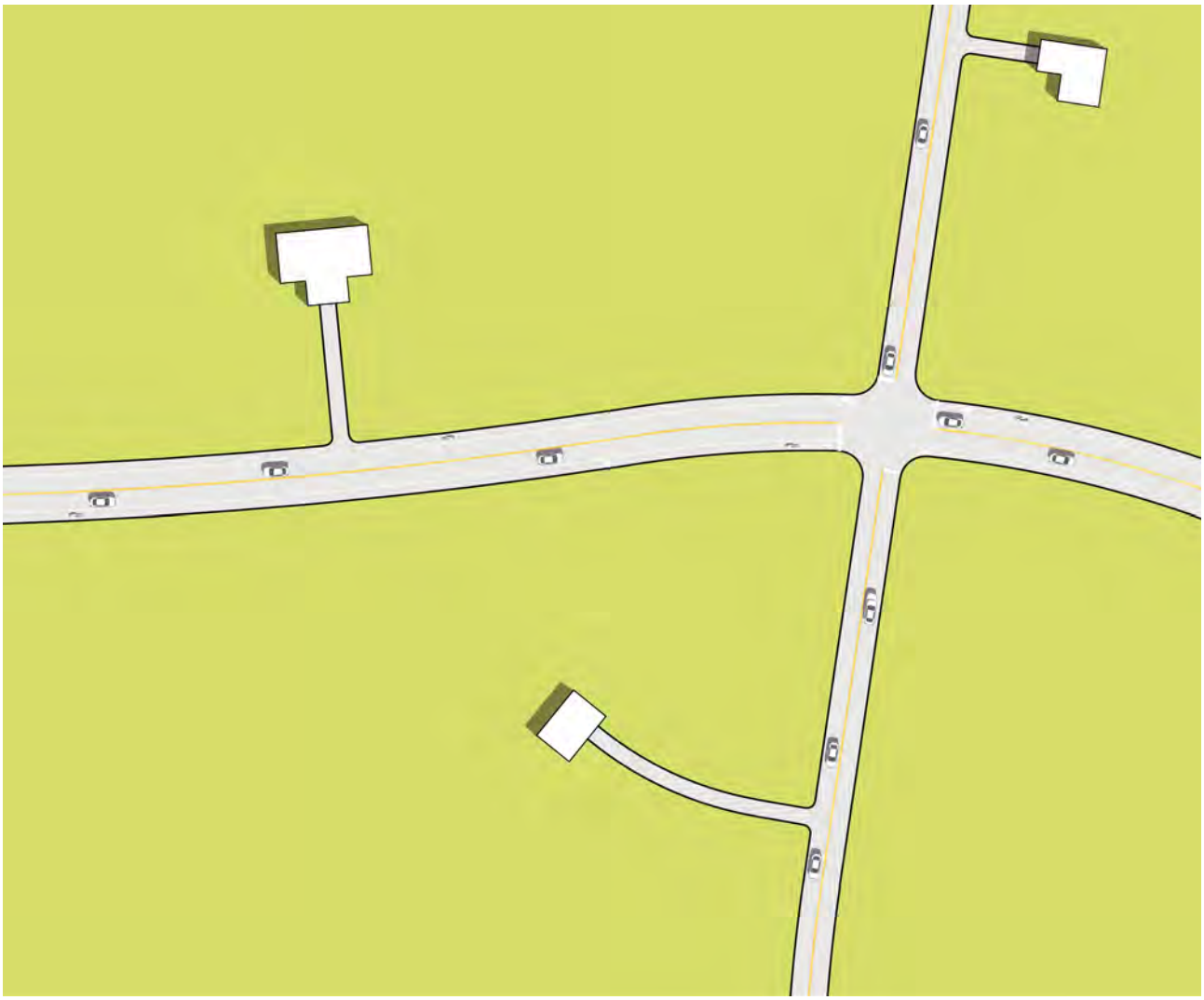


BUFFERED BIKE LANE - 3+ TRAVEL LANES

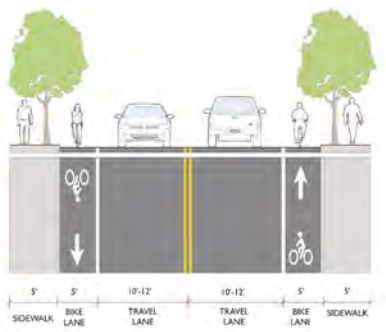
YIELD ROADWAY

SHARED USED PATH - 3+ TRAVEL LANES

RURAL

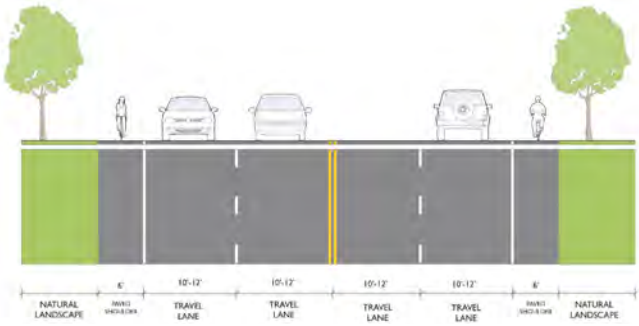


Rural contexts are characterized by large parcels used for single-family and/or agricultural purposes that are set back significantly from roadways. Some service-oriented businesses are occasionally found in the Rural context, including gas stations, small grocery stores, and agricultural equipment dealerships. Mobility choices are primarily limited to personal vehicles because of long distances to destinations. Rural roadways may have earthen or paved shoulders or walking, but they are connected in very low-density frameworks, often having few if any signalized intersections and low traffic volumes moving at high speeds. The following are facilities that are most appropriate for the Rural context.

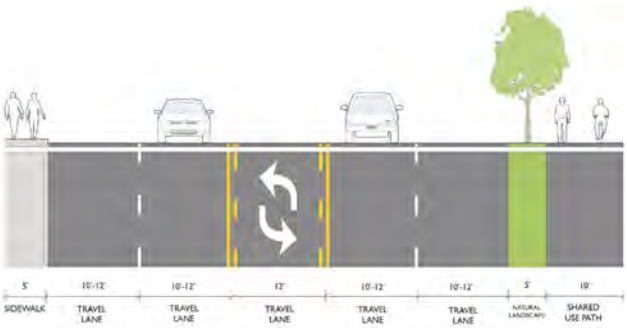


BIKE LANE + SIDEWALK

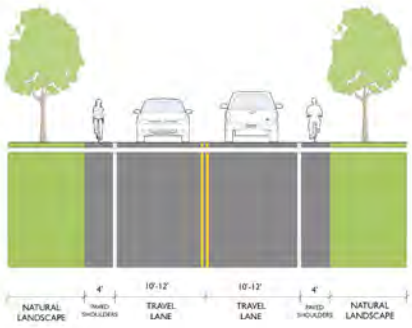
SHARED USED PATH - 3+ TRAVEL LANES



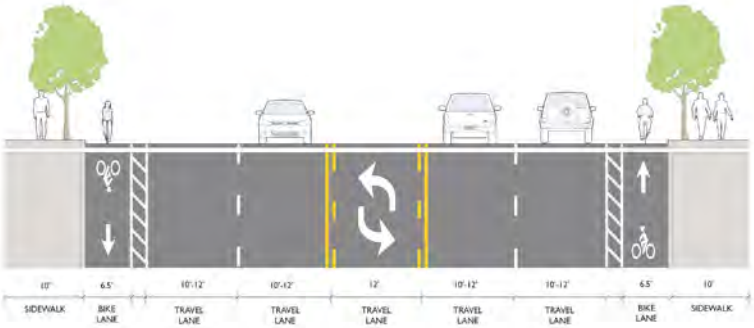
PAVED + STRIPED SHOULDER - 3+ TRAVEL LANES



SHARED USE PATH + SIDEWALK
3+ TRAVEL LANES

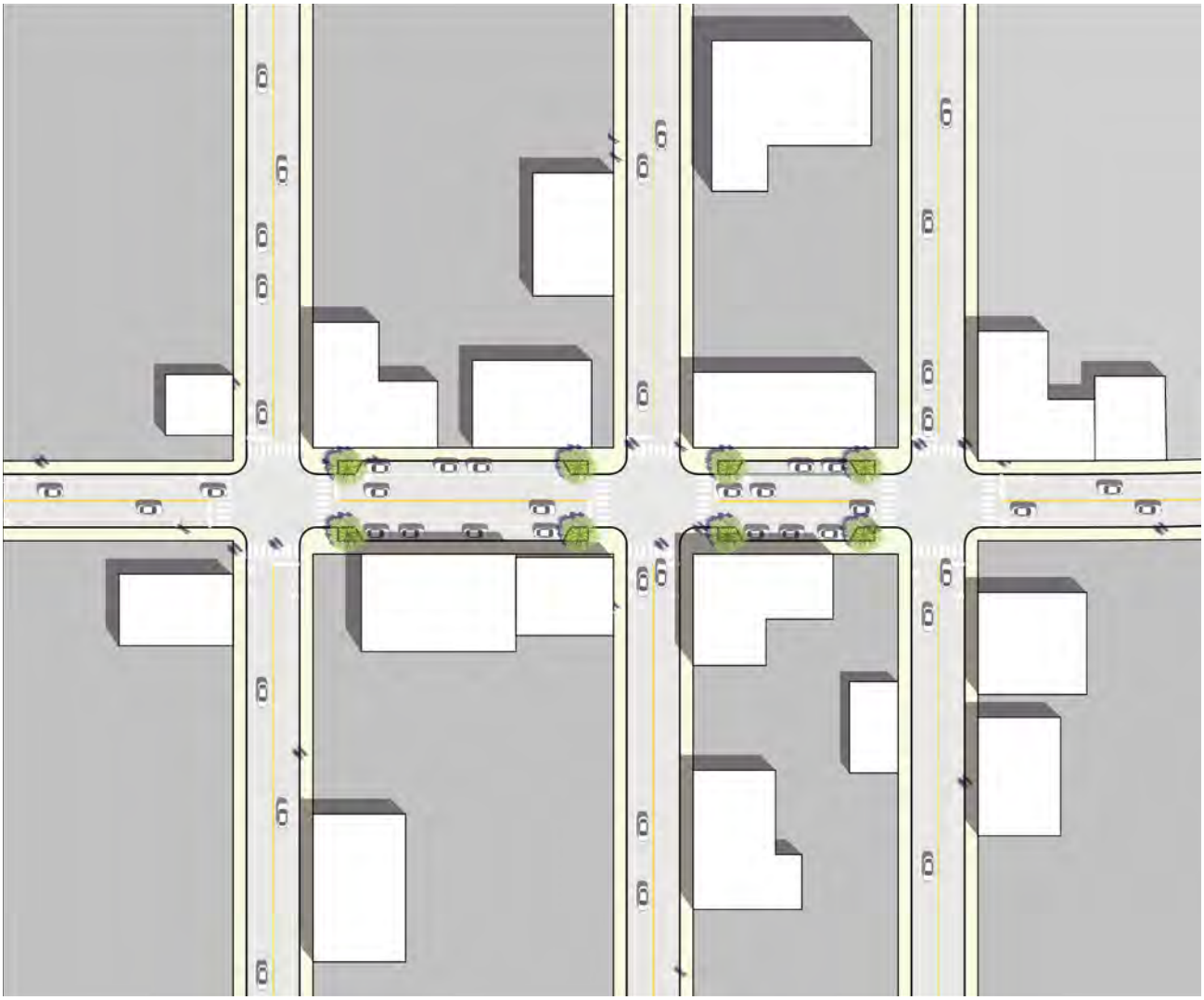


PAVED SHOULDER

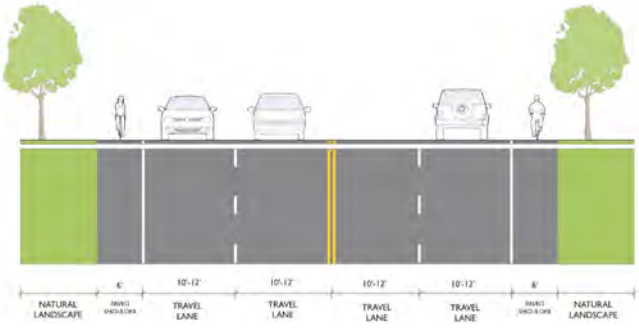


BUFFERED BIKE LANE - 3+ TRAVEL LANES

RURAL TOWN

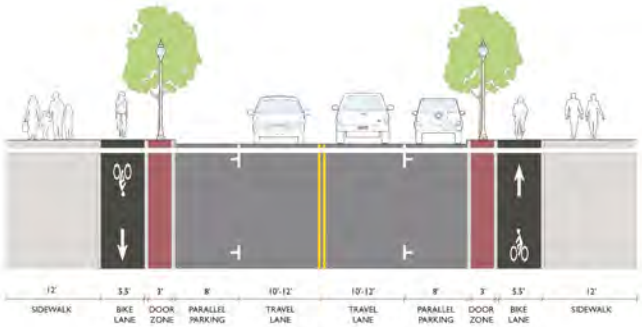


The Rural Town context is a node of compact, somewhat dense development surrounded by the Rural context. It generally has a variety of land uses that provide commercial services, government facilities, and public amenities to the surrounding area. Within the Rural Town, compact development, low traffic volumes, slow speeds, on-street parking, and sidewalks may allow for enhanced walkability and bikeability. Due to the surrounding low density Rural context, the Rural Town may be connected to a less dense road network with fewer signalized intersections and limited sidewalk connectivity outside the immediate Rural Town context. On-street and surface lot parking accommodate locals and visitors who are traveling longer distances to access the services and amenities provided in the Rural Town. The following are facilities that are most appropriate for the Rural Town context.

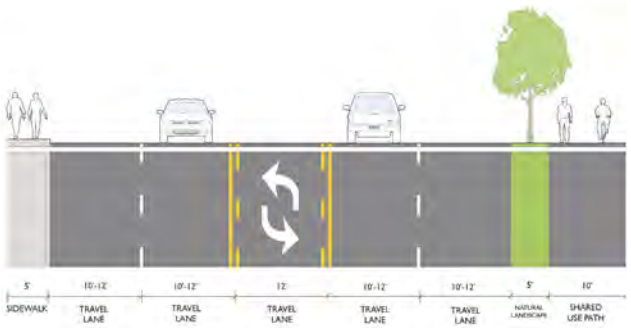


PAVED + STRIPED SHOULDER - 3+ TRAVEL LANES

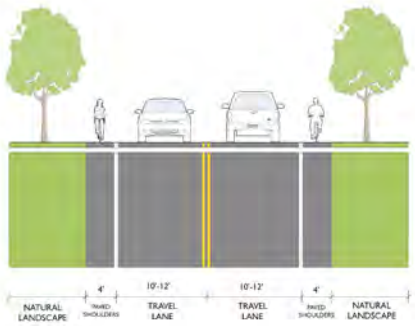
SHARED USED PATH - 3+ TRAVEL LANES



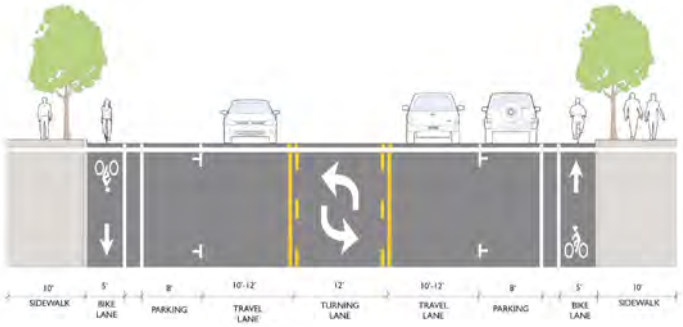
SIDEWALK LEVEL BIKE LANE



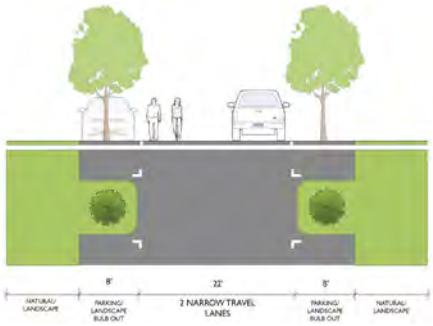
SHARED USE PATH + SIDEWALK
3+ TRAVEL LANES



PAVED SHOULDER

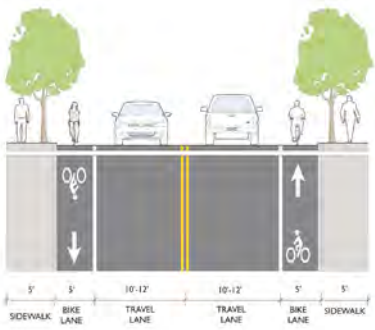


PARKING PROTECTED BIKE LANE



YIELD ROADWAY

BIKE BOULEVARD
NEIGHBORHOOD STREET



BIKE LANE + SIDEWALK

PEDESTRIAN FACILITIES IN CONTEXT ZONES

What defines a "complete" pedestrian network varies in each land use context due to varying pedestrian needs. Pedestrian activity in an Urban Core setting and a Rural setting are very different, and requirements for sidewalk networks should be appropriate in those contexts. The following (Table 4-3) outlines what types of pedestrian facilities should be present in each context:

Table 4-3: *Sidewalk Facilities by Land Use Context*

CONTEXT	PEDESTRIAN FACILITY REQUIREMENTS
Urban Core	Sidewalks on both sides.
Urban	Sidewalks on both sides.
Suburban	Based on street type and land use: • Near schools/parks: sidewalks on both sides of the street. • Low-speed/local roads: sidewalks on one side. • High-volume/high-speed roads: sidewalks on both sides.
Rural	Based on street type: • High-speed/low-volume roads: paved shoulders. • High-speed/high-volume roads: sidewalk or sidepath on one side. • Local/low-speed/low-volume roads: shared streets.
Rural Town	Based on street type and land use: - Commercial roads and near schools/parks: sidewalks on both sides. - Residential streets: sidewalk on one side.

GENERAL DESIGN GUIDANCE

In addition to Context Sensitive Design recommendations, the B-ACTIVE Plan also provides general design guidance for common bicycle and pedestrian facility types. While these guidelines are not exhaustive, they outline key elements of design, user benefits, and design challenges that should be considered when selecting and designing facilities.

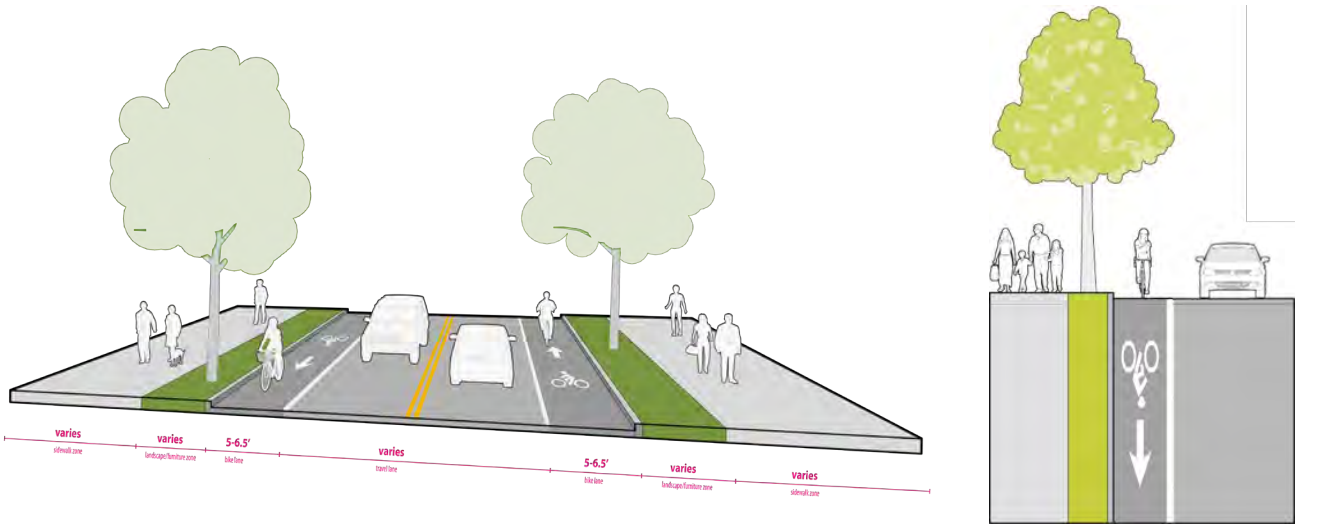
Recommendations in the General Design Guidance Section come from a variety of sources, including:

- Urban Bikeway Design Guide, 2nd Edition from the National Association of City Transportation Officials (NACTO)
- Separated Bike Lane Planning and Design Guide, 2015 from the Massachusetts Department of Transportation (MassDOT)
- Separated Bike Lane Planning and Design Guide, 2015 from the Federal Highway Administration
- Guide for the Development of Bicycle Facilities, 2012 from American Association State Highway Transportation Officials (AASHTO)

BIKE FACILITY DESIGN GUIDANCE

Within each land use context, there are a variety of bicycle facilities that may be appropriate to attract more users. Implementing bicycle facilities may also vary based upon the existing street characteristics as described in the Facility Selection Guidance section. The following information provide key design guidance and considerations for several proposed bicycle facility types for the Greater Birmingham region.

01 BIKE LANES



Bike lanes provide delineated space for bicyclists in the roadway using lines and symbols on the roadway surface. Bike lanes are typically for one-way travel and are normally provided in both directions on two-way streets and/or on one side of a one-way street; however, two-way bike lanes can be considered in some circumstances. Bicyclists are not required to remain in a bicycle lane when traveling on a street; they may leave the bicycle lane as necessary to make turns, pass other bicyclists, or to otherwise position themselves. Bike lanes may also be part of temporary solutions that, as funds and space becomes available, will eventually become a more highly protected facility.

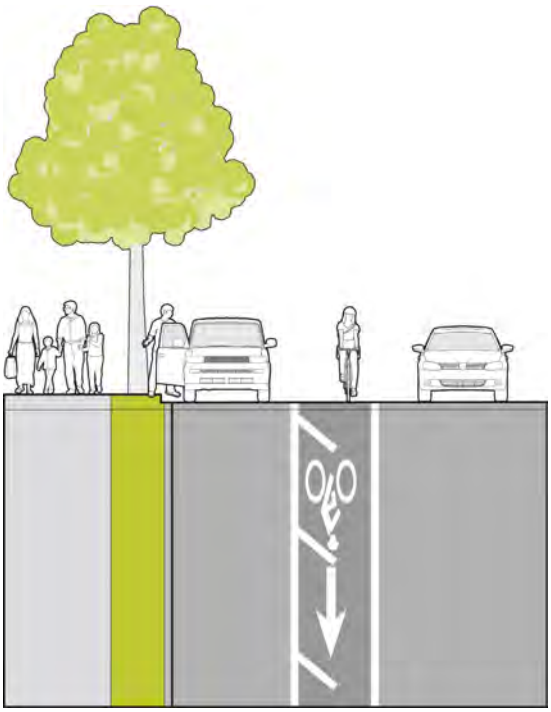
Considerations:

- » Typically installed by reallocating existing street space.
- » Can be used on one-way or two-way streets.
- » Wider bike lanes or buffered bike lanes are preferable at locations with high parking turnover.

Guidance:

- » The minimum width of a bike lane adjacent to a curb or parking is 5’ exclusive of a gutter, but the desirable width is 6’.
- » Parking T’s or hatch marks can highlight the door zone on constrained corridors with high parking turnover to guide bicyclists away from doors.
- » Bike lane striping should be continued through intersections.
- » Conflict pavement markings should be considered at driveways and intersections.

02 BUFFERED BIKE LANES



Buffered bike lanes are created by painting or otherwise creating a flush buffer zone between a bike lane and the adjacent travel lane. While buffers are typically used between bike lanes and motor vehicle travel lanes to increase bicyclists' comfort, they can also be provided between bike lanes and parking lanes in locations with high parking turnover to discourage bicyclists from riding too close to parked vehicles. Like conventional bike lanes, buffered bike lanes can also be used as a temporary facility to become a more highly protected facility as funds become available.

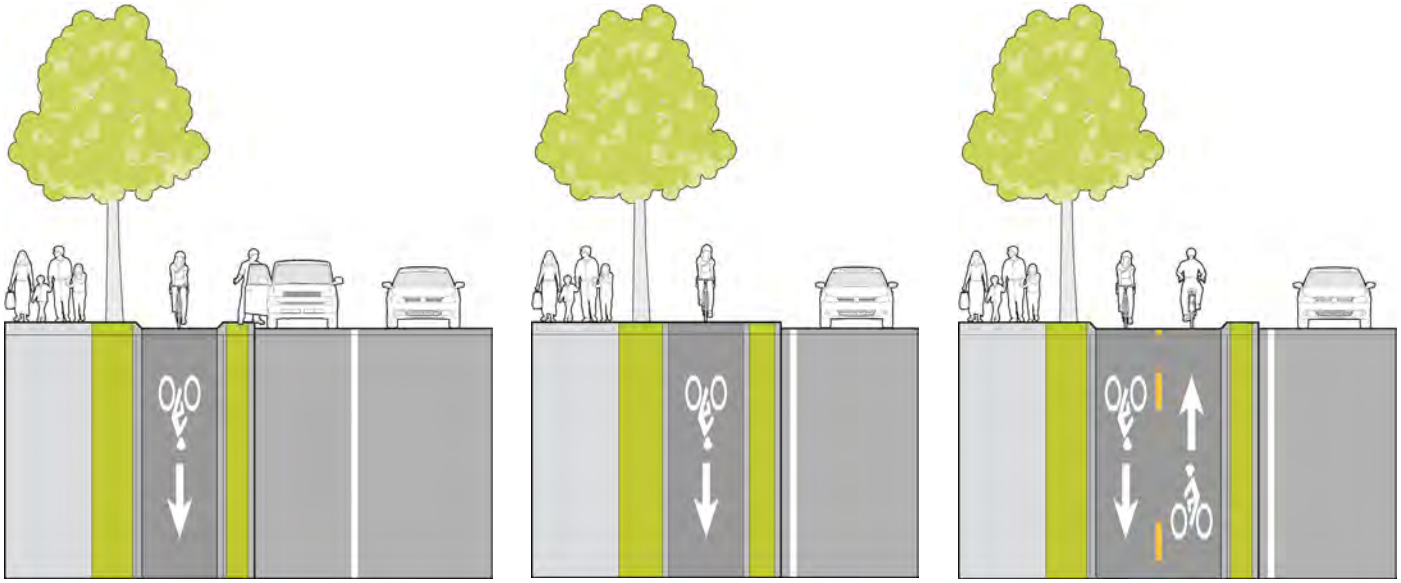
Considerations:

- » Typically installed by reallocating existing street space.
- » Consider placing buffer next to travel lane where speeds are 30 MPH or greater or when traffic volume exceeds 6,000 vehicles per day, and/or where there is commercial or metered parking.
- » Where there is 7' of roadway width available for a bicycle lane, a buffered bike lane should be installed instead of a conventional bike lane.
- » Research has documented buffered bike lanes increase the perception of safety.

Guidance:

- » The minimum width of a buffered bike lane adjacent to parking is 4', but a desirable width is 6'.
- » Buffers are to be broken where curbside parking is present to allow cars to cross the bike lane.
- » The minimum buffer width is 18 inches. There is no maximum.
- » Diagonal cross hatching should be used for buffers 3' in width. Chevron cross hatching should be used for buffers >3' in width.

03 SEPARATED BIKE LANES



Separated bike lanes (SBLs) are an exclusive bikeway facility type that are physically separated from motor vehicle traffic and distinct from the sidewalk. SBLs are more attractive to a wider range of bicyclists than striped bike lanes on higher-volume and higher-speed roads. They eliminate the risk of a bicyclist being hit by an opening car door and prevent motor vehicles from driving, stopping or waiting in the bikeway. They also provide increased comfort to pedestrians by separating them from bicyclists operating at higher speeds. Depending on design requirements, SBLs can be one- or two-way facilities.

Considerations:

Separated bike lanes can provide different levels of separation:

» Separated bike lanes with flexible delineator posts ("flex posts") alone offer the least separation from traffic and are appropriate as interim solution.

» Separated bike lanes that are raised with a wider buffer from traffic provide the greatest level of separation from traffic, but will often require road reconstruction.

» Separated bike lanes that are protected from traffic by a row of on-street parking offer a high degree of separation.

Guidance:

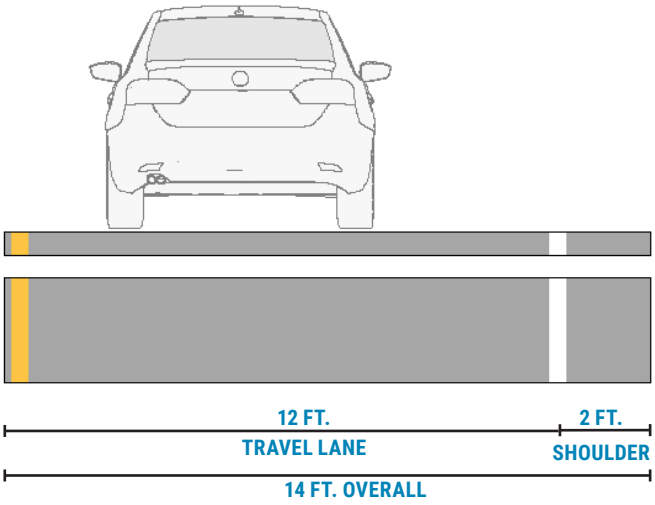
» Separated bike lanes can be considered on roads with one or more of the following characteristics:

- 3 or more travel lanes.
- 9,000 vehicles per day or more.
- Frequent on-street parking turnover.
- Bus routes/truck routes.

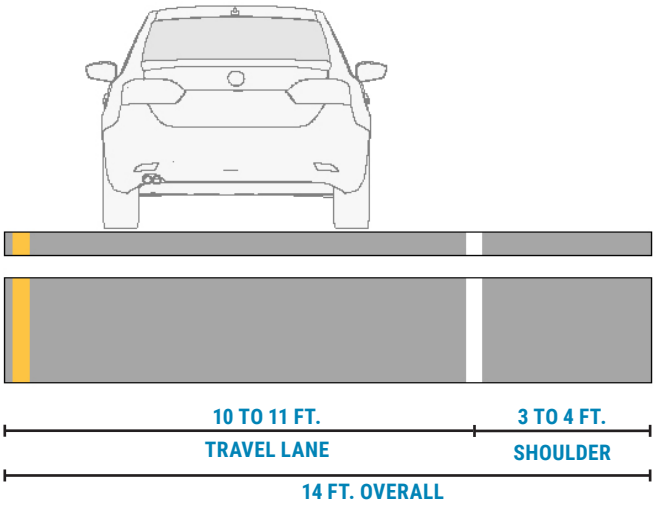
» Width of facilities can vary depending on demand and on design constraints; however, the minimum width of the bicycle travel lane should be 5' for one-way travel and 8' for two-way travel.

04 PAVED SHOULDERS

EXISTING CONFIGURATION



BICYCLE-FRIENDLY CONFIGURATION



Where 4-foot (or wider) paved shoulders exist already, it is acceptable to mark them as bike lanes, especially in rural or rural town settings. If paved shoulders are marked as bike lanes, they need to also be designed as bike lanes at intersections. Where a roadway does not have paved shoulders already, paved shoulders can be retrofitted to the existing shoulder when the road is resurfaced or reconstructed. In some instances, adequate shoulder width can be provided by narrowing travel lanes to 11'.

Considerations:

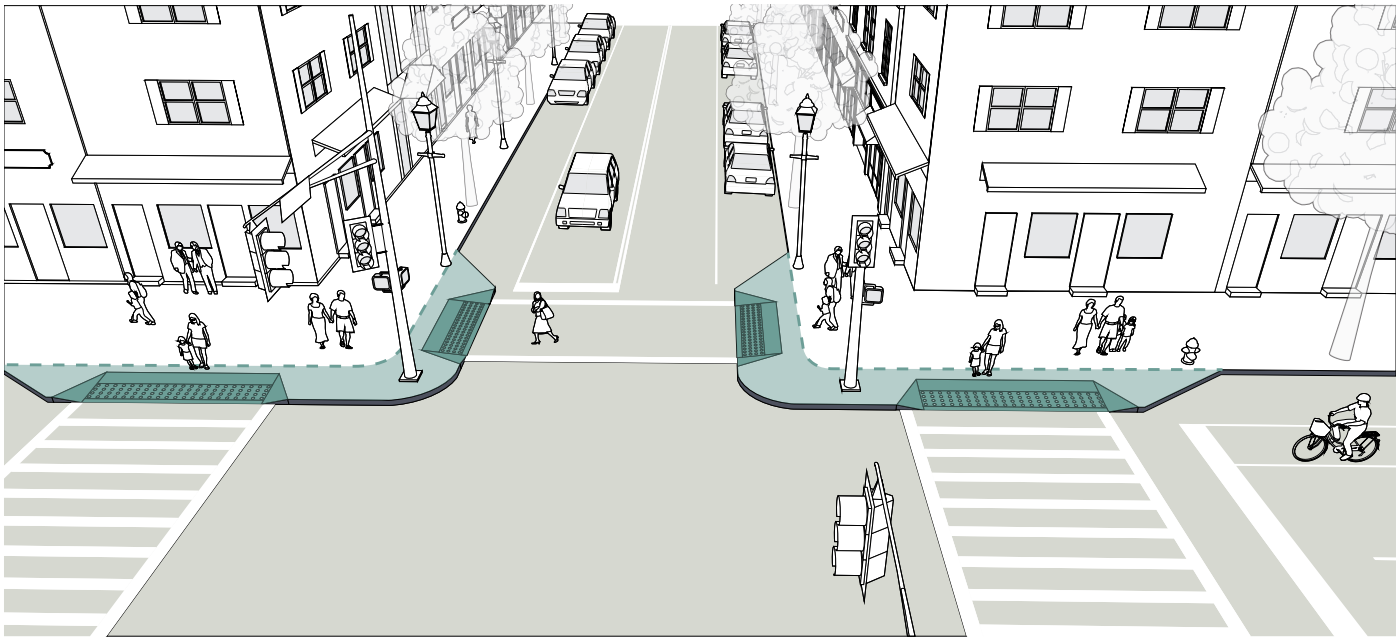
- Reducing travel lane width on existing roads—also known as a "lane diet"—is one way to increase paved shoulder width.
- There are several situations in which additional shoulder width should be provided, including motor vehicle speeds exceeding 50 mph, moderate to heavy volumes of traffic, and above-average bicycle or pedestrian use.
- The placement of rumble strips may significantly degrade the functionality of paved shoulders for bicyclists.

Guidance:

- Rumble strips should be placed as close to the edge line as practicable and 4' of usable space should be provided for bicyclists. Where rumble strips are present, gaps of at least 12' should be provided every 40-60'.
- Use at least 5' where guardrails, curbs, or other roadside barriers are present.
- Designers should consider wider shoulders if vehicle speeds are greater than 50 mph.
- Paved shoulders at intersections can transition to on street bicycle lanes, separated bike lanes, or shared use paths.

PEDESTRIAN FACILITY DESIGN GUIDANCE

01 CURB EXTENSIONS



Curb extensions, also known as neckdowns, bulb-outs, or bump-outs, are created by extending the sidewalk at corners or mid-block. Curb extensions are intended to increase safety, slow vehicular traffic, provide extra space along sidewalks for users and amenities, and shorten street crossing distances for pedestrians.

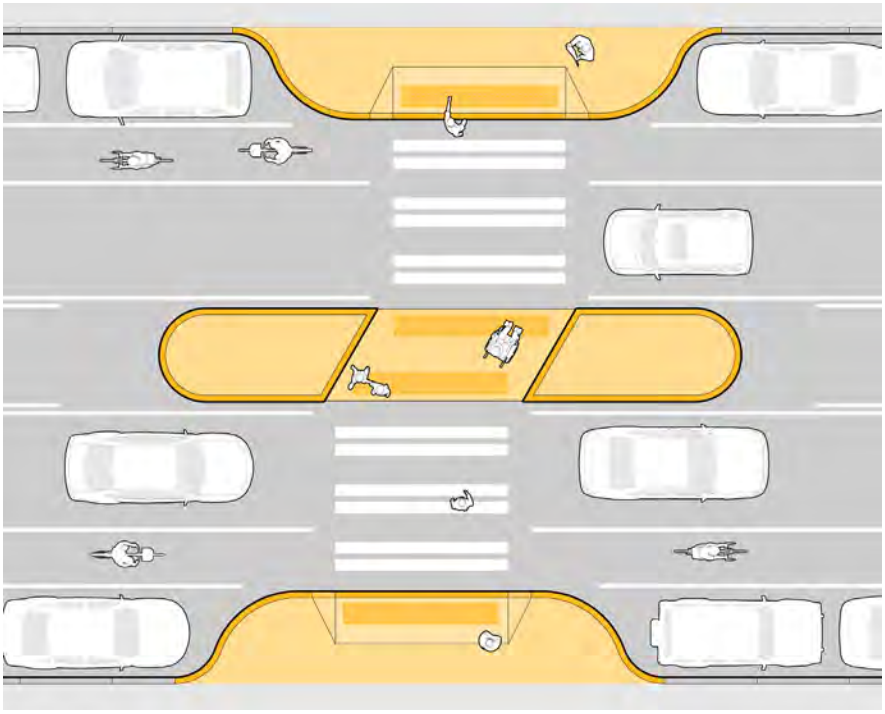
Considerations:

- The turning needs of emergency and larger vehicles should be considered in curb extension design.
- When curb extensions conflict with turning movements, the reduction of width and/or length should be prioritized over elimination.
- Curb extensions are particularly valuable in locations with high volumes of pedestrian traffic, near schools, at unsignalized pedestrian crossings, or where there are demonstrated pedestrian safety issues.

Guidance:

- Curb extensions are typically considered where parking is present.
- A typical curb extension extends the approximate width of a parked car (or about 6’ from a typical curb).
- The minimum length of a curb extension is the width of the crosswalk, allowing the curvature of the curb extension to start after the crosswalk, which should deter parking.

02 MIDBLOCK CROSSINGS



Mid-block crossing treatments provide a safe way for pedestrians and bicyclists to cross a street safely where there is not an intersection of two or more roads. Mid-block crossings are implemented where there are destinations on both sides of the street and there is notable distance between intersections. These crossings are appropriate where there are significant "desire lines"—bicyclists or pedestrians creating their own paths as opposed to using sidewalks, bike lanes, or crosswalks (e.g., around transit stops, schools, office buildings, etc.).

Considerations:

Mid-block crossings can be supported with several different treatments, including:

- Pedestrian Hybrid Beacons/High-Intensity Activated crossWalK (HAWK) signals.
- Rectangular Rapid Flashing Beacons.
- Beautification materials and plantings (on neighborhood streets).
- Removing visual impairments at intersections, or "daylighting."

Guidance:

- Crossing islands should be considered where crossing distances are greater than 50' to allow multi-stage crossings.
- At mid-block crossings, islands may be designed with a stagger, or in a "Z" pattern, encouraging pedestrians to face oncoming traffic before crossing the other side of the street.
- HAWK signals are appropriate in cases of minimum volumes of 20 pedestrians or bicyclists an hour for major arterial crossings (volumes exceeding 2,000 vehicles/hour).

03 SIDEWALKS

Street Type	Frontage Zone desirable width	Pedestrian Zone desirable width	Landscape/Furniture Zone desirable width	Total desirable width
Downtown	6′ (2′ min.)	10′ (8′ min.)	6′ (5′ min.)	22′ (15′ min.)
Downtown Neighborhood	6′ (2′ min.)	8′ (6′ min.)	6′ (5′ min.)	20′ (13′ min.)
Urban Village Main	6′ (2′ min.)	8′ (6′ min.)	6′ (5′ min.)	20′ (13′ min.)
Urban Village Neighborhood	6′ (2′ min.)	8′ (6′ min.)	6′ (5′ min.)	20′ (13′ min.)
Neighborhood	-	6′ (5′ min.)	6′ (5′ min.)	12′ (10′ min.)
Neighborhood Corridor	-	6′ (6′ min.)	6′ (6′ min.)	12′ (11′ min.)
Urban Center Connector	6′ (3′ min.)	10′ (8′ min.)	8′ (5′ min.)	24′ (16′ min.)
Urban Curbless	-	8′ (7′ min.)	12′ (′ min.)	20′ (15′ min.)
Neighborhood Curbless	-	6′ (5′ min.)	14′ (12′ min.)	20′ (17′ min.)
Industrial Access	-	6′ (5′ min.)	6′ (5′ min.)	12′ (10′ min)
Commercial Alley	-	-	-	-

6" Curb

Sidewalks contribute to the character, function, enjoyment, and accessibility of streets. Sidewalks are the place typically reserved for pedestrians within the public right-of-way, adjacent to property lines or the building face. In addition to providing vertical and/or horizontal separation between vehicles and pedestrians, the spaces between sidewalks and roadways also accommodate street plantings and furniture, stormwater infrastructure, and street lights.

Considerations:

» Streets should have adequate space for building frontage features (café seating, awnings, signage, etc.), pedestrian travel, and amenities (street furniture, plantings, etc.).

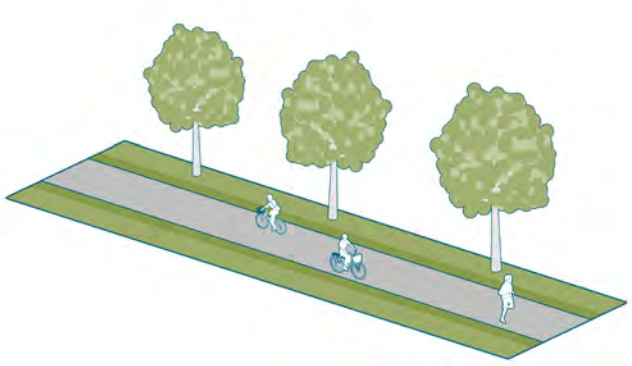
» Sidewalks should be wider in places where there are higher pedestrian volumes.

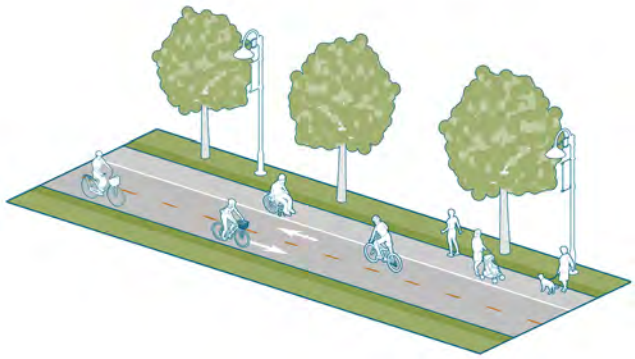
Guidance:

» Building frontage space on sidewalks used for sidewalk cafés are a special condition and should generally be no less than 6’ in width. It is best practice to require a minimum of 7’ for street amenities.

» In general, pedestrian travel areas should be between 6’ – 18’ wide, depending on available ROW and street classification (neighborhood, commercial, etc.). Pedestrian travel areas can be narrowed with constrained ROW, but sidewalks should always be at least 5’ wide.

04 SHARED USED PATHS AND SIDEPATHS





A shared use path (or trail) is a grade-separated, two-way facility used by bicyclists and pedestrians. Shared use paths are often located in an independent alignment, such as a greenbelt or abandoned railroad. However, they are also regularly constructed along roadways, in which case they are referred to as "sidepaths." Sidepaths and shared used paths accommodate both bicyclists and pedestrians using the same facility, often minimizing costs and right of way consumption.

Considerations:

- Sidepaths are desirable along high-volume or high-speed roadways where accommodating the targeted type of bicyclist within the roadway in a safe and comfortable way is impractical.
- Sidepaths may present increased conflicts between path users and motor vehicles at intersections and driveway crossings. Conflicts can be reduced by minimizing the number of driveway and street crossings present along a path and otherwise providing high-visibility crossing treatments.
- Paths should not always be considered a substitute to accommodating more confident bicyclists within the roadway. They usually have a lower cyclist design speed than on-street facilities and may not be best for more confident bicyclists who desire to travel at greater speeds. Contextual judgement is required in designing these facilities.

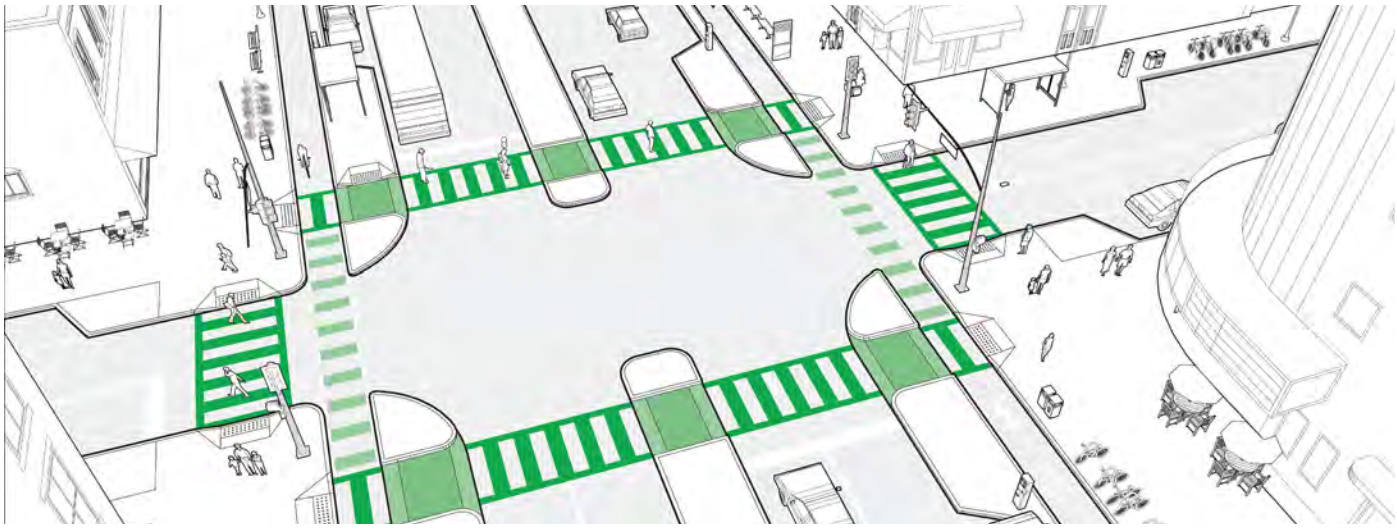
Guidance:

- Path widths can vary from 8' at the minimum (for short distances under physical constraints) to 11' recommended (for two-way travel).
- It may be beneficial to separate bicyclists from pedestrians by constructing parallel paths for each mode.
- Paths must be designed according to state and national standards. This includes establishing a design speed (typically 18 mph) and designing path geometry accordingly. Consult the *AASHTO Guide for the Development of Bicycle Facilities* for guidance on geometry, clearances, traffic control, railings, drainage, and pavement design.
- Along the path, vertical objects should be set back at least 2' from the edge of the path to protect users.

PROTECTED INTERSECTION DESIGN GUIDANCE

Intersection design is critical to creating a safe and connect active transportation network, as intersections can be high-conflict areas for pedestrians, bicyclists, and motorists. Accommodating bicycle and pedestrian facilities at intersections should be considered on a case by case basis during project implementation. Protected intersections consider the safety and mobility of all users. While not all elements of a protected intersection may be applicable for the B-ACTIVE network, the following design elements should be considered. Figure 4-3 illustrates a typical protected intersection design.

Figure 4-5: *Protected Intersection Design Example*



01 PEDESTRIAN STRIPING

Striping pedestrian crossings at intersections create a visually delineated space for pedestrians. Providing marked crosswalks communicates to drivers that pedestrians may be present, and they guide pedestrians to locations where they should cross the street. Consider the following when designing crosswalk striping:

- There are different styles of crosswalk striping, but most common and often the most effective are the ladder and continental striping patterns.
- Place on all legs of signalized intersections, in school zones, and across streets with more than minor levels of traffic.
- Crosswalks should be at least 10’ wide or the width of the approaching sidewalk if greater. Crosswalks can be up to 25’ wide in heavily used locations.
- Add rapid-flash beacons, signals, crossing islands, curb extensions, and/or other traffic-calming measures when average daily traffic (ADT) exceeds 12,000 on 4-lane roads or speeds exceed 40 mph.

02 CORNERS AND CURB RADII

Corner refuge islands at the intersection slow vehicular turning speeds at intersections while also increasing all road users' visibility in during turning movements.

- Minimizing curb radii at corners requires vehicular traffic to slow down at crossings.
- For intersections with regular truck turning movements, mountable truck aprons can be used to reduce turning speeds of vehicles while still providing enough turning room for large trucks.

03 PEDESTRIAN SIGNALS

One of the primary challenges for traffic signal design is to balance the goals of minimizing conflicts between turning vehicles with the goal of minimizing the time required to wait at the curb for a WALK indication.

- Requiring pedestrians to wait for extended periods can encourage crossing against the signal. Non-compliance (e.g., jay-walking) is likely if pedestrians are forced to wait longer than 30- 40 seconds.
- Pedestrian signal phases must be timed based on the length of the crossing. Consider refuge islands in places where crossing distances are too long for the allotted pedestrian phasing (assuming a pedestrian walking speed of 3.5 feet per second).
- In areas with higher pedestrian activity, push button actuators may not be appropriate. People should expect to get a pedestrian cycle at every signal phase.

04 BICYCLE CROSSING AND STRIPING

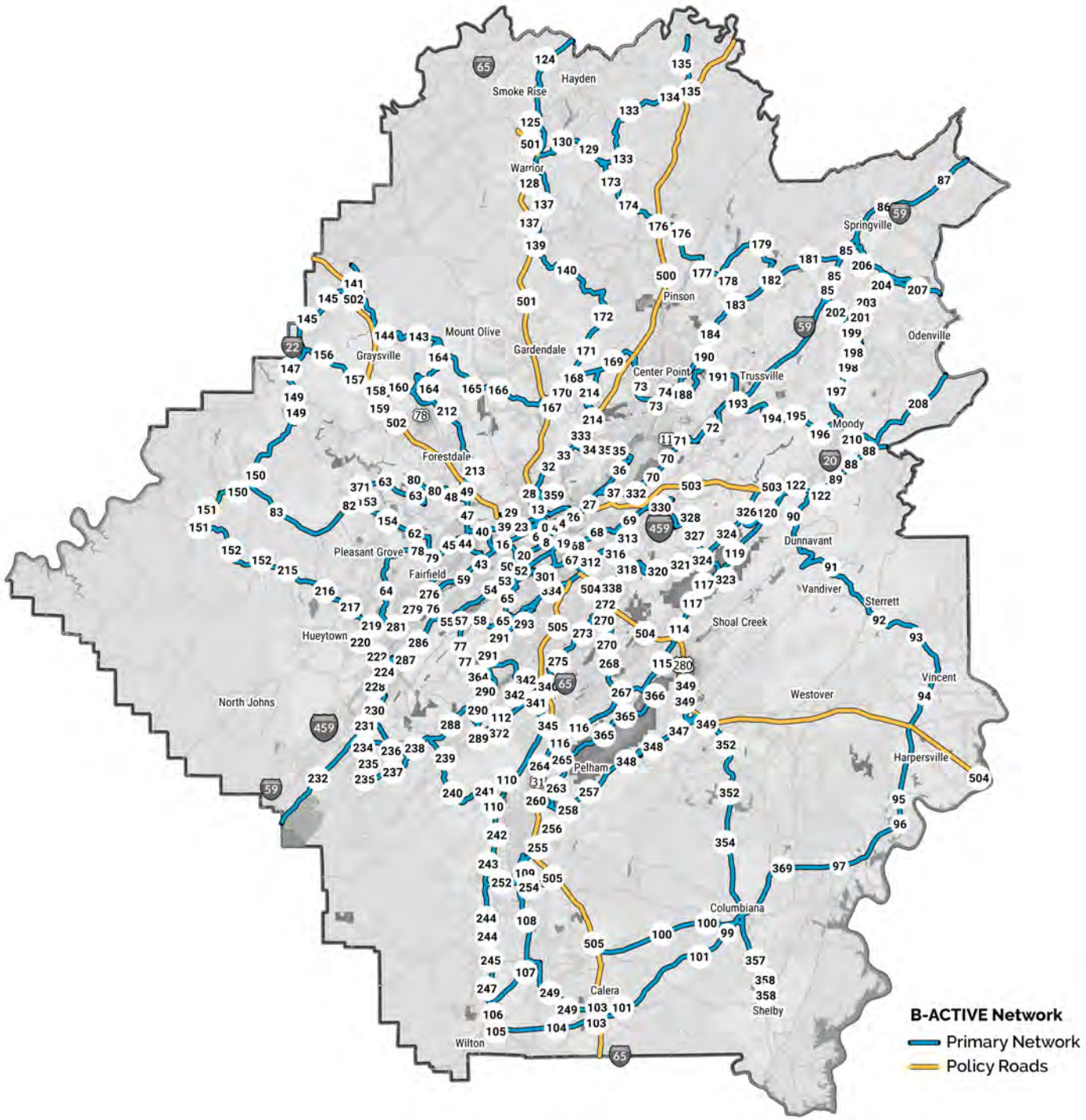
Separated bicycle lanes provide an exclusive travel way for bicyclists alongside roadways that is separate from motor vehicle travel lanes, parking lanes, and sidewalks. Separated bike lane designs at intersections should manage conflicts with turning vehicles and increase visibility for all users.

- Shared lane markings and/or colored pavement can supplement short dashed lines to demark the protected bike lane through intersections.
- It is preferable to maintain the separation of the bike lane through the intersection rather than introduce the bicyclist into the street with a merge lane.

NETWORK PROJECT RECOMMENDATIONS

Over 370 individual projects were identified through the network development process (Figure 4-4). The full list of projects and detailed network maps can be reviewed in **Appendix C**. There are a variety of factors that should be considered when a jurisdiction is ready to implement a project along the proposed B-ACTIVE network, and the following sections describe these factors and how they are used to ensure that projects are implemented to meet the goals of this plan.

Figure 4-6: *Active Transportation Network Project Map*



Facility Selection Guidance

The selection of an active transportation facility type requires a balance of community priorities with data analysis and engineering judgment working within relevant constraints for the project. An initial understanding of the project information provides a framework for selecting a preferred bicycle facility type given different traffic conditions and land use contexts. The following information should be collected, reviewed, and analyzed to determine specifc constraints or unforeseen opportunities. Example facility selection is provided for each land use context.

EXAMPLE TEMPLATE

Project Information

ID: Project ID number
Municipality: Name Here
Number of Lanes: May vary within a single project
Approximate Lane Width: May vary based upon segment
On-Street Parking: Presence of parking may influence cross section choice
One Way Street: Yes/No
Curb-to-Curb or Pavement Width: Existing condition
Speed Limit: May vary and indicate segment break within a single project
Level of Comfort: 1, 2, 3, 4, 5
Project Length: In Miles or Feet
Existing Sidewalk: May vary by segment
Existing Curb and Gutter: May vary by segment

E
Key Intersection
Key Intersection

Process

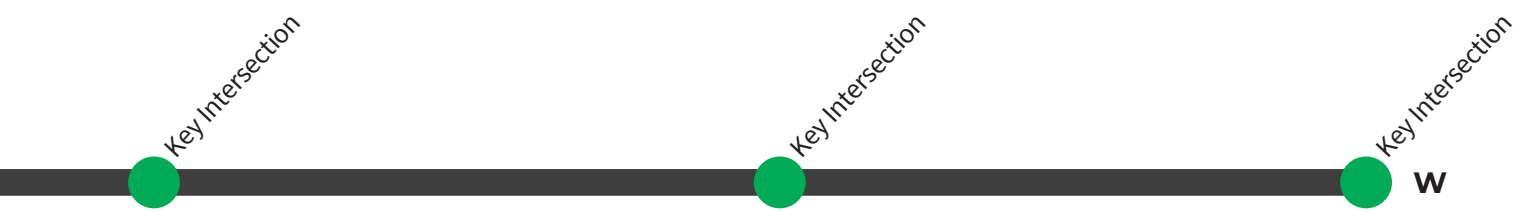
- Each project may require a different process to plan, design and implement active transportation facilities.
- Active transportation projects may be implemented as stand alone projects or may be completed during a larger roadway project.
- Local stakeholders and the public should be involved in facility selection early in the process to ensure that the final infrastructure will align with community goals and context.

Considerations

- Proposed active transportation facilities may have specific considerations based on surrounding land uses, traffic volumes, or existing vehicular speeds.
- Design of bicycle or pedestrian facilities should be comprehensive and review the design for safety of all modes, including vehicular and transit where applicable.

Potential Cross Sections

- Cross section options for each context can be found in the Context Sensitive Design section.
- A single cross section may not be appropriate for the entire project length.

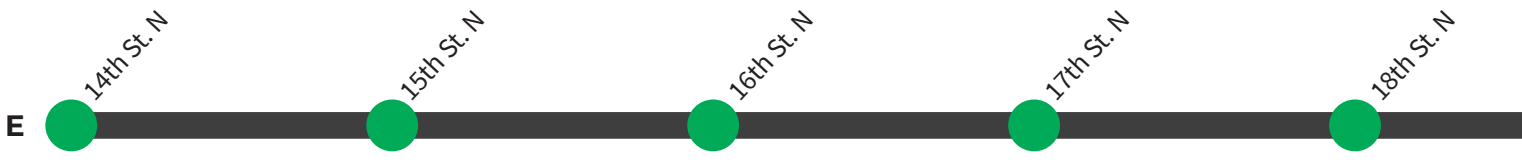


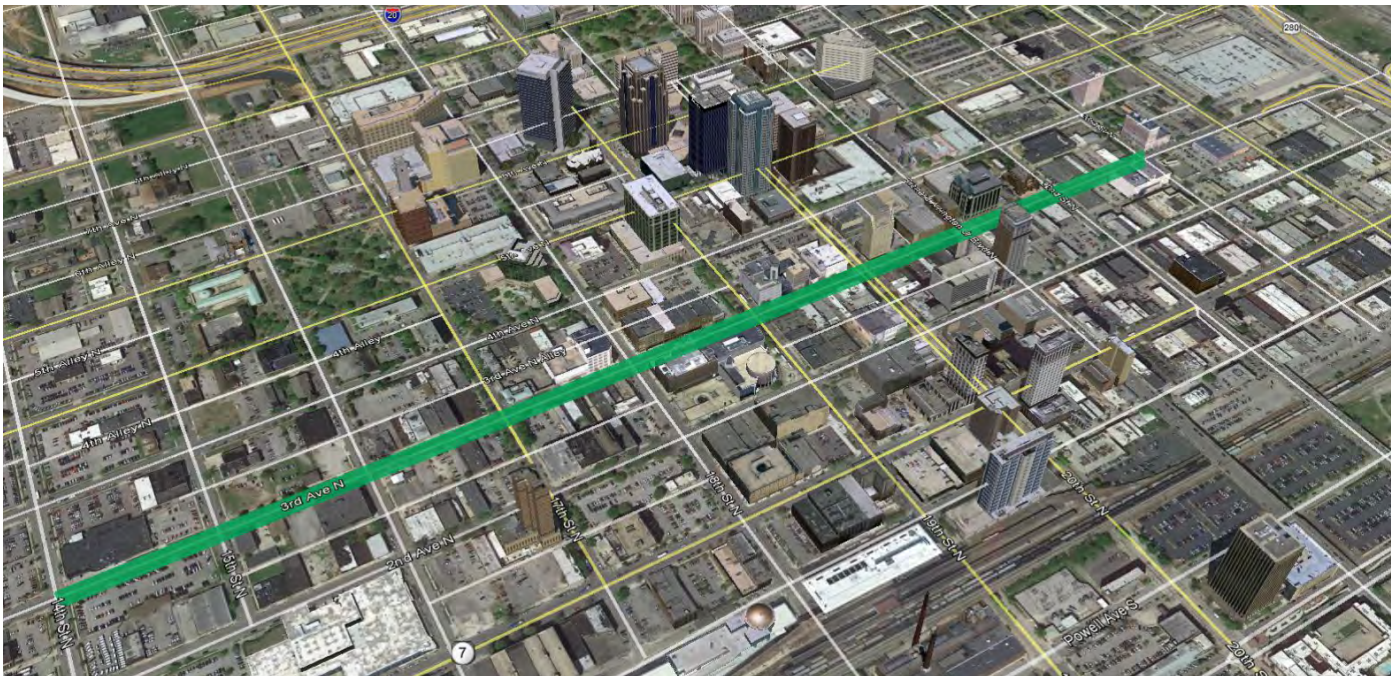
URBAN CORE EXAMPLE: 3RD AVENUE N

The 3rd Avenue North project through the urban core of Birmingham offers connectivity to a variety of destinations in downtown. Facility selection for this project should focus on attracting new users by implementing a safe and comfortable facility. Unlike other contexts, projects in the urban core should consider existing and future transit plans to ensure that the proposed facility provides access to transit stops from the active transportation facility and across it.

Project Information

ID: 9
Municipality: Birmingham
Number of Lanes: 3
Approximate Lane Width: 12’
On-Street Parking: Yes
One Way Street: Yes
Curb-to-Curb Width: 50’
Speed Limit: 25
Level of Comfort: 4
Project Length: 0.82 miles
Existing Sidewalk: Yes
Existing Curb and Gutter: Yes





Process

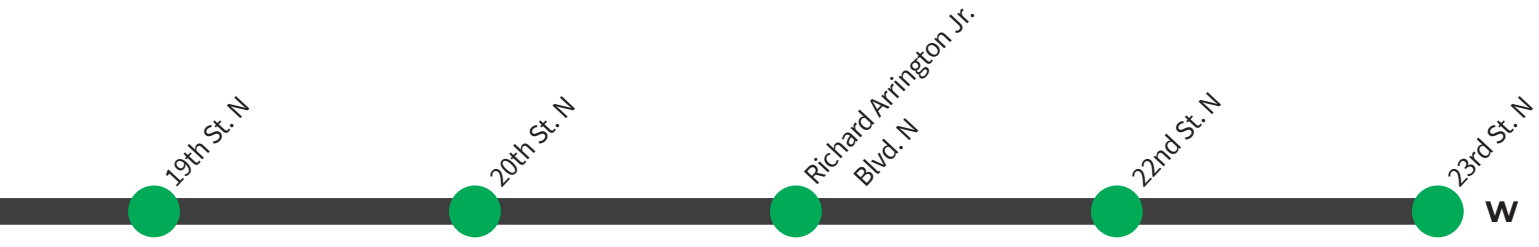
- Conduct traffic study to quantify existing motorized vehicle, bicycle, and pedestrian use. This study should also take into consideration parking turnover. High turnover rates may pose significant safety risks to bicyclists that can be mitigated by increased separation between parked vehicles and bicyclists.
- Intersections along 3rd Avenue should provide similar levels of protection as the mid-block facilities.
- Host public engagement process throughout design process to ensure that users living near the project are comfortable with the facility selection.

Considerations

- If needed, travel lanes on 3rd Ave can be narrowed to 10.5’ per lane to create more usable ROW within the exiting curb lines.
- A two-way separated bicycle facility can provide bi-directional travel along 3rd Avenue. 4th Avenue N is also part of the proposed network and provides traffic flow in the opposite direction, however, a one-way bicycle facility may be appropriate. Engineering judgement should make this distinction.

Potential Cross Sections

- Two-Way Separated Bike Lane on a One-Way Street
- Separated Bike Lane on a One-Way Street
- Parking Protected Bike Lane



URBAN EXAMPLE: GEORGIA ROAD

Georgia Road crosses several critical corridors and provides a necessary regional connection from the urban context. The segments of this project should be reviewed carefully to ensure that transitions between proposed facility types are seamless and intuitive to all modes. When designing intersection treatments, designers should prioritize improving the visibility of vulnerable road users and reducing turning speeds at conflict points.

Project Information

ID: 37

Municipality: Birmingham

Number of Lanes: 2

Approximate Lane Width:

- Segment 1: 14'-18'
- Segment 2: 20'
- Segment 3: 11'

On-Street Parking: No

One Way Street: No

Curb-to-Curb Width:

- Segment 1: 25' – 36'
- Segment 2: 40'
- Segment 3: 22'

Speed Limit: 30

Level of Comfort: 4

Project Length: 3 miles

Existing Sidewalk: Yes, but incomplete

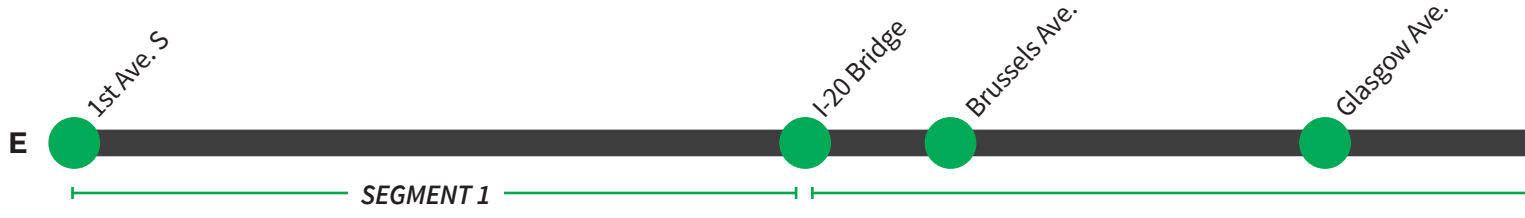
Existing Curb and Gutter:

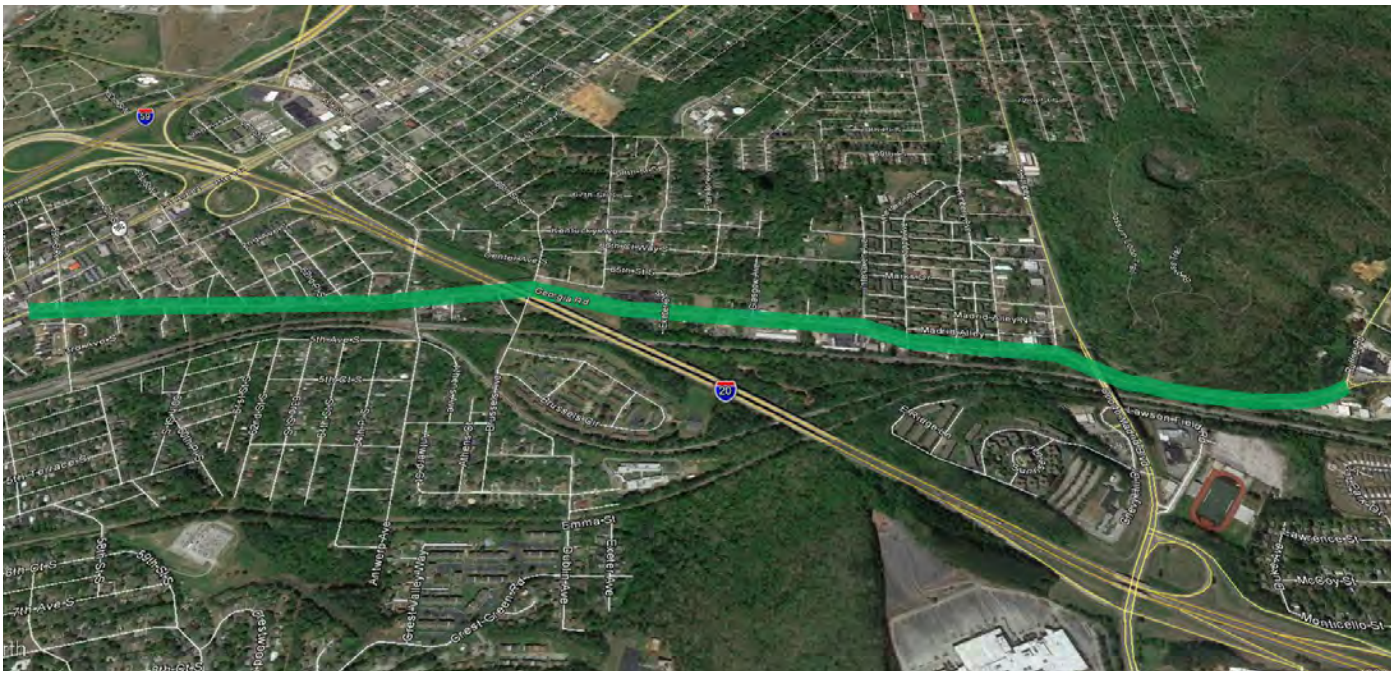
- Segment 1: No
- Segment 2: Yes
- Segment 3: No

Segment 1

Segment 2

Segment 3





Process

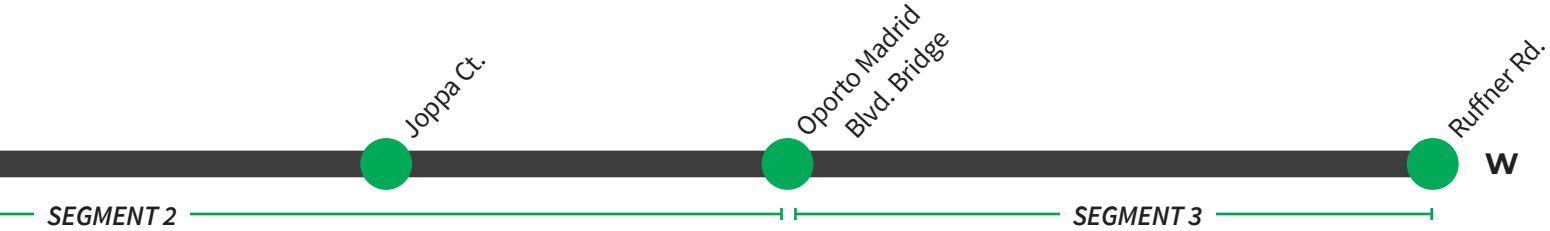
- Conduct traffic study to quantify existing motorized vehicle, bicycle, and pedestrian use.
- Take inventory of existing right of way.
- Host public engagement process throughout design process to ensure that users living near the project are comfortable with the facility selection.
- Wide lanes allow reallocation of space for bicycle and pedestrian facilities, as travel lanes can be as small as 11'.

Considerations

- Bicycle and pedestrian facility treatments can and should vary across different segments of the project to ensure that the design is appropriate and realistic to its surroundings.
- Engage in conversations with the ALDOT early in the conceptual design phase, as the under-bridge crossings could be potential pinch points in the facility's design.
- Traffic calming treatments may benefit design of constrained areas to allow for slow speeds and mixing of travel modes.

Potential Cross Sections

- Segment 1:
  - Buffered bike lane + Sidewalk
  - Bike lane + sidewalk
- Segment 2:
  - Buffered bike lane
  - Protected/separated bike lane
- Segment 3:
  - Shared use/side path
  - Buffered bike lane + sidewalk



SUBURBAN EXAMPLE: WEST OXMOOR ROAD

West Oxmoor Road is a suburban project that connects across Lakeshore Parkway within the Homewood municipality. This corridor goes through a variety of properties with large lots. Facility design should address traffic along West Oxmoor Road, as well as the needs of the surrounding businesses. Property access design may require accomodation for truck turn movements and should consider design treatments such as mountable truck aprons to ensure safety for active transportation users.

Project Information

ID: 65
Municipality: Homewood
Number of Lanes: 5
Approximate Lane Width: 11.5' travel lanes, 12' turn lane
On-Street Parking: No
One Way Street: No
Curb-to-Curb Width: 76 feet
Speed Limit: 45
Level of Comfort: 4
Project Length: 1.25 miles
Existing Sidewalk: No
Existing Curb and Gutter: No

Potential Cross Sections

- Shared Use Path + Sidewalk
- Buffered Bike Lane + Sidewalk
- Separated Bike Lane + Sidewalk

Process

- Conduct traffic study to quantify existing motorized vehicle, truck, bicycle, and pedestrian use.
- Host public engagement process throughout design process to ensure that users living near the project are comfortable with the facility selection.
- High-speed and high-volume roads around commercial areas require extra protection for people on bikes and walking. These can be busy areas with high turning volumes at intersections, so special attention should be given crossing geometries, infrastructure, and paint.

Considerations

- Both directions of travel have 9-foot shoulders, allowing ample ROW for bicycle and pedestrian facilities.
- Bicycle and pedestrian facilities should offer continued protection or designation at intersections and driveway access to ensure safe crossings.
- Conflict markings for intersection crossings increase awareness of potential active transportation users.
- Reducing turning radii at signalized intersections can assist in reducing turning speeds and mountable truck aprons may be appropriate for high truck volume locations.
- Raised crossing for slip lanes increase visibility of more vulnerable users and reduce speeds of motor vehicles.

RURAL TOWN EXAMPLE: HIGHWAY 119/MAIN STREET

Highway 119/Main Street connects AL-25 to Salem Road through Montevallo. This proposed corridor already has key elements for active transportation through the core of the rural town. Sidewalks and on-street parking allow for convenience and walkability. However, additional connections outside of Main Street should be considered to link local schools and the overall regional network.

Project Information

ID: 106

Municipality: Montevallo

Number of Lanes: 2

Approximate Lane Width:

- Segment 1: 14'-18'
- Segment 2: 12'
- Segment 3: 12'

On-Street Parking:

- Segments 1 & 3: No
- Segment 2: Yes (Angled and Parallel)

One Way Street: No

Curb-to-Curb or Pavement Width:

- Segment 1: 26'-36'
- Segment 2: 50'
- Segment 3: 24'

Speed Limit:

- Segments 1 & 3: 35
- Segment 2: 30

Level of Comfort: 4

Project Length: 1.4 miles

Existing Sidewalk: Yes in Segments 1 and 2 and missing in Segment 3

Existing Curb and Gutter: Yes in Segments 1 and 2 and missing in Segment 3

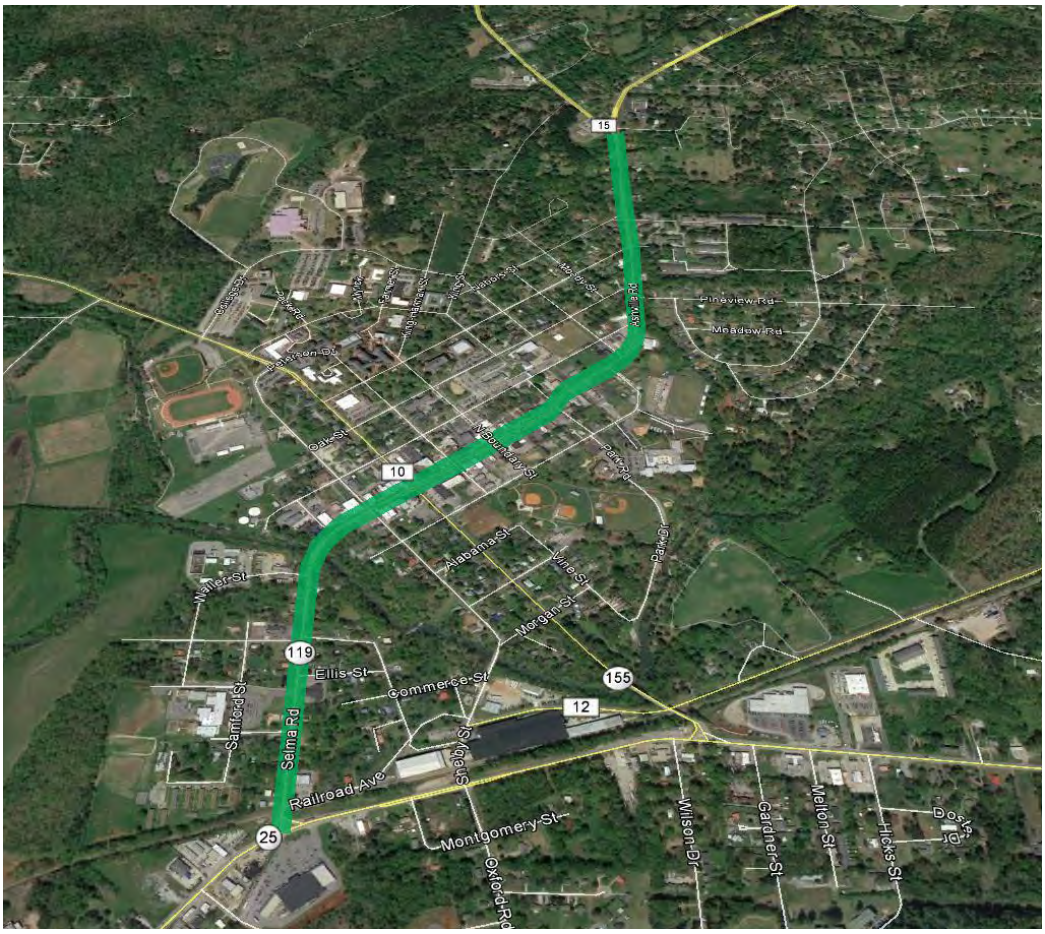
Segment 1

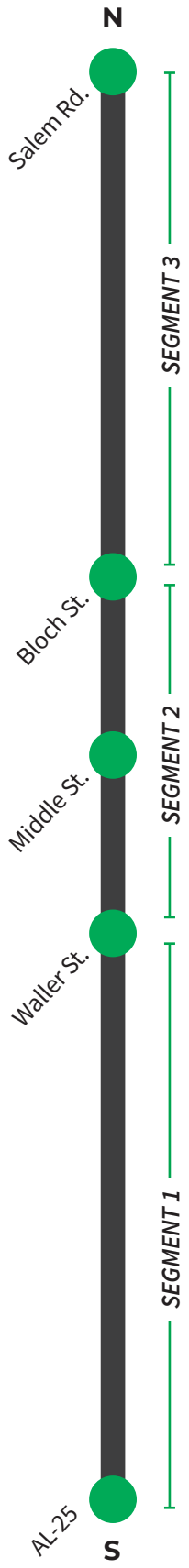
Segment 2

Segment 3

Potential Cross Sections

- Segment 1:
  - Bike Lane
  - Striped Shoulder
- Segment 2:
  - Bike Boulevard
  - Parking Protected Bike Lane
- Segment 3:
  - Striped Shoulder +sidewalk
  - Shared Use Path





Process

- Conduct traffic study to quantify existing motorized vehicle, bicycle, and pedestrian use.
- Host public engagement process throughout design process to ensure that users living near the project are comfortable with the facility selection.
- Review parking capacity and turnover rates.
- Design safe and comfortable crossing for residents and visitors in the commercial district.

Considerations

- Review connectivity to schools with specific attention on crossing locations for students at arrival and dismissal.
- Bicycle and pedestrian facilities should offer continued protection or designation at intersections to ensure safe crossings.
- Conflict markings for intersection crossings increase awareness of potential active transportation users.
- Reducing turning radii at intersections within the business district can assist in reducing turning speeds.

FUNDING SOURCES

Determining how to fund various active transportation infrastructure projects is a challenge that communities face when implementing bicycle and pedestrian plans. While there are many funding options, each source has limitations resulting in more or less applicability for certain types of projects. Inconsistent funding sources can create piecemealed implementation of the Plan and network. For example, some funding sources target infrastructure while others target education and encouragement efforts. Some sources do not directly fund bicycle or pedestrian projects/programs, but they can be applied to active transportation projects that may relate to another public priority such as environmental conservation, outdoor recreation, or public health. Some sources may support grants of hundreds of thousands or millions of dollars; others may be targeted to smaller amounts and require citizen volunteers or community involvement, as a part of the required local match. The following Table 4-4 identifies a variety of funding sources that can assist in the implementation of the network or meeting the goals and measures of success set forth in this Plan.

Table 4-4: *Funding Source Matrix*

Funding Source	Bicycle and Pedestrian Plans	Bike Lanes on Roads	Bicycle Parking	Coordinator Position	Curb Cuts and Ramps
FEDERAL					
Surface Transportation Block Grant (STBG) Program – Transportation Alternatives (TA)	x	x	x	x (Limit 1 per state)	x
Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grants					
Congestion Mitigation and Air Quality Improvement Program (CMAQ)		x	x	x (Limit 1 per state)	x
Highway Safety Improvement Program (HSIP)		x			x
Federal Transit Administration (FTA) Metropolitan & Statewide and Nonmetropolitan Transportation Planning	x				
FTA Urbanized Formula Program		x	x		
FTA Enhanced Mobility of Seniors and Individuals with Disabilities		x			x
FTA Formula Grants for Rural Areas		x	x		
FTA Transit Oriented Development (TOD) Planning Pilot Grants	x				
Federal Highway Administration Recreational Trails Program					
STATE					
State Transportation Improvement Projects		x			x
LOCAL					
Capital Improvement Program (CIP)		x	x		x
Municipal Bonds		x			x
Special Purpose Districts					
Impact Fees		x			x
Business Improvement District					x

Improvement Type								
Crosswalks	Data Collection & Monitoring	Paved Shoulders	Separated Bike Lane	Sidewalks	Sign/Signal Improvements	Trails	Traffic Calming	Training
x	x	x	x	x	x	x	x	x
		x	x	x	x	x		x
x	x	x	x	x		x	x	
			x					
x			x					
		x	x					
						x		
x		x		x	x		x	
x		x	x	x	x	x	x	
x		x	x	x	x	x	x	
						x		
x		x	x	x	x		x	
x				x			x	

Phasing, Programs, & Policies

PHASING APPROACH

The regional primary network is over 800 miles with varying existing conditions of active transportation infrastructure in individual communities and across the entire region. This section describes an approach for jurisdictions to consider in order to determine phasing of active transportation projects within their boundaries. The approach consists of multiple factors (Table 4-5) that must be considered in unison when deciding what projects should be implemented first. Review of phasing factors should run concurrently with the facility selection process described in the **Context Sensitive Design** section of this plan. These are general recommendations for phasing. Specific conditions should dictate a more detailed approach to phasing active transportation projects.

Table 4-5: *Key Phasing Factors*

FUNDING AVAILABILITY	Where funding is available, it should be programmed to design and construct active transportation projects. Funds may be available for several years to provide an opportunity to phase individual projects or to phase priority sections of the network. Allocating funds for ongoing maintenance and upkeep should be considered during the design phase of all projects.
PROGRAMMED CAPITAL IMPROVEMENT PROJECTS	Active transportation projects may be proposed along corridors that have already been identified for capital improvements in coming years. Facility selection and design may be accomplished as part of the existing budget or additional funding may be available to offset costs of implementing an active transportation facility.
TRANSIT PROJECTS	Linking the first/last miles from transit stops with active transportation infrastructure increases access and mobility for local populations. Proposed transit projects should consider incremental bicycle and pedestrian improvements, starting with high-volume stops.
ENVIRONMENTAL JUSTICE AREAS	Phasing projects that connect environmental justice areas should be prioritized for individual communities and throughout the region. All projects should consider phasing that will increase access and provide equitable implementation of active transportation projects.
EXTENDING EXISTING FACILITIES	While there is variation in the active transportation facilities that exist today within each community, future phasing should consider how to expand on existing infrastructure. Expanding facilities may include filling gaps in bicycle or pedestrian segments or networks or building new links that connect destinations for people walking and biking.

PROGRAM AND POLICY RECOMMENDATIONS

There are a variety of programs and policies that may be useful for municipalities and partnering organizations to consider. Programs can be useful for education and promotion of active transportation to local populations as well as identifying needs or opportunities to improve the network. Policies give a high-level direction that embrace the local goals, objectives, and procedures that are acceptable to a governmental body. Policies can have lasting impacts on increased support, funding, and implementation for active transportation projects.

PROGRAMS

- Safety Trainings and Active Transportation Events – People within communities throughout the region should be able to experience active transportation, learn how it works, and discuss the safety benefits. These discovery events can play a role in education by allowing community members that may be uncomfortable with change to experience how active transportation could provide community and personal benefits. Events may include short, easy, family-friendly bike rides or community walkshops that bring the community together to identify key improvements and experience walking or biking.

- Active Transportation Demonstrations/Pilot Projects – Before projects are implemented, developing a program for demonstration or pilot projects can introduce the community and visitors to changes and allow for feedback before anything becomes permanent. Participatory events are often successful in changing people's perceptions and behavior about walking and bicycling, especially if they are demonstrably championed by the local government and key community leaders. Open Streets events is one example of a demonstration event, while other scheduled events such as Bike to Work Day, Bike to School Day, Walk to School Day, or even Car-Free Day can promote and encourage active transportation.

- Student Bicycle/Pedestrian Safety Curriculum – An educational program for school age children may be adopted by local school districts to teach skills and safe practices for bicycling and walking. This type of education is paramount for younger generations understanding active transportation safety and may influence future project selection that connect schools by walking or bicycling to the surrounding community. This program is not included in the performance measures by is included as an additional consideration for municipalities.

- Systematic Bicycle and Pedestrian Counting – Collecting data is a critical component to understand the impact active transportation facilities have on a community. A systematic count program should be developed that considers counts before and after active transportation projects are constructed to create impact analysis. Additionally, counts may be used to justify or move projects in order of implementation. This program should standardize collection procedures to ensure that counts in different locations can analyzed together.

- Roadway Data Collection – A standardized method for roadway/intersection data collection (e.g., number of lanes on each approach, signal timing, volumes of all modes, etc.) should be considered to ensure that useful information on materials and geometries are recorded in a digital format. An incremental approach may include collecting information during new construction or resurfacing projects.

- Sidewalk Improvement Program – Sidewalk improvement programs can address when and where sidewalks should be implemented with upcoming or future roadway projects. This program is not included as a performance measure but as an additional consideration for municipalities.

POLICIES

- Complete Streets Ordinances – adopting a CompleteStreets ordinance demonstrates a community's dedication to streets for all users. While a Complete Streets ordinance has been adopted by the City of Birmingham, the regional active transportation network would benefit from Complete Streets ordinance adoption in other municipalities.

- Resurfacing Project Policy – during resurfacing projects, active transportation should be considered to determine if a safe and context sensitive facility can be incorporated. The **Context Sensitive Design** section provides additional information on facility type considerations.

- Safe System Action Plan – a safe systems approach to traffic safety is a holistic, system-based strategy that accounts for all types of users, anticipates human error, and places ownership of safety on both individual road users and system designers (i.e., engineers and planners). Developing and adopting an action plan, often called a "Vision Zero" plan, is a comprehensive approach to road safety and should be considered for individual municipalities as well as the region.

Safe Systems and Vision Zero

A "safe systems" approach to transportation planning and engineering is one that does not accept death and/or serious injuries as an unavoidable byproduct of travelling. Instead, the safe systems approach creates a vision for mobility where crashes are minimized both in number and severity. Fundamentally, the safe systems approach consists of the belief that road and transportation system design for all modes of travel should encourage safe behavior and mitigate the consequences of human error. This is fundamentally different than traditional road design principles.

Often called "Vision Zero" plans, safe system action plans use data driven analyses to create several types of recommendations that move governing bodies towards this goal; recommendation types include policies, infrastructure improvements, analysis/reporting methods, and marketing campaigns.

PROJECT DEVELOPMENT PROCESS

Implementing projects proposed as part of the B-ACTIVE Plan comes with many aspects based upon existing conditions, context, project extents, and more. Figure 4-7 illustrates an example of the project development process for a municipal project implemented project. This example of the project development process is intended to be a guide for local jurisdictions moving toward implementation of the B-ACTIVE network. Each project may vary on the steps required during each stage of the process.

Figure 4-7: *Municipal Project Process Example*

Planning	Preliminary Engineering	Environmental Documentation	Final Engineering	Construction
- Identification - Traffic Study - Programming	- Conceptual Drawings - Cost Estimates	- If using federal funding, NEPA documentation is required	- 60% Plans & Review - 90% Plans & Review - 100% Design	- Letting - Construction

MEASURING PROGRESS - ANNUAL STATE OF THE NETWORK REPORT

As an ongoing effort to continually track the implementation and progress of the B-ACTIVE Network and to continue to promote it throughout the Birmingham Metro region, the RPCGB will publish an annual "State of the Network" report. This report will create a user-friendly, public facing document that will clearly and concisely showcase the success of the B-ACTIVE Plan throughout the year.

This document will include the following information:

- A list of all completed active transportation facilities that were constructed within the last year.
- A list of current federally funded, but not yet constructed, active transportation facilities within the region.
- An updated network map highlighting active transportation facilities constructed and funded within the last year and since the adoption of the plan.
- A list of completed planning documents such as comprehensive plans, master plans, or engineering studies within the last year that feature support of and encourage the implementation of the B-Active Network.
- Recognition of any municipalities that have adopted a complete streets ordinance, safe systems planning, or any other policy that aims to encourage the use and construction of active transportation facilities.


I ALWAYS GET TO WHERE I'M GOING BY WALKING AWAY FROM WHERE I'VE BEEN.
Winnie the Pooh
B-ActivePlan.com

APPENDIX A

METHODS

DEMAND ANALYSIS METHODOLOGY

LEVEL OF COMFORT METHODOLOGY

SURVEY QUESTIONS

Demand Analysis Methodology

GENERAL DEMAND ANALYSIS

INPUT	WEIGHT	RATIONALE
Red Rock Ridge and Valley Trail (RRRVTS) System	12	General corridors for trail network
RRRVTS Existing/Complete	17	Existing infrastructure
Existing Active Transportation Facilities	21	Existing bike and pedestrian infrastructure
Park Land Use	8	Bike and pedestrian friendly destination
Commercial/Retail Land Use	5	Compatible land use
Mixed Use Land Use	5	Compatible land use
Residential Multifamily Land Use	5	Most densely developed land use; in urban core
School Land Use	7	Ridership to schools
Institutional Land Use	5	Includes colleges
Selected Sidewalks	7	Sidewalks abutting compatible land uses
Employment	5	Selected employment data as employment attractors for bikes and pedestrians
Transit Lines and Stops	3	Transit serves as additional transportation for bike/pedestrian users
SUM	**100**	

STRAVA DEMAND ANALYSIS

STRAVA INPUT	WEIGHT	RATIONALE
AM Commute Routes	33.3	Strava data for bicycle trips recorded during AM peak periods (6:00 AM to 9:00 AM)
PM Commute Routes	33.3	Strava data for bicycle trips recorded during PM peak periods (3:00 AM to 6:00 AM)
Highest Total Commute Routes	33.3	Routes with more 130 commutes or more within the 3rd quarter of 2016
SUM	**100**	

EMPLOYMENT ATTRACTOR DEMAND ANALYSIS

EMPLOYMENT INPUT	WEIGHT	RATIONALE
Zoo and Gardens	8	Attract ridership of all ages
Theatres	6	Attract ridership of all ages
Religious institutions	6	Many religious institutions; possibility of many trips
Groceries/Drug Stores	10	Basic needs trips
Parks	12	Parks located in places where people can easily ride bikes
Museums	6	Often located in walkable areas/ pedestrian friendly destination
Library	6	Attract younger ridership
Restaurants	8	Recreational riding
Schools	12	Walk/bike to school
Colleges	12	Large trip generators and attractors due to student population
Fitness Centers	8	Attracts users interested in active transportation
Department Stores	6	Shopping needs
SUM	**100**	

Level of Comfort Methodology

Level of Comfort (LOC) was determined based on datasets provided by the MPO. These data sets included speed limits, functional classification, existing bicycle facilities, annual average daily traffic (AADT) volumes, and median and shoulder types. Speed limits were assumed where not provided based on functional classification as follows:

• 1 Interstate:	65 mph or higher
• 2 Freeway or Highway:	60 mph
• 3 Principal Arterial:	55 mph
• 4 Minor Arterial:	40 – 45 mph
• 5 Major Collector:	35 – 45 mph
• 6 Minor Collector:	35 mph
• 7 Local:	30 mph or less

Where ranges of speed limits are provided, other characteristics, such as presence of a shoulder or median where used to determine speed limits for LOC analysis. Roads with medians and shoulders were presumed to be higher speeds than those without them.

The table below identifies factors that were used for the level of comfort analysis. Although there are several factors that are included within the analysis, limitations exist due to the amount of data that is available for each street within the overall network.

Score	Qualitative Assessment	Quantitative Assessment
LOC 1	Level of stress tolerable by most children, requiring minimal attention of cyclists.	• Low speeds (30 mph or less) local roads with only one travel lane in each direction and a bicycle lane; • Local roads with one travel lane in each direction and AADT volumes less than 2,000; • Multiuse paths or facilities that are physically separated from traffic; or • Greenways and trails.
LOC 2	Appropriate riding conditions for the mainstream adult population.	• Lower-speed (35 miles per hour or less) local roads and minor collectors with an exclusive bicycle facility, and: - No more than one travel lane in each direction and AADT counts between 4,000 and 2,000, - OR more than one travel lane in each direction with AADT counts less than 2,000; or • Major collectors with - Multiple lanes in each direction and less than 2,000 AADT counts and a bicycle lane, - OR one lane in each direction and a bicycle lane with AADT volumes between 2,000 and 4,000.
LOC 3	Well-suited for the enthusiastic rider that is confident in his/her riding abilities, but still prefers separated facilities.	• 45 miles per hour speed limit or less; • Local roads with: - More than one travel lane in each direction and AADT volumes between 2,000 and 4,000, or - Only one travel lane in each direction and AADT volumes between 4,000 and 8,000; • Minor collectors with AADT volumes between 2,000 and 4,000; • Major collectors with bicycle lanes and: - Only one travel lane in each direction and AADT volumes between 4,000 and 8,000, - More than one travel lane in each direction and AADT volumes between 2,000 and 4,000, or - Speeds of 35 mph or less; or • Minor arterials with AADT volumes less than 4,000.

Score	Qualitative Assessment	Quantitative Assessment
LOC 4	Only tolerated by riders who may be classified as "strong and fearless."	• Speeds of 40 to 55 mph; • Local roads with: - More than one travel lane in each direction AADT volumes greater than 4,000, or - Only one travel lane in each direction and AADT volumes greater than 8,000; • Minor collectors with AADT volumes greater than 4,000; • Major collectors with a bicycle lane and: - More than one lane in each direction and AADT volumes greater than 4,000, - Only one lane in each direction and AADT volumes greater than 8,000, - 45 miles per hour speed limits and more than one travel lane in each direction, - 45 miles per hour speed limits and only one travel lane in each direction and AADT volumes greater than 2,000, or - 35 miles per hour speed limits and AADT volumes greater than 4,000; • Minor arterials with: - More than one travel lane in each direction, or - Only one lane in each direction and a bike lane and AADT volumes of greater than 4,000; or • Principal arterials with speeds of 55 miles per hour or less.
LOC 5	Not appropriate conditions for bicycle traffic.	• Speeds greater than or equal to 55 miles per hour; or • Roads classified as US interstate or freeways.

Survey Questions

A survey was used to understand user demographic information along with key destinations and barriers to active transportation within the region. The survey was distributed during a variety of public open house meetings, in pop-up events along trails, intercept surveys during field work, and online. The survey was customized for short interactions at pop-up meetings and intercept opportunities. The following are the abbreviated and full length versions of the survey that were used during the public outreach process.

The B Active Plan is the Active Transportation Plan for the Greater Birmingham Region, and we need your input! If you would like to receive email updates, please write your email:
_____

1) What is your gender?
☐ Female
☐ Male

3) What is your age?
☐ Under 18
☐ 18-40
☐ 41-60
☐ Over 60
☐ Prefer not to say

2) Tell us about your commute to work or school.
☐ Less than 2 miles
☐ 3-5 miles
☐ 6-10 miles
☐ 10 + miles
☐ Not applicable

2) What is your zip code?
_____

3) Is there a specific street or intersection that you feel is unsafe for pedestrians or cyclists?
_____
_____
_____
_____
_____
_____

6) What keeps you from walking/biking more often? (Check all that apply)
☐ Destinations too far/takes too long to walk
☐ Unsure of routes to take
☐ Traffic is too heavy
☐ Dangerous intersections
☐ Lack of sidewalks or paths/poor condition or unsuitable
☐ Weather
☐ Lack of lighted sidewalks or paths/personal security
☐ Need to transport other people or things
☐ Exposure to air pollution
☐ Lack of access to activity centers
☐ Other: _____*

7) What improvements would encourage you to walk/bike more often? Select up to 5.
☐ Improved pedestrian crossings (signals, crosswalks, warning signs)
☐ Improved curb ramps
☐ Slower traffic
☐ Improved sidewalks (wider, fewer barriers, etc.)
☐ Eliminating gaps in sidewalk networks
☐ Creating more direct paths to destinations
☐ Improving accessibility for people with disabilities
☐ Better lighting and security
☐ Better sidewalk maintenance
☐ More walking paths and trails
☐ Educating motorists about yielding to pedestrian

PUBLIC SURVEY

The B Active Plan is the Active Transportation Plan for the Greater Birmingham Region. The B Active Plan will identify a clear strategy for near and long-term projects that will result in a safe, connected, and equitable active transportation system for the region. Your contributions to this survey will help the Project Team better understand the current conditions and perceptions of the active transportation network along with opportunities for improving connectivity within the region.
Thank you for your input!

If you would like to receive email updates, please write your email: _____

---

1) What is your gender?
☐ Female
☐ Male

2) Tell us about your commute to work or school.
☐ Less than 2 miles
☐ 3-5 miles
☐ 6-10 miles
☐ 10 + miles
☐ Not applicable

3) What is your age?
☐ Under 18
☐ 18-40
☐ 41-60
☐ Over 60
☐ Prefer not to say

4) What is your zip code?
_____

5) Which of the choices below describes your employment status? (Check all that apply)
☐ Currently employed
☐ Looking for work
☐ Unable to work due to disability
☐ Stay-at-home parent
☐ Student
☐ Retired
☐ Other (please explain):
_____*

6) What mode do you use for the longest part of your trip to school or work?
☐ Car (or personal motorized vehicle)
☐ School bus
☐ Transit bus
☐ Bike
☐ Walk
☐ Other: _____*

7) How frequently do you walk for the trips listed below?

	Almost daily	Frequently	Infrequently	Never
Leisure/ recreation/community events	☐	☐	☐	☐
Fitness	☐	☐	☐	☐
Commuting to school	☐	☐	☐	☐
Commuting to work	☐	☐	☐	☐
Shopping, errands	☐	☐	☐	☐
Visiting friends	☐	☐	☐	☐
Dining	☐	☐	☐	☐
To get to transit	☐	☐	☐	☐
Walking a dog/pet	☐	☐	☐	☐

8) What keeps you from walking more often? (Check all that apply)
☐ Destinations too far/takes too long to walk
☐ Unsure of routes to take
☐ Traffic is too heavy
☐ Dangerous intersections
☐ Lack of sidewalks or paths/poor condition or unsuitable
☐ Other: _____*
☐ Weather
☐ Lack of lighted sidewalks or paths/personal security
☐ Need to transport other people or things
☐ Exposure to air pollution
☐ Lack of access to activity centers

9) Is there a specific street or intersection that you feel is unsafe for pedestrians?

_____

10) Is there a specific street or intersection that you feel is unsafe for biking?

_____

11) What improvements would encourage you to walk more often? Select up to 5.

- ☐ Improved pedestrian crossings (signals, crosswalks, warning signs)
- ☐ Improved curb ramps
- ☐ Slower traffic
- ☐ Improved sidewalks (wider, fewer barriers, etc.)
- ☐ Eliminating gaps in sidewalk networks
- ☐ Creating more direct paths to destinations
- ☐ Improving accessibility for people with disabilities
- ☐ Better lighting and security
- ☐ Better sidewalk maintenance
- ☐ More walking paths and trails
- ☐ Educating motorists about yielding to pedestrians

12) How would you describe your bicycling comfort level?

- ☐ Experienced: confident and comfortable riding with traffic on the road in most traffic situations
- ☐ Casual: prefer separated paths, but will ride on some roads where space is available and traffic is manageable
- ☐ Less confident: only feel safe on separated paths with few traffic crossings and local streets
- ☐ I don't ride a bike

13) How frequently do you bike for the trips listed below?

	Almost daily	Frequently	Infrequently	Never
Leisure/recreation/community events	☐	☐	☐	☐
Fitness	☐	☐	☐	☐
Sport/competition	☐	☐	☐	☐
Commuting to school	☐	☐	☐	☐
Commuting to work	☐	☐	☐	☐
Shopping, errands	☐	☐	☐	☐
Visiting friends	☐	☐	☐	☐
Dining	☐	☐	☐	☐
To get to transit	☐	☐	☐	☐

14) What keeps you from biking more often? (Check all that apply)

- ☐ Destinations too far/takes too long to bike
- ☐ Unsure of routes to take
- ☐ Traffic is too heavy
- ☐ Dangerous intersections
- ☐ Motorists don't exercise caution around cyclists
- ☐ Lack of bike facilities (bike lanes, paths, wide shoulders, etc.)
- ☐ Poor condition of bike facilities
- ☐ Weather
- ☐ Lack of lighted routes or paths/personal security
- ☐ Need to transport other people or things
- ☐ Traveling with small children
- ☐ Lack of secure bicycle parking
- ☐ Lack of worksite amenities (showers, lockers, etc.)
- ☐ Other: _____*

15) What facility improvements would encourage you to bike more often? Select up to 5

- ☐ More bike lanes on major streets
- ☐ More bike lanes on minor streets
- ☐ More bicycle paths and trails
- ☐ Paved shoulders on narrow streets
- ☐ More wide outside lanes (easier to share lanes with vehicles)
- ☐ Wider bike lanes
- ☐ More shared lane markings in travel lanes
- ☐ More separation between bicyclists and vehicles
- ☐ More on-road bike signage
- ☐ Bike accommodation through intersections

STARTING STRONG IS GOOD. FINISHING STRONG IS EPIC.

Robin Sharma

APPENDIX B

NETWORK INDICATORS

INDICATOR CRITERIA

Indicator Criteria

To ensure that projects created regional connectivity and forwarded the goals set out in the B-ACTIVE Plan, the entire network underwent a strategic vetting process. The approach to vetting the network involved analyzing the network in terms of "indicators," or scores. Scoring the entire network showed how each project contributes towards achieving the Plan's larger goals. Each project was assessed for all of the indicator criteria and given a score of zero to one for each criteria.

Projects were divided into several segements based upon intersections and context breaks. Each segment received a sum of all of the indicator criteria. The indicator score, as seen in **Appendix C**, is the average score for all segments of a project. The indicator score is the average score for all segments of a project.

While a maximum score of 15 was possible, none of the projects achieved each of the crieria. Thus the scores for projects ranged from 0 to 11 for the entire network. Projects with lower scores were often more rural projects. Rural projects scored lower due to lack of existing connectivity, less population and development density, and fewer funded projects.

Goal	INDICATOR	
CONNECTIVITY	• Part of an existing active transportation facility • Within ¼ mile of an existing active transportation facility	Projects in the primary B-ACTIVE network that take advantage of existing facilities are cost efficient connections and are therefore prioritized. This includes projects that are a part of or nearby existing facilities.
	• Within ½ mile of a grocery store • Within ½ mile of school • Within 1 mile of a park	Projects that create safe connections to key destinations enhance overall regional mobility.
ACCESS FOR ALL	• Within the MPO's Environmental Justice area*	Areas that are designated as Environmental Justice areas that consist of communities that are often disproportionately impacted by negative side effects of transportation projects; these areas would likely receive greater benefit from access to active transportation facilities.
	• Within a ¼ mile of BJCTA transit stop	Projects that connect concentrations of people to the network or that connect users to transit will enhance users' access to the entire region.
PROTECT USERS	• Along a segment (given a 100' buffer) that had a pedestrian or bicycle crash between 2014-2016	Crash data from the Critical Analysis Reporting Environment (CARE) software was used to identify bicycle and pedestrian crashes. Projects in the B-ACTIVE network along roads that had crashes were given higher priority as they may greatly benefit from safety improvements for users.
	• Identified as a barrier on the Wikimap	Barriers can often pose significant safety threats to active transportation users. Projects in the B-ACTIVE network that were identified by the public as a barrier to active transportation were given higher priority.

Goal	INDICATOR	
MORE USERS	• Within ½ mile of employers with 75 people or more • Within ½ mile from colleges and universities	Parts of the B-ACTIVE network that are near places with large concentrations of people are likely to encourage more users; these projects within the network were given higher priority.
	• Along a route with 30+ bicycle commuters as identified by the Strava data	Based on the Strava Metro dataset, segments that already had significant bicycle commuting activity were given higher priority, as these are already frequented routes that may become more popular with improvements to infrastructure and changes.
	• In a block group with at least an average of 1 person per acre	Projects that are in places with higher population densities have potential to provide more people access to the network.
	• Identified on the wikimap	Projects that align with routes identified by the public are given higher priority as these routes are likely to increase the number of people using the network.
PRIORITIZE, IMPLEMENT, & MAINTAIN	• Part of a 2016-2019 TIP project with a bicycle accommodation	The Transportation Improvement Program (TIP), as a part of the Regional Transportation Plan, identifies short-term, funded transportation projects that will improve regional connectivity. Projects along these roads were prioritized.

IT ALWAYS SEEMS IMPOSSIBLE UNTIL IT'S DONE.

Nelson Mandela

APPENDIX C

PROJECT LISTS

PROJECT LIST

STUDY AREA NETWORK MAPS

Project List

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
Adamsville/Jefferson County	81	Co Rd 65	1.42	1.33	Suburban	C2
Adamsville/Jefferson County	156	Flat Top Rd	0.03	4.42	Rural	B1
Alabaster	243	Co Rd 17	1.00	2.52	Rural	E2
Alabaster	251	Kent Dairy Rd	0.20	0.83	Rural	E2
Alabaster	252	Kent Dairy Rd	3.21	1.28	Suburban	E2
Alabaster	253	Depot St/Warrior Dr	3.92	1.14	Suburban	E2
Alabaster	254	Fulton Springs Rd/Old Hwy 31	1.50	2.30	Rural	E2
Alabaster	255	Simmsville Rd	3.00	1.72	Suburban	E2
Alabaster	350	Existing Trail along Buck Creek	3.00	1.12	Suburban	E2
Alabaster/Shelby County	244	Co Rd 17	0.00	2.97	Rural	E2, F1
ALDOT	21	Green Springs Hwy S	8.63	0.50	Urban	C3-3
ALDOT	33	Cedar Ct/Cedar St/ Jackson Blvd	4.72	1.45	Suburban	C3-2
ALDOT	51	Green Springs Hwy/ Green Springs Hwy S	9.19	0.98	Suburban	C3-3
ALDOT	82	Birmingport Rd	0.18	2.42	Rural	C2
ALDOT	83	Birmingport Rd	0.08	6.20	Rural	C1, C2
ALDOT	84	Gadsen Hwy/Main St	4.13	1.58	Rural Town	B3
ALDOT	85	Main St/Old Springville Rd/Pope Ave	0.76	4.22	Rural	B4
ALDOT	86	Main St	1.31	4.21	Rural Town	A3
ALDOT	87	Main St	0.25	4.19	Rural	A3
ALDOT	88	US Hwy 78/State Rt 4	0.97	3.01	Rural	C5
ALDOT	89	Bankhead National Hwy/Parkway Dr/US Hwy 78	1.14	2.29	Rural	C5
ALDOT	90	Dunnavant Rd SE/State Rte 25	1.80	6.39	Rural	C5
ALDOT	91	State Rte 25	1.08	3.96	Rural	C5, D4
ALDOT	92	State Rte 25	1.08	4.87	Rural	D4
ALDOT	93	State Rte 25	0.00	3.16	Rural	D4
ALDOT	94	State Rte 25	0.62	2.73	Rural	D4
ALDOT	95	State Rte 25	0.35	5.37	Rural	D4, E4
ALDOT	96	State Rte 25	0.40	3.14	Rural	E4
ALDOT	97	State Rte 25	1.69	3.26	Rural	E4
ALDOT	98	State Rte 25	1.00	0.87	Rural	E3
ALDOT	99	State Rte 25	4.17	1.98	Rural Town	E3, F2
ALDOT	100	Co Rd 70	3.00	8.28	Rural	F1, F2

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
ALDOT	101	State Rte 25	0.81	8.27	Rural	F1, F2
ALDOT	102	Main St/State Rte 25	2.71	0.75	Suburban	F1
ALDOT	103	State Rte 3/US 31/US Hwy 31	4.00	0.55	Suburban	F1
ALDOT	104	Hwy 25	4.00	5.41	Rural	F1
ALDOT	105	Middle St	8.00	0.53	Rural Town	F1
ALDOT	106	Main St/SR 119	7.50	1.34	Rural Town	F1
ALDOT	107	Montevallo Rd	2.00	3.50	Rural	F1
ALDOT	108	SR 119/State Rte 119	4.17	4.38	Rural	E2, F1
ALDOT	109	State Rte 119/ Thompson Rd	4.67	2.13	Suburban	E2
ALDOT	110	Helena Rd	3.13	5.80	Rural	D2, E2
ALDOT	114	Cahaba Valley Rd	3.04	1.81	Suburban	D3
ALDOT	115	Cahaba Valley Rd	4.34	3.57	Suburban	D3
ALDOT	116	Cahaba Valley Rd	3.24	4.27	Suburban	D2
ALDOT	117	Cahaba Valley Rd	1.16	2.63	Rural	D3
ALDOT	118	Cahaba Valley Rd	1.00	0.60	Suburban	C4
ALDOT	119	Cahaba Valley Rd/ Montevallo Rd SW	1.00	3.62	Rural	C4
ALDOT	120	Montevallo Rd SW/State Rte 119	0.74	2.08	Rural	C4
ALDOT	121	Elliot Ln/Montevallo Rd SE/Montevallo Rd SW/ State Rte 119	4.55	0.92	Rural Town	C4
ALDOT	122	Bankhead National Hwy/US Hwy 78	4.44	0.83	Rural Town	C5
ALDOT	123	Shades Creek Pkwy	5.17	0.22	Suburban	C3-4
ALDOT	128	Louisa St/N Main St/ State Rte 3/US 31	1.84	1.38	Rural Town	A1
ALDOT	159	Main St S	1.20	1.36	Suburban	B1
ALDOT	259	Co Rd 52	3.25	0.35	Suburban	E2
ALDOT	333	Ford Ave/Pinson St/ Springdale Rd	6.18	2.21	Suburban	C3-2
ALDOT	346	Old Montgomery Hwy/ Trailridge Dr	2.81	0.67	Suburban	D2
ALDOT	355	Depot St	4.00	0.44	Rural Town	F2
ALDOT	367	Gadsden Hwy	0.00	7.14	Suburban	B3, B4
ALDOT	369	State Rte 25	0.47	5.81	Rural	E3, E4
ALDOT	370	Hwy 25	4.00	0.82	Suburban	F1
ALDOT	500	US 79	3.00	24.63	Policy	A2, B2, C3-2
ALDOT	501	Main St/US 31	3.44	22.55	Policy	A1, B2, C3-1, C3-2, C3-3, C3-4

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
ALDOT	502	US 78	2.60	21.23	Policy	B1, C2, C3-1, C3-3
ALDOT	503	5th Ave S/US 78	6.94	17.69	Policy	C3-4, C4
ALDOT	504	Hwy 280	6.50	30.59	Policy	D2, D3, D4, E4, C3-4
ALDOT	505	1st St S/Pelham Pkwy/ US 31	3.17	29.67	Policy	D2, E2, F1
Argo	202	Argo-Margaret Rd	0.88	2.79	Rural	B4
Argo/Margaret	200	St Clair Co Rd 6	1.25	0.47	Rural	B4
Argo/St. Clair County	181	Old Springville Rd	0.00	3.06	Rural	B3, B4
Bessemer	223	15th St N	6.00	1.08	Urban	D1
Bessemer	224	4th Ave N/Co Rd 20	6.00	0.73	Urban	D1
Bessemer	225	5th Ave N	6.00	0.46	Urban	D1
Bessemer	226	20th St N	6.00	0.38	Urban	D1
Bessemer	228	4th Ave N	4.90	1.33	Suburban	D1
Bessemer	229	Division St/Division St S	4.31	0.79	Suburban	D1
Bessemer	233	Sparks Gap Rd/Vulcan Rd	0.00	2.04	Suburban	D1
Bessemer	238	Co Rd 6/Dickey Springs Rd/Greenmor Dr	1.58	1.71	Rural	D1, E1
Bessemer/Hoover	288	Co Rd 6	1.87	3.07	Suburban	D1, D2
Bessemer/Jefferson County	221	15th St N	3.17	0.33	Suburban	D1
Bessemer/Jefferson County	222	15th St N	4.75	0.71	Suburban	D1
Bessemer/Jefferson County	227	20th St S	5.13	0.33	Suburban	D1
Bessemer/Jefferson County	230	Co Rd 18/Eastern Valley Rd	1.90	1.39	Suburban	D1
Bessemer/Jefferson County	231	Eastern Valley Rd	3.00	2.12	Suburban	D1
Bessemer/Jefferson County	232	Eastern Valley Rd	3.00	6.55	Rural	E1
Bessemer/Jefferson County	234	Co Hwy 55	1.25	1.27	Rural	D1
Bessemer/Jefferson County	235	Pocahontas Rd	0.36	1.83	Rural	E1
Bessemer/Jefferson County	236	Dickey Springs Rd	0.00	1.64	Rural	E1
Bessemer/Jefferson County	237	Co Rd 6/Lindsey Loop Rd/Paradise Ln	0.29	3.29	Rural	E1
Bessemer/Jefferson County	282	Woodward Rd	4.00	0.47	Suburban	D1
Bessemer/Jefferson County	283	Woodward Rd	2.67	1.05	Suburban	D1
Bessemer/Jefferson County	284	Davey Allison Blvd	3.00	0.86	Suburban	D1
Bessemer/Jefferson County	287	Co Rd 18	4.63	1.49	Suburban	D1
Birmingham	1	1st Ave N/20th St N/20th St S	9.99	2.55	Urban Core	C3-3, C3-4
Birmingham	2	18th St S/1st Ave S	8.75	0.18	Urban Core	C3-4
Birmingham	3	19th St S	11.00	0.38	Urban Core	C3-4

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
Birmingham	4	5th Ave S	9.50	2.46	Urban Core	C3-3, C3-4
Birmingham	5	32nd St S	8.50	0.60	Urban Core	C3-4
Birmingham	6	14th ST N/14th St N	10.33	1.37	Urban Core	C3-3, C3-4
Birmingham	7	7th Ave S	11.00	0.82	Urban Core	C3-3, C3-4
Birmingham	8	18th St S	10.50	0.40	Urban Core	C3-4
Birmingham	9	3rd Ave N	10.00	0.92	Urban Core	C3-3, C3-4
Birmingham	10	4th Ave N	9.00	0.92	Urban Core	C3-3, C3-4
Birmingham	11	24th St N	8.00	1.20	Urban Core	C3-3, C3-4
Birmingham	12	18th St N/6th Lane N	9.25	0.70	Urban Core	C3-3, C3-4
Birmingham	13	22nd St N/Richard Arrington Jr Blvd N	8.50	0.63	Urban Core	C3-3, C3-4
Birmingham	14	28th St N/7th Ave N	6.50	0.54	Urban Core	C3-4
Birmingham	15	8th Ave N	7.73	0.82	Urban Core	C3-3
Birmingham	16	Tuscaloosa Ave/ Tuscaloosa Ave SW	8.50	3.35	Urban	C3-3
Birmingham	17	10th Ave S/18th St S	9.25	0.93	Urban Core	C3-3, C3-4
Birmingham	18	20th St	11.00	0.62	Urban Core	C3-4
Birmingham	19	Arlington Ave S/ Highland Ave S	7.20	0.73	Urban Core	C3-4
Birmingham	20	10th Ave S/16th Ave S	7.60	0.58	Urban	C3-3
Birmingham	22	Center St S	5.50	1.04	Urban	C3-3
Birmingham	23	8th Ave N/9th St N/ State Rte 7	8.33	0.54	Urban	C3-3
Birmingham	24	Messer Airport Hwy	9.00	1.26	Urban	C3-4
Birmingham	25	41st St S	7.00	0.58	Urban Core	C3-4
Birmingham	26	5th Ave S	7.06	0.82	Urban Core	C3-4
Birmingham	27	1st Ave S/5th Ave S	6.19	1.21	Urban	C3-4
Birmingham	28	F L Shuttlesworth Dr	7.00	1.32	Urban	C3-3
Birmingham	29	3rd St N	7.07	1.55	Urban	C3-3
Birmingham	30	12th Ave N	5.50	0.36	Urban	C3-3, C3-4

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
Birmingham	31	28th St N	7.25	0.33	Urban	C3-3, C3-4
Birmingham	32	30th St N/F L Shuttlesworth Dr	6.88	2.97	Urban	C3-1, C3-2, C3-3, C3-4
Birmingham	39	8th Ave N/8th Ave W/ State Rte 4	7.05	1.93	Urban	C3-3
Birmingham	40	19th St/8th Ave W/Bush Blvd/Bush Blvd W	5.14	2.79	Suburban	C3-3
Birmingham	41	12th St SW/12th St W	6.42	1.34	Urban	C3-3
Birmingham	42	Pearson Ave SW	6.09	0.69	Urban	C3-3
Birmingham	43	18th St SW	9.00	0.51	Urban	C3-3
Birmingham	44	Avenue W	9.00	1.58	Urban	C3-3
Birmingham	46	Ave V	5.58	0.83	Urban	C3-3
Birmingham	47	Avenue W	5.16	1.53	Urban	C3-3
Birmingham	48	1st St/Pratt Hwy	3.55	1.65	Suburban	C3-3
Birmingham	49	Daniel Payne Dr/Dugan Ave	3.87	2.01	Suburban	C3-1, C3-3
Birmingham	50	Dennison Ave SW	7.00	1.07	Suburban	C3-3
Birmingham	52	Kiwanis Vulcan Trail - Existing	7.00	1.01	Suburban	C3-3
Birmingham	54	Ishkooda Wenonah Rd	6.00	3.44	Suburban	D2
Birmingham	55	Barbee St/Wenonah Rd/ Wenonah Rd SW	2.89	1.21	Suburban	D1, D2
Birmingham	57	Wenonah Oxmoor Rd	3.39	1.51	Suburban	D2
Birmingham	58	Wenonah Oxmoor Rd	3.65	2.06	Suburban	D2
Birmingham	59	31st St SW/Pearson Ave SW	4.06	1.03	Suburban	C3-3
Birmingham	61	Erie St	4.89	0.83	Suburban	C2
Birmingham	359	Norwood Blvd	6.73	1.25	Urban	C3-3, C3-4
Birmingham	360	1st Ave S	8.80	2.13	Urban Core	C3-4
Birmingham	361	7th Ave S	11.00	0.81	Urban Core	C3-4
Birmingham	362	Vulcan Trail	8.00	1.02	Suburban	C3-3, C3-4
Birmingham	373	1st Ave S	8.58	0.37	Urban Core	C3-4
Birmingham/Fairfield	45	Pike Rd/Valley Rd	5.41	1.96	Urban	C2, C3-3
Birmingham/Homewood	53	Montevallo Rd	8.00	1.82	Suburban	C3, D2, C3-3
Birmingham/Homewood	65	W Oxmoor Rd	4.32	2.20	Suburban	D2
Birmingham/Homewood	296	Valley Ave	6.80	0.69	Suburban	C3-3
Birmingham/Homewood	298	Valley Ave	6.00	0.13	Suburban	C3-3
Birmingham/Irondale	37	Georgia Rd	8.00	2.09	Urban	C3-4
Birmingham/Jefferson County	35	85th St N/85th St S/E Lake Blvd	4.19	2.35	Suburban	C3-2

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
Birmingham/Jefferson County	36	1st Ave S/4th Ave S/82nd St S	5.97	3.29	Urban	C3-2, C3-4
Birmingham/Jefferson County	56	21st St SW/Wenonah Rd	4.00	0.53	Suburban	D1
Birmingham/Jefferson County	62	7th Ave/Co Rd 80/Loop Rd	4.05	1.35	Suburban	C2
Birmingham/Jefferson County	80	Morgan St/Piedmont Ave/Sandusky Rd	1.88	1.92	Suburban	C2
Birmingham/Jefferson County	168	Carson Rd N	1.25	1.89	Rural	B2
Birmingham/Jefferson County	169	Carson Rd/Carson Rd N	1.72	2.53	Rural	B2
Birmingham/Jefferson County	214	Indian Valley Rd/ Industrial Pkwy	3.01	3.20	Suburban	B2, C3-2
Birmingham/Jefferson County	294	Lakeshore Trail Extens.	6.50	2.10	Suburban	D2
Birmingham/Jefferson County	300	Oxmoor Rd	5.14	0.87	Urban	C3-3, C3-4
Birmingham/Jefferson County	301	Oxmoor Rd	7.00	0.86	Urban	C3-4
Birmingham/Jefferson County	302	28th Ave S/Ventura Ave	7.00	0.53	Urban	C3-4
Birmingham/Jefferson County	304	Poinciana Dr	8.00	0.13	Urban	C3-4
Birmingham/Lipscomb	286	Co Rd 18	3.11	1.80	Suburban	D1
Birmingham/Midfield	60	Alemeda Ave SW/ Brighton Rd/Cleburn Ave SW	4.10	1.08	Suburban	D2
Blount County	134	Center Springs Rd	0.00	1.26	Rural	A2
Blount County	135	Deaver Walker Rd	0.00	3.58	Rural	A2
Brighton	280	Main St	3.33	0.94	Suburban	D1
Brighton	281	Artesian Springs Rd	3.67	0.62	Suburban	D1
Brookside/Jefferson County	164	Brookside Rd/Main St	1.00	2.83	Rural	B1
Calera	250	8th Ave/Co Rd 16	3.13	0.96	Suburban	F1
Calera/Shelby County	249	Co Rd 16/Spring Creek Rd	0.20	4.31	Rural	F1
Center Point/Birmingham/ Jefferson County	73	13th Ave NE/13th Ave NW/Carson Rd/Huffman Rd	4.39	4.12	Suburban	B3
Center Point/Birmingham/ Jefferson County	74	13th Ave NE/Lake Dr NE/Lake Ln NE/Polly Reed Rd NE	5.12	2.05	Suburban	B3
Center Point/Jefferson County	186	RRRVTS Proposed - Five Mile Creek	4.00	1.42	Suburban	B3
Chelsea	347	Co Rd 377	0.25	0.67	Rural	D3
Chelsea/Shelby County	349	Co Rd 280/Old hwy 280	1.63	3.39	Suburban	D3
Chelsea/Shelby County	351	Co Rd 47	3.00	0.90	Suburban	D3
Chelsea/Shelby County	352	Co Rd 47	3.00	5.53	Rural	D3, E3
Chelsea/Shelby County	353	Bear Creek Rd	2.00	0.39	Suburban	D3
Clay	183	Old Springville Rd	0.93	3.50	Suburban	B3
Clay	184	Old Springville Rd/Old Springville Rd NE	2.02	3.76	Suburban	B3

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
Clay/Jefferson County	180	Mack Hicks Rd	0.88	1.16	Suburban	B3
Clay/Jefferson County	182	Old Springville Rd	0.63	1.33	Suburban	B3
Clay/Jefferson County	185	Old Springville Rd	3.00	0.23	Suburban	B3
Columbiana	356	Co Rd 47/N Main St/S Main St/Shelby Rd	3.06	1.05	Rural Town	E3, F2
Columbiana	357	Co Rd 47/Shelby Rd	0.58	2.15	Rural	F2
Columbiana/Shelby County	354	Co Rd 47	0.65	5.84	Rural	E3
Concord/Jefferson County	216	Warrior River Rd	0.71	3.19	Rural	C2, D1
County Line	132	Co Rd 153/County Line Rd	0.11	0.90	Rural	A1
Fairfield	79	Crawford St/Gary Ave/ Valley Rd	5.28	1.29	Suburban	C2
Fairfield/Birmingham/ Jefferson County	78	Ensley Pleasant Grove Rd/Park Rd	1.74	2.42	Suburban	C2
Fairfield/Birmingham/ Jefferson County	277	Dr Martin Luther King Dr	7.00	0.18	Suburban	D1
Fairfield/Birmingham/ Jefferson County	278	Dr Martin Luther King Dr	6.60	0.68	Suburban	D1
Fairfield/Birmingham/ Jefferson County	363	Dr Martin Luther King Dr	7.14	1.85	Suburban	C2, D1
Forestdale/Birmingham/ Jefferson County	213	Cherry Ave	1.30	2.94	Suburban	C3-1
Gardendale	171	Co Rd 121	0.21	3.28	Rural	B2
Gardendale/Birmingham/ Jefferson County	165	RRRVTS Proposed -Five Mile Creek	1.00	5.30	Rural	B2
Grayson Valley	189	Brewster Rd/Grayson Valley Dr	1.35	1.70	Suburban	B3
Grayson Valley	190	Chalkville Rd	3.63	0.85	Suburban	B3
Graysville	158	1st Ave SE	1.00	1.39	Suburban	B1
Graysville/Brookside/Jefferson County	162	Brookside Cardiff Rd/ Co Rd 71	1.00	0.79	Rural	B1
Graysville/Brookside/Jefferson County	163	Cardiff Rd/Cardiff St/ Park Ave/Price St	1.00	0.86	Rural	B1
Graysville/Jefferson County	142	Co Rd 71/Old Jasper Hwy	0.17	3.26	Rural	B1
Graysville/Jefferson County	143	RRRVTS Proposed - Five Mile Creek	1.00	4.42	Rural	B1
Graysville/Jefferson County	144	Co Rd 71	1.00	0.50	Rural	B1
Graysville/Jefferson County	160	Cherry Ave/Co Rd 105/ Co Rd 112	1.06	2.26	Rural	B1
Graysville/Jefferson County	161	Co Rd 112	1.00	0.37	Rural	B1
Harpersville/Graysville/ Adamsville/Jefferson County	157	2nd Ave SW	0.93	0.75	Suburban	B1
Hayden/Blount County	124	Rock Springs Rd	0.00	5.78	Rural	A1
Hayden/Blount County	125	State Hwy 160	0.00	0.11	Rural	A1

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
Helena/Alabaster/Shelby County	242	Co Rd 17	2.67	2.36	Suburban	E2
Helena/Hoover	241	Co Rd 52	2.05	2.79	Suburban	E2
Homewood	295	Summit Pkwy	4.89	0.71	Suburban	D2
Homewood	299	Mecca Ave	5.71	0.39	Suburban	C3-3
Homewood	334	Lakeshore Dr/Shades Creek Pkwy	6.58	2.95	Suburban	D2
Homewood/Birmingham/ Jefferson County	303	18th St	10.00	0.81	Urban	C3-4
Hoover	111	Bessemer Cut Off Rd/ State Rte 150	1.33	1.19	Suburban	D2
Hoover	112	Bessemer Cut Off Rd	3.90	1.07	Rural	D2
Hoover	113	Bessemer Cut Off Rd/ State Rte 150	3.89	1.88	Suburban	D2
Hoover	289	Brock Gap Pkwy	2.11	2.12	Rural	D2
Hoover	290	Ross Bridge Pkwy	2.88	5.67	Suburban	D2
Hoover	340	Lorna Rd	6.35	1.49	Suburban	D2
Hoover	341	Galleria Blvd	4.80	0.31	Suburban	D2
Hoover	343	Chapel Rd/Patton Chapel Rd	2.96	2.92	Suburban	D2
Hoover	364	Ross Bridge Pkwy Trail	3.20	1.39	Suburban	D2
Hoover	372	Stadium Trace Pkwy	4.92	1.52	Rural	D2
Hoover/Bessemer/Jefferson County	239	Morgan Rd	3.00	2.39	Rural	D1, E1
Hoover/Bessemer/Jefferson County	240	Co Rd 52	0.50	2.05	Rural	E1, E2
Hoover/Birmingham/Jefferson County	77	Co Rd 93/Shannon Wenonah Rd/Venice Rd	2.27	2.01	Suburban	D2
Hoover/Birmingham/Jefferson County	291	Co Rd 97/S Shades Crest Rd	2.07	7.73	Suburban	D2
Hoover/Jefferson County	342	Al Seier Rd/Chapel Ln	3.62	1.85	Suburban	D2
Hoover/Jefferson County	344	Riverchase Dr	5.25	0.23	Suburban	D2
Hoover/Shelby County	268	Co Hwy 29/Co Rd 29	2.56	2.51	Suburban	D2
Hoover/Shelby County	345	Old Montgomery Hwy	3.50	1.86	Suburban	D2
Hoover/Vestavia Hills	275	Rocky Ridge Rd	2.14	2.04	Suburban	D2
Hoover/Homewood/Shelby County	293	Berry Rd/Green Springs Hwy	5.08	2.04	Suburban	D2
Hueytown	217	Co Rd 46/Hueytown Rd/ Warrior River Rd	1.27	1.94	Suburban	D1
Hueytown	218	Sunrise Blvd	2.00	0.45	Suburban	D1
Hueytown	285	Davey Allison Blvd	1.00	0.33	Suburban	D1
Hueytown/Bessemer	219	Novel Dr	1.50	0.67	Suburban	D1
Hueytown/Bessemer	220	26th Ave N/27th Ave N/ Brooklane Dr	3.00	1.76	Suburban	D1

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
Indian Springs Village/Hoover/ Jefferson County	269	Co Rd 29	3.58	1.99	Suburban	D2
Irondale	75	1st Ave N	3.07	0.92	Urban	C4
Irondale	328	Overton Rd	4.00	0.96	Suburban	C4
Irondale	329	Belmont Rd	4.00	1.56	Suburban	C4
Irondale	330	Old Leeds	5.00	0.40	Suburban	C4
Irondale	331	Grants Mill Rd	5.33	1.37	Suburban	C4
Irondale	332	20th St N/20th St S/22nd St S	4.13	1.08	Urban	C4
Irondale/Birmingham/ Jefferson County	38	Ruffner Rd	6.00	1.02	Urban	C4
Irondale/Birmingham/ Jefferson County	70	Ruffner Rd/Sunset Blvd	3.81	3.62	Suburban	C4
Irondale/Birmingham/ Jefferson County	71	Gadsden Hwy/State Rte 7	4.17	0.20	Suburban	C4
Irondale/Birmingham/ Jefferson County	72	Alton Dr/Alton Rd/Mary Taylor Rd	2.41	3.06	Suburban	C4
Irondale/Jefferson County	327	Co Rd 143	3.50	2.70	Rural	C4
Jefferson County	66	Lakeshore Parkway	5.00	0.35	Suburban	D2
Jefferson County	140	Co Rd 129/Glennwood Rd	0.00	4.39	Rural	B2
Jefferson County	141	Bankhead Hwy	0.00	1.52	Rural	B1
Jefferson County	145	Co Rd 71/Snowville Brent Rd	0.00	3.72	Rural	B1
Jefferson County	146	Peterson Rd/Snowville Brent Rd	0.00	2.05	Rural	B1
Jefferson County	149	Porter Rd	0.00	3.49	Rural	B1, C2
Jefferson County	150	Co Rd 61/Short Creek Rd	0.48	7.47	Rural	C1, C2
Jefferson County	151	Alliance Rd	0.22	2.33	Rural	C1
Jefferson County	153	Old Mulga Loop Rd	0.42	1.66	Rural	C2
Jefferson County	155	Flat Top Rd	0.00	0.41	Rural	B1
Jefferson County	166	RRRVTS Proposed - Five Mile Creek	2.09	4.02	Suburban	B2, C3-1
Jefferson County	167	Carson Rd/Carson Rd N/ Co Rd 121	2.15	1.24	Suburban	B2
Jefferson County	170	Co Rd 121	3.33	0.54	Suburban	B2
Jefferson County	172	Co Rd 121	0.50	2.75	Rural	B2
Jefferson County	174	Co Hwy 121	0.00	1.90	Rural	A1
Jefferson County	175	Dean Rd/Old Tennessee Pike Rd	0.00	1.93	Rural	A2
Jefferson County	179	Cedar Mountain Rd/Co Hwy 159	0.35	5.19	Rural	B3
Jefferson County	187	Old Springville Rd	1.70	0.36	Suburban	B3

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
Jefferson County	188	Brewster Rd	2.00	1.54	Suburban	B3
Jefferson County	212	Cherry Ave	0.64	3.24	Rural	C2, C3-1
Jefferson County	292	Alford Ave/Hollister Way	2.54	0.35	Suburban	D2
Jefferson County	297	W Valley Ave	5.25	0.58	Suburban	D2
Jefferson County	323	Grants Mill Rd	1.83	1.58	Rural	C4
Jefferson County	324	Rex Lake Rd	2.33	2.99	Rural	C4
Kimberly/Morris	138	Stouts Rd	0.20	1.14	Rural	A1
Leeds	325	Zeigler Rd SW	1.38	1.50	Rural	C4
Leeds/Birmingham/Jefferson County	326	Rex Lake Rd	2.00	1.96	Rural	C4
Margaret/Argo/St. Clair County	198	Old Acton Rd	0.00	2.08	Rural	B4
Margaret/Argo/St. Clair County	199	Margaret-Sanierd Rd	1.78	0.77	Rural	B4
Margaret/Argo/St. Clair County	201	Levine Rd	0.60	2.47	Rural	B4
Meadowbrook/Indian Springs/ Jefferson County	267	Cahaba Valley Trce	4.00	1.62	Suburban	D2, D3
Midfield	276	Woodward Rd	5.46	1.41	Suburban	D1
Midfield	279	Main St/Woodfield Rd	4.93	0.92	Suburban	D1
Midfield/Birmingham/ Jefferson County	76	High Ore Line Trail	6.25	1.87	Suburban	D1
Minor/Marytown/Jefferson County	63	Mulga Loop Rd	1.30	4.37	Rural	C2
Montevallo	247	Co Rd 15	1.19	2.76	Rural	F1
Montevallo/Shelby County	245	Co Rd 17	0.00	1.53	Rural	F1
Montevallo/Shelby County	246	Co Rd 22	0.00	0.05	Rural	F1
Montevallo/Shelby County	248	Co Rd 22	0.00	0.78	Rural	F1
Moody	195	White Chapel Pkwy/ Whites Chapel Pkwy	0.87	1.76	Rural	C4, C5
Moody	196	Co Hwy 10/Park Ave	0.00	1.27	Rural	C5
Moody	209	Kelly Creek Rd	0.09	0.79	Rural	C5
Moody	210	Park Ave	1.38	1.02	Rural	C5
Moody	211	Park Ave	1.98	1.56	Suburban	C5
Moody/Margaret/Argo/St. Clair County	197	Acmar Rd/Colgate Rd/ Old Acton Rd	0.44	3.38	Rural	B4, C5
Moody/St Clair County	208	Kelly Creek Rd	0.00	6.08	Rural	B4, C5
Morris	139	Co Rd 129/Stouts Rd	0.56	2.32	Rural Town	B2
Mountain Brook	306	Cahaba Rd	7.04	0.30	Suburban	C3-4
Mountain Brook	307	Cahaba Rd	7.17	0.24	Suburban	C3-4
Mountain Brook	308	Existing Trail	6.00	0.38	Suburban	C3-4
Mountain Brook	310	Mountain Brook Pkwy	7.00	1.01	Suburban	C3-4
Mountain Brook	311	Mountain Brook Pkwy	4.80	1.01	Suburban	C3-4
Mountain Brook	312	Overbrook Rd	7.00	0.60	Suburban	C3-4

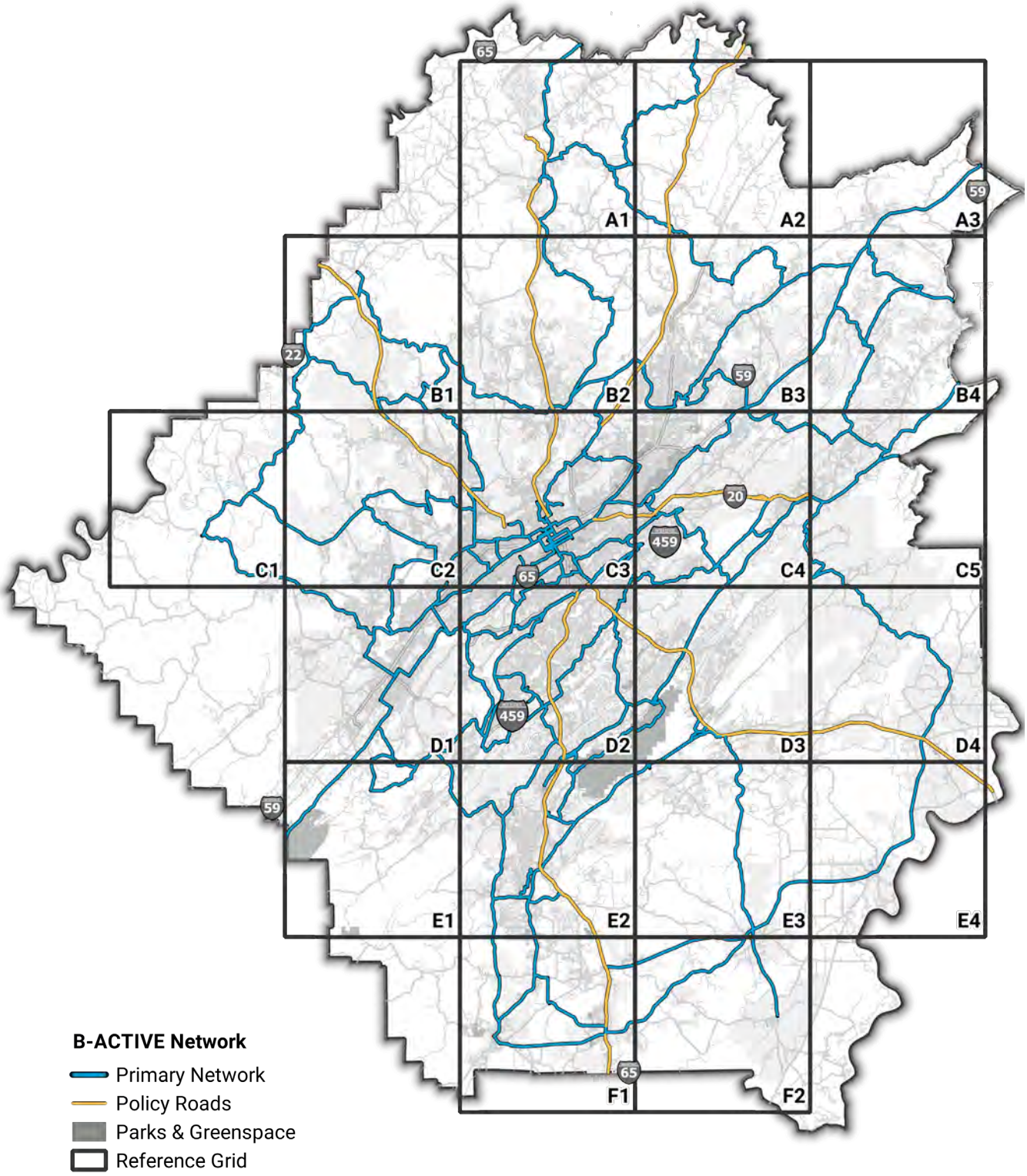
Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
Mountain Brook	313	Old Leeds Rd/ Overbrook	5.50	2.56	Suburban	C3-4
Mountain Brook	314	Stone River Rd	3.70	1.04	Suburban	C3-4
Mountain Brook	315	Brookleeds Rd	3.00	0.11	Suburban	C4
Mountain Brook	316	Brookwood Rd/ Crosshill Rd	1.92	1.49	Suburban	C3-4
Mountain Brook	317	Co Rd 62	3.60	0.50	Suburban	C4
Mountain Brook	318	S Brookwood Rd	4.50	1.34	Suburban	C3-4
Mountain Brook	339	Co Rd 62	3.38	0.78	Suburban	C3-4
Mountain Brook/Birmingham/ Jefferson County	305	20th Pl S Access Road	8.00	0.52	Urban	C3-4
Mountain Brook/Homewood/ Birmingham/Jefferson County	67	Cahaba Rd	4.56	1.28	Urban	C3-4
Mountain Brook/Irondale/ Birmingham/Jefferson County	68	Country Club Rd/Euclid Ave/Fairway Dr/Groover Dr/Leach Dr/Shiloh Dr	4.24	3.97	Suburban	C3-4
Mountain Brook/Irondale/ Jefferson County	69	Beacon Dr/Danton Ln/Scenic View Dr/ Sharpsburg Dr	4.18	2.62	Suburban	C3-4, C4
Mountain Brook/Jefferson County	309	Mountain Brook Pkwy	5.13	0.27	Suburban	C3-4
Mulga	371	Loop Rd/Mulga Loop Rd	0.60	0.79	Rural Town	C2
Odenville/Argo/St. Clair County	203	Levine Rd	0.00	0.47	Rural	B4
Odenville/Argo/St. Clair County	204	Co Rd 12	0.00	2.05	Rural	B4
Odenville/Argo/St. Clair County	205	Mountain View Rd	0.00	1.73	Rural	B4
Odenville/St Clair County	207	Co Rd 12	0.00	2.18	Rural	B4
Pelham	258	Hwy 11	3.00	0.99	Suburban	E2
Pelham	260	Co Rd 52 E	2.80	0.70	Suburban	E2
Pelham	261	Oak Mountain Trl	3.00	0.53	Suburban	E2
Pelham	262	Co Rd 35	2.50	0.60	Suburban	E2
Pelham	264	Trail along Cahaba Valley Creek	5.00	2.85	Suburban	D2, E2
Pelham	365	John Findley III Dr	6.00	5.60	Rural	D2, D3, E2
Pelham	366	John Findley III Dr	6.00	2.65	Rural	D3
Pelham/Alabaster/Shelby County	256	Simmsville Rd	3.00	1.59	Rural	E2
Pelham/Chelsea/Shelby County	348	Co Rd 11/Co Rd 36/ Simmsville Rd	1.49	5.05	Rural	D3, E2, E3
Pelham/Shelby County	257	Simmsville Rd	3.00	4.61	Rural	E2
Pelham/Shelby County	263	Co Rd 35	1.40	1.29	Rural	E2
Pelham/Shelby County	265	State Housing Rd	4.31	1.85	Rural	D2, E2

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
Pelham/Shelby County	266	Co Rd 35	4.50	0.92	Rural	E2
Pinson	177	Brookwood Rd	0.00	0.69	Rural	B3
Pinson/Jefferson County	176	Co Rd 153/Marsh Mountain Cutoff/Miles Spring Rd	0.00	3.60	Rural	B3
Pinson/Jefferson County	178	Countyrd 153	0.13	1.34	Rural	B3
Pleasant Grove/Birmingham/ Jefferson County	154	New Mulga Loop Rd	0.78	1.93	Rural	C2
Pleasant Grove/Hueytown/ Bessemer	64	Pleasant Grove Rd/ Woodward Rd	2.40	3.28	Suburban	C2, D1
Rock Creek/Jefferson County	152	Co Rd 23/Taylors Ferry Rd	0.24	5.92	Rural	C1
Rock Creek/Jefferson County	215	Warrior River Rd	0.00	1.12	Rural	C1, C2
Shelby/Shelby County	358	Co Rd 47	1.14	2.05	Rural	F2
Springville/Argo/St. Clair County	206	Mountain View Rd	0.11	3.87	Rural	B4
Tarrant	34	E Lake Blvd	3.54	1.26	Suburban	C3-2
Trafford	131	Co Rd 153	1.50	0.45	Rural	A1
Trafford/County Line/ Blount County	133	Deans Ferry Rd/Lehigh Rd/Philadelphia Rd	0.00	6.39	Rural	A1, A2
Trafford/Jefferson County	129	Co Rd 153/Warrior - Trafford Rd	1.47	2.35	Rural	A1
Trafford/Jefferson County	173	2nd St/Co Hwy 121/ Warrior Trafford Rd	1.10	2.26	Rural	A1
Trussville	191	Chalkville Rd/N Chalkville Rd	3.15	3.20	Suburban	B3
Trussville	192	Chalkville Rd	3.70	0.51	Rural Town	B3
Trussville	193	Co Rd 94/Roper Rd	2.22	1.24	Suburban	C4
Trussville	194	Roper Rd	0.63	3.43	Rural	C4
Trussville	368	State Rte 7	0.88	0.66	Suburban	C4
Vestavia Hills	274	Rocky Ridge Rd	3.42	0.63	Suburban	D2
Vestavia Hills	320	Liberty Pkwy	2.88	3.19	Suburban	C4
Vestavia Hills	335	Cahaba River Rd/Dolly Ridge Rd/Old US Hwy 280	4.31	0.99	Suburban	D2
Vestavia Hills	336	Green Valley Rd	3.67	0.29	Suburban	D2
Vestavia Hills	337	Crosshaven Dr	4.63	0.47	Suburban	D2
Vestavia Hills	338	Co Rd 62	5.00	0.36	Suburban	D2
Vestavia Hills/Jefferson County	270	Co Hwy 29	4.30	0.99	Suburban	D2
Vestavia Hills/Jefferson County	271	Acton Rd	3.50	0.22	Suburban	D2
Vestavia Hills/Jefferson County	321	Sicard Hollow Rd	2.30	1.42	Suburban	C4
Vestavia Hills/Jefferson County	322	Sicard Hollow Rd	2.50	0.66	Suburban	C4
Vestavia Hills/Mountain Brook/ Jefferson County	272	Cahaba River Rd/Old US Hwy 280	3.43	1.09	Suburban	D2

Jurisdiction	Project ID	Project Roadways	Indicator Score	Project Length (mi)	Context	Grid ID
Vestavia Hills/Mountain Brook/ Jefferson County	273	Dolly Ridge Rd	1.11	2.77	Suburban	D2
Vestavia Hills/Mountain Brook/ Jefferson County	319	River Run Dr/River Run Ln	3.00	0.42	Suburban	C4
Warrior	127	Old Hayden Rd	0.00	1.42	Rural	A1
Warrior	130	Co Rd 153/Trafford Rd	0.00	2.63	Rural	A1
Warrior	136	Church St	2.80	0.70	Rural Town	A1
Warrior/Hayden/Blount County	126	Old Hayden Rd	0.00	0.99	Rural	A1
Warrior/Kimberly/Jefferson County	137	Warrior Kimberly Rd/ Warrior-Kimberly Rd	0.33	2.85	Rural	A1
West Jefferson/Jefferson County	147	Flat Top Rd	0.00	1.36	Rural	B1
West Jefferson/Jefferson County	148	Palos Cir/Porter Rd	0.00	0.59	Rural	B1

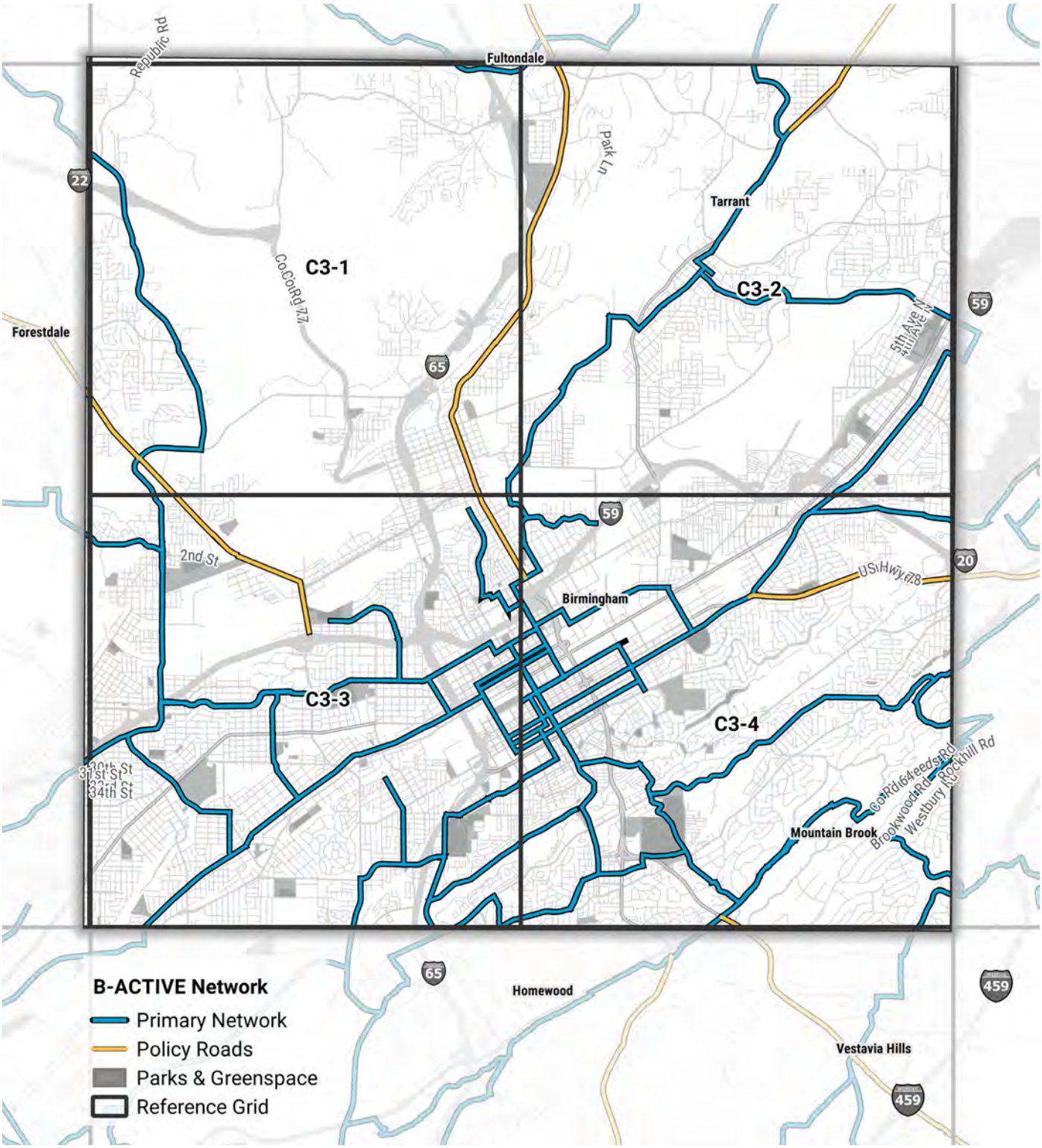
Study Area Network Maps

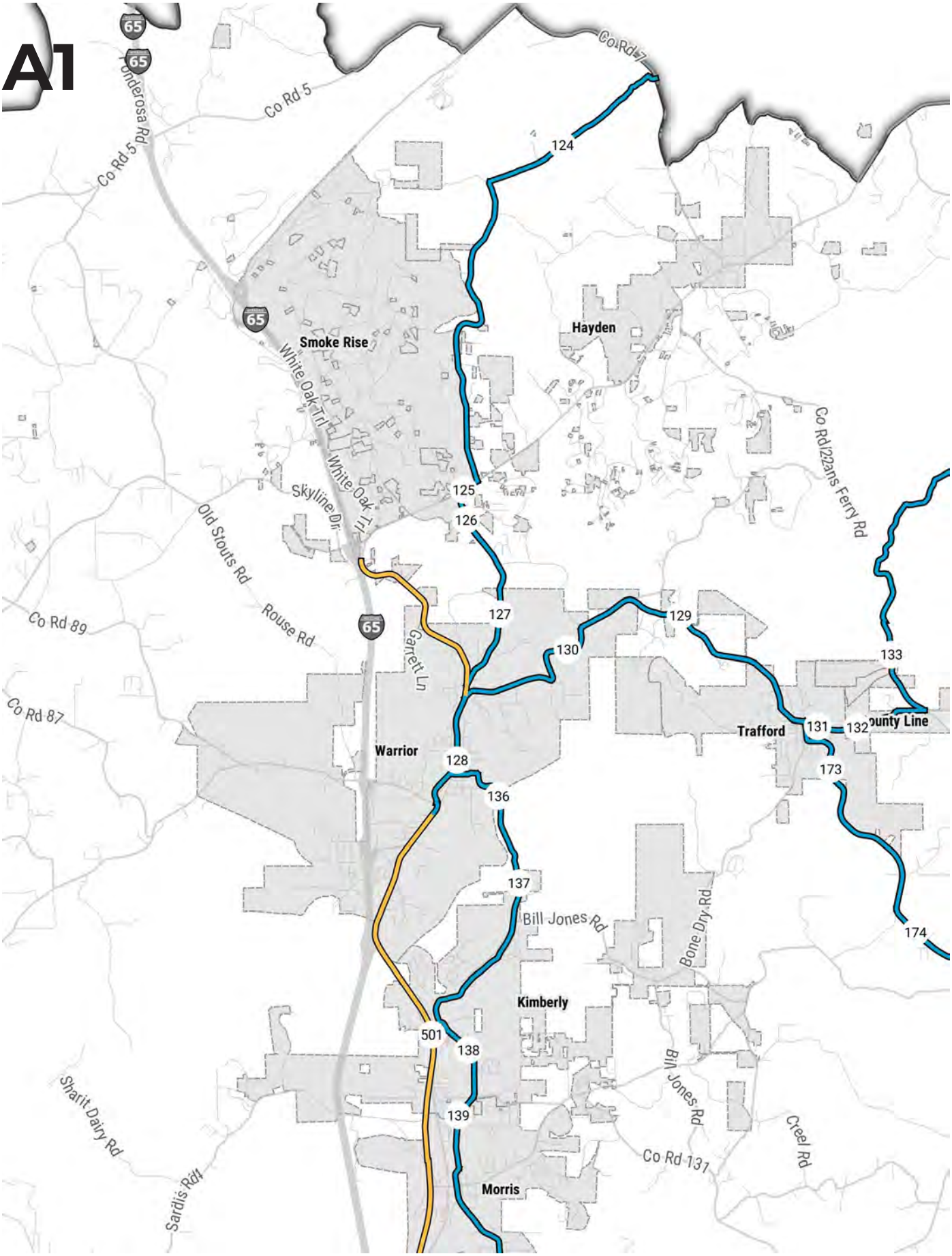
The following is a reference map for the entire study area and proposed active transportation network. Projects can be seen in specific areas based upon the Grid ID. Each project has corresponding Grid ID numbers as indicated in the Project List above.



DOWNTOWN BIRMINGHAM REFERENCE MAP

Due to the density of projects in the downtown Birmingham vicinity, more detailed network maps were developed. Below is a reference map for the downtown Birmingham area.

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Co Rd 7
Co Rd 5
Ponderosa Rd
Co Rd 5
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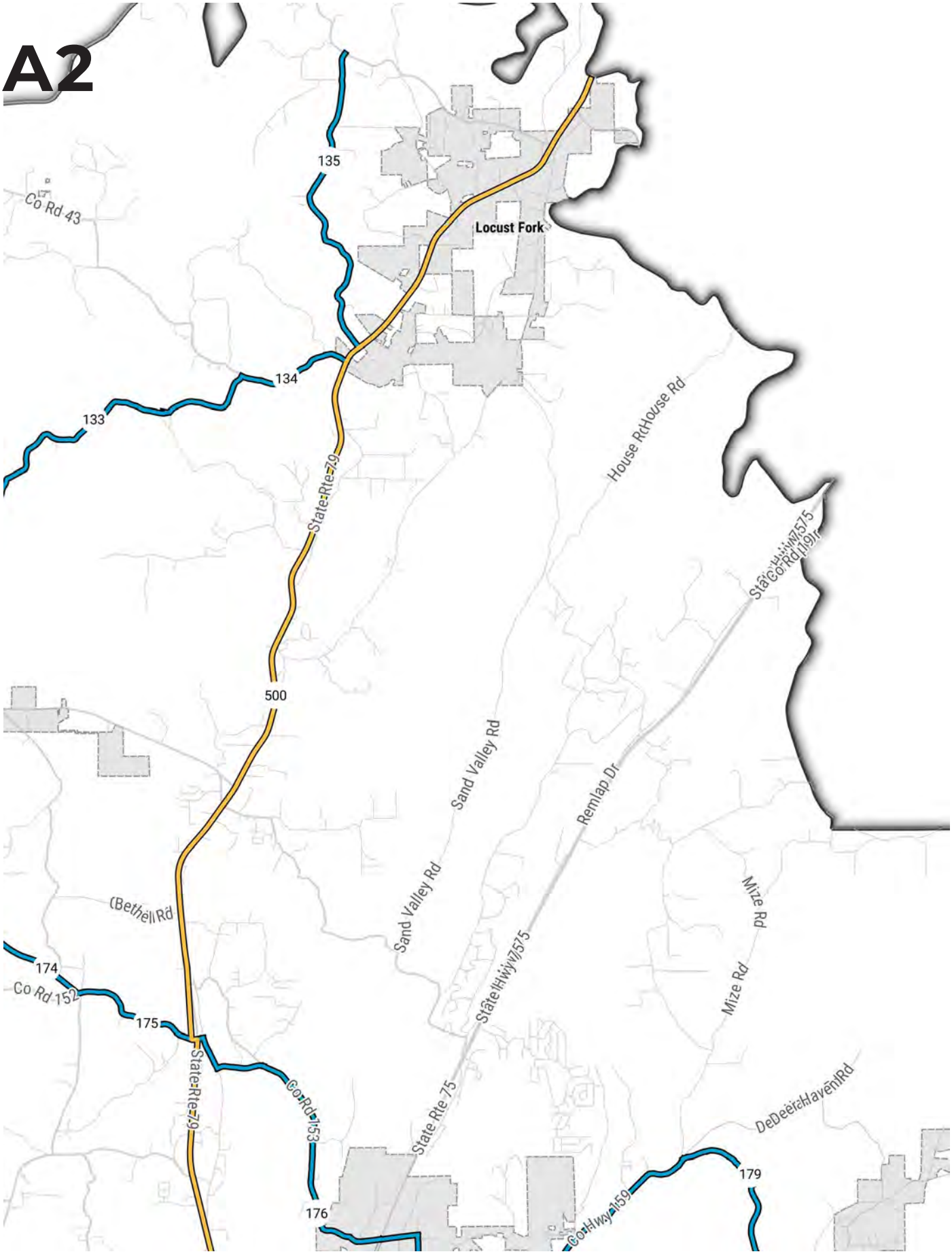
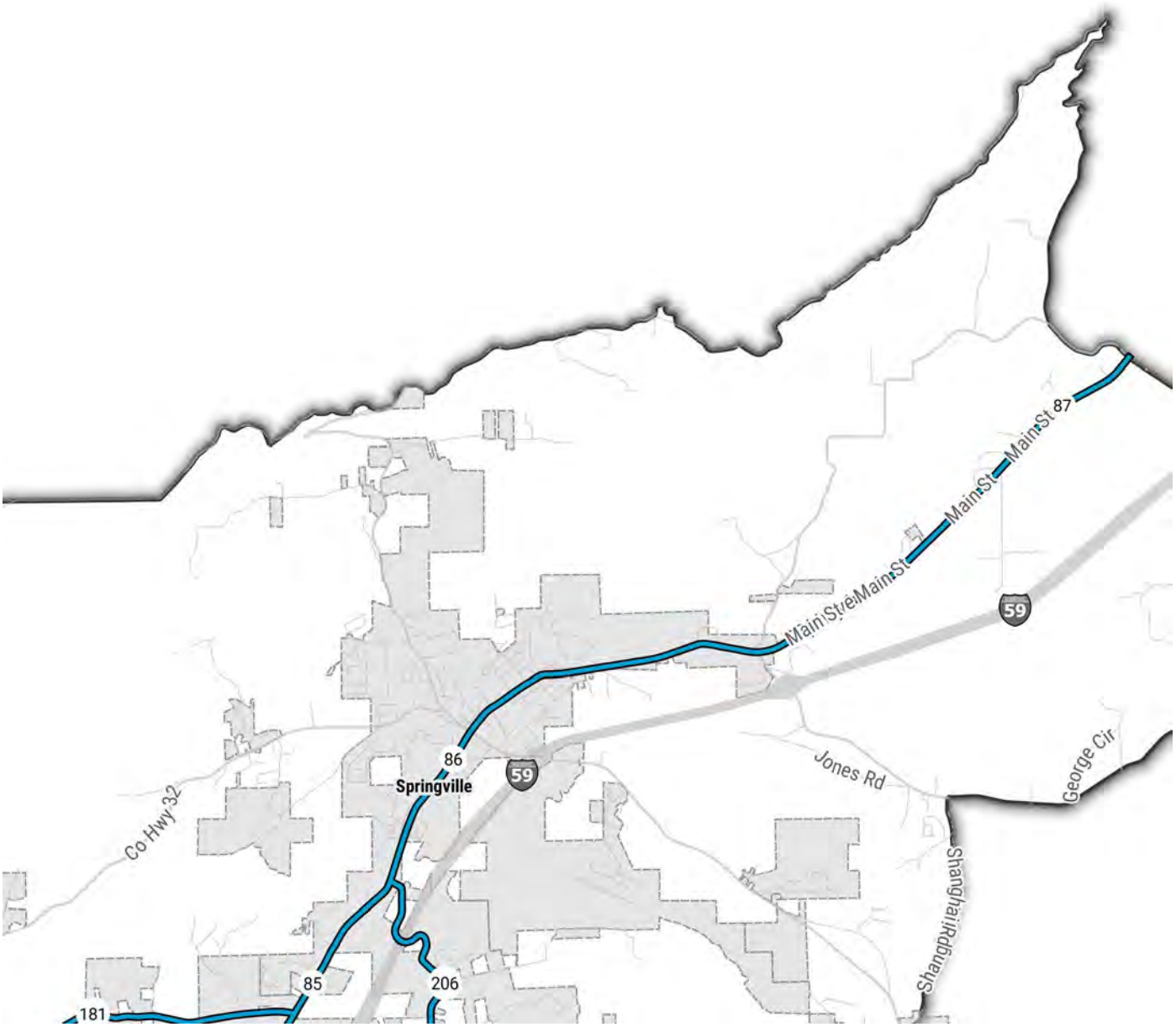
Smoke Rise
White Oak Trl
Hayden
Co Rd/22ans Ferry Rd
White Oak Trl
Skyline Dr
125
126
Old Stouts Rd
Rouse Rd
Co Rd 89
65
Garrett Ln
127
129
130
133
Co Rd 87
Trafford
131
132
ounty Line
Warrior
128
173
136
137
Bill Jones Rd
Bone Dry Rd
174
Kimberly
501
138
Bill Jones Rd
Sharit Dairy Rd
139
Co Rd 131
Creel Rd
Sardis Rd
Morris


A2
135
Co Rd 43
Locust Fork
134
133
State Rte 79
House Rd
500
Sand Valley Rd
Remlap Dr
Mize Rd
(Bethel) Rd
174
Co Rd 152
175
State Rte 79
Co Rd 153
State Rte 75
176
Co Hwy 159
179

A3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Main St
Main St
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86
Springville
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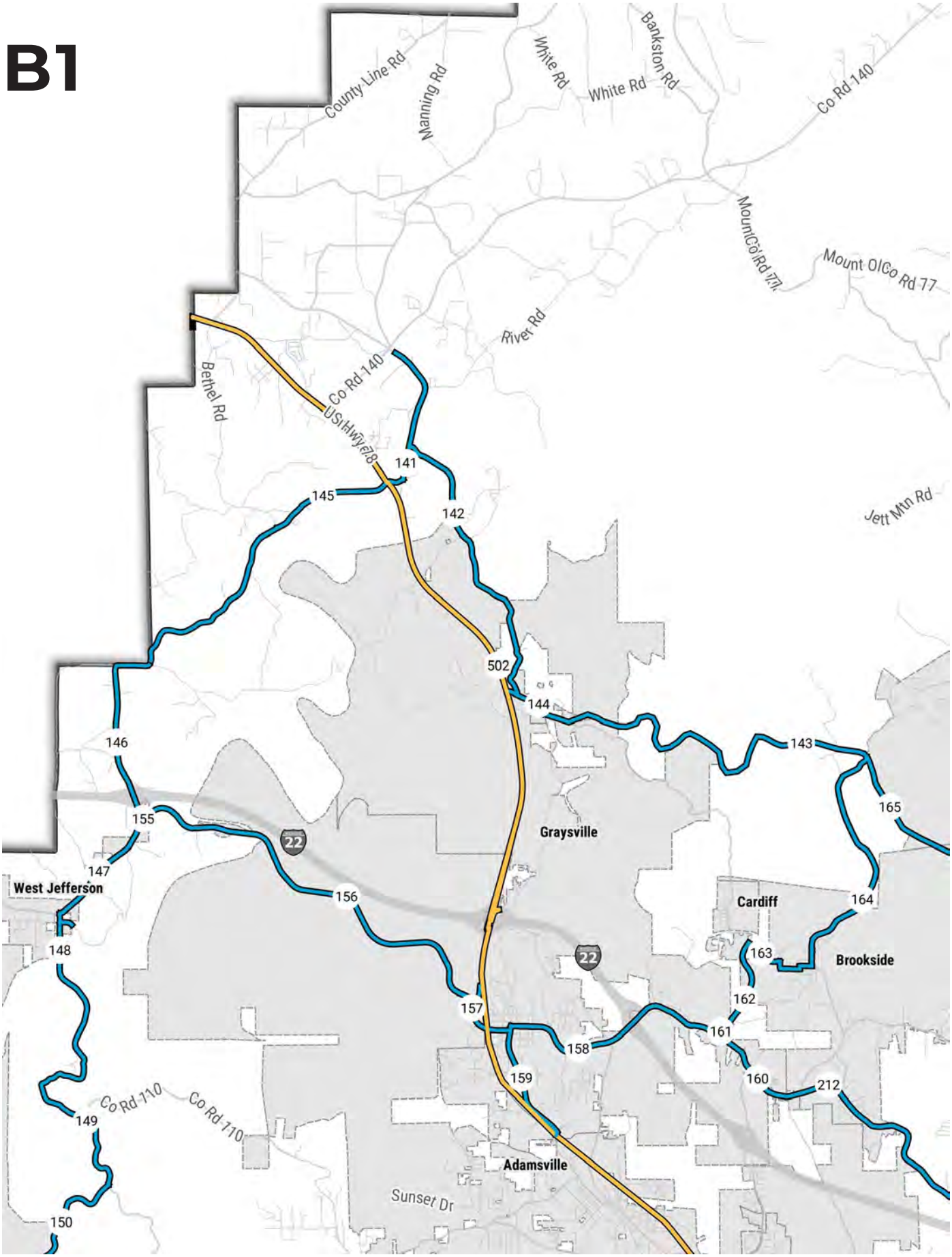
Co Hwy 32
Jones Rd
George Cir
Shangri-la Rd
85
206
181

B1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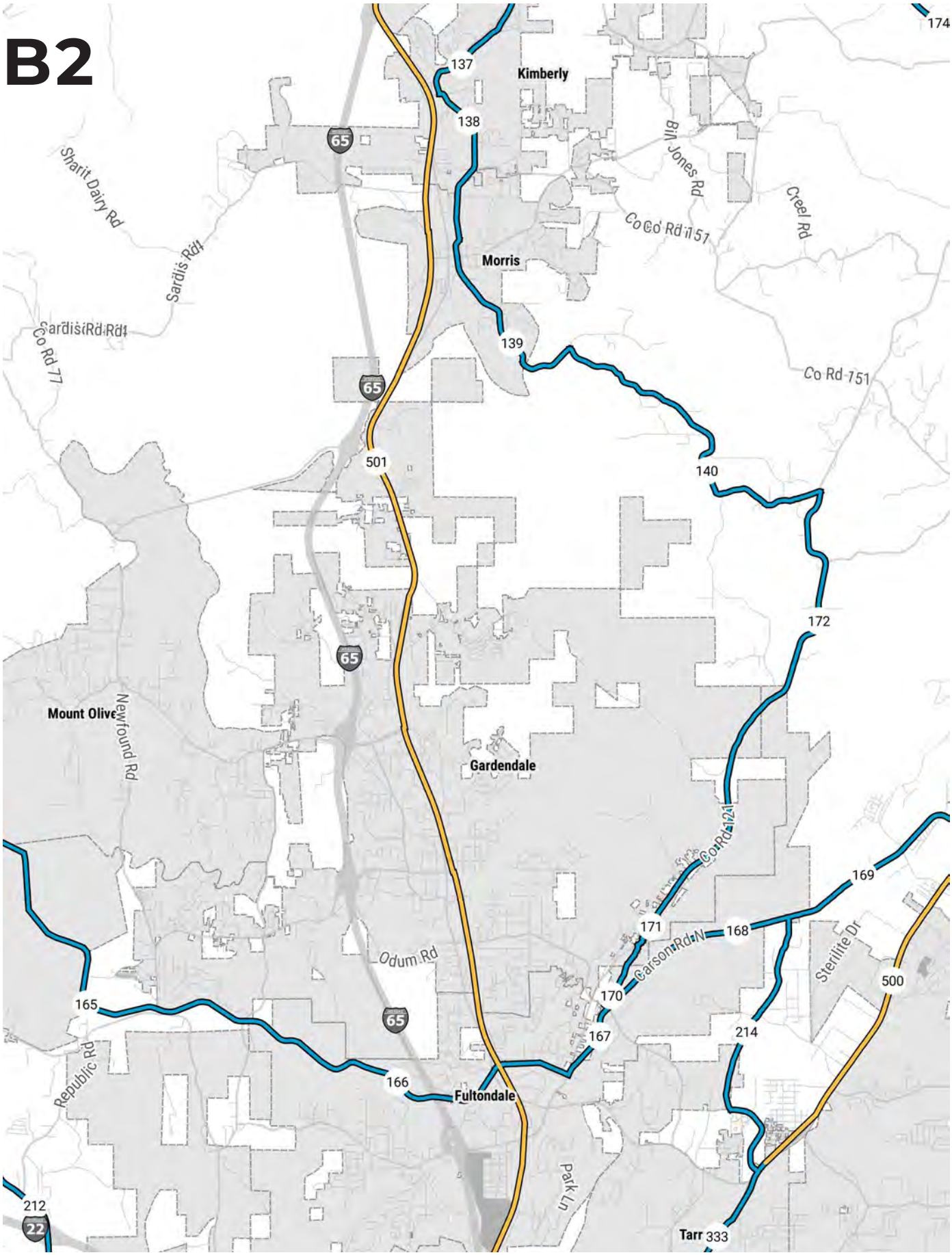
Manning Rd
White Rd
White Rd
Bankston Rd
Co Rd 140
Mount Olive Rd
Mount Olive Rd
River Rd
Bethel Rd
Co Rd 140
US Highway 78
Jett Mtn Rd
141
145
142
502
144
143
146
155
165
147
West Jefferson
156
Graysville
Cardiff
164
148
163
Brookside
162
157
161
158
159
160
212
Co Rd 710
Co Rd 710
149
Adamsville
Sunset Dr
150
22
22

B2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Morris
Gardendale
Fultondale
Mount Olive
Tarr
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138
139
140
172
174
501
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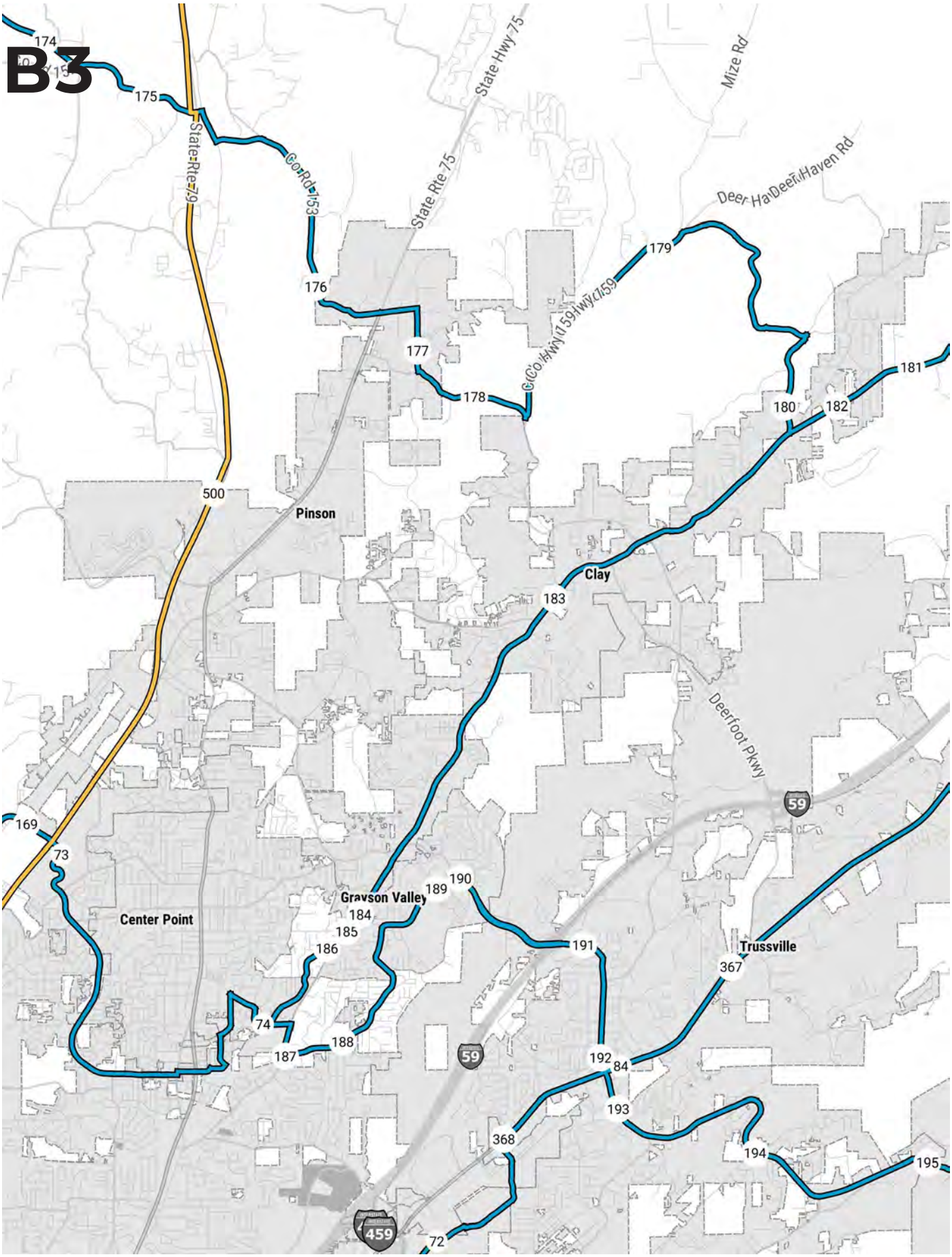
Sharit Dairy Rd
Sardis Rd
Co Rd 77
Co Rd 151
Bill Jones Rd
Creel Rd
Newfound Rd
Odum Rd
Republic Rd
Park Ln
Co Rd 124
Garson Rd N
Sterilite Dr
165
166
167
168
169
170
171
214
500
212
22
333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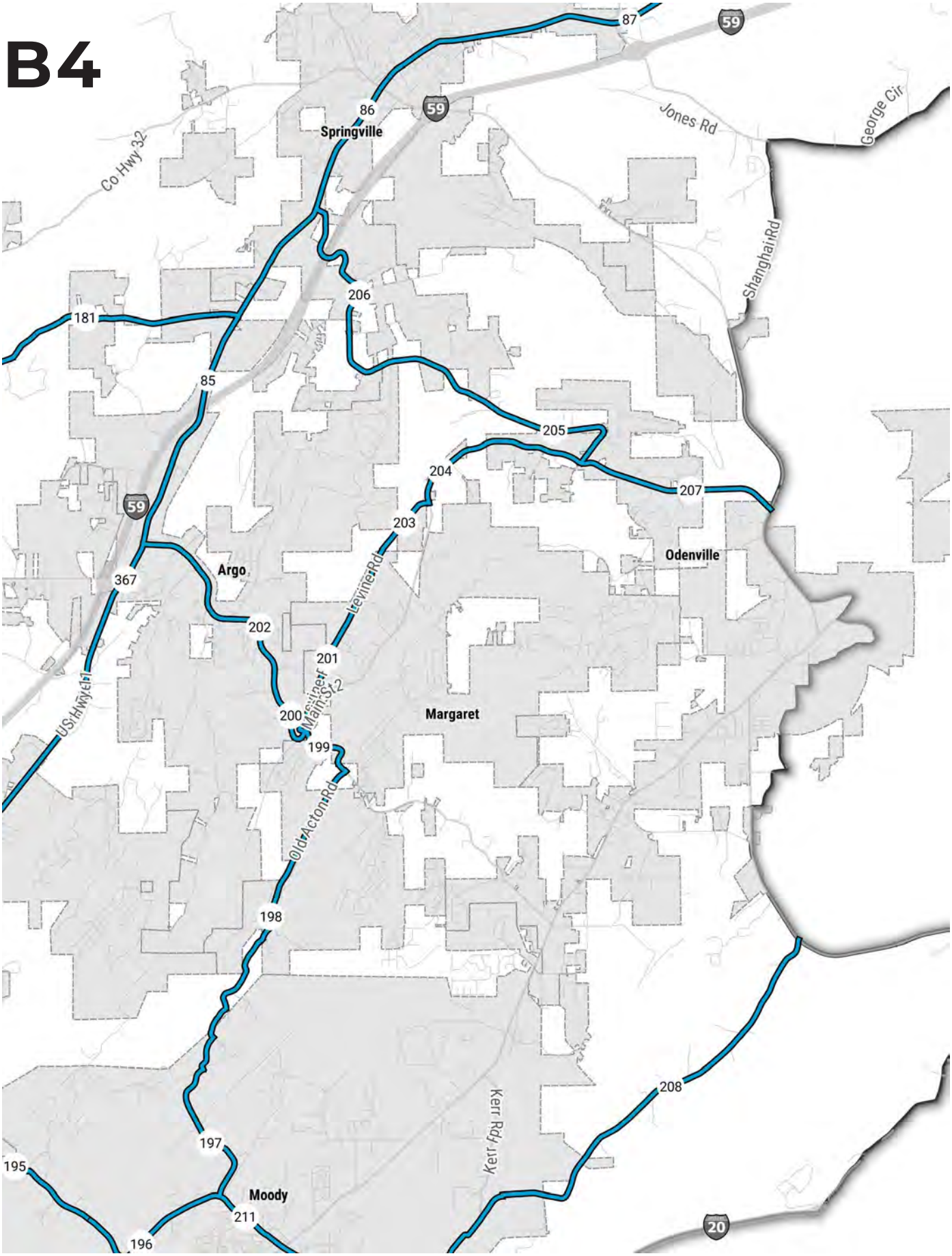
State Rte 79
Co Rd 153
State Rte 75
State Hwy 75
Mize Rd
Deer Haven Rd
179
176
177
178
Co Hwy 159
180
181
182
500
Pinson
Clay
183
Deerfoot Pkwy
59
169
73
Center Point
Grayson Valley
189
190
184
185
186
191
Trussville
367
74
187
188
59
192
84
193
368
194
195
459
72

B4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59
Springville
Co Hwy 32
Jones Rd
George Cir
Shanghai Rd
206
181
85
205
204
207
59
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Odenville
Argo
367
Irvine Rd
202
201
US Hwy 11
Main St 2
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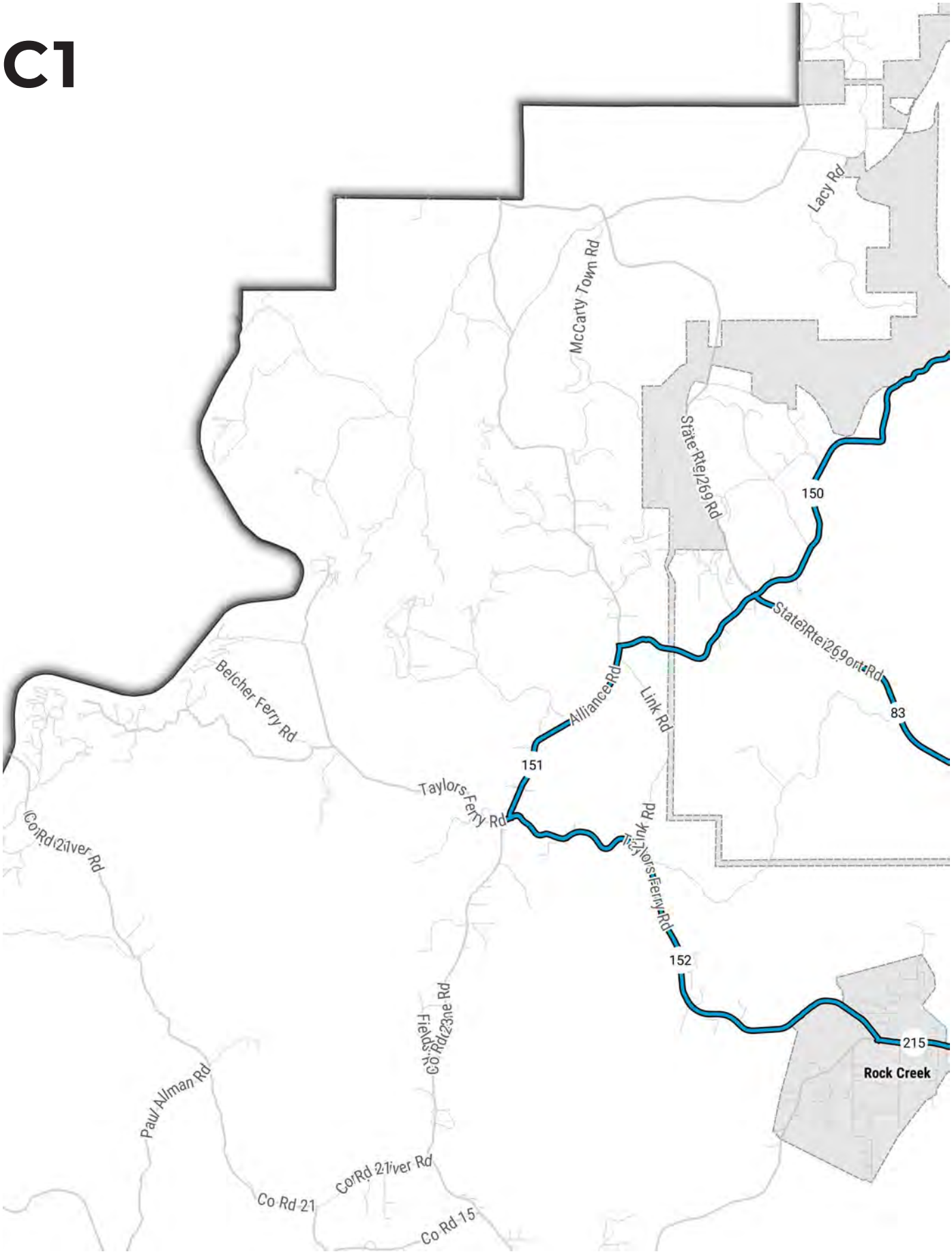
Margaret
199
Old Acton Rd
198
208
197
Kerr Rd
195
Moody
211
196
20

C1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McCarty Town Rd
State Rte 269 Rd
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State Rte 269 or Rd
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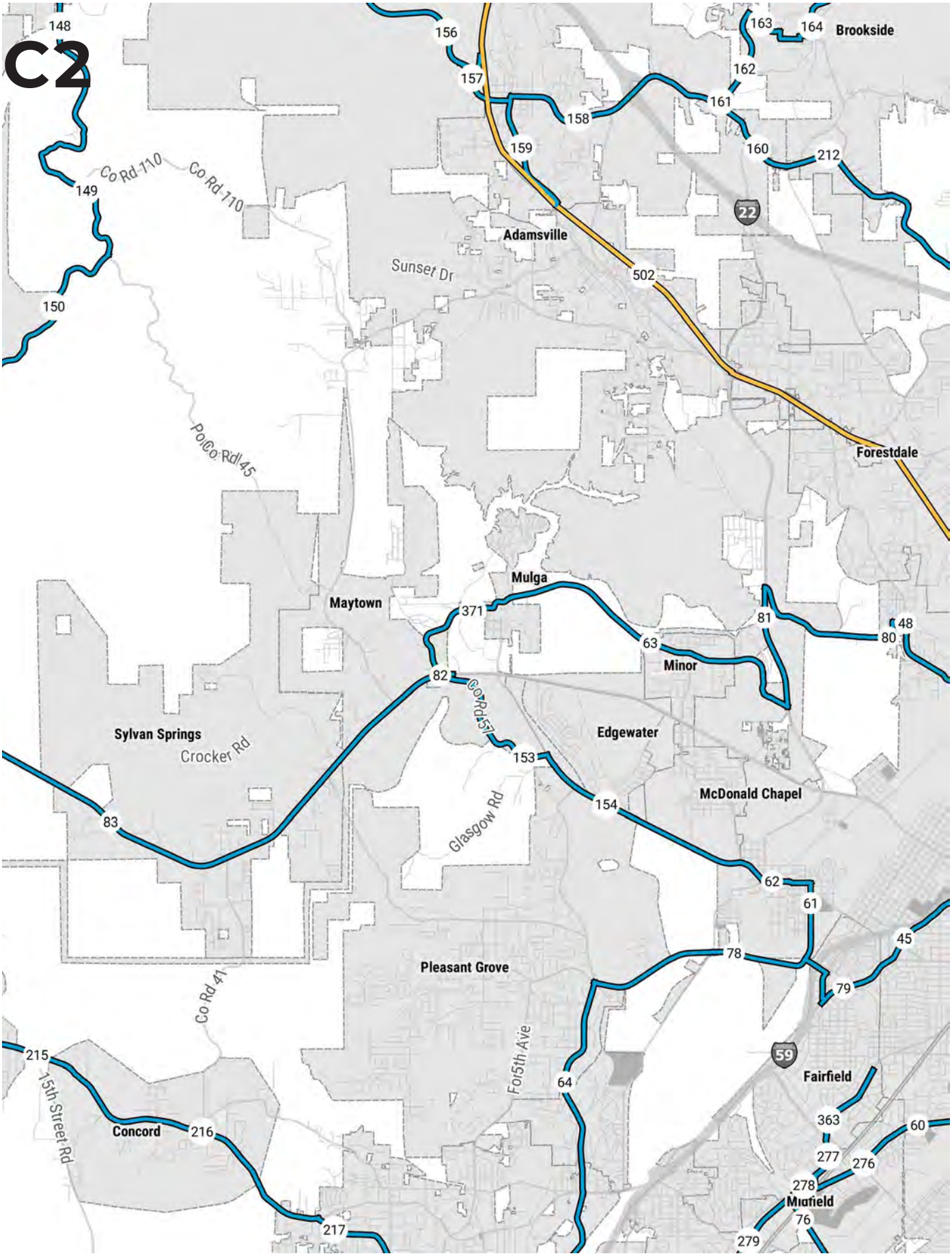
Alliance Rd
Link Rd
Belcher Ferry Rd
151
Taylors Ferry Rd
Taylors Ferry Rd
Co Rd 21 ver Rd
152
Fields Rd
Co Rd 23 ue Rd
215
Rock Creek
Paul Allman Rd
Co Rd 21 ver Rd
Co Rd 21
Co Rd 15


C2
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Brookside
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162
158
161
159
160
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Co Rd 110
Co Rd 110
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Adamsville
Sunset Dr
502
150
Co Rd 45
Forestdale
Mulga
Maytown
371
81
48
80
63
Minor
82
Co Rd 57
Sylvan Springs
Crocker Rd
Edgewater
153
McDonald Chapel
154
83
Glasgow Rd
62
61
45
78
Pleasant Grove
79
Co Rd 41
215
59
Fairfield
For5th Ave
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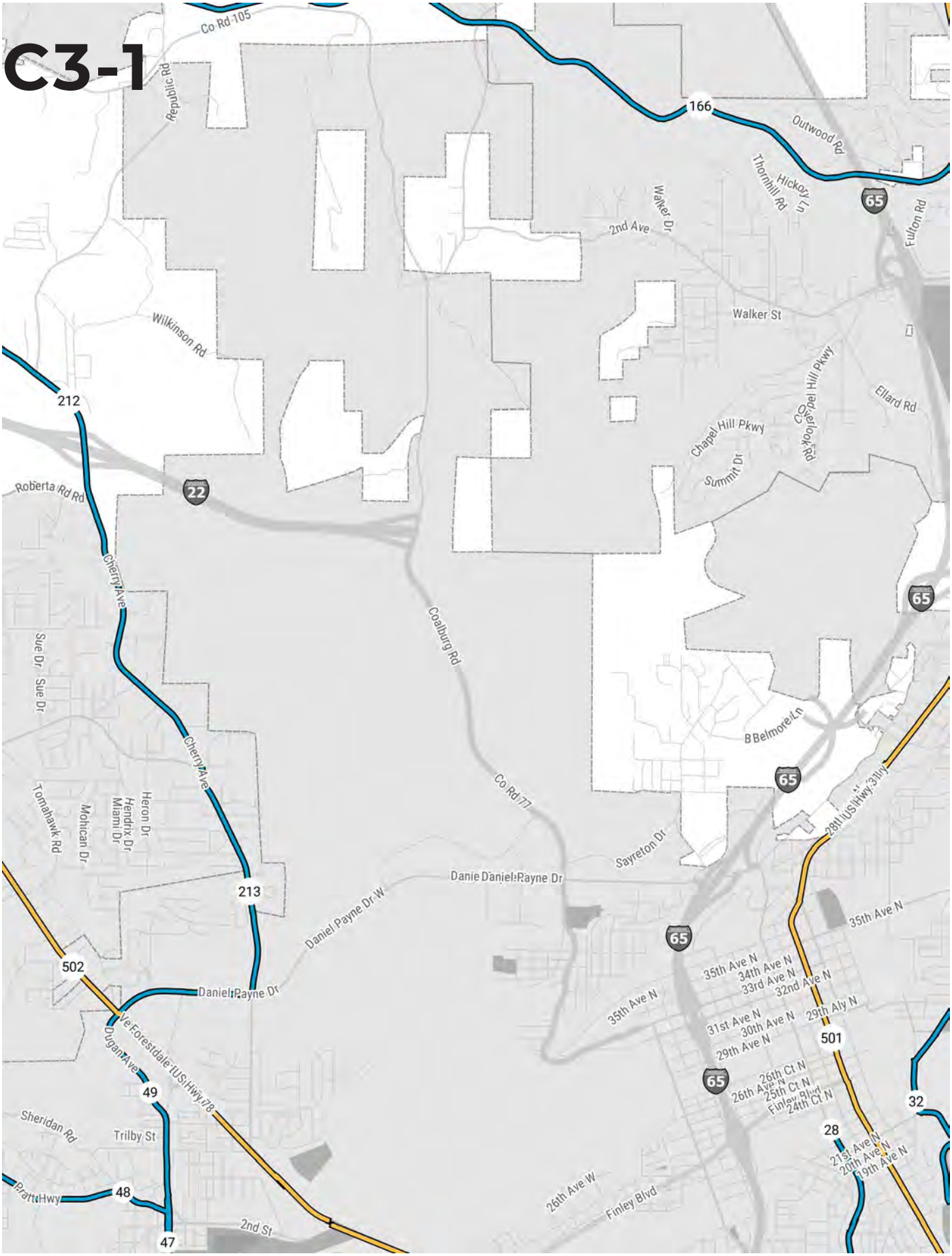
15th Street Rd
Concord
216
363
60
277
276
278
Mulfield
217
76
279

C3-1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Republic Rd
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Outwood Rd
Thornhill Rd
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2nd Ave
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Walker St
Wilkinson Rd
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Chapel Hill Pkwy
Ellard Rd
Summit Dr
Roberta Rd Rd
22
Cherry Ave
Coalburg Rd
Sue Dr
Sue Dr
Belmore Ln
Cherry Ave
Co Rd 77
Tomahawk Rd
Mohican Dr
Hendrix Dr
Miami Dr
Heron Dr
Sayreton Dr
28th St
US Hwy 31
213
Daniel Payne Dr
Daniel Payne Dr W
35th Ave N
502
Daniel Payne Dr
35th Ave N
34th Ave N
33rd Ave N
32nd Ave N
29th Aly N
31st Ave N
30th Ave N
29th Ave N
501
Dugan Ave
Forestdale
US Hwy 78
49
26th Ct N
26th Ave N
25th Ct N
Finley Blvd
24th Ct N
Sheridan Rd
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Platt Hwy
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26th Ave W
Finley Blvd
2nd St
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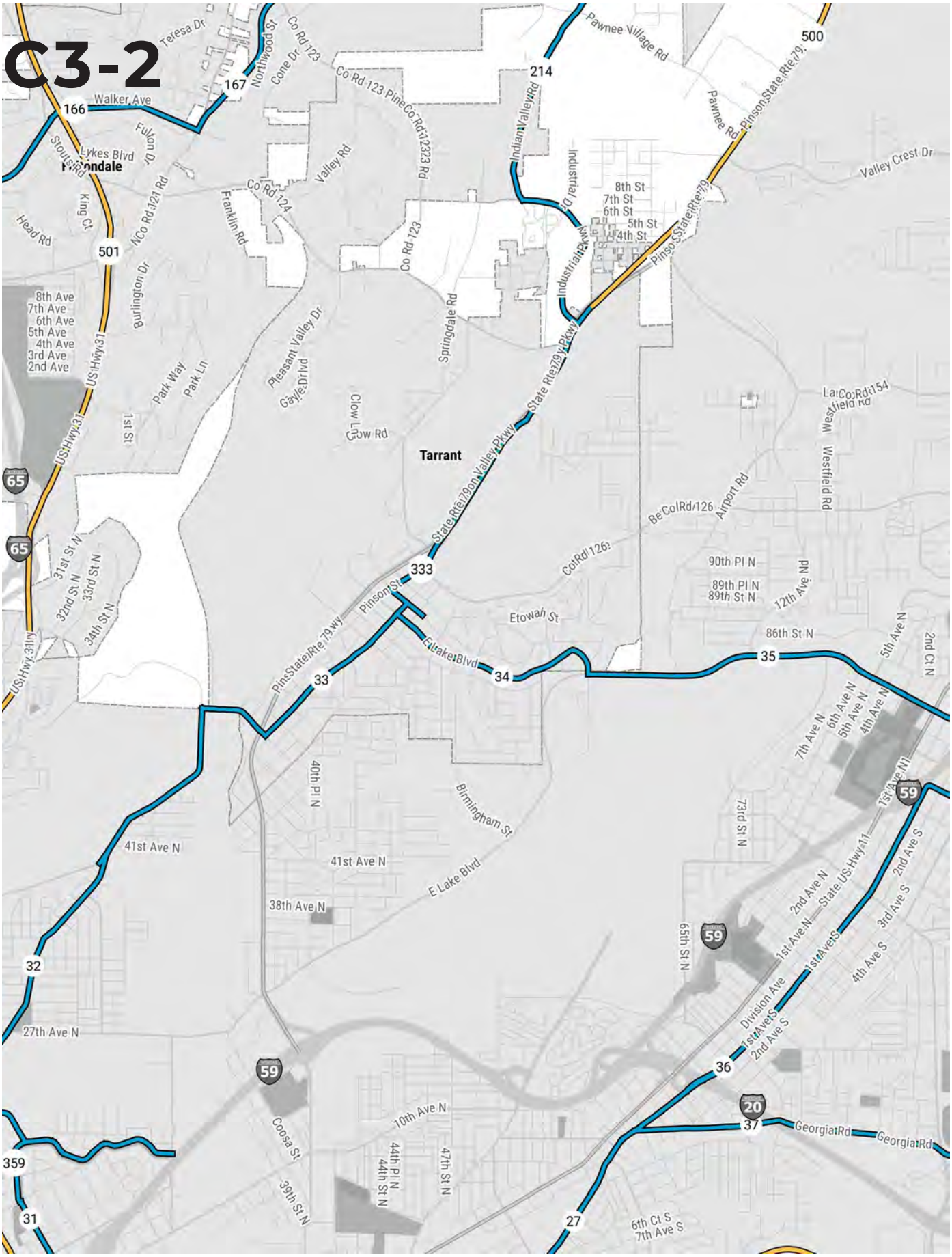
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Walker Ave
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167
Northwood St
Cone Dr
Co Rd 123
Co Rd 123
Pine Co Rd 12323 Rd
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Pawnee Village Rd
500
Pawnee Rd
Pinson State Rte 79
Indian Valley Rd
Industrial Dr
Industrial Pkwy
Valley Crest Dr
8th St
7th St
6th St
5th St
4th St
Lykes Blvd
Tarrant
Stoutsville Rd
King Ct
Head Rd
501
Co Rd 121 Rd
Burlington Dr
Co Rd 124
Franklin Rd
Valley Rd
Co Rd 123
Springdale Rd
Pleasant Valley Dr
Gayle Dr
Park Way
Park Ln
1st St
8th Ave
7th Ave
6th Ave
5th Ave
4th Ave
3rd Ave
2nd Ave
US Hwy 31
Clow Ln
Clow Rd
State Rte 79 Valley Pkwy
Co Rd 154
Westfield Rd
Airport Rd
Co Rd 126
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31st St N
32nd St N
33rd St N
34th St N
333
Pinson St
Etowah St
90th Pl N
89th Pl N
89th St N
12th Ave N
86th St N
5th Ave N
2nd Ct N
35
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E Lake Blvd
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6th Ave N
5th Ave N
4th Ave N
1st Ave N
59
73rd St N
40th Pl N
Birmingham St
41st Ave N
38th Ave N
2nd Ave N
State US Hwy 11
2nd Ave S
3rd Ave S
4th Ave S
1st Ave S
65th St N
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27th Ave N
Division Ave
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20
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Georgia Rd
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44th St N
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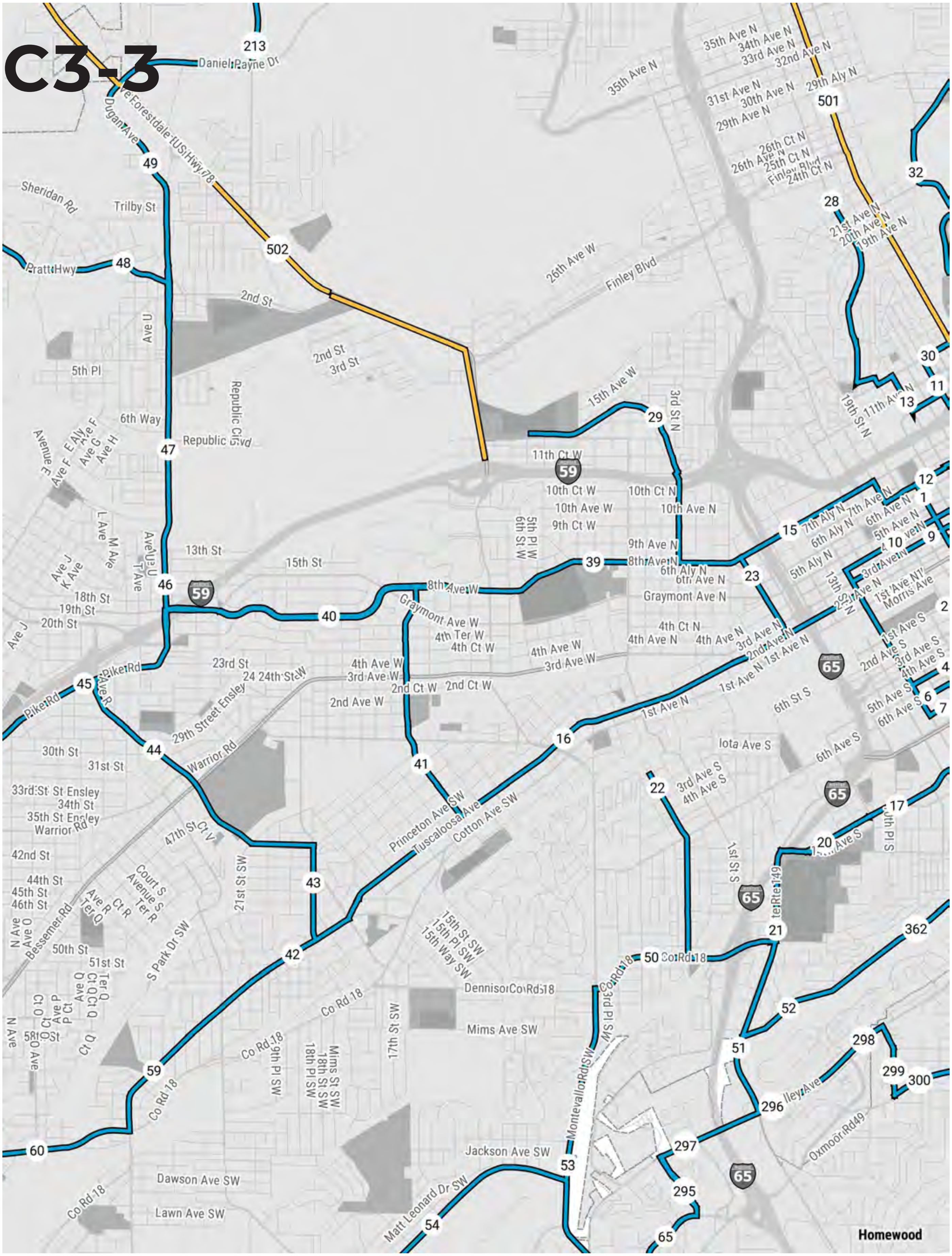
6th Ct S
7th Ave S

C3-3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Forestdale (US Hwy 78)
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35th Ave N
34th Ave N
33rd Ave N
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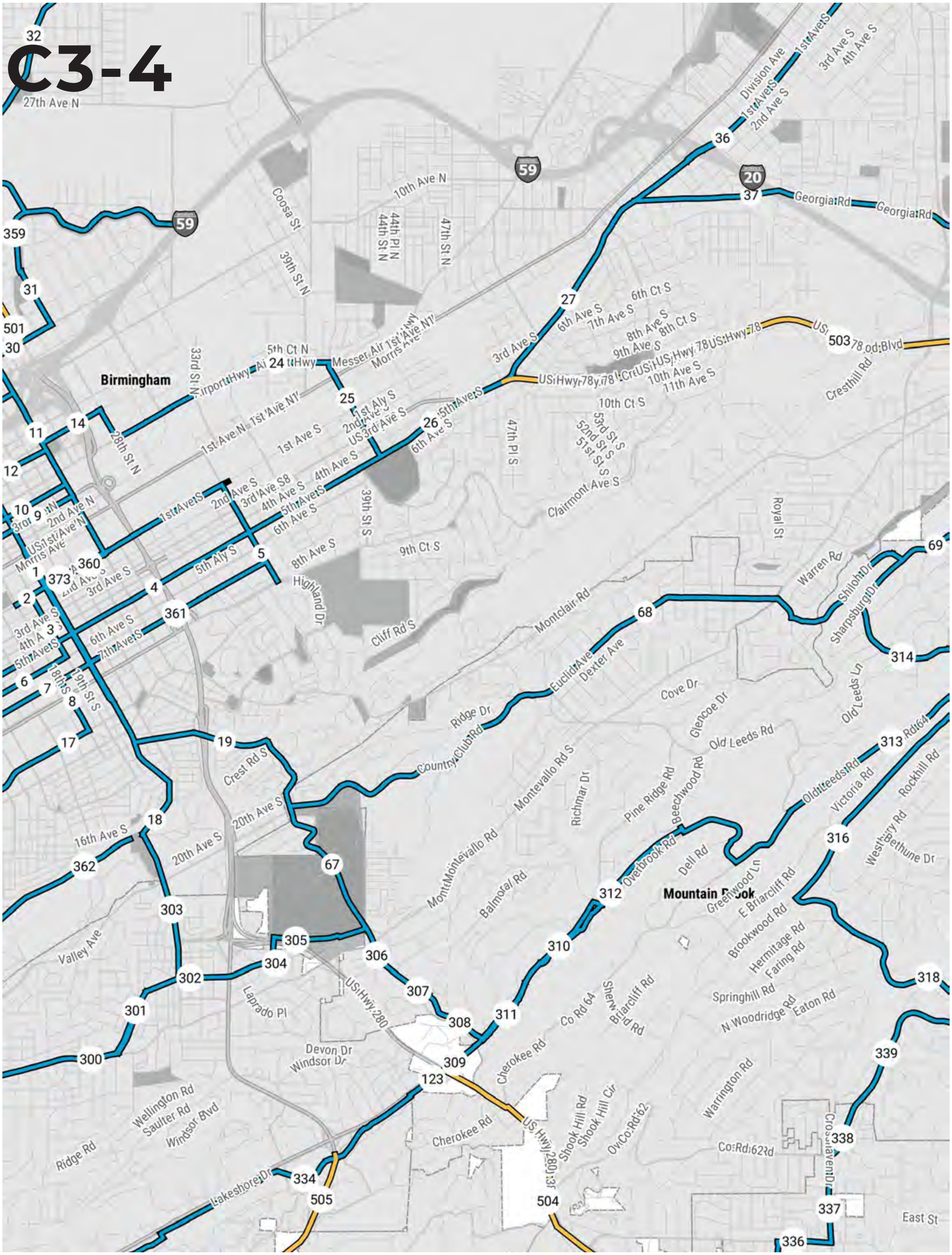
31st Ave N
30th Ave N
29th Aly N
29th Ave N
501
26th Ave N
26th Ct N
25th Ct N
Finley Blvd
24th Ct N
32
49
Sheridan Rd
Trilby St
28
21st Ave N
20th Ave N
19th Ave N
502
26th Ave W
Finley Blvd
48
Pratt Hwy
2nd St
Ave U
2nd St
3rd St
30
5th Pl
15th Ave W
3rd St N
11
Republic Blvd
19th St N
11th Ave N
13
6th Way
29
Avenue E
Ave F
Ave G
Ave H
Republic Blvd
47
11th Ct W
59
10th Ct W
10th Ct N
12
10th Ave W
10th Ave N
1
7th Ave N
6th Ave N
5th Pl W
6th St W
9th Ct W
7th Aly N
6th Aly N
15
5th Ave N
10
9
L Ave
M Ave
Ave U
T Ave
13th St
9th Ave N
Ave J
K Ave
15th St
39
8th Ave N
5th Aly N
6th Aly N
6th Ave N
23
13th St N
3rd Ave N
2nd Ave N
1st Ave N
Morris Ave
46
59
8th Ave W
18th St
19th St
Graymont Ave N
20th St
40
Graymont Ave W
4th Ter W
4th Ct W
4th Ct N
4th Ave N
4th Ave N
3rd Ave N
2nd Ave N
1st Ave N
1st Ave S
2nd Ave S
3rd Ave S
4th Ave S
Ave J
4th Ave W
3rd Ave W
23rd St
24th St W
4th Ave W
3rd Ave W
65
4
45
Pike Rd
Ave R
2nd Ct W
2nd Ct W
1st Ave N
1st Ave N
6th St S
5th Ave S
6th Ave S
6
7
29th Street Ensley
2nd Ave W
16
30th St
31st St
44
Warrior Rd
Iota Ave S
6th Ave S
41
22
3rd Ave S
4th Ave S
65
17
33rd St
St Ensley
34th St
35th St Ensley
Warrior Rd
47th St
Ct V
Princeton Ave SW
Tuscaloosa Ave
Cotton Ave SW
20
10th Pl S
42nd St
44th St
45th St
46th St
Court S
Avenue S
Ter R
21st St SW
43
1st St S
65
Bessemer Rd
Ave R
Ter Q
Ct R
15th St SW
15th Pl SW
15th Way SW
21
362
50th St
51st St
S Park Dr SW
42
50
Co Rd 18
Co Rd 18
Co Rd 18
Dennison Co Rd 18
52
Co Rd 18
17th St SW
Mims Ave SW
3rd Pl SW
51
298
Co Rd 18
59
Co Rd 18
19th Pl SW
Mims St SW
18th St SW
18th Pl SW
Montevallo Rd SW
299
300
296
Valley Ave
60
Jackson Ave SW
297
Oxmoor Rd
53
Dawson Ave SW
65
295
Co Rd 18
Lawn Ave SW
Matt Leonard Dr SW
54
65
Homewood

C3-4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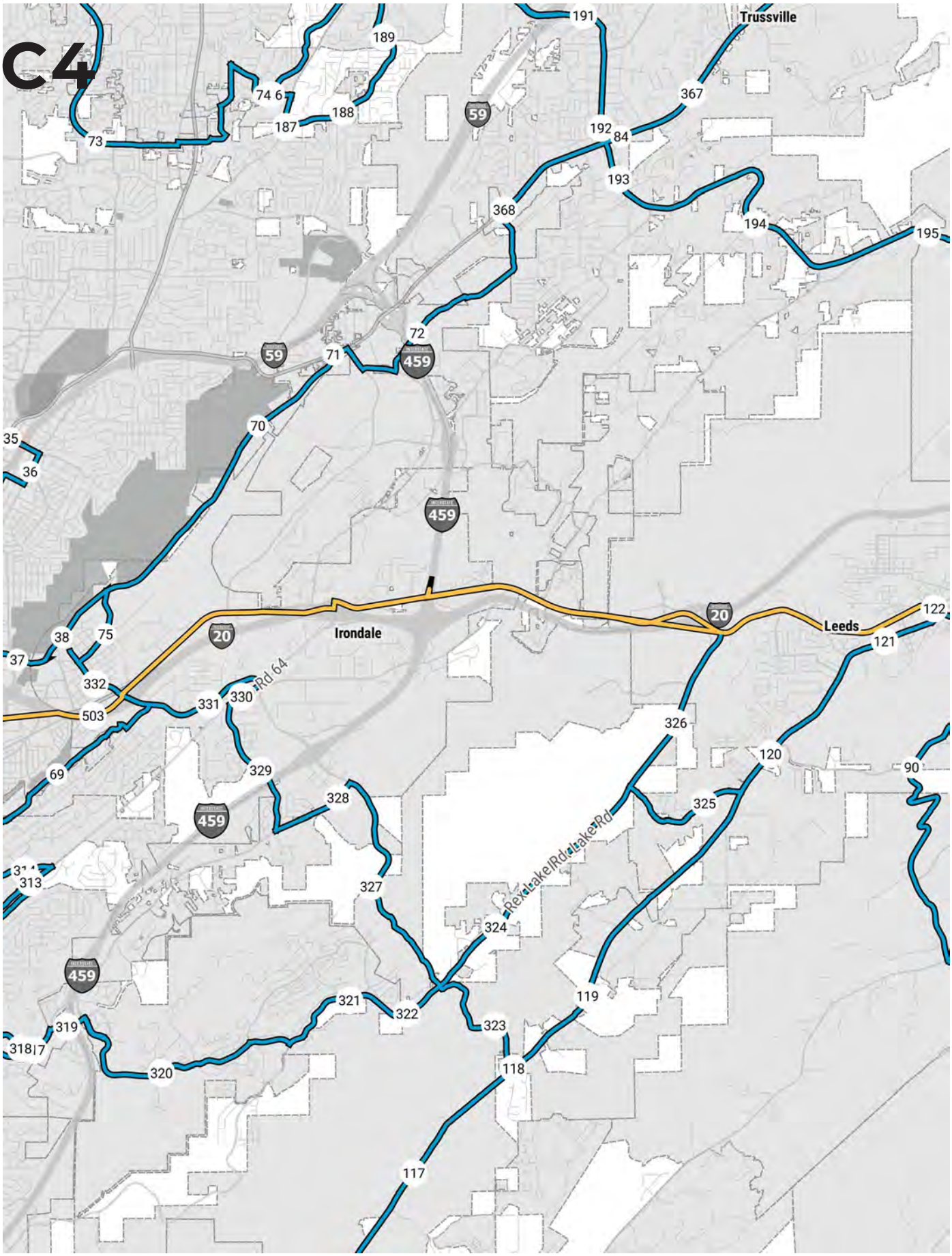
Mountain Brook
27th Ave N
10th Ave N
Coosa St
39th St N
44th Pl N
44th St N
47th St N
33rd St N
28th St N
5th Ct N
Messer Air
Morris Ave N
1st Ave N
1st Ave S
2nd Ave S
3rd Ave S
4th Ave S
5th Ave S
6th Ave S
7th Ave S
8th Ave S
9th Ave S
10th Ave S
11th Ave S
6th Ct S
8th Ct S
10th Ct S
9th Ct S
5th Aly S
47th Pl S
53rd St S
52nd St S
51st St S
39th St S
Clairmont Ave S
Highland Dr
Cliff Rd S
Montclair Rd
Euclid Ave
Dexter Ave
Ridge Dr
Country Club Rd
Crest Rd S
20th Ave S
16th Ave S
Valley Ave
Laprado Pl
Devon Dr
Windsor Dr
Wellington Rd
Saulter Rd
Windsor Blvd
Ridge Rd
Lakeshore Dr
Cherokee Rd
Co Rd 64
Briarcliff Rd
Shook Hill Rd
Shook Hill Cir
Co Rd 62
Montevallo Rd S
Montevallo Rd
Balmoral Rd
Richmar Dr
Pine Ridge Rd
Beechwood Rd
Overbrook Rd
Dell Rd
Cove Dr
Glencoe Dr
Old Leeds Rd
Old Leeds Ln
Royal St
Warren Rd
Shiloh Dr
Sharpsburg Dr
Victoria Rd
Rockhill Rd
Westbury Rd
Bethune Dr
Greenwood Ln
E Briarcliff Rd
Brookwood Rd
Hermitage Rd
Fairing Rd
Springhill Rd
N Woodridge Rd
Eaton Rd
Warrington Rd
Crosshaven Dr
East St
Georgia Rd
Cresthill Rd
Division Ave
US Hwy 78
US Hwy 280
59
20
32 359 31 501 30 24 25 26 27 36 37 503 11 14 12 10 9 1 373 360 2 3 4 5 361 6 7 8 17 19 18 362 303 302 301 300 304 305 67 306 307 308 309 311 310 312 123 334 505 504 68 69 314 313 316 318 339 338 337 336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Trussville
Irondale
Leeds
Rex Lake Rd
Rex Lake Rd
Rd 64
191
189
74
6
187
188
73
59
367
192
84
193
368
194
195
72
71
459
70
35
36
38
75
37
20
332
503
331
330
329
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320
118
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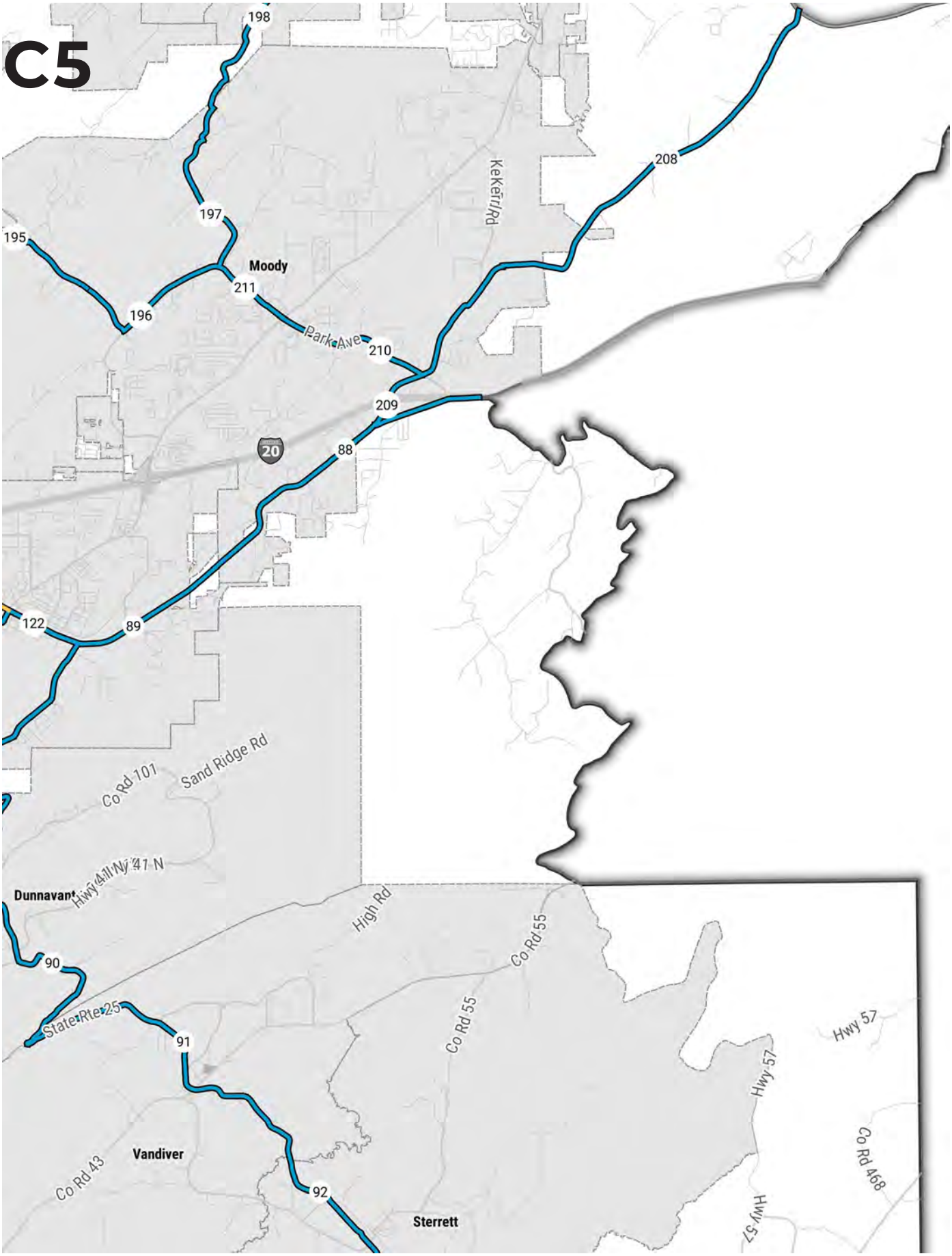
C5
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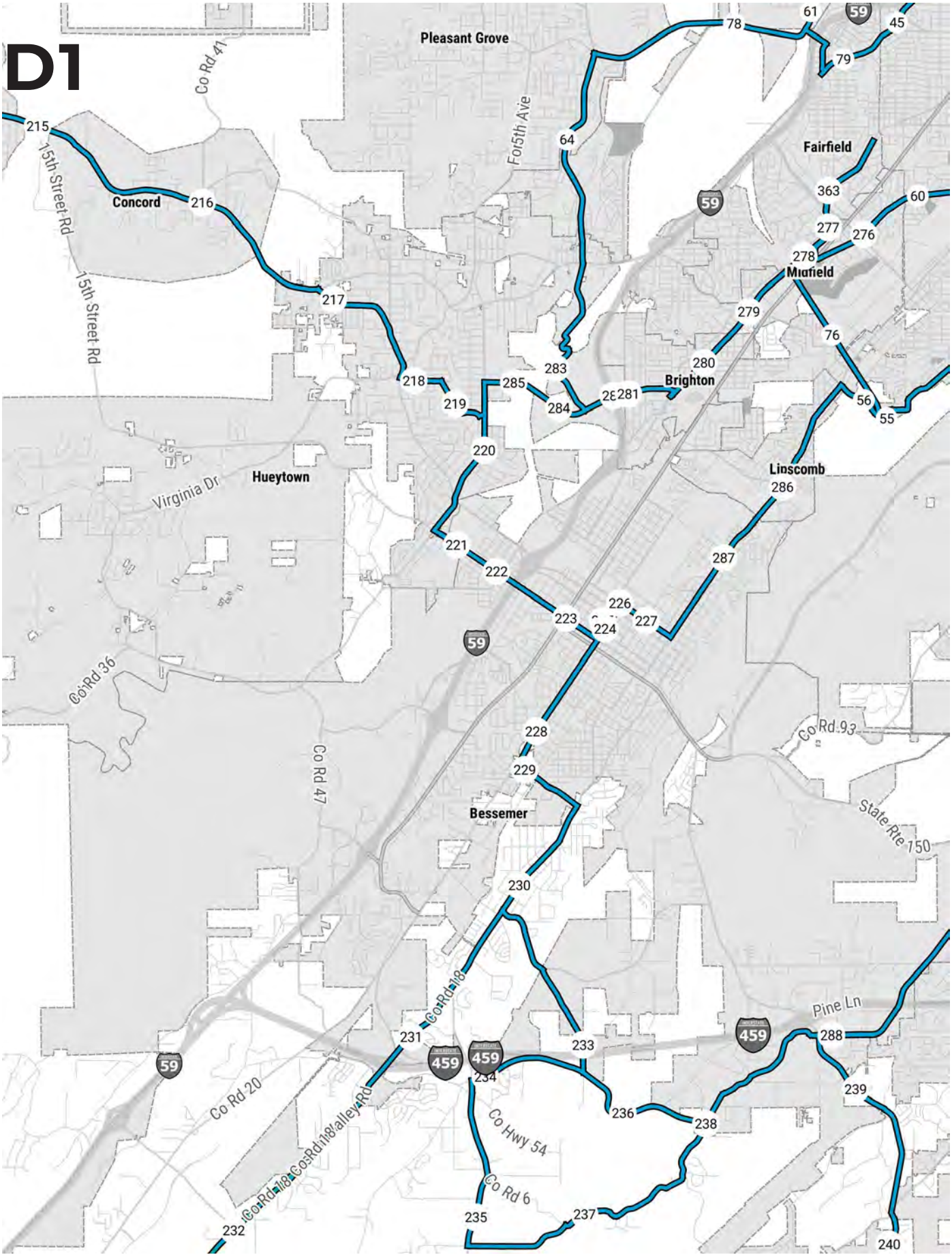
197
195
196
211
Moody
Park Ave
210
208
209
88
20
89
122
Ke Kē rī Rd
Co Rd 101
Sand Ridge Rd
Hwy 41/Ny 41 N
Dunnavant
High Rd
Co Rd 55
Co Rd 55
90
State Rte 25
91
Hwy 57
Hwy 57
Co Rd 468
Vandiver
Co Rd 43
92
Sterrett
Hwy 57


D1
Pleasant Grove
Co Rd 41
For5th Ave
Fairfield
Concord
15th Street Rd
15th Street Rd
Midfield
Brighton
Hueytown
Virginia Dr
Linscomb
Co Rd 36
Co Rd 47
Co Rd 93
Bessemer
State Rte 150
Co Rd 18
Pine Ln
Co Rd 20
Co Rd 18 alley Rd
Co Hwy 54
Co Rd 6
59
459
215
216
217
218
219
220
221
222
223
224
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
64
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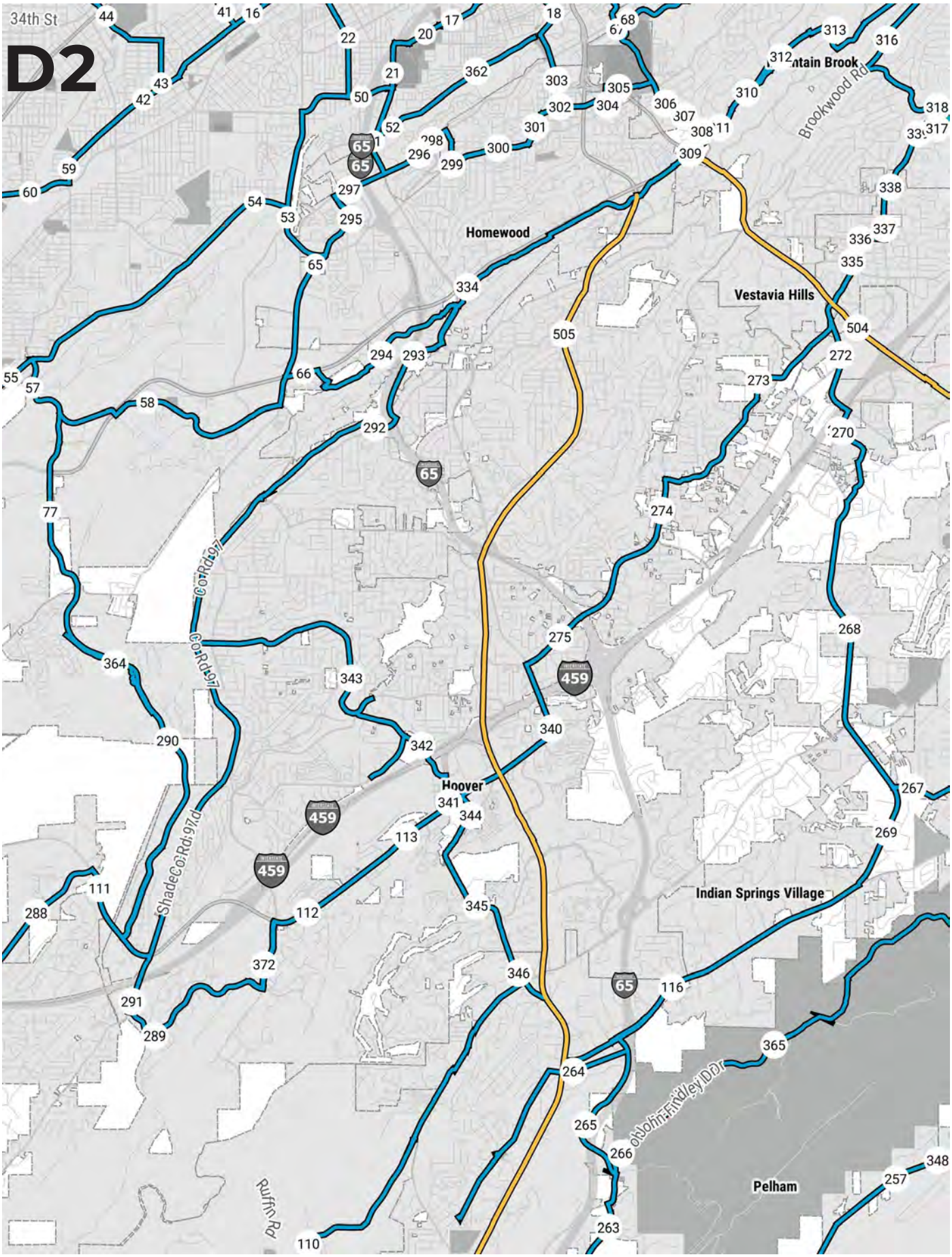
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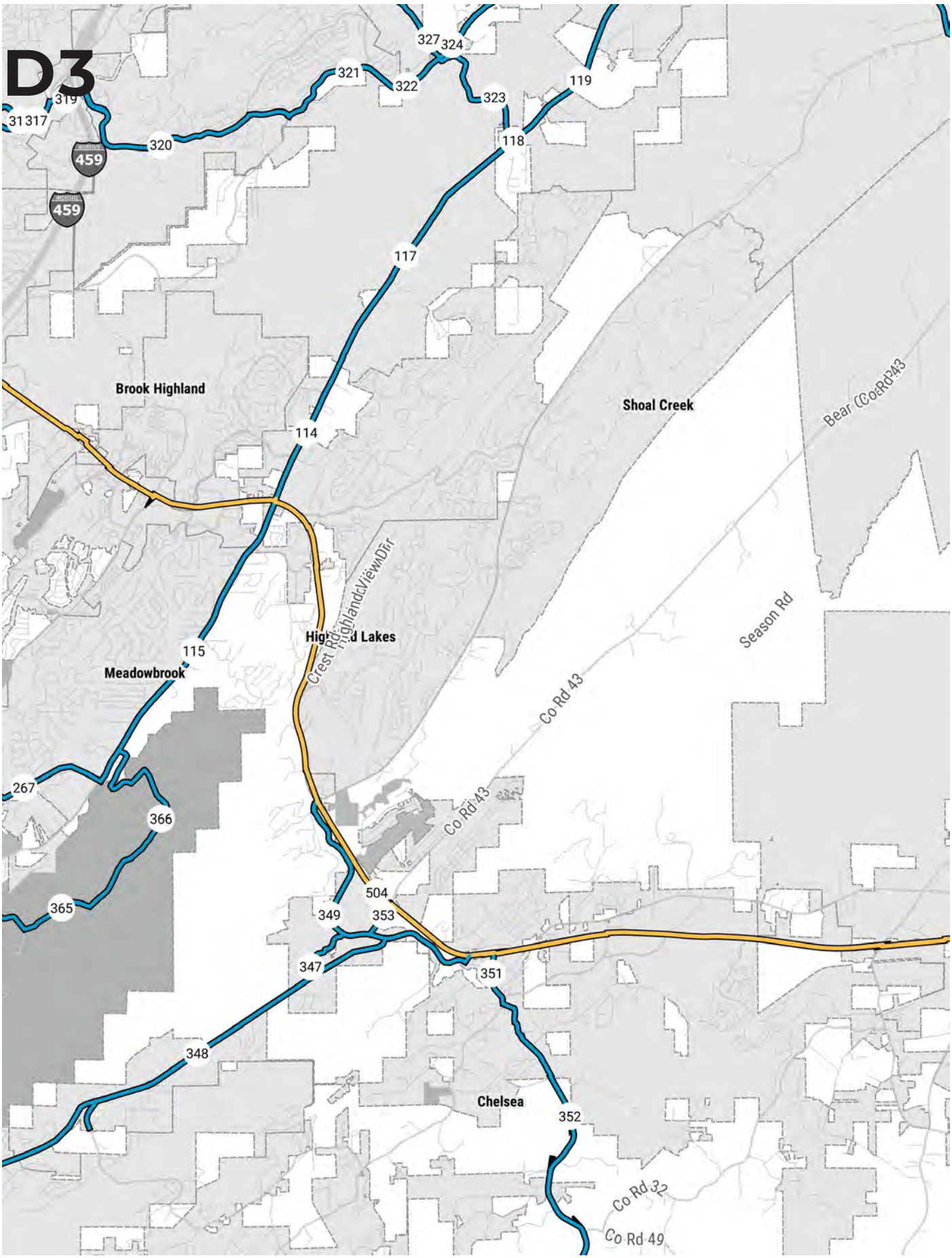
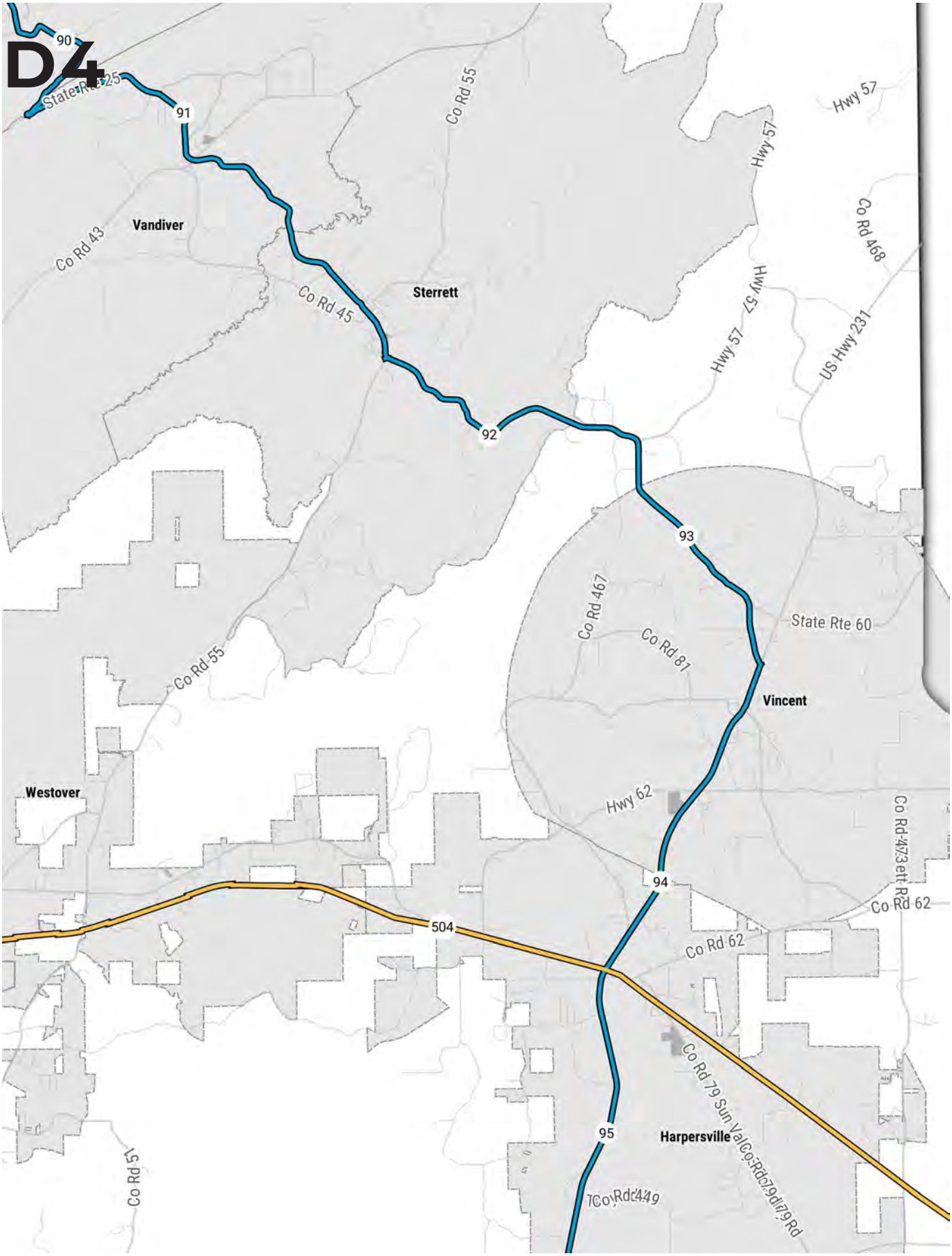
34th St
Homewood
Vestavia Hills
Hoover
Indian Springs Village
Pelham
Brookwood Rd
Shades Crest Rd
Ruffner Rd
459
65


D3
327
324
321
322
323
119
319
317
320
118
459
459
117
Brook Highland
Shoal Creek
Bear Creek Rd
114
Crest Rd
Highland View Dr
Lakes
115
Meadowbrook
Season Rd
Co Rd 43
Co Rd 43
267
366
504
365
349
353
347
351
348
Chelsea
352
Co Rd 32
Co Rd 49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91
92
93
94
95
504
Vandiver
Sterrett
Vincent
Harpersville
Westover
Co Rd 43
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Co Rd 55
Co Rd 467
Co Rd 81
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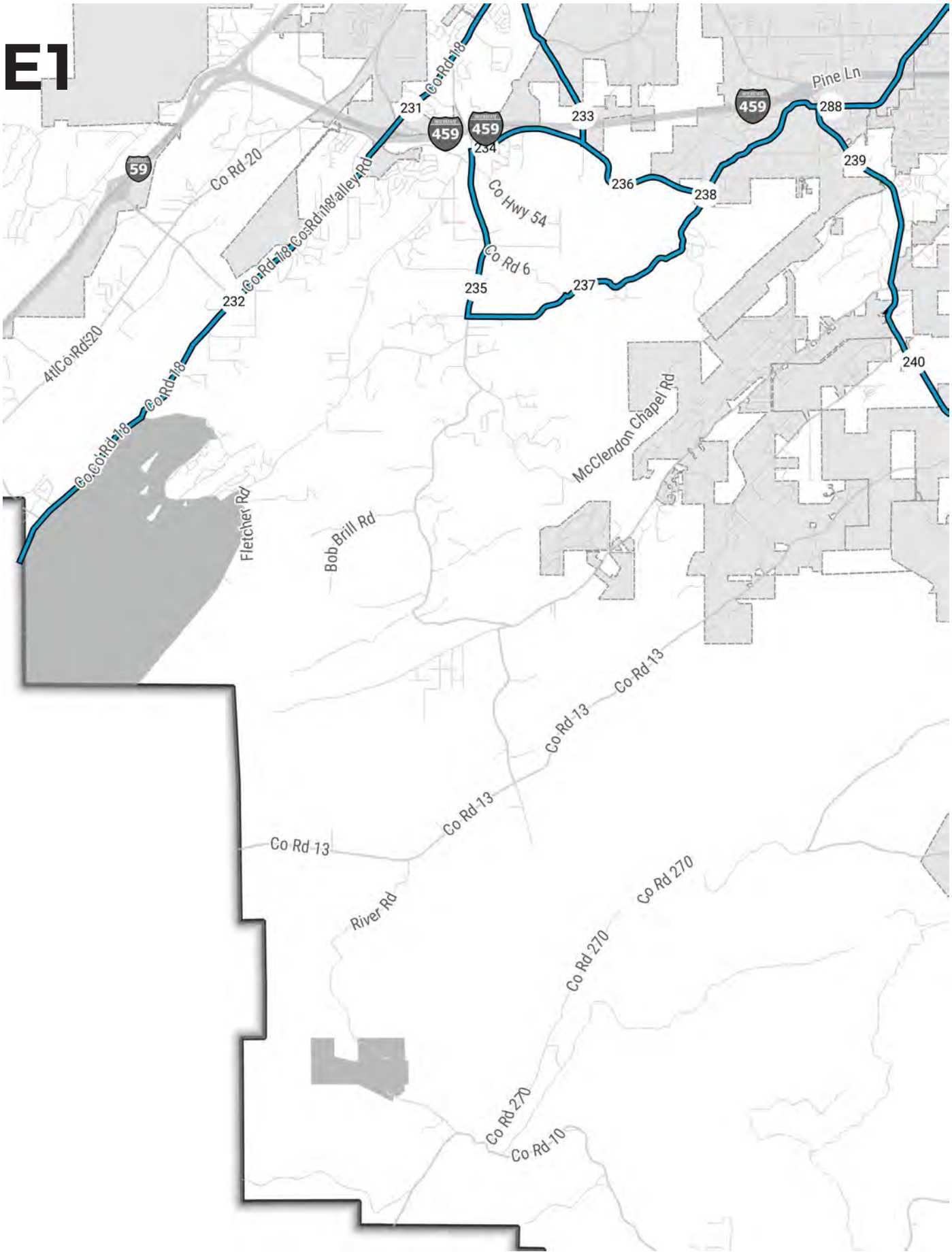
Hwy 57
US Hwy 231
State Rte 60
Hwy 62
Co Rd 79
Co Rd 15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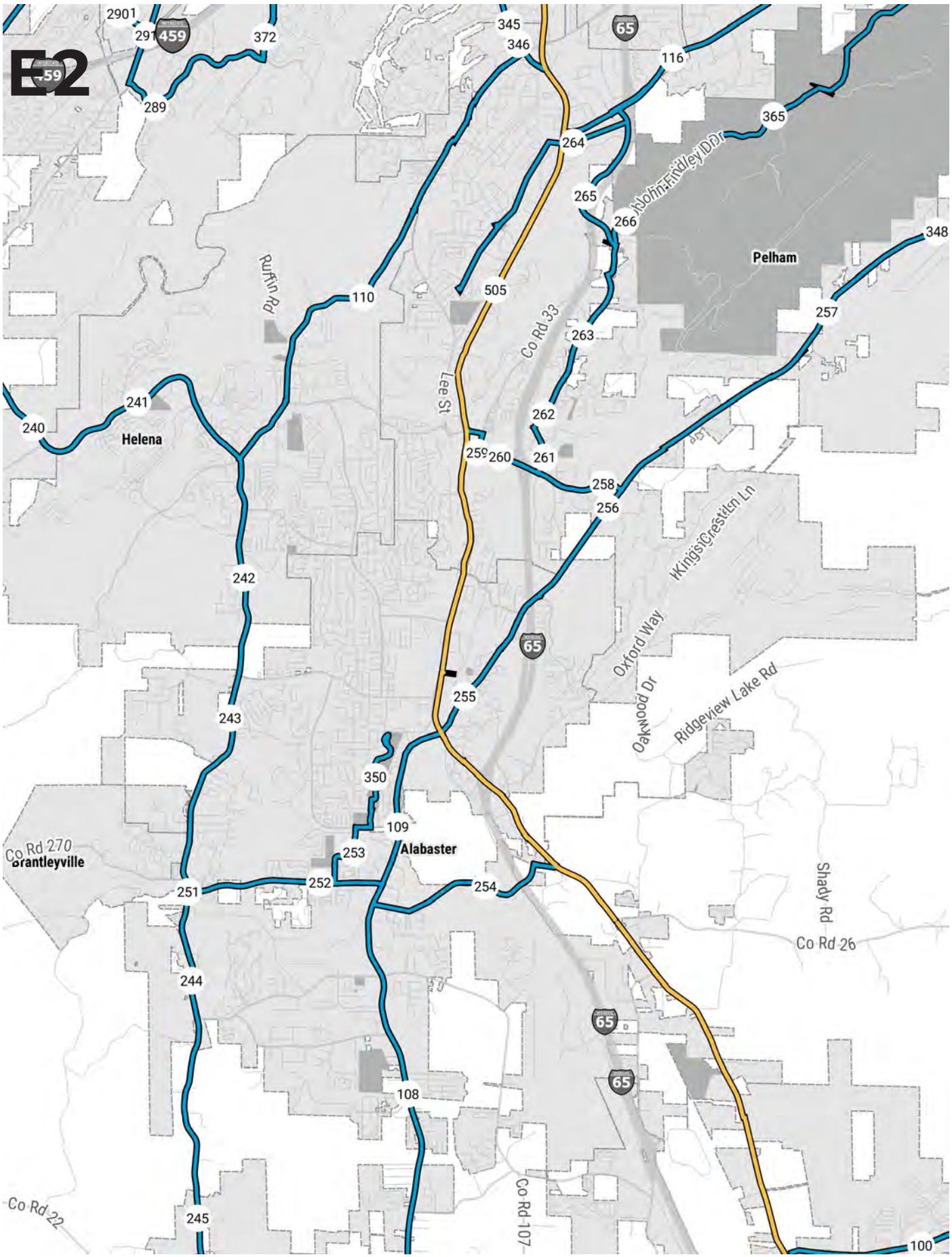
Co Rd 18
231
459
459
234
233
459
Pine Ln
288
239
59
Co Rd 20
Co Rd 18
Alley Rd
Co Hwy 54
236
238
Co Rd 6
235
237
232
240
4th Co Rd 20
Co Rd 18
Co Co Rd 18
Fletcher Rd
Bob Brill Rd
McClendon Chapel Rd
Co Rd 13
Co Rd 13
Co Rd 13
Co Rd 13
River Rd
Co Rd 270
Co Rd 270
Co Rd 270
Co Rd 10


E2
2901
291
459
372
289
345
346
65
116
365
264
John Findley Dr
265
266
348
Pelham
Ruffin Rd
110
505
Co Rd 33
263
257
241
240
Helena
Lee St
262
259
260
261
258
256
Kingsgate Ln
242
Oxford Way
Oakwood Dr
Ridgeview Lake Rd
243
255
350
109
Co Rd 270
Grantleyville
Alabaster
253
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252
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Shady Rd
Co Rd 26
244
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Co Rd 22
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Co Rd 107
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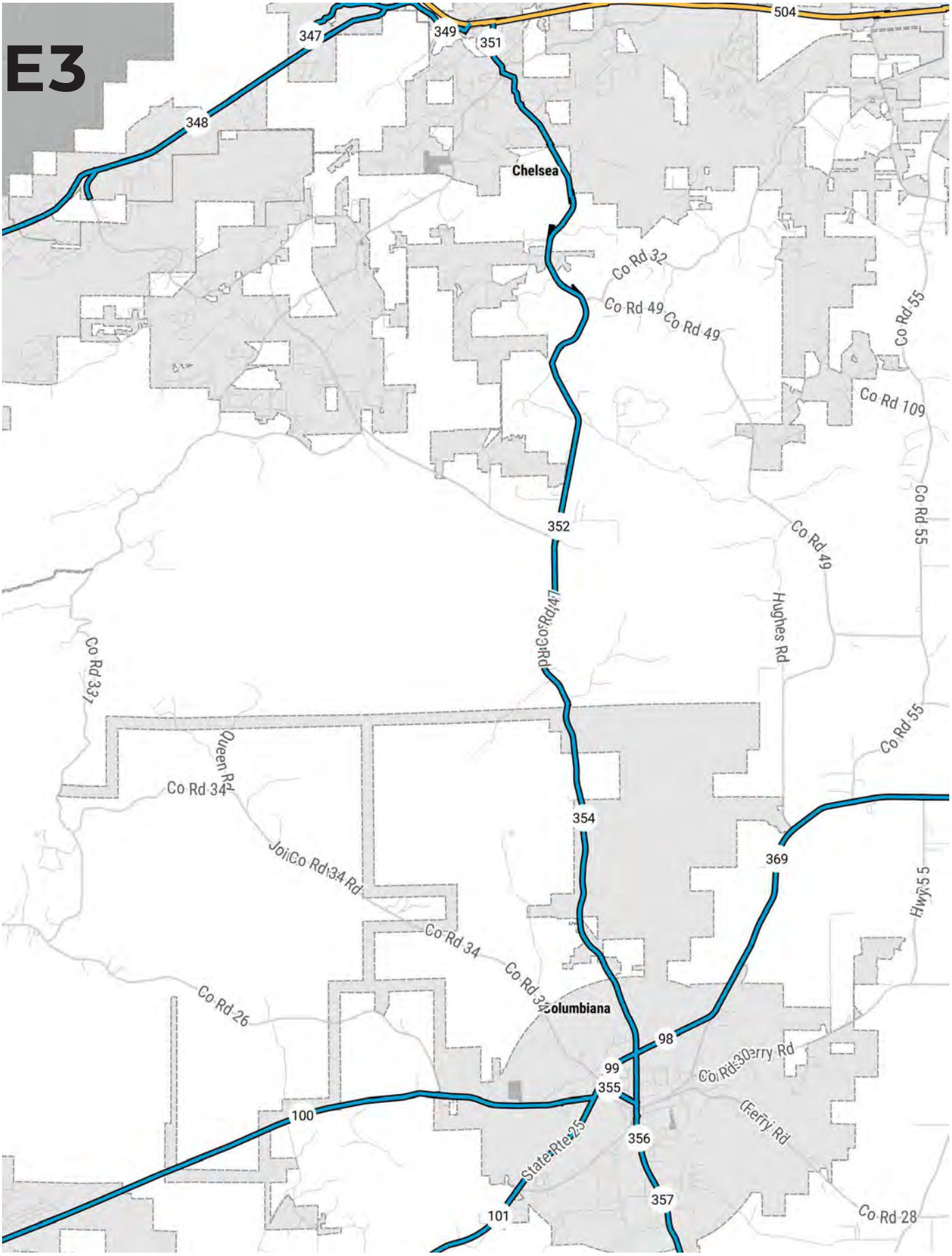
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504
347
349
351
348
Chelsea
Co Rd 32
Co Rd 49
Co Rd 49
Co Rd 55
Co Rd 109
352
Co Rd 49
Co Rd 55
Co Rd 47
Hughes Rd
Co Rd 337
Queen Rd
Co Rd 34
Co Rd 55
354
369
Co Rd 34
Co Rd 34
Hwy 55
Co Rd 26
Columbiana
98
99
Co Rd 30
Berry Rd
355
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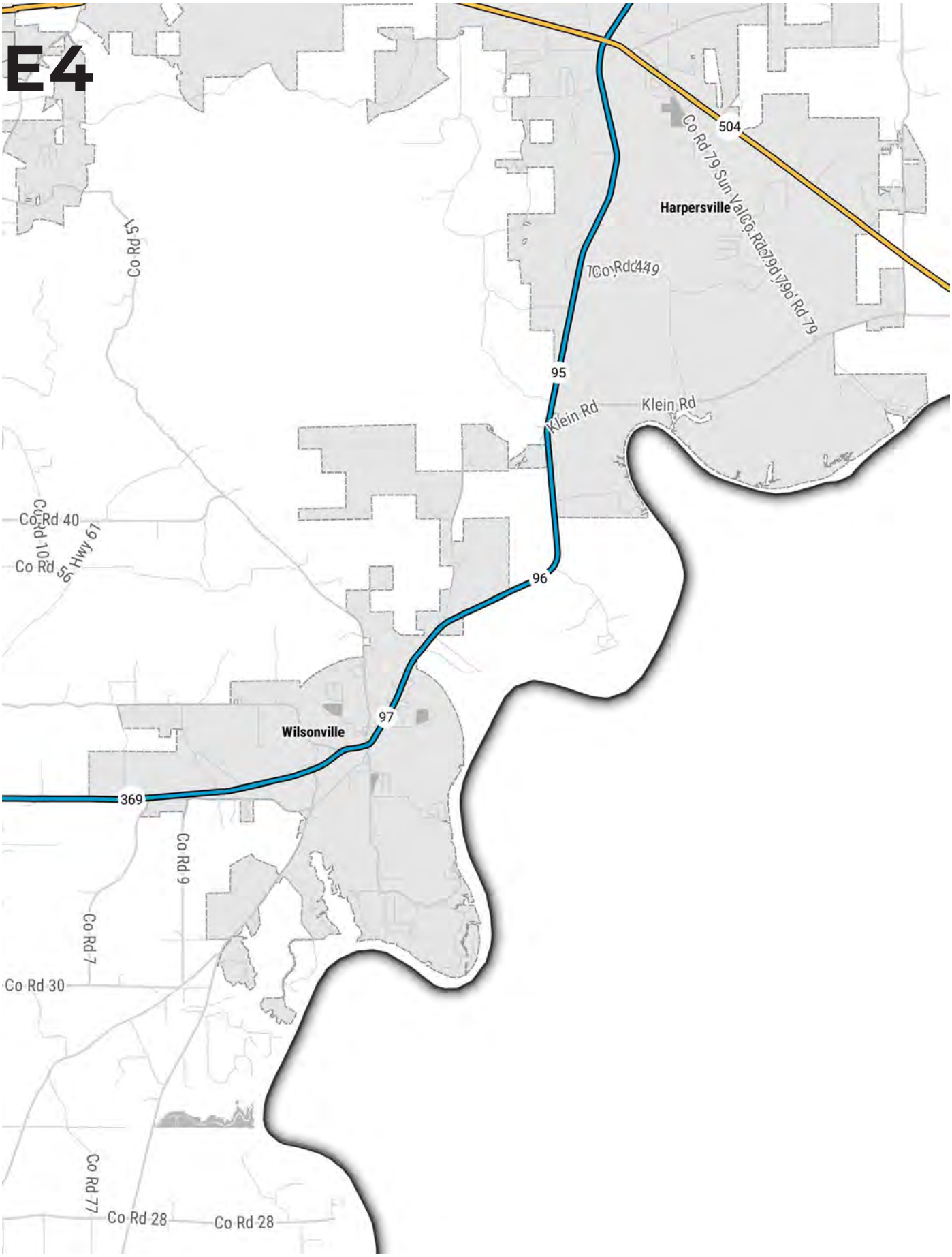
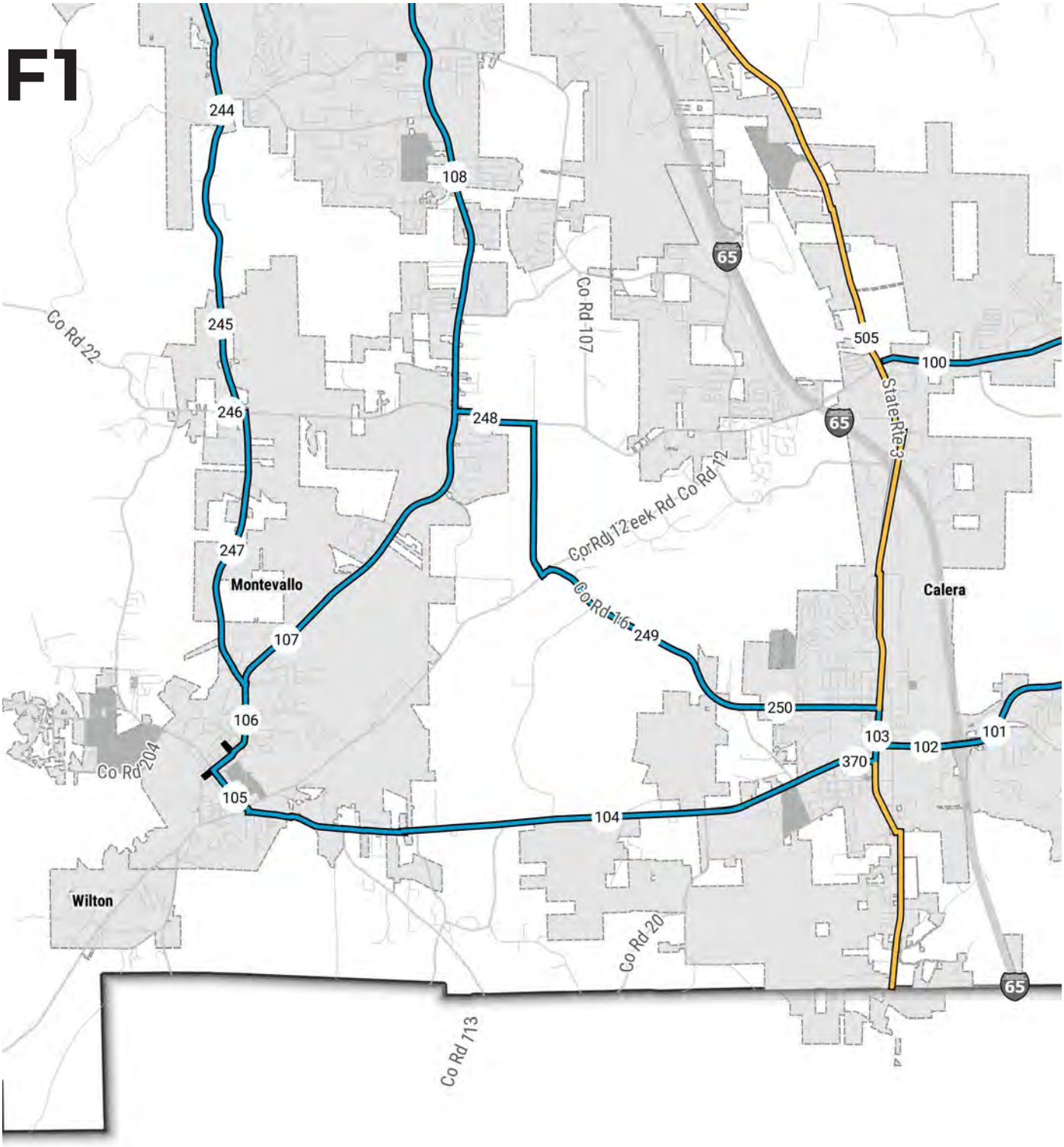
Ferry Rd
356
State Rte 25
357
101
Co Rd 28


E4
504
Co Rd 79 Sun Valley Rd
Co Rd 79
Harpersville
Co Rd 449
Co Rd 57
95
Klein Rd
Klein Rd
Co Rd 40
Co Rd 10
Co Rd 55
Hwy 61
96
97
Wilsonville
369
Co Rd 9
Co Rd 7
Co Rd 30
Co Rd 77
Co Rd 28
Co Rd 28


F1
244
108
245
246
247
248
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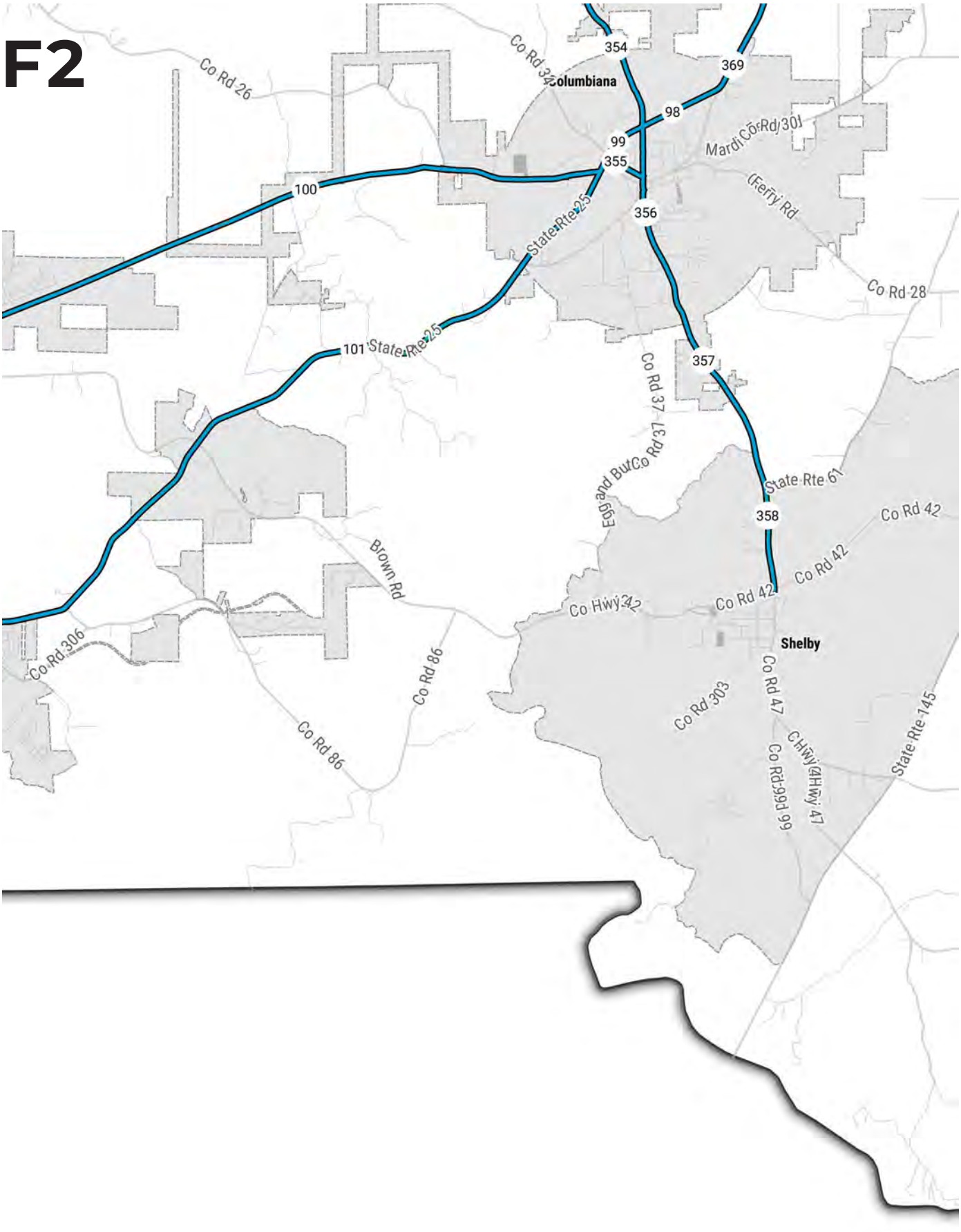
250
107
106
105
104
103
102
101
100
505
370
65
Co Rd 22
Co Rd 107
Co Rd 12
Co Rd 16
Co Rd 204
Co Rd 20
Co Rd 113
State Rte 3
Montevallo
Calera
Wilton


F2
Co Rd 26
Co Rd 37
Columbiana
354
369
98
99
355
356
100
State Rte 25
Mardi Co Rd 301
Ferry Rd
Co Rd 28
101
State Rte 25
357
Co Rd 37
Egg and But
State Rte 61
358
Co Rd 42
Co Rd 42
Co Rd 42
Co Hwy 42
Shelby
Brown Rd
Co Rd 306
Co Rd 86
Co Rd 86
Co Rd 303
Co Rd 47
Co Rd 99
Co Hwy 47
Hwy 47
State Rte 145


DREAMING
IS GOOD BUT
IMPLEMENTATION
IS SUCCESS.
Paballo Seipei

APPENDIX D

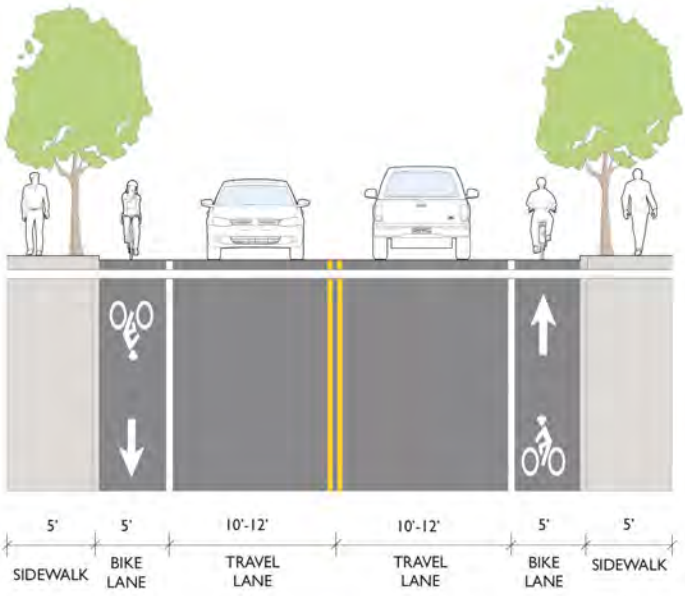
FACILITY OPTIONS & COST

MENU OF CROSS SECTIONS BY CONTEXT

DETAILED COST ESTIMATES

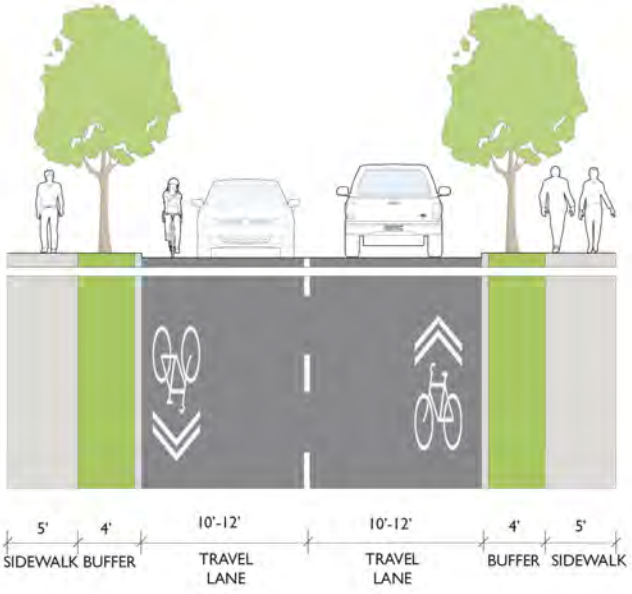
Menu of Cross Sections By Context

The following section illustrates typical bicycle and pedestrian facility cross sections. This Appendix should be used in tandem with other parts of the B-ACTIVE Plan, including the Facility Selection Guidance and the Context Sensitive Design sections. The cross sections displayed in this Appendix are typical sections; exact widths of motorist travel lanes and active transportation facilities will vary based on existing conditions and available right of way. The following cross sections and their contexts are fully explained in the Context Sensitive Design section. The context legend at the bottom of each page illustrates how individual cross sections are applicable in a variety of land use contexts.



BIKE LANE + SIDEWALK

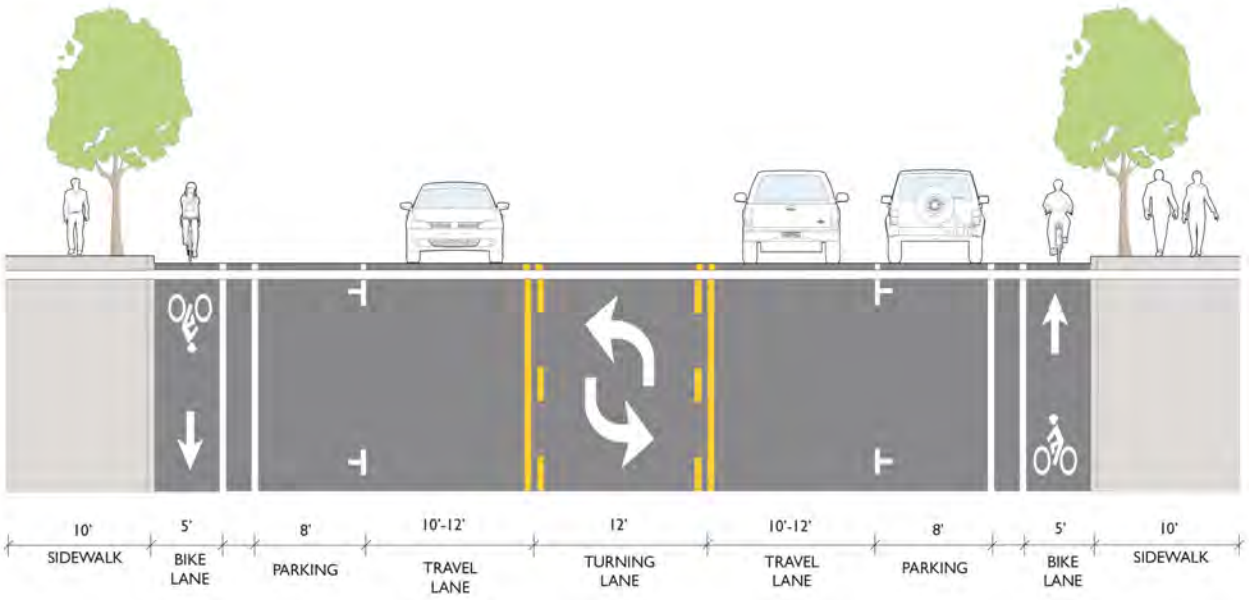
UC U S R RT



BIKE BOULEVARD NEIGHBORHOOD STREET

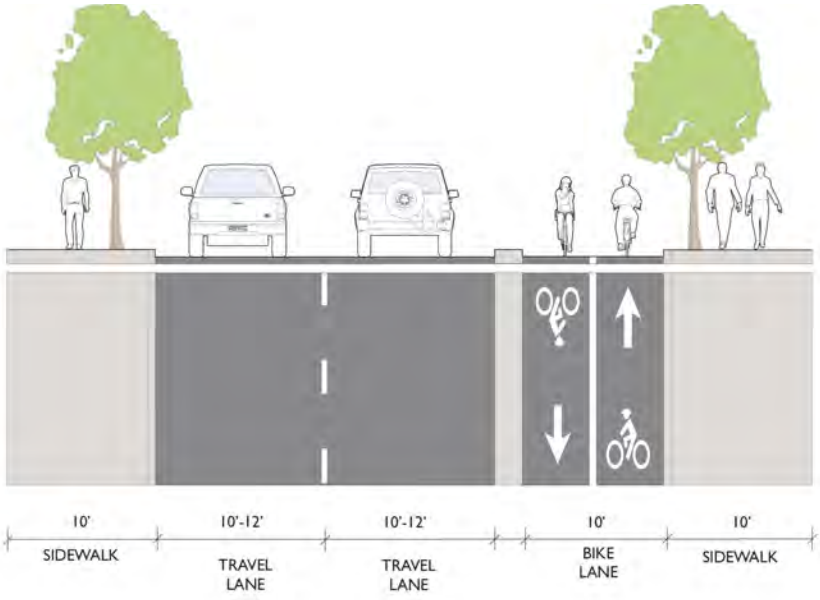
S RT

UC Urban Core Context U Urban Context S Suburban Context R Rural Context RT Rural Town Context



PARKING PROTECTED BIKE LANE

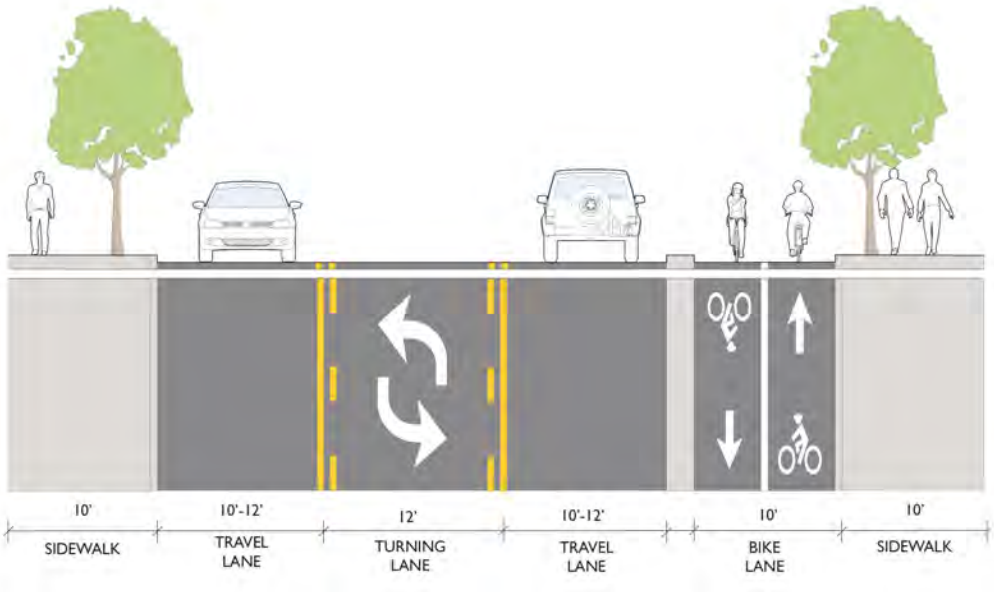
UC U RT



TWO-WAY SEPARATED BIKE LANE ONE-WAY STREET

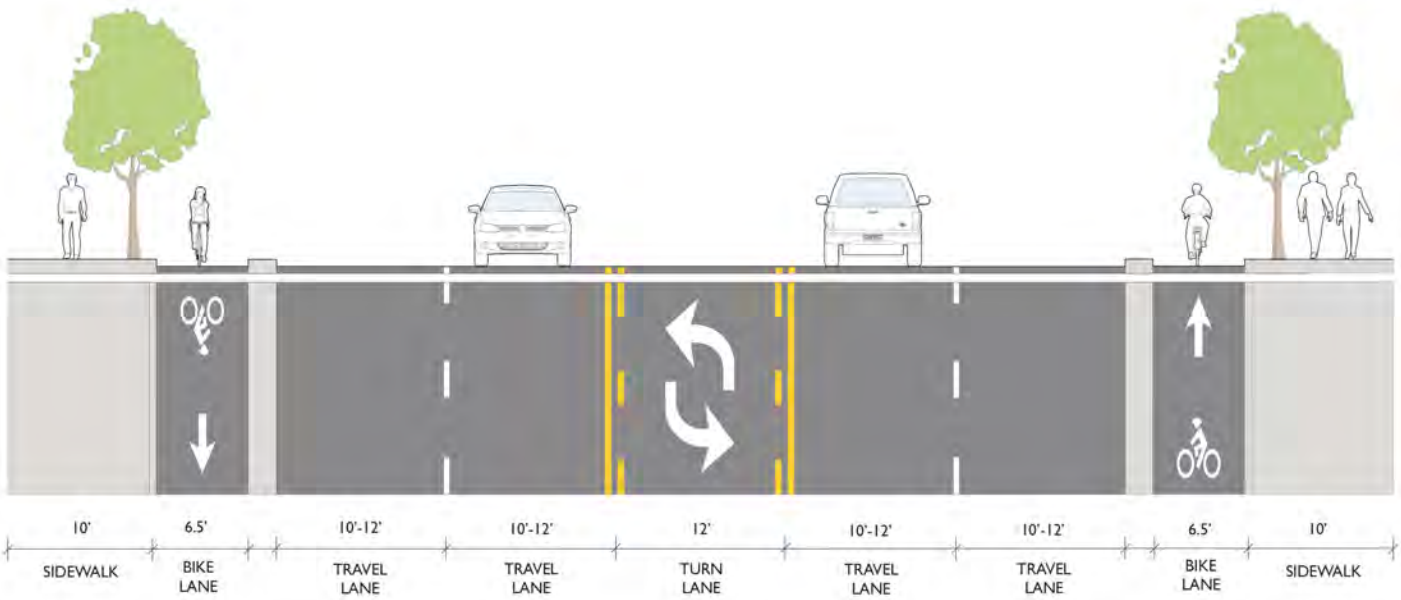
UC U

UC Urban Core Context U Urban Context S Suburban Context R Rural Context RT Rural Town Context



TWO-WAY SEPARATED BIKE LANE

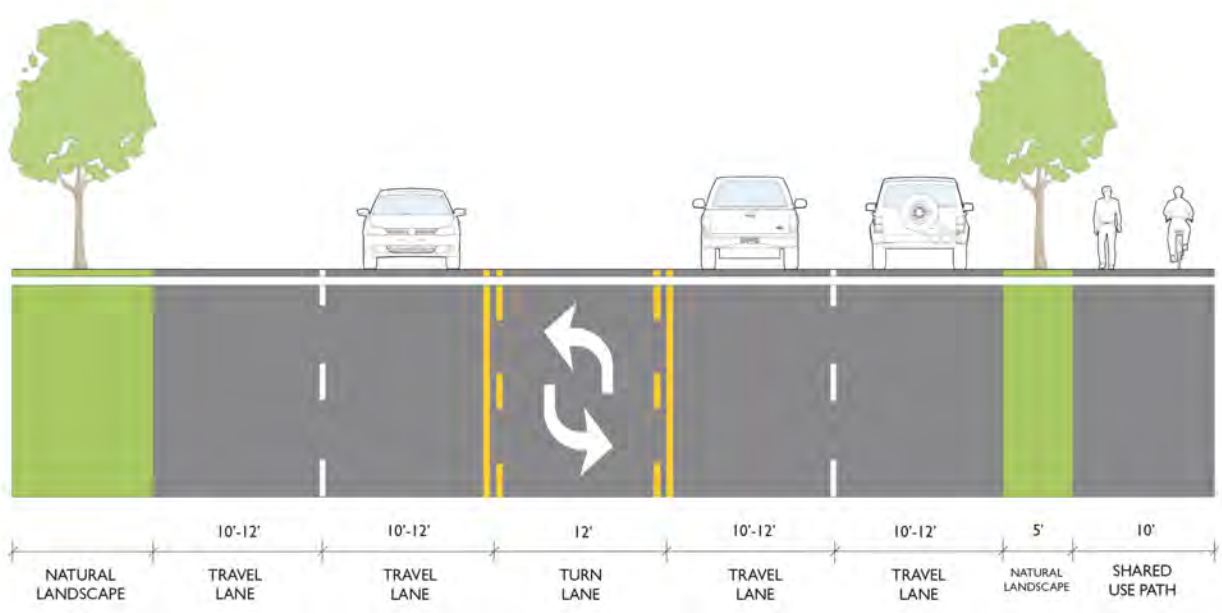
UC U



SEPARATED BIKE LANE - 3+ TRAVEL LANES

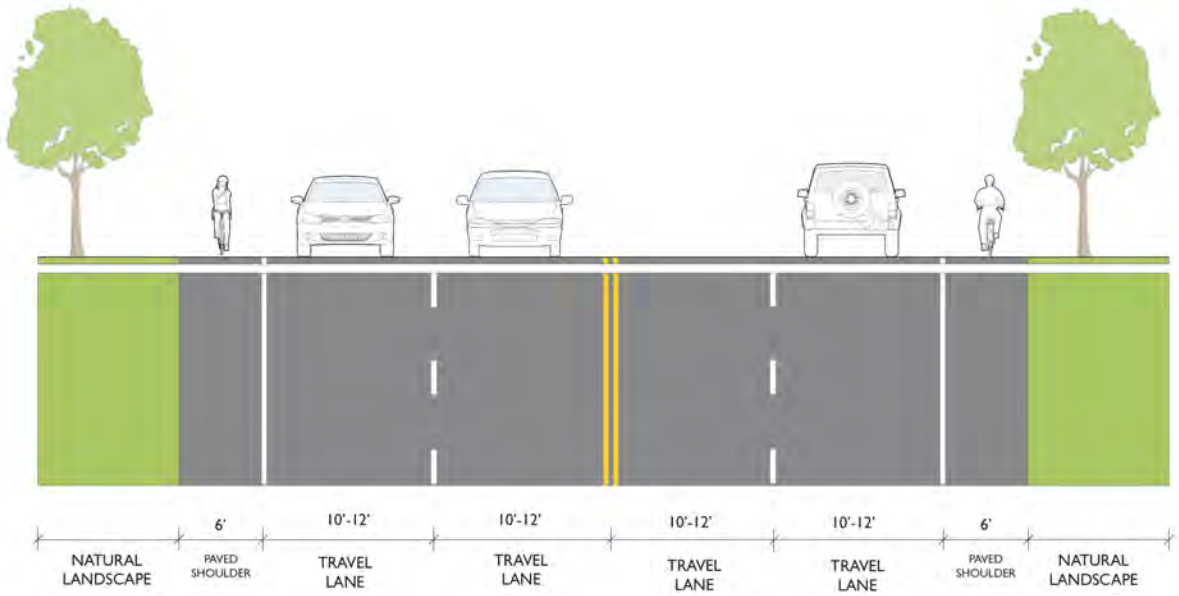
UC U S

UC Urban Core Context U Urban Context S Suburban Context R Rural Context RT Rural Town Context



SHARED USED PATH - 3+ TRAVEL LANES

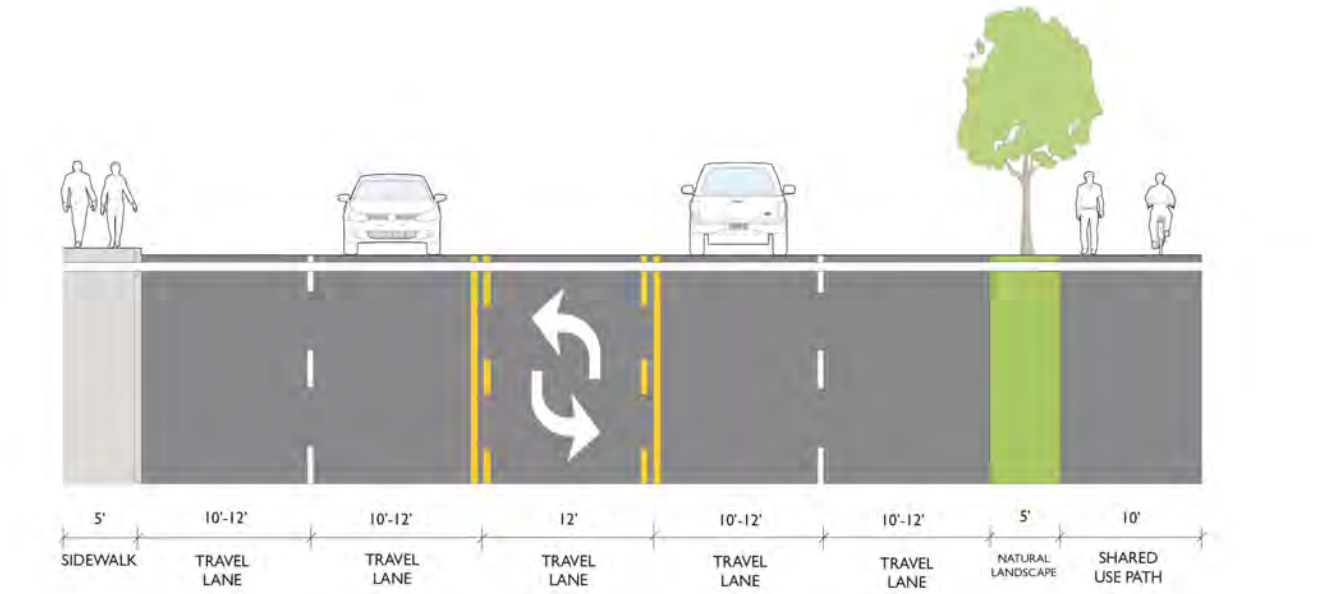
S R RT



PAVED + STRIPED SHOULDER - 3+ TRAVEL LANES

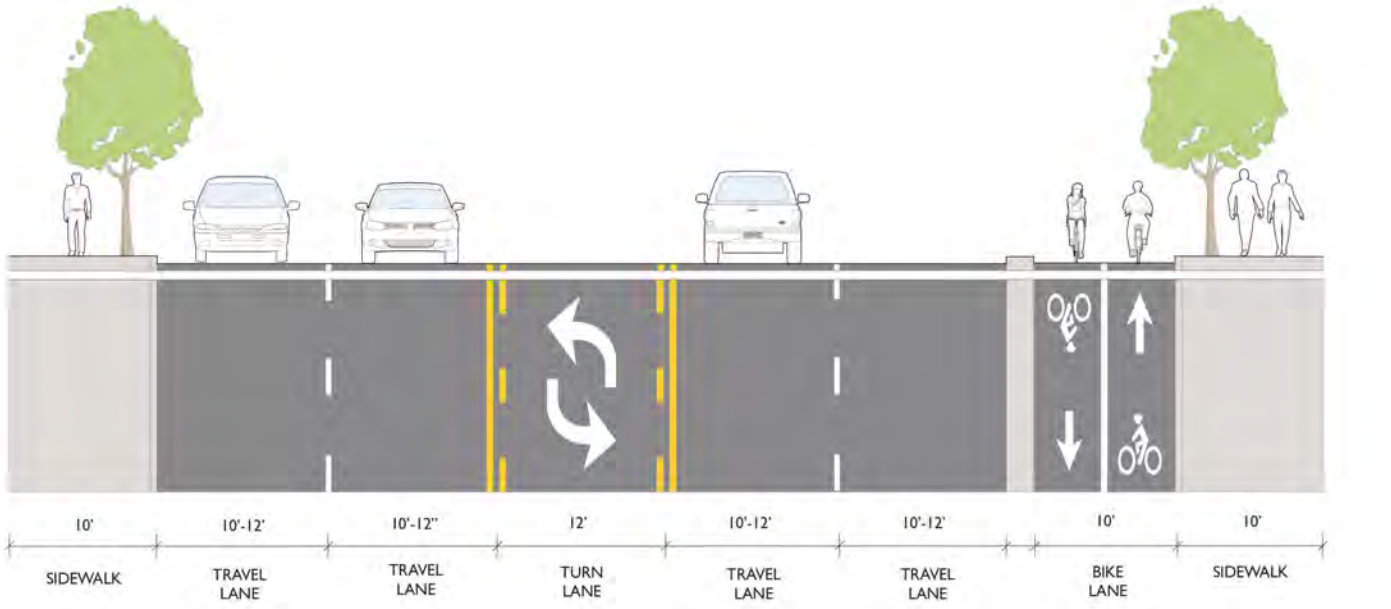
R RT

UC Urban Core Context U Urban Context S Suburban Context R Rural Context RT Rural Town Context



SHARED USE PATH + SIDEWALK
3+ TRAVEL LANES

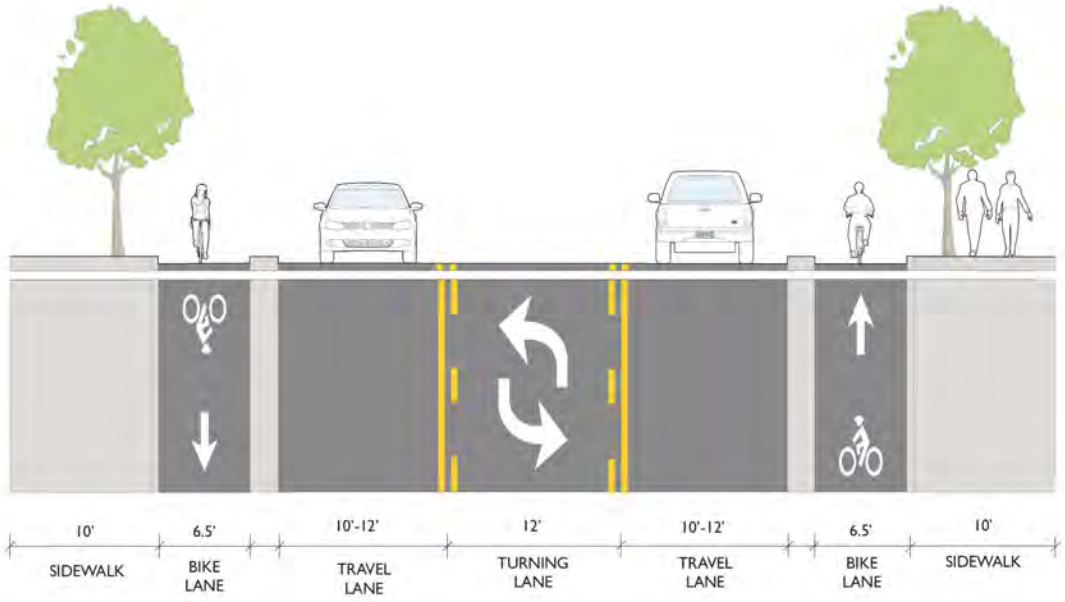
S R RT



TWO-WAY SEPARATED BIKE LANE - 3+ TRAVEL LANES

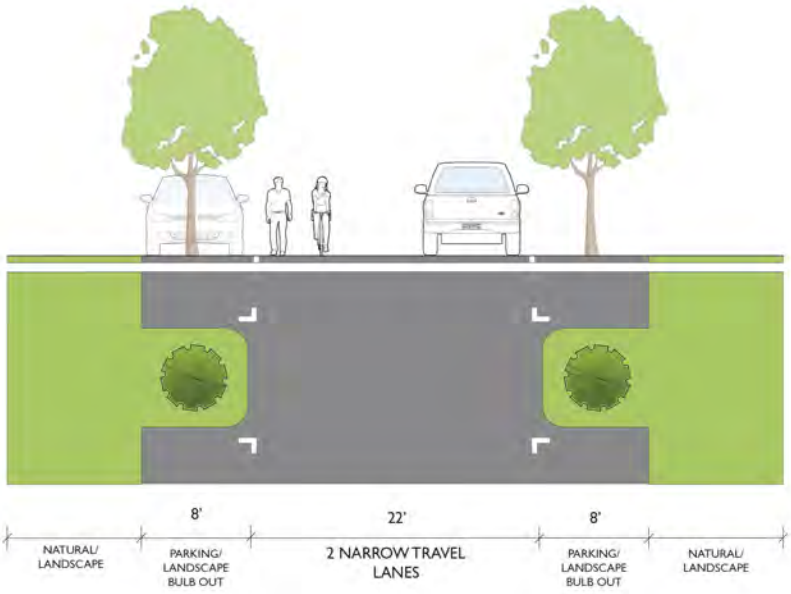
UC U

UC Urban Core Context U Urban Context S Suburban Context R Rural Context RT Rural Town Context



SEPARATED BIKE LANE

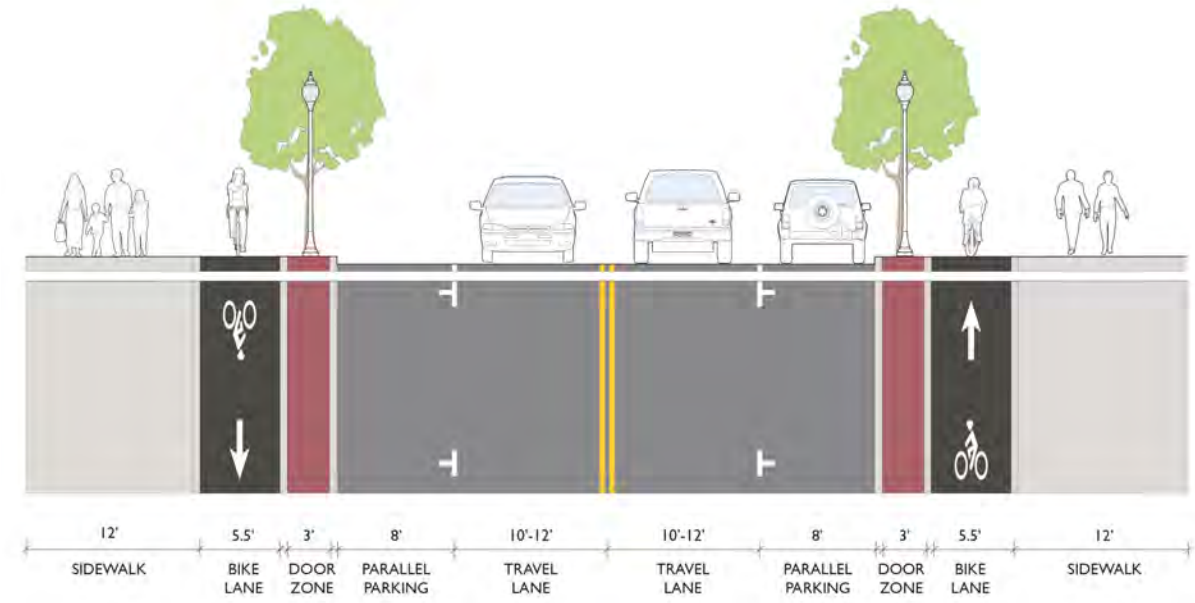
UC U S



YIELD ROADWAY

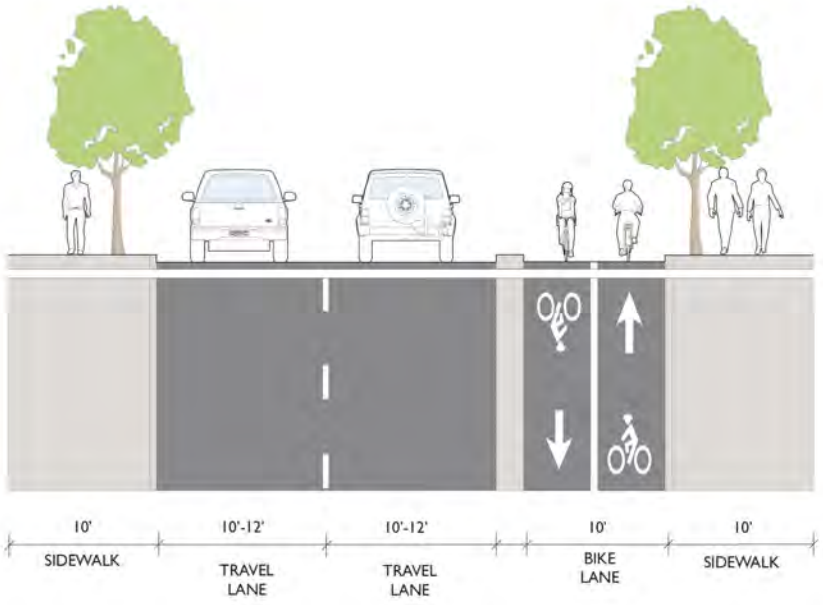
UC S RT

UC Urban Core Context U Urban Context S Suburban Context R Rural Context RT Rural Town Context



SIDEWALK LEVEL BIKE LANE

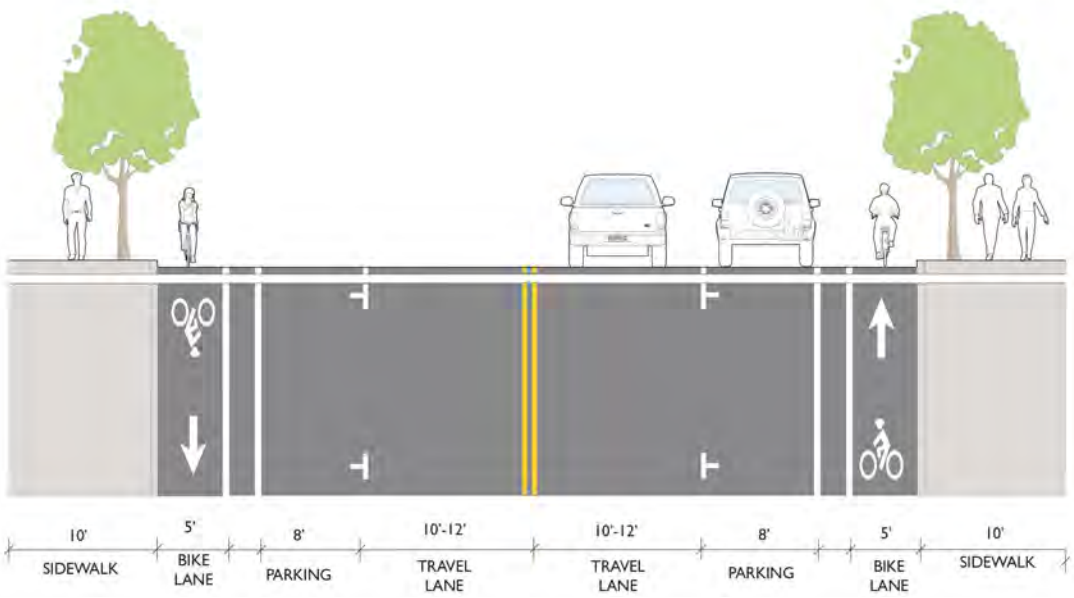
UC U RT



TWO-WAY SEPARATED BIKE LANE ONE-WAY STREET

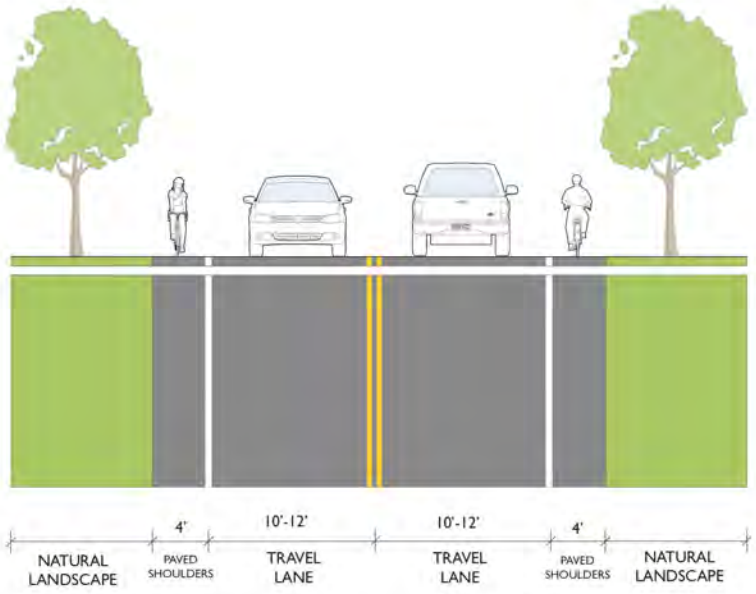
UC U

UC Urban Core Context U Urban Context S Suburban Context R Rural Context RT Rural Town Context



PARKING PROTECTED BIKE LANE - TWO LANES

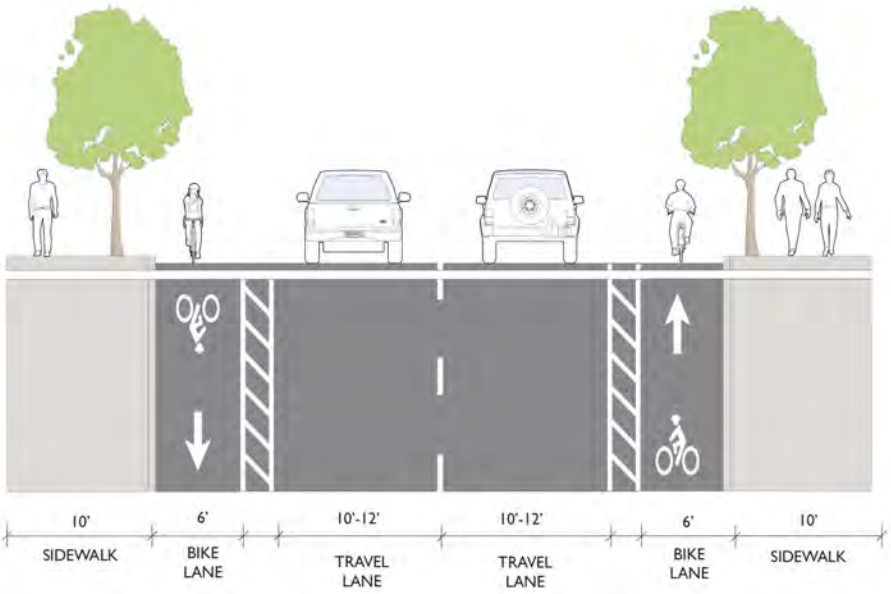
U RT



PAVED SHOULDER

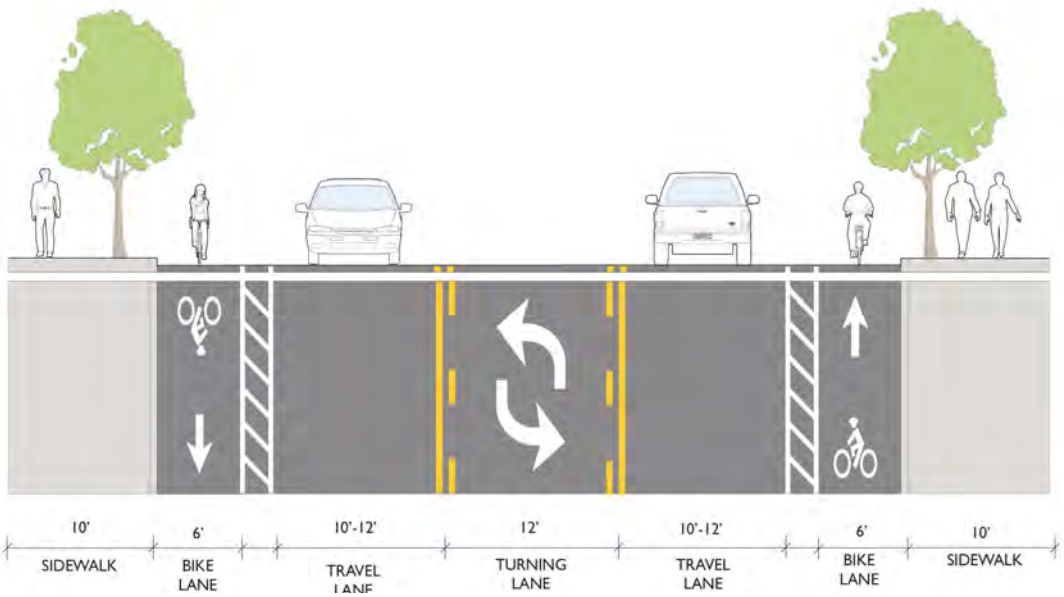
R RT

UC Urban Core Context U Urban Context S Suburban Context R Rural Context RT Rural Town Context



BUFFERED BIKE LANE - ONE-WAY STREET

UC U



BUFFERED BIKE LANE

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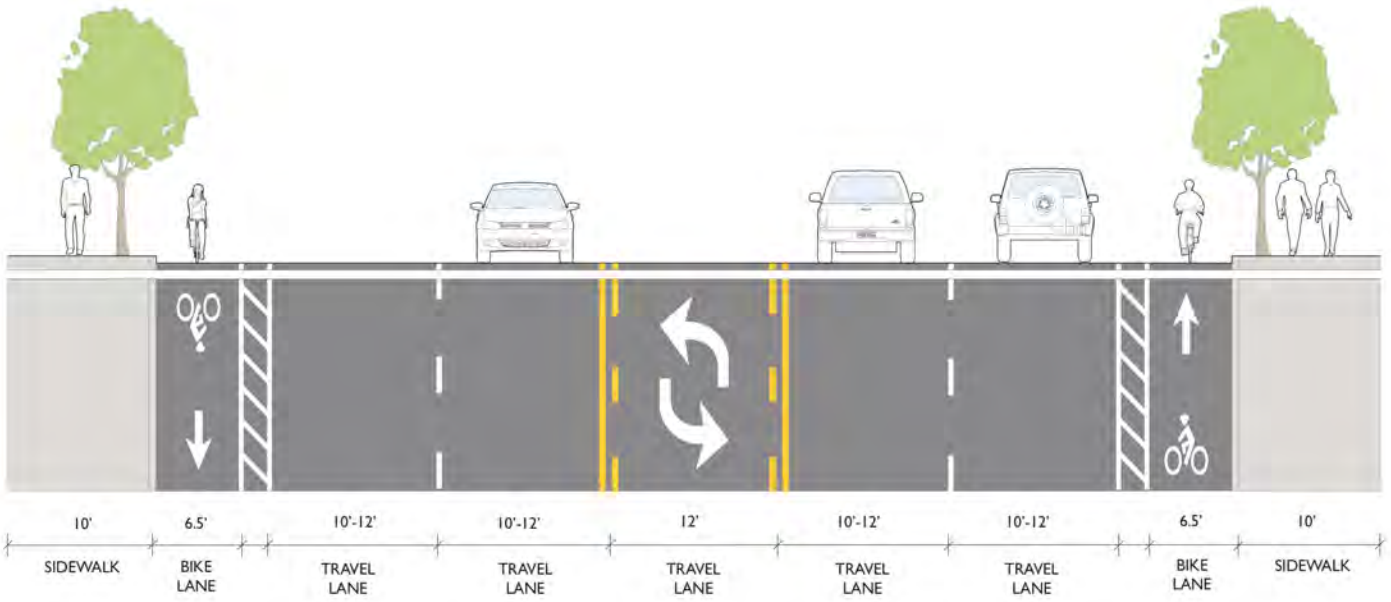

BUFFERED BIKE LANE - 3+ TRAVEL LANES

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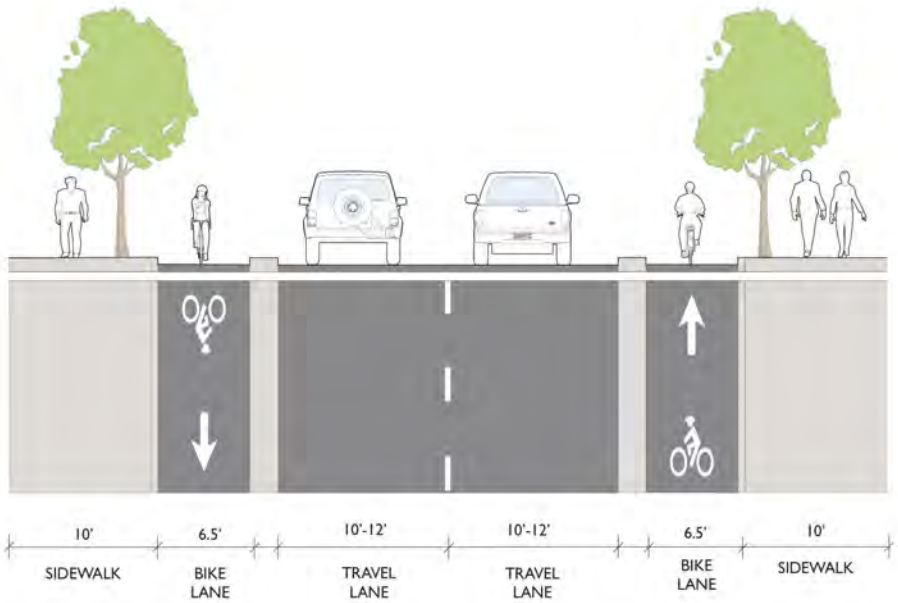

SEPARATED BIKE LANE - ONE-WAY STREET

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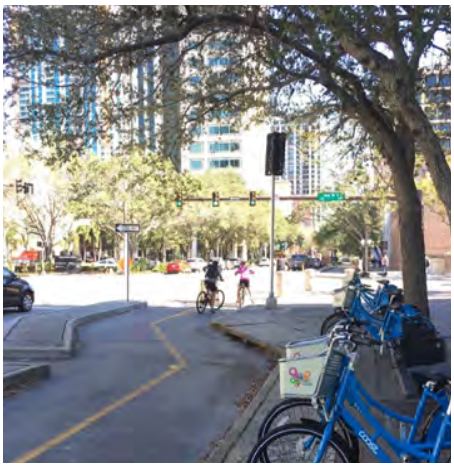
Detailed Cost Estimates

As part of the B-ACTIVE Plan, serveral detailed cost estimates have been developed. The following provide information on varying facility types and conditions that may be found during implementation. The cost provided include conditions such as facilities on existing pavement, facilties with/without curb and gutter, facilities plus curb and gutter, facilities plus five-foot sidewalk, facilities plus ten-foot sidewalk, and traffic calming treatments.

FACILITY COSTS FOR STRIPING ON EXISTING PAVEMENT

Below are cost estimates for striping bicycle facilities on existing asphalt. Assumptions include:

- Drainage and utility adjustments vary drastically from site to site and will require a field review in order to price;
- All asphalt shoulders, separated bike lanes, and shared use paths assumed to be on existing pavement;
- Total length of each project assumed to be a mile in length; and
- Flex posts placed 1 every 12'.



5' BIKE LANE WITH EXISTING CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5" STRIPING	MILE	2	$4,000	$8,000.00	$1.52
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
ITEM TOTAL				$15,970.00	$3.02
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$159.70	$0.03
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$319.40	$0.06
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$79.85	$0.02
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$1,597.00	$0.30
LUMP SUM TOTAL				$2,155.95	$0.41
30% CONTINGENCY				$5,437.79	$1.03
TOTAL ESTIMATED COST				**$23,563.74**	**$4.46**

6.5' BUFFERED BIKE LANE (1.5' PAINTED BUFFER) WITH EXISTING CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5" STRIPING	MILE	2	$4,000	$8,000.00	$1.52
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
1.5' TRAFFIC MARKING	SQ FT	7920	$10	$79,200.00	$15.00
SIGNING	EACH	11	$400	$4,400.00	$0.83
ITEM TOTAL				$95,170.00	$18.02
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$951.70	$0.18
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$1,903.40	$0.36
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$475.85	$0.09
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$9,517.00	$1.80
LUMP SUM TOTAL				$12,847.95	$2.43
30% CONTINGENCY				$32,405.39	$6.14
TOTAL ESTIMATED COST				$140,423.34	$26.60

8' BUFFERED BIKE LANE (3' PAINTED BUFFER) WITH EXISTING CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5" STRIPING	MILE	2	$4,000	$8,000.00	$1.52
3' TRAFFIC MARKING	SQ FT	15840	$10	$158,400.00	$30.00
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
ITEM TOTAL				$174,370.00	$33.02
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,743.70	$0.33
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$3,487.40	$0.66
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$871.85	$0.17
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$17,437.00	$3.30
LUMP SUM TOTAL				$23,539.95	$4.46
30% CONTINGENCY				$59,372.99	$11.24
TOTAL ESTIMATED COST				$257,282.94	$48.73

8’ ONE-WAY SEPARATED BIKE LANE(2’ PAINTED BUFFER W/ FLEX POSTS) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5” STRIPING	MILE	2	$4,000	$8,000.00	$1.52
2’ TRAFFIC MARKING	SQ FT	10560	$10	$105,600.00	$20.00
FLEX POSTS	EACH	440	$25	$11,000.00	$2.08
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
ITEM TOTAL				$132,570.00	$25.11
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,325.70	$0.25
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$2,651.40	$0.50
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$662.85	$0.13
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$13,257.00	$2.51
LUMP SUM TOTAL				$17,896.95	$3.39
30% CONTINGENCY				$45,140.09	$8.55
TOTAL ESTIMATED COST				$195,607.04	$37.05

10’ ONE-WAY SEPARATED BIKE LANE(4’ BUFFER) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5” STRIPING	MILE	3	$4,000	$12,000.00	$2.27
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
ITEM TOTAL				$19,970.00	$3.78
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$199.70	$0.04
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$399.40	$0.08
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$99.85	$0.02
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$1,997.00	$0.38
LUMP SUM TOTAL				$2,695.95	$0.51
30% CONTINGENCY				$6,799.79	$1.29
TOTAL ESTIMATED COST				$29,465.74	$5.58

12’ TWO-WAY SEPARATED BIKE LANE(2’ PAINTED BUFFER W/ FLEX POSTS) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5” STRIPING	MILE	2	$4,000	$8,000.00	$1.52
2’ TRAFFIC MARKING	SQ FT	10560	$10	$105,600.00	$20.00
FLEX POSTS	EACH	440	$25	$11,000.00	$2.08
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
SIGNING	EACH	11	$400	$4,400.00	$0.83
ITEM TOTAL				$136,140.00	$25.78
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,361.40	$0.26
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$2,722.80	$0.52
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$680.70	$0.13
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$13,614.00	$2.58
LUMP SUM TOTAL				$18,378.90	$3.48
30% CONTINGENCY				$46,355.67	$8.78
TOTAL ESTIMATED COST				$200,874.57	$38.04

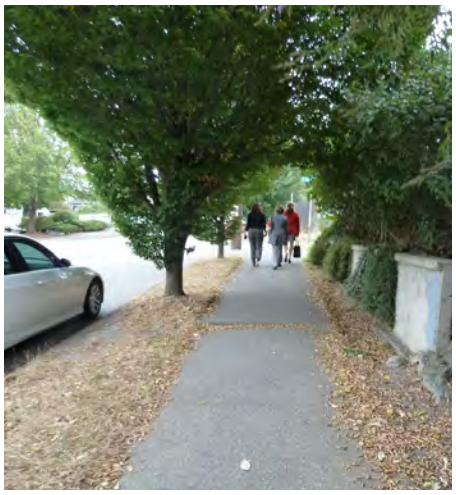
14’ TWO-WAY SEPARATED BIKE LANE(4’ BUFFER) WITH EXISTING CURB AND GUTTER

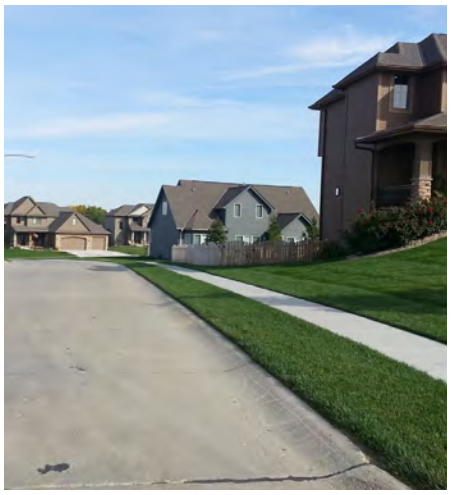
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5” STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
SIGNING	EACH	11	$400	$4,400.00	$0.83
ITEM TOTAL				$27,540.00	$5.22
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$275.40	$0.05
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$550.80	$0.10
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$137.70	$0.03
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$2,754.00	$0.52
LUMP SUM TOTAL				$3,717.90	$0.70
30% CONTINGENCY				$9,377.37	$1.78
TOTAL ESTIMATED COST				$40,635.27	$7.70

FACILITY COSTS WITHOUT CURB AND GUTTER

Below are cost estimates for bicycle and pedestrian facilities and does not include curb and gutter. Assumptions include:

- Drainage and utility adjustments vary drastically from site to site and will require a field review in order to price;
- Signs are assumed to be 1 every 500';
- Mailbox resets are assumed to be 1 every 500';
- All asphalt shoulders, seperated bike lanes, and shared use paths assumed to be on existing pavement;
- Total length of each project assumed to be a mile in length;
- Flex posts placed 1 every 12'; and
- Specialty markings assumed to be 1 every 200'.





5’ SIDEWALK (2’BUFFER) WITH NO CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5’ SIDEWALK (4” THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
EARTHWORK	CU YD	685	$35	$23,975.00	$4.54
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$210,881.67	$39.94
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,108.82	$0.40
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$4,217.63	$0.80
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,054.41	$0.20
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$21,088.17	$3.99
LUMP SUM TOTAL				$28,469.03	$5.39
30% CONTINGENCY				$71,805.21	$13.60
TOTAL ESTIMATED COST				$311,155.90	$58.93

5’ SIDEWALK (ATTACHED) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5’ SIDEWALK (4” THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
EARTHWORK	CU YD	489	$35	$17,115.00	$3.24
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$185,781.67	$35.19
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,857.82	$0.35
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$3,715.63	$0.70
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$928.91	$0.18
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$18,578.17	$3.52
LUMP SUM TOTAL				$25,080.53	$4.75
30% CONTINGENCY				$63,258.66	$11.98
TOTAL ESTIMATED COST				$274,120.85	$51.92

5' SIDEWALK (2'BUFFER) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5' SIDEWALK (4" THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
EARTHWORK	CU YD	685	$35	$23,975.00	$4.54
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4" THICK)	CU YD	130	$50	$6,500.00	$1.23
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$210,881.67	$39.94
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,108.82	$0.40
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$4,217.63	$0.80
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,054.41	$0.20
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$21,088.17	$3.99
LUMP SUM TOTAL				$28,469.03	$5.39
30% CONTINGENCY				$71,805.21	$13.60
TOTAL ESTIMATED COST				$311,155.90	$58.93

10' SIDEWALK (2'BUFFER) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10' SIDEWALK (4" THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
AGGREGATE BASE	TON	660	$45	$29,700.00	$5.63
EARTHWORK	CU YD	685	$35	$23,975.00	$4.54
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4" THICK)	CU YD	98	$50	$4,900.00	$0.93
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$370,798.33	$70.23
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,707.98	$0.70
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$7,415.97	$1.40
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,853.99	$0.35
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$37,079.83	$7.02
LUMP SUM TOTAL				$50,057.78	$9.48
30% CONTINGENCY				$126,256.83	$23.91
TOTAL ESTIMATED COST				$547,112.94	$103.62

4’ PAVED SHOULDER WITH NO CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
4’ ASPHALT (110 LB/SQ YD)	TON	130	$125	$16,250.00	$3.08
4’ PLANING	SQ YD	2347	$4	$9,388.00	$1.78
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$36,788.00	$6.97
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$367.88	$0.07
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$735.76	$0.14
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$183.94	$0.03
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$3,678.80	$0.70
LUMP SUM TOTAL				$4,966.38	$0.94
30% CONTINGENCY				$12,526.31	$2.37
TOTAL ESTIMATED COST				$54,280.69	$10.28

6’ PAVED SHOULDER WITH NO CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
6’ ASPHALT (110 LB/SQ YD)	TON	194	$125	$24,250.00	$4.59
6’ PLANING	SQ YD	3520	$4	$14,080.00	$2.67
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$49,480.00	$9.37
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$494.80	$0.09
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$989.60	$0.19
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$247.40	$0.05
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$4,948.00	$0.94
LUMP SUM TOTAL				$6,679.80	$1.27
30% CONTINGENCY				$16,847.94	$3.19
TOTAL ESTIMATED COST				$73,007.74	$13.83

5' BIKE LANE WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5' ASPHALT (110 LB/SQ YD)	TON	162	$125	$20,250.00	$3.84
5' PLANING	SQ YD	2934	$4	$11,736.00	$2.22
5" STRIPING	MILE	2	$4,000	$8,000.00	$1.52
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$50,706.00	$9.60
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$507.06	$0.10
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$1,014.12	$0.19
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$253.53	$0.05
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$5,070.60	$0.96
LUMP SUM TOTAL				$6,845.31	$1.30
30% CONTINGENCY				$17,265.39	$3.27
TOTAL ESTIMATED COST				$74,816.70	$14.17

6.5' BUFFERED BIKE LANE (1.5' PAINTED BUFFER) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
6.5' ASPHALT (110 LB/SQ YD)	TON	210	$125	$26,250.00	$4.97
6.5' PLANING	SQ YD	3814	$4	$15,256.00	$2.89
5" STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
1.5' TRAFFIC MARKING	SQ FT	7920	$10	$79,200.00	$15.00
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$135,426.00	$25.65
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,354.26	$0.26
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$2,708.52	$0.51
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$677.13	$0.13
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$13,542.60	$2.56
LUMP SUM TOTAL				$18,282.51	$3.46
30% CONTINGENCY				$46,112.55	$8.73
TOTAL ESTIMATED COST				$199,821.06	$37.84

8’ BUFFERED BIKE LANE (3’ PAINTED BUFFER) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
8’ ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8’ PLANING	SQ YD	4694	$4	$18,776.00	$3.56
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
3’ TRAFFIC MARKING	SQ FT	15840	$10	$158,400.00	$30.00
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$224,271.00	$42.48
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,242.71	$0.42
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$4,485.42	$0.85
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,121.36	$0.21
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$22,427.10	$4.25
LUMP SUM TOTAL				$30,276.59	$5.73
30% CONTINGENCY				$76,364.28	$14.46
TOTAL ESTIMATED COST				$330,911.86	$62.67

8’ ONE-WAY SEPARATED BIKE LANE(2’ PAINTED BUFFER W/ FLEX POSTS) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
8’ ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8’ PLANING	SQ YD	4694	$4	$18,776.00	$3.56
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
2’ TRAFFIC MARKING	SQ FT	10560	$10	$105,600.00	$20.00
FLEX POSTS	EACH	440	$25	$11,000.00	$2.08
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$182,471.00	$34.56
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,824.71	$0.35
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$3,649.42	$0.69
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$912.36	$0.17
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$18,247.10	$3.46
LUMP SUM TOTAL				$24,633.59	$4.67
30% CONTINGENCY				$62,131.38	$11.77
TOTAL ESTIMATED COST				$269,235.96	$50.99

8’ ONE-WAY SEPARATED BIKE LANE(2’ BEVELED CURB) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
8’ ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8’ PLANING	SQ YD	4694	$4	$18,776.00	$3.56
AGGREGATE BASE	TON	132	$45	$5,940.00	$1.13
EARTHWORK	CU YD	392	$35	$13,720.00	$2.60
5” STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
2’ BEVELED CURB	CU YD	196	$550	$107,800.00	$20.42
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$205,331.00	$38.89
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,053.31	$0.39
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$4,106.62	$0.78
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,026.66	$0.19
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$20,533.10	$3.89
LUMP SUM TOTAL				$27,719.69	$5.25
30% CONTINGENCY				$69,915.21	$13.24
TOTAL ESTIMATED COST				$302,965.89	$57.38

10’ ONE-WAY SEPARATED BIKE LANE(4’ BUFFER) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ ASPHALT (110 LB/SQ YD)	TON	323	$125	$40,375.00	$7.65
10’ PLANING	SQ YD	5867	$4	$23,468.00	$4.44
SOLID SODDING	SQ YD	2347	$10	$23,470.00	$4.45
TOPSOIL (4” THICK)	CU YD	259	$50	$12,950.00	$2.45
EARTHWORK	CU YD	783	$35	$27,405.00	$5.19
5” STRIPING	MILE	3	$4,000	$12,000.00	$2.27
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$150,388.00	$28.48
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,503.88	$0.28
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$3,007.76	$0.57
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$751.94	$0.14
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$15,038.80	$2.85
LUMP SUM TOTAL				$20,302.38	$3.85
30% CONTINGENCY				$51,207.11	$9.70
TOTAL ESTIMATED COST				$221,897.49	$42.03

12’ TWO-WAY SEPARATED BIKE LANE(2’ PAINTED BUFFER W/ FLEX POSTS) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
12’ ASPHALT (110 LB/SQ YD)	TON	388	$125	$48,500.00	$9.19
12’ PLANING	SQ YD	7040	$4	$28,160.00	$5.33
5” STRIPING	MILE	2	$4,000	$8,000.00	$1.52
2’ TRAFFIC MARKING	SQ FT	10560	$10	$105,600.00	$20.00
FLEX POSTS	EACH	440	$25	$11,000.00	$2.08
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$215,550.00	$40.82
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,155.50	$0.41
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$4,311.00	$0.82
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,077.75	$0.20
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$21,555.00	$4.08
LUMP SUM TOTAL				$29,099.25	$5.51
30% CONTINGENCY				$73,394.78	$13.90
TOTAL ESTIMATED COST				$318,044.03	$60.24

12’ TWO-WAY SEPARATED BIKE LANE(2’ BEVELED CURB) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
12’ ASPHALT (110 LB/SQ YD)	TON	388	$125	$48,500.00	$9.19
12’ PLANING	SQ YD	7040	$4	$28,160.00	$5.33
AGGREGATE BASE	TON	132	$45	$5,940.00	$1.13
EARTHWORK	CU YD	392	$35	$13,720.00	$2.60
5” STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
2’ BEVELED CURB	CU YD	196	$550	$107,800.00	$20.42
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$234,410.00	$44.40
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,344.10	$0.44
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$4,688.20	$0.89
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,172.05	$0.22
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$23,441.00	$4.44
LUMP SUM TOTAL				$31,645.35	$5.99
30% CONTINGENCY				$79,816.61	$15.12
TOTAL ESTIMATED COST				$345,871.96	$65.51

14’ TWO-WAY SEPARATED BIKE LANE(4’ BUFFER) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
14’ ASPHALT (110 LB/SQ YD)	TON	452	$125	$56,500.00	$10.70
14’ PLANING	SQ YD	8214	$4	$32,856.00	$6.22
SOLID SODDING	SQ YD	2347	$10	$23,470.00	$4.45
TOPSOIL (4” THICK)	CU YD	259	$50	$12,950.00	$2.45
EARTHWORK	CU YD	783	$35	$27,405.00	$5.19
5” STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$183,471.00	$34.75
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,834.71	$0.35
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$3,669.42	$0.69
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$917.36	$0.17
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$18,347.10	$3.47
LUMP SUM TOTAL				$24,768.59	$4.69
30% CONTINGENCY				$62,471.88	$11.83
TOTAL ESTIMATED COST				$270,711.46	$51.27

10’ SHARED USE PATH (4’ BUFFER) WITH NO CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ ASPHALT (110 LB/SQ YD)	TON	323	$125	$40,375.00	$7.65
10’ PLANING	SQ YD	5867	$4	$23,468.00	$4.44
SOLID SODDING	SQ YD	2347	$10	$23,470.00	$4.45
TOPSOIL (4” THICK)	CU YD	259	$50	$12,950.00	$2.45
EARTHWORK	CU YD	783	$35	$27,405.00	$5.19
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$138,818.00	$26.29
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,388.18	$0.26
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$2,776.36	$0.53
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$694.09	$0.13
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$13,881.80	$2.63
LUMP SUM TOTAL				$18,740.43	$3.55
30% CONTINGENCY				$47,267.53	$8.95
TOTAL ESTIMATED COST				$204,825.96	$38.79

10’ SHARED USE PATH (4’ BUFFER) WITH EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ ASPHALT (110 LB/SQ YD)	TON	323	$125	$40,375.00	$7.65
10’ PLANING	SQ YD	5867	$4	$23,468.00	$4.44
SOLID SODDING	SQ YD	2347	$10	$23,470.00	$4.45
TOPSOIL (4” THICK)	CU YD	259	$50	$12,950.00	$2.45
EARTHWORK	CU YD	783	$35	$27,405.00	$5.19
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$138,818.00	$26.29
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,388.18	$0.26
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$2,776.36	$0.53
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$694.09	$0.13
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$13,881.80	$2.63
LUMP SUM TOTAL				$18,740.43	$3.55
30% CONTINGENCY				$47,267.53	$8.95
TOTAL ESTIMATED COST				$204,825.96	$38.79

12’ SHARED USE PATH (4’ BUFFER) WITH NO CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
12’ ASPHALT (110 LB/SQ YD)	TON	323	$125	$40,375.00	$7.65
12’ PLANING	SQ YD	7040	$4	$28,160.00	$5.33
SOLID SODDING	SQ YD	2347	$10	$23,470.00	$4.45
TOPSOIL (4” THICK)	CU YD	259	$50	$12,950.00	$2.45
EARTHWORK	CU YD	783	$35	$27,405.00	$5.19
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$143,510.00	$27.18
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,435.10	$0.27
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$2,870.20	$0.54
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$717.55	$0.14
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$14,351.00	$2.72
LUMP SUM TOTAL				$19,373.85	$3.67
30% CONTINGENCY				$48,865.16	$9.25
TOTAL ESTIMATED COST				$211,749.01	$40.10

12’ SHARED USE PATH (4’ BUFFER) WITH EXISTING CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
12’ ASPHALT (110 LB/SQ YD)	TON	388	$125	$48,500.00	$9.19
12’ PLANING	SQ YD	7040	$4	$28,160.00	$5.33
SOLID SODDING	SQ YD	2347	$10	$23,470.00	$4.45
TOPSOIL (4” THICK)	CU YD	259	$50	$12,950.00	$2.45
EARTHWORK	CU YD	783	$35	$27,405.00	$5.19
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$151,635.00	$28.72
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,516.35	$0.29
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$3,032.70	$0.57
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$758.18	$0.14
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$15,163.50	$2.87
LUMP SUM TOTAL				$20,470.73	$3.88
30% CONTINGENCY				$51,631.72	$9.78
TOTAL ESTIMATED COST				$223,737.44	$42.37

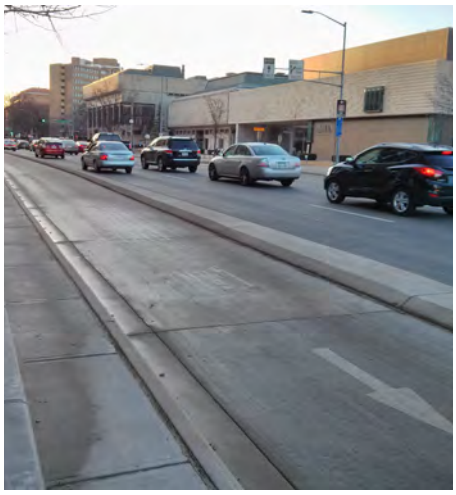
SIDEWALK LEVEL BIKE LANE (3' BUFFER, 5' BIKE LANE WITH EXISTING CURB AND GUTTER, 2' BUFFER, 10' SIDEWALK					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10' SIDEWALK (4" THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
AGGREGATE BASE	TON	660	$45	$29,700.00	$5.63
5' ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
5' PLANING	SQ YD	4694	$4	$18,776.00	$3.56
SOLID SODDING	SQ YD	2934	$10	$29,340.00	$5.56
TOPSOIL (4" THICK)	CU YD	323	$50	$16,150.00	$3.06
EARTHWORK	CU YD	1760	$35	$61,600.00	$11.67
5" STRIPING	MILE	3	$4,000	$12,000.00	$2.27
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$180,961.00	$95.45
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,809.61	$0.34
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$3,619.22	$0.69
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$904.81	$0.17
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$18,096.10	$3.43
LUMP SUM TOTAL				$24,429.74	$4.63
30% CONTINGENCY				$61,617.22	$30.02
TOTAL ESTIMATED COST				$267,007.96	$130.10

SIDEWALK LEVEL BIKE LANE (3' BUFFER, 5' BIKE LANE WITH EXISTING CURB AND GUTTER, 2' BUFFER, 12' SIDEWALK					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
12' SIDEWALK (4" THICK)	SQ YD	7,040	$50	$352,000.00	$66.67
AGGREGATE BASE	TON	792	$45	$35,640.00	$6.75
5' ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
5' PLANING	SQ YD	4694	$4	$18,776.00	$3.56
SOLID SODDING	SQ YD	2934	$10	$29,340.00	$5.56
TOPSOIL (4" THICK)	CU YD	323	$50	$16,150.00	$3.06
EARTHWORK	CU YD	1956	$35	$68,460.00	$12.97
5" STRIPING	MILE	3	$4,000	$12,000.00	$2.27
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$187,821.00	$108.99
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,878.21	$0.36
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$3,756.42	$0.71
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$939.11	$0.18
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$18,782.10	$3.56
LUMP SUM TOTAL				$25,355.84	$4.80
30% CONTINGENCY				$63,953.05	$34.14
TOTAL ESTIMATED COST				$277,129.89	$147.93

FACILITY COSTS PLUS CURB AND GUTTER

Below are cost estimates for bicycle and pedestrian facilities and include curb and gutter. Assumptions include:

- Drainage and utility adjustments vary drastically from site to site and will require a field review in order to price;
- Signs are assumed to be 1 every 500';
- Mailbox resets are assumed to be 1 every 500';
- All asphalt shoulders, separated bike lanes, and shared use paths assumed to be on existing pavement;
- Total length of each project assumed to be a mile in length;
- Flex posts placed every 12'; and
- Specialty markings assumed to be every 200'.



5' SIDEWALK (ATTACHED) WITH CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
5' SIDEWALK (4" THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	462	$45	$20,790.00	$3.94
EARTHWORK	CU YD	685	$35	$23,975.00	$4.54
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$330,581.67	$62.61
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,305.82	$0.63
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$6,611.63	$1.25
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,652.91	$0.31
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$33,058.17	$6.26
LUMP SUM TOTAL				$44,628.53	$8.45
30% CONTINGENCY				$112,563.06	$21.32
TOTAL ESTIMATED COST				$487,773.25	$92.38

5' SIDEWALK (2'BUFFER) WITH CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
5' SIDEWALK (4" THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	462	$45	$20,790.00	$3.94
EARTHWORK	CU YD	880	$35	$30,800.00	$5.83
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4" THICK)	CU YD	130	$50	$6,500.00	$1.23
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$355,646.67	$67.36
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,556.47	$0.67
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$7,112.93	$1.35
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,778.23	$0.34
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$35,564.67	$6.74
LUMP SUM TOTAL				$48,012.30	$9.09
30% CONTINGENCY				$121,097.69	$22.94
TOTAL ESTIMATED COST				$524,756.66	$99.39

10' SIDEWALK (2'BUFFER) WITH CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
10' SIDEWALK (4" THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
AGGREGATE BASE	TON	792	$45	$35,640.00	$6.75
EARTHWORK	CU YD	880	$35	$30,800.00	$5.83
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4" THICK)	CU YD	98	$50	$4,900.00	$0.93
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$515,563.33	$97.64
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$5,155.63	$0.98
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$10,311.27	$1.95
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$2,577.82	$0.49
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$51,556.33	$9.76
LUMP SUM TOTAL				$69,601.05	$13.18
30% CONTINGENCY				$175,549.32	$33.25
TOTAL ESTIMATED COST				$760,713.70	$144.07

5’ BIKE LANE WITH CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
5’ ASPHALT (110 LB/SQ YD)	TON	162	$125	$20,250.00	$3.84
AGGREGATE BASE	TON	132	$45	$5,940.00	$1.13
5’ PLANING	SQ YD	2934	$4	$11,736.00	$2.22
5” STRIPING	MILE	2	$4,000	$8,000.00	$1.52
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
EARTHWORK	CU YD	196	$35	$6,860.00	$1.30
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$195,506.00	$37.03
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$1,955.06	$0.37
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$3,910.12	$0.74
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$977.53	$0.19
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$19,550.60	$3.70
LUMP SUM TOTAL				$26,393.31	$5.00
30% CONTINGENCY				$66,569.79	$12.61
TOTAL ESTIMATED COST				$288,469.10	$54.63

6.5’ BUFFERED BIKE LANE (1.5’ PAINTED BUFFER) WITH CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	132	$45	$5,940.00	$1.13
6.5’ ASPHALT (110 LB/SQ YD)	TON	210	$125	$26,250.00	$4.97
6.5’ PLANING	SQ YD	3814	$4	$15,256.00	$2.89
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
1.5’ TRAFFIC MARKING	SQ FT	7920	$10	$79,200.00	$15.00
EARTHWORK	CU YD	196	$35	$6,860.00	$1.30
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$280,226.00	$53.07
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,802.26	$0.53
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$5,604.52	$1.06
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,401.13	$0.27
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$28,022.60	$5.31
LUMP SUM TOTAL				$37,830.51	$7.16
30% CONTINGENCY				$95,416.95	$18.07
TOTAL ESTIMATED COST				$413,473.46	$78.31

8’ BUFFERED BIKE LANE (3’ PAINTED BUFFER) WITH CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	132	$45	$5,940.00	$1.13
8’ ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8’ PLANING	SQ YD	4694	$4	$18,776.00	$3.56
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
3’ TRAFFIC MARKING	SQ FT	15840	$10	$158,400.00	$30.00
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
EARTHWORK	CU YD	196	$35	$6,860.00	$1.30
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$369,071.00	$69.90
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,690.71	$0.70
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$7,381.42	$1.40
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,845.36	$0.35
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$36,907.10	$6.99
LUMP SUM TOTAL				$49,824.59	$9.44
30% CONTINGENCY				$125,668.68	$23.80
TOTAL ESTIMATED COST				$544,564.26	$103.14

8’ ONE-WAY SEPARATED BIKE LANE(2’ PAINTED BUFFER W/ FLEX POSTS) WITH CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	132	$45	$5,940.00	$1.13
EARTHWORK	CU YD	196	$35	$6,860.00	$1.30
8’ ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8’ PLANING	SQ YD	4694	$4	$18,776.00	$3.56
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
2’ TRAFFIC MARKING	SQ FT	10560	$10	$105,600.00	$20.00
FLEX POSTS	EACH	440	$25	$11,000.00	$2.08
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$327,271.00	$61.98
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,272.71	$0.62
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$6,545.42	$1.24
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,636.36	$0.31
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$32,727.10	$6.20
LUMP SUM TOTAL				$44,181.59	$8.37
30% CONTINGENCY				$111,435.78	$21.11
TOTAL ESTIMATED COST				$482,888.36	$91.46

8’ ONE-WAY SEPARATED BIKE LANE(2’ BEVELED CURB) WITH CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
8’ ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8’ PLANING	SQ YD	4694	$4	$18,776.00	$3.56
AGGREGATE BASE	TON	264	$45	$11,880.00	$2.25
EARTHWORK	CU YD	587	$35	$20,545.00	$3.89
5” STRIPING	MILE	3	$4,000	$12,000.00	$2.27
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
2’ BEVELED CURB	CU YD	196	$550	$107,800.00	$20.42
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$346,096.00	$65.55
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,460.96	$0.66
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$6,921.92	$1.31
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,730.48	$0.33
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$34,609.60	$6.55
LUMP SUM TOTAL				$46,722.96	$8.85
30% CONTINGENCY				$117,845.69	$22.32
TOTAL ESTIMATED COST				$510,664.65	$96.72

10’ ONE-WAY SEPARATED BIKE LANE(4’ BUFFER) WITH CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	132	$45	$5,940.00	$1.13
10’ ASPHALT (110 LB/SQ YD)	TON	323	$125	$40,375.00	$7.65
10’ PLANING	SQ YD	5867	$4	$23,468.00	$4.44
SOLID SODDING	SQ YD	2347	$10	$23,470.00	$4.45
TOPSOIL (4” THICK)	CU YD	259	$50	$12,950.00	$2.45
EARTHWORK	CU YD	978	$35	$34,230.00	$6.48
5” STRIPING	MILE	2	$4,000	$8,000.00	$1.52
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$291,153.00	$55.14
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,911.53	$0.55
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$5,823.06	$1.10
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,455.77	$0.28
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$29,115.30	$5.51
LUMP SUM TOTAL				$39,305.66	$7.44
30% CONTINGENCY				$99,137.60	$18.78
TOTAL ESTIMATED COST				$429,596.25	$81.36

12’ TWO-WAY SEPARATED BIKE LANE(2’ PAINTED BUFFER W/ FLEX POSTS) WITH CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	132	$45	$5,940.00	$1.13
EARTHWORK	CU YD	196	$35	$6,860.00	$1.30
12’ ASPHALT (110 LB/SQ YD)	TON	388	$125	$48,500.00	$9.19
12’ PLANING	SQ YD	7040	$4	$28,160.00	$5.33
5” STRIPING	MILE	2	$4,000	$8,000.00	$1.52
2’ TRAFFIC MARKING	SQ FT	10560	$10	$105,600.00	$20.00
FLEX POSTS	EACH	440	$25	$11,000.00	$2.08
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$360,350.00	$68.25
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,603.50	$0.68
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$7,207.00	$1.36
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,801.75	$0.34
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$36,035.00	$6.82
LUMP SUM TOTAL				$48,647.25	$9.21
30% CONTINGENCY				$122,699.18	$23.24
TOTAL ESTIMATED COST				$531,696.43	$100.70

12’ TWO-WAY SEPARATED BIKE LANE(2’ BEVELED CURB) WITH CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
12’ ASPHALT (110 LB/SQ YD)	TON	388	$125	$48,500.00	$9.19
12’ PLANING	SQ YD	7040	$4	$28,160.00	$5.33
AGGREGATE BASE	TON	264	$45	$11,880.00	$2.25
EARTHWORK	CU YD	587	$35	$20,545.00	$3.89
5” STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
2’ BEVELED CURB	CU YD	196	$550	$107,800.00	$20.42
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$379,175.00	$71.81
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,791.75	$0.72
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$7,583.50	$1.44
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,895.88	$0.36
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$37,917.50	$7.18
LUMP SUM TOTAL				$51,188.63	$9.69
30% CONTINGENCY				$129,109.09	$24.45
TOTAL ESTIMATED COST				$559,472.71	$105.96

14' TWO-WAY SEPARATED BIKE LANE(4' BUFFER) WITH CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	132	$45	$5,940.00	$1.13
14' ASPHALT (110 LB/SQ YD)	TON	452	$125	$56,500.00	$10.70
14' PLANING	SQ YD	8214	$4	$32,856.00	$6.22
SOLID SODDING	SQ YD	2347	$10	$23,470.00	$4.45
TOPSOIL (4" THICK)	CU YD	259	$50	$12,950.00	$2.45
EARTHWORK	CU YD	978	$35	$34,230.00	$6.48
5" STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$328,236.00	$62.17
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,282.36	$0.62
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$6,564.72	$1.24
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,641.18	$0.31
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$32,823.60	$6.22
LUMP SUM TOTAL				$44,311.86	$8.39
30% CONTINGENCY				$111,764.36	$21.17
TOTAL ESTIMATED COST				$484,312.22	$91.73

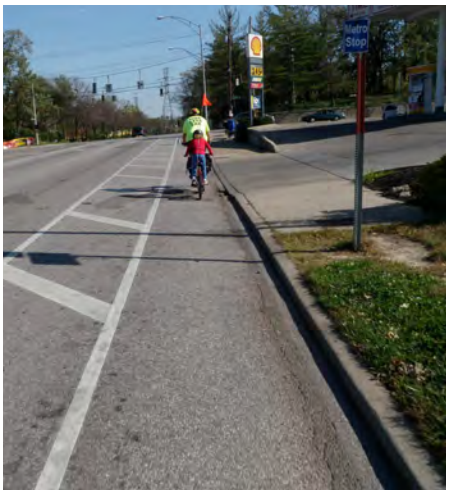
10’ SHARED USE PATH (4’ BUFFER) WITH CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	132	$45	$5,940.00	$1.13
8’ ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8’ PLANING	SQ YD	4694	$4	$18,776.00	$3.56
SOLID SODDING	SQ YD	2347	$10	$23,470.00	$4.45
TOPSOIL (4” THICK)	CU YD	259	$50	$12,950.00	$2.45
EARTHWORK	CU YD	978	$35	$34,230.00	$6.48
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$270,891.00	$51.31
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,708.91	$0.51
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$5,417.82	$1.03
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,354.46	$0.26
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$27,089.10	$5.13
LUMP SUM TOTAL				$36,570.29	$6.93
30% CONTINGENCY				$92,238.39	$17.47
TOTAL ESTIMATED COST				$399,699.67	$75.70

12’ SHARED USE PATH (4’ BUFFER) WITH CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	132	$45	$5,940.00	$1.13
12’ ASPHALT (110 LB/SQ YD)	TON	388	$125	$48,500.00	$9.19
12’ PLANING	SQ YD	7040	$4	$28,160.00	$5.33
SOLID SODDING	SQ YD	2347	$10	$23,470.00	$4.45
TOPSOIL (4” THICK)	CU YD	259	$50	$12,950.00	$2.45
EARTHWORK	CU YD	978	$35	$34,230.00	$6.48
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$296,400.00	$56.14
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,964.00	$0.56
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$5,928.00	$1.12
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,482.00	$0.28
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$29,640.00	$5.61
LUMP SUM TOTAL				$40,014.00	$7.58
30% CONTINGENCY				$100,924.20	$19.11
TOTAL ESTIMATED COST				$437,338.20	$82.83

FACILITY COSTS PLUS 5-FOOT SIDEWALK

Below are cost estimates for bicycle facilities plus the addition of a 5' sidewalk. Assumptions include:

- Drainage and utility adjustments vary drastically from site to site and will require a field review in order to price;
- Signs are assumed to be 1 every 500';
- Mailbox resets are assumed to be 1 every 500';
- All asphalt shoulders, separated bike lanes, and shared use paths assumed to be on existing pavement;
- Total length of each project assumed to be a mile in length;
- Flex posts placed every 12'; and
- Specialty markings assumed to be every 200'.



4' PAVED SHOULDER WITH 5' SIDEWALK (2' BUFFER)					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5' SIDEWALK (4" THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
EARTHWORK	CU YD	685	$35	$23,975.00	$4.54
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4" THICK)	CU YD	130	$50	$6,500.00	$1.23
4' ASPHALT (110 LB/SQ YD)	TON	130	$125	$16,250.00	$3.08
4' PLANING	SQ YD	2347	$4	$9,388.00	$1.78
5" STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$240,519.67	$45.55
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,405.20	$0.46
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$4,810.39	$0.91
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,202.60	$0.23
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$24,051.97	$4.56
LUMP SUM TOTAL				$32,470.16	$6.15
30% CONTINGENCY				$81,896.95	$15.51
TOTAL ESTIMATED COST				$354,886.77	$67.21

6’ PAVED SHOULDER WITH 5’ SIDEWALK (2’ BUFFER)					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5’ SIDEWALK (4” THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
EARTHWORK	CU YD	685	$35	$23,975.00	$4.54
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
6’ ASPHALT (110 LB/SQ YD)	TON	194	$125	$24,250.00	$4.59
6’ PLANING	SQ YD	3520	$4	$14,080.00	$2.67
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$253,211.67	$47.96
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,532.12	$0.48
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$5,064.23	$0.96
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,266.06	$0.24
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$25,321.17	$4.80
LUMP SUM TOTAL				$34,183.58	$6.47
30% CONTINGENCY				$86,218.57	$16.33
TOTAL ESTIMATED COST				$373,613.81	$70.76

5' BIKE LANE WITH 5' SIDEWALK(2' BUFFER) AND EXISTING CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5' SIDEWALK (4" THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
EARTHWORK	CU YD	685	$35	$23,975.00	$4.54
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4" THICK)	CU YD	130	$50	$6,500.00	$1.23
5' ASPHALT (110 LB/SQ YD)	TON	162	$125	$20,250.00	$3.84
5' PLANING	SQ YD	2934	$4	$11,736.00	$2.22
5" STRIPING	MILE	2	$4,000	$8,000.00	$1.52
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$254,437.67	$48.19
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$2,544.38	$0.48
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$5,088.75	$0.96
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,272.19	$0.24
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$25,443.77	$4.82
LUMP SUM TOTAL				$34,349.09	$6.51
30% CONTINGENCY				$86,636.03	$16.41
TOTAL ESTIMATED COST				$375,422.78	$71.10

6.5’ BUFFERED BIKE LANE (1.5’ PAINTED BUFFER) WITH 5’ SIDEWALK (2’ BUFFER) AND EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5’ SIDEWALK (4” THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
EARTHWORK	CU YD	685	$35	$23,975.00	$4.54
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
6.5’ ASPHALT (110 LB/SQ YD)	TON	210	$125	$26,250.00	$4.97
6.5’ PLANING	SQ YD	3814	$4	$15,256.00	$2.89
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
1.5’ TRAFFIC MARKING	SQ FT	7920	$10	$79,200.00	$15.00
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$339,157.67	$64.23
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,391.58	$0.64
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$6,783.15	$1.28
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,695.79	$0.32
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$33,915.77	$6.42
LUMP SUM TOTAL				$45,786.29	$8.67
30% CONTINGENCY				$115,483.19	$21.87
TOTAL ESTIMATED COST				$500,427.14	$94.78

8' BUFFERED BIKE LANE (3' PAINTED BUFFER) WITH 5' SIDEWALK (2' BUFFER) AND EXISTING CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5' SIDEWALK (4" THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
EARTHWORK	CU YD	685	$35	$23,975.00	$4.54
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4" THICK)	CU YD	130	$50	$6,500.00	$1.23
8' ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8' PLANING	SQ YD	4694	$4	$18,776.00	$3.56
5" STRIPING	MILE	1	$4,000	$4,000.00	$0.76
3' TRAFFIC MARKING	SQ FT	15840	$10	$158,400.00	$30.00
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$428,002.67	$81.06
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$4,280.03	$0.81
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$8,560.05	$1.62
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$2,140.01	$0.41
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$42,800.27	$8.11
LUMP SUM TOTAL				$57,780.36	$10.94
30% CONTINGENCY				$145,734.91	$27.60
TOTAL ESTIMATED COST				$631,517.93	$119.61

8’ ONE-WAY SEPARATED BIKE LANE(2’ PAINTED BUFFER W/ FLEX POSTS) WITH 5’ SIDEWALK (2’ BUFFER) AND EXISTING CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5’ SIDEWALK (4” THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
EARTHWORK	CU YD	685	$35	$23,975.00	$4.54
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
8’ ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8’ PLANING	SQ YD	4694	$4	$18,776.00	$3.56
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
2’ TRAFFIC MARKING	SQ FT	10560	$10	$105,600.00	$20.00
FLEX POSTS	EACH	440	$25	$11,000.00	$2.08
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$386,202.67	$73.14
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,862.03	$0.73
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$7,724.05	$1.46
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,931.01	$0.37
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$38,620.27	$7.31
LUMP SUM TOTAL				$52,137.36	$9.87
30% CONTINGENCY				$131,502.01	$24.91
TOTAL ESTIMATED COST				$569,842.03	$107.92

8' ONE-WAY SEPARATED BIKE LANE(2' BEVELED CURB) WITH 5' SIDEWALK (2' BUFFER) AND EXISTING CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5' SIDEWALK (4" THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4" THICK)	CU YD	130	$50	$6,500.00	$1.23
8' ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8' PLANING	SQ YD	4694	$4	$18,776.00	$3.56
AGGREGATE BASE	TON	462	$45	$20,790.00	$3.94
EARTHWORK	CU YD	1076	$35	$37,660.00	$7.13
5" STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
2' BEVELED CURB	CU YD	196	$550	$107,800.00	$20.42
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$409,027.67	$77.47
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$4,090.28	$0.77
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$8,180.55	$1.55
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$2,045.14	$0.39
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$40,902.77	$7.75
LUMP SUM TOTAL				$55,218.74	$10.46
30% CONTINGENCY				$139,273.92	$26.38
TOTAL ESTIMATED COST				$603,520.32	$114.30

10’ ONE-WAY SEPARATED BIKE LANE(4’ BUFFER) WITH 5’ SIDEWALK(2’ BUFFER) AND EXISTING CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5’ SIDEWALK (4” THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
10’ ASPHALT (110 LB/SQ YD)	TON	323	$125	$40,375.00	$7.65
10’ PLANING	SQ YD	5867	$4	$23,468.00	$4.44
SOLID SODDING	SQ YD	3520	$10	$35,200.00	$6.67
TOPSOIL (4” THICK)	CU YD	388	$50	$19,400.00	$3.67
EARTHWORK	CU YD	1467	$35	$51,345.00	$9.72
5” STRIPING	MILE	3	$4,000	$12,000.00	$2.27
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$354,024.67	$67.05
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,540.25	$0.67
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$7,080.49	$1.34
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,770.12	$0.34
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$35,402.47	$6.71
LUMP SUM TOTAL				$47,793.33	$9.05
30% CONTINGENCY				$120,545.40	$22.83
TOTAL ESTIMATED COST				$522,363.40	$98.93

12’ TWO-WAY SEPARATED BIKE LANE(2’ PAINTED BUFFER W/ FLEX POSTS) WITH 5’ SIDEWALK(2’ BUFFER) AND EXISTING CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5’ SIDEWALK (4” THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
EARTHWORK	CU YD	685	$35	$23,975.00	$4.54
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
12’ ASPHALT (110 LB/SQ YD)	TON	388	$125	$48,500.00	$9.19
12’ PLANING	SQ YD	7040	$4	$28,160.00	$5.33
5” STRIPING	MILE	2	$4,000	$8,000.00	$1.52
2’ TRAFFIC MARKING	SQ FT	10560	$10	$105,600.00	$20.00
FLEX POSTS	EACH	440	$25	$11,000.00	$2.08
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$419,281.67	$79.41
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$4,192.82	$0.79
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$8,385.63	$1.59
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$2,096.41	$0.40
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$41,928.17	$7.94
LUMP SUM TOTAL				$56,603.03	$10.72
30% CONTINGENCY				$142,765.41	$27.04
TOTAL ESTIMATED COST				$618,650.10	$117.17

12’ TWO-WAY SEPARATED BIKE LANE(2’ BEVELED CURB) WITH 5’ SIDEWALK(2’ BUFFERED) AND EXISTING CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5’ SIDEWALK (4” THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
12’ ASPHALT (110 LB/SQ YD)	TON	388	$125	$48,500.00	$9.19
12’ PLANING	SQ YD	7040	$4	$28,160.00	$5.33
AGGREGATE BASE	TON	462	$45	$20,790.00	$3.94
EARTHWORK	CU YD	1076	$35	$37,660.00	$7.13
5” STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
2’ BEVELED CURB	CU YD	196	$550	$107,800.00	$20.42
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$438,106.67	$82.97
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$4,381.07	$0.83
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$8,762.13	$1.66
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$2,190.53	$0.41
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$43,810.67	$8.30
LUMP SUM TOTAL				$59,144.40	$11.20
30% CONTINGENCY				$149,175.32	$28.25
TOTAL ESTIMATED COST				$646,426.39	$122.43

14' TWO-WAY SEPARATED BIKE LANE(4' BUFFER) WITH 5' SIDEWALK(2' BUFFERED) AND EXISTING CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
5' SIDEWALK (4" THICK)	SQ YD	2,933	$50	$146,666.67	$27.78
AGGREGATE BASE	TON	330	$45	$14,850.00	$2.81
14' ASPHALT (110 LB/SQ YD)	TON	452	$125	$56,500.00	$10.70
14' PLANING	SQ YD	8214	$4	$32,856.00	$6.22
SOLID SODDING	SQ YD	3520	$10	$35,200.00	$6.67
TOPSOIL (4" THICK)	CU YD	388	$50	$19,400.00	$3.67
EARTHWORK	CU YD	1467	$35	$51,345.00	$9.72
5" STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$387,107.67	$73.32
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$3,871.08	$0.73
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$7,742.15	$1.47
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$1,935.54	$0.37
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$38,710.77	$7.33
LUMP SUM TOTAL				$52,259.54	$9.90
30% CONTINGENCY				$131,810.16	$24.96
TOTAL ESTIMATED COST				$571,177.36	$108.18

FACILITY COSTS PLUS CURB/GUTTER AND 10-FOOT SIDEWALK

Below are cost estimates for bicycle facilities without existing curb and gutter plus a 10’ sidewalk. Assumptions include:

- Drainage and utility adjustments vary drastically from site to site and will require a field review in order to price;
- Signs are assumed to be 1 every 500’;
- Mailbox resets are assumed to be 1 every 500’;
- All asphalt shoulders, separated bike lanes, and shared use paths assumed to be on existing pavement;
- Total length of each project assumed to be a mile in length;
- Flex posts placed every 12’; and
- Specialty markings assumed to be every 200’.

4’ PAVED SHOULDER WITH 10’ SIDEWALK (2’ BUFFER) AND CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ SIDEWALK (4” THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	792	$45	$35,640.00	$6.75
EARTHWORK	CU YD	1369	$35	$47,915.00	$9.07
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
4’ ASPHALT (110 LB/SQ YD)	TON	130	$125	$16,250.00	$3.08
4’ PLANING	SQ YD	2347	$4	$9,388.00	$1.78
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$563,916.33	$106.80
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$5,639.16	$1.07
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$11,278.33	$2.14
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$2,819.58	$0.53
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$56,391.63	$10.68
LUMP SUM TOTAL				$76,128.71	$14.42
30% CONTINGENCY				$192,013.51	$36.37
TOTAL ESTIMATED COST				$832,058.55	$157.59

6’ PAVED SHOULDER WITH 10’ SIDEWALK (2’ BUFFER)					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ SIDEWALK (4” THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	792	$45	$35,640.00	$6.75
EARTHWORK	CU YD	1369	$35	$47,915.00	$9.07
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
6’ ASPHALT (110 LB/SQ YD)	TON	194	$125	$24,250.00	$4.59
6’ PLANING	SQ YD	3520	$4	$14,080.00	$2.67
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$576,608.33	$109.21
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$5,766.08	$1.09
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$11,532.17	$2.18
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$2,883.04	$0.55
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$57,660.83	$10.92
LUMP SUM TOTAL				$77,842.13	$14.74
30% CONTINGENCY				$196,335.14	$37.18
TOTAL ESTIMATED COST				$850,785.60	$161.13

5' BIKE LANE WITH 10' SIDEWALK(2' BUFFER) AND CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10' SIDEWALK (4" THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	792	$45	$35,640.00	$6.75
EARTHWORK	CU YD	1369	$35	$47,915.00	$9.07
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4" THICK)	CU YD	130	$50	$6,500.00	$1.23
5' ASPHALT (110 LB/SQ YD)	TON	162	$125	$20,250.00	$3.84
5' PLANING	SQ YD	2934	$4	$11,736.00	$2.22
5" STRIPING	MILE	2	$4,000	$8,000.00	$1.52
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$577,834.33	$109.44
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$5,778.34	$1.09
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$11,556.69	$2.19
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$2,889.17	$0.55
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$57,783.43	$10.94
LUMP SUM TOTAL				$78,007.64	$14.77
30% CONTINGENCY				$196,752.59	$37.26
TOTAL ESTIMATED COST				$852,594.56	$161.48

6.5’ BUFFERED BIKE LANE (1.5’ PAINTED BUFFER) WITH 10’ SIDEWALK (2’ BUFFER) AND CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ SIDEWALK (4” THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	792	$45	$35,640.00	$6.75
EARTHWORK	CU YD	1369	$35	$47,915.00	$9.07
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
6.5’ ASPHALT (110 LB/SQ YD)	TON	210	$125	$26,250.00	$4.97
6.5’ PLANING	SQ YD	3814	$4	$15,256.00	$2.89
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
1.5’ TRAFFIC MARKING	SQ FT	7920	$10	$79,200.00	$15.00
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$662,554.33	$125.48
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$6,625.54	$1.25
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$13,251.09	$2.51
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$3,312.77	$0.63
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$66,255.43	$12.55
LUMP SUM TOTAL				$89,444.84	$16.94
30% CONTINGENCY				$225,599.75	$42.73
TOTAL ESTIMATED COST				$977,598.92	$185.15

8’ BUFFERED BIKE LANE (3’ PAINTED BUFFER) WITH 10’ SIDEWALK (2’ BUFFER) AND CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ SIDEWALK (4” THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	792	$45	$35,640.00	$6.75
EARTHWORK	CU YD	1369	$35	$47,915.00	$9.07
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
8’ ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8’ PLANING	SQ YD	4694	$4	$18,776.00	$3.56
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
3’ TRAFFIC MARKING	SQ FT	15840	$10	$158,400.00	$30.00
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$751,399.33	$142.31

LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$7,513.99	$1.42
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$15,027.99	$2.85
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$3,757.00	$0.71
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$75,139.93	$14.23
LUMP SUM TOTAL				$101,438.91	$19.21
30% CONTINGENCY				$255,851.47	$48.46
TOTAL ESTIMATED COST				$1,108,689.72	$209.98

8’ ONE-WAY SEPARATED BIKE LANE(2’ PAINTED BUFFER W/ FLEX POSTS) WITH 10’ SIDEWALK (2’ BUFFER) AND CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ SIDEWALK (4” THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	792	$45	$35,640.00	$6.75
EARTHWORK	CU YD	1369	$35	$47,915.00	$9.07
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
8’ ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8’ PLANING	SQ YD	4694	$4	$18,776.00	$3.56
5” STRIPING	MILE	1	$4,000	$4,000.00	$0.76
2’ TRAFFIC MARKING	SQ FT	10560	$10	$105,600.00	$20.00
FLEX POSTS	EACH	440	$25	$11,000.00	$2.08
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$709,599.33	$134.39
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$7,095.99	$1.34
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$14,191.99	$2.69
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$3,548.00	$0.67
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$70,959.93	$13.44
LUMP SUM TOTAL				$95,795.91	$18.14
30% CONTINGENCY				$241,618.57	$45.76
TOTAL ESTIMATED COST				$1,047,013.82	$198.30

8’ ONE-WAY SEPARATED BIKE LANE(2’ BEVELED CURB) WITH 10’ SIDEWALK (2’ BUFFER) AND CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ SIDEWALK (4” THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
8’ ASPHALT (110 LB/SQ YD)	TON	259	$125	$32,375.00	$6.13
8’ PLANING	SQ YD	4694	$4	$18,776.00	$3.56
AGGREGATE BASE	TON	924	$45	$41,580.00	$7.88
EARTHWORK	CU YD	1760	$35	$61,600.00	$11.67
5” STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
2’ BEVELED CURB	CU YD	196	$550	$107,800.00	$20.42
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$732,424.33	$138.72

LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$7,324.24	$1.39
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$14,648.49	$2.77
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$3,662.12	$0.69
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$73,242.43	$13.87
LUMP SUM TOTAL				$98,877.29	$18.73
30% CONTINGENCY				$249,390.49	$47.23
TOTAL ESTIMATED COST				$1,080,692.10	$204.68

10’ ONE-WAY SEPARATED BIKE LANE(4’ BUFFER) WITH 10’ SIDEWALK(2’ BUFFER) AND CURB AND GUTTER					
ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ SIDEWALK (4” THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	792	$45	$35,640.00	$6.75
10’ ASPHALT (110 LB/SQ YD)	TON	323	$125	$40,375.00	$7.65
10’ PLANING	SQ YD	5867	$4	$23,468.00	$4.44
SOLID SODDING	SQ YD	3520	$10	$35,200.00	$6.67
TOPSOIL (4” THICK)	CU YD	388	$50	$19,400.00	$3.67
EARTHWORK	CU YD	2152	$35	$75,320.00	$14.27
5” STRIPING	MILE	3	$4,000	$12,000.00	$2.27
SPECIALTY MARKING	SQ FT	238	$15	$3,570.00	$0.68
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$677,456.33	$128.31
LUMP SUM ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$6,774.56	$1.28
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$13,549.13	$2.57
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$3,387.28	$0.64
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$67,745.63	$12.83
LUMP SUM TOTAL				$91,456.61	$17.32
30% CONTINGENCY				$230,673.88	$43.69
TOTAL ESTIMATED COST				$999,586.82	$189.32

12’ TWO-WAY SEPARATED BIKE LANE(2’ PAINTED BUFFER W/ FLEX POSTS) WITH 10’ SIDEWALK(2’ BUFFER) AND CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ SIDEWALK (4” THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	792	$45	$35,640.00	$6.75
EARTHWORK	CU YD	1369	$35	$47,915.00	$9.07
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
12’ ASPHALT (110 LB/SQ YD)	TON	388	$125	$48,500.00	$9.19
12’ PLANING	SQ YD	7040	$4	$28,160.00	$5.33
5” STRIPING	MILE	2	$4,000	$8,000.00	$1.52
2’ TRAFFIC MARKING	SQ FT	10560	$10	$105,600.00	$20.00
FLEX POSTS	EACH	440	$25	$11,000.00	$2.08
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$742,678.33	$140.66
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$7,426.78	$1.41
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$14,853.57	$2.81
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$3,713.39	$0.70
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$74,267.83	$14.07
LUMP SUM TOTAL				$100,261.58	$18.99
30% CONTINGENCY				$252,881.97	$47.89
TOTAL ESTIMATED COST				$1,095,821.88	$207.54

12’ TWO-WAY SEPARATED BIKE LANE(2’ BEVELED CURB) WITH 10’ SIDEWALK(2’ BUFFERED) AND CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ SIDEWALK (4” THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
SOLID SODDING	SQ YD	1174	$10	$11,740.00	$2.22
TOPSOIL (4” THICK)	CU YD	130	$50	$6,500.00	$1.23
12’ ASPHALT (110 LB/SQ YD)	TON	388	$125	$48,500.00	$9.19
12’ PLANING	SQ YD	7040	$4	$28,160.00	$5.33
AGGREGATE BASE	TON	924	$45	$41,580.00	$7.88
EARTHWORK	CU YD	1760	$35	$61,600.00	$11.67
5” STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
2’ BEVELED CURB	CU YD	196	$550	$107,800.00	$20.42
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$350	$3,850.00	$0.73
ITEM TOTAL				$762,603.33	$144.43
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$7,626.03	$1.44
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$15,252.07	$2.89
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$3,813.02	$0.72
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$76,260.33	$14.44
LUMP SUM TOTAL				$102,951.45	$19.50
30% CONTINGENCY				$259,666.44	$49.18
TOTAL ESTIMATED COST				$1,125,221.22	$213.11

14’ TWO-WAY SEPARATED BIKE LANE(4’ BUFFER) WITH 10’ SIDEWALK(2’ BUFFERED) AND CURB AND GUTTER

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST	COST PER LINEAR FOOT
10’ SIDEWALK (4” THICK)	SQ YD	5,867	$50	$293,333.33	$55.56
CURB AND GUTTER	LF	5,280	$25	$132,000.00	$25.00
AGGREGATE BASE	TON	792	$45	$35,640.00	$6.75
14’ ASPHALT (110 LB/SQ YD)	TON	452	$125	$56,500.00	$10.70
14’ PLANING	SQ YD	8214	$4	$32,856.00	$6.22
SOLID SODDING	SQ YD	3520	$10	$35,200.00	$6.67
TOPSOIL (4” THICK)	CU YD	388	$50	$19,400.00	$3.67
EARTHWORK	CU YD	2152	$35	$75,320.00	$14.27
5” STRIPING	MILE	4	$4,000	$16,000.00	$3.03
SPECIALTY MARKING	SQ FT	476	$15	$7,140.00	$1.35
SIGNING	EACH	11	$400	$4,400.00	$0.83
MAILBOX RELOCATION	EACH	11	$250	$2,750.00	$0.52
ITEM TOTAL				$710,539.33	$134.57
LUMP SUM ITEMS	**UNIT**	**QUANTITY**	**UNIT COST**	**TOTAL COST**	**COST PER LINEAR FOOT**
TRAFFIC CONTROL	LS	1	1% OF ITEM TOTAL	$7,105.39	$1.35
EROSION CONTROL	LS	1	2% OF ITEM TOTAL	$14,210.79	$2.69
GEOMETRIC CONTROLS	LS	1	0.5% OF ITEM TOTAL	$3,552.70	$0.67
MOBILIZATION	LS	1	10% OF ITEM TOTAL	$71,053.93	$13.46
LUMP SUM TOTAL				$95,922.81	$18.17
30% CONTINGENCY				$241,938.64	$45.82
TOTAL ESTIMATED COST				$1,048,400.79	$198.56

TRAFFIC CALMING FACILITY COSTS

Below are cost estimates for traffic calming elements that may be applicable in various scenarios when implementing bicycle and pedestrian facilities.

TRAFFIC CALMING ELEMENTS

Element	Width	Assumptions	Material	Price
Curb Extension/Bulb-out	8’	50’ length including taper	Concrete	$7,000
Pedestrian Signals	N/A	all 4 legs no cabinet upgrades required (8 signals and corresponding buttons)	N/A	$15,500
Pedestrian Signals	N/A	all 4 legs(8 signals and corresponding buttons) + cabinet upgrades required	N/A	$22,000
Pedestrian Signals	N/A	a single approach (2 signals and corresponding buttons) + cabinet upgrades required	N/A	$4,300
Pedestrian Signals	N/A	a single approach no cabinet upgrades required (2 signals and corresponding buttons)	N/A	$3,800
Striped Crosswalk	8’ min.	40’ length and Continental	Concrete	$500
Striped Crosswalk	12”	40’ length ladder styler (high visibility)	Concrete	$2,000
Raised Crosswalk	8’ min.	40’ length, concrete crossing, approaches are assumed 6’ on either side	Concrete	$10,000
Median Refuge	6’ min.	40’ length, raised curb, with detectable warning	Concrete	$5,400
ADA Ramp	N/A	Complete installation with detectable warning		$2,500
Rectangular Rapid Flashin Beacon (RRFB)	N/A	2 RRFBs at one crossing; solar powered	N/A	$12,000
High Intensity Activate Crosswalk (HAWK)	N/A	electric connection exists	N/A	$80,000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Boardwalk
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