

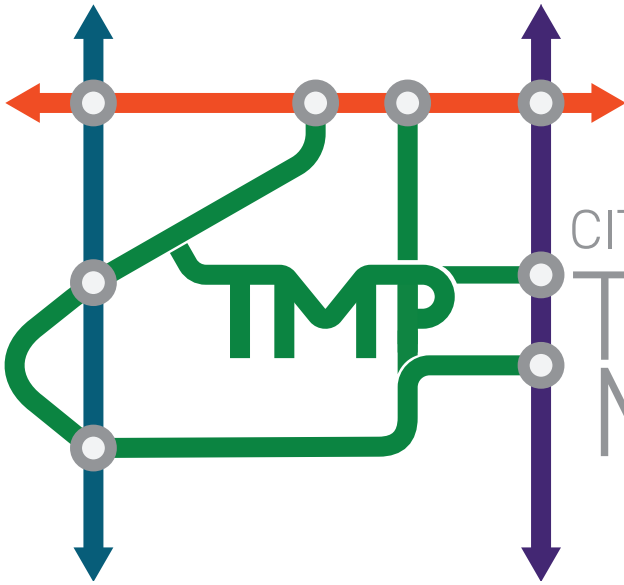
Adopted October 1, 2019

CITY OF LOUISVILLE

Transportation  
Master Plan



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CITY OF LOUISVILLE

# Transportation Master Plan

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# Acknowledgments

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# Introduction



# INTRODUCTION

Over the last two decades, Louisville has been consistently ranked as one of the top cities to live in America, one of the best small towns, and one of the best cities in Colorado to raise a family.

Louisville prides itself on supporting a great quality of life through many community amenities. Amenities include extensive bike and walk paths and a variety of public services, including the Louisville Public Library, police and fire stations, a community arts center, a recreation and senior center, and more.



The City of Louisville has a rich history that dates back to its incorporation in 1882. Originally a coal-mining town, the area has grown to become a premier suburban community situated between Boulder and Denver, with a high quality-of-life for its residents and employees. Louisville's appeal is rooted in its mix of unique historical character and modern community facilities, expansive trail system, business opportunities, and involved community.

As Louisville has evolved, its residents, businesses, and visitors alike desire a variety of ways to move around the City, whether for recreational or non-recreational purposes. Making trips in personal vehicles, biking, walking, riding transit, and using rideshare are all part of the transportation needs of Louisville residents and visitors. Investment in all of these modes of transportation will be essential to maintaining and improving the quality of life in Louisville.

The City and surrounding jurisdictions continue to make significant investments in transportation, but also continue to have many unmet and unfunded needs. Recent investments have included the City's street paving program, striping of on-street bike lanes, traffic calming at major trail connections and school routes, continuing to build upon and improve a vast sidewalk and trail network, and improving and increasing access to transit services.

Finding more ways to limit vehicle travel by providing convenient and viable multimodal alternatives has also been a priority for the City. Providing better access to non-vehicular options can help those who are not able to drive or do not have access to personal vehicles, and can help reduce traffic congestion and vehicle emissions. These efforts have included bus stop improvements and investments in first and last-mile connections and infrastructure, such as the implementation of regional wayfinding signage and a bike and ride shelter at McCaslin Station.

As more people are spending time in Louisville, and traveling through the city to get to other regional destinations, it is important that the transportation network continues to develop to meet the changing and diversifying needs.



# PLAN FRAMEWORK

## Transportation Master Plan

Previously, the City's transportation goals were housed within multiple planning documents that the City developed over time, including the Comprehensive Plan and corridor specific plans such as the South Boulder Road and McCaslin Small Area Plans and Highway 42 Gateway Alternative Analysis Report. In recognizing the benefits of coordinated transportation planning city-wide, rather than incrementally for specific corridors or areas of the city, the City has developed this Transportation Master Plan (TMP).

The TMP is the first effort conducted by the City to look comprehensively at transportation conditions and options throughout Louisville and region for all modes of transportation.

The TMP represents a long-range planning effort that describes baseline conditions of the City's transportation network, establishes eight overarching transportation Goals, and specific transportation Policies, Projects, and Programs. The City developed the plan with extensive community outreach, input from the City's advisory boards and commissions, regional partners, and City staff.

It is important to note that the plan reflects a particular moment in time. The TMP provides guidance, but City priorities may change over time and transportation decisions will need to reflect these updated community needs, opportunities and priorities. The City should update the TMP periodically to ensure consistency with changing conditions.

## Previous Planning Efforts

Louisville has completed or participated in multiple planning efforts that have focused on transportation in a particular part of the community, a specific corridor, or touched on transportation as part of other broader efforts. The TMP takes into account these past plans and incorporates the previous goals, strategies, and recommendations when still consistent with the City's current transportation goals. It is important that the TMP recognizes and incorporates both past and present community input and previous recommendations to inform future goals.

### The Comprehensive Plan, identifies the following core value around transportation:

*"A Balanced Transportation System...where the City desires to make motorists, transit customers, bicyclists and pedestrians of all ages and abilities partners in mobility, and where the City intends to create and maintain a multimodal transportation system to ensure that each user can move in ways that contribute to the economic prosperity, public health, and exceptional quality of life in the City."*

### Past planning efforts include:

- Sustainability Action Plan 2016
- Comprehensive Plan
- Downtown Parking & Pedestrian Action Plan
- McCaslin Blvd Small Area Plan
- Northwest Area Mobility Study (RTD)
- 42/S 96th Street Gateway Alternative Analysis
- Dillon Road Corridor Study
- 2040 Metro Vision RTP (DRCOG)
- South Boulder Road Small Area Plan
- Trail and Wayfinding Master Plan
- Regional Housing Strategy
- Affordable Rentals (Boulder County)
- US 36 First & Final Mile Study
- SH 7 Planning & Environmental Linkages
- Boulder County Age Well Plan

# TMP ORGANIZATION AND CONTENTS

The TMP is organized in the following way:

## Chapter 1 Introduction

The first chapter establishes the background and purpose of the TMP, describes the key goals of the plan and explains the organization of the document.

## Chapter 2 Community Input

This chapter details the community feedback received through the outreach conducted during this project. It summarizes the major conclusions from the community input that have informed the plan elements and priorities.

## Chapter 3 Existing Conditions

This chapter covers existing data and trends that help to form an understanding of the current state of Louisville's transportation system, as well as demographic trends related to transportation needs.

## Chapter 4 Policies, Projects, and Programs

This chapter presents the City's recommendations based on community input and the analysis of existing conditions. The recommendations are organized into Policies, Projects, and Programs.

## Chapter 5 Implementation

This chapter establishes a framework for prioritizing recommendations and evaluating the City's progress towards the TMP's goals.



# TMP GOALS

Louisville's transportation network will:

- 1** Operate **efficiently and safely** for all users.
- 2** Be a **cohesive and layered system** of streets and trails for walking, biking, transit, driving, and recreation.
- 3** Provide **local and regional travel** options that balance needs for Louisville residents, employees, and visitors.
- 4** Utilize **new technologies** to provide safe, reliable, clean and convenient transportation choices.
- 5** Increase **mobility options and access** for people of all ages, abilities and income levels.
- 6** Provide **complete streets** that are inviting, enhance livability and reflect the City's small-town atmosphere.
- 7** Support **economic opportunities** and businesses.
- 8** Improve **environmental and community health** by reducing emissions, and supporting mode share and sustainability.

## Developing the Goals:

The City's goals for transportation are rooted in the core values in the Comprehensive Plan, which focus on a balanced transportation system where people of all ages and abilities are partners in mobility. Furthermore, the Comprehensive Plan envisions a transportation network that contributes to the economic prosperity, public health, and quality of life in Louisville. In addition to the guidance from the Comprehensive Plan, the City developed the TMP goals based on conversations with the public and stakeholders from across the City.



## 1. Operate efficiently and safely for all users.

Louisville's transportation system must function efficiently, delivering people to their destinations in a timely manner. Whether someone is driving, walking, or cycling the transportation network must be convenient and enhance their ability to move around the city and the region. The transportation network must also be safe for all users. It should be designed in a way that minimizes crashes, and also in a way that functions well year-round, throughout inclement weather.



## 2. Be a cohesive and layered system of streets and trails for walking, biking, transit, driving, and recreation.

Louisville's transportation system must be a well-connected network that links together the network for all transportation modes. This means that key destinations and routes must be accessible for all that use the network and that people can move seamlessly between destinations and modes.



## 3. Provide local and regional travel options that balance needs for Louisville residents, employees, and visitors.

The demands on Louisville's transportation network come from residents of the city, visitors, employees and those passing through. The needs of all these different users must be considered and balanced because they all impact each other when they use the transportation system.



## 4. Utilize new technologies to provide safe, reliable, clean, and convenient transportation choices.

Technology offers ever-advancing options for transportation, and the potential to improve efficiencies and safety in the transportation network. Advancements occur at a variety of scales, from driverless technology and ridesharing to intersection reconfigurations, and traffic signal and smart signal improvements. A successful transportation system is agile and flexible enough to accommodate improvements and developments in technology.

## 5. Increase mobility options and access for people of all ages, abilities, and income levels.

The system must be inclusive in its accommodation for all needs within the community. It must improve mobility and remove barriers for drivers and non-drivers, younger and older people, families and individuals, regardless of income.



## 6. Provide complete streets that are inviting, enhance livability and reflect the City's small-town atmosphere.

Streets should be designed to work for all modes of transportation. Complete streets are functional and inviting to a variety of users, whether they be on foot, on bike, or in a car. They should be designed to feel safe, promote use by all modes, and reflect Louisville's small-town character.



## 7. Support economic opportunities and businesses.

An efficient transportation network also benefits the economy by moving consumers to businesses, employees to work, and delivering goods and services throughout the region. An attractive and well-functioning network also helps attract new businesses to Louisville.



## 8. Improve environmental and community health by reducing emissions, and supporting mode share and sustainability.

Sustainability is a key consideration for the transportation network. Transportation choice and technology can substantially influence air and water quality, environmental health, and the emission of Greenhouse Gases. The transportation system should be designed to encourage the use of alternative modes of transportation, and minimize the barriers toward the use of such facilities. The system should also promote technologies that lead to greater efficiency and more accessible multi-modal networks.



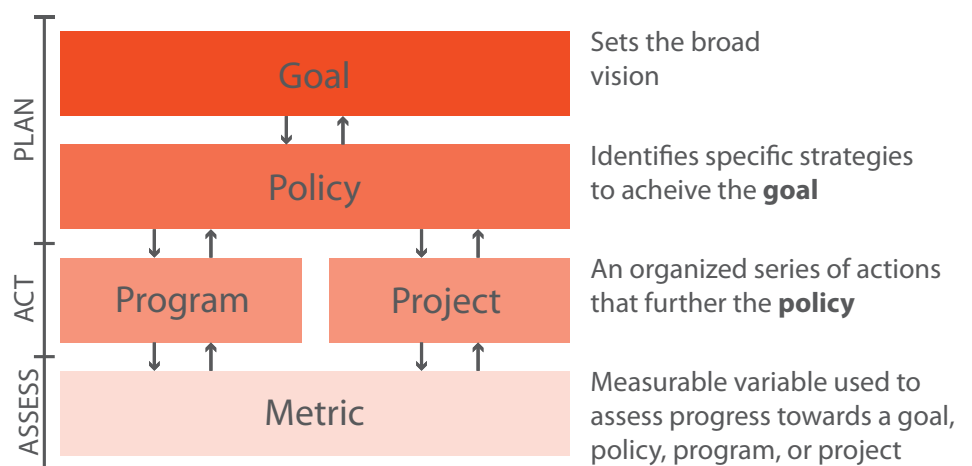
# HOW THE GOALS RELATE TO THE REST OF THE TMP

The goals of the TMP provide a comprehensive framework for the broad vision of the transportation network. They are high level in nature, indicating a desired outcome.

Chapter 4 provides recommendations for specific Policies, Programs, and Projects to improve the transportation network.

Policies identify specific strategies to achieve a goal. Programs and Projects include specific actions that may be taken to implement the Policies and Goals. The TMP also establishes specific metrics for the goals to measure progress as the plan is implemented over time. These specific progress metrics are provided in Chapter 5.

The graphic below illustrates the relationship of Goals, Policies, Programs, Projects, and Metrics.





# Community Input



# INTRODUCTION

## TMP Community Input Opportunities:

- Community Meeting
- Farmer's Market
- Street Faire
- Labor Day Parade & Fall Festival
- Online Survey
- Interactive Online Map
- Direct Email
- Focus Groups

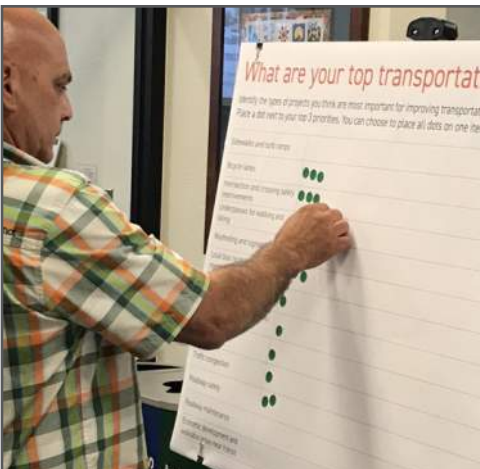
Louisville has an active and involved community that articulated a variety of needs and desires for the future of transportation in the City. To develop the TMP, it was important to engage with the community in a variety of ways through broad outreach and opportunities for input. The community input was critical to understand what the community likes and where they would like to see improvements or changes in the future.

The City utilized a variety of methods to collect community feedback, including public meetings, focus group meetings, online surveys, an interactive map, and outreach at community events. In all, participants provided approximately 1,500 comments and submitted 163 online surveys. Additionally, the City received feedback from Louisville's Open Space Advisory Board, Sustainability Advisory Board, and Planning Commission.

Major themes from the community input included:

- While driving is how most people get around, the participants wanted more investment in multimodal infrastructure such as underpasses, transit connections, bike lanes, and safer road crossings.
- The city's trails are a great amenity for residents and continued investment in trails is desired.
- Traffic congestion and cut-through regional traffic are getting worse.
- Safety was a key theme. A lack of safe or perceived lack of safe and comfortable facilities is a barrier to walking and biking.

This chapter includes a more detailed summary of community feedback and Appendix A provides a full list of comments, survey results, and map ideas.





# FEEDBACK RECEIVED

## Comments & Map Ideas

Figure 2.1 shows a summary of the percentage of all comments received by category. Comments most frequently addressed biking and walking connectivity, with many ideas for new or improved connections. Safety was also a frequent topic, with more specific concerns noted by mode throughout the community geographically. Figure 2.2 shows a compilation of all ideas posted to the online interactive map. The word cloud in Figure 2.3 illustrates the individual words mentioned most frequently in the online map comments. Larger words represent more common usage.

The public input summary identifies major areas of focus along SH 42/S 96th Street, South Boulder Road, McCaslin Station, Via Appia, and Dillon Road. Many of these comments related to improving connectivity and accessibility for multiple modes, and improving areas of congestion.

Figure 2.1  
Comments by Category

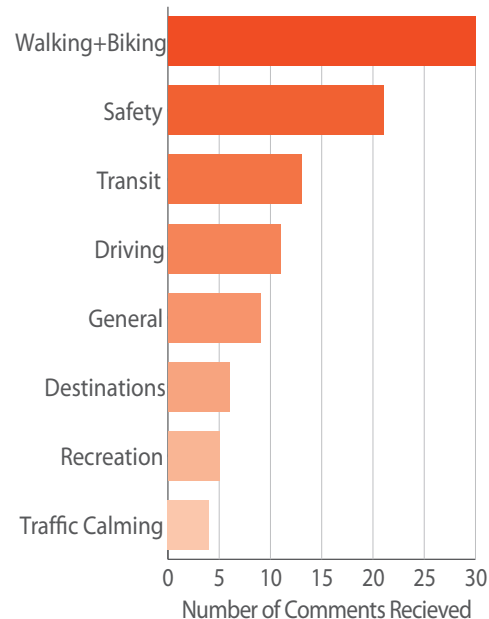


Figure 2.2 Interactive Map Ideas Compilation

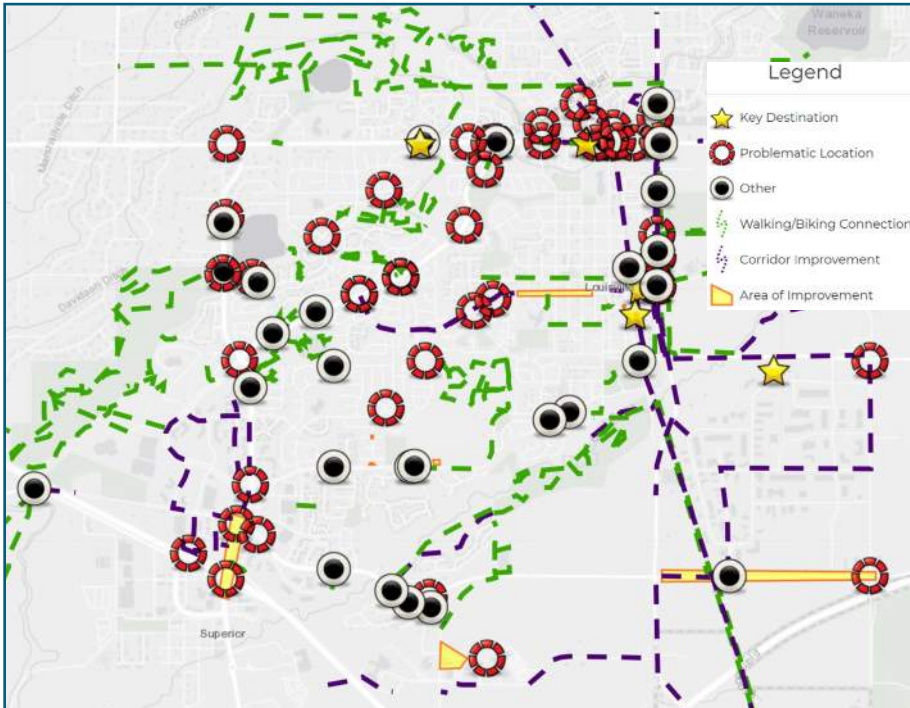


Figure 2.3 Most Used Words from Online Map Comments



## Survey Input

The community also provided input through an online survey, which gathered feedback around specific ideas. The survey asked 32 questions about the way people get around Louisville today and what they would like to see improved in the future, such as:

- Why they walk, bike, use transit, or drive for their trips and how frequently they use each mode
- Barriers they experience
- Improvements that may encourage them to use other modes in the future or have better experiences on trips they currently make
- Current and future use of technology for making trips
- Goals for the project
- Priorities and resource allocation for improvements
- Demographic information
- Other information: favorite places to go, big ideas, and places to improve access

Overall, survey participants indicated that accessing and riding transit is most difficult and driving is easiest. Specifically, 94% find driving moderately to very easy; 64% find walking moderately to very easy; 47% find biking moderately to very easy; 26% find transit moderately to very easy.

The survey indicated that key barriers to transportation within Louisville included the following:

- Walking - destinations are too far, some intersections don't feel safe, and vehicle speeds may negatively affect feelings of safety and comfort.
- Biking - some roadway crossings don't feel safe or visible, traffic volumes may negatively affect feelings of safety and comfort, and a lack of trails/bikeways connecting to destinations may create barriers to some areas of town.
- Driving - speeding and traffic congestion/travel time are the two most significant issues for driving.

To understand what types of transportation improvements were most important, the survey asked respondents to identify priorities for funding. With limited funding available, this helps the City determine how to prioritize projects. The top priorities were identified as access to bike/pedestrian destinations, regional transit service, first and last-mile connections to transit, and bike lane improvements. Figure 2.5 identifies top priorities based on the survey responses.

Further, participants were asked how they would spend \$100 to improve transportation in Louisville. The top three types of projects that people identified were for bike/pedestrian underpasses, commuter rail, and intersection safety improvements for all modes. Figure 2.6 identifies the proportion of funding that survey participants identified for each category of project.



## Figure 2.4 Use of Modes in Louisville from Online Survey

For trips within, to, or from Louisville people identified how often they walk, bike, drive, or use transit. Responses indicate % of respondents in each of the categories:

- Frequently = 5+ days per week;
- Occasionally = 1-3 days per week;
- Rarely = 1-2 days per month; and
- Never

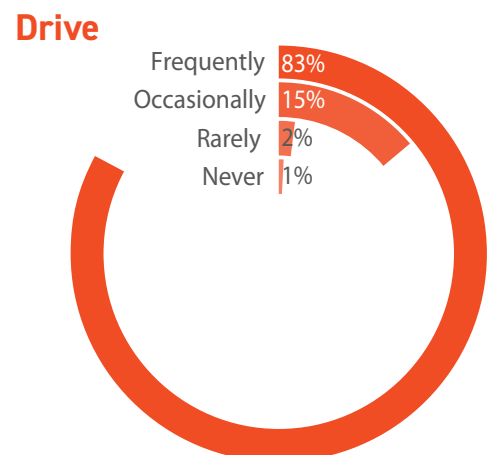
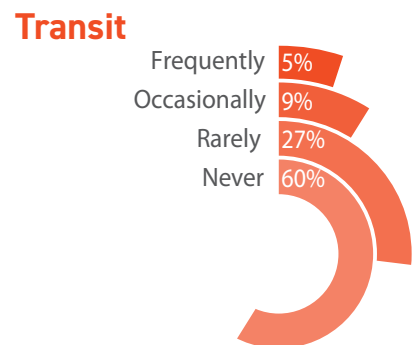
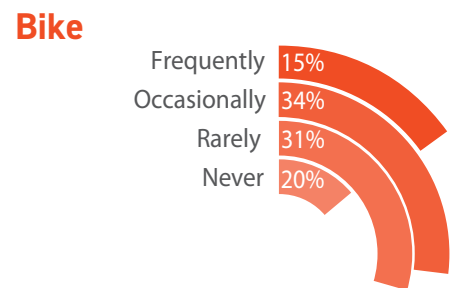
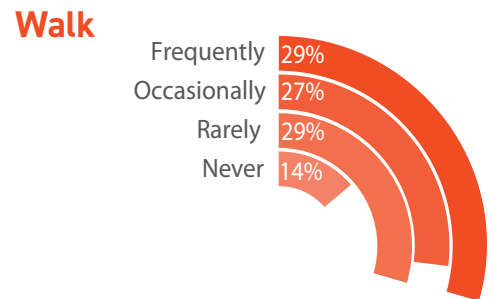




Figure 2.5 Priority of Transportation Improvements in Louisville

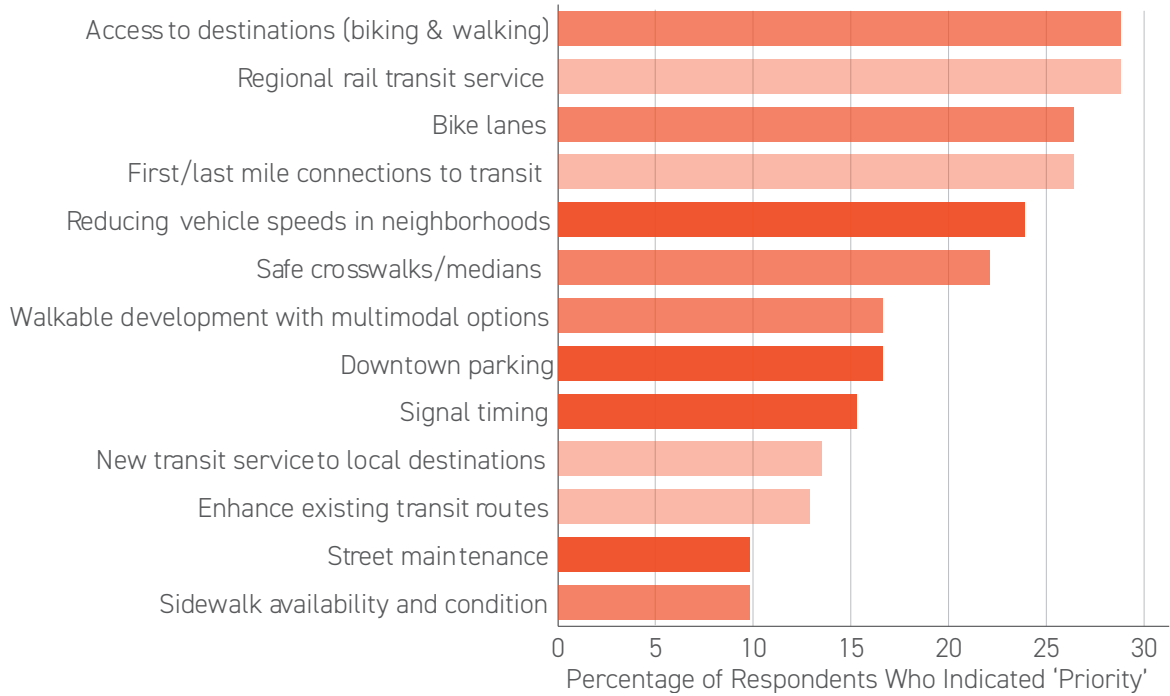
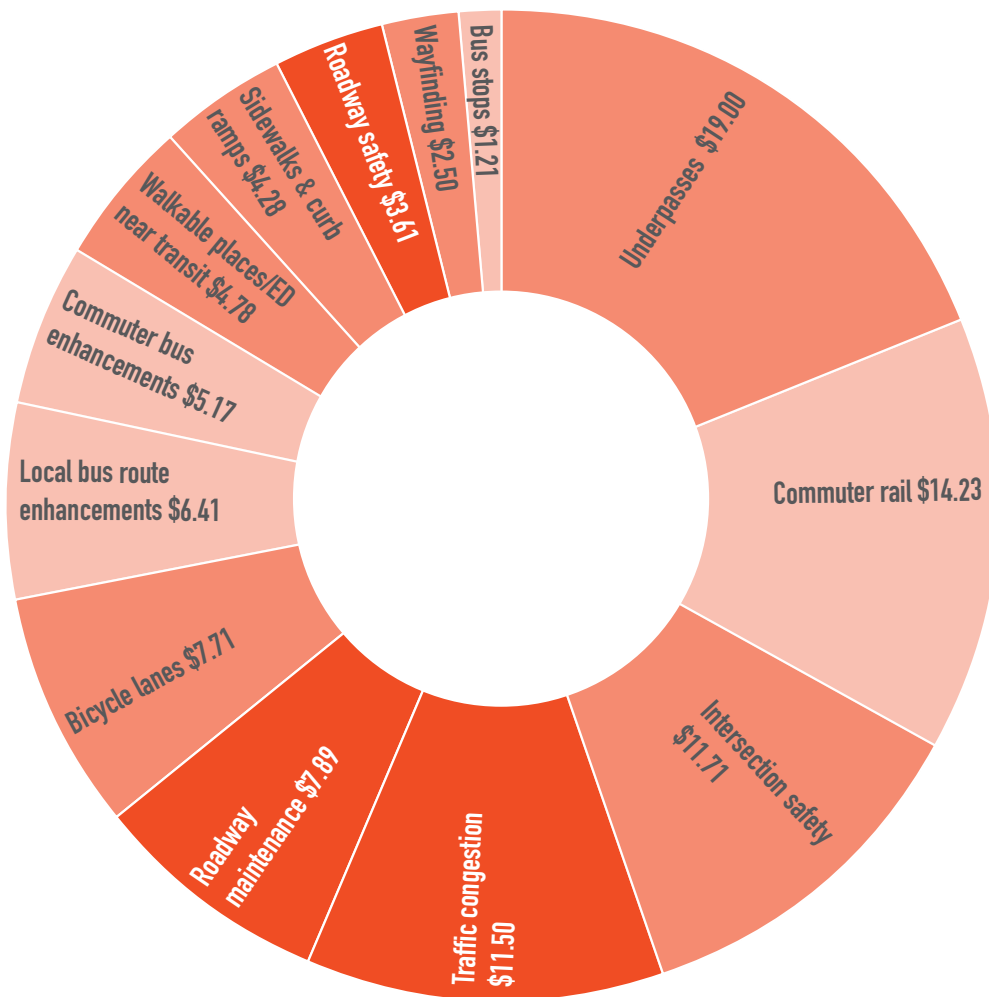


Figure 2.6 Prioritized Spending by Project Type



## Focus Groups

The City held three focus groups with a variety of participants from various areas of the city and with representatives of businesses. The focus group input included the following major themes:

- Intersection crossings are important for the safety of people of all ages and abilities to access destinations.
- More connections to and within destinations are needed for walking and biking access.
- Transit to the CTC is a high priority.
- People driving and biking prefer separate facilities where possible.
- More funding is needed for on-demand transit services and there is a need to improve local transit options overall.
- Education programs and communication with the community is valuable for changes, new facilities, and safety.
- Make sure that recommendations are feasible and implementable.



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# Existing Conditions



# INTRODUCTION

## Study Area

The City of Louisville comprises approximately eight square miles. The roadway network consists of major collectors and arterials that connect with local streets and there is an extensive trail network with internal and regional connections. There are four elementary schools, two middle schools, and one high school in the city. The city limits define the study area for the TMP, but regional connectivity was analyzed and considered in the plan.

## Regional Context

Located immediately northeast of the US 36 corridor connecting Denver and Boulder, Louisville is situated in the midst of a rapidly growing multi-centered metropolitan region.

Louisville directly borders three other incorporated jurisdictions: the City of Lafayette to the northeast, the City and County of Broomfield to the southeast, and the Town of Superior to the southwest. Unincorporated Boulder County borders Louisville to the northwest.

The city also lies within a number of larger jurisdictions. It is located in Boulder County, which encompasses nine other cities and towns including Boulder, Lafayette, Erie, and Superior. Louisville, its neighbors, and Boulder County are members of the Denver Regional Council of Governments (DRCOG). DRCOG is the Metropolitan Planning Organization (MPO) responsible for developing coordinated transportation plans and allocating federal transportation funds throughout the nine-county metropolitan region. The city is located in CDOT Region 4. Louisville also lies in the northwestern sector of Denver's Regional Transportation District (RTD), which runs transit service in Denver, Boulder, and surrounding areas.

Given Louisville's small size and proximity to other jurisdictions, the transportation networks and travel patterns of Louisville, its neighbors, and the surrounding region are closely intertwined.

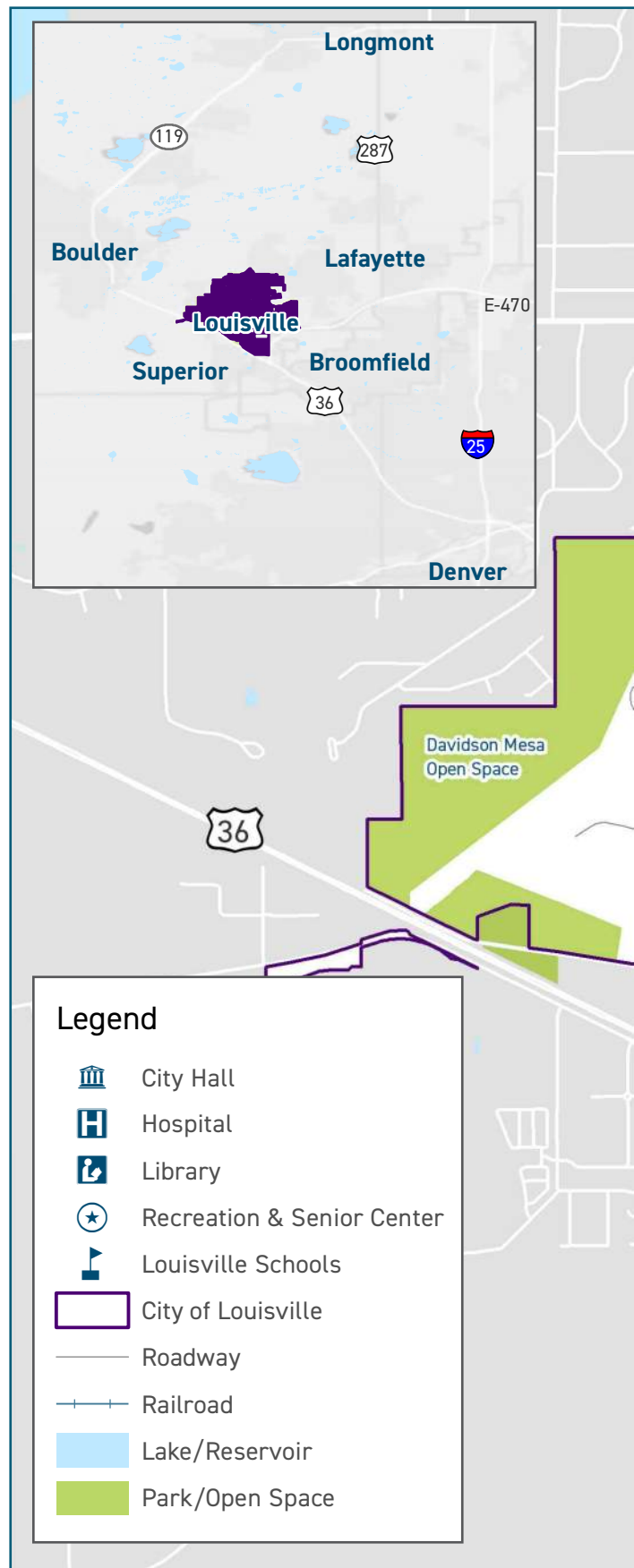
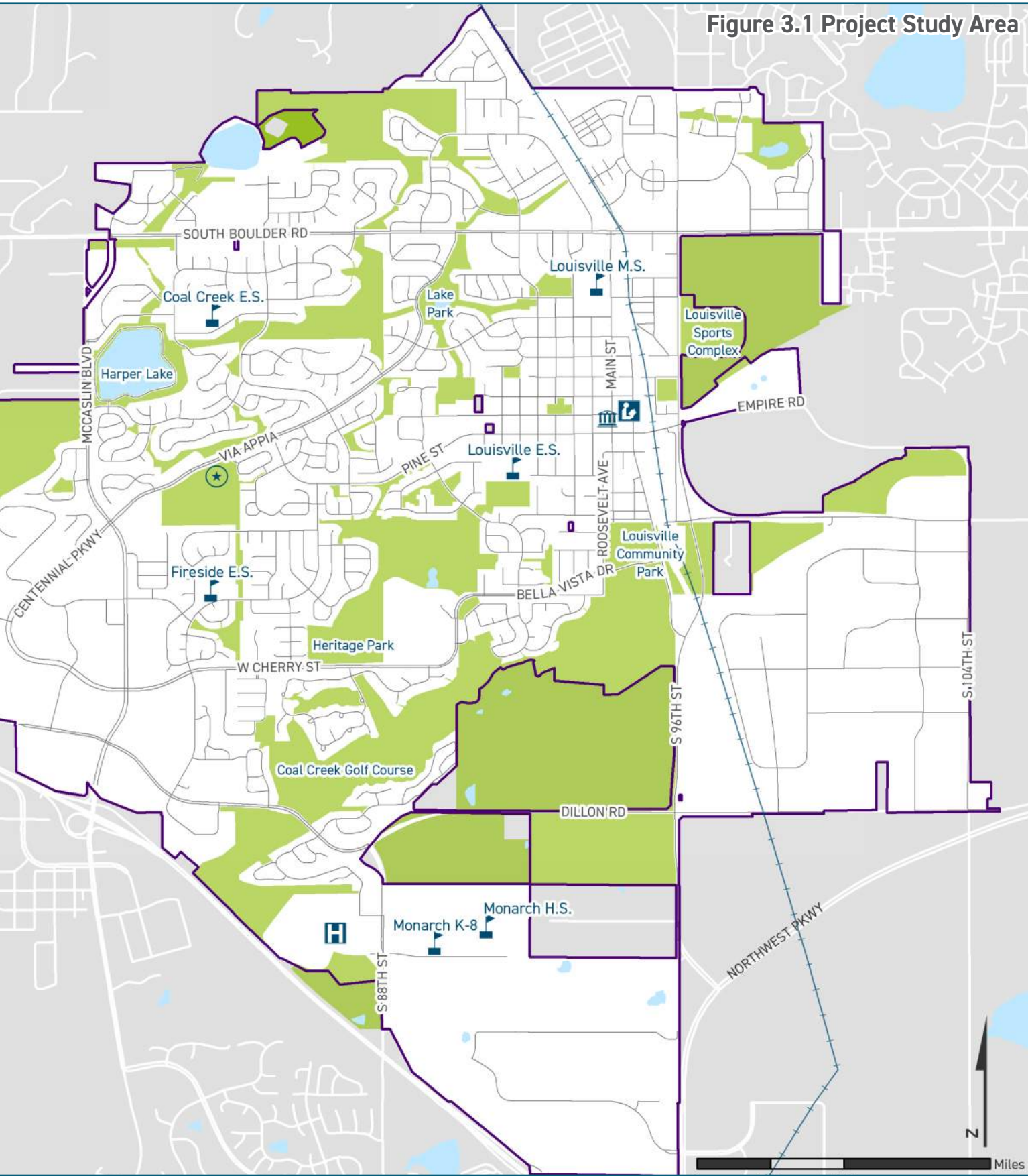




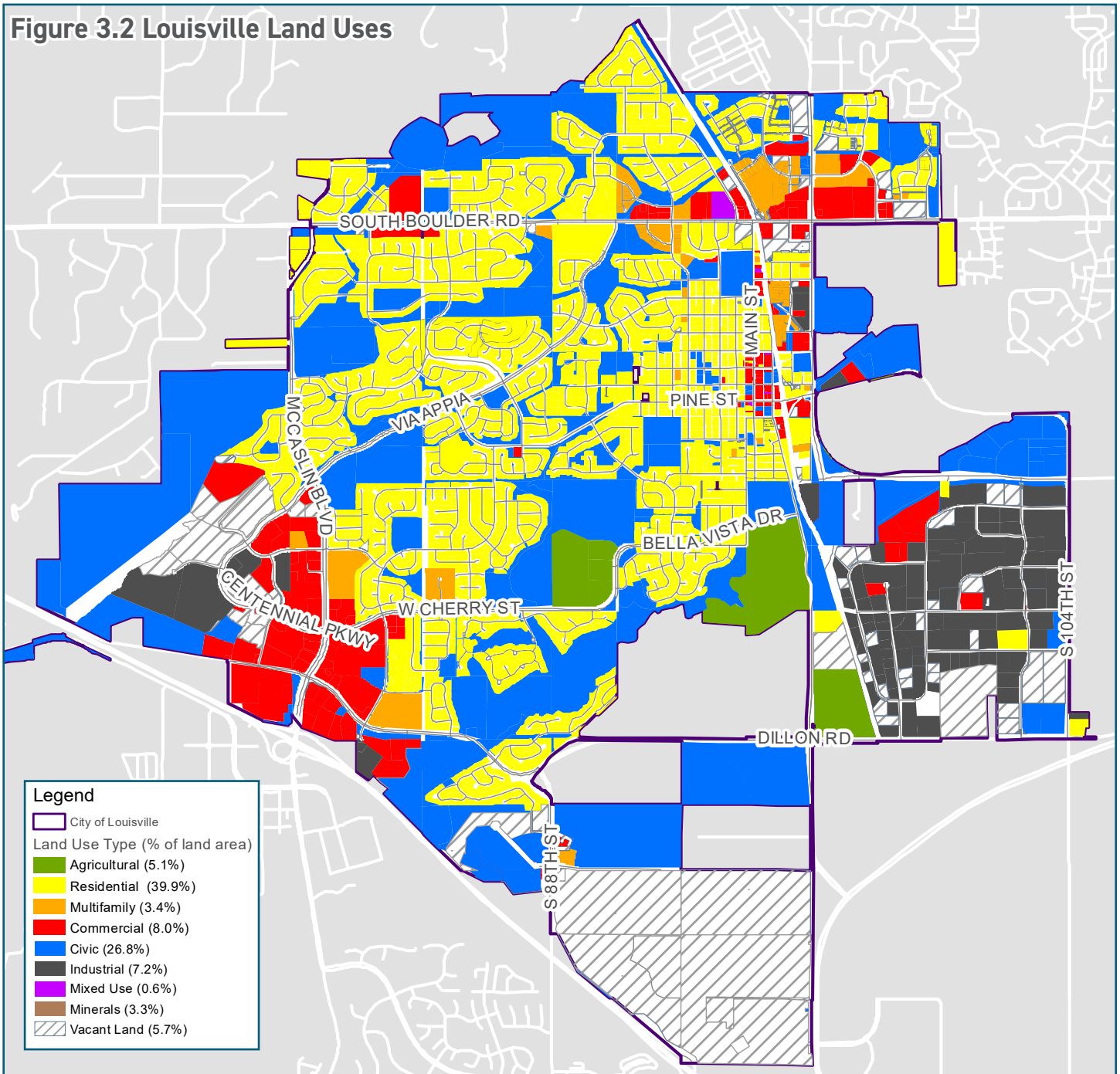
Figure 3.1 Project Study Area



# LAND USE

Louisville's primary land uses are residential and civic development, shown in yellow and blue, respectively, in Figure 3.2. Civic land use consists of parks, open space, schools, and other tax-exempt land. Residential land makes up the core of the city, while commercial and retail land uses are located primarily in the southwest and northeast areas of Louisville, including Downtown. A majority of housing in the city is comprised of single-family units (approx. 82%). The city's multi-family housing is found mainly in the areas of South Boulder Road and Highway 42/S 96th Street, and near McCaslin Boulevard. Much of the city's industrial land use is located in the Colorado Tech Center (CTC). Louisville does have some vacant land, primarily in the western and southern parts of the city and in the CTC on the east side of the City. Since Louisville is largely built out, much of the growth in traffic will come from outside the city.

**Figure 3.2 Louisville Land Uses**



# Land Use Characteristics

Louisville is a predominantly residential community with a strong employment base that has grown and changed over time. There are a variety of housing types, industries, office, and retail areas within the City. The land-use patterns are largely reflective of different eras of when development took place. The Comprehensive Plan identifies three general development patterns in Louisville: urban, suburban and rural. These patterns are distinctive in their mix of land uses and in the street and lot layouts. The map and photos on the following page illustrate examples of these patterns.

*Urban:* Downtown Louisville and the adjacent areas that stretch north have an urban land use character. Blocks are smaller and more rectilinear, with narrower streets and denser development. Buildings tend to be closer to the street and on-street parking is more common. Land uses in the urban area include a wide range of residential and commercial uses. Multi-family residential is found north and east of Downtown, while small-lot single-family is common in Downtown and throughout the urban area. Auto-oriented commercial is found on the perimeter of Downtown, but the core tends to be a mix of more pedestrian-oriented commercial with storefronts, outdoor dining, and smaller format office.

*Suburban:* The suburban areas in Louisville extend throughout the city, anchored by key arterials including Via Appia, McCaslin Boulevard, and South Boulder Road. This pattern also exists in the Colorado Tech Center (CTC). The suburban areas are predominately curvilinear in layout, with winding roads, culs-de-sac, and irregular lot shapes. Single-family residential is the most common land use, with pockets of multi-family residential mixed in. Commercial development is mostly auto-oriented and is located along corridors and at key intersections. Lot sizes tend to be larger, with greater amounts of land used for landscaping, parks, and surface parking. Industrial land uses are also present in suburban areas but are largely concentrated in the CTC.

*Rural:* Rural land exists around the perimeter of Louisville, with some bands extending towards the core of the city. These areas are lightly developed, typically with only a few roads separating large tracts of land. Rural areas in Louisville include open space and parks, as well as low-density residential and active agriculture.

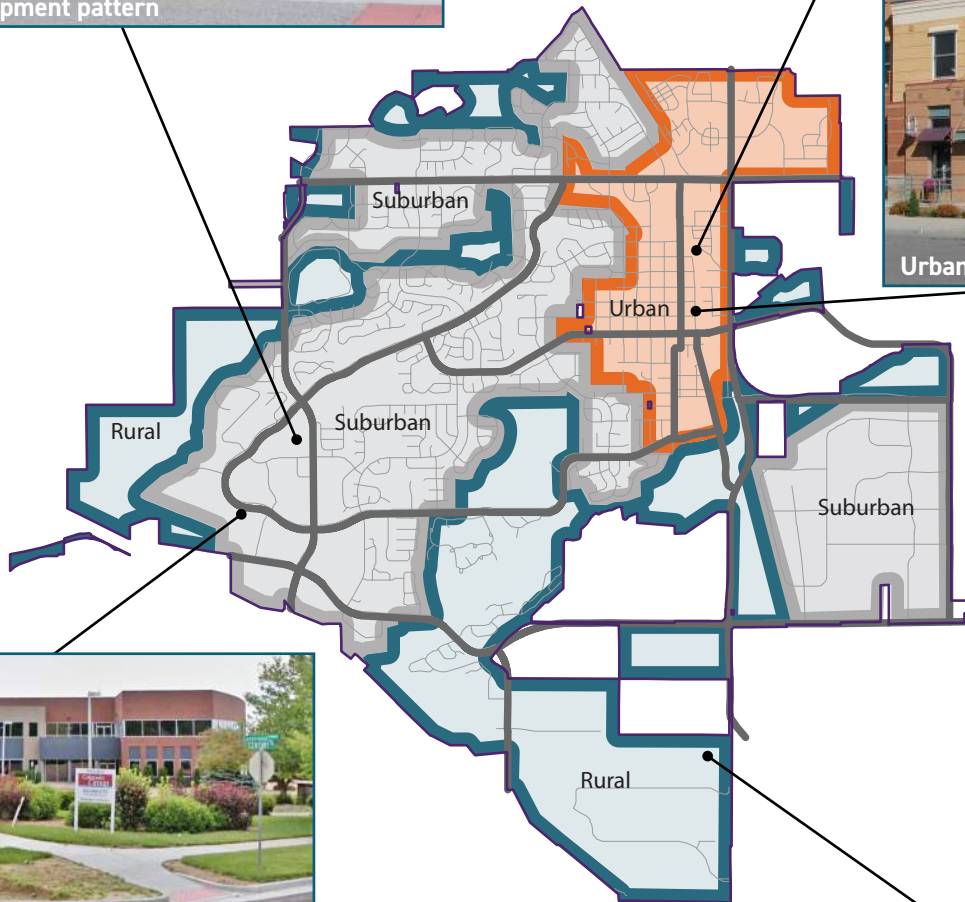


The urban area in Louisville includes multi-family development and more traditional pedestrian-oriented commercial development.



Suburban areas in Louisville are predominately curvilinear.

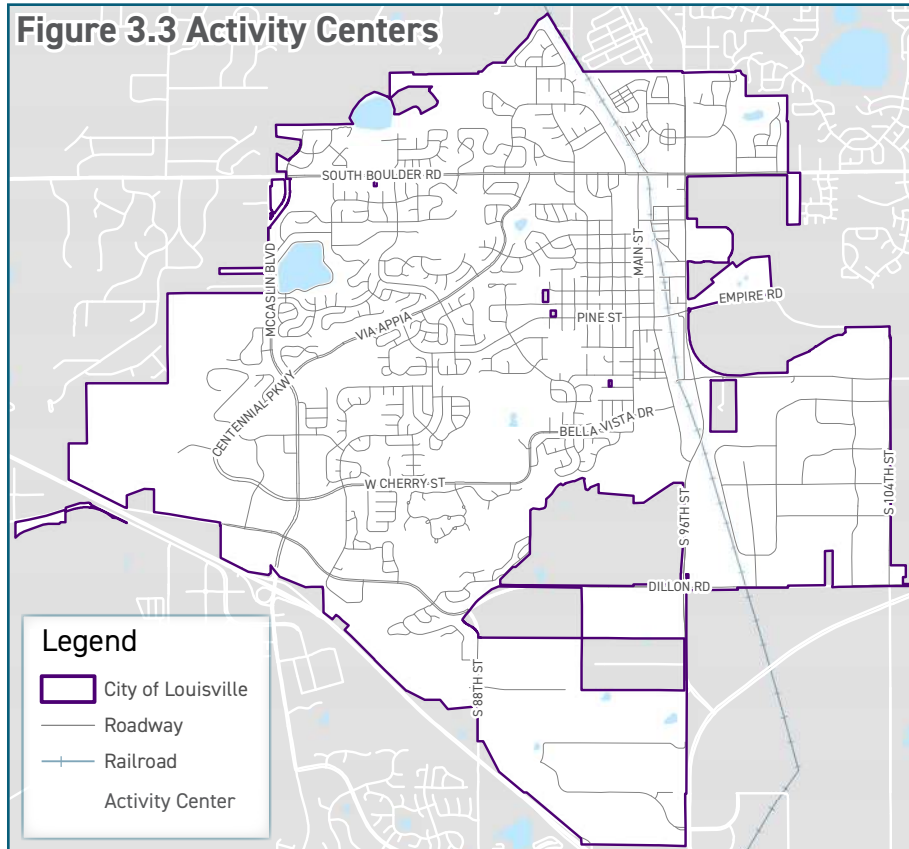






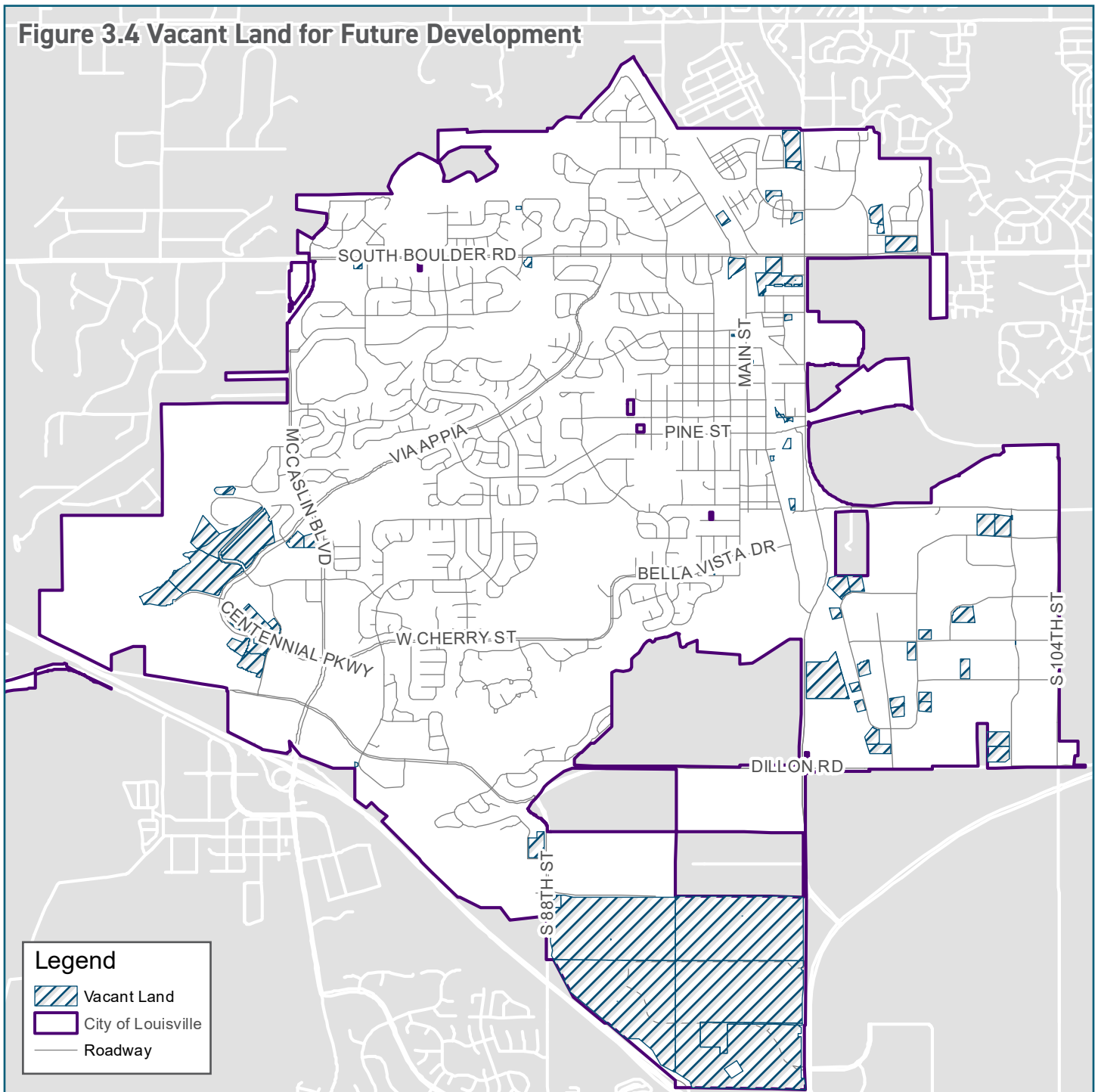
# Activity Centers

Activity centers are locations that draw a high number of people. Typically these areas have large amounts of office or retail space or have a mix of uses. Figure 3.3 highlights the locations of activity centers in Louisville. These areas fall along major corridors and are employment hubs. These high activity areas accounted for 41% of city employment in 2001, and 59% of city employment in 2017.



# Future Development Potential

Figure 3.4 identifies vacant land in Louisville. Vacant properties provide the highest development potential and account for 5.7% of land in the City. The most significant of these areas is the old StorageTek campus site between South 88th Street and South 96th Street on the southern side of Louisville. The 390-acre site represents the largest potential for development within Louisville. Development of this parcel could have significant impacts on the transportation network. The multiple vacant parcels within the CTC and in Centennial Valley also provide significant development opportunities for employment. Both the old StorageTek campus and the CTC lack access by transit, and biking options are limited at this time.



# POPULATION, HOUSING, AND EMPLOYMENT

Travel patterns, community mobility, and demand for transportation facilities are all influenced by population characteristics. The following sections highlight demographic information about the people that live and work in Louisville.

## Louisville Residents

Current population estimates show that 21,208 people live in Louisville, with 8,681 households. Louisville is an affluent residential community with a median household income of \$94,971 and only 7% of households living in poverty.

Louisville is known as a family-friendly community with well-regarded schools and access to trails and recreation opportunities. The city itself has a higher percentage of adults age 35–64 than Boulder County and the Denver region as a whole. The median age in Louisville is 42.4 years, 5 years older than the Colorado median age of 37.3 years. Since 2000, the adults age 55 and older group has grown from 12% of the Louisville population to 32%. Additionally, the percentage of children under age 18 has decreased in the same period from 28% to 22%. Over the next 30 years, it is projected that the percentage of adults age 55+ will increase at a rate of approximately 3% per year, while the population under age 18 will increase at less than 1% per year.

Louisville is less ethnically and racially diverse than Boulder County and the Denver region as a whole. 85% of Louisville residents identify as White and non-Hispanic, compared to 78% in Boulder County and 64% in the Denver region.

Figure 3.5 Age of Residents (2017)

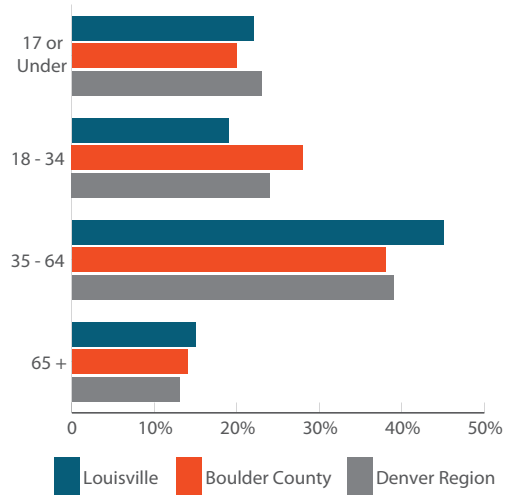


Figure 3.6 Louisville and Comparison Area Demographic Data

	Louisville	Boulder County	Denver Region*
Total Population	21,208	333,953	3,203,332
Households	8,681	132,801	1,255,009
Average Household Size	2.43	2.43	2.52
Median Household Income	\$94,971	\$76,802	\$72,297
Unemployed	2.5%	3.6%	3.3%
Below Poverty Line (2016)	7%	13%	10%
% Zero auto households (2016)	5%	6%	6%
% Own	75%	64%	62%
% Rent	25%	36%	38%
Vacancy	2%	4%	4%
Single Family Detached (2016)	6,265	79,023	718,711
Single Family Attached (2016)	578	9,597	97,067
Apartment 2 - 9 Units (2016)	435	16,495	116,271
Apartment 10 - 49 Units (2016)	669	14,640	174,978
Apartment 50+ Units (2016)	284	7,519	87,740
Other (2016)	111	3,768	22,099
% Hispanic	8%	14%	23%
% White (non Hispanic)	85%	78%	64%
% Black (non Hispanic)	1%	1%	5%
% Asian (non Hispanic)	4%	4%	4%
% Other (non-Hispanic)	3%	3%	3%
% 17 or Under	22%	20%	23%
% 18 - 34	19%	28%	24%
% 35 - 64	45%	38%	39%
% 65+	15%	14%	13%
% No High School	1%	2%	4%
% Some High School	1%	3%	5%
% High School Graduate	9%	13%	20%
% Some College	12%	15%	19%
% Associate Degree	5%	6%	8%
% College Degree	38%	32%	28%
% Graduate School	35%	29%	17%

Source: 2018 ESRI

\*Includes Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties



## Recent Population Changes in Louisville

Louisville's current population is estimated at 21,208. Since 2010, the city has grown by 2,800 residents, representing 15% overall growth or 1.8% growth per year. This is much stronger growth than was seen between 2000 to 2010, where the city declined 4% in population and saw only 2% growth in households.

Similar to population growth, the city has had much stronger housing growth in the past eight years than from 2000 to 2010. Since 2010, housing stock has increased by 12% or almost 1,000 new housing units. The areas of population and household growth are near major corridors and place added demand on the transportation network.

## Regional Population Growth

The Denver Regional Council of Governments (DRCOG) uses modeling to estimate future growth in population and employment. This modeling provides insight into where growth could occur based on existing zoning and development information and helps predict potential impacts of growth on the transportation network. Between 2015 and 2040, Louisville is forecast to add 2,500 new residents in 1,300 households. This is an overall growth of 12-15% for the city. Areas of growth are anticipated to be in Downtown, the northeast, and southern parts of the city. Growth is also predicted outside the city, particularly to the west and south in unincorporated Boulder County and Superior. Growth outside of the city will likely impact key travel corridors for people coming into and through Louisville.

## Housing

Approximately 75% of homes in Louisville are owner-occupied, while 25% are renter-occupied. This is higher than homeownership rates in Boulder County and the Denver region. Louisville has a very low housing vacancy rate of 2% compared to 4% in Boulder County and the Denver region.

The city has seen a significant increase in multifamily housing since 2013. Prior to 2013 there were approximately 500 apartment units (in purpose-built apartment structures) in the city, with no new construction since 1999. Since 2013, nearly 700 new units have been built. The Downtown East Louisville (DELO) development located between South Street and Griffith Street on the west side of Hwy 42/S 96th Street is an example of recently completed apartments and townhomes designed as a mixed-use neighborhood with retail and office space. Higher density housing, like apartments and townhomes, can be complementary to transit stops and can help reduce reliance on automobiles for trips in areas that are walkable with a variety of uses in close proximity.

More affordable housing is desired in the region and the City has recently endorsed the Boulder County Regional Housing Strategy to expand affordable housing options. Recently, the Boulder County Housing Authority, in partnership with the City, opened a new housing development in Louisville - the Kestrel neighborhood. The community is income-restricted and includes 129 townhouses for individuals and families and 71 apartments for seniors ages 55 and older. Kestrel is located west of Highway 42/S 96th Street and just north of South Boulder Road. For lower-income individuals and families, transportation is an important issue. Access to a vehicle is not always possible, so mobility choices and connections to transit and biking are important. The Kestrel development has access to bike trails, commercial and retail services, and transit along South Boulder Road as well as within the development, but key connections to employment and services need further development.

Zero automobile households are typically strongly correlated with transit usage and lower incomes. Millennials have become a component of zero auto household rates as they are increasingly forgoing vehicle ownership as a choice. Whether by choice or not, households with no vehicles are more reliant on public transportation, biking, and walking, and new technologies like car-share or transportation network companies (Uber, Lyft) to access jobs, and services. Louisville only has 5% of households that are without a vehicle, compared to Boulder County and the Denver region at 6% each.



Since 2013, nearly 700 new multifamily housing units have been built.

# Louisville Employment

Louisville has a healthy employment sector, providing a variety of jobs to people living in the city and the region. Louisville has many competitive advantages that help it attract businesses, including its proximity to Boulder, Bus Rapid Transit (BRT) service along US 36, and high overall quality of life. Louisville's neighborhoods and workforce are largely single-family, affluent, and educated. This provides a desirable workforce within a small area that supports growing employment. Access to surrounding cities and the overall region is also important for businesses and employees within Louisville. As Figure 3.7 illustrates, a large majority (93%) of people who work in Louisville commute into the city, just as most Louisville residents work elsewhere. However, more than 1,000 people—11% of Louisville's employed residents and 7% of its workers—both live and work in Louisville.

## Employment Growth and Changes

Louisville has added 4,700 jobs between 2001 and 2017, a 44% increase. Nearly all of this employment growth, 4,200 jobs, has come since 2011. This recent growth has created a more diversified and balanced employment base. In 2001, five industries accounted for 77% of jobs in Louisville, with the manufacturing sector accounting for 40% of employment. By 2017, those same 5 industries accounted for 71% of Louisville employment, but jobs were more evenly distributed among manufacturing (21%), professional, scientific & technical services (14%), retail trade (9%), and health care (16%).

## Wages

The average wage in Louisville in 2017, across all employment industries, was \$68,000. Jobs in information had the highest average wage (nearly \$105,000), followed by professional, scientific & technical services (\$103,400) and manufacturing (\$92,800). The lowest-paying jobs in the city are in accommodation & food services, with average wages of \$20,400 per year.

## Regional Employment Growth

Louisville is forecast to capture 0.63% of employment growth in the Denver Region to 2040, adding 4,100 jobs. This represents a 28% increase over 2015 employment levels. Moderate areas of employment growth are predicted largely in the northern and Downtown parts of the city, as well as south of West Cherry Street. The highest growth is anticipated west of McCaslin Boulevard, in the Colorado Tech Center, and the very southern portion of the City at the previous StorageTek campus. This employment growth, along with growth outside of the city, will likely lead to additional trips in and through Louisville.

Figure 3.7 Inflow and Outflow of Residents and Employees

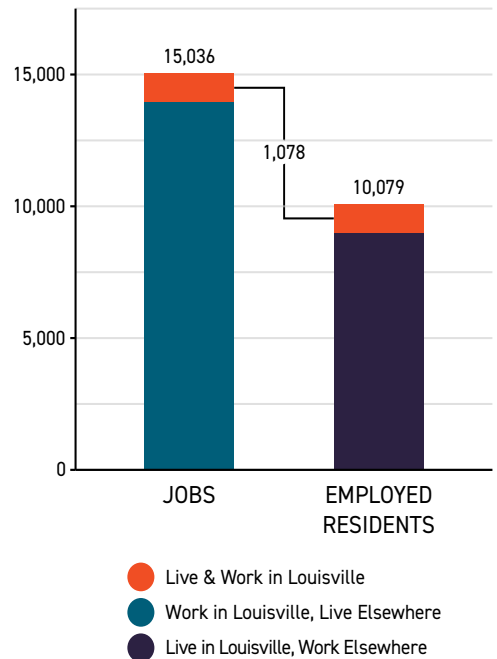
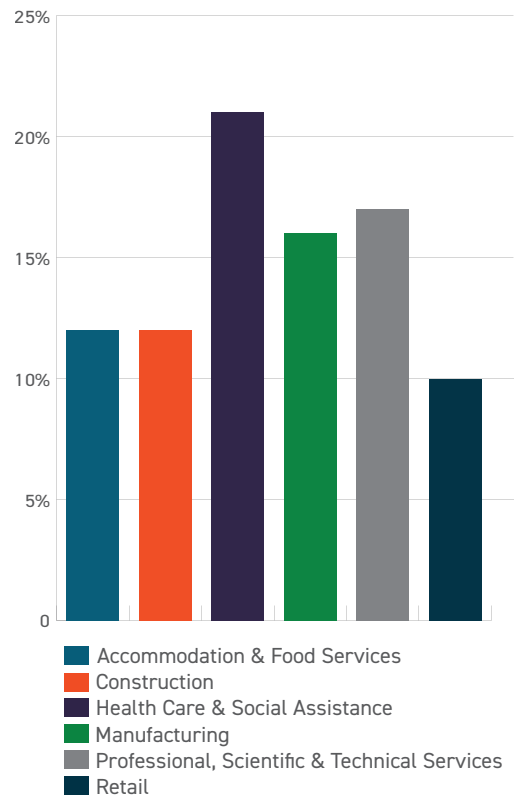


Figure 3.8 Largest Employment Sectors for Growth (2011-2017)



## Regional Employment Comparison

Industry employment in Louisville has had a similar composition to the Boulder/Broomfield area, with a few notable exceptions. Louisville has consistently had a higher share of jobs in manufacturing and health care than the region, and in 2017 also had a higher share of jobs in construction. At the same time, the city has consistently had a lower share of jobs in education than the region overall.

Figure 3.9 Wage and Employment Data

	City of Louisville	Boulder County	Denver Region*
Total Jobs	15,036	163,040	1,561,979
\$1,250 or less per month	14.4%	19.7%	20.3%
\$1,251-\$3,333 per month	27.7%	29.5%	31.1%
More than \$3,333 per month	57.9%	50.8%	48.7%
Manufacturing	25.2%	11.8%	5.8%
Health Care & Social Assistance	13.8%	12.2%	12.3%
Professional, Scientific, & Technical Services	13.0%	16.5%	10.1%
Retail Trade	8.5%	9.6%	10.3%
Information	7.8%	5.1%	3.7%
Accommodation & Food Services	7.1%	9.5%	9.2%
Construction	5.8%	3.1%	5.4%
Wholesale Trade	4.1%	3.7%	5.2%
Finance & Insurance	3.2%	2.5%	5.2%
Administration & Support, Waste Management	3.0%	4.3%	6.5%
Other Sectors	8.6%	21.7%	26.4%

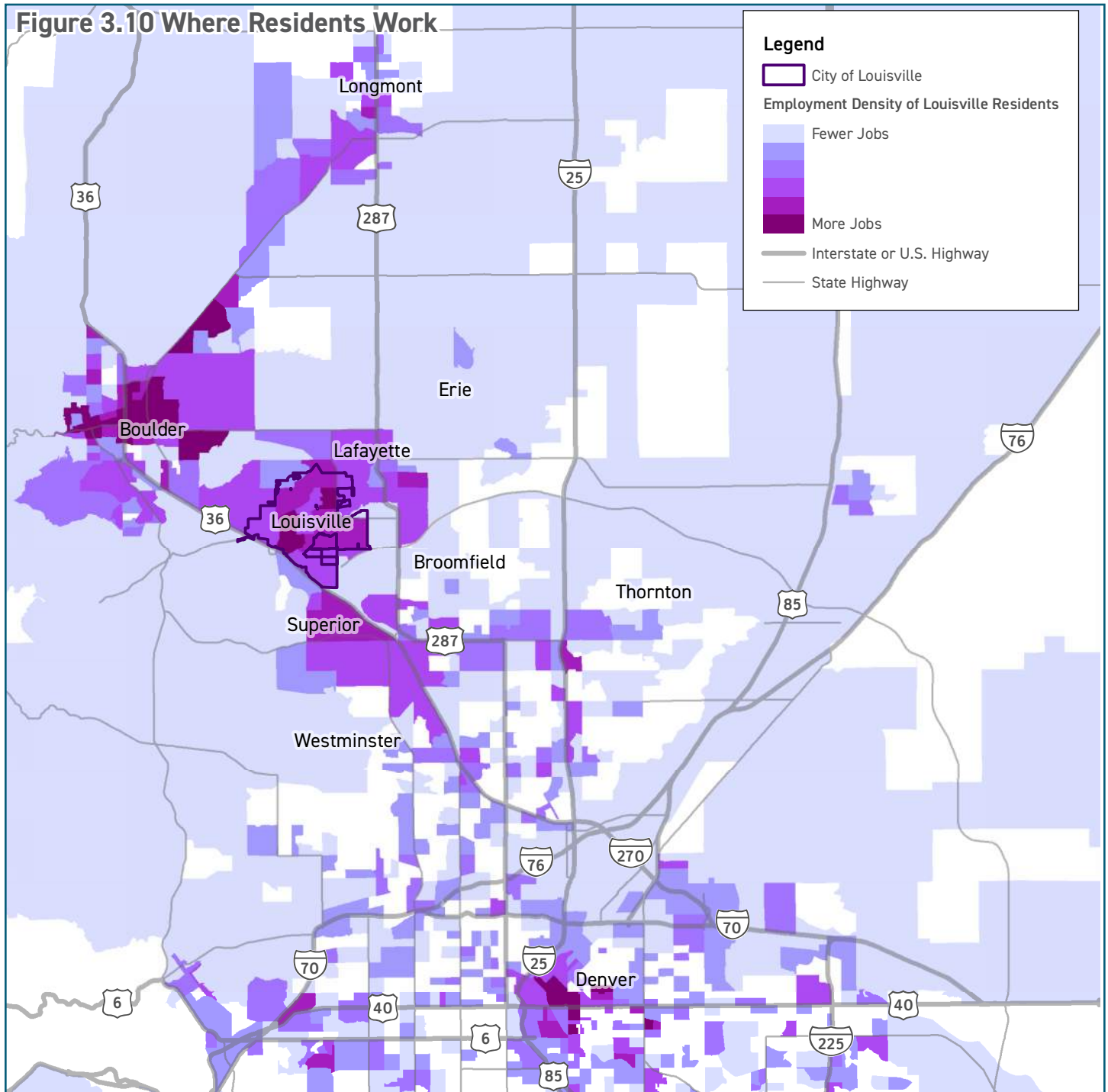
Source: 2015 LEHD Origin-Destination Employment Statistics

\*Includes Adams, Arapahoe, Boulder, Broomfield, Clear Creek, Denver, Douglas, Gilpin, and Jefferson counties



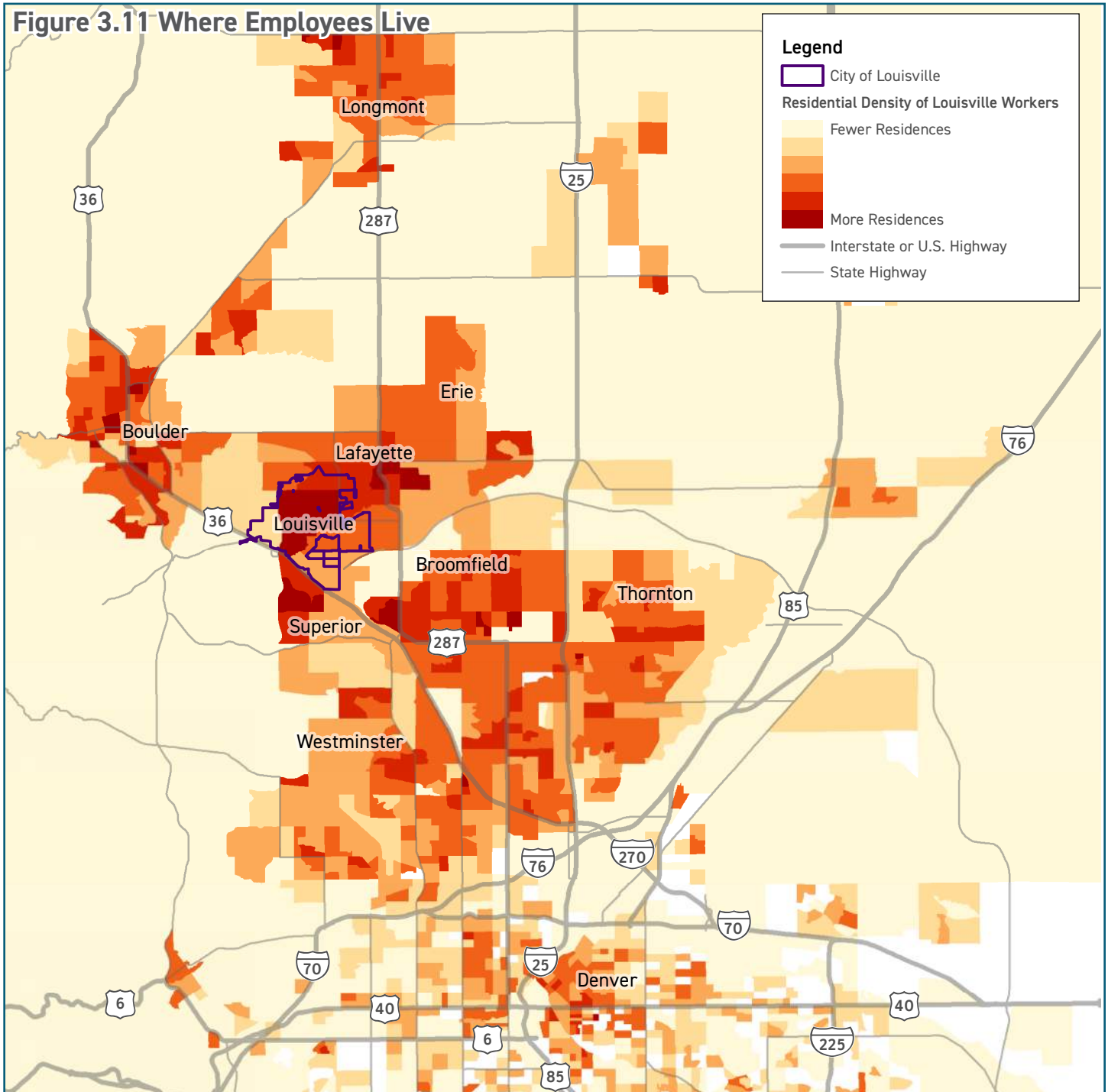
# Where Louisville Residents Work

Figure 3.10 uses US Census data to show where Louisville residents work. Areas with a darker color have a larger density of residents working in that area. The majority of residents work within Boulder County, with a high number also working in Denver and lesser amounts spread throughout the north metro region. The highest areas of employment for Louisville residents are in the Cities of Boulder (28%) and Denver (14%). Approximately 89% of employed residents work outside of Louisville. This data helps identify key commuting corridors such as US 36, US 287, and Highway 119.



# Where Louisville Employees Live

Figure 3.11 maps the location of where Louisville employees live. Only 7% of employees live in Louisville, while the rest live in cities across the region. Approximately 7% of workers live in each of the following: Denver, Broomfield, Boulder, and Westminster. Thornton and Lafayette account for another 6%, each. Strong regional corridors and connections allow Louisville to attract employees who live in other locations throughout the Denver region. Direct access via the Northwest Parkway, US 36, US 287, and Highway 7 provide key connections to Louisville. Approximately 93% of employees live outside of Louisville, adding stress on the transportation network from daily commuting.



# HOW PEOPLE MOVE IN LOUISVILLE

This section uses Census data paired with transportation demand model (TDM) data from DRCOG to identify trip types and modes for travel occurring within Louisville.

## Trips in Louisville

The TDM separates travel into two key types based on the origin and destination and are then divided into work-based and nonwork-based trips. The TDM is an activity-based model that factors in all trips made between an origin and destination. For example, a trip that begins at home, stops for coffee, and goes to a school before traveling to work would ultimately be counted as a work-based trip. A trip that begins at home, goes to the gym, goes to the grocery store, then back home would be classified as a nonwork-based trip.

Currently, only 40.1% of all trips made within, to, or from Louisville are work-related. This proportion is projected to generally stay the same (39.5%) over the next 20 years. This means a significant portion of trips occurring on the network are not related to commuting to work.

Transportation planning is often focused on the needs of commuting trips. To adequately plan for the functionality of the transportation system as a whole, however, it is important to address the variety of trip types and distances. Commuting trips are some of the longest trips that people make regularly, and are therefore more likely to be completed by car than by walking or biking. Nonwork-based trips are typically much shorter. These shorter trips can be more strongly influenced by enhancing modal options, particularly walking and biking.

## What is a Travel Demand Model?

The Denver Regional Council of Governments (DRCOG) develops a travel demand model (TDM) that estimates trip types, origins and destinations, modes, and trip lengths for all trips occurring in the region. This information is based on population, employment and development patterns, and multiple surveys estimate travel patterns. The TDM is a useful tool to help understand current and future demand and impacts on the transportation network.

## Linking Trips and Land Use

As housing costs continue to rise, more growth is occurring further out in the region, resulting in more, and longer commutes. This places additional stress on the transportation network leading to increased congestion. Allowing transit-supportive development patterns and land uses, such as mixed-use development at higher densities, can accommodate a variety of trips without the need for driving, therefore reducing stress on the transportation network. An example is the DELO development developed under the City's mixed-use zoning standards.

## Short Trips

### What is a Mode?

A mode of transportation is most simply a term that distinguishes the various ways that people make trips. For purposes of this report, a mode is defined as driving, walking, bicycling, or riding public transit (includes bus and rail). Walking, biking, and riding public transit are sometimes referred to as alternative modes as they do not make up the majority of trips historically in most cities. Driving traditionally is the primary mode of most communities.

### What is Mode Share?

Mode Share is the percentage of trips that are taken by each mode. Increasing mode share means diversifying the modes used for trips in a community and increasing the share of alternative modes in relation to driving.

Currently, 31% of trips within Louisville, or to or from Louisville, are 3 miles or less in distance. Short trips are more easily completed using a mode other than driving. Three miles equates approximately to a 15-minute bike ride at average speed. Providing high-quality choices for non-car modes can reduce the demand on existing roadways and ease congestion. Adequate infrastructure that people perceive as safe and attractive helps to promote walking and biking.


The share of short trips is predicted to remain constant through 2040. As the total number of trips in Louisville is projected to increase by 25% between today and 2040, shifting a portion of the short trips from driving alone to another mode could result in meaningful impacts to overall travel conditions.

## Mode Share

The table below lists the percentage of workers in Louisville and nearby geographies who commute via different modes, based on Census data. The single-occupant vehicle is the predominant mode of commuting in Louisville, and the share of Louisville-based commuters driving alone to work is comparable to that of the regional workforce.

Although driving alone is the most common mode of commuting, a significant portion of Louisville-based workers reach their job via other modes. Roughly one in ten workers commute via transit, biking, or walking—a larger share than in the Denver region as a whole. Louisville has the potential to increase the share of trips made by walking, biking, and transit through investments in infrastructure supportive of those uses.

Figure 3.12 Louisville and Comparison Area Commute Mode Share



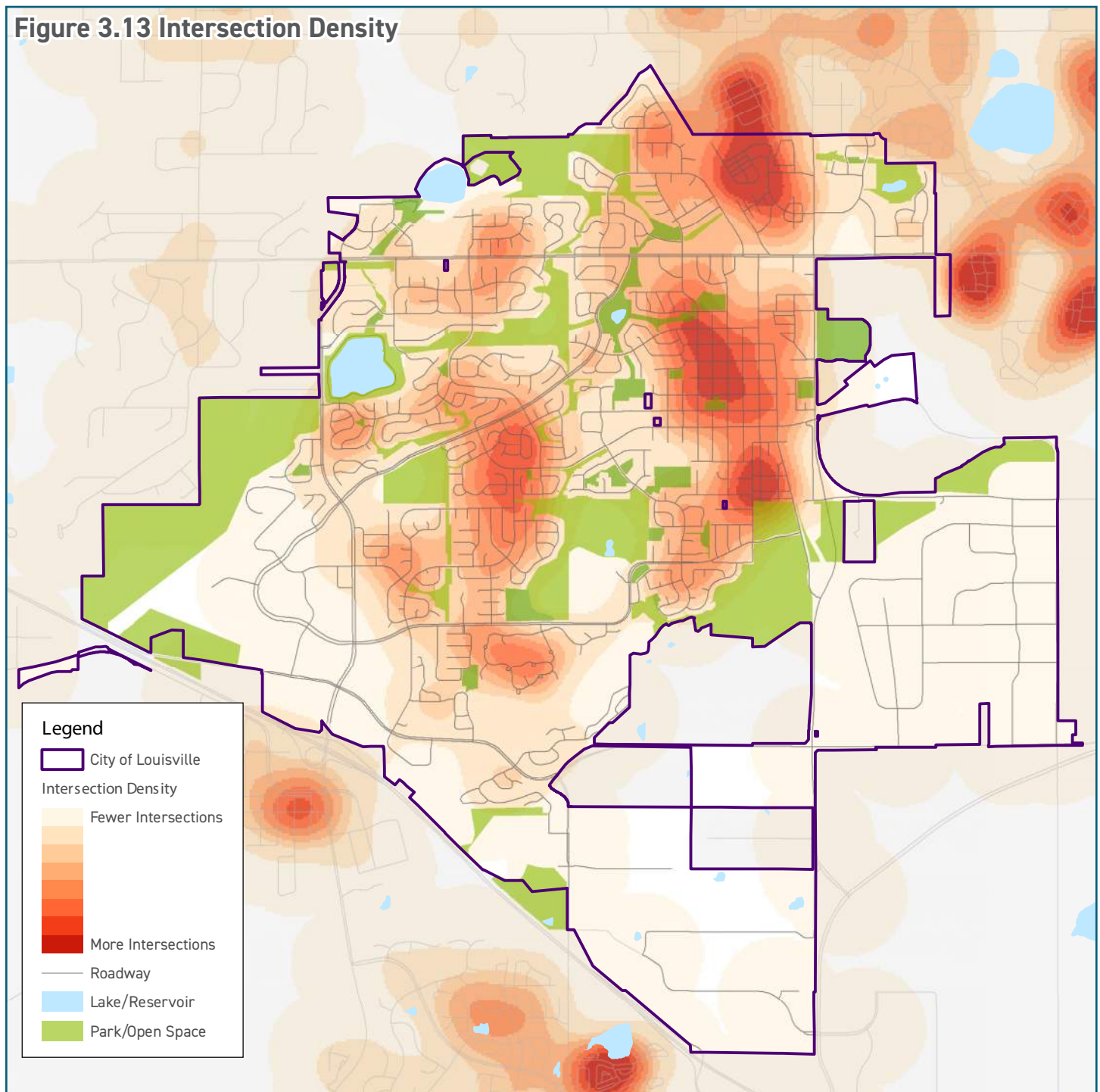
	Drive Alone	Carpool	Transit	Bike	Walk	Work at Home	Other
City of Louisville	72.3%	4.7%	5.9%	2.3%	1.7%	12.7%	0.5%
City of Boulder	51.3%	4.9%	8.3%	10.3%	11.4%	12.5%	1.2%
Boulder County	65.2%	7.6%	5.0%	4.4%	5.3%	11.3%	1.3%
Denver Region	74.8%	8.5%	4.4%	1.2%	2.5%	7.5%	1.0%

Source: 2012-2016 American Community Survey 5-Year Estimates



# Connectivity

Intersection density is a useful indicator of the degree of street connectivity in an area. Neighborhoods with greater intersection density tend to have more interconnected and duplicative street networks, which provide multiple routes to travel between any two points. Places where parallel streets connect to the same sets of destinations present opportunities to prioritize different modes of transportation on different corridors. As the map below shows, Downtown and the recent Steel Ranch development are the neighborhoods with the greatest intersection density in Louisville. The McCaslin commercial corridor is notably lacking street connectivity, which has been noted as a barrier to redevelopment and improved first and last-mile connections to McCaslin Station.



## What are Key Corridors?

The main backbone of any transportation network is the major corridors. These corridors provide connectivity and access to neighborhoods, businesses, recreation, and more. The design and surrounding context of corridors impacts the demand on the corridor and travel modes that people utilize.

## Key Corridor Characteristics & Context

This section highlights primary travel corridors in Louisville, designed uses, surrounding context, and connectivity.

*South Boulder Road* is a four-lane divided boulevard that is the major east-west roadway in northern Louisville. The roadway has high traffic volumes, local transit service, on-street bike lanes, and several traffic generators, including parks, retail, and neighborhoods. Challenges along the corridor are drivers speeding downhill, limited pedestrian crossings, a freight rail line, and cut-through traffic from Boulder and Lafayette.

*McCaslin Boulevard* is the busiest corridor in Louisville. It has upwards of 30,000 vehicles per day at the southern end, where there is retail activity and access to US 36. There is a bike lane along the entirety of the corridor within Louisville, wide sidewalks along the southern segment, and is served by the 228.

*Via Appia* is a central roadway that connects many neighborhoods to South Boulder Road, McCaslin Boulevard and Downtown via Pine Street. There are two vehicle lanes and a bike lane in each direction of the very wide roadway. The roadway is served by both the Dash and 228. Travel speeds are high given the surrounding context of mostly single-family homes and the Rec Center.

*Centennial Parkway* is a continuation of Via Appia west of McCaslin Boulevard that loops back to form W. Cherry Street east of McCaslin. The surrounding land use along the corridor is mostly commercial. There are bike lanes, as well as rarely used on-street parking.

*W. Cherry Street/Bella Vista Drive* is an east-west roadway that runs from McCaslin Boulevard to County Road on the east side of town. There is a variable cross-section with two- and three-lane portions, bike lanes or shared bikeways, some on-street parking, some discontinuous sidewalks, and a wide-ranging right-of-way. Much of the adjacent property is single-family residential, but there is some retail in the McCaslin area, as well as parks and other open space.

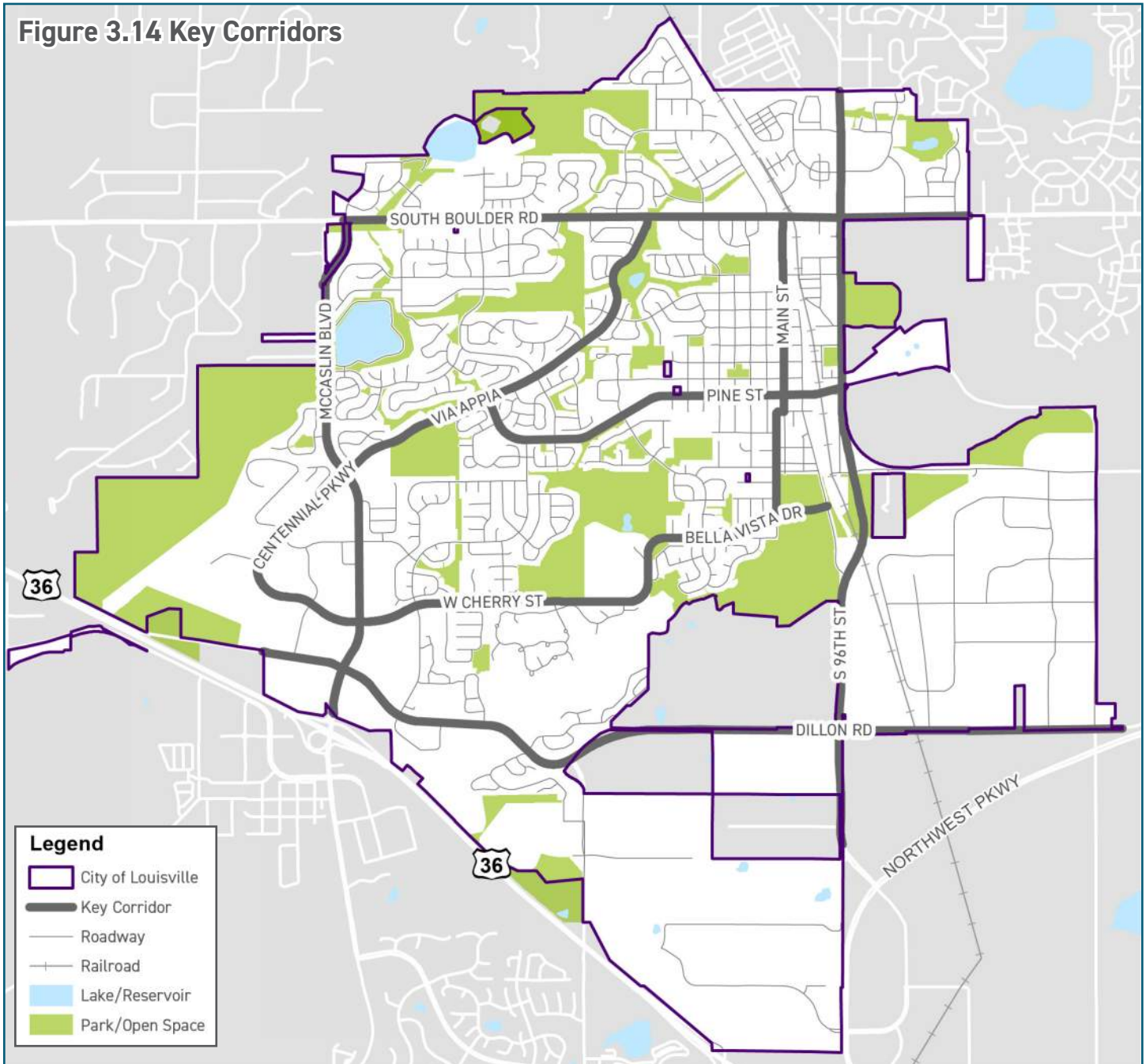
*Dillon Road* is a busy street throughout Louisville, serving retail near McCaslin Boulevard, Monarch High School and the hospital off of S 88th Street, the Colorado Tech Center, and both Highway 287 and Northwest Parkway to the east. There are wide, bikeable sidewalks through the residential areas near the school, and shoulders in the more rural portion to the east.

*Pine Street* is a connection to neighborhoods and into southern Downtown from both Via Appia and SH 42/S 96th Street. The wide two-lane roadway is served by the Dash but does not have a dedicated bike facility. There are pedestrian refuges near Downtown, where there is also a school zone.

*SH 42/S 96th Street* is a two-lane state facility, with varying shoulder widths, that is a regional north-south connection on the east edge of town. Traffic volumes cause delays in the Downtown area, especially at the South Boulder Road signal. There are open spaces and parks to the east, but they are difficult to reach on foot and by bike due to a lack of crossings.

*Main Street* is a busy two-lane road that is central to Downtown and connects to South Boulder Road. Main Street is lined with retail and parking in Downtown and provides direct access to Louisville Middle School.

**Figure 3.14 Key Corridors**

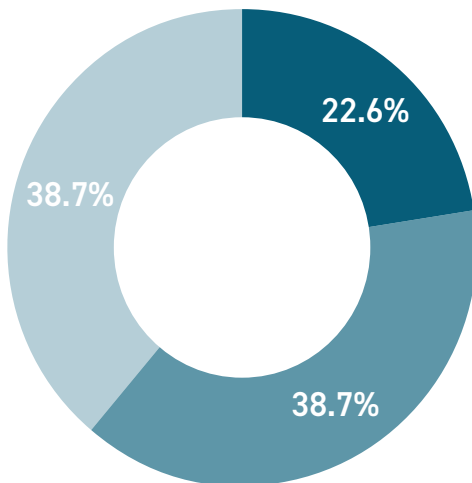




## Trips on Louisville Roadways:

Currently, only 22.6% of transportation trips stay within Louisville. A majority of trips either begin in Louisville with a destination outside of the City (38.8%) or enter into Louisville from another point of origin (38.7%). These trips are most likely using the major corridors, placing regional travel pressures on the Louisville roadway network.

Figure 3.15 Trips Made in Louisville



- Internal trips within Louisville
- Trips that originate in Louisville
- Trips that end in Louisville

Source: 2015 Trips from DRCOG TDM

## Corridor Travel

As vehicle travel is the primary means of transportation in Louisville, analysis of traffic volumes and delay along key corridors was conducted. These analyses help to identify issues impacting the operation of the corridors and locations that may be most critical to focus on for potential improvements.

Louisville's transportation network is focused on a few major corridors, for which there aren't many readily available substitutes. This means it may be difficult to shift travel to lesser-traveled routes that would help handle additional future capacity. Ensuring that the corridors can operate efficiently and move people to, from, and within the city will be important as growth continues within the region. New technology and intersection improvements are potential options that can make meaningful impacts on corridor functionality without adding significant costs or necessitating road widening.

The following analyses of traffic volumes, existing level of service, and observed delay will provide a basis for identifying future improvements for Louisville to ensure access and mobility is provided at an acceptable level.

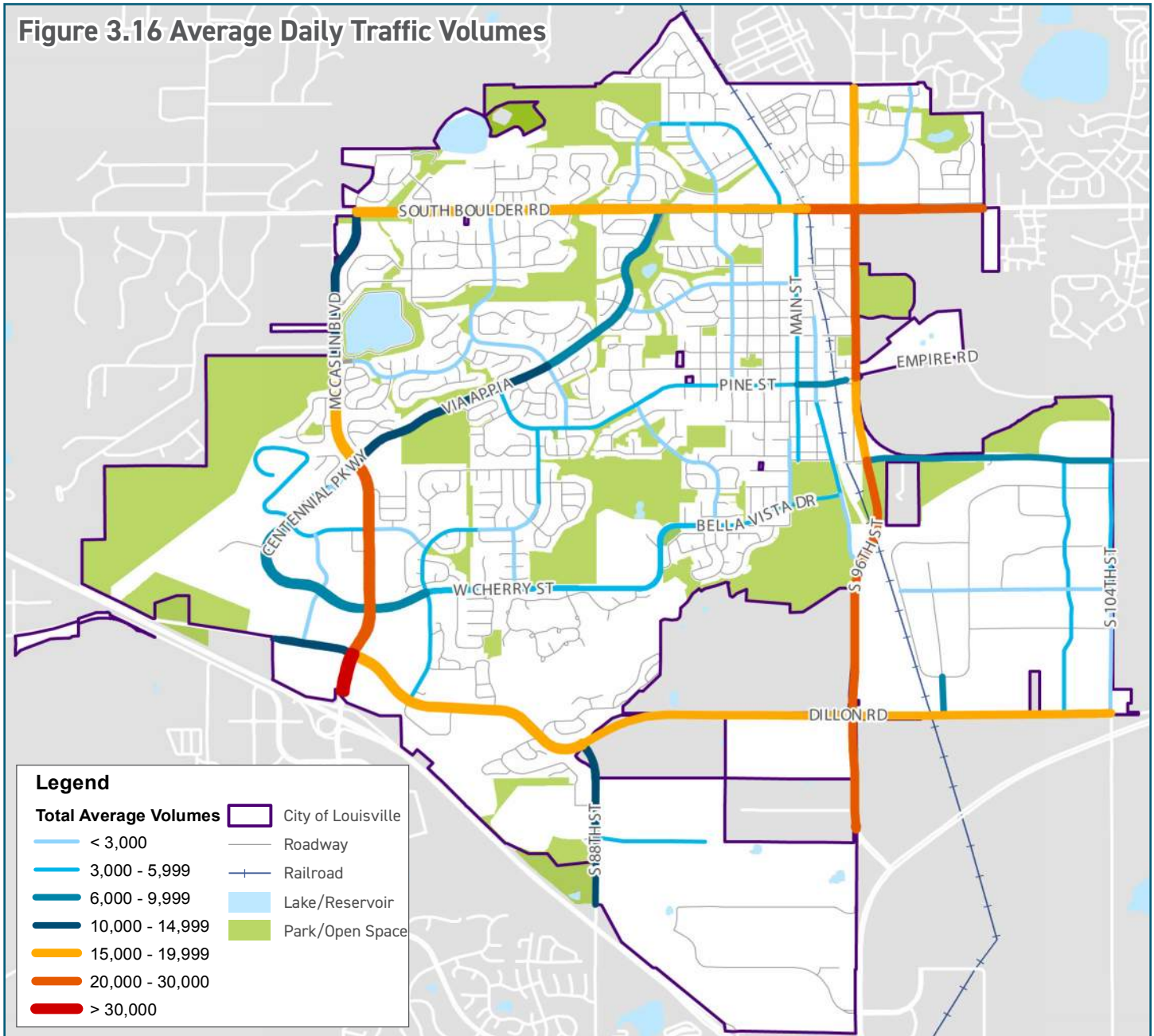


Much of Louisville's transportation network is focused on a few major corridors.



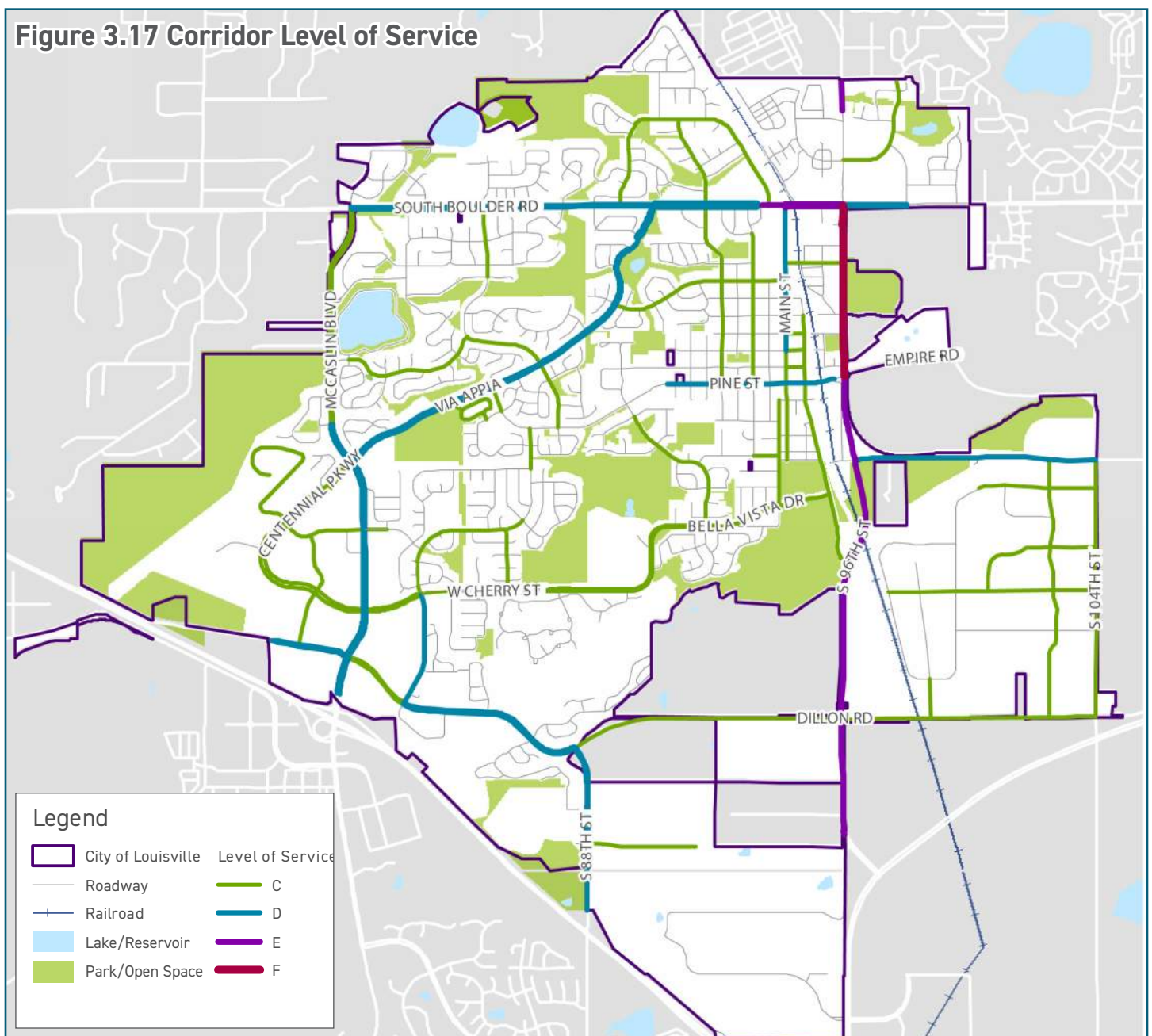
# Corridor Traffic Volumes

Figure 3.16 highlights average daily traffic volumes for Louisville's major corridors and other collector streets. Overall, four key corridors that incur the greatest amount of travel within the City: McCaslin Boulevard, South Boulder Road, Dillon Road, and Hwy 42/S 96th Street. These are the primary east-west and north-south corridors that provide access to activity centers in Louisville and surrounding jurisdictions. Traffic volumes are not uniform in both directions and depend on time of day. South Boulder Road in particular experiences greater traffic volumes traveling west in the morning and east in the evening, reflecting its use as a key corridor for accessing Boulder.



# Corridor Level of Service

Figure 3.17 shows how well certain roads are functioning in moving vehicular traffic. Corridor Level of Service (LOS) is a classification system which uses the letters A, B, C, D, E, and F to convey vehicle capacity, and describe how well traffic flows in the transportation network. LOS A represents free flowing traffic, while LOS F indicates considerable congestion that significantly increases travel time. The LOS analysis used factors pertinent to each corridor including the number of travel lanes, corridor speed limits and observed speeds, traffic volumes, and the street's surrounding context. This methodology provides an estimated flow on the corridors, but further study of turning movements and signal timing may give a more accurate representation of how individual intersections function. Most of Louisville's primary corridors are estimated to operate at a LOS of C or D, with some delays during peak travel times. South Boulder Road west of Highway 42/S 96th Street to Main Street operates at a LOS E, S 96th Street south of Downtown is a LOS E, and Highway 42/S 96th Street between Pine Street and South Boulder Road is estimated to be LOS F, with significant travel time delay in the peak periods. LOS C or D is reasonable for an urban/suburban area. A high LOS can indicate that a road is overbuilt for the demand.



# Peak Period Delay

To help quantify travel during peak hours, travel time runs were completed to collect speed and travel distance data using GPS technology. All data were collected on the same day, a Monday while Boulder Valley Schools were in session. The corridors chosen were among those believed to see the most rush hour impacts: McCaslin Boulevard from US36 to South Boulder Road, South Boulder Road from McCaslin Boulevard to SH 42/S 96th Street, and SH 42/S 96th Street from South Boulder Road to Northwest Parkway. A total of three runs were conducted in each direction for a Midday (1PM to 2PM) baseline, while five runs were conducted in each direction during the AM Peak (7AM to 9AM) and PM Peak (4PM to 6PM). Data was collected in a series of clockwise and counterclockwise loops that included all three segments measured. The travel segments are shown on the maps below.

Figure 3.18 shows relatively similar travel times for the midday time-frame, but demonstrate the variation experienced due to turning vehicles and traffic signal delays. Both the AM and PM peaks confirm delay is experienced during these periods. The delays experienced on McCaslin Boulevard in peak hours were minimal, under 60 seconds for both directions in both peaks. On South Boulder Road, delays were also minimal, except for eastbound PM. Those runs had a median delay of 1 min 7 sec, and were observed to be most impacted between Main Street and SH 42/S 96th Street. By far the greatest delays measured were on SH 42/S 96th Street. There was a modest delay in the AM peak for northbound travel. PM peak travel was delayed for both directions with a median delay of 1 min 29 sec for northbound, and 3 min 27 sec delay for southbound runs.

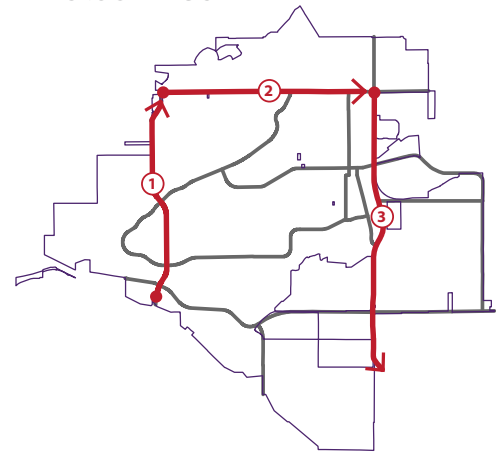
Figure 3.18 Travel Time Delay by Corridor

Corridor	Direction	AM*	Midday*	PM*	AM Delay	PM Delay
<b>Loop 1 - Clockwise</b>						
McCaslin Blvd	NB	04:24	04:02	04:26	22 sec	24 sec
South Boulder Rd	EB	03:17	04:08	05:15	none	1 min 7 sec
SH 42/S 96th St	NB	05:29	04:46	06:15	43 sec	1 min 29 sec
<b>Loop 2 - Counterclockwise</b>						
SH 42/ S 96th St	SB	04:24	04:52	08:19	none	3 min 27 sec
South Boulder Rd	WB	03:54	03:39	03:49	15 sec	10 sec
McCaslin Blvd	SB	04:15	03:41	04:00	34 sec	19 sec

\* This is the median travel time for all travel runs for the given time period.

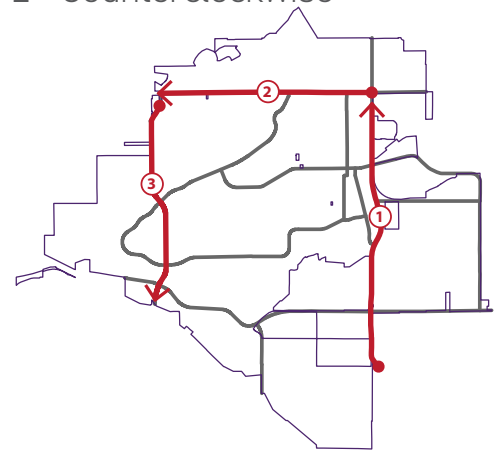
Figure 3.19 Travel Time Routes

## Loop 1 - Clockwise



Route 1 consisted of a clockwise route beginning at Hwy 36 and McCaslin Boulevard, traveling north to South Boulder Road, proceeding east to SH 42/S 96th Street, then traveling south and continuing on South 96th Street to Northwest Parkway.

## Loop 2 - Counterclockwise



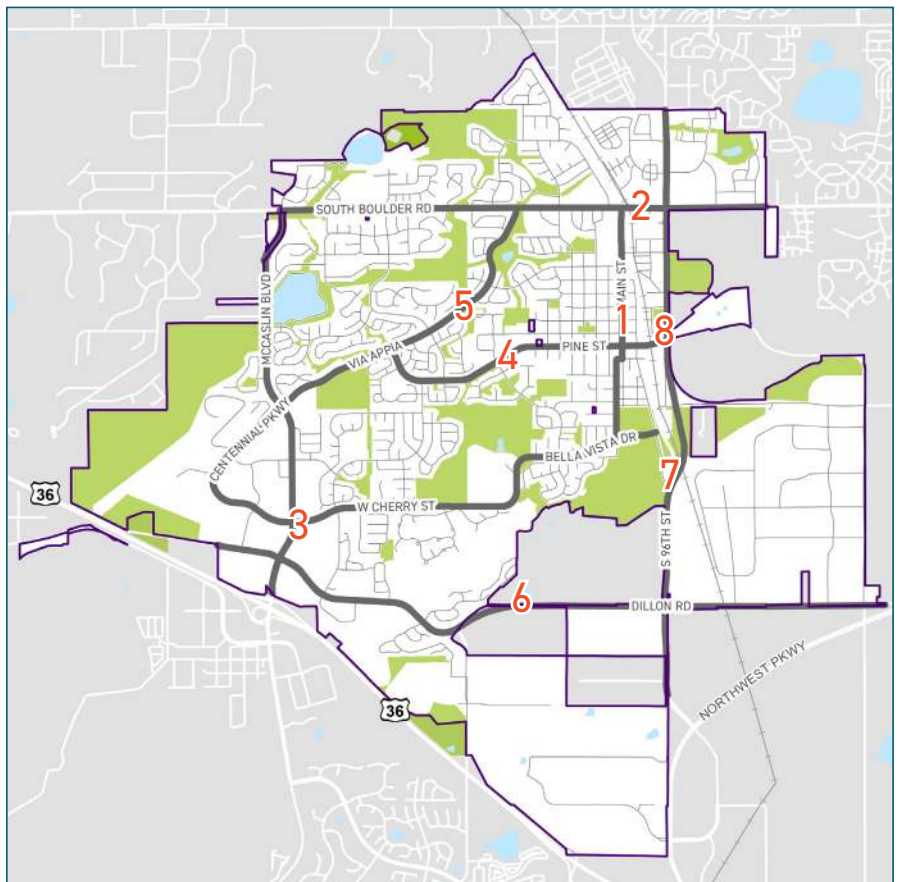
Route 2 consisted of a counter-clockwise route beginning at Northwest Parkway and South 96th Street, continuing on SH 42/S 96th Street to South Boulder Road, west to McCaslin Boulevard, then south to Hwy 36.



## Key Findings on Major Corridors

Based on the traffic volumes, speed data, LOS analysis, and travel time runs, several key findings regarding the major corridors in Louisville were developed and are identified below.

1. Main Street is signed as a 25 mph roadway, and while there is some speeding near Louisville Middle School, most cars travel well under the speed limit within Downtown. To the south, on County Road, speeding has been observed.
2. South Boulder Road experiences peaks during typical commute hours, with considerable eastbound delays in the PM, especially between Main Street and SH 42/S 96th Street. In the AM approximately 60% of cars are traveling westbound, towards Boulder, while the split is reversed in the PM. Speeding is most problematic for eastbound vehicles traveling down the hill east of Washington Ave.
3. McCaslin Boulevard is the busiest corridor in Louisville with 15,000 vehicles per day on the north end by South Boulder Road, and upwards of 35,000 by US 36 on the south end. Travel time delays were observed in the peaks, but were not significant. Speeding is most prevalent for southbound vehicles as they approach US 36.
4. Pine Street has considerably more vehicular traffic than parallel east-west corridors into Downtown.
5. Via Appia has approximately 10,000 vehicles a day and with two lanes is capable of moving the current traffic volumes. Speeding cars have been documented throughout the corridor.
6. Dillon Road has nearly 20,000 vehicles per day along the corridor and operates at an acceptable LOS. Most vehicles near McCaslin travel under the speed limit, likely due to the number of driveways. Traffic volumes near South 88th Street peak more than anywhere else in the city because of the school travel patterns. Mobility is somewhat constricted on the east portion of the roadway, as it narrows to two lanes.
7. The speed limit on S 96th Street is 40 mph, however most cars travel well over that. Vehicles tend to slow down north of Empire, as they continue on SH 42/S 96th Street.
8. SH 42/S 96th Street is signed for 45 mph, however the number of vehicles and turning movements often limit travel speeds to less than the posted speed limit. With only two lanes, turning vehicles often cause delays, and with over 20,000 vehicles, the highway operates at LOS F according to the Highway Capacity Manual. Travel times along S 96th and SH 42/S 96th Street between South Boulder Road and Northwest Parkway were measured. Both AM and PM peaks were considerably delayed. Southbound PM travel times were nearly double that of the midday base, with nearly all of the delay observed near Downtown.





# SAFETY

Safety is an important factor for transportation planning and infrastructure investments. Intersections, in particular, are key areas where there are a significant number of conflicts between people and vehicles. The actual and perceived safety of an intersection or a corridor can greatly impact people's desire to utilize certain routes, particularly for those on foot or bike.

Safety surrounding schools is also a key factor in mobility and health. Most schools within Louisville have trails and sidewalks that connect to the surrounding neighborhoods and provide safe options for children. Louisville Middle School is located in an area with a significant amount of travel for multiple purposes and is also near some intersections with higher numbers of collisions. Monarch K-8 and Monarch High School, while accessible with trails and sidewalks, are located along corridors with higher travel speeds and volumes, which pose potential risks.

Within Louisville, the hierarchical road network funnels traffic onto a select number of corridors designed to carry a large volume of vehicles relatively quickly. Crashes are prevalent along faster, busier roads and intersections. Figure 3.20 shows the most recent three years of available crash data for all modes to highlight areas of higher safety concern.



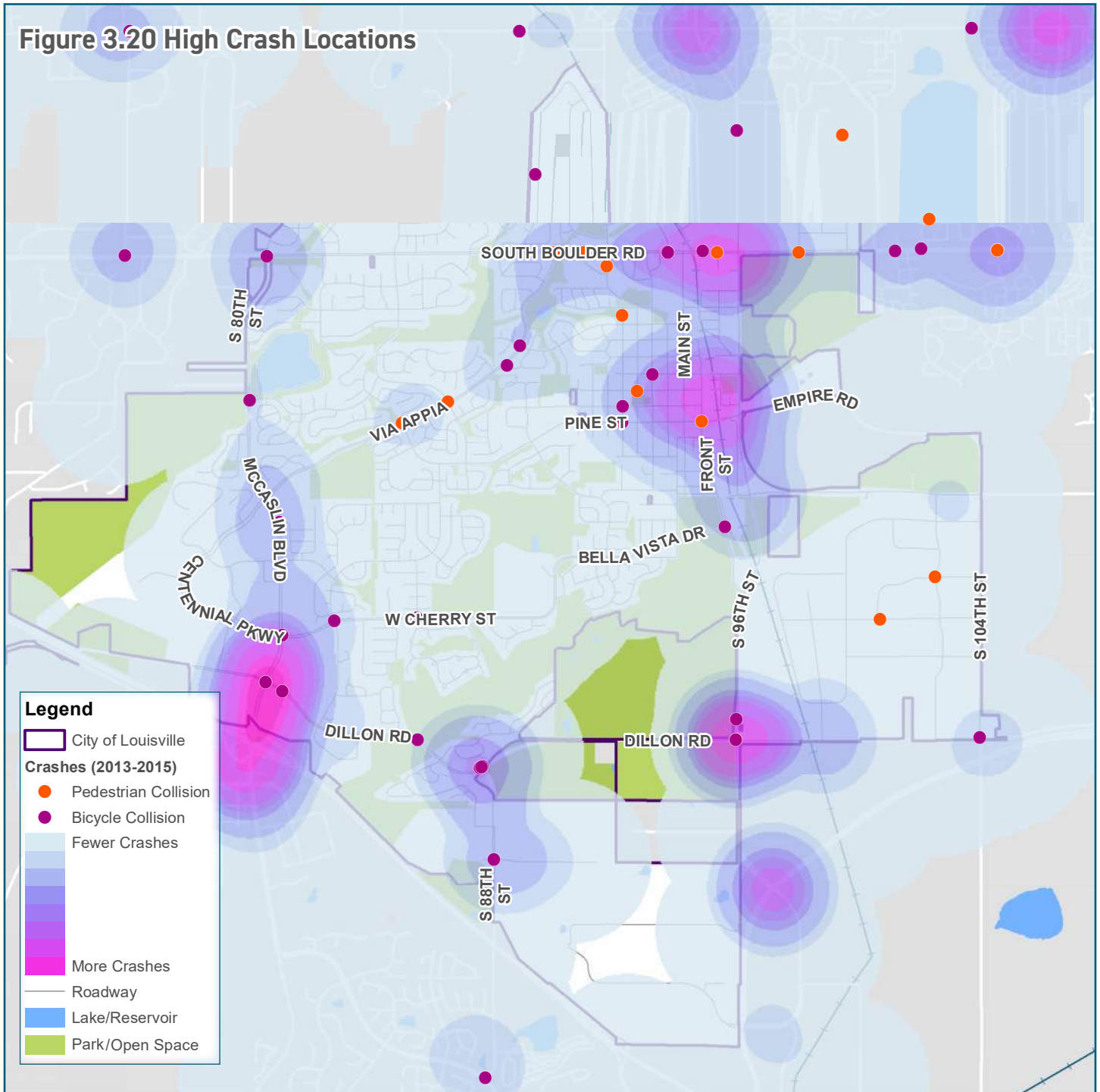
Pedestrian safety in relation to schools is a key factor for mobility and health.



Wide intersections and fast moving cars can be more dangerous for pedestrians.

# Crash Hotspots

Figure 3.20 shows the concentration of crashes over a span of three years (2013-2015). The areas around the intersection of McCaslin Boulevard and Dillon Road, the intersection of South Boulder Road and Highway 42/S 96th Street, and the intersection of Pine Street and Highway 42/S 96th Street stand out for their especially high concentration of crashes. Notably, the crash hotspots correspond with the three urban centers identified in the Comprehensive Plan, which were classified as such due in part to their high traffic volumes and associated retail potential. The intersection of McCaslin Boulevard and Marshall Road in Superior also experiences a high volume of crashes. Although beyond the Louisville city limits, this intersection plays a key role in how residents and visitors enter Louisville and access key destinations such as the US 36 and McCaslin Station. Completion of the Diverging Diamond Interchange in 2015 may impact trends at this location and should be monitored.



# THE MULTIMODAL NETWORK

Having a complete transportation network will afford people the option to make trips using a variety of modes, whether it is driving, walking, bicycling or riding transit. A complete multi-modal network helps serve all people, regardless of age, physical ability or income. While considering all modes, there will be areas where different modes of transportation are competing for resources, such as space within the right-of-way or priority at intersections and other crossings. This is where tradeoffs will have to be considered, and some give and take will be needed to best accomplish the goals of the TMP. This section provides background and analysis on walking, biking, and transit facilities in the City.



Louisville's transportation network must be multimodal, so that it functions for cars, pedestrians, and bicyclists at the same time.



# Walking

Overall, much of Louisville is walkable, but the conditions of facilities vary throughout the city. Direct access to some destinations is also limited, particularly where roadways are wide and traffic speeds are high. Consistent, high-comfort facilities help make walking a safe possibility for people of all ages and abilities. The walkability of an area is heavily influenced by the quality of the pedestrian infrastructure, including width and surface of the path or sidewalk, block lengths, buffering and separation from vehicles, relationship of sidewalks to buildings, intersection distances and treatments, lighting and other amenities such as landscaping and seating.

The City has been making incremental but significant improvements to walkability and safety around town, including the installation of curb cuts and ramps, pedestrian underpasses, pedestrian refuges and signals, and traffic calming bulb outs with enhanced cross walks. Walkability is more limited in some parts of Louisville. For example, Downtown is considered very walkable with short blocks, narrow streets, frequent crossing options with enhanced crosswalks and short crossing distances, as well as inviting storefronts abutting the sidewalks and streets. Alternatively, pedestrians on McCaslin Boulevard must cross wide roadways and large parking lots to reach destinations.



Downtown Louisville has narrower streets, more frequent crossings, and pedestrian-friendly buildings.



Curb ramps are generally consistent at intersections, which improves the overall accessibility for people walking or using mobility devices such as wheel chairs.



## Walk Score

One measure of an area's walkability is the Walk Score, an online tool that measures walkability of an area. The methodology analyzes many walking routes between a variety of locations, while also weighing destinations, population, and roadway factors. The city of Louisville as a whole has a score of 38 out of 100, which carries the description of "car dependent," meaning most errands require a car. However, there are wide variations throughout the city.

The heart of Downtown Louisville has a score of 82 and is considered "very walkable," suggesting that most errands can be accomplished on foot. The McCaslin Station area has a score of 47 and is considered "car dependent." The area around Polk Avenue and Pine Street in the center of Louisville has a score of 20, primarily because there are few destinations within a walkable distance beyond parks and schools. Access to destinations is a primary driver of walkability and areas with a variety of land uses are naturally considered more walkable due to the variety of activities available within a short distance. Figure 3.21 highlights this factor for multiple locations within Louisville.



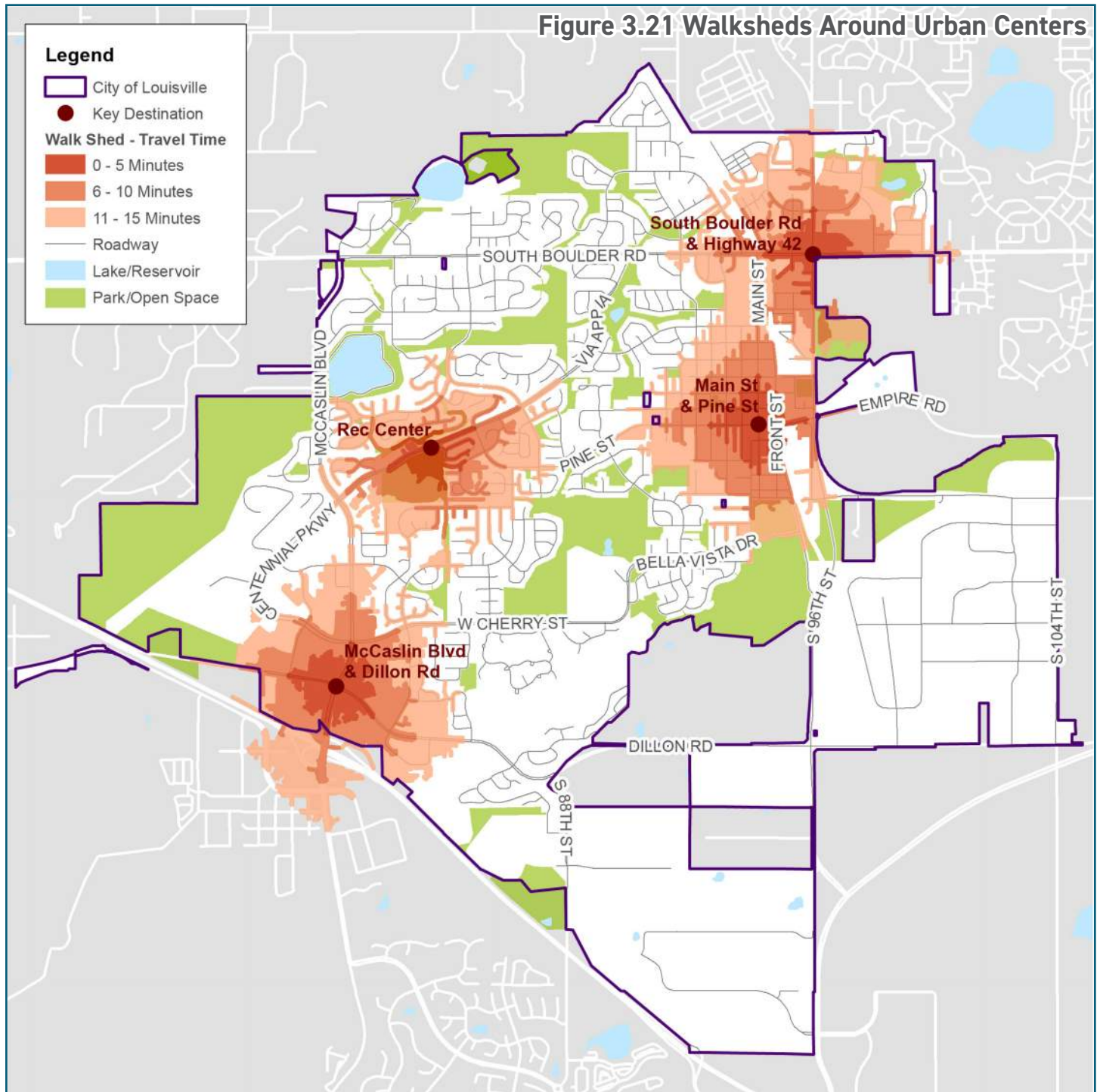
The walk score for Downtown Louisville indicates that it is "very walkable."



The McCaslin Station area score suggests that it is "car dependent."

## Walksheds

Figure 3.21 shows the areas within a five-, ten-, and fifteen-minute walk of key destinations in Louisville. The walksheds indicate the areas from which people are most likely to reach a central destination on foot. Many of Louisville's neighborhoods are well beyond walking distance of these urban centers, and will likely travel to and from these destinations via other modes.



# Biking

For Louisville, the bicycle network includes a mix of on-street bike lanes, shared streets, and paved and non-paved paths. The City desires to have a bicycle network with broad appeal and a diverse set of users. This includes a mix of facilities that feel safe to an experienced rider as well as a child riding to school, or a family riding Downtown. Expanding the bicycle network with safe facilities will improve access to more destinations, and encourage biking by making riders feel more comfortable.

One way to assess comfort is to rate a bikeway by Level Of Comfort (LOC), with LOC 1 being most comfortable and LOC 4 the least. This scoring system indicates the likely appeal of a facility to a broad set of riders.

LOC 1 – Typically a bike route on a calm neighborhood street, a wide bike lane with low vehicle volumes, or a wide path without too many roadway crossings.

LOC 2 – Similar to an LOC 1 facility, but with more or faster-moving vehicles for on-street facilities or more frequent crossings for a trail.

LOC 3 – An on-street facility with less dedicated bike space, often on a roadway with more lanes, vehicles, and higher travel speeds, or a narrow off-street facility with many crossings.

LOC 4 – On-street facility with considerable parallel traffic and crossings, or an off-street path with many challenging crossings.

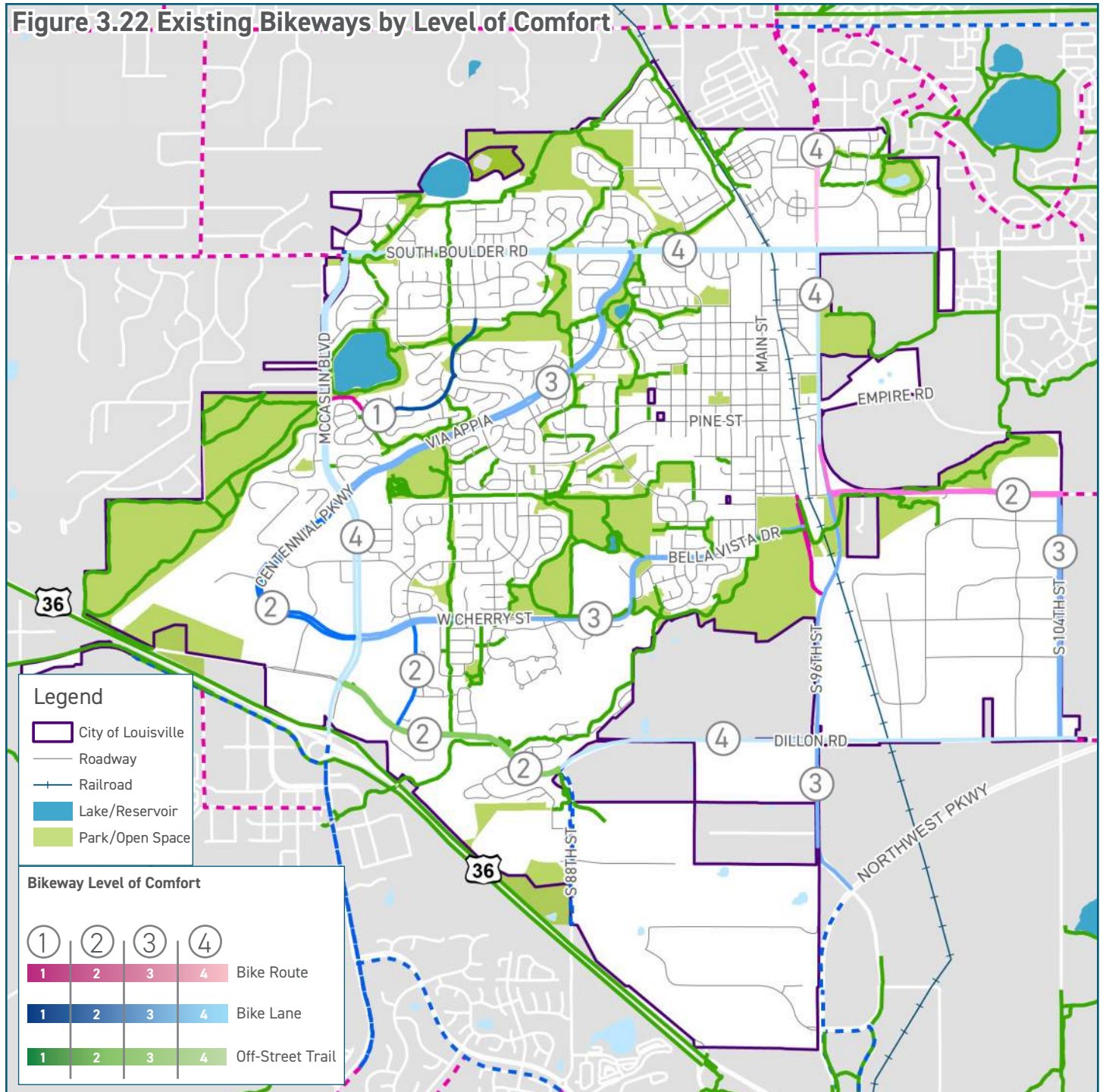
## What is a network for “all ages and abilities?”

NACTO (National Association of City Transportation Officials) has developed best practice design guidelines for developing a bicycle network that is aimed at being safe, comfortable, and equitable. Bikeways are encouraged to be designed with potential users in mind, including children, seniors, families, people with disabilities, and more.



## Existing Bike Network

Figure 3.22 displays the existing bike network with Level of Comfort shown for the multiple bikeway types. Louisville has a well-developed trail system and on-street bikeways along many major corridors. This map helps to identify where additional facilities may be needed to accommodate different users that have different desires or needs for level of comfort. More high-comfort routes to key destinations and along key roadways would promote additional bicycling in the city.





The images presented here highlight the various bicycle facilities within Louisville. The various facilities look and function differently depending on the context.



A bicyclist and motorist use informal shared space in Downtown.



Lake to Lake Trail along Davidson Mesa



Multi-use path - Power Line Trail



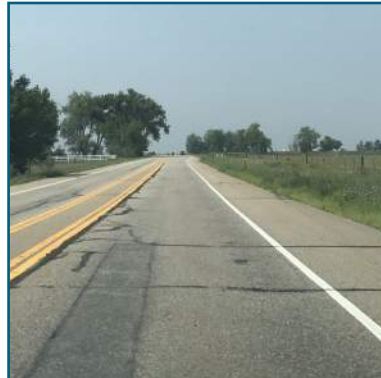
A bike lane along W. Cherry St.



Bike lane along Washington St.



Bike parking at Fireside Elementary along the Powerline Trail



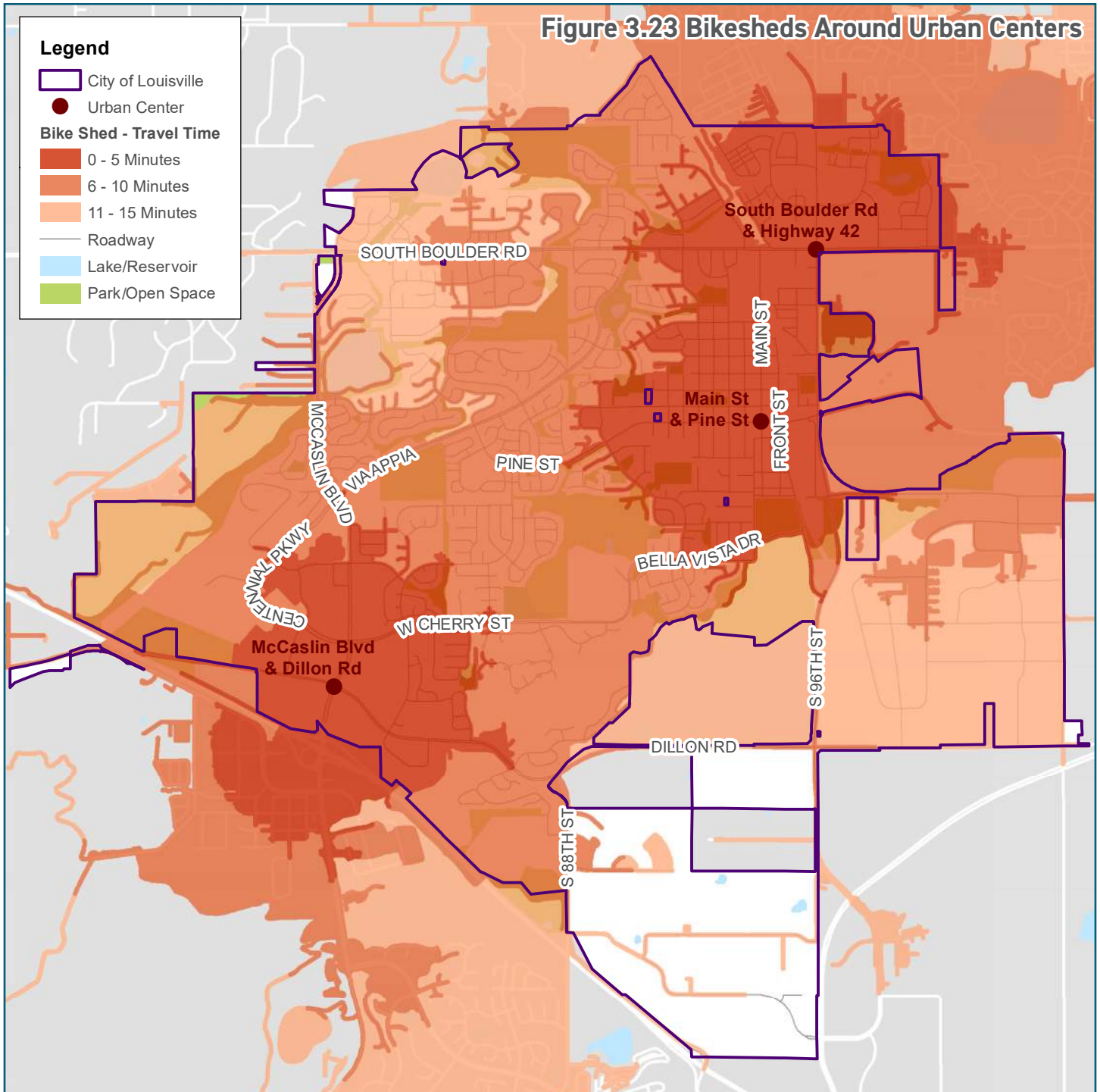
Bikeway on shoulder along Dillon Rd.



New bike lane with on-street parking along Centennial Pkwy.

# Bikeshed

Figure 3.23 shows the areas within a five-, ten-, and fifteen-minute bike ride of key nodes in each of the urban centers identified in the Comprehensive Plan. Although very few neighborhoods are within walking distance of these nodes, the vast majority of Louisville (along with parts of neighboring jurisdictions) is within a short bike ride of at least one activity center. These short travel times indicate that biking is a convenient way for people living and working in Louisville to access local destinations—and that people are likely to make trips by bike if safe, comfortable, and attractive facilities connect to the places they wish to go.





# Transit

Louisville is inside the service area of the Denver Regional Transportation District (RTD), which runs a variety of rail, bus, and paratransit service in Denver, Boulder, and nearby cities. Transit in Louisville takes two main forms: Bus Rapid Transit (BRT) and fixed-route local bus service. Call and ride (FlexRide) services are also available.

## Bus Rapid Transit

The Flatiron Flyer operates along US 36 between downtown Boulder and downtown Denver. Buses arrive at the McCaslin station every 5-15 minutes, depending on the time of day. Buses may travel on the shoulder of the highway (exclusive to buses), during times of traffic congestion. The Flatiron Flyer reaches downtown Boulder in approximately 20 minutes and Denver's Union Station in about 30 minutes.

## Local Bus Routes

Two local bus routes operate through Louisville: the 228 Broomfield/Louisville route and the DASH Boulder/Lafayette via Louisville route. Route 228 runs from its northern terminus at South Boulder Road and Garfield Street along Via Appia and McCaslin Boulevard before continuing southeast through Superior and Broomfield. The DASH runs along South Boulder Road for approximately seven miles between Boulder and Lafayette, but deviates from the roadway to circulate through Louisville along Via Appia, Pine Street, and Main Street.

The DASH arrives every 15 minutes at peak commuting times and every 30 minutes throughout the day, while the 228 arrives every 30 minutes at peak times and hourly throughout the day.

## Planned Transit Projects

Transit is a need that has been recognized within Boulder County in multiple previous planning efforts. Most specifically, the Northwest Area Mobility Study (NAMS) identified several needs and priorities for future transit service that could provide additional or enhanced service to Louisville. These priorities and potential projects include:

*Northwest Rail Line from Denver to Boulder to Longmont with a station near Downtown Louisville*

*US 287 BRT from Longmont to Broomfield*

*South Boulder Road transit improvements from Lafayette to Boulder*

*Arapahoe Rd/Hwy7 transit improvements from I-25 to Boulder*

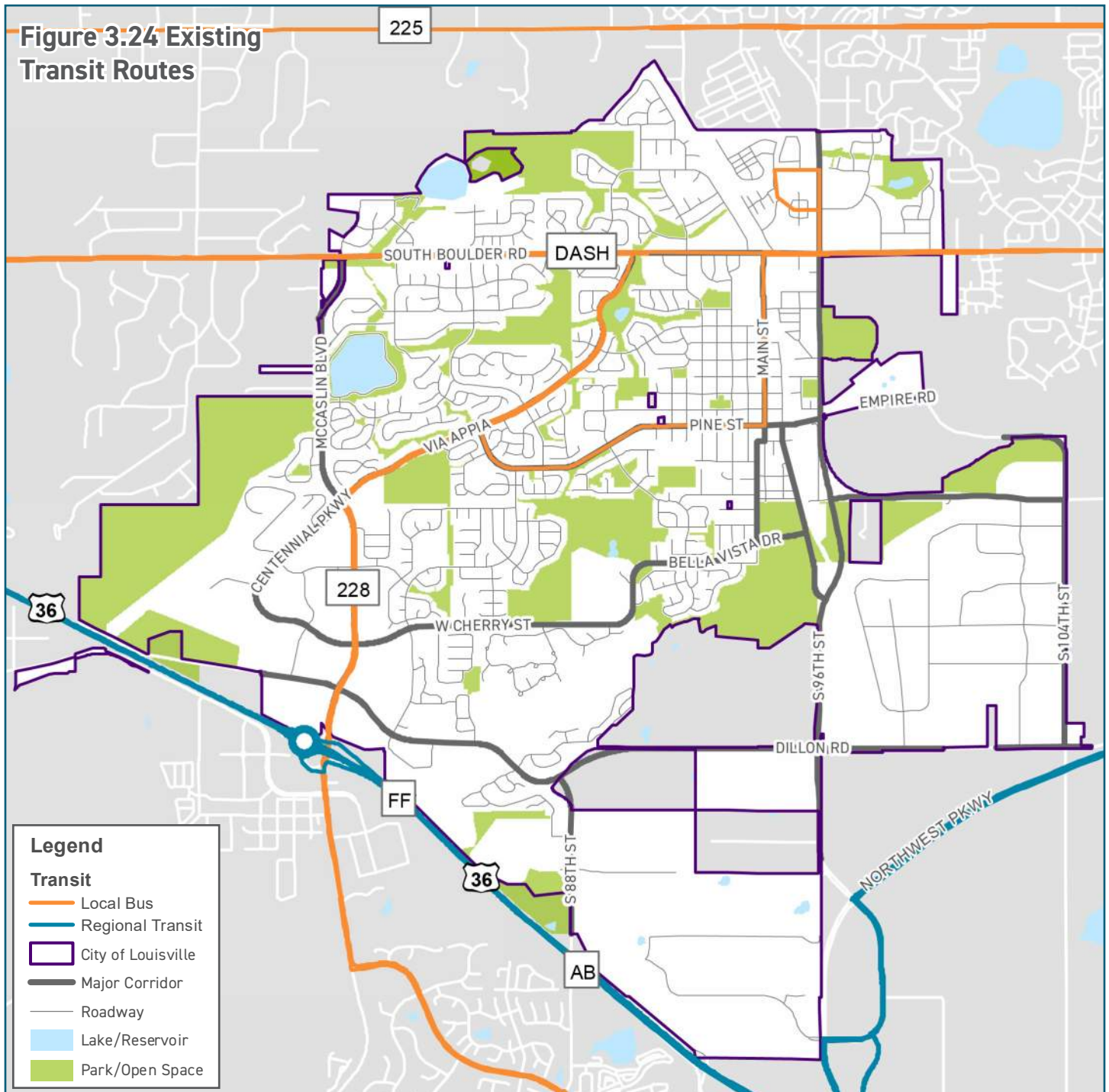
*Hwy 42/S 96th Street new service from Broomfield to Arapahoe*



The Flatiron Flyer provides bus service along US 36.

## Transit Service

Transit service is an important component of a multimodal network, particularly for certain populations including people with no automobiles, low-income households, children, elderly, and disabled residents. Most people who ride the Flatiron Flyer from the McCaslin Station drive to the station, with some accessing the station by bike. Those who ride the local 228 and DASH routes typically walk or bike to the bus stop. The bus routes cover some of the major corridors within Louisville and connect some of the activity centers. Transit service is missing from the CTC and the area south of Dillon Road that includes the hospital and Monarch High School and K-8 campuses. Additionally, an hourly or better bus route, AB, connects Denver International Airport to Louisville's McCaslin Station.





## FlexRide & Via

Additional services are available to supplement the traditional, fixed-route service in Louisville. FlexRide service is a call and ride service that allows riders to reserve a trip online or by mobile device. The service has an advanced reservation time of approximately 10 minutes and costs the same as a local fare. It helps serve areas with less direct fixed service, and connect them to the rest of the network.

Via is a non-profit organization that provides a range of transportation services for older adults and people with disabilities or mobility limitations. Via helps improve the quality of life for users, by providing responsive and direct transportation services.

## Stop Amenities

McCaslin Station has multiple amenities including shelters, bike parking, next bus arrival information, and a pedestrian bridge over US 36 that connects to the eastbound stop in Superior. The local bus route stops throughout Louisville are typically marked with signs, but many lack other amenities such as shelters or benches and sometimes do not meet ADA requirements.



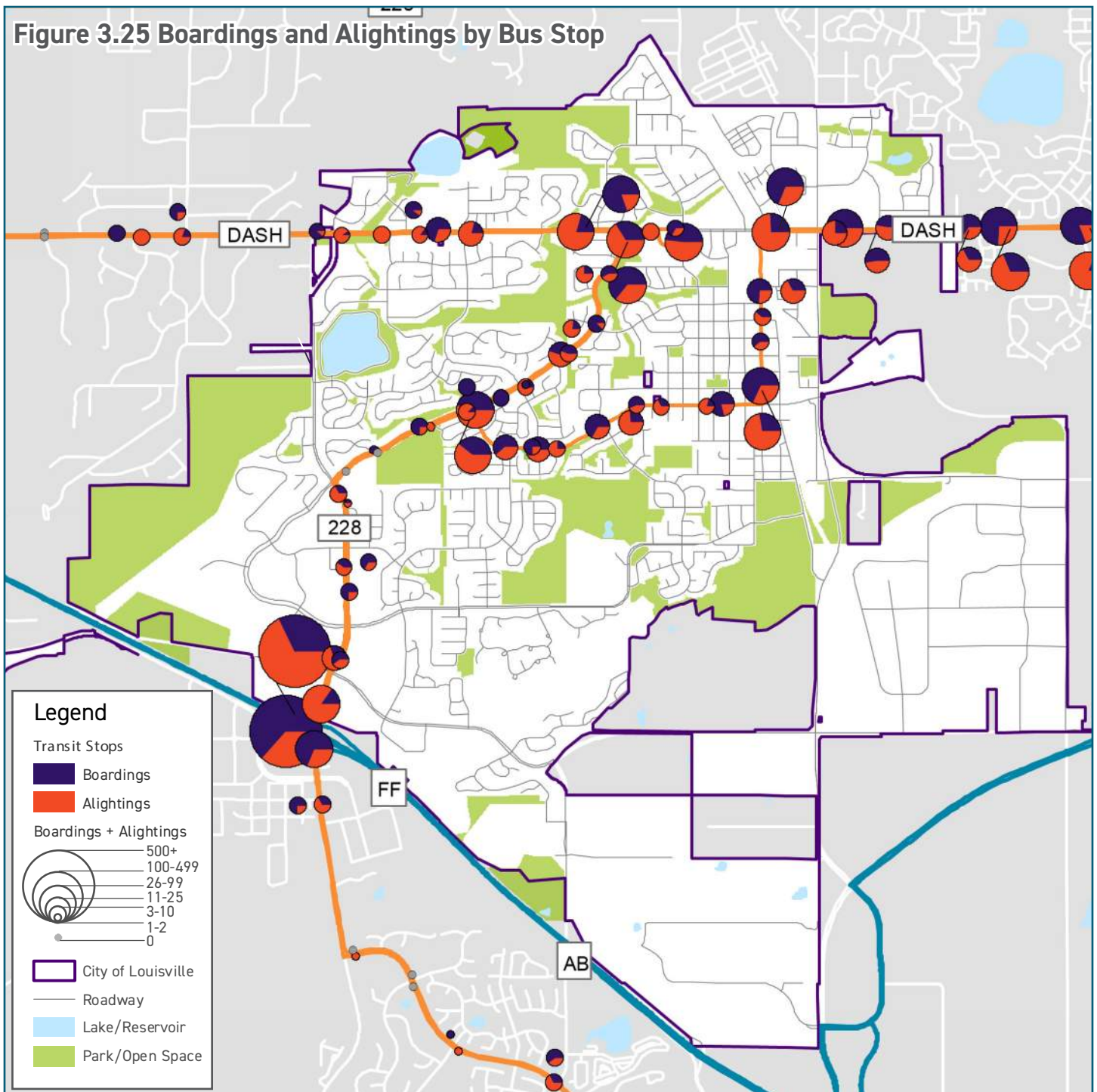
Vehicle and bike parking serves commuters at McCaslin Station.



Local bus route stops often lack benches, shelters, and other amenities.

## Transit Use

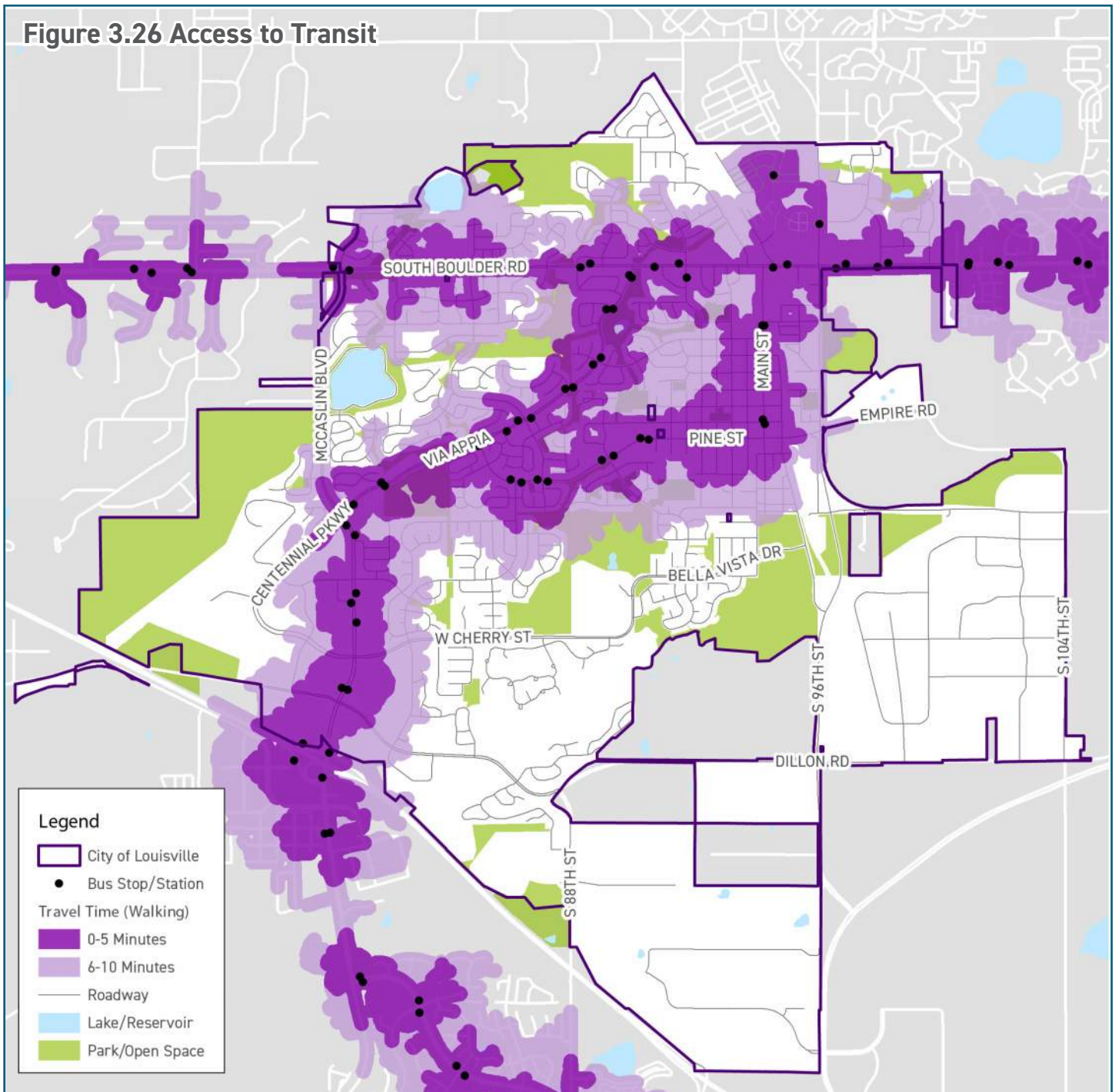
The RTD's Flatiron Flyer—a Bus Rapid Transit (BRT) service that connects Denver, Boulder, and other cities along the US 36 corridor—is by far the most utilized transit service in Louisville. The US 36 and McCaslin station experiences more than 1,600 boardings and alightings on a typical weekday—69% more transit activity than occurs at all other bus stops in Louisville combined. Apart from the BRT station, transit boardings and alightings concentrate in Downtown and near the intersection of Via Appia and South Boulder Road. Overall, the local bus routes have low ridership but provide important connections to regional destinations. In Downtown, there are approximately 58 boardings and alightings per day at Main Street and Pine Street. Boardings on South Boulder Road near Via Appia have just over 50 boardings and alightings per day.





## Access to Transit

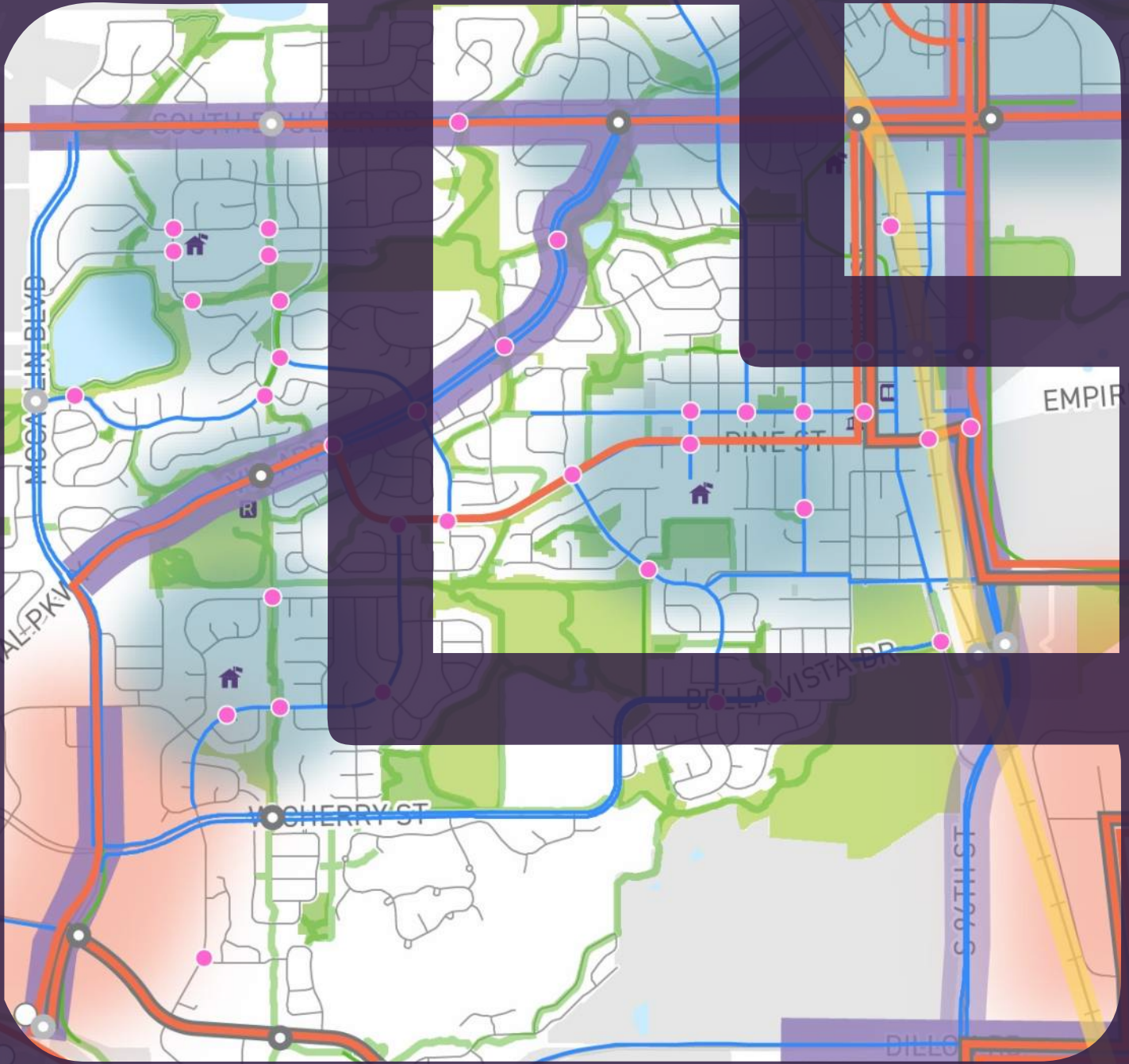
Figure 3.26 depicts the areas within a five- and ten-minute walk of RTD bus stops in and around Louisville. Many of the residential areas in Louisville can access a bus stop within a ten-minute walk. However, the CTC, Avista Hospital, Monarch K-8, and High School are inaccessible to fixed-route transit. Transit service to these areas could be of significant benefit to students and those with medical needs and would help ease congestion since they generate a high volume of trips. Access to transit can also be accomplished through other modes and options such as bicycling, rideshare services, and FlexRide.



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# Policies, Projects & Programs



# INTRODUCTION

This chapter of the TMP provides specific recommendations and strategies for the City of Louisville to improve safety, expand mobility options, increase access to destinations, and overall meet the TMP goals. The recommendations are in the form of Policies, Projects, and Programs.

## Policies, Projects & Programs

Policies, Projects, and Programs work together to achieve a desired outcome. For example, a transit route can provide people with access to a variety of destinations, but if there are not safe, accessible sidewalks leading to the transit stop, seating and shelter to make waiting for transit more comfortable, or education on how to ride and information about where the route is going, the transit route will not reach its full potential. Likewise, quality sidewalks or bikeways may make a greater impact in a community when combined with education and outreach at schools for learning how to cross streets and bicycle correctly, and with policies that ensure intersections and facility design are intended to accommodate all users.

### Policies

The policies support the TMP goals and further defines the vision for the community wants to advance those goals. Policies will also provide guidance on how to develop the specific Projects and Programs and inform city priorities on transportation investment.

### Projects

Projects contain recommendations and descriptions for facility or design improvements that will improve access and mobility options. These projects represent the priorities at the time this plan was adopted. Current funding levels would not allow completion of all the recommendations proposed in the TMP. Therefore, prioritization of projects is critical, and evaluation of additional funding sources would be necessary to fully fund all contemplated Projects.

### Programs

These recommendations support the development, expansion, or enhancement of programs that generally encourage, educate, and support mobility options. Programs may be implemented by or in partnership with organizations outside of the City as well, such as non-profit organizations and are typically short-term opportunities to make meaningful impacts.

# RECOMMENDATIONS

Goals								Modes of Focus			
Efficient & Safe	Cohesive & Layered System	Local & Regional Travel	New Technologies	Increase Options & Access	Complete Streets - Livability	Economic Opportunities	Environment & Community Health	Driving	Transit	Walking	Biking
1	2	3	4	5	6	7	8				

Figure 4.1 Recommendations

Policy		1	2	3	4	5	6	7	8	Driving	Transit	Walking	Biking
<i>Policy 1</i>	Great Streets	○	○	○		○	○	○	○	○	○	○	○
<i>Policy 2</i>	Guidelines for Walkable and Bikeable Places	○	○	○		○	○	○	○		○	○	○
<i>Policy 3</i>	Transit Oriented Development Guidelines		○	○		○	○	○	○		○	○	○
<i>Policy 4</i>	Coordinate Applications for Technology	○			○	○		○	○	○	○	○	○
Project		1	2	3	4	5	6	7	8	Driving	Transit	Walking	Biking
<i>Project 1</i>	Corridor Improvements	○	○	○		○	○	○	○	○	○	○	○
<i>Project 2</i>	All Ages and Abilities Bicycle Network	○	○	○		○	○	○	○		○	○	○
<i>Project 3</i>	Connectivity and Safety Improvements	○	○	○	○	○	○	○	○		○	○	○
<i>Project 4</i>	Downtown Connection Enhancements	○	○	○	○	○	○	○	○		○	○	○
<i>Project 5</i>	Transit Vision and Service Needs	○	○	○	○	○	○	○	○		○		
Programs		1	2	3	4	5	6	7	8	Driving	Transit	Walking	Biking
<i>Program 1</i>	Neighborhood Traffic Management Program	○				○	○		○		○	○	○
<i>Program 2</i>	Travel Demand Management	○		○	○	○		○	○	○	○		
<i>Program 3</i>	Safe Routes Programs	○	○	○		○	○		○			○	○
<i>Program 4</i>	Fun Routes Programs		○			○	○		○				○
<i>Program 5</i>	Open Streets Program	○				○	○	○	○	○	○	○	○
<i>Program 6</i>	Coordinate Bike Share Network			○	○	○		○	○				○
<i>Program 7</i>	Safety, Maintenance & Training Program	○				○				○	○	○	○
<i>Program 8</i>	Coordinated Wayfinding System	○				○		○	○	○	○	○	○
<i>Program 9</i>	Bicycle-Friendly Recognition	○	○				○	○	○				○
<i>Program 10</i>	Data Collection		○		○	○	○	○	○	○	○	○	○



# Policy 1: Great Streets

## Summary

Great Streets, or complete streets, are streets that are designed and operated to be safe and accessible for all users, regardless of ability, age, or mode. Development of Great Streets are unique to each context and neighborhood, and modal priority for individual transportation corridors. This policy provides a guide for the design of new streets or for improving infrastructure on existing streets and should take into consideration the surrounding context and land uses.

This Great Streets Policy has the potential to lead to the creation of more livable places, increased comfort and safety for people walking and biking, improve first and last-mile access to transit, reduce congestion, and improve air quality.

## Implementation

As projects are developed, whether they are new facilities, public or private streets, reconstruction, resurfacing, restriping, or other maintenance, the consideration of multiple users and multi-modal operations shall be considered and incorporated as appropriate to the facility. The City should continue to partner with other agencies and jurisdictions to develop a Great Streets network.

The following sections provide guiding concepts for implementing the Great Streets policy.

## Key Considerations

- Street cross sections for all street types need to accommodate users of all ages and abilities. This is achieved in different ways depending on the modal priority of the street, but all modal types must be accommodated.
- The Great Streets policy incorporates safe and comfortable places for all modes of transportation, including walking, biking, transit users and driver, and users of all ages and abilities. Design is specific to the location and type of facility.
- Great Streets will reduce and eliminate conflicts that could lead to crashes. The Vision Zero initiative is a resource that provides communities with resources to improve safety within their transportation network to eliminate fatalities and severe injuries ([www.visionzeronet.org](http://www.visionzeronet.org)).
- The City should utilize and promote best practices for facility design in the development of projects. The table at the end of this policy on page 4-9 provides a list of current resources.





# Policy 1: Great Streets, Cont.

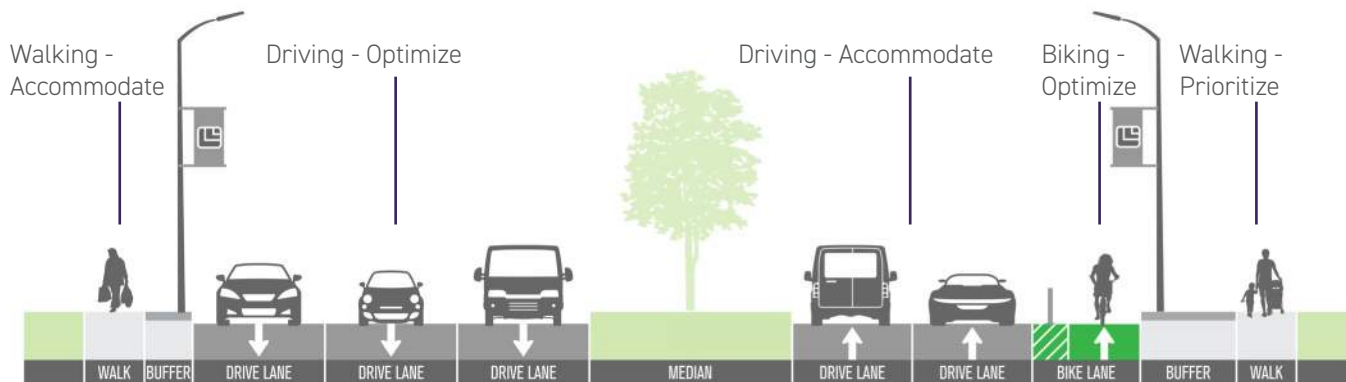
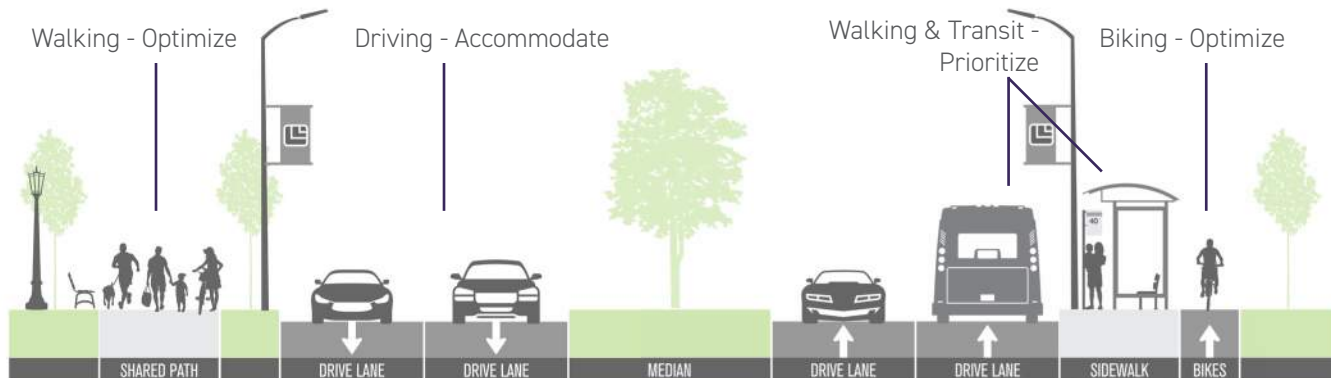
## Street Cross Sections and Modal Accommodation

Street cross sections should include safe and inviting facilities for all ages and abilities and modes. Pedestrian, bicycle and transit facilities should be considered a priority in all road designs. How to accommodate each mode will differ based on demand within a corridor. For example, a busier road such as Highway 42 should provide adequate vehicular lanes and signal timing to ensure acceptable levels of service for vehicles, but this could lead to more undesirable facilities for walking and biking unless those facilities are adequately buffered and separated from the roadway.

The table and cross sections below highlight how all modes can be accommodated in a Great Street and can be used as a guide. It does not indicate all possible types or levels of accommodations that may be applicable.

Figure 4.2 Street Cross Sections and Modal Accommodations

	Walking 	Biking 	Transit 	Driving 
Optimize	Wide sidewalks/trail, roadway buffer, enhanced amenities	Protected or buffered bike lanes, separated trail	Signal timing preference for transit, lane use priority, enhanced stop and shelter amenities	Additional lanes, enhanced signal timing, no shared ROW
Prioritize	Wider sidewalks/trail, roadway buffer	Bike lanes/trail, neighborhood bikeway treatments	Bus stop with shelter, coordinated pedestrian/bike access	Enhanced signal timing, turn lanes
Accommodate	5' minimum sidewalks with ADA curb ramps	Bike route/shared facility	ADA accessible bus stop	Vehicle access to destinations

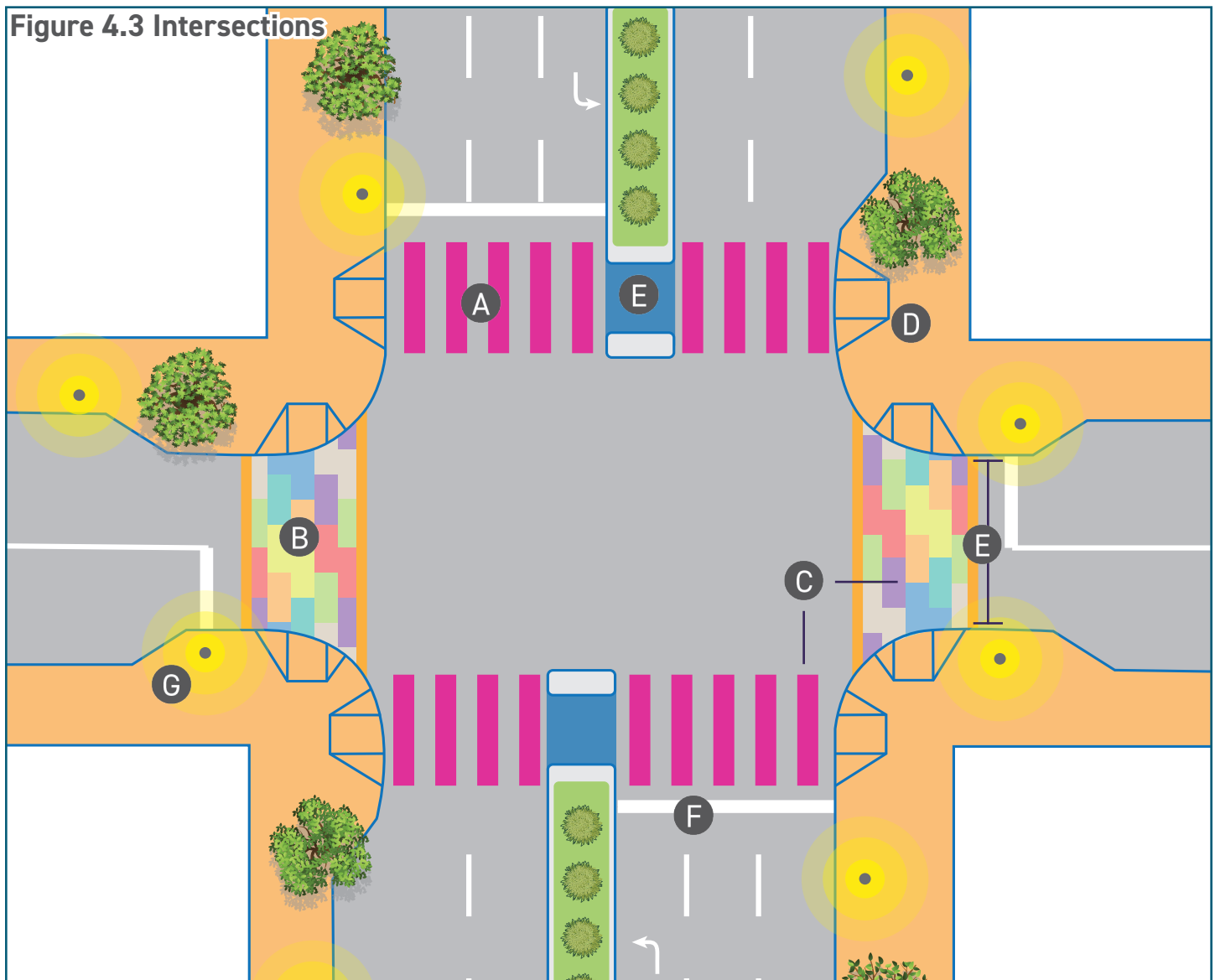


# Policy 1: Great Streets, Cont.

## Intersections

Intersections can become significant barriers to Great Streets if not designed properly. The graphic below identifies key elements of safe and accessible intersections which should be considered when making improvements to existing or building new intersections.

- A** Signalized crossings should be striped to reinforce yielding of vehicles during pedestrian signal phases.
- B** Crosswalks should be striped as wide or wider than the connecting sidewalks.
- C** High-visibility ladder, zebra, and continental crosswalk markings are preferred, but other designs that are visible with contrasting colors can also improve pedestrian visibility and safety while adding to a sense-of-place for the area.
- D** ADA accessible curb ramps should be at all intersections with perpendicular curb ramps preferable.
- E** Crossing distances should be as short as possible by utilizing curb extensions and median refuges.
- F** Advanced stop bars reinforce yielding to pedestrians.
- G** Lighting should be placed along pedestrian walkways and at intersections to ensure visibility within the crosswalk and approaches.





# Policy 1: Great Streets, Cont.

## Crossing Types

The following includes examples of pedestrian and bicycle crossings that help promote Great Street design. They also reflect existing facilities already implemented throughout the city that can be expanded to other locations throughout the city.

### *Signage and Pavement Markings*

Enhanced markings for pedestrians accompanied with signage to catch the attention of drivers is often sufficient for two-lane roadways, and roadways with lower speeds.



### *Pedestrian Refuges*

Pedestrian Refuges may be appropriate on higher volume or wide roadways where signage alone is not sufficient, or within crossings utilized by vulnerable users.



### *Narrowed Trail Crossings*

Narrowed trail crossings are appropriate at highly utilized trail locations throughout the city. This design is effective in notifying drivers of a crossing ahead and allowing users to enter the intersection to improve their visibility before they are within the travel lane.



### *Rapid Rectangular Flashing Beacons (RRFBs)*

RRFBs draw additional attention to crossings through the activation of flashing yellow lights. RRFBs are typically appropriate on roadways with vehicle speeds of 35 mph or more, or across four-lane streets.



### *Pedestrian Signals*

On roadways with speeds nearing 40 mph or more, especially on wider roads that don't have a raised median, a pedestrian signal is needed to bring vehicle traffic to a stop, and allow for a safe pedestrian crossing.



### *Underpasses*

At higher-speed roadway crossings with heavy pedestrian or trail use, or at dangerous crossing locations, such as the railroad, underpasses may be an appropriate solution. In some cases, underpasses are appropriate to manage traffic flow even at safe crossing locations.



# Policy 1: Great Streets

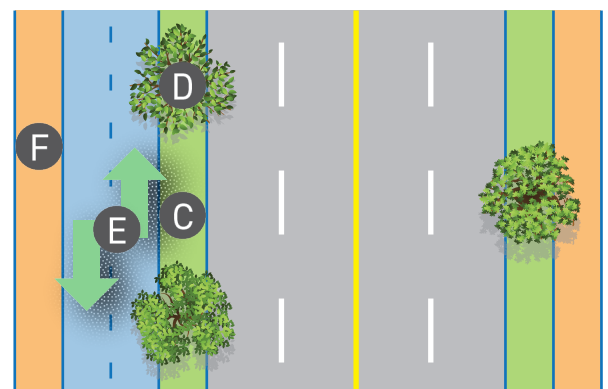
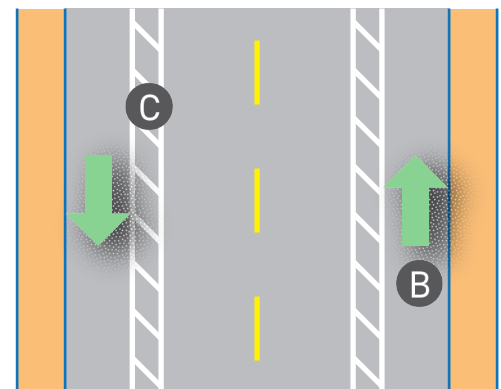
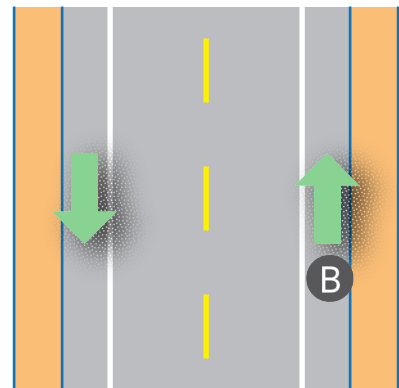
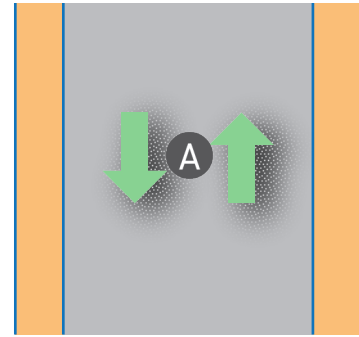
## Bicycle Facilities

The graphics to the right highlight key types of bicycle facilities on Great Streets. As vehicular speeds and volumes increase, greater separation for bicycles is necessary for safety and comfort. There are also significantly different level of comfort for bicyclists based on age and ability that need to be considered. For example, on a busier road, both a bicycle lane for experienced cyclists and an off-street trail for children may be appropriate.

Generally, a network designed to encourage people of all ages and abilities will include buffers and physical protection from vehicular traffic on roadways with higher levels of vehicle traffic, conflict points, and design speeds. The resources identified on page 4-9, particularly the 2017 Designing for All Ages and Abilities guide, provide guidance on the appropriate design considerations for a variety of roadway contexts.

- A** Shared space for cars and bikes - Acceptable on low-speed, low-volume roadways.
- B** Dedicated space within the roadway for people riding bicycles.
- C** People on bikes further separated from cars, by additional buffer. Physical separation can be placed in this buffer for additional protection.
- D** Landscaped buffer separates bicycles from roadway and enhances experience.
- E** Bi-directional bikeway can utilize same buffer and adjacent amenities.
- F** Delineation between bikeway and sidewalk.

Figure 4.4 Bicycle Facilities



# Policy 1: Great Streets, Cont.

## Transit Facilities

Having comfortable and accessible transit stop infrastructure for all ages and abilities are key elements of Great Streets. Each transit stop should include ADA access and amenities for users such as shelters, benches, and trash and recycling facilities. Transit signal priority, on-street pull-offs for buses in certain contexts, and queue jump lanes are examples of additional elements of Great Streets that can help traffic flow for transit and address or limit congestion.



Figure 4.5 Great Streets Resources

Resources, Best Practices, and Innovations in Multimodal Design & Development		
2006	FHWA	Shared Use Path LOS Calculator
2010	ITE	Designing Walkable Urban Thoroughfares: A Context Sensitive Approach
2012	BoCo	Boulder County Multimodal Transportation Standards
2013	NACTO	Urban Street Design Guide
2014	FHWA	Road Diet Guide
2014	NACTO	Urban Bikeway Design Guide
2015	FHWA	Separated Bike Lane Planning & Design Guide
2016	FHWA	Achieving Multimodal Networks Applying Design Flexibility & Reducing Conflicts
2016	FHWA	Small Town and Rural Multimodal Networks; Rural Design Guide
2016	FHWA	Workbook on Incorporating On-Road Bicycle networks into Resurfacing Projects
2016	NACTO	Transit Street Design Guide
2017	SGA	Smart Growth America - Elements of a Complete Streets Policy, and more complete streets resources
2017	NACTO	Designing for All Ages and Abilities
2017	FHWA	Proven Safety Countermeasures
2017	ITE	Implementing Context Sensitive Design on Multimodal Corridors: A Practitioner's Handbook
2018	AASHTO	Geometric Design of Highways and Streets
2019	FHWA	Bikeway Selection Guide
2019*	AASHTO	Guide for the Development of Bicycle Facilities

\*Anticipated release date in 2019, previous design guide is from 2012 but does not cover the breadth of bicycle facility types

# Policy 2: Guidelines for Walkable and Bikeable Places

## Summary

In areas where new development or redevelopment is anticipated, the City's policy is to facilitate design that promotes walkable and bikeable places. Downtown Louisville is a good example of a walkable place. The grid network in the Downtown area has lower traffic speeds, a high intersection density, or connectivity among the streets, well-marked pedestrian crossings and wide sidewalks and amenities such as street furniture and patios buffering the sidewalks to the street. Additionally, there are many destinations within a short distance. This provides multiple, direct routes for people to travel, reducing the reliance on an automobile for short trips and encouraging active transportation options. Many areas of the city have well-developed recreational trails for biking and many on-street bike lanes that provide a strong backbone for an expanded bicycle network. The majority of homes in the city are within a 15-minute bicycle ride to an activity center, again reducing the reliance on an automobile for short trips and encouraging active transportation options.



## Implementation

The City's adopted design guidelines and standards should be reviewed and updated as needed to promote the development of walkable places. There should be a focus on promoting walkable places in the city's main commercial corridors along McCaslin Boulevard and South Boulder Road, especially as redevelopment opportunities occur.

## Key Considerations

When developing or redeveloping sites in Louisville, this plan recommends the following considerations:

- Wide sidewalks adjacent to all new buildings and pedestrian-oriented building forms create a comfortable and welcoming place that encourages walking and gathering.
- Buffers between the pedestrian area and the street should be incorporated through landscaping, furniture or other amenities.
- Reducing parking minimums or implementing maximums on sites targeted for redevelopment enables projects to utilize land more efficiently and reduce the distances between sites.
- Shared parking should be evaluated on redevelopment sites to reduce parking area when uses have different peak parking timeframes.
- Block length should not exceed 400 feet without introducing a through-connection. The preference is for this connection to be a street, however, in some cases, an alley, pedestrian plaza or other facility may be appropriate.
- The site should be developed with appropriate design speeds in high pedestrian areas and adjacent to designated bicycle routes. Street widths, curves, medians, and crossing design all are important considerations in controlling vehicle speed.
- Bicycle routes should include a mix of on-street and off-street options connecting key destinations that provide inviting options for all ages and abilities.



# Policy 3: Transit Oriented Development Guidelines

## Summary

Transit Oriented Development (TOD) is the creation of compact, walkable, pedestrian-oriented, mixed-use neighborhoods centered around high-quality train or frequent bus systems. TOD is desirable for many businesses when looking to locate in an area and TOD helps to reduce congestion and support environmental sustainability. TOD is becoming a more common and desirable development type in and around Denver, especially where there have been large investments in transit, such as bus rapid transit or rail services. In metro Denver, TOD has captured 61% of all office activity since 2005 and accounts for 74% of planned growth.

Components of good TOD include:

- Walkable design, including recommendations in the Walkable Places policy;
- Transit as a prominent and accessible feature;
- Public plazas and gathering places;
- A mixture of uses in close proximity;
- Integration of other modes such as bicycle accommodations and shared mobility options (e.g. bike share, car share, and on-demand transit services);
- Reduced and managed parking inside a 10-minute walk circle around the transit station;
- Specialized retail and services serving commuters and local daily needs.

Benefits of good TOD include:

- Increased quality of life;
- Increased mobility options and transit ridership;
- Reduced regional traffic congestion;
- Improved air quality;
- Reduced household spending on transportation, resulting in more affordable housing;
- Supports healthy communities;
- Increased foot traffic and revenue for businesses; and
- Enhanced economic competitiveness.

## Key Considerations

- TOD should focus on leveraging existing or planned transit to drive market capture of future retail and employment.
- Downtown and Downtown East Louisville (DELO) have many elements already in place to support good TOD development. However, a future commuter train station or another major transit hub would require additional investment.
- The CTC and development of the former StorageTek campus provide additional opportunity to leverage transit.
- McCaslin Station is a recent major transit investment in the city with additional opportunities to improve connectivity and a mix of uses that could help sustain and revitalize the McCaslin Corridor.
- Trails can help provide first and last-mile connections into and out of a TOD to other major destinations. Incorporating and leveraging trail investments with transit could significantly expand the benefits and returns of TOD.

## Implementation

As new development and redevelopment opportunities arise within proximity to transit, the City should consider implementing TOD principles. TOD design concepts should also be addressed within the City's design standards and guidelines.



# Policy 4: Applications for Technology

## Summary

Investments in new technologies have the potential to improve the safety and efficiency of the transportation network and provide more equitable access to transportation options. Proactive consideration and implementation of cost-effective technology can help advance many of the City's transportation goals. Further, transportation technology is often interconnected or regional and will require cooperation and coordination with regional partners. The most prominent areas and examples of technology integration with mobility include:

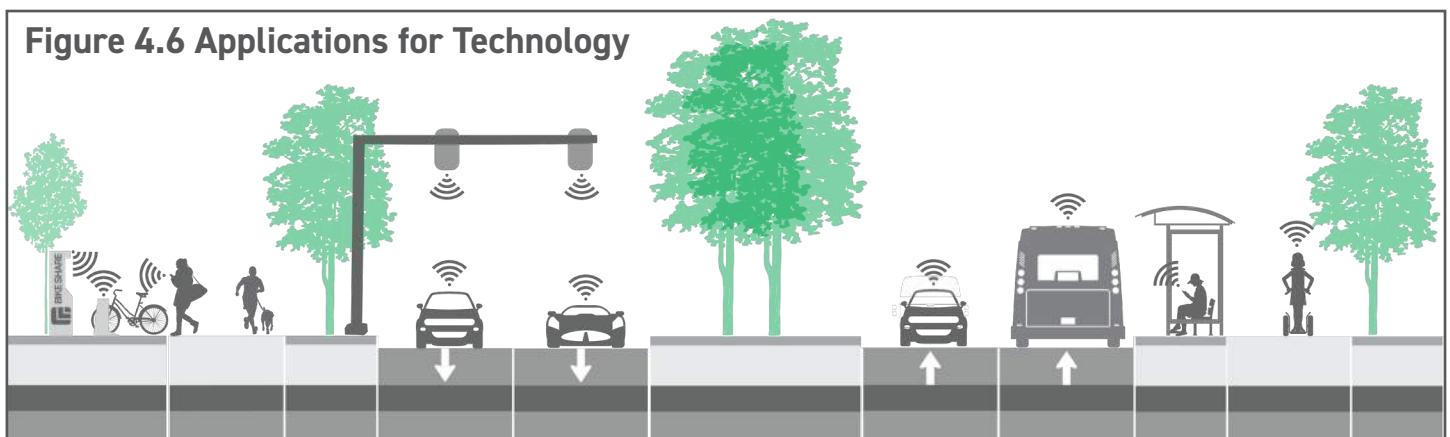
- Shared Mobility: bike, car, or ridesharing, Transportation Network Companies (e.g. Uber and Lyft), and microtransit (e.g. private shuttle services).
- Vehicle Technology: autonomous and/or connected vehicles.
- Transportation Systems Optimization: adaptive traffic signals, signal prioritization, smart parking, big data, and traffic management centers.
- Travel Information & Payment: trip planner apps, mobility as a service, and mobile ticketing.

## Key Considerations

- The City should explore new and emerging technologies and evaluate cost-benefit for the city.
- The City should evaluate its codes and policies related to emerging technologies, including regulations related to the use and management of rights of way.
- New technologies may be able to benefit segments of the population with limited access to transportation options and the City can facilitate or promote the use of those technologies.
- Design guidelines and standards should consider trends in new technology that may impact site design and layout such as parking requirements and drop off areas.
- New technologies can help the City meet its sustainability goals, such as promoting a reduction in carbon footprint through the use of electric vehicles.

## Implementation

The City should be proactive in exploring and investing in technology, and continue to monitor advances and changes in application of new technology, and their appropriate use within the city.

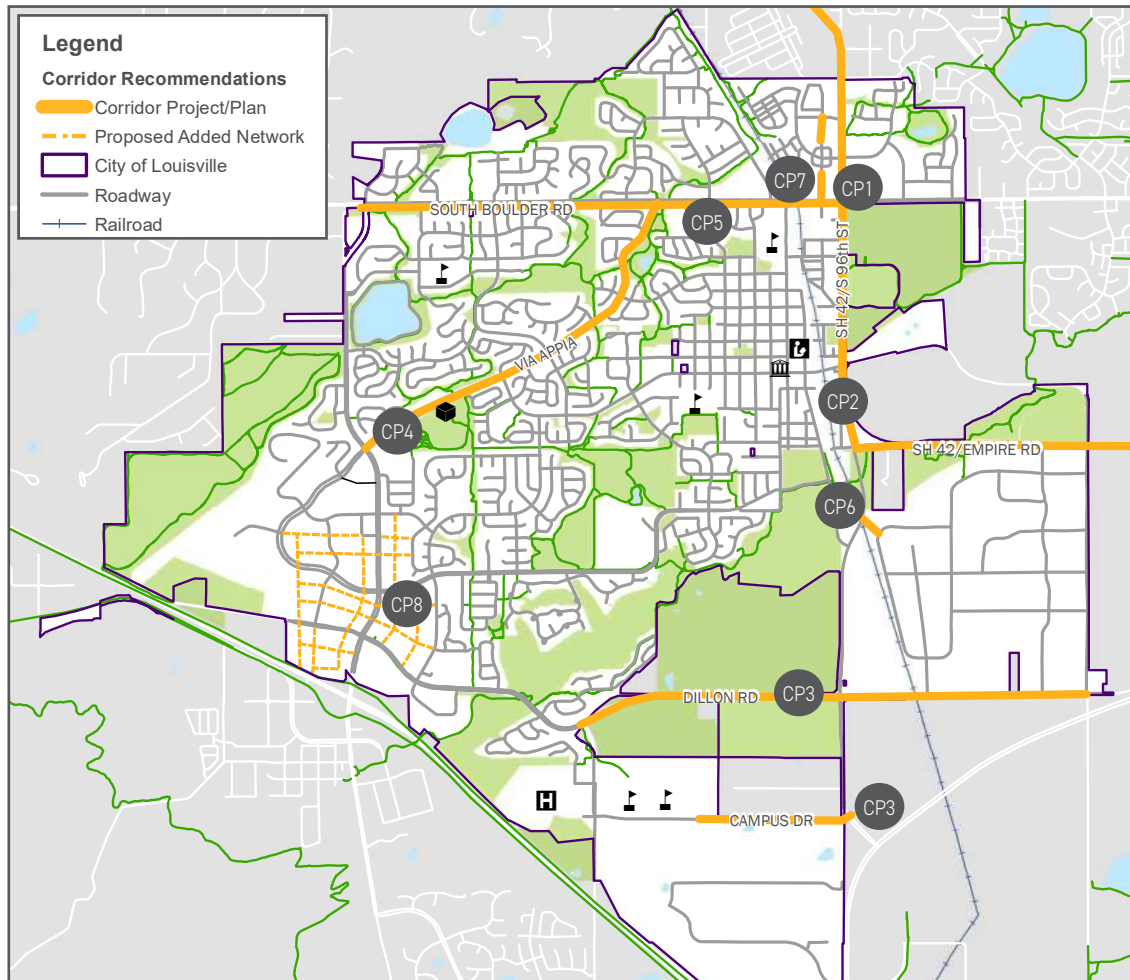


# Project 1: Corridor Improvements

## Summary

Project 1 includes coordinated projects that are planned on a larger corridor-level scale. These projects encompass many of the city's major street corridors, critical connections between corridors and investments in key areas of town. The projects include design and transit studies, adding new critical road connections, and smaller incremental improvements along certain corridors to improve safety and multi-modal access.

**Figure 4.7 Corridor Improvements**



**Figure 4.8 Corridor Improvements**

Project	Description	Location/Detail
CP1	Roadway Improvement	SH 42 Conceptual Design
CP2	Roadway Improvement	SH 42 Enhancements
CP3	Roadway Improvement	Dillon Road & Campus Drive
CP4	Roadway Improvement	Via Appia
CP5	South Boulder Rd Study	South Boulder Road Corridor
CP6	CTC Connector	Arthur Avenue to S 96th Street
CP7	Kaylix Connector	Summit View Drive to South Boulder Road
CP8	McCaslin Network Additions	Various locations along McCaslin area

# Project 1: Corridor Improvements, Cont.

## CP1 & 2: SH 42 / S 96th Street

### Summary

The SH 42/S 96th Street corridor serves both local and regional travel needs. As a primary access route within Boulder County, the corridor is experiencing increasing travel and anticipates further increases over time. Additionally, the City anticipates future transit service along the corridor and the corridor lacks comfortable multi-modal options. SH 42 should be redesigned to better accommodate the current and future travel needs.

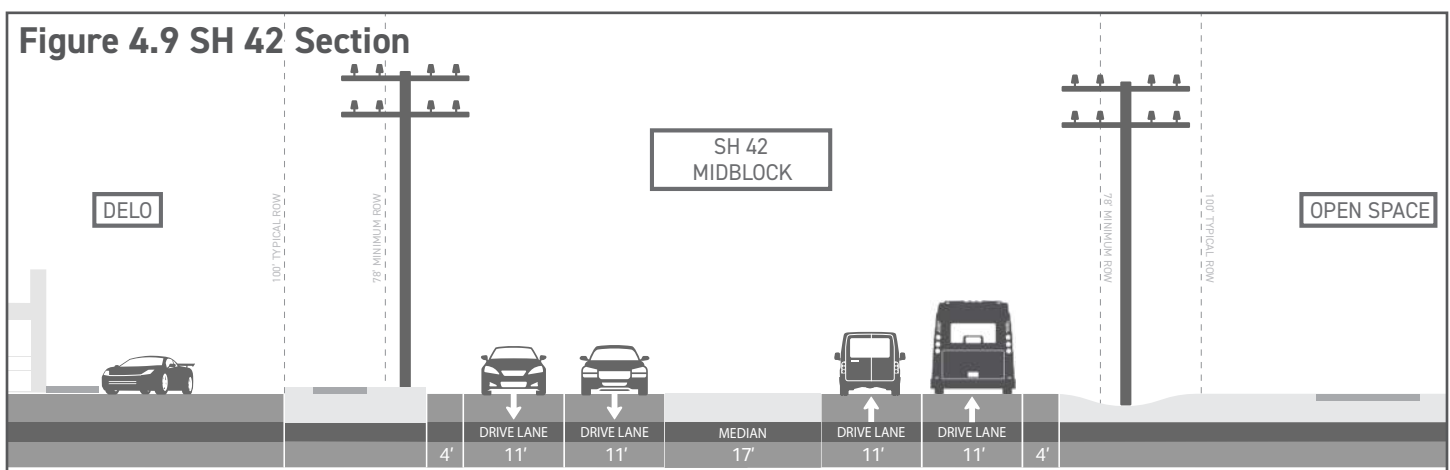
Corridor Project CP1 includes a regional study and preferred design for expansion of the SH 42 corridor in partnership with the City of Lafayette and Boulder County. Corridor Project CP2 involves the implementation of the recommendations of this regional corridor study.

### Key Considerations

- SH 42 is identified in the Northwest Area Mobility Study (NAMS) for bus rapid transit. This project will evaluate the best options to accommodate bus service within the existing right of way.
- Improvements to bus stops and frequency of transit service can help improve ridership and reduce congestion.
- Recent modeling of future traffic conditions on SH 42 through the city shows a demand for expansion to a 4 or 5 lane cross section.
- Expansion of the road will require additional investment in multi-modal connectivity to that pedestrians and bicyclists can move comfortably across and up and down the corridor.

### Implementation

The planning for and improvements to SH 42 will need to be a multi-jurisdictional effort with Lafayette, Boulder County, and CDOT. Current City funding levels cannot meet the needs of this corridor, and the City should continue to work with state and federal resources for funding these recommendations.





# Project 1: Corridor Improvements, Cont.

## CP1 & 2: SH 42 / S 96th Street, Cont.

Figure 4.10 S. 96th St



- A** Expand SH 42/S 96th Street to include two lanes in each direction, plus turn lanes at intersections.
- B** Add Short Street signal to provide better access to DELO.
- C** South or Short Street underpass connection to 12' paved Open Space trail.
- D** Consider current and future multi-modal needs during future bridge improvements.
- E** Planned Open Space trail to provide bike access to CTC, the former Storage Tek campus, and other regional trails.

# Project 1: Corridor Improvements, Cont.

## CP3: Dillon Road & Campus Drive

### Summary

Dillon Road is a regional corridor that provides east-west access to the CTC, Avista Hospital, Monarch Schools, and McCaslin Station. As travel to these areas increases, the corridor is becoming congested, particularly at intersections where high-volumes of turning movements occur. As the character of Dillon Road changes from being more developed west of S 88th St to more rural to the east, the recommendations adjust to meet the varying needs.

This project includes a series of improvements along the Dillon Road Corridor and an extension of Campus Drive from the Monarch Schools to 96th Street to the east. This connection would alleviate some congestion on Dillon Road as well as provide emergency access and connectivity to the hospital and schools.

### Implementation

The City will need to partner with the CTC, BNSF and Boulder Valley School District on the planned improvements throughout this corridor. As the former StorageTek campus redevelops, they will need to contribute to improvements, including the extension of Campus Drive.

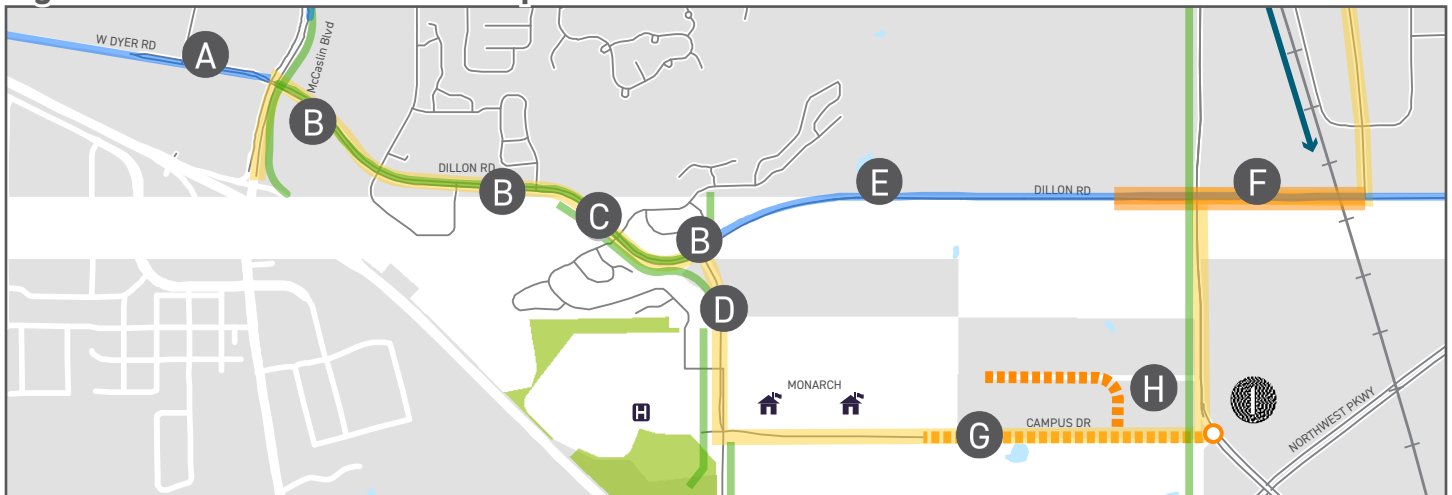
### Key Considerations

- West of 88th Street, improvements will focus on multi-modal improvements and major regional trail connections that will facilitate access to McCaslin Station and the US 36 Bikeway.
- East of 88th Street, improvements to vehicular capacity are needed to address intersection congestion at 96th street and access to the CTC.
- Traffic signal timing and railroad operations need to be coordinated to maintain or improve flow and progression of traffic along Dillon Road between 88th and 104th Streets.
- Access and multi-modal safety improvements and planning for future transit access to the Monarch K-8 and High School campus should be a priority.
- As the former StorageTek site develops and connects into the existing transportation network, the City will need to evaluate the capacity constraints of the surrounding road and trail network and ensure adequate improvements are made. Transportation improvements should only be allowed that are consistent with the preservation of the rural character of the surrounding area.
- External factors, such as development in Broomfield, Superior, or Boulder County could trigger the need for additional vehicle capacity in the future. The City should continue to coordinate with surrounding jurisdictions and monitor the use of this corridor to ensure long-term development of the corridor meets multi-modal needs while ensuring access to destinations.

# Project 1: Corridor Improvements, Cont.

## CP3: Dillon Road & Campus Drive, Cont.

Figure 4.11 Dillon Road and Campus Drive



- A** Bicycle facility connecting Dillon Rd to the US 36 bikeway.
- B** New underpasses at proposed locations along Dillon Road.
- C** Trail connections to provide increased access to the schools and hospital.
- D** Proposed future transit connecting McCaslin Station to the hospital, schools, and CTC.
- E** On-street shoulder bikeway improvements; an east-west off-street bikeway or trail could also be developed to improve safety and accessibility along the corridor east of S. 88th St.
- F** Dillon Road capacity improvements to improve intersection operations.
- G** Campus Drive Extension to improve school circulation and improve emergency access.
- H** Paradise Lane realignment to eliminate intersection at S 96th Street. (\*Note: Paradise Lane is on County property)
- I** New signal at Campus Drive and S 96th Street near the firehouse.

# Project 1: Corridor Improvements, Cont.

## CP4: Via Appia Improvements

### Summary

Via Appia is a collector that connects many neighborhoods to South Boulder Road, McCaslin Boulevard, as well as the Recreation Center, parks, and trails. Via Appia is a wide street, particularly at intersections where there are center and right turn lanes. Data shows many cars traveling well over the posted speed limit. Because the corridor primarily serves as a connection to local neighborhoods and includes several trail connections and transit stops, improving safety at crossings along this corridor is recommended. This project includes a series of improvements along the roadway and at key intersections to improve safety and promote multi-modal use of the corridor.

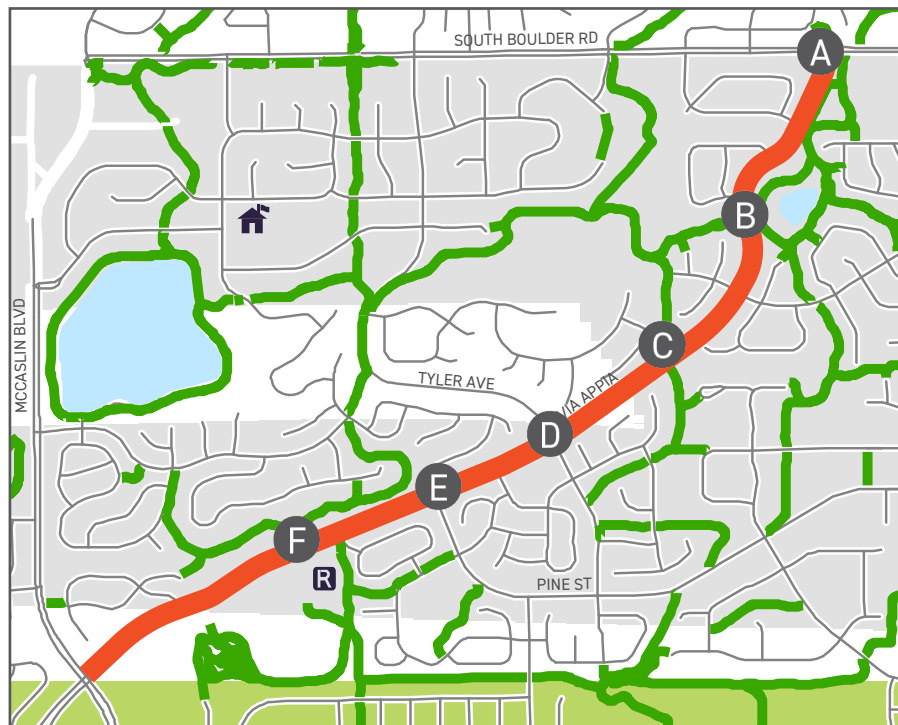
### Implementation

The City could construct the recommended improvements as one project, or at individual locations over time as determined by budget and prioritization. When the corridor is complete, the improvements should be consistent to provide predictability for users along the corridor.

### Key Considerations

- Right-turn lanes are not needed for vehicular traffic and can be removed to shorten pedestrian crossing distances.
- Road width would allow for incorporation of pedestrian refuges in the median and additional pavement space for bicycle lanes.
- Pine Street and Via Appia intersection has poor visibility due to both elevation change and curvature of the roadway and should be a priority.

**Figure 4.12 Via Appia Improvements**



- A** Underpass at South Boulder Road connecting to existing trails.
- B** Provide advanced signage to address poor visibility at trail crossing.
- C** Additional crosswalk markings, remove turn lane, evaluate for RRFB at Sagebrush Way.
- D** Remove turn lanes, evaluate for RRFB at Tyler Ave.
- E** Remove turn lanes, evaluate for RRFB at Pine St.
- F** Additional advanced signage and add pedestrian signal at Powerline Trail.



# Project 1: Corridor Improvements, Cont.

## CP5: South Boulder Road Study

### Summary

South Boulder Road is a key regional and local corridor that serves neighborhoods and many office and commercial developments along the corridor. Current issues include congestion, safety concerns at intersections, and an uncomfortable bicycle lane.

The City should complete a study in partnership with Boulder County and the Cities of Lafayette and Boulder to develop long-term design and operations for the corridor with a focus on accommodation of improved transit service, multi-modal access and safety improvements.

### Key Considerations

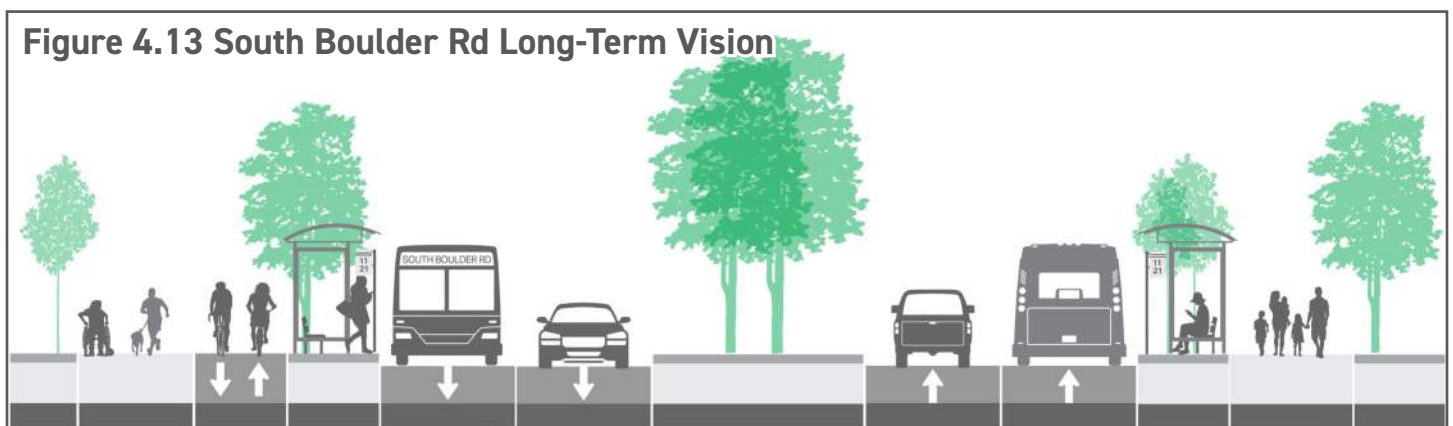
- South Boulder Road is identified in the Northwest Area Mobility Study (NAMS) for bus rapid transit. This project will evaluate options to accommodate transit within the existing right-of-way.
- Improvements to bus stops and frequency of transit service can help improve ridership and reduce congestion.

- Eliminating the right-turn lanes along the road would have minimal impact on vehicle mobility while freeing space for sidewalks and a bikeway along the corridor, and decreasing crossing distances for people walking.
- The community desires additional underpasses along the corridor and several at-grade crossing improvements are currently planned as short-term high-priority projects.
- Other safety considerations may include signalization improvements, including leading pedestrian intervals, protected left-turn phasing, and restricting right turns.
- Short-term improvements could provide significant benefits until a long-term solution can be developed. These should focus on crossing improvements for people walking and biking, and providing a buffer or physical separation between vehicles and bicycles in the current bicycle lanes where possible.

### Implementation

The City should partner with Lafayette, Boulder County and City of Boulder on a regional study that focuses on how to prioritize transit in the corridor. The study should also focus on the preferred allocation of the right-of-way and regional consistency along the corridor for all modes of travel. Funding sources for final implementation will likely include multiple sources.

A vision for the corridor that can be utilized for future consideration and project development is provided in the example cross-section and modal priority below.



**Figure 4.13 South Boulder Rd Long-Term Vision**

# Project 1: Corridor Improvements, Cont.

## CP6 & 7: Kaylix and CTC Connectors

### Summary

Corridor Project 6 is a recommendation for a new street connection completing the gaps in Kaylix Avenue between Summit View Drive and South Boulder Road. As these properties redevelop, new streets designed with Great Street principles should be constructed to allow additional connections into the Kestrel neighborhood and Lanterns and Steel Ranch to the north.

Corridor Project 7 is a new street connecting Arthur Avenue to S 96th St in the CTC. This new connection will allow employees in the CTC a more direct connection to S 96th Street and Downtown Louisville.

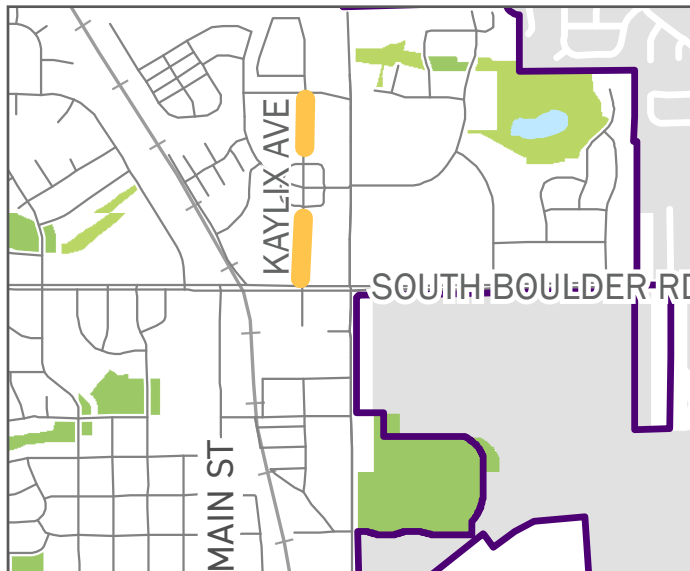
### Key Considerations

- The Kaylix Connector could develop in phases, beginning with facilities for walking and biking.
- The Kaylix Connector would provide better access to transit stops on South Boulder Road for those in the Kestrel and Steel Ranch neighborhood.
- The CTC Connector should anticipate a future trail connection along the BNSF railroad alignment or multi-use path along S 96th Street and provide pedestrian and bicycling access to these regional trail corridors.

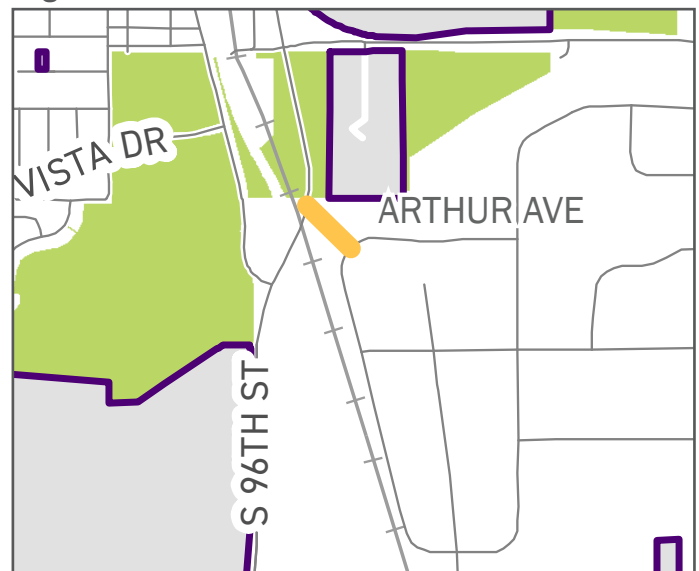
### Implementation

Funding and right of way for improvements included in these recommendations could come from private redevelopment on the properties adjacent to these connections. The City should continue to work with the property owners to determine appropriate timing and cost-sharing to complete these connections.

**Figure 4.14 Kaylix Connector**



**Figure 4.15 CTC Connector**



# Project 1: Corridor Improvements, Cont.

## CP8: McCaslin Boulevard Network Additions

### Summary

McCaslin Boulevard experiences more vehicular trips than any other roadway in Louisville due to the connection to US 36 and Superior, the number of destinations in the area, and limited parallel roadways in the area. The amount and speed of traffic and wide intersection crossings inhibit walking and biking through the corridor and access to the McCaslin Station Park and Ride.

This project recommends investment in and promotion of a secondary street grid in the corridor, and crossing and multi-use path improvements to separate pedestrians and bicyclists from vehicular traffic.

### Implementation

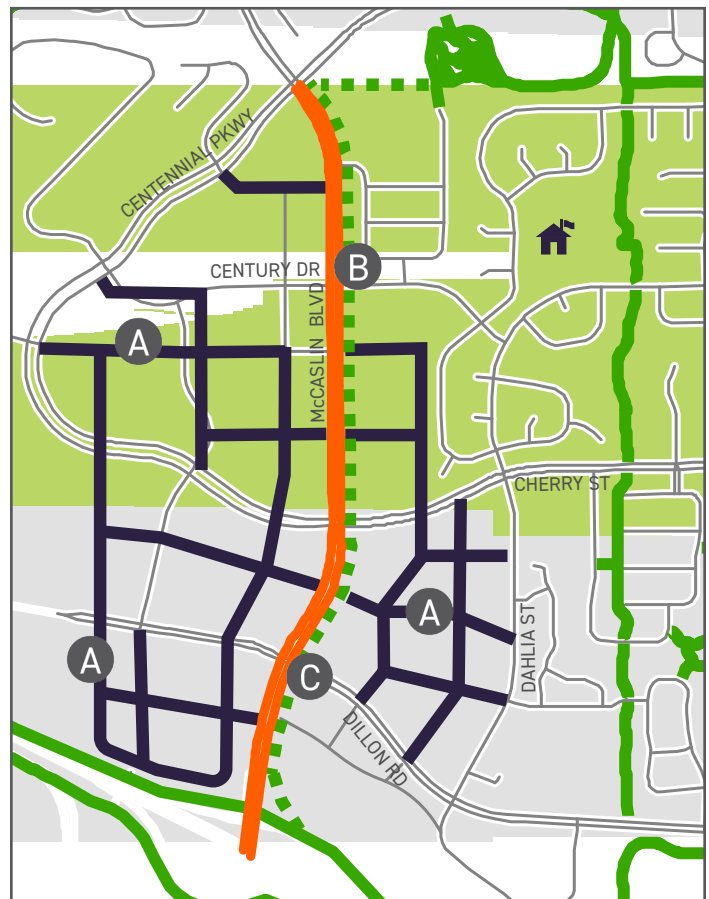
Partial funding for improvements included in this recommendation could come from private redevelopment on the properties along the corridor. This area includes many undeveloped or underutilized sites, and the City should anticipate redevelopment as market conditions warrant. Alternatively, the City could proactively implement some of the recommendations to enhance this area as a gateway to Louisville and incentivize redevelopment.

- A** Increase roadway connectivity by building out a grid network with smaller block sizes or add pedestrian trails and connections to improve access throughout the area.
- B** Add a multi-use separated path along McCaslin Boulevard to improve safety and promote pedestrian and bicycle access along the corridor.
- C** Consider a grade-separated crossings at Dillon Road connecting into the regional US 36 Bikeway.

### Key Considerations

- Separation of pedestrian and bicycle traffic is preferred due to traffic volumes and speeds.
- A grade-separated crossing at McCaslin and Dillon Road will improve north-south access and improve the intersection's vehicular capacity.
- The secondary street grid can be public or privately maintained streets and trails and may need to be implemented incrementally as redevelopment occurs.

Figure 4.16 McCaslin Blvd Network



# Project 2: All Ages & Abilities Bicycle Network

## Summary

The City of Louisville already has a well-utilized and connected bicycle network comprised of both off-street trails and on-street bicycle lanes and routes. These recommendations further improve connections within both the off-street and on-street network and are intended to complete gaps and provide additional options for both commuting and recreational riders.

Project 2 is comprised of two components: the on-street network and the off-street network.

## Implementation

The designated bike routes will include a variety of improvements, that may include striped lanes or other markings, signage and intersections treatments to prioritize bicycle connectivity. The recommendations for off-street connections are new paths and trails

to complete or enhance the existing network and may include a variety of surfaces and path widths depending on location.

## Key Considerations

- Proposed facilities represent desire lines and connections within the network. Exact alignments will be studied as a part of implementation.
- Refer to the policies for guidance on the appropriate design of each recommended improvement.
- The improvements within this project are recommended based on conditions and feedback at the time of this plan's adoption. Additional improvements may become necessary due to redevelopment or changing conditions.

Figure 4.17 On-Street Bicycle Network Improvements

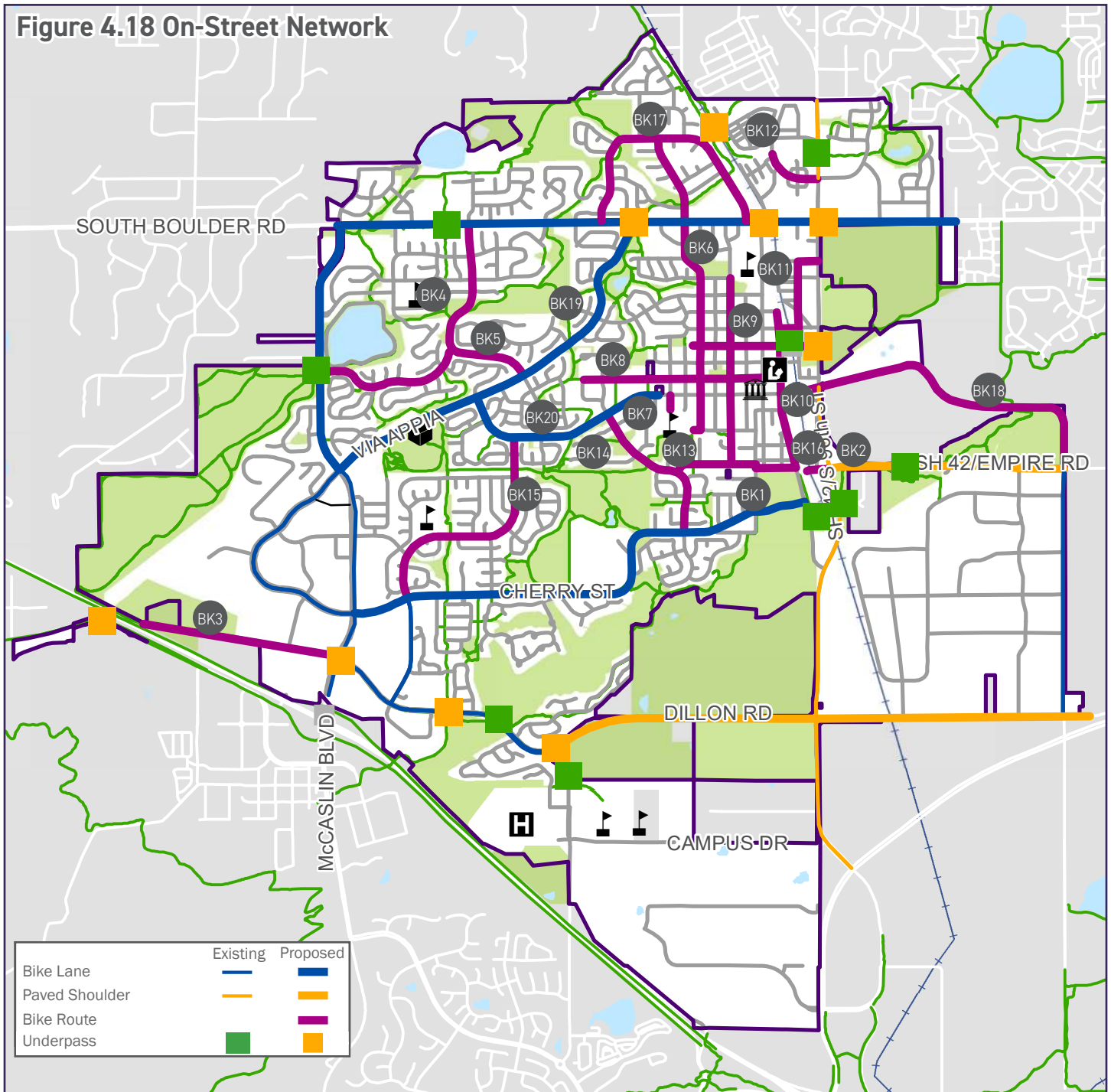
	Project	Description	Location
Bike Network Improvements	BK1	Bike Lane	Bella Vista Dr
	BK2	Bike Shoulder Improvements	SH 42/Empire Rd
	BK3	Bike Route	W Dyer Rd
	BK4	Bike Route	Washington Ave
	BK5	Bike Route	Tyler Ave
	BK6	Bike Route	Garfield/Lincoln
	BK7	Bike Route	McKinley Ave
	BK8	Bike Route	Spruce St & South St
	BK9	Bike Route	Jefferson Ave
	BK10	Bike Route	Front St
	BK11	Bike Route	DELO to Downtown
	BK12	Bike Route	Hecla Dr
	BK13	Bike Route	Rex/West St
	BK14	Bike Route	Hoover Ave
	BK15	Bike Route	Polk Ave/Dahlia St
	BK16	Bike Route	Lock St
	BK17	Bike Route	Centennial north of South Boulder Rd
	BK18	Bike Route	Empire Rd
	BK19	Bike Lane	Via Appia buffered bike lanes
	BK20	Bike Lane	Pine St from Via Appia to approximately 165 ft west of Johnson Ave



# Project 2: All Ages & Abilities Bicycle Network, Cont.

On-street bicycle facilities should be developed with regard to the specific surrounding context and traffic patterns. Where possible, on-street bicycle lanes with a striped buffer of three feet is recommended. Facilities with higher volumes and speeds may need additional protections for people biking with physical separation.

Shared on-street facilities (i.e. neighborhood bikeways or bike routes) are best suited on corridors with low vehicular speeds and volumes. Street design treatments for traffic calming may be appropriate to help control speeds on these corridors and address facilities where traffic volumes may be higher.

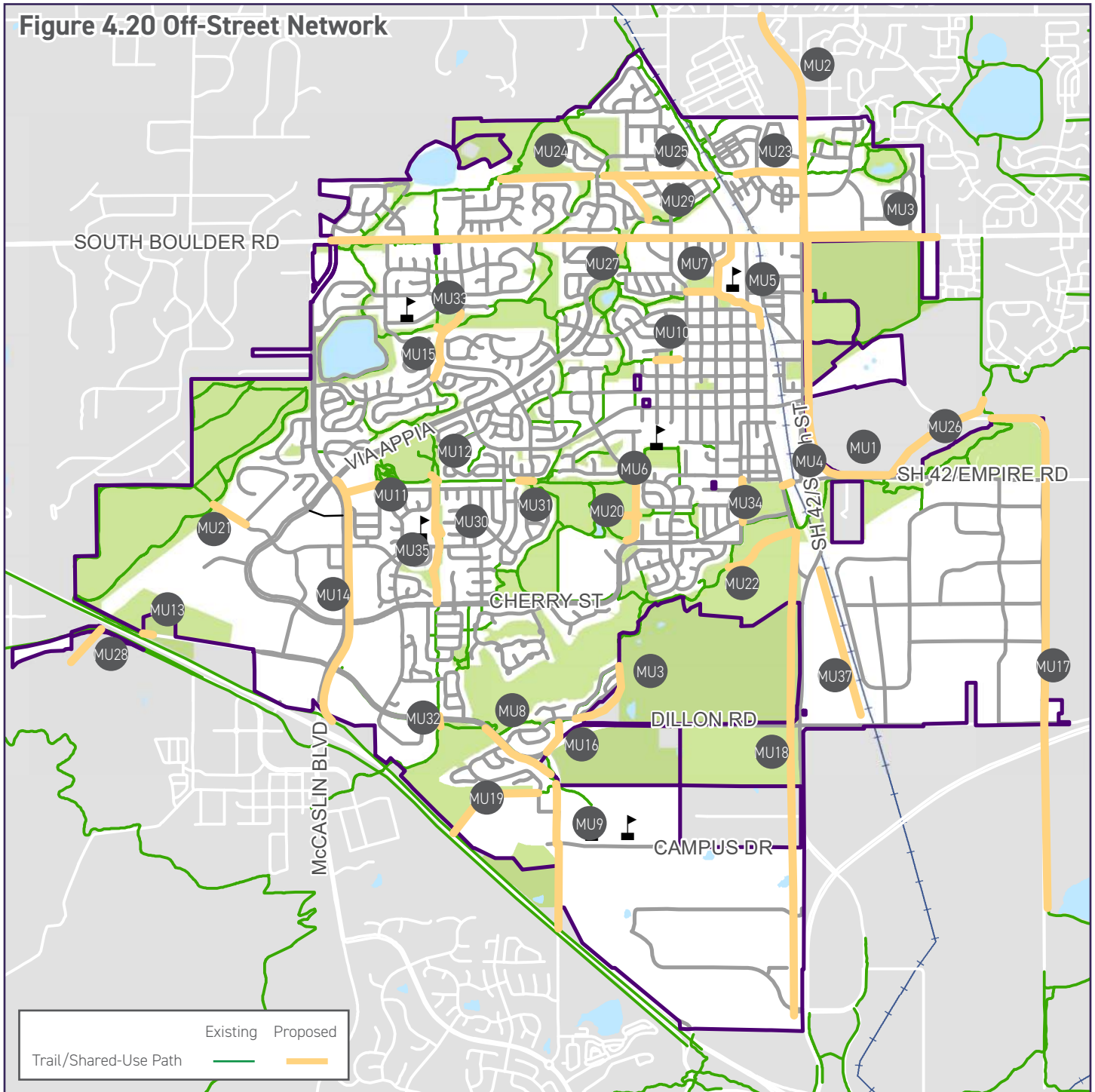


# Project 2: All Ages & Abilities Bicycle Network, Cont.

Figure 4.19 On-Street Bicycle Network Improvements

	Project	Description	Location
Multi-Use Paths	MU1	Off-Street Shared Path	SH 42 to CTC
	MU2	Off-Street Shared Path	SH 42 north of South Boulder Rd
	MU3	Off-Street Shared Path	North of South Boulder Rd, east of SH 42
	MU4	Off-Street Shared Path	Lock St to Community Park
	MU5	Off-Street Shared Path	Louisville Middle School connection
	MU6	Off-Street Shared Path	Warembourg north-south Trail
	MU7	Off-Street Shared Path	Griffith St
	MU8	Off-Street Shared Path	St Andrews to Dillon at proposed 88th St Underpass
	MU9	Off-Street Shared Path	88th to US 36
	MU10	Off-Street Shared Path	McKinley Park
	MU11	Off-Street Shared Path	Arboretum Trail
	MU12	Off-Street Shared Path	Power Line Trail to Mining Trail
	MU13	Off-Street Shared Path	US36 to Dyer
	MU14	Off-Street Shared Path	McCaslin Blvd
	MU15	Off-Street Shared Path	Washington Ave through Coyote Run
	MU16	Off-Street Shared Path	St Andrews Ln (Coal Creek bypass) to Dillon Rd
	MU17	Off-Street Gravel Trail	104th regional connection
	MU18	Off-Street Gravel Trail	Dillon to Coal Creek west of 96th St conceptual alignment
	MU19	Off-Street Shared Path	US36 to St Andrews Ln (Avista)
	MU20	Off-Street Gravel Trail	Warembourg east-west trail
	MU21	Off-Street Gravel Trail	Centennial Parkway to Davidson Mesa Trail
	MU22	Off-Street Gravel Trail	County Rd to Coal Creek Trail conceptual alignment
	MU23	Off-Street Shared Path	Kestrel Trail to SH 42 Underpass/Bullhead Gulch
	MU24	Off-Street Shared Path	North Open Space
	MU25	Off-Street Shared Path	Garfield to Centennial
	MU26	Off-Street Gravel Trail	Coal Creek Trail connection north of Empire Rd conceptual alignment
	MU27	Off-Street Gravel Trail	Cottonwood Park
	MU28	Off-Street Shared Path	Overlook Underpass conceptual connection
	MU29	Off-Street Shared Path	Via Appia to North Open Space
	MU30	Off-Street Shared Path	Fireside Realignment
	MU31	Off-Street Shared Path	Warembourg, Mining to Goodhue Realignment
	MU32	Off-Street Shared Path	Powerline to Coal Creek Trail
	MU33	Off-Street Trail	Coyote Run
	MU34	Off-Street Shared Path	Coal Creek to Downtown Connection
	MU35	Fun Route	Powerline Trail Fun Route
	MU36	Off-Street Shared Path	Coal Creek Trail rerouting around neighborhood
	MU37	Off-Street Gravel Trail	Dillon to Coal Creek, east of 96th St

# Project 2: All Ages & Abilities Bicycle Network, Cont.



# Project 3: Connectivity & Safety Improvements

## Summary

Project 3 recommends improvements at street and trail intersections and additional sidewalks to improve connectivity and safety. Locations were selected due to proximity to local destinations, such as schools, the Recreation and Senior Center, transit stops and other high activity areas.

## Key Considerations

- The CTC does not have any proposed improvements. As the CTC evolves to include more service uses and with future transit, providing connectivity and safety improvements should be considered and coordinated with the CTC Metro District and Owners' Association.
- The McCaslin corridor is likely to see future redevelopment. There is a significant opportunity to leverage the McCaslin Station investment with connectivity and safety improvements to better connect nearby businesses to the transit station.
- Selected intersections should prioritize pedestrian movements and increase visibility for vulnerable users.
- While underpasses are highly desirable by the community, the cost of most underpasses cannot be funded by current sources. Grants or an additional funding stream would be required.
- At-grade improvements may be considered as interim improvements at some intersections or locations planned for future underpasses.

- Traffic signal improvements can significantly impact the safety crossings as well. Improvements such as leading pedestrian intervals, protected left-turn phasing, and restricted right turns on red have been shown to improve the safety and comfort of people walking and biking and can be positive short-term safety measures. Locations such as McCaslin Boulevard or SH 42 are examples of where these may be most appropriate.
- The City should consider formalizing the traffic calming installed in 2018 at key trail crossing and school routes (red painted bump-outs and bollards). This could include permanent curbing or installation of a raised crosswalk that requires less maintenance over time.
- Research shows that investment in walkable environments, and neighborhoods that are pedestrian-friendly often attract a disproportionate level of commercial activity.

## Implementation

The at-grade connections are high-value and relatively low cost and many of the higher-priority at-grade improvements can be considered. The Great Streets and Walkable and Bikeable Places policies informed these selections and should guide the specific improvement at each location. As conditions change throughout the city, additional locations may be selected for similar improvements and should be evaluated on a case-by-case basis.





# Project 3: Connectivity & Safety Improvements, Cont.

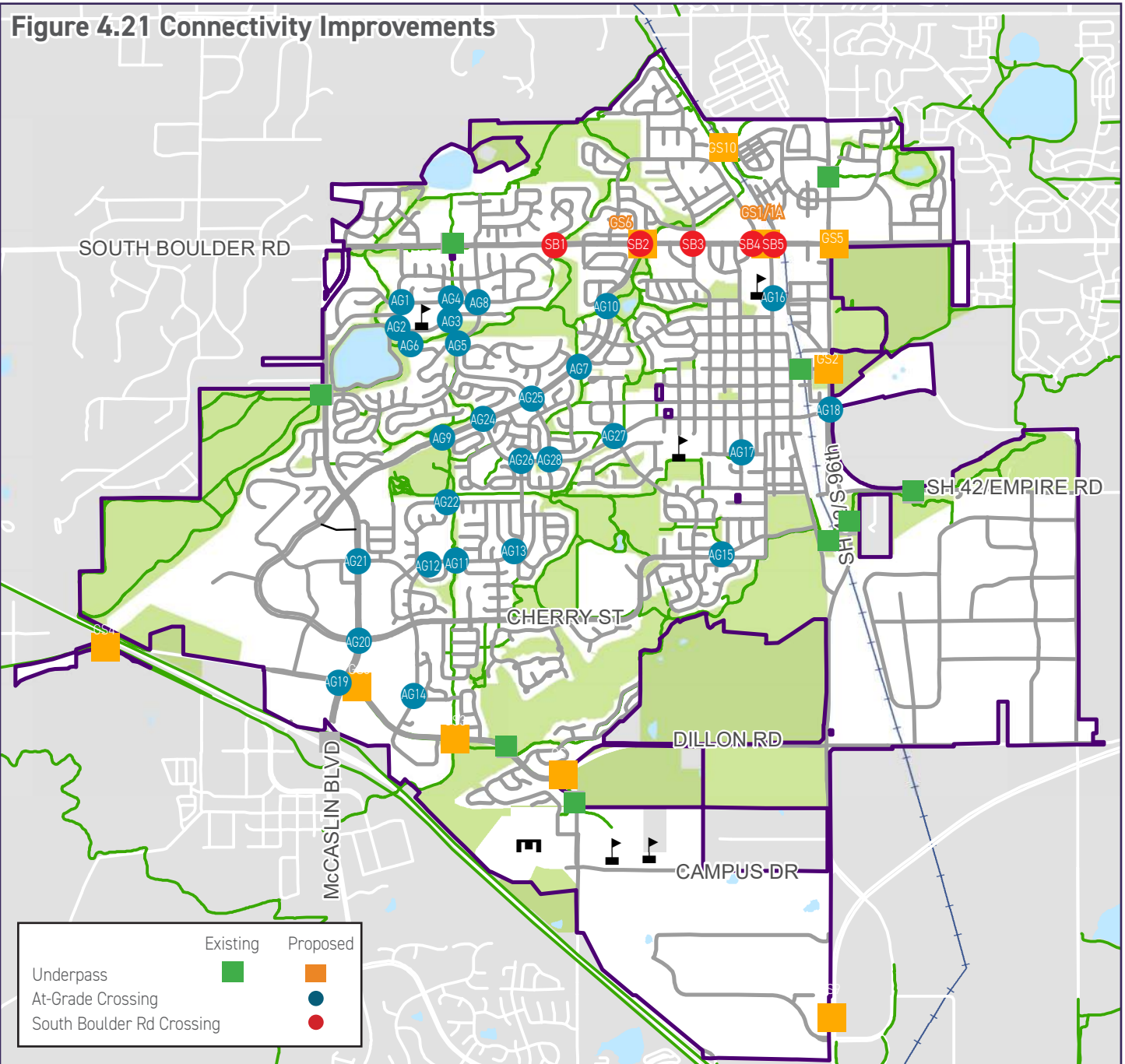


Figure 4.22 Connectivity and Safety Improvements

	Project	Description	Location
Sidewalks	SW1	Sidewalk Improvement	South Boulder Rd from Garfield Ave to Jefferson Ave
	SW2	Sidewalk Improvement	Via Appia near Cottonwood Park
	SW3	Sidewalk Improvement	Pine St at railroad
	SW4	Sidewalk Improvement	Griffith St at railroad
	SW5	Sidewalk Improvement	Spruce from Miners Field to Lee Ave, west of SH 42
	SW6	Sidewalk Improvement	East side of street North of Clementine Subdivision to Pine
	SW7	Sidewalk Improvement	Washington near Coyote Run

# Project 3: Connectivity & Safety Improvements, Cont.

Figure 4.22 Connectivity and Safety Improvements, cont.

	Project	Description	Location
Grade-Separated Crossings	GS1/1A	Underpass/Gateway	South Boulder Rd at Main St
	GS2	Underpass	SH 42 at South St/Short St
	GS3	Underpass	Powerline Trail at Dillon Rd
	GS4	Underpass	Davidson Mesa Overlook
	GS5	Underpass	South Boulder Rd at SH 42 Regional Trail
	GS6	Underpass	South Boulder Rd at Via Appia
	GS7	Underpass	Dillon Rd at S 88th St
	GS8	Underpass	Dillon Rd east of McCaslin Blvd
	GS9	Underpass	Tape Rd at NW Pkwy
	GS10	Underpass	Bullhead Gulch
At-Grade Crossings	SBR1-5	All South Boulder Rd Improvements	South Boulder Rd at various locations
	AG1	Shortened Crossing Distance	Willow Dr at Kennedy Ave
	AG2	Shortened Crossing Distance	W Tamarisk St at Kennedy Ave
	AG3	Neckdowns or enhanced crossing	Power Line Trail at Tamarisk St
	AG4	Neckdowns or enhanced crossing	Power Line Trail at Willow Dr
	AG5	Neckdowns or enhanced crossing	Coyote Run at Washington Ave
	AG6	Enhanced Crossing Markings	Coyote Run at Kennedy Ave
	AG7	Flashing Beacon Crosswalk	Sagebrush Way at Via Appia
	AG8	Enhanced Crossing Markings	Willow Dr at Washington Ave
	AG9	Upgrade Beacon	Power Line Trail at Via Appia
	AG10	Enhanced Crossing Markings	Coyote Run at Via Appia
	AG11	Enhanced Crossing	Power Line Trail at Dahlia St
	AG12	Improve signage/striping	Dahlia St at W Dahlia Ct
	AG13	Enhanced Crossing Markings	Polk Ave at Madison Ave
	AG14	Beacon & Enhanced Crossing Markings	Dahlia St at Ridge Pl
	AG15	Flashing Beacon Crosswalk	Bella Vista Dr near Aspen Way
	AG16	Raised Crossing with Refuge	Main St at Louisville Middle School
	AG17	Shortened Crossing Distance	Hutchinson St at Jefferson Ave
	AG18	Enhanced Crossing Markings	SH 42 at Pine St
	AG19	Enhanced Crossing	Dillon Rd at McCaslin Blvd
	AG20	Enhanced Crossing	Centennial Pkwy at McCaslin Blvd
	AG21	Enhanced Crossing	W Century Dr at McCaslin Blvd
	AG22	Enhanced Crossing	Vista Ln and Mulberry St
	AG23	Formalize Painted Bump Outs	City-wide
	AG24	Reconfigure intersection	Via Appia at Pine St
	AG25	Shortened Crossing Distance	Via Appia at Tyler St
	AG26	Shortened Crossing Distance	Pine St at Polk St
	AG27	Shortened Crossing Distance	Pine St at Hoover St
AG28	Shortened Crossing Distance	Pine St at Tyler St	

# Project 4: Downtown Connection Enhancements

## Summary

Project 4 recommends an enhanced connection between the Rec Center, neighborhood bikeways, trails, and Downtown. This focuses on enhancing proposed bikeways through separation and protection from vehicles and widening sidewalks to improve accessibility. This connection would provide comfortable and safe facilities for people of all ages and abilities.

## Implementation

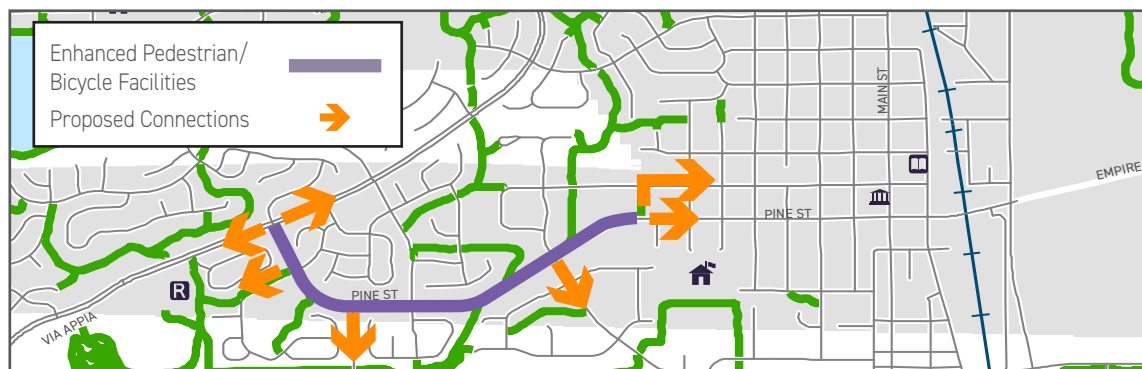
This project is considered separately within the plan because it forms a single cohesive project and could serve as a significant community amenity. This project can be phased into separate segments and incorporate a variety of treatment types to enhance the safety and ability of people walking and biking.

The Pine Street corridor shown on the map below has adequate right of way and pavement width to accommodate a protected bikeway and wider sidewalks. Once Pine Street approaches Downtown, the final location of connections should be evaluated in partnership with the neighborhood.

## Key Considerations

- The project would provide high-quality multi-modal options and connections to popular destinations, including the Rec Center and Downtown.
- The improvements along the trail corridor will vary based on the context and right-of-way widths in each area.
- Recent center median/pedestrian refuges on Pine Street in Old Town need to be preserved or replaced with similar traffic calming and safety facilities depending on right of way width available and design preferences.
- There is an opportunity to include amenities and community placemaking elements, such as exercise equipment, public art, and pedestrian scale lighting.
- In the Downtown area, the enhancements should be balanced with impacts on local residents and on-street parking availability.
- Wayfinding components should be included for placemaking and usability purposes.
- Intersections along the enhanced connection route should be enhanced and prioritized for the safety of people walking and biking while crossing. Examples include shortened crossing distances, high-visibility crosswalks, and orientation of stop signs.

**Figure 4.23 Downtown Connection Enhancements**



# Project 5: Transit Vision & Service Needs

## Summary

The City's transit service is primarily operated by RTD, the regional transit authority. This plan recommends improvements for existing RTD routes, new RTD routes, and other options that could meet the needs of the City. This project includes four recommendations, including changes to the existing transit network, options to support and promote transit pass programs, first and last-mile access improvements to McCaslin Station, and considerations for bus stop improvements.

## Key Considerations

- The ridership expectations for transit use should recognize the City's suburban land use pattern and densities.
- The future of Northwest Rail is unknown and the City should work with regional partners to gain clarity from RTD on this key investment.
- Improvement for those in the community who are transit-dependent should be prioritized.
- Land use decisions and site planning for new developments should consider how to leverage investments in transit.

## Implementation

The recommendations in this plan are not achievable without advocacy and partnership with other jurisdictions and RTD. If new providers become available, the City should evaluate the effectiveness and value of additional options.

Figure 4.24 Connectivity and Safety Improvements, cont.

Project	Description	Location
TR1	Proposed Transit Network	Citywide
TR2	EcoPass & Other Incentives	Neighborhood or Business Incentives for Employees
TR3	Access Improvements to McCaslin Station	Multimodal Connections, Improve Bus Route for Possible Circulator
TR4	Bus Stop Improvements	Citywide
TR5	NW Rail Peak Hour Service	Beginning of rail service for peak hour only
TR6	NW Rail Station Area Planning	Downtown and CTC

## TR1: Transit Connectivity Needs

**Regional Routes:** RTD operates the Flatiron Flyer with service between Boulder and Denver, and airport service on the AB1 and AB2 routes. These routes have high ridership and should be expanded.

**Dash:** RTD operates the Dash service between Boulder and Lafayette along South Boulder Road. This plan recommends enhancing the connection with future upgraded service to an express regional route. There is potential to add efficiency in this route with potential changes and enhancements in other local service routes that would serve the Downtown area.

**Local Service:** This plan recommends new local route(s) to connect routes from McCaslin Station to Downtown, CTC, Avista Hospital, CTC, Monarch Schools, and the former StorageTek site. Future routes should connect multiple destinations to serve a broad range of community needs. The areas in yellow on Figure 4.25 highlight current parts of Louisville with unmet transit service needs.



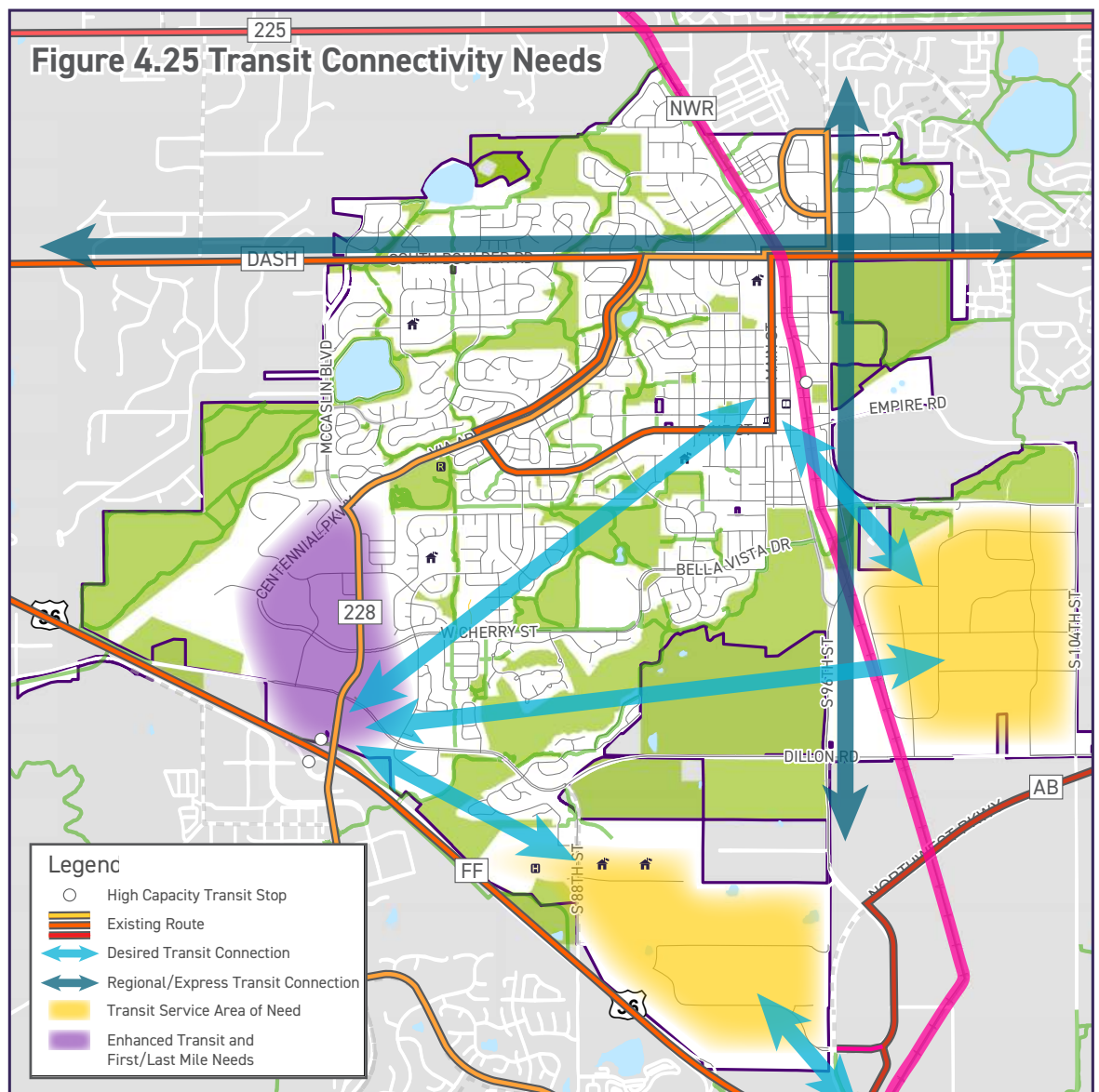
# Project 5: Transit Vision & Service Needs, Cont.

## TR1: Transit Connectivity Needs, Cont.

**New North-South BRT Service:** This plan recommends new north-south BRT service along SH 42/ S 96th Street to provide stronger transit connections to communities to the north.

**FlexRide:** This plan recommends promoting the existing FlexRide and Via services and improved coordination with neighboring communities to sustain these flexible transit options.

**Employee Circulator:** This plan recommends a partnership between the City and the business community to provide a shuttle circulator service that connects the busiest areas of employment to regional transit, retail, and other destinations. CTC, Centennial Valley, and the former StorageTek site are potential candidates.



# Project 5: Transit Vision & Service Needs, Cont.

## TR2: EcoPass & Other Incentives

The cost of transit fare can be a barrier for some people to using transit more frequently or at all. Transit subsidies or incentives can help people ride transit more and drive less, reducing traffic. Beyond reduced fares for certain qualifications (low-income, students, seniors, etc.), a Neighborhood EcoPass (NECO) Program could be applicable for residents within Louisville.

The City of Boulder and Boulder county provide their own NECO Pass programs with fare reductions for participants. The City of Louisville would be responsible for sponsoring non-HOA neighborhoods and for providing associated financial incentives for transit use. The transit pass can be used on all RTD routes and services and help Louisville residents commute to and from Boulder, Denver, the airport, and within the City. The City should explore the development of a NECO pass program, including in situations where an improvement district could be used to fund the program.

Additionally, other programs that incentivize or make access to transit service and fare payments easier should be explored. This can include mobile ticketing programs, reward programs, employer-based programs, and more. The City can serve as a partner to help coordinate and communicate programs as well as provide financial assistance.



## TR3: Access Improvements to McCaslin Station

McCaslin Station, which is a primary regional transit hub for the city, is only accessed through private property with a disconnected street network. The City should pursue new first and last-mile improvements to the surrounding network and as redevelopment occurs around the station ensure that the site planning incorporates new infrastructure, wayfinding, and planning and design principles to support this as a multi-modal transit hub.

The City should also continue to work with RTD and the Town of Superior to provide local transit service directly to the Station.



# Project 5: Transit Vision & Service Needs, Cont.

## TR4: Bus Stop Improvements

Bus stops that have good sidewalk access, combined with comfortable amenities are more likely to be used, particularly in locations where there are transfers, higher rates of boardings, or longer wait times for the bus. Bus stops with comfortable amenities can enhance the transit experience, decrease perceived wait times, and contribute to increased transit use. The current level of amenities provided at bus stops varies greatly throughout the city and many stops lack any amenities at all.

Bus shelters should be prioritized at stops with high ridership or potential to promote higher ridership. Shelters themselves can be basic, or more artistic to help bring in art or history to add to a community's overall sense of place.

Bus stop seating is important for providing relief to people waiting for a bus. Where funds are not available for a full shelter, simple seating can be a significant improvement to a bus stop.

An Adopt-A-Stop program can be a cost-effective way to improve bus stops. Business or community groups could assist in financial requirements for the shelter or stop amenities, keep stops clean, or enhance stops with community art.



## TR5: NW Rail Peak Service

This plan recommends continued study of peak-hour service, which could operate on the existing rail lines at peak times more flexibly than full-service operations.

This recommendation requires coordination with RTD and other regional partners.

## TR6: NW Rail Station Area Planning

Consideration of a secondary commuter rail station outside of Downtown near the CTC is recommended, which could provide a park-and-ride option not easily accommodated in Downtown, as well as direct transit

access to employees in the CTC. A secondary station could be viable if the future rail technology were to change that would allow closer stop spacing.



# Program 1: Neighborhood Traffic Management Program

## Summary

A Neighborhood Traffic Management Program (NTMP) focuses on neighborhood-level traffic calming and safety improvements. These improvements help maintain the City's family-friendly small-town character.

Examples of tools utilized within an NTMP include, but are not limited to the following.

- Speed humps or cushions
- Enhanced or raised pedestrian crossings
- Medians and/or entry islands
- Curb extensions
- Diverters to restrict vehicular movements
- Traffic circles
- Speed monitoring and enforcement campaigns
- Education campaigns



## Key Considerations

- With limited resources, an NTMP should provide criteria that will aid in prioritization of projects throughout the city. Considerations for eligibility for improvements may include:
  - Speeding
  - Traffic volume/cut-through traffic
  - Crashes
  - Child safety issues
  - Location of designated school routes
- The City should ensure that investments are made fairly and equally in all parts of the city.
- NTMPs should utilize a public process that includes data collection, community outreach, identification and evaluation of potential solutions, and community input on identified solutions.

## Implementation

The City of Louisville has begun development of an NTMP. The City should complete and formalize the program.





# Program 2: Travel Demand Management

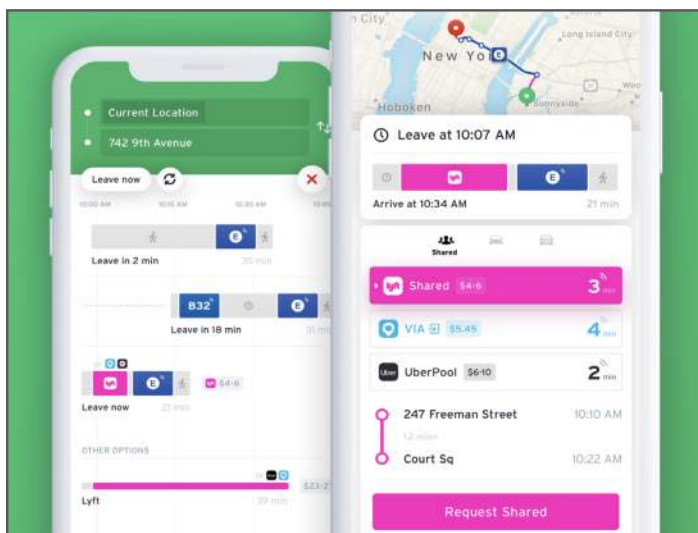
## Summary

Transportation Demand Management (TDM) strategies inform, encourage, and incentivize the use of non-vehicular transportation modes and decrease single-occupancy driving. There are seven basic components of TDM strategies:

- Information;
- Marketing business benefits to employers;
- Comprehensive programs with mutually reinforcing services;
- Incentives for transit and alternate modes;
- Disincentives for driving, i.e. parking supply and pricing;
- Ordinances and development conditions; and
- Trip caps or maximum vehicle occupancy.

## Implementation

Louisville should promote or require TDM as part of new developments. In addition, Louisville is a member of the organization, Commuting Solutions, which promotes and implements a number of TDM programs in the northwest Denver metro region. Louisville should continue to cooperate with Commuting Solutions to pursue additional TDM programs that will encourage people to utilize alternative modes of transportation.



## Key Considerations

TDM strategies may include a wide range of programs that promote walking, biking, transit, and ridesharing. Potential programs for Louisville include:

- Real-Time Transportation Information - Digital tools (such as an app) that combine information about transit stop locations & schedules, bikeshare locations, rideshare options, and more. Online tools can include a variety of resources to help making biking, walking, and transit use a convenient way to make trips in the City. Tools can include interactive maps, route or trip planning guides, and trip trackers that convey environmental savings or health impacts from trips not taken with a vehicle. This can also be helpful for first and last-mile transportation.
- Dedicated Carshare Spaces - Carshare ("eGo", "Enterprise", or other similar programs) services help reduce a person's need for owning a personal vehicle. People can rely on sustainable modes of transportation as their primary mode and have the ability to rent a car for a desired amount of time when a car is needed.
- Shared Parking - Shared parking between uses in mixed-use areas, (retail/office and office/residential) create opportunities to share parking due to the varying time-of-day parking demands.
- Community Education - Information provided directly to the community can provide benefits and impacts that may not be realized through online only settings. For example, in Portland, Oregon, a Smart Trips program targets a specific neighborhood for a door-to-door campaign to help educate people about their opportunities to walk or bike to work and the available resources that are available to help them do it.

# Program 3: Safe Routes Program

## Summary

A Safe Routes program aims to create safe and convenient opportunities to walk or bike to schools and key destinations including parks, the Recreation Center and other community centers. These programs are typically organized to address the needs of particular groups of users:

- Safe Routes to School - The goal is to reverse the decline in children walking and bicycling to schools and increase kids' safety. Safe Routes to School activities include infrastructure improvements for sidewalks and crossings; safety, education and encouragement programs; Walking School Bus or Bike Trains.
- Safe Routes to Transit - Safe Routes to Transit programs focus on prioritizing access to transit stops with safety enhancements, amenities, and wayfinding for people walking and biking.
- Safe Routes for Seniors - Safe Routes for Seniors program is designed to identify and create safe corridors for seniors. Improvements are targeted in areas with senior centers, medical facilities, and a high number of senior residents. Improvements can include amenities for seniors such as more seating, refuges, and bus shelters.
- Safe Routes to Parks - Safe Routes to Parks are based upon a similar premise as Safe Routes to School, but aim to increase safe and equitable access to parks, open space, the Rec Center, and Swimming Pool.

## Key Considerations

Health is a key component of these programs. For school children, these programs can help instill habits of walking and biking, along with safety and education around multimodal mobility. For older adults, Safe Routes programs can promote active aging, and contribute to health benefits.

## Implementation

A number of nationwide resources are available to help implement Safe Routes programs. Some of these resources include:

- National Recreation and Park Association (<https://www.nrpa.org/Safe-Routes-To-Parks>)
  - Safe Routes to Parks: Improving Access to Parks through Walkability
  - Safe Routes to Parks Action Framework
- CDOT Safe Routes to School Program ([www.codot.gov/programs/bikeped/safe-routes](http://www.codot.gov/programs/bikeped/safe-routes))
- Safe Routes to School National Partnership [saferoutespartnership.org](http://saferoutespartnership.org)





# Program 4: FUN Routes Program

## Summary

As an added way to encourage kids to ride their bikes to school, or other community destinations, "Fun Routes" would utilize singletrack sidewalks, often adjacent and parallel to an existing paved trail or street. The singletrack sidewalks are natural surface pump and flow trails, similar to mountain biking trails as they utilize the natural terrain of the area and can provide small hills for kids to ride to add interest to the route. Designed primarily for youth, they are a way to incorporate fun into commuting through neighborhoods and a way to try trail riding.

Fostering active and playful outdoor recreation in a manner that combines multimodal transportation is a community benefit. Other communities, including Eagle, CO and Bentonville, AR have created these community assets and Golden, CO is considering them as well.

## Key Considerations

- Typically, these singletrack sidewalks are alongside a paved trail and should not go through designated open space.
- Although this recommendation focuses on school routes, the same concept could be used to supplement the city's sidewalk and trail system to promote fun routes to other key community destinations, such as the Rec Center or parks.
- The single track sidewalks would not replace any current sidewalks or pathways, rather it would be

designed to offer fun options to attract additional bicyclists with a fun alternative parallels to existing pathways.

## Implementation

The Powerline Trail in Louisville is an ideal area to complete a pilot singletrack sidewalk as there is space available along the existing path and it connects multiple neighborhoods to schools.



# Program 5: Open Streets Program

## Summary

Open Streets programs temporarily close streets to automobiles and organize public activities to encourage healthier transportation and living habits. Open Streets events can also be a way to do pop-up demonstration projects for new types of infrastructure, to introduce a pilot project, or celebrate recent design changes. Open Streets events conducted along central thoroughfares with surrounding businesses can also be a way to help promote local businesses.



## Key Considerations

- Open Streets programs typically have a corporate sponsor to help with funding. Non-profits, advocacy organizations, and medical foundations can be good project partners.
- Traffic impacts may be experienced due to street closure and rerouting.
- Branding and promotion of the program should be done so that the event is a continuous program instead of a one-off event.

## Implementation

City events such as Street Faire, the Farmer's Market, or the McCaslin Movie Night recently held at the former Sam's Club are ideal times to hold such events. Resources for Open Streets programs include:

- Alliance for Biking & Walking: The Open Streets Guide (<http://tacticalurbanismguide.com/guides/the-open-streets-guide>)
- Open Streets Project website and toolkit (<http://openstreetsproject.org>)

# Program 6: Coordinate Bike Share Network

## Summary

A bike share program can encourage bicycle use between key destinations and help fill gaps in first and last-mile infrastructure around transit. In Louisville, bike share could be a viable way to connect areas like McCaslin Station, Avista Hospital, the former StorageTek site, the CTC, Downtown, DELO, and Kestrel.

## Key Considerations

- Utilizing a shared type of system or technology with surrounding communities can increase utilization as people are already familiar with the system and more likely have the app for use.
- Effective wayfinding can help people easily locate stations at both their beginning and endpoints, which promotes usage.

## Implementation

The City should continue efforts to coordinate on a regional level to implement a bike share program. A regional program allows riders to cross jurisdictional boundaries and provides an operator with a more viable system.





# Program 7: Safety, Maintenance & Training Programs

## Summary

Education campaigns can be targeted to inform the public about laws and consistent concerns that need to be addressed. These campaigns can be focused on people in cars, on bikes, or walking.

- Safety courses can help teach bike riding laws and skills to participants at all levels: from basic riding skills to advanced lessons on riding in traffic and avoiding crashes.
- Bike repair workshops can empower people to fix their own bikes. The classes can cover general maintenance skills, flat tires, parts identification, cleanings, safe riding skills, map reading, and connections with transit.
- Awareness campaigns can be targeted to inform the public about laws and consistent concerns that need to be addressed.

## Implementation

The City of Louisville can increase its role in providing courses to the general public by offering free classes throughout the city at easily accessible locations. Grant funding may be utilized from some sources to help provide these programs.

The City can partner with advocacy organizations or local businesses to assist with implementation and build awareness.

The City can also provide resources on its website and links to other educational and advocacy organizations.

## Key Considerations

The City of Louisville's Little Lou campaigns received significant attention and brought awareness to drivers to slow down. The City should continue to build off of these campaigns to encourage safe behavior for all modes of travel. These campaigns can be focused on walking or biking separately or combined depending on the current need and issue in the community.



# Program 8: Coordinated Wayfinding System

## Summary

Wayfinding systems are navigational systems that help people move around the City, whether they are in a car, on foot, on a bike, or using transit. Traditionally consisting of signs, wayfinding systems can now also involve GPS systems, web connectivity, and mobile technology. Wayfinding systems can be designed and implemented formally by municipalities, business districts, and even advocacy organizations.

Key components of wayfinding should include:

- A distinct, visible, and consistent design that can be utilized across various types of signage.
- Maps with clear “you are here” identification symbols and cardinal direction arrows. Maps that are oriented to where the direction the user is facing is at the top can be most user-friendly.
- Defined distances by the time needed to reach them, such as “It’s a 10-minute walk/bike ride to...” or circles encompassing destinations within a 5-, 10-, or 15-minute walk.
- Ensure public data is available to be utilized in apps and ensure signage identifies apps where the same and/or additional information can be found.
- Utilize technology/apps and graphics with prioritized landmarks to reduce clutter on signs.

## Implementation

The City recently developed a trails wayfinding program and a wayfinding plan for other key destinations around town. These plans have not been implemented but could be brought forward as already developed or revised.

## Key Considerations

- Wayfinding can be particularly important for trail users, pedestrians and transit users and help promote multi-modal transportation options.
- Current city signage directing visitors to Downtown could be supplemented and updated with current designs.



# Program 9: Bicycle-Friendly Designation

## Summary

The Bicycle Friendly Community (BFC) program is administered by the League of American Bicyclists, which guides communities in understanding the opportunities to improve conditions for bicycling. The League has identified focus areas, known as the “Five E’s”, for creating a bicycle friendly community: engineering, education, encouragement, enforcement, and evaluation/planning.

- Engineering addresses the design of the bicycle network and roadway conditions, total mileage of facilities, and access to public transportation.
- Education includes public outreach, bicycle classes for adults, and support for schools.
- Enforcement is achieved through the creation, enforcement, and interpretation of bicycle-friendly laws and ordinances.
- Encouragement is achieved through active bike clubs and events, which are supported by an active bicycle advisory committee and advocacy group.
- Evaluation of an actively implemented bike plan is supported by bike program staff that help achieve desired outcomes, such as increased ridership and a reduction in crashes and fatalities.

## Key Considerations

Key considerations for achieving Bicycle-Friendly designation include:

- The City of Louisville could be the key implementor or work with a bicycle advocacy organization for certification.

Businesses can also apply for a designated Bicycle Friendly Business, which strengthens bicycling within the city as well.

## Implementation

It is recommended that Louisville pursue Bronze or Silver level Bicycle-Friendly status. The League of American Bicyclists provides numerous resources for communities seeking Bicycle-Friendly status:

- League of American Bicyclists Tools and Resources: <https://bikeleague.org/bfa/toolkit>



# BICYCLE FRIENDLY COMMUNITY



# Program 10: Data Collection

## Summary

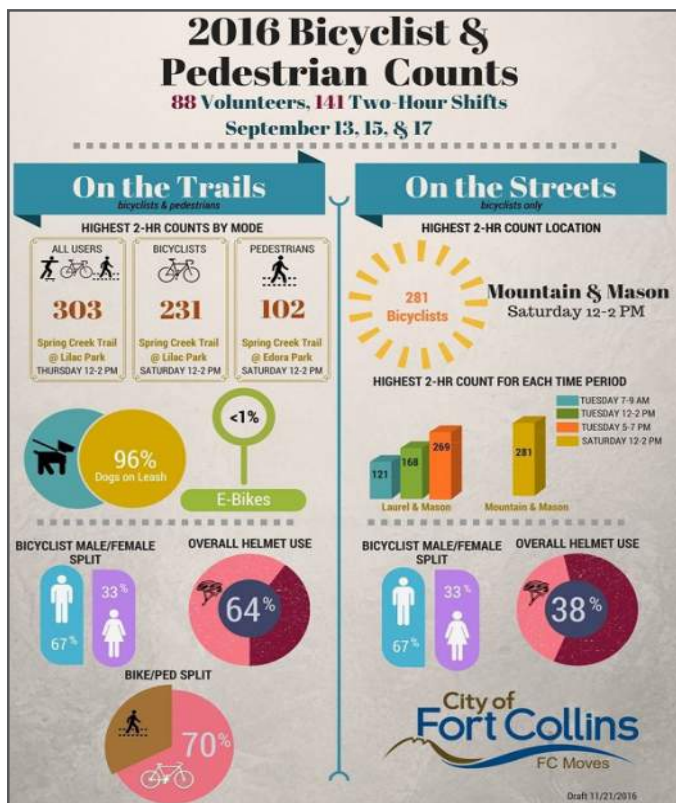
Data is key to communicating needs and pursuing funding partnerships and grants for community improvements. Data is utilized when developing projects, identifying community priorities, and understanding whether implemented projects are having the desired impacts. Collecting data consistently helps to understand current demand and use and plan appropriately for the future. The before and after data is also particularly useful as a means to support future infrastructure investments.

It is recommended to develop a multi-level data collection program that is utilized by the City for evaluation and funding purposes. The City currently collects traffic count and speed data on various corridors throughout the community. This program should continue and add bicycle counts when applicable. Additionally, as traffic studies are conducted, compiling the count data in a central database could be particularly useful and better utilize existing resources and expenditures.

## Key Considerations

There are a variety of ways to collect data for people biking and walking, whether on sidewalks, streets, or trails. The City should develop a count program to conduct regular pedestrian and bicycle counts throughout the city, including both spot and fixed location counts that provide data on seasonality and overall trends. Many count programs utilize counters and volunteers to gather robust information. The City of Fort Collins utilizes volunteers on particular days of the year to conduct a thorough count of bicycle and pedestrian use annually. A count program in Louisville should coordinate with Boulder County's Bicycle Counting Program to share resources and data as applicable.

Data that identifies maintenance or other improvement needs could be collected through a Community Pedestrian Program designed to allow residents to submit assessment data online to the City. Information pertaining to the quality of infrastructure, gaps in the network, the number of people observed walking/biking, and safety concerns could be provided along with pictures for the City. A program like this could utilize community or school groups as volunteers and would supplement other data collection efforts while providing an additional avenue for communication with the community.



## Implementation

- The National Bicycle and Pedestrian Documentation Project identifies methodology to count bicycles and people walking citywide and provides resources for local governments.
- The Pedestrian and Bicycle Information Center provides resources for planning and data collection tools. <http://www.pedbikeinfo.org/planning/tools.cfm>
- NCHRP Report 797: Guidebook on Pedestrian and Bicycle Volume Data Collection



# Implementation





# IMPLEMENTATION

## Introduction

Success in achieving the goals of the TMP can only be realized through effective implementation that identifies strategies, manages progress towards the goals, and strategically allocate resources. This chapter provides an overview of the following three key components of implementation that support the recommendations in the TMP.

- Project Prioritization and Development
- Funding Framework
- Measuring Performance Towards the Goals

The City should reevaluate the goals and recommendations in the TMP regularly to ensure the plan can address changes in conditions, changes to community preferences and needs, best practices, and technologies. Based on current City budgeting and planning cycles, the City should consider updates to the plan every 6 years.

## Prioritization Process & Development

Implementation will require coordination between multiple City departments, external public agencies, developers, private businesses, and other organizations. As roles are defined, the departments that have coordinated to develop the Plan (Planning & Building Safety, Public Works, and Parks & Recreation) should organize and maintain accountability for their respective pieces of implementation.

Of the policies and programs identified in Chapter 4, some have greater opportunity for making immediate impacts, some require more resources, and some will take more time than others. The City should prioritize policies and programs to ensure resources are used as efficiently as possible. Some elements of the TMP may only be realized if new financial resources or grants become available.

Figure 5.1 identifies recommended priorities and potential project timing. The highest priority projects meet one or more of the following conditions:

- Policy changes that require limited or no additional financial resources
- Projects able to be implemented within current funding levels
- Programs that can be implemented with partners and require limited additional resources from the City
- High-profile projects that meet significant needs or build momentum for additional future improvements

### Strategic Implementation

Implementation of any plan requires careful consideration of the use of funding. As this plan identifies a significant number of smaller or more detailed projects, it is recommended to group the projects. Projects can be grouped based on their intent, such as all at-grade crossings that are located around schools, or by location where all projects in the vicinity of Downtown could be grouped. The efficiency of resource utilization should be a factor in determining how to group smaller projects.

Projects requiring more time for development, that meet a less immediate need, or are complicated by partnerships or funding levels are noted as medium or low priority.

Figure 5.1 also identifies project cost, partners or coordination required, and basic benefits for each of the projects recommended. The project cost is a high-level cost estimate based on planning assumptions and should be refined as projects move through development. The timeline is based on the assumption that all projects would receive funding. It is recommended that the timeline be an initial guide for project development purposes. The benefits identified in the table refer to the primary need(s) that the project is intended to address.

Under the City's current biennial budgeting process, a six-year Capital Improvement Plan (CIP) is developed with more detailed cost estimates and commitments for funding. The project list and recommended prioritization included in Figure 5.1 provides general guidance for development of future CIPs, understanding that community desires, needs, and conditions may change and project and priorities will need to be adjusted at that time.

Figure 5.1 Project Priority Table

Project	Description	Location	Cost	Priority	Timeframe	Partner/Coordination	Benefit(s)	S1	S2	S3	Notes	
Corridor Projects	CP1	Roadway Improvement	SH 42 Conceptual Design	\$75,000	High	Short	Boulder Co., Lafayette, RTD. CDOT	Travel time reliability, safety	Y	Y	Y	\$500,000 total cost, \$350,000 TIP and \$75,000 Lafayette contribution
	CP2	Roadway Improvement	SH 42 Widening	\$25,000,000	High	Long	Boulder Co., Lafayette, RTD. CDOT	Travel time reliability, safety	Y	Y	Y	Rebuild Empire to South Boulder Road
	CP3	Roadway Improvement	Dillon Road, Campus Drive Extension, Widen 88th	\$10,400,000	High	Medium	-	Capacity and bicycle visibility	N	N	Y	88th to 104th bike and applicable ADA paint/signage. Increase queue length capacity on EB and WB lanes around BNSF. Widen Dillon WB at 96th on the north increasing queue length. Could be phased to provide lower-cost improvements on Dillon first.
	CP4	Roadway Improvement	Via Appia Way	\$253,440	Medium	Short	-	Safety and visibility for all modes	Y	Y	Y	Reduce lane widths, extend bike lanes, extend refuges, remove right turn lanes
	CP5	South Boulder Rd Study	SBR Corridor	\$100,000	Medium	Short	Boulder Co., Lafayette, RTD	Safety, travel reliability, transit service	Y	Y	Y	
	CP6	CTC Connector	Arthur to 96th	\$2,000,000	Medium	Medium	-	Network connectivity	N	N	Y	
	CP7	Kaylix Connector	Hecla to South Boulder	\$2,500,000	High	Medium	-	Network connectivity	N	N	Y	Requires ROW acquisition or property owner coordination
	CP8	McCaslin Network Additions	Various within McCaslin area to create network grid	TBD	High	Long	Developer(s)	Network connectivity, economic access	Y	Y	Y	Likely implemented by developer in redevelopment. If not, requires ROW acquisition or property owner coordination
Bike Network Improvements	BK1	Bike Lane	Bella Vista	\$33,000	Medium	Short	-	Safety	Y	Y	Y	Missing segment where currently shared lane, continue bike lane for consistency and safety
	BK2	Bike Shoulder Improvements	SH 42/Empire Rd	\$201,600	High	Short	-	Safety, network connectivity	N	Y	Y	Could include signs, striping and official designation
	BK3	Bike Route	W Dyer Rd	\$5,240	High	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK4	Bike Route	Washington Ave	\$12,360	Medium	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK5	Bike Route	Tyler Ave	\$3,240	Medium	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK6	Bike Route	Garfield/Lincoln	\$12,960	High	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK7	Bike Route	McKinley Ave	\$640	Medium	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK8	Bike Route	Spruce St	\$8,320	High	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK9	Bike Route	Jefferson Ave	\$8,000	Medium	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK10	Bike Route	Front St	\$8,300	Medium	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK11	Bike Route	DELO to Downtown	\$11,720	Medium	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK12	Bike Route	Hecla Dr	\$2,600	Medium	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK13	Bike Route	Rex/West St	\$5,320	Medium	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK14	Bike Route	Hoover Ave	\$10,120	Medium	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK15	Bike Route	Polk Ave/Dahlia St	\$10,200	Medium	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK16	Bike Route	Lock St	\$1,000	Low	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK17	Bike Route	Centennial North of SBR	\$5,680	Medium	Short	-	Network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK18	Bike Route	Empire Rd	\$13,750	Medium	Short	-	Safety, network connectivity	Y	Y	Y	Could include signs, striping and official designation
	BK19	Bike Lane	Via Appia buffered bike lanes	CP4 & MU23	Medium	Medium	-	Safety	N	N	Y	Could include signs, striping and official designation
	BK20	Protected Bike Lane & Widened Sidewalks	Pine St	\$750,000	High	Short	-	Safety, network connectivity	Y	Y	Y	Can be coordinated with Pine St repaving

Figure 5.1 Project Priority Table, Cont.

Project	Description	Location	Cost	Priority	Timeframe	Partner/Coordination	Benefit(s)	S1	S2	S3	Notes
MU1	Off-Street Shared Path	SH 42 to CTC	\$780,000	High	Long	Boulder County	Regional access, connections, safety	Y	Y	Y	
MU2	Off-Street Shared Path	SH42 N of South Boulder Rd	\$100,800	Medium	Short	-	Connectivity, safety	Y	Y	Y	
MU3	Off-Street Shared Path	N of South Boulder Rd E of SH42	\$276,000	Low	Long	-	Business access, safety	N	Y	Y	
MU4	Off-Street Shared Path	Lock St to Community Park	\$20,000	Medium	Medium	BNSF Railroad	Network connectivity	Y	Y	Y	New 10' trail with rail crossing, requires RR coordination
MU5	Off-Street Shared Path	LMS Connection	\$360,000	Low	Long	Boulder Valley School District	Safety, school access	N	N	Y	Do not own ROW, cost will be higher
MU6	Off-Street Shared Path	Warembourg N/S Trail	\$145,000	Medium	Short	-	Network connectivity	Y	Y	Y	
MU7	Off-Street Shared Path	Griffith St	\$60,000	Medium	Long	-	Safety, school access	Y	Y	Y	
MU8	Off-Street Shared Path	St Andrews to 88th Underpass	\$120,000	High	Short	-	Safety, school access	Y	Y	Y	
MU9	Off-Street Shared Path	88th to US 36	\$60,000	High	Short	-	Network connectivity	Y	Y	Y	
MU10	Off-Street Shared Path	McKinley Park	\$60,000	Medium	Medium	-	Network connectivity	Y	Y	Y	
MU11	Off-Street Shared Path	Arboretum Trail	\$80,000	Medium	Medium	-	Network connectivity	Y	Y	Y	
MU12	Off-Street Shared Path	Powerline to Mining connection	\$30,000	Low	Short	-	Network connectivity	Y	Y	Y	
MU13	Off-Street Shared Path	US36 to Dyer Connection	\$10,000	High	Short	-	Network connectivity	Y	Y	Y	
MU14	Off-Street Shared Path	McCaslin Blvd	\$609,600	High	Medium	-	Safety, economic access	N	N	Y	
MU15	Off-Street Shared Path	Washington Ave	\$154,000	Low	Medium	-	Trail connectivity	Y	Y	Y	Widen sidewalk to be mixed-use trail south to Powerline Trail, add new trail to the north
MU16	Off-Street Shared Path	St. Andres (Coal Creek Bypass) to Dillon	\$92,400	Medium	Medium	-	Network connectivity	Y	Y	Y	
MU17	Off-Street Gravel Trail	104th regional connection	\$158,334	High	Short	Boulder Co., Lafayette	Regional connectivity, safety	Y	Y	Y	\$950,000 total cost, \$158,333 Boulder County, \$158,333 Lafayette and \$475,000 TIP
MU18	Off-Street Gravel Trail	Coal Creek to US36 West of 96th	\$500,000	Medium	Long	Boulder Co., Broomfield	Regional connectivity, safety	N	Y	Y	
MU19	Off-Street Shared Path	US36 to St. Andrews	\$280,000	Low	Medium	-	Network connectivity	N	Y	Y	
MU20	Off-Street Gravel Trail	Warembourg E/W Trail	\$21,000	Low	Short	-	Trail connectivity	Y	Y	Y	
MU21	Off-Street Gravel Trail	Centennial Parkway to Davidson Mesa Trail	\$90,000	High	Medium	-	Network connectivity	Y	Y	Y	
MU22	Off-Street Gravel Trail	Reroute Coal Creek Trail to follow creek	\$125,000	High	Short	-	Enhanced trail experience	Y	Y	Y	East side of street.
MU23	Off-Street Shared Path	Kestrel Trail to SH 42 Underpass	\$125,000	High	Short	-	Trail connectivity	Y	Y	Y	Should already be doing with underpass
MU24	Off-Street Shared Path	North Open Space Trail - West	\$220,000	Low	Long	-	Trail connectivity	N	Y	Y	
MU25	Off-Street Shared Path	North Open Space Trail - East	\$220,000	Low	Long	-	Trail & network connectivity	N	Y	Y	
MU26	Off-Street Gravel Trail	Coal Creek Trail Connection north of Empire Rd	\$80,000	Low	Long	-	Enhanced trail experience	N	Y	Y	New route through open space
MU27	Off-Street Gravel Trail	Cottonwood Park connection	\$27,500	Medium	Medium	-	Trail connectivity	N	Y	Y	
MU28	Off-Street Shared Path	Overlook underpass conceptual connection	\$85,000	Low	Long	Superior, Boulder County	Trail connectivity	Y	Y	Y	Requires coordination and partnerships
MU29	Off-Street Shared Path	Via Appia to North Open Space	\$165,000	Medium	Medium	-	Trail connectivity	N	Y	Y	
MU30	Off-Street Shared Path	Fireside Realignment	\$300,000	Low	Long	-	Enhanced trail experience	N	Y	Y	
MU31	Off-Street Shared Path	Warembourg, Mining to Goodhue Realignment	\$75,000	Low	Medium	-	Enhanced trail experience	N	Y	Y	
MU32	Off-Street Shared Path	Powerline to Coal Creek Trail	\$35,000	High	Short	-	Trail connectivity	Y	Y	Y	
MU33	Off-Street Gravel Trail	Coyote Run	\$30,000	High	Short	-	Safety, trail connectivity	Y	Y	Y	
MU34	Off-Street Shared Path	Coal Creek to Downtown Connection	\$77,500	Medium	Short	-	Safety, trail connectivity	N	Y	Y	
MU35	Fun Route	Powerline Trail Fun Route	\$150,000	High	Short	-	Quality-of-life, multimodal options	Y	Y	Y	
MU36	Off-Street Shared Path	Coal Creek Trail	\$225,000	Low	Long	Boulder County	Enhanced trail experience	N	N	Y	Reroute trail out of neighborhood; grade issues
MU37	Off-Street Gravel Trail	Dillon to Coal Creek East of 96th	\$500,000	Medium	Long	Developer	Regional connectivity, safety	N	Y	Y	

Mixed-Use Paths/Trails



Figure 5.1 Project Priority Table, Cont.

Project	Description	Location	Cost	Priority	Timeframe	Partner/Coordination	Benefit(s)	S1	S2	S3	Notes	
Sidewalks	SW1	Sidewalk Improvement	South Boulder Rd [Garfield,Jefferson]	\$81,000	High	Short	-	Safety, eliminate gaps	Y	Y	Y	Widen sidewalk to 10', where possible; coordinate w underpass construction
	SW2	Sidewalk Improvement	Via Appia near Cottonwood Park	\$36,000	High	Short	-	Safety, eliminate gaps	Y	Y	Y	Alternative: Build bridge to sidewalk within park
	SW3	Sidewalk Improvement	Washington near Coyote Run	\$68,000	High	Short	-	Safety, eliminate gaps	Y	Y	Y	East side. Hopefully already happening.
	SW4	Sidewalk Improvement	East North of Clementine Sub to Pine	\$96,000	High	Short	Developer	Safety, eliminate gaps	Y	Y	Y	Upgrade Sidewalk to Pine - either East or West Side
	SW5	Sidewalk Improvement	Pine St at Rail	\$7,600	High	Short	-	Safety, eliminate gaps	Y	Y	Y	New sidewalk both sides
	SW6	Sidewalk Improvement	Griffith St @ Rail	\$14,600	High	Short	-	Safety, eliminate gaps	Y	Y	Y	New sidewalk, rail crossing, south side
	SW7	Sidewalk Improvement	Spruce to Miners Field to Lee W of SH42	\$64,000	High	Short	-	Safety, eliminate gaps	Y	Y	Y	New wide sidewalk to provide ped and bike access - Expand through Miners Field
Grade Separated Crossings	GS1	Underpass	South Boulder Rd @ Main St	\$8,000,000	Medium	Long	BNSF (potential)	Safety, connectivity	N	Y	N	
	GS1A	Underpass Gateway	South Boulder Rd @ Main St	\$20,000,000	Medium	Long	Property Owner	Safety, connectivity, quality-of-life	N	N	Y	Alternative to GS1 that Include Property Acquisition and Public Plaza or Entry Features
	GS2	Underpass	SH 42 @ South St	\$8,000,000	High	Medium	CDOT	Safety, connectivity	Y	Y	Y	
	GS3	Underpass	Power Line Trail @ Dillon Rd	\$4,000,000	Medium	Medium	-	Network connectivity	Y	Y	Y	
	GS4	Underpass	Overlook Underpass	\$120,000	Low	Long	Superior, Boulder Co.	Safety, regional connectivity	Y	Y	Y	Total cost: \$1,800,000; Local share: \$120,000
	GS5	Underpass	South Boulder Rd at SH42 Regional Trail	\$8,000,000	Medium	Long	-	Safety, regional connectivity	N	N	Y	
	GS6	Underpass	South Boulder Rd @ Via Appia	\$6,000,000	High	Medium	-	Safety	N	Y	Y	Consider in Cottonwood Park Plan 2020
	GS7	Underpass	Dillon Rd @ S 88th St	\$5,000,000	Low	Long	-	Traffic flow, school access	N	N	Y	Correlated with Dillon Road traffic/capacity improvements
	GS8	Underpass	Dillon Rd east of McCaslin Blvd	\$8,000,000	Medium	Long	-	Business access, enhanced connectivity	N	N	Y	
	GS9	Underpass	Near Tape Dr @ Northwest Pkwy	\$10,000,000	Low	Long	Developer	Safety, trail connectivity	N	Y	Y	High priority if developer partners for construction and cost
GS10	Underpass	Bullhead Gulch	\$6,000,000	Low	Low	-	Safety, trail connectivity	N	N	N		
At-Grade Crossings	SBR1-5	All SBR Improvements	South Boulder Rd @ Via Appia	\$429,983	High	Short	-	Safety - primary corridor	Y	Y	Y	\$1,433,276 total cost, \$1,003,293 TIP
	AG1	Shortened Crossing Distance	Willow Dr @ Kennedy Ave	\$20,000	Medium	Short	-	Safety, school access	Y	Y	Y	Upgrade beacon and advanced warning signage and striping
	AG2	Shortened Crossing Distance	W Tamarisk St @ Kennedy Ave	\$10,000	Medium	Short	-	Safety, school access	Y	Y	Y	Add Beacon (E,S)
	AG3	Neckdowns or enhanced crossing	Power Line Trail @ Tamarisk St	\$10,000	Medium	Short	-	Safety - trail crossing, school access	Y	Y	Y	Coal Creek Elementary (E and S)
	AG4	Neckdowns or enhanced crossing	Power Line Trail @ Willow Dr	\$10,000	Medium	Short	-	Safety - trail crossing, school access	Y	Y	Y	Louisville Elementary School, additional markings (N, S)
	AG5	Neckdowns or enhanced crossing	Coyote Run @ Washington Ave	\$25,000	Medium	Short	-	Safety - trail crossing, school access	Y	Y	Y	Coal Creek Elementary (S)
	AG6	Enhanced Crossing Markings	Coyote Run @ Kennedy Ave	\$2,500	High	Short	-	Safety - trail crossing, school access	Y	Y	Y	
	AG7	Flashing Beacon Crosswalk	Sagebrush Way @ Via Appia	\$25,000	High	Short	-	Safety - trail crossing, primary corridor	Y	Y	Y	
	AG8	Enhanced Crossing Markings	Willow Dr @ Washington Ave	\$1,500	Medium	Short	-	Safety, school access	Y	Y	Y	
	AG9	Upgrade Beacon	Power Line Trail @ Via Appia	\$20,000	High	Short	-	Safety - trail crossing, primary corridor	Y	Y	Y	(E )
	AG10	Enhanced Crossing Markings	Coyote Run @ Via Appia	\$5,000	Medium	Short	-	Safety - trail crossing, primary corridor	Y	Y	Y	Bike connection for Empire Rd shoulders, future open space trail and sports complex
	AG11	Enhanced Crossing	Power Line Trail @ Polk Ave	\$10,000	Medium	Short	-	Safety - trail crossing, school access	Y	Y	Y	Concrete Curb with Colored Concrete or Landscaping Inside Median. Consider Bike Pass-through
	AG12	Improve signage/striping	Polk Ave @ W Dahlia Ct	\$1,000	Medium	Short	-	Safety, school access	Y	Y	Y	
	AG13	Enhanced Crossing Markings	Polk Ave @ Madison Ave	\$400	Medium	Short	-	Safety, school access	Y	Y	Y	Coal Creek Elementary
	AG14	Beacon and Enhanced Crossing Markings	Dahlia St @ Ridge Pl	\$50,000	Medium	Medium	-	Safety, network connectivity	Y	Y	Y	Coal Creek Elementary
	AG15	Flashing Beacon Crosswalk	Bella Vista Dr near Aspen Way	\$25,000	Medium	Short	-	Safety	Y	Y	Y	More direct alignment, improved curb cuts
AG16	Raised Crossing with Refuge	Main St @ Louisville MS	\$20,000	Medium	Short	-	Safety, school access	Y	Y	Y	Fireside Elementary School	

Figure 5.1 Project Priority Table, Cont.

Project	Description	Location	Cost	Priority	Timeframe	Partner/Coordination	Benefit(s)	S1	S2	S3	Notes	
At-Grade Crossings	AG17	Shortened Crossing Distance	Hutchinson St @ Jefferson Ave	\$1,000	Medium	Short	-	Safety, school access	Y	Y	Y	Trail Detection, Trail advance warning sign on hill
	AG18	Enhanced Crossing Markings	SH 42 @ Pine St	\$1,600	High	Short	-	Safety - primary corridor	Y	Y	Y	
	AG19	Enhanced Crossing	Dillon Rd @ McCaslin Blvd	\$50,000	High	Medium	-	Safety - primary corridor	Y	Y	Y	
	AG20	Enhanced Crossing	Centennial Pkwy @ McCaslin Blvd	\$50,000	High	Medium	-	Safety - primary corridor	Y	Y	Y	
	AG21	Enhanced Crossing	W Century Dr @ McCaslin Blvd	\$50,000	High	Medium	-	Safety - primary corridor	Y	Y	Y	
	AG22	Enhanced Crossing	Vista Ln @ Mulberry St	\$10,000	High	Short	-	Safety, school access	Y	Y	Y	
	AG23	Formalize Painted Bump Outs	City-Wide	\$100,000	High	Short	-	Safety	Y	Y	Y	
	AG24	Reconfigure Intersection	Via Appia @ Pine St	\$100,000	High	Short	-	Safety	Y	Y	Y	
	AG25	Shortened Crossing Distance	Via Appia @ Tyler Ave	\$40,000	High	Short	-	Safety	Y	Y	Y	
	AG26	Shortened Crossing Distance	Pine St @ Polk Ave	\$40,000	Low	Long	-	Safety	N	N	Y	
AG27	Shortened Crossing Distance	Pine St @ Hoover Ave	\$40,000	Low	Long	-	Safety	N	N	Y		
AG28	Shortened Crossing Distance	Pine St @ Tyler Ave	\$40,000	Low	Long	-	Safety	N	N	Y		
Transit Connectivity	TR1	Proposed Transit Network	Citywide	\$250,000	High	Short	Businesses, Via/RTD	Job and business access	Y	Y	Y	
	TR2	EcoPass & Other Incentives	Neighborhood or Business Incentives for Employees	\$20,000	Medium	Short	RTD	Access to transit	Y	Y	Y	
	TR3	Access Improvements to McCaslin Station	Multimodal Connections, Improve Bus Route for Possible Circulator	\$200,000	High	Short	RTD, businesses	Multimodal access to transit, safety	Y	Y	Y	
	TR4	Bus Stop Improvements	Shelter, Bike Racks, Trash Cans, Benches ADA Upgrades	\$300,000	High	Ongoing	RTD, businesses	Safety, transit accessibility	Y	Y	Y	
	TR5	NW Rail Peak Hour Service	Beginning of rail service for peak hour only TBD location	\$1,000,000	High	Medium	RTD	Regional access	N	Y	Y	Represents investment in higher capacity transit service. Due to nature of project funding could be used to support BRT or other similar type of service.
	TR6	NW Rail Station Area Planning	Downtown and CTC	\$50,000	Medium	Short	RTD	Transit access, community character	Y	Y	Y	

# Funding Framework

Revenues to support the City's transportation programs come from a variety of sources, primarily the General Fund and Capital Improvement Fund. The City does not have a dedicated source of funding for transportation investments, and transportation projects compete for funding through the regular budget prioritization process. The City's capital fund is limited and does not provide the level of funding necessary to fully implement all of the contemplated projects in the TMP.

The identification of sustainable local and regional funding for transportation projects and programs has been and continues to be a high priority for the City. The City works with neighboring local governments, the State, and Federal governments to advocate for increased investments in transportation infrastructure.

## Potential New Funding Streams

The information below discusses several options for increasing transportation funding for desired projects. It includes possible new revenue sources through taxes or fees. Many of the more costly recommendation in the TMP project list, including grade-separated crossings such as underpasses, would likely require additional funding sources or significant grant funding.

### *Sales Tax Increase (City or County)*

Sales taxes are levied on the sale of goods within a given area. Revenue is dependent on sales volume and the tax rate applied and can be directed to areas such as transportation. The base for this revenue stream is the total retail sales in an area; in Louisville, this value is \$510 million (2018).

In addition to the City's sales tax, Boulder County levies a sales tax on retail sales throughout the entire County. With transportation infrastructure and investment currently a priority throughout the county, there may be an opportunity for an increase in the county sales tax to fund a broader array of transit and transportation projects. In this case, the base for the revenue stream is much larger as there was an estimated \$5.67 billion in retail sales in Boulder County in 2017.

If a countywide approach is utilized, the revenues would be shared throughout the county, but the revenue generated would be much higher overall. For example, a 0.10 percent increase in the county would generate \$5.67 million in annual revenue (applied to 2017 sales).

## Capital Improvement Plan (CIP)

The City's Capital Improvements Plan (CIP) outlines a six-year strategy to coordinate capital improvements. The CIP provides a forecast of funds available for capital projects and identifies all planned capital improvement projects and their estimated costs over the plan period. The City has allocated a total of \$8 million for implementation of TMP projects. This is an average of \$1.3 million per year over the total 6 year period or \$2 million per year over the 4 years that have been allocated funding (recognizing that some appropriation of funds can be expected in the final two years). These figures provide the CIP funding used in Funding Scenarios that appear later in this chapter.

## *Local Property Tax Increase*

Property taxes are levied on the assessed value of property in a given area. The base for this revenue stream is the assessed valuation of all taxable property in a given area; in Louisville, this value is \$639.6 million (2017).

Revenue available through a property tax is based on assessed valuation and the mill levy applied. This mill levy would be in addition to the city's current 8.869 mills (average of approximately 88.3 total within the city). Revenue potential associated with a property tax increase ranging from 2 mills to 7 mills ranges from \$1.28 to \$4.48 million annually.

Note that because property tax increases are currently being pursued for a variety of other City projects, this funding tool is not included in transportation funding scenarios.

## *Transportation Utility Fee/Transportation Maintenance Fee (TUF/TMF)*

A transportation utility fee (TUF) or transportation maintenance fee (TMF) is a monthly fee collected from residential and commercial properties. The fee is most commonly based on the use of transportation infrastructure as measured by the average number of trips generated by different types of commercial and residential land uses. This funding source provides a local and stable source of revenue to maintain streets, sidewalks, pedestrian crossings, bike lanes, multi-use paths, and medians. Due to the nature of the fee, it can only be used for maintenance and cannot be used for capital projects.

In Colorado a TUF does not need voter approval given the link between the benefit provided and the specific land use groups that use transportation infrastructure; however, it does require a nexus study to support the fee being charged.

Revenue available is dependent on the structure of the fee and the findings of the nexus study. A preliminary estimate of revenue potential for Louisville, using sample fees, found that this funding tool may generate between \$1 million and \$3 million annually for the City (note that these figures are based on estimates and the general structure of other City's programs and any fees charged would need to be established through a nexus study).

## *Improvement Districts*

Improvement Districts are special taxing districts established for an improvement area, defined community area, business district, or new and redeveloping areas. These districts can be set up to fund specific types of projects or programs such as trails and sidewalks or EcoPasses. These districts can be particularly effective where new

## **Transportation Utility Fee or Transportation Maintenance Fee (TUF or TMF)**

Loveland, CO has a Street Maintenance Fee, charging a monthly flat fee per acre of non-residential space or per residential dwelling unit. This utility fee pays for the maintenance of City streets. Rates charged (per month) are:

- \$2.61 per residential dwelling unit
- \$28.88 per acre of industrial
- \$37.47 per acre of institutional
- \$37.47 per acre of commercial
- \$73.74 to \$288.68 per acre of retail (variable based on type and location)



trips are being generated, such as a new development like Nawatny Ridge. Taxing districts to cover EcoPasses for businesses and residents have been successfully applied in Nederland and the Boulder Junction neighborhood. Improvement districts should be considered for new large developments in the City, such as the former StorageTek site.

## Grants and External Funding Tools

Grants can be an effective way to leverage local funding streams to increase the quantity of projects or programs that can be implemented. Strategic use of grant funding can help focus local dollars where they are most needed and help identify priorities for the city. Louisville has a history of successful grant applications from a variety of sources. The following grant sources are identified as potential sources for future funding to help implement the TMP.

### *BUILD Grant*

The Better Utilizing Investments to Leverage Development (BUILD) program replaced the TIGER Grant program in 2018. Funds are allocated to projects for road or bridge, public transportation, passenger and freight rail transportation projects, and intermodal projects. The BUILD program has funded 30 projects focused on bicycle and pedestrian infrastructure since 2009, totaling over \$350 million. BUILD is a competitive grant program directly administered by the U.S. Department of Transportation for innovative projects that promote: safety, economic competitiveness, state of good repair, livability, and environmental sustainability. Funding is limited to \$150 million per state and \$25 million per project.

### *DRCOG TIP Funds*

The Denver Regional Council of Governments (DRCOG) Transportation Improvement Program (TIP) is a fiscally constrained, short-range transportation plan, identifying all currently federally funded transportation projects to be completed in the region over a four-year period. There is a competitive process to have a project included in the TIP.

The current TIP runs from FY2020 to FY2023. Region-wide funds total \$337 million. That total includes:

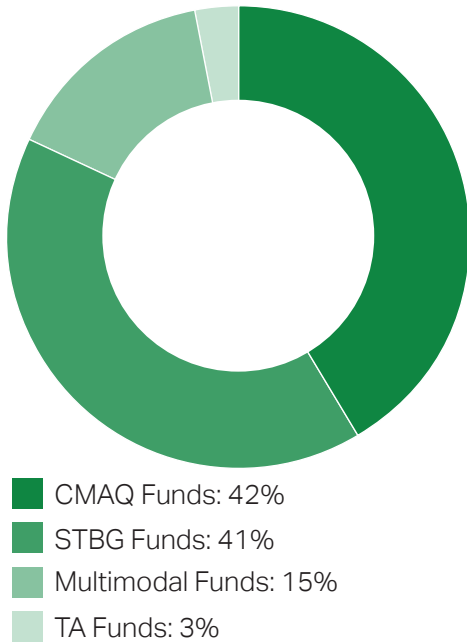
- \$49.4 million in set-asides - for community mobility planning and implementation, TDM services, regional transportation operations and technology, air quality improvement, and human service transportation.
- \$57.5 million in the regional share - one call for regional projects and programs, with \$25 million allocated to the CDOT Central 70 project. \$230.1 million in the subregional share - individual subregional forum calls for projects.

Figure 5.2 DRCOG Regional vs. Subregional Funding (2019)



■ Subregional Share: \$230.1 Million  
■ Regional Share: \$57.5 Million  
■ Set Aside Projects: \$49.4 Million

Figure 5.3 DRCOG TIP Funds by Source (2019)



The subregional share is relevant to Louisville, with 9.70 percent of this funding allocated to Boulder County. TIP funding comes from a number of federal sources, including the Congestion Mitigation and Air Quality Improvement Program (CMAQ), Surface Transportation Block Grant program, and more. A number of projects included in this Plan would be competitive for this funding.

### *Congestion Mitigation and Air Quality Improvement Program (CMAQ):*

This program provides funding for transportation projects or programs likely to contribute to the attainment or maintenance of a national ambient air quality standard. Funding comes from the federal Department of Transportation and is allocated by DRCOG through the TIP process. The 2020-2023 TIP includes approximately \$140 million in CMAQ funding.

### *Surface Transportation Block Grants (STBG):*

The Surface Transportation Block Grant Program provides funding for projects including the construction of transit capital projects, highway and transit safety infrastructure improvements and programs, fringe and corridor parking facilities, recreational trails, surface transportation programs, highway and transit research, projects and strategies designed to support congestion pricing (electric toll collection). It also can fund other programs and projects related to the construction, maintenance, and operation of transportation, roadways, bridges, and infrastructure. Projects may not be located on local roads or minor collectors. This funding is also allocated by DRCOG through the TIP process; the 2020-2023 TIP included approximately \$138 million in STBG funding.

### *Transportation Alternatives (TA):*

TA funds transportation improvement projects that expand travel choice, strengthen the local economy, improve quality of life, and protect the environment. Many TA projects enhance non-motorized transportation, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, environmental mitigation, and recreational trail program projects. CDOT Region 4 (which includes Boulder County) had approximately \$2 million in TA funding allocated for each of FY18, FY19, and FY20. CDOT administers 50% of TA funds and allocates the remaining to MPOs, including DRCOG for projects to be selected through the TIP for the metro region.

### *State Multimodal Transportation Options Fund (MMOF):*

MMOF funding comes from the State and is allocated through the TIP. Funding is intended to be used for transit, TDM programs, multimodal projects that incorporate new technology, studies, and bicycle/pedestrian projects. This funding source requires a higher local match than typical for federal sources (50% versus 20%).

### *GOCO & Recreational Trails Program Funds*

Great Outdoors Colorado (GOCO) invests a portion of Colorado Lottery proceeds in parks, trails, wildlife, rivers, and open spaces throughout the state. Grants are competitively awarded, with three primary goals: protect more urban and rural land for people and wildlife, connect people to the outdoors by increasing bicycle and pedestrian access and filling gaps in trail systems, and inspire communities to explore and steward the outdoors through increasing youth access to nature. GOCO funds a variety of projects, including land acquisition for outdoor recreation facilities, master plans, physical parks infrastructure, and trails.

The Recreational Trails Program (RTP) funds trails for recreational modes such as walking, hiking, bicycling, equestrian use, and more. This is a set-aside of the STBGSP funding awarded annually. Both GOCO and RTP funding is administered locally by the Colorado Parks & Wildlife Department.

### *Safe Routes to Schools (SRTS)*

The Colorado Department of Transportation (CDOT) administers Colorado's Safe Routes to School (SRTS) program to make school routes safe for children while walking or cycling to school. The Colorado SRTS program funds both infrastructure and non-infrastructure projects. Eligible projects may include capital improvements including sidewalks, striping, crossing signals, and bike racks, as well as education, encouragement, and enforcement activities that inspire children to walk or cycle to school.

### *Highway Safety Improvement Program (HSIP)*

The federal Highway Safety Improvement Program (HSIP) funds safety improvement projects that aim to reduce traffic fatalities and serious injuries on all public roads. A variety of projects are eligible for funding, including sidewalks, medians and pedestrian crossing islands, and countermeasure signage. Funding is allocated throughout the state by CDOT. CDOT Region 4, which includes Boulder County, generally receives 15 to 20 percent of total funding (approximately \$30 million each year for the state).

### *People for Bikes*

The PeopleForBikes Community Grant Program supports bicycle infrastructure projects and targeted advocacy initiatives that make it easier and safer for people of all ages and abilities to ride. Grant funds can be used for infrastructure projects as well as initiatives such as Open Streets Days. Funds are only available for specific projects or programs, not for operations costs. Grants are available for funding up to \$10,000 and this funding cannot amount to more than 50 percent of a project's budget. While this is not a large pool of funding, it is directly applicable to some TMP recommendations.

### *FTA 5310 Funding*

The Enhanced Mobility for Seniors and Individuals with Disabilities program (FTA Section 5310) provides funding for transportation services planned, designed, and carried out to meet the special transportation needs of seniors and individuals with disabilities. Eligible projects include both traditional capital investment and nontraditional investment beyond ADA complementary paratransit services.

This program includes both formula and discretionary funding, with a requirement that 55 percent of program funds be used on capital or traditional 5310 projects and 45 percent used on other non-traditional projects. While this program may be useful for specific projects, there is a fairly low level of funding available regionally, with most allocated to human service transportation.

### *Community Partnerships*

Partnerships with other City departments, outside agencies, and others within the community are key to funding projects and leveraging resources efficiently. As multimodal transportation provides mobility options that are healthy, affordable, and fun to a community, they also add significant value. As such, some projects can attract investment interest from developers, businesses, hospitals, philanthropic organizations, and non-profits. The following list identifies means to better leverage resources from these entities.






- The City can require or create incentives for developers to enhance their projects with bicycle parking, amenities, or investment in infrastructure on or adjacent to the developer's property. Incentives through the permitting process have successfully been utilized in other cities to help develop bicycle and pedestrian-friendly facilities and encourage amenities that make using alternative modes convenient and comfortable.



- Businesses that have an interest in bicycling, or helping employees get to work without driving may be interested in partnerships for biking or transit projects or programs. Financial assistance in connecting transit service or bikeways to their business, providing bicycle parking, EcoPasses, or other amenities, and promotion of transit or bicycling are just a few ways that businesses may be partners in implementing the TMP.
- Hospitals and other health service providers are natural places of concern for community health and can be a partner for improving infrastructure and multimodal options that help employees and visitors access medical care safely. Working with Avista Hospital or other care providers could aid in implementing “last-mile” connections.
- Philanthropic entities and non-profits exist to make improvements to the community. Partnerships with nonprofit organizations can demonstrate support for projects and programs beyond the City government, which can be crucial to obtaining federal funds or leveraging new local funding. The National Foundation Center ([www.foundationcenter.org](http://www.foundationcenter.org)) provides a database of grant program information, including guidelines and application procedures. For example, the Robert Wood Johnson Foundation awards grants for bicycle and pedestrian projects if they can be tied to research or promotion of health and physical activity.

## Financing Tools

The tools and sources outlined previously are all funding tools – sources of revenue that can be used for capital and/or operating expenses. In addition to funding tools, the City may wish to consider financing strategies, which convert a future revenue stream into a present value for capital expenditures. Bonding revenue streams is a form of public finance often used for infrastructure projects. Utilizing this strategy allows capital to be constructed upfront, while revenues are collected over a period of time and used to repay the bonds. As an alternative form of bonds, Certificates of Participation (COPs) may be used by government agencies to finance the construction or improvement of public facilities, that involves a pledge of City assets that provide recourse for investors. By use of this type of repayment structure, the monies needed to fund these capital projects do not require voter approval under TABOR.

Scenario 1	
Description	Continuation of current CIP funding levels
Funding Level	\$\$\$
Total Funding	\$26 Million
2019-2024 CIP	\$8 Million
 Miles of corridor projects	3 miles 1 corridor study
 Number of crossing improvements	3 grade separated 29 at-grade
 Miles of new trails and sidewalk connections	4 miles
 Miles of bike network enhancements	17 miles
 Transit service & accessibility	Begin circulator pilot for CTC & McCaslin access McCaslin access improvements 6 bus stop enhancements

## Funding Scenarios

To understand the magnitude of impact on implementation that could occur if various funding tools were utilized, three implementation scenarios were developed as examples for the TMP. This plan is not recommending one particular scenario but has developed each scenario as a potential avenue to implementation. The funding scenarios are designed to demonstrate the variety of tools that can be utilized and leveraged against each other as well as highlight how some funding tools can impact the overall timeline of implementation. Each scenario is highlighted below and detailed in the following pages.

### Scenario 1 - Continuation of Current CIP Funding Levels

This scenario utilizes the City's current CIP funding allocations at \$8 million over 6 years (\$1.3 million annually) for capital and programmatic projects to implement the TMP. Funding would continue at this level each year for 20 years. This scenario assumes no additional grant funding beyond major projects where significant partnerships are required or where grant funding is already assumed, such as SH 42/S. 96th Street improvements.

This level of funding over 20 years would provide some key projects and improvements to be made within Louisville, but it would not meet the full needs identified in the TMP. Additionally, this scenario would result in a slower implementation cycle overall for projects, which could increase overall project funding needs as those costs trend at an increase over time.






## Scenario 2 - Increased CIP + Grant Funding






This scenario utilizes grant funding in addition to funding from the CIP to fund projects. In this scenario, the level of CIP funding is increased from Scenario 1 to an average of \$2.0 million per year. Over 20 years, this level of CIP investment results in a total of \$40 million in capital funds.

In addition to CIP funding, this scenario accounts for a variety of grant funding. The amounts shown below have been estimated based on the historic record by the City of Louisville as a successful grant recipient and scaled to TMP capital costs for various project categories. They generally reflect historic performance to frame future revenue assumptions over the study horizon. Grants sources include:

- DRCOG: \$75,000 in grants through the TIP or other DRCOG programs is assumed every 5 years (4 times throughout the 20 year scenario time frame), a total of \$300,000 in DRCOG funding over 20 years.
- GOCO: \$65,000 in GOCO grants is assumed every 3 years (6 times throughout the 20 year scenario time frame), a total of \$390,000 in GOCO funding over 20 years.
- Safe Routes to Schools: One-time funding of \$100,000 is assumed from the Safe Routes to Schools program.
- Additional Grant Funding: A total of \$3 million from various other grant sources is assumed (either in one grant or in multiple smaller awards) over the 20 year scenario.

This level of continued investment through the CIP, in conjunction with the outlined grant funding, would allow for a significant majority of projects and programs to be funded with a more aggressive timeframe for implementation over 20 years.

Scenario 2	
Description	Increase in CIP funding plus additional grant funding
Funding Level	\$ \$ \$
Total Funding	\$43.8 Million
2019-2024 CIP	\$10 Million
 Miles of corridor projects	3 miles 1 corridor study
 Number of crossing improvements	5 grade separated 29 at-grade
 Miles of new trails and sidewalk connections	8 miles
 Miles of bike network enhancements	20 miles
 Transit service & accessibility	Begin circulator pilot for CTC & McCaslin access McCaslin access improvements Begin peak-hour rail service or investment in other high-capacity/frequency transit service 9 bus stop enhancements

Scenario 3	
Description	Further increase in CIP funding, grant funding, and additional new funding sources
Funding Level	\$\$\$
Total Funding	\$93.8 Million
2019-2024 CIP	\$15 Million
 Miles of corridor projects	5 miles 1 corridor study
 Number of crossing improvements	9 grade separated 32 at-grade
 Miles of new trails and sidewalk connections	8 miles
 Miles of bike network enhancements	26 miles
 Transit service & accessibility	Begin circulator pilot for CTC & McCaslin access McCaslin access improvements Begin peak-hour rail service or investment in other high-capacity/frequency transit service 12 bus stop enhancements

## Scenario 3 - Increased CIP + Grants + New Funding Source

This scenario utilizes a new local funding source in addition to grant funding and increased funding from the CIP. This scenario maintains the level of grant funding in Scenario 2 and increases the level of CIP funding from Scenario 2 to an average of \$2.5 million per year, or \$50 million over 20 years. This scenario assumes the same grant funding sources and amounts over 20 years as identified in Scenario 2.

In addition to CIP and grants, this scenario includes a new local revenue source. A Transportation Service Fee is modeled, with revenues of \$2 million annually. While this fee can only be used for operations & maintenance costs, not capital costs, the revenue generated would free up General Fund dollars that would otherwise be spent on maintenance that could be directed into the CIP for additional capital construction. It is important to note that this is a draft revenue potential for illustrative and analytical purposes, structured based on comparable programs and geared to the local context. If a Transportation Service Fee were to be used, a nexus study would be required before fees are set and implemented.

Over 20 years, this scenario provides an opportunity to fully fund and implement the TMP. Additionally, this scenario would allow for a shortened timeline for implementation for many recommended projects. Generally, as time increases, projects tend to increase in cost. An aggressive implementation timeline could be financially beneficial with less inflation over time for project and construction costs.



# Managing Performance Towards the Goals

The goals identified for the TMP represent building blocks to continue to develop a community with a high degree of mobility that is accessible and safe for people of all ages and abilities to travel. It will be important to measure how the City is performing towards those goals. Utilizing performance metrics to monitor the progress of implementing the TMP will enable the City to understand the degree to which progress is being made and identify areas of focus for future improvements.

Figure 5.4 shows the performance management cycle for delivering against the goals. The performance management cycle has five key phases:

- Assess Current Performance: Establish the baseline from which an organization is working, including strengths and opportunities.
- Goal Setting: Identify the direction for the organization in terms of performance outcomes and definitions of success.
- Strategy Development: Create an approach to achieving the goals.
- Project Development: Specific action plans to implement projects, policies, and programs.
- Execution: The tactical implementation of the projects.

As execution occurs, the performance cycle feedback loop is completed by assessing performance with a new baseline. Adjustments can be made to the goals or strategies based on the new starting point.

The TMP has focused on the development of the first three phases of the cycle, Assessing Current Performance, Goal Setting, and Strategy Development. Specific project development and execution of the plan will be based on the prioritization of the strategies and the available resources to implement projects, policies, and programs identified in the Plan.

To support performance assessment of plan implementation, the TMP provides metrics that align with each of the plan goals. Figure 5.5 identifies the performance metrics, baseline data, and the data source for each metric. The City will need to collect the necessary data to establish baseline measures in an ongoing fashion.

Figure 5.4 Project Development Cycle

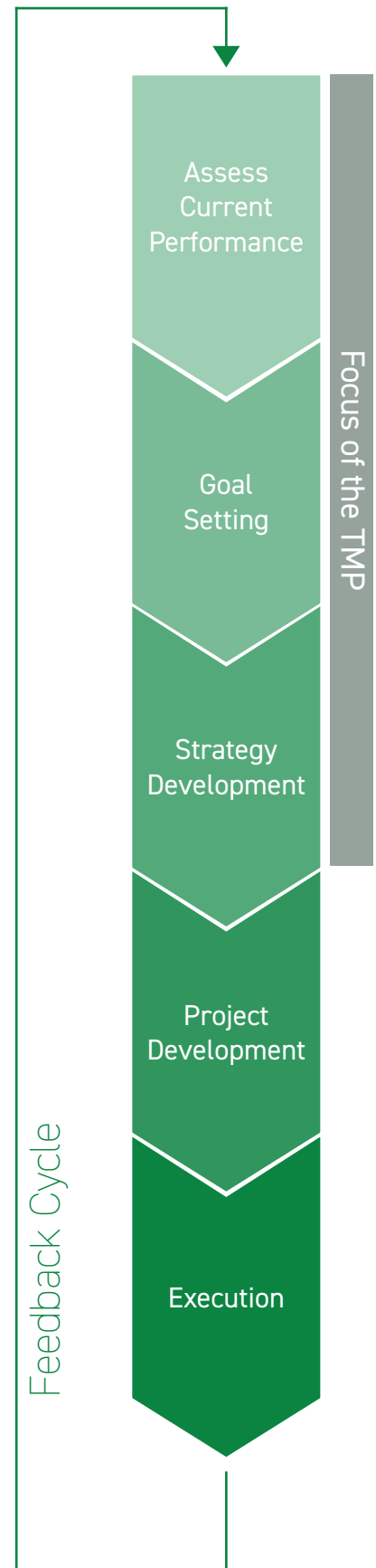


Figure 5.4 Performance Metrics

Performance Metric	Current Data	Target Metric (by 2030)	Data Source	Goals							
				Efficient & Safe	Cohesive & Layered System	Local & Regional Travel	New Technologies	Increase Options & Access	Complete Streets - Livability	Economic Opportunities	Environment & Community Health
				1	2	3	4	5	6	7	8
# of annual crashes*	216	10% decrease	DRCOG/CDOT	○		○	○		○		○
# of "serious injury" vehicle crashes*	3	0	DRCOG/CDOT	○		○	○		○		○
# of "fatality" vehicle crashes*	1	0	DRCOG/CDOT	○		○	○		○		○
# of pedestrian related crashes*	8	20% decrease	DRCOG/CDOT	○	○	○	○		○		○
# of bicycle related crashes*	15	20% decrease	DRCOG/CDOT	○	○	○	○		○		○
Corridors with 30% or greater delay in peak period travel time over mid-day travel time	0 (25% delay overall 2018)	No more than 30% delay	Travel time observations	○		○		○	○	○	
Bicycle Friendly City Designation Level	N/A	Achieve Gold status	League of American Bicyclists	○	○		○	○		○	
Miles of gaps in the trail network	TBD	15% decrease	Parks & Recreation Office		○	○		○	○		○
# of public electric vehicle charging stations	10	20	plugshare.com			○	○	○		○	○
% of jobs within 1/4 mile of a transit stop	40%	20% increase	QCEW & RTD Data					○		○	
# of people walking	TBD	Continue to Increase	Pedestrian Counts		○	○		○	○		○
# of people biking	TBD	Continue to Increase	Bicyclist Counts		○	○		○	○		○
Average Daily Transit Boardings/ Capita	1,256	10% increase	RTD		○	○	○	○		○	
% Non- Single Occupant vehicle mode share to work	28.1%	35%	DRCOG & Census	○	○	○	○	○	○		○
Vehicle Miles Traveled/ Day/ Capita for Louisville residents	25.5 (DRCOG metro)	10% decrease	DRCOG & Census	○		○	○		○		○
Greenhouse gas emissions due to transportation	80,846.45 mt CO2 (2016)	10% decrease	Boulder Co. GHG Report	○		○	○			○	○
# of neighborhoods and businesses participating in the EcoPass program	TBD	50%	RTD	○		○		○		○	○

\*While improved enforcement, infrastructure and engineering can help reduce crashes and injuries, the City recognizes that in some cases crashes and injuries result from factors and behaviors that can not be fully addressed.