



WHEAT RIDGE

Bicycle and Pedestrian

MASTER PLAN UPDATE

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CHAPTER 1: INTRODUCTION

Wheat Ridge is a city with strong historical roots, yet it is undergoing change along with the rest of the Denver region. New residents and businesses are bringing fresh ideas to the City and strengthening its character and sense of place. Additionally, the Regional Transportation District (RTD) will begin rail service to downtown Denver on the Gold Line in 2017, potentially catalyzing significant reinvestment along the northern edge of Wheat Ridge. At the same time, there is a strong commitment to preserving the heritage of Wheat Ridge and a desire to ensure long-time residents continue to feel at home in their city. The 2017 Wheat Ridge Bicycle and Pedestrian Master Plan provides a blueprint for creating a more bicycle and pedestrian-friendly city within this dynamic framework.

Plan Purpose

This Plan serves as an update to the 2010 Bicycle and Pedestrian Master Plan, which presented a framework of practical and comprehensive bicycle and pedestrian facilities that promoted safe, sustainable, and healthy travel options. Since the previous Plan was completed, the City has implemented a number of projects to improve conditions for people walking and biking. The 2017 Plan builds on these successes and establishes a vision for a complete and connected network of bicycle facilities and pedestrian routes, along with recommended policies to support active transportation. The Plan's recommendations support the Wheat Ridge community's vision for safe, active transportation that is accessible to a wide range of people, including youth and seniors, families, bicyclists of varying skill levels, and people with disabilities.

The Wheat Ridge Context

The City of Wheat Ridge is in the west Denver metro area and shares borders with Denver, Lakewood, Edgewater, Arvada, and Lakeside. As such, Wheat Ridge plays an important role in regional connectivity. It is generally bounded by Interstate 70 (I-70) to the north and west, Sheridan Boulevard to the east, and West 26th Avenue to the south.

For its 31,000 residents, the city offers a small town feel with access to amenities more commonly found in larger cities. Wheat Ridge is close to the recreational opportunities available in the foothills and provides easy access to the Rocky Mountains via I-70. There are also a large number of City parks and Crown Hill Park, which is owned and maintained by Jefferson County Open Space.

Plan Organization

This Plan is organized into six chapters including this one.

Chapter 1 serves as the introduction to the plan and includes the Wheat Ridge context, recent accomplishments, the planning process, and Plan vision and goals.

Chapter 2 provides an overview of the current status of bicycling and walking in Wheat Ridge.

Chapter 3 summarizes current programs related to bicycling and walking and provides suggestions for possible future program efforts.

Chapter 4 represents the pedestrian element of the Plan, including the identification of priority pedestrian routes and appropriate pedestrian treatments for implementation in Wheat Ridge.

Chapter 5 represents the bicycle element of the Plan, including recommended bicycle facilities and associated costs.

Chapter 6 includes prioritized bicycle and pedestrian projects to conclude the Plan.

Appendices provide supplemental detail on topics such as related plans, priority pedestrian routes, and funding sources.

The city's land use and street network patterns greatly influence how people get around today. In the eastern portion of the city (closer to Denver), the street grid is well connected, but as post-WWII development occurred farther west, streets were built with less emphasis on connectivity. This resulted in high volumes of traffic being funneled onto arterials such as Wadsworth Boulevard and Kipling Street, which now act as barriers for people walking and bicycling. The city's main east/west streets - 44th Avenue and 38th Avenue - provide good connectivity for vehicles, but are less comfortable for bicyclists and pedestrians. Lower-volume city streets are often more comfortable for people walking and biking. However, these streets are generally narrow and lack pedestrian facilities such as sidewalks and curb ramps, creating a character that reflects the city's rural heritage but also posing challenges for retrofitting these streets with pedestrian and bicycle facilities.

Recent Accomplishments

The City has implemented many of the proposed projects from the 2010 Bicycle and Pedestrian Master Plan. These projects were constructed through routine street maintenance and dedicated funding from City Council. Key improvements implemented since 2010 include:

- Sidewalk on Wadsworth Boulevard, between 26th Avenue and 32nd Avenue
- Bike lane, paved shoulder, and shared lane markings on Pierce Street from 26th Avenue to 48th Avenue
- Bike lane along West 32nd Avenue from Sheridan Boulevard to Youngfield Street
- Trail or sidewalk along Kipling Street, from 32nd Avenue to the Clear Creek Trail, including a bicycle and pedestrian bridge over Clear Creek
- Clear Creek Trail trailhead improvements at Kipling Street
- Bike lanes on Tabor Street, north of I-70
- Striped shoulder on Miller Street, north of 44th Avenue

In addition to these accomplishments, several important projects are currently under development. In November 2016, Wheat Ridge residents voted to support Ballot Issue 2E, a 12 year, ½ cent sales tax that will fund four major projects, three of which will create better conditions for walking and bicycling. Revenues from the tax will be used to leverage state and federal grants to reconfigure Wadsworth Boulevard, to fund infrastructure improvements around the Wheat Ridge - Ward Station on the G Line near 52nd Avenue and Ward Road, and to implement infrastructure improvements associated with the Clear Creek Crossing development at Youngfield Street and I-70.

The City is currently developing an Americans with Disabilities Act (ADA) Transition Plan to improve accessibility to pedestrian facilities. The Transition Plan includes an assessment of existing pedestrian facilities (i.e., sidewalks and curb ramps) along roadways to document the presence and condition of these facilities. The Transition Plan will catalog existing barriers to ADA access and include strategies to address them.



Active Transportation Advisory Team (ATAT) fun ride to celebrate the Kipling Street Trail Ribbon Cutting, October 2016 (Photo Credit: ATAT)

Public Engagement Process

Wheat Ridge residents and stakeholders played a critical role in shaping the 2017 Plan Update. Public engagement was focused on Wheat Ridge residents and visitors, community stakeholders, the project Technical Advisory Committee (TAC), and City Council to meet the following goals:

- To solicit feedback on existing walking and bicycling issues and successes,
- To educate the public and stakeholders about pedestrian and bicycle facilities,
- To develop proposals for enhancing walking and bicycling in Wheat Ridge,
- To build momentum for plan implementation and related efforts, and
- To be equitable and balanced across the City.

The workshops, events, and meetings conducted as part of this project's community engagement process are discussed in this section of the Plan.

Vision and Goals Workshop

The first official meeting for the project was a Vision and Goals workshop held on August 5, 2016. The purpose of this workshop – held with City staff, stakeholders, advocates, and community members – was to introduce the project and solicit input regarding the future of walking and biking in Wheat Ridge. Attendees answered the following questions:

1. *What three words best describe bicycling in Wheat Ridge today?*
2. *What three words best describe walking in Wheat Ridge today?*
3. *What one word describes your future vision for active transportation in Wheat Ridge?*

Responses showed that there are major barriers within the City posed by Interstate-70 and principal arterials like Wadsworth Boulevard. However, stakeholders envision a connected, integrated, and intuitive city for people who walk or bike. Responses gathered at this workshop directly influenced the Vision and Goals statements.



August 5, 2016, Vision and Goals Workshop

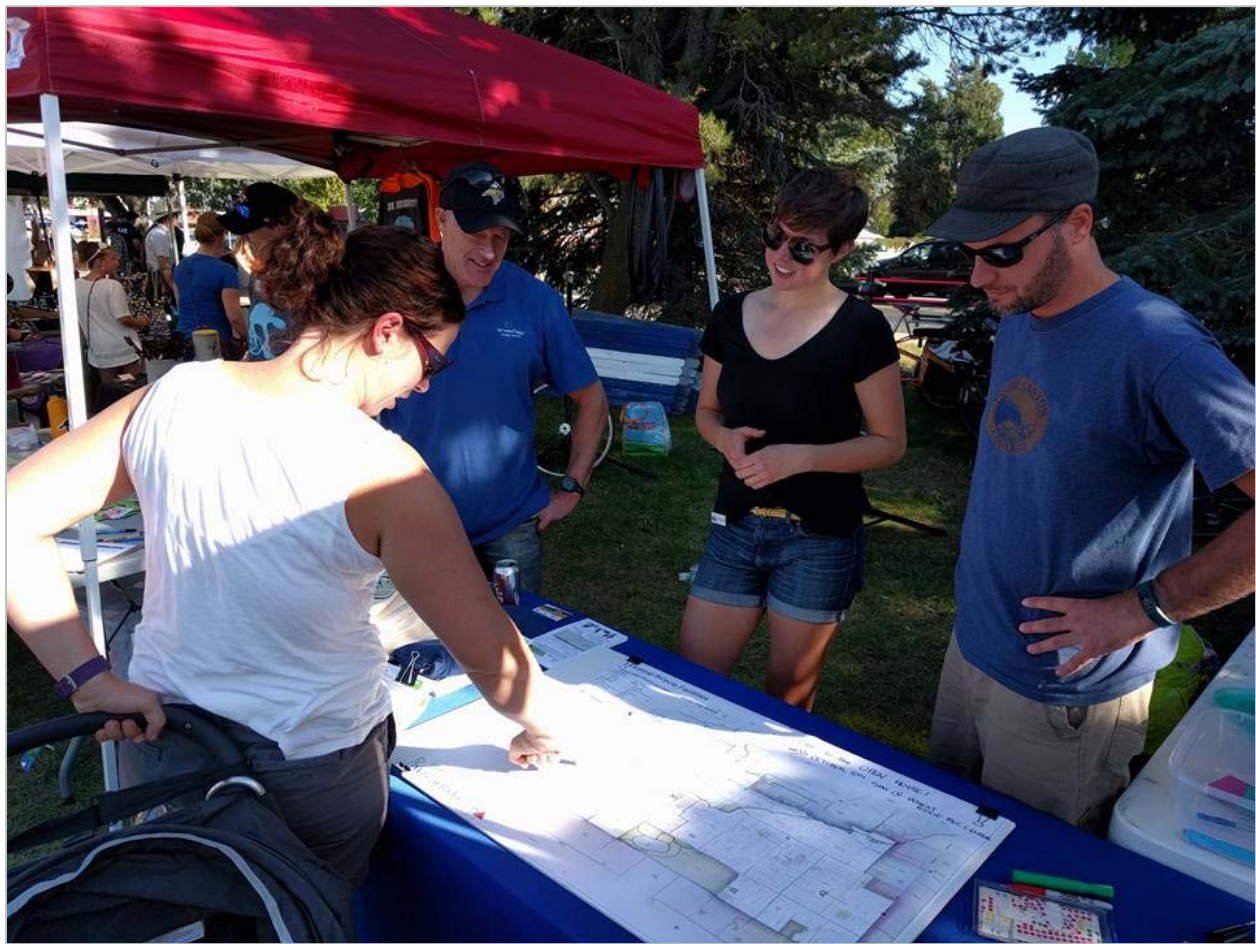
Online Map-Based Survey

The project team developed an online interactive map that was available for input between June and October 2016. Users were asked to identify routes they already use or would use if made safe and convenient and any barriers to bicycling or walking (see Chapter 2 for more discussion of the survey results). The map was available as a link from the project page on the City's website, and was widely shared with help from city staff and community members.

Ridgefest

The project team spoke to approximately 60 people at the Ridgefest event on Saturday, September 10, 2016 in central Wheat Ridge between 3:00 PM and 7:00 PM.¹ This free, all-ages event was an opportunity for the community to celebrate the heritage of Ridge at 38 through diverse offerings like a classic car show, an artisan marketplace, beer tasting and food contests, and local bluegrass music.

This event targeted the citizens of Wheat Ridge and provided a forum to introduce the project, advertise the online interactive map, share information about the RTD G Line, and engage in one-on-one dialogue about walking and biking in Wheat Ridge. Using a plotted map with existing bicycle routes and previously planned facilities, the project team asked people where they lived and places they wanted to go, sparking discussions about challenging intersections, streets with missing sidewalks, and much more.



The project team discusses potential new bikeways and pedestrian routes at the 38th Avenue RidgeFest, September 2016 (Photo Credit: ATAT)

¹ Ridge at 38. 2016 RidgeFest. <http://ridgeat38.com/event/2016-ridgefest/>

Technical Advisory Committee (TAC)

The TAC is composed of City staff and representatives from Jefferson County, the Cities of Arvada and Lakewood, the Colorado Department of Transportation, and advocacy organizations.

The TAC met twice over the course of the project and played an important role in the development of this Plan. TAC members guided the overall direction of the project, spread the word about the Plan, contributed ideas and offered local expertise, and reviewed recommendations.

The first TAC meeting was held in September 2016 at City Hall. In addition to an overview of the project's existing conditions and draft themes, the group discussed pedestrian network recommendations.

The second TAC meeting was held in November 2016. The project team presented key recommendation themes which had emerged through the Vision and Goals workshop, meetings with City staff, and public engagement. The following themes emerged:



September 22, 2016 TAC Meeting

Pedestrian Themes

- Access to transit
- Focus on key destinations (shopping centers, schools, parks, etc.)
- Integration with ADA Transition Plan
- Serve needs of aging population and younger families

Bicycle Network Themes

- Access to G Line Stations (Ward Road, Arvada Ridge, Olde Town Arvada)
- Access to Clear Creek Trail
- Crossing Interstate-70
- Connectivity to neighboring jurisdictions
 - 35th Avenue to Denver
 - South to Lakewood and the W Line
 - I-70 crossings and G Line Station areas to Arvada
 - Clear Creek Trail to Golden

The team reviewed the online interactive map input which showed that safety concerns at intersections, heavy traffic, and high vehicle speeds were the most common barriers for both walking and bicycling. Additionally, priority pedestrian routes for the Plan and sidewalk walksheds around schools were discussed (see Chapter 4 and Appendix B).

Open House

Over 40 people attended the project open house on Wednesday, October 5, 2016 at the Apex Center between 6:00 PM and 8:00 PM. The team presented information on several topics:

- Project schedule
- Draft vision and goals for the Plan
- Previous planning efforts, including the 2010 Bicycle and Pedestrian Master Plan and the 2015 Parks & Recreation Master Plan
- The ADA Transition Plan
- Non-infrastructure policies and programs in education, encouragement, and enforcement
- Bicycle comfort assessment and the level of traffic stress concept

Attendees provided valuable feedback in several areas:

- Existing education, enforcement and encouragement programs
- Preferred bicycle facility types (e.g., protected bike lanes, sidepaths, trails, and buffered bike lanes) as they relate to levels of traffic stress
- Key bicycle and pedestrian routes between key activity centers within the City
- Streets and intersections where infrastructure improvements, improved crossings, traffic calming, better signal detection for bicyclists, etc. are desired



October 5, 2016 Open House

Open House participants were given three voting dots and were asked ‘*What’s Most Important to You?*’ in each of the following categories: access, facilities, and programs. This exercise was intended as an introduction to the main themes of the Plan and to gauge priorities going forward. Residents showed their overwhelming support for the following:

- Access to transit, e.g., G Line Stations
- Better Clear Creek Trail Connections
- Connections to neighboring cities
- Closing sidewalk gaps
- Better street crossings
- More encouragement programs

Plan Vision and Goals

A vision statement is an inspirational description of the future that should be realistic, yet ambitious. It should answer the question, “what will success look like?”. The following vision statement was developed for the Wheat Ridge Bicycle and Pedestrian Master Plan based on input received at the Visioning and Goals Workshop:

The Bicycle and Pedestrian Master Plan envisions Wheat Ridge as a comfortable and safe place to walk and ride a bike for people of all ages and abilities. The network of bicycle and pedestrian facilities is connected, intuitive, and integrated with the local and regional context. The system promotes health, safety, and regional connectivity for all residents.

The following goals support and promote the vision by providing a framework for the development of the Plan’s recommendations:

1. Complete a connected network of comfortable bicycle facilities.
2. Create a walkable city that is comfortable and safe for residents of all ages and abilities.
3. Improve connections between all types of transportation, especially transit.
4. Increase access to the region’s parks, major destinations, and recreational opportunities.
5. Create a plan that is implementable and sensitive to the Wheat Ridge context.

The vision and goals served as the foundation for the development of plan recommendations.

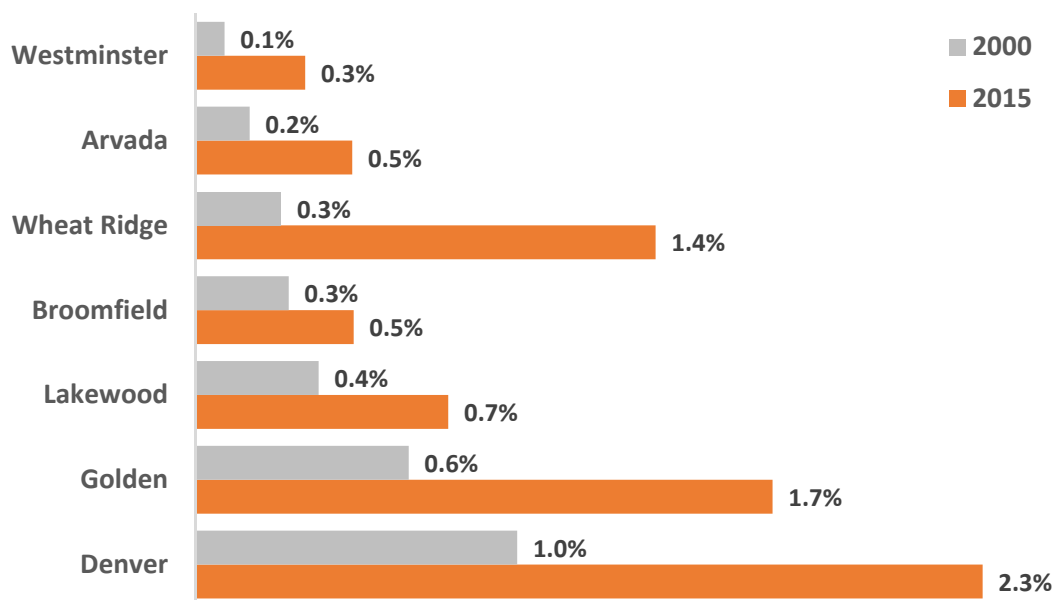
CHAPTER 2: WALKING AND BIKING IN WHEAT RIDGE TODAY

Before making recommendations for the expansion of bicycling and walking programs and facilities, it is important to understand current conditions. This section provides a summary of bicycling and walking trends, facilities, and crashes. This baseline assessment was used to inform the development of recommendations and provide a snapshot for future comparison.

Levels of Bicycling and Walking

Despite having a street network that provides limited connectivity in many areas of the city, there are encouraging trends related to biking and walking in Wheat Ridge. The number of people who bike to work increased from around 40 in 2000 (0.3 percent of commuters) to around 200 per day by 2015 (1.4 percent of commuters), a four-fold increase. By comparison, the statewide average increased from 0.8 percent to 1.3 percent during the same time period. Wheat Ridge had the highest rate of increase among other nearby cities in the Denver Metro Area (Figure 1).²

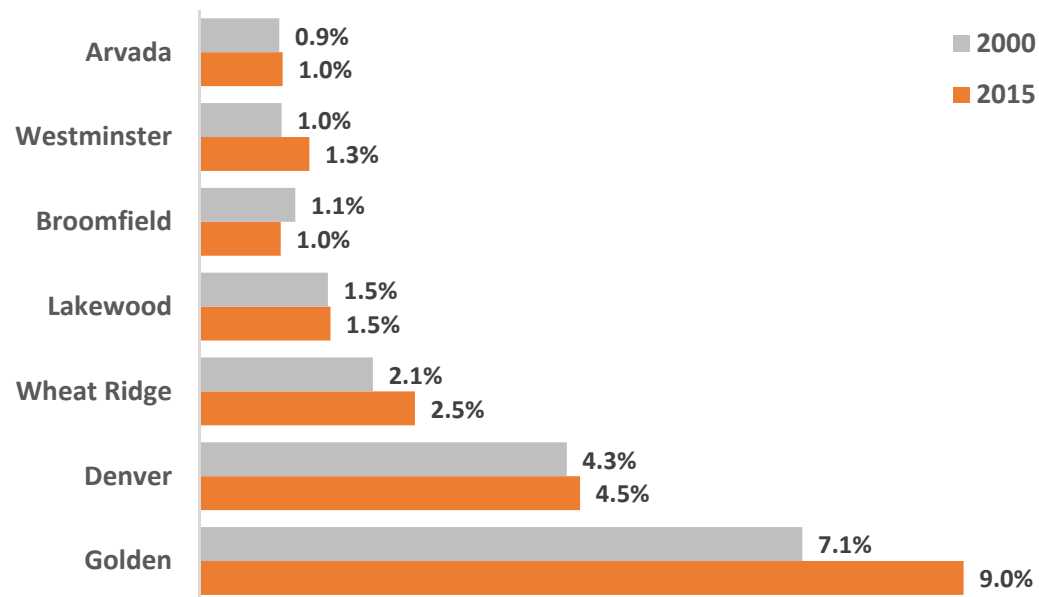
Figure 1. Bicycling Commute Rates in 2000 and 2015 for Nearby Cities



Levels of walking in Wheat Ridge have also increased, although less significantly than bicycling rates. Rates of walking as a share of all work commutes increased from 2.05 percent in 2000 to 2.55 percent by 2015, a 24 percent increase (Figure 2). The statewide average remained constant during this time period, and among the other nearby cities listed in Figure 2, only Golden showed a higher increase than Wheat Ridge (27 percent increase). Furthermore, the combined growth in bicycling and walking was higher in Wheat Ridge than in any other area.

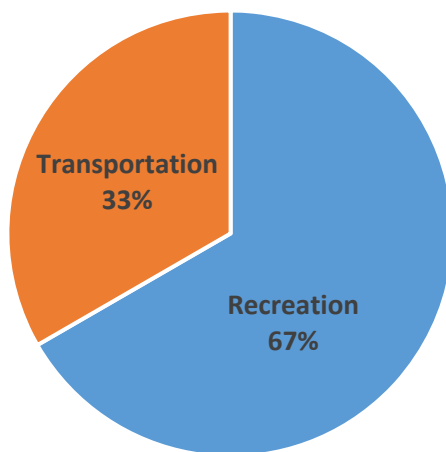
² US Census. American Fact Finder. Means of Transportation to Work, Census 2000 Summary File 3 and 2011-2015 American Community Survey 5-Year Estimates.

Figure 2. Walking Commute Rates in 2000 and 2015 for Nearby Cities³



Despite these increases, the change in commute mode share does not tell the whole story. A survey conducted for this project shows that Wheat Ridge residents who walk or bike daily are twice as likely to do so for recreation than for transportation (Figure 3), indicating that levels of bicycling and walking may be higher than suggested by the commute data.⁴

Figure 3. Trip Purpose among Survey Respondents Who Walk or Bike Daily



³ US Census. American Fact Finder. Means of Transportation to Work, Census 2000 Summary File 3 and 2011-2015 American Community Survey 5-Year Estimates.

⁴ Bicycle and Pedestrian Master Plan Online Survey.

Pedestrian and Bicycle Crashes

Between 2011 and 2013, there were 51 reported crashes involving a pedestrian and 36 reported crashes involving a bicyclist within or adjacent to the Wheat Ridge city boundary. The injury totals for these crashes are shown in Table 1. Although the overall number of crashes is small compared to the number of motor vehicle crashes, these crashes often result in injury. Fortunately, there were no reported fatalities from 2011 through 2013.

Table 1. Crashes Involving Pedestrians and Bicyclists, 2011-2013⁵

Type	Year	Crashes	Injury Level				
			No Injury	Possible Injury	Minor Injury	Serious Injury	Killed
Pedestrian	2011	20	26	5	8	6	0
	2012	16	19	2	8	3	0
	2013	15	17	2	7	4	0
Bike	2011	11	12	1	7	1	0
	2012	11	13	2	6	1	0
	2013	14	23	4	7	0	0
Total		87	110	16	43	15	0

Facilities

While most streets in the City do not currently have bicycle facilities and many lack sidewalks, bike lanes have been installed on several important through streets, including 32nd Avenue, 26th Avenue, and portions of Pierce Street and Tabor Street. Additionally, the Clear Creek Trail provides an important east/west connection. Residential streets in Wheat Ridge typically have very low traffic volumes and therefore may provide a comfortable bicycling experience without dedicated bicycle facilities. Lack of sidewalks is more problematic, particularly for young children who are not always aware of nearby dangers such as approaching cars, or for people using wheelchairs or other mobility devices.

⁵ Denver Regional Council of Governments Regional Data Catalog. Crash Points Shapefiles. Crashes within 250 feet of Wheat Ridge City Boundaries are included. Years 2011 through 2013 were the more recent three years of available data as of January 2017.



A neighborhood street is typically comfortable for riders of all ages and abilities (Photo Credit: ATAT)

Wheat Ridge currently implements high-visibility crosswalks on a routine basis in school zones, adjacent to parks, and at busy intersections. The City has also proactively installed pedestrian crossings in several locations around the City, including:

- Rectangular Rapid Flash Beacons (RRFBs) on West 44th Avenue at Van Gordon Street, Robb Street, east of Miller Street, and at Lamar Street (see below).
- RRFBs on West 32nd Avenue at Wheat Ridge High School/Crown Hill Park.
- RRFBs along West 38th Avenue at Upham Street and Benton Street.
- Pedestrian signal on West 38th Avenue at Kullerstrand Elementary School.
- Pedestrian signal on West 41st Avenue at Wilmore-Davis Elementary School.



Rectangular Rapid Flash Beacons provide visibility to pedestrians at crosswalks

Vehicle speeds have been proven to be the most important factor in determining the level of comfort a person feels while biking or walking on a particular street. For this reason, transportation professionals use a suite of design techniques known as “traffic calming” to help slow traffic on neighborhood streets. Traffic calming solutions may include curb extensions, raised crosswalks, speed humps, or traffic circles, among others.

Traffic calming strategies have not been widely implemented in Wheat Ridge, but the City does have an existing Neighborhood Traffic Management Program (NTMP) that allows residents to request traffic calming measures in response to speeding concerns. The city has implemented a variety of traffic calming treatments such as curb extensions, chicanes, and median dividers (e.g., on Teller Street south of 34th Avenue and on 41st Avenue between Brentwood Street and Wadsworth Boulevard).



Chicane with On-Street Parking



Curb Extensions



Median Divider with Pedestrian Refuge

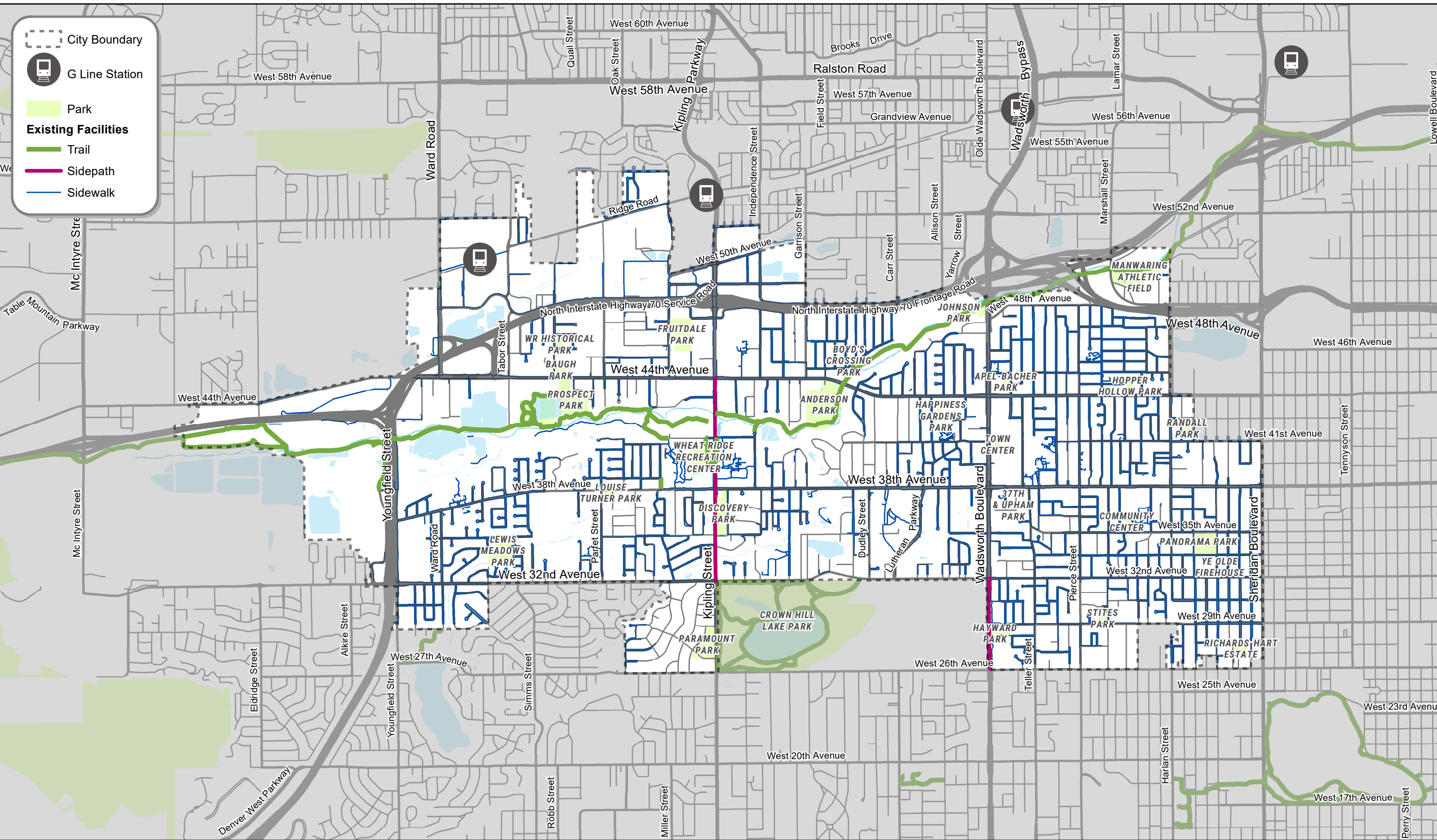


Figure 4. Existing Pedestrian Facilities

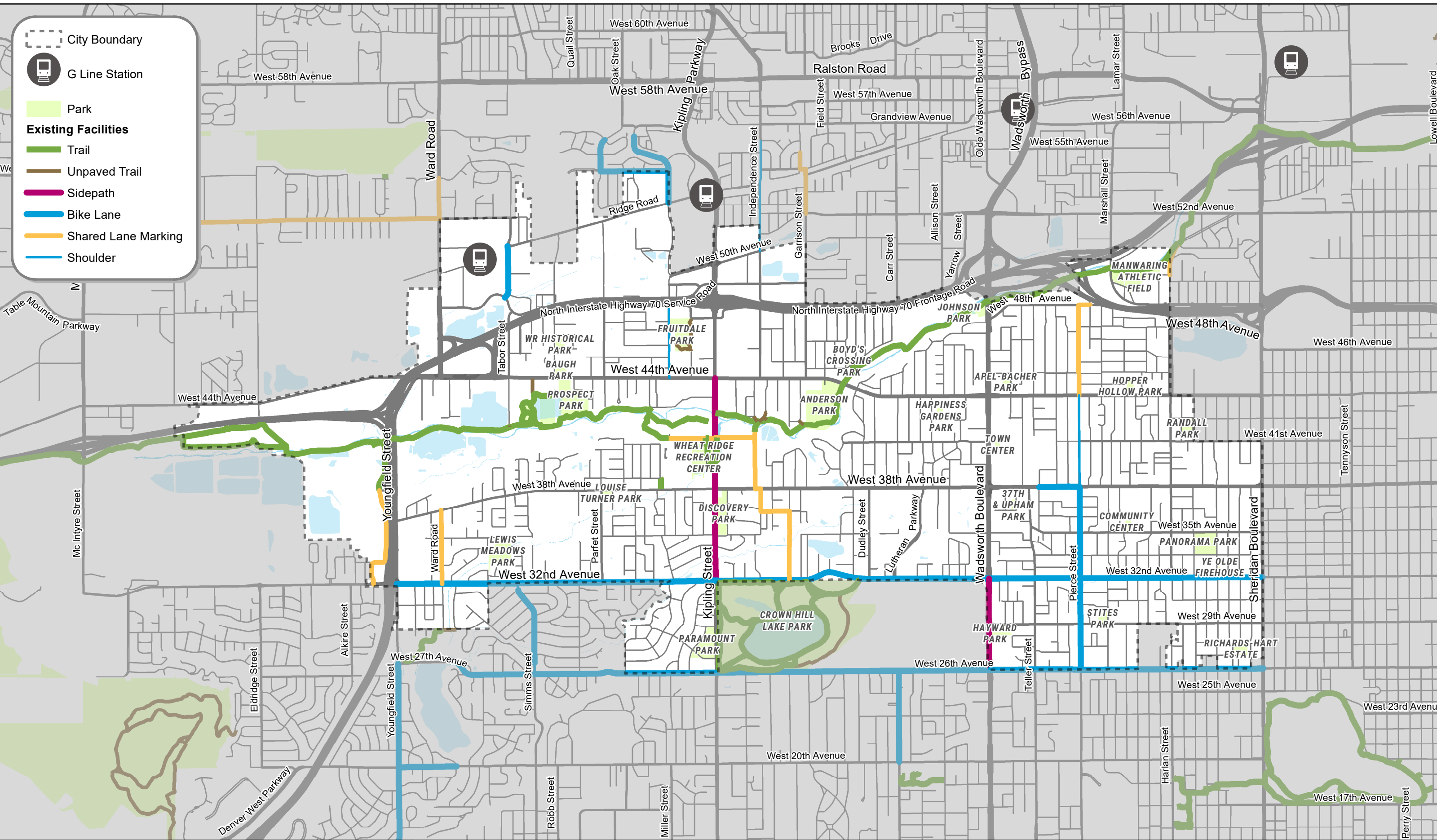


Figure 5. Existing Bicycle Facilities

Barriers to Walking and Bicycling

As part of the 2017 Plan Update process, an online map-based survey was implemented to gain a better understanding of important network gaps, physical barriers, and attitudes related to bicycling and walking in Wheat Ridge. The survey was available from the end of July through the middle of October and was promoted through a project flyer distributed at community events, through the City's social media outlets and webpage, by the Active Transportation Advisory Team (ATAT), and at the project Open House. A total of 99 people participated.

When asked why it is difficult to walk in Wheat Ridge, survey respondents listed lack of sidewalks (27 percent), sidewalk gaps (16 percent), or traffic speeds (15 percent) as the most common reasons (see Figure 6). This suggests that completing the sidewalk network and focusing on vehicular speed reductions can improve the pedestrian experience.

Similarly, traffic speeds were the most commonly cited difficulty for bicyclists (Figure 7). These findings are consistent with a 2015 ATAT survey that revealed 40 percent of respondents believe that biking or walking in Wheat Ridge is challenging or in need of improvement.

Sample Comments from Online Survey Respondents

"Many of the existing sidewalks in Wheat Ridge are too narrow and will barely accommodate my wife's walker. She has fallen twice when her walker slipped off the edge of the sidewalks. Also, many bushes and trees extend out over the sidewalks forcing us to walk in the street."

"No sidewalk, narrow pavement, traffic moving quickly makes it very unsafe for pedestrians."

"We bike to the Youngfield trailhead to access the Clear Creek bike path. The route is occasionally difficult and dangerous for a bike, particularly near the Walmart. On Youngfield, we take the sidewalk because we don't feel comfortable on the street."

Figure 6. Summary of Responses to 2016 Bicycle and Pedestrian Master Plan Survey Question, "Why is it Difficult to Walk in Wheat Ridge?"

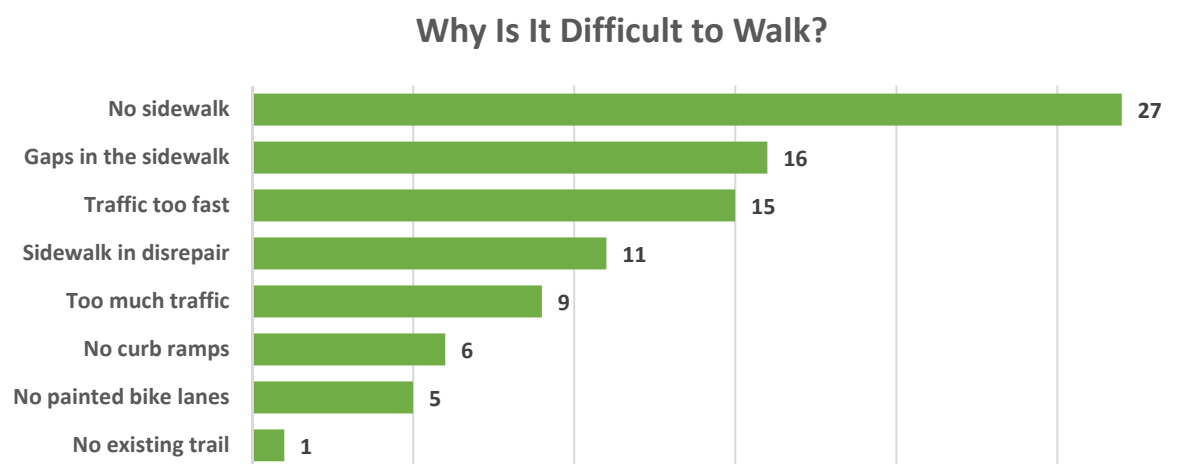
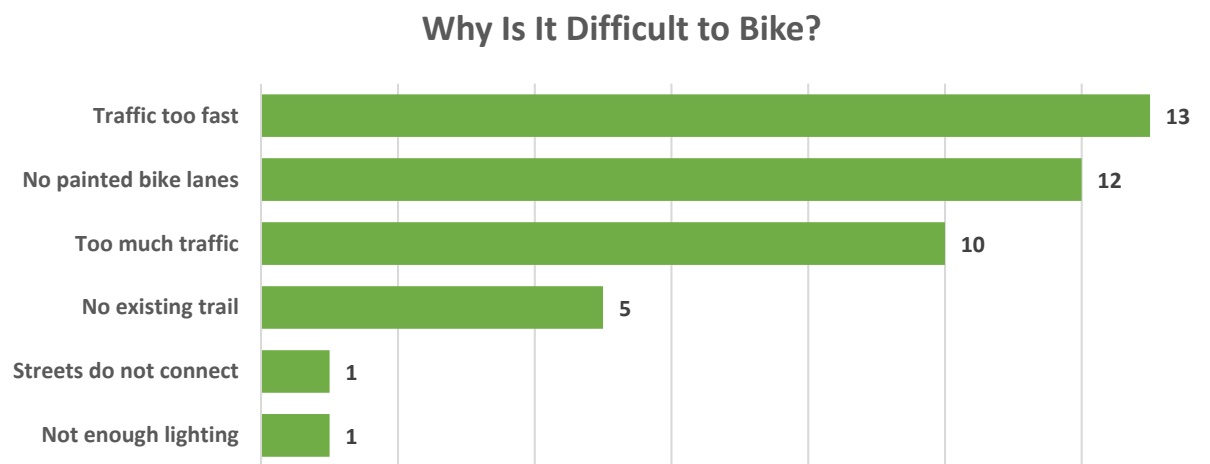


Figure 7. Summary of Responses to 2016 Bicycle and Pedestrian Master Plan Survey Question, “Why is it Difficult to Bike in Wheat Ridge?”



In 2010, the Community Assessment Survey for Older Adults (CASOA™) conducted a statistically valid survey of residents age 60 years or older in Wheat Ridge.⁶ In that survey, 17 percent of respondents reported that the ease of walking is excellent, while 50 percent reported it as good. The remainder (32 percent) reported the ease of walking as fair or poor, suggesting nearly a third of older Wheat Ridge residents find the walking environment deficient. Given the high number of older residents in Wheat Ridge, these findings are particularly noteworthy and were a central focus of this planning process. The report concluded that “the greatest area of resident need [is] civic engagement.” Improving seniors’ mobility choices will greatly benefit their ability to get around and access the various social and engagement opportunities offered throughout the city and region.

Making the city walkable and transit-friendly is about more than transportation. It is a way to ensure people remain connected to the fabric of their community as they age.

⁶ Jefferson County. Community Assessment Survey for Older Adults. Accessed Jan 7, 2017. <http://jeffco.us/human-services/aging-well-project/community-assessment-survey-for-older-adults/>

CHAPTER 3: BICYCLE AND PEDESTRIAN PROGRAMS

An expanded set of bicycle and pedestrian programs, implemented through strong partnerships and collaboration, will support the vision of Wheat Ridge as a comfortable and safe place to walk and bike for people of all ages and abilities.

The League of American Bicyclists (LAB) runs a national program to designate cities as Bicycle Friendly Communities, based on their facilities, levels of biking, and programs. While Wheat Ridge has yet to apply for designation as a Bicycle Friendly Community, LAB provided an informal assessment of Wheat Ridge's status in 2014. Along with engineering-related recommendations, the assessment identified opportunities for improvement in the following broad areas:

- Strengthening youth-focused bike education, recreation, and empowerment programs
- Bicycle skills classes for adults
- Educational messages for all road users
- Encouragement programs such as Open Streets events or other bike-related community celebrations
- Greater promotion of bicycling to boost the local economy
- Participation in the Bicycle Friendly Business program
- Employing law enforcement officers on bikes
- Wayfinding and maps to promote bicycling within the community
- Greater engagement of law enforcement on bicycling issues
- Increased data collection and reporting

This chapter documents current programs and presents ideas for new and expanded programs related to education, encouragement, enforcement, and evaluation. The recommendations are informed by the findings of the LAB assessment as well input from City staff and the community, and are focused on those that will be most effective at helping achieve the 2017 Plan goals.

Current Programs

The majority of bicycle- and pedestrian-related programming in Wheat Ridge is currently conducted by the ATAT, an important driving force behind changes in the city related to bicycling and walking. The “mighty ATATs” (members of the ATAT) strive to build a more inclusive community for all Wheat Ridge residents and visitors through a variety of education and encouragement programs, highlighted in this section.

Ride for Reading

The Ride for Reading program is an ATAT program that collects and donates books and bikes around Wheat Ridge to people of all ages. The program is completely volunteer-run and brings together neighbors, businesses, and students. For example, ATAT hosts Saturday events around town at local businesses and, in exchange for donated books and bikes, people are given bags with coupons and other swag donated by local businesses. Bicycles donated by businesses and community members are inventoried, repaired, and stored around the City in volunteers' homes. When the bikes are given out, ATAT provides a helmet, lock, and light with each bike along with a safety check. This program is a positive example of community-led engagement and should be continued, with greater support from other community partners as possible.



A successful Ride for Reading day (Photo Credit: ATAT)

Community Bike Rides

Community bike rides provide people of all abilities an opportunity to ride together in a safe, social setting. Currently, ATAT organizes community bike rides to help novice riders navigate the city and reach their favorite destinations. In the summer, ATAT hosts weekly cruiser rides to connect people who walk and bike with local businesses. These family friendly cruiser rides are short, slow-paced and locally-focused.

Bike Rodeos

Bike rodeos educate children and provide a safe, fun and encouraging environment for biking. Rodeos feature bicycle safety skills instruction, bicycle skills practice, equipment inspections, and helmet fitting for children. Related to this effort, ATAT has participated in community events and offered information, equipment, and assistance to provide a fun and encouraging environment for biking. Where possible, bike rodeos and related events should be co-hosted by elementary schools in Wheat Ridge.

New Program Recommendations

To accomplish the Plan's goals, additional programs and practices may be needed. These additional activities would build greater support for bicycling and walking, which is needed to bolster bold infrastructure investments in the future.

Implementing programs through partnerships with community organizations will likely continue to be the most effective strategy, as nonprofit agencies are often better suited to running education and encouragement programs than city government. However, there are examples where cities have initiated programs like those below on their own.

New funding sources (e.g., state, federal or foundation grants) will likely be needed to accomplish these program recommendations (see Appendix D for a list of potential funding sources). In addition, the City should work closely with regional partners such as Denver Regional Council of Governments (DRCOG) and Jefferson County who share similar goals related to active transportation.

Education

The following programs are proposed to enable people of all ages and abilities to develop the skills and confidence to ride and care for their bikes.

Pedestrian Safety Education Campaign

The City should launch a pedestrian safety education campaign that focuses on both motorists and pedestrians. Regularly reviewing crash data and adapting the messages to meet the needs will help improve pedestrian safety.

Example Program: The City of Newark, NJ developed a pedestrian safety-focused campaign to change pedestrian and motorist behavior and to reduce the incidence of pedestrian injuries and fatalities on New Jersey's roadway. Using the state's crash and fatality data, the campaign targeted all drivers 20-49 years of age and all adult pedestrians. Campaign messages were delivered by outdoor advertising, radio, internet advertising, outreach materials in the street, and social media.

Who: City-led

Bicycle Mentor Events and Partnerships

Bicycle mentor programs (sometimes called bike buddy programs) partner more experienced bicyclists with novice riders for daily commutes or recreational rides. Mentorship programs allow people who are new or novice bike riders to learn more about the bicycle network, rules of the road, and bicycle etiquette through a peer-to-peer, informal social setting. Such rides can happen one-on-one or as part of group rides. Once new riders become more confident, they can mentor new riders.

Example Program: The 511's Bike Buddy Ridematch service in El Cerrito, CA helps people find other local bicyclists. As explained on their website, "new bikers will be 'buddied up' with experienced bicyclists to gather tips, route information and moral support, while experienced bicyclists can find others to ride with or novice bicyclists to assist."⁷

Who: Community-led

⁷ City of El Cerrito California. 511's Bike Buddy Program. Accessed Mar. 29, 2017.
<http://www.el-cerrito.org/index.aspx?NID=535>

Bicycle Maintenance Classes

Low-cost or free bike maintenance classes make it easier for residents with seldom-used or broken bicycles to start riding again. Workshops can be held at schools, parks, or multi-family housing complexes.

Example Program: Washington State’s Cascade Bicycle Club provides several education classes – including those related to riding and maintenance – to help community members “build the knowledge, skills and community support to achieve all your bicycling goals.”⁸ Their maintenance classes include fix-a-flat; maintenance for every rider; chains and derailleurs; and brakes, wheels and tires. They cost between \$30 and \$40, are open to the public, and are easy to find and register for online.

Who: Community-led

Encouragement

The following programs are proposed to help increase ridership, comfort, and connectivity in Wheat Ridge.

Encourage Active Commutes within the City of Wheat Ridge

The City of Wheat Ridge and other Wheat Ridge businesses should encourage their employees to walk, bike, and take transit for daily travel. The City should work to educate people about safe transportation behaviors, available Transportation Demand Management incentive programs, and opportunities to become more involved in the culture of walking and biking in Wheat Ridge. There are a variety of ways to incentivize walking, biking, and transit, including competitions (with transportation or health-related prizes), financial incentives, and free transit passes.

Example Program: The City and County of Denver’s employee wellness program includes education about opportunities for active transportation and wellbeing challenges to incentivize more activity throughout the day, such as by walking and biking.

Who: City-led

Create a City Bike Map

City bike maps help people who are new to bicycling or who are less familiar with the routes in an area to plan their ride. The City should create or partner with Jefferson County to create a bicycle map to show all routes and highlight the network of comfortable facilities across Wheat Ridge. A map may be particularly helpful for bicyclists in Wheat Ridge because covering long distances through local streets often requires the use of indirect routes or navigating offset intersections, which can be confusing. Online maps using existing platforms are likely to be the easiest and quickest approach for publishing a bike map for Wheat Ridge. Bike maps work best in conjunction within implementation of a comprehensive wayfinding system, such as that planned within Jefferson County. Madison, WI and Austin, TX have exemplary city bike maps.

Who: City-led with support from Jefferson County

Increase the Online Presence of Walking and Biking in Wheat Ridge

The City could create a homepage for walking and biking on its website. Providing current and easily-accessible information about walking and biking including the bike network, new City initiatives, bicycle

⁸ Cascade Bicycle Club. Adult Classes. Accessed Mar 29, 2017. <https://www.cascade.org/learn/adult-classes>

parking, and community events will keep residents informed and involved. In addition, the City should include biking and walking directions to help community members reach city facilities and events.

Example Program: The City of Fort Collins, CO “FC Bikes” program page provides a comprehensive yet easily-accessible clearinghouse of information.⁹ The page includes an overview of bicycle-related updates with drop-down menus highlighting the City’s encouragement and education programs, plans and projects, and resources.

Who: City-led

Establish Walking School Buses and Bike Trains

Walking school buses and bike trains are adult-supervised groups of students walking or biking to school that can help alleviate parental concerns about personal security and traffic safety. As the Plan’s engineering recommendations are implemented, walking and biking routes can be created to direct students to intersections with adequate pedestrian facilities and crossing guards. Walkshed maps for K-8 schools in Wheat Ridge are provided in Appendix B.

Historically, ATAT has organized a walking school bus to Compass Montessori School and a bike train from B&F Tire to downtown Denver in 2016. These efforts should be continued and expanded upon where possible.

Example Program: Portland, Oregon’s Safe Routes to School program includes bike trains at participating elementary schools.¹⁰ One element of their program’s success is building bike trains along the city’s low-stress residential neighborhood greenways.

Who: Community and school-led

Provide Bicycle Parking at Community Events

Provision of high-capacity bicycle parking at community events can be an effective encouragement strategy.¹¹ Bicycle parking makes the end-of-trip process faster and more convenient, and it provides visibility and legitimacy for biking. Currently, ATAT volunteers provide bike parking at some community events. However, a more formalized process would ensure that all major events have adequate parking to encourage more people arrive by bike.

Example Program: The City of Portland, OR provides temporary event bike parking recommendations, permits for the use of parking lanes, and contact information for local parking providers within the city.

Who: City-led

Highlight National Bicycling and Walking Events

The City and community advocacy groups should continue to highlight national bicycle events like National Bike Month, Bike to Work Day, the National Bike Challenge (see below), International Walk to School Day, Spare the Air Day, and car-free commute challenges. These events encourage people to walk, bike, and take transit in a supportive context, and potentially develop new, sustainable habits.

⁹ City of Fort Colls. FC Bikes. Accessed Mar 29, 2017. <http://www.fcgov.com/bicycling/>

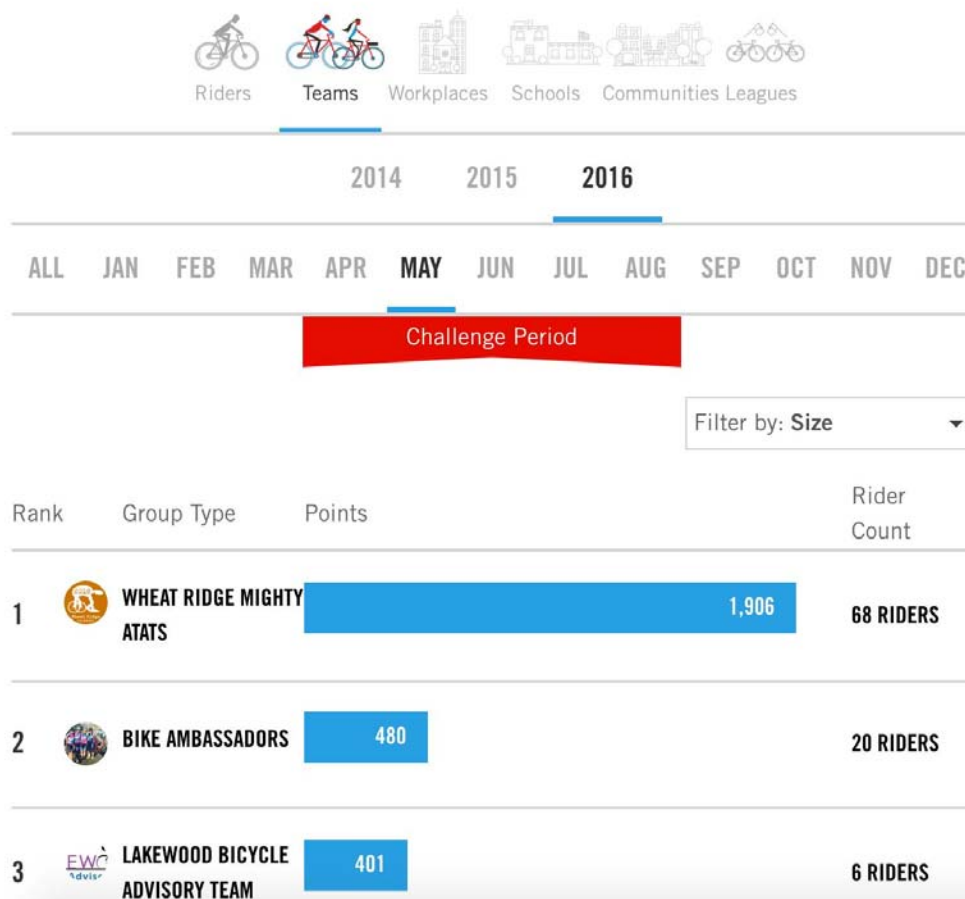
¹⁰ Safe Routes Campaigns. Bike Train. Accessed Mar 30, 2017. <https://www.portlandoregon.gov/transportation/article/552063>

¹¹ The Association of Pedestrian and Bicycle Professionals’ *Bicycle Parking Guidelines, 2nd Edition*, includes a section on event bicycle parking. For event parking, the Guidelines provide a discussion of three types of parking -- valet, attended (self-park), and unattended -- and recommendations for suitable rack types.

Example Program: The City of Boulder, Colorado’s Walk & Bike Month began as a single day of bicycling events in 1977 and has grown to a month-long celebration of Boulder’s active transportation culture.¹² Walk & Bike Month includes a diverse list of more than more than 60 free events for people of all ages, including mountain bike rides, running activities, scavenger hunts, historical walking tours, hikes, and more.¹³ Bike to Work Day in June is the main event, with almost 50 breakfast stations around Boulder serving free food and drink to the estimated 7,000 participants riding or walking to work.

Walk & Bike Month is sponsored by the City of Boulder and Community Cycles, a local nonprofit that educates and advocates for safe bicycle use, who coordinates activities and volunteers during the month. The month culminates in Bike to Work Day with more than 60 breakfast and bike service stations around the city.¹⁴

Who: City-led with community support



National Bike Challenge encouragement sponsored by the ATAT (Photo Credit: ATAT)

¹² Bike and Walk Month. About Boulder Walk & Bike Month. Accessed Mar. 29, 2017. <http://www.walkandbikemonth.org/about/>

¹³ Ibid.

¹⁴ Bike and Walk Month. Bike to Work Day. Accessed Mar. 29, 2017. <http://www.walkandbikemonth.org/events/bike-to-work-day/>

Enforcement

The following programs are proposed to increase safety for people walking and biking. However, enforcement programs require a commitment of resources from the Wheat Ridge Police Department (WRPD). As resources are limited, this Plan recognizes that infrastructure design is likely to be the most effective way to encourage and ensure safe behavior on the part of motorists, bicyclists, and pedestrians. High quality sidewalks, crosswalks, and bicycle facilities should be designed and constructed so that safe and legal use of these facilities is convenient for people walking and biking. Nonetheless, targeted enforcement efforts help encourage civility on public streets.

Improve Enforcement Trainings

Provide regular education about holistic enforcement of traffic laws, including the rights and responsibilities specific to bicyclists and pedestrians, for all officers who conduct enforcement. Consider similar trainings for school bus drivers.

Example Program: In Fort Collins, CO, the 2011 Bicycle Safety Education Plan recommended that Fort Collins Police Services provide with training for officers to help them understand typical behaviors, as well as rights and responsibilities of bicyclists on the road.¹⁵ Currently, Police Services offers a two-hour course on these topics every two years, which is required of all new recruits and optional for others. Additionally, Police Services provides officer education every spring and fall regarding rules of the road and how to cite bicycle infractions.

Who: WRPD-led

Position Speed Feedback Trailers as Needed

As speeding was a top issue cited by community members during this process, the City should work to address vehicular speeds through enforcement and education. One potential solution to mitigate vehicular speeding is to use portable speed feedback trailers to make drivers more aware of their actual speeds.

Example Program: The City and County of Denver uses smart trailers, portable driver feedback signs (“your speed is...”), and a stealth system (involving small boxes temporarily attached to poles) to collect speed data. The stealth stat monitors volume and 85th percentile speed and has been used to monitor speeds before and after installation of a photo radar system. These are also used on streets where public works has had difficulty in collecting speed data. All three tools help Denver to dynamically address speeding issues as they can be repositioned throughout the city.

Who: WRPD-led

Evaluation

The following programs are proposed to collect valuable feedback to ensure an effective use of public resources. While national guidance and best practices should be used where possible, collecting data specific to Wheat Ridge can create a compelling and credible story to support future efforts.

¹⁵ State of Bicycling in Fort Collins. August 2014.

http://www.fcgov.com/bicycling/pdf/appendix_b_state_of_bicycling_in_fort_collins.pdf?1416526711

Develop a Strategy for Bicycle and Pedestrian Counting

Wheat Ridge's current bicycle and pedestrian count data comes from manual counts conducted by volunteers. A routine counting program would help the City evaluate ridership trends and make the case for future investments in active transportation infrastructure. The City should conduct pre- and post-data collection for new bicycle infrastructure projects to determine the effect of different investment decisions. Behavioral observations, such as compliance with signals or jaywalking can also be performed along with volume data collection.

Example Program: The Colorado Department of Transportation completed a Non-Motorized Count Strategic Plan in 2016 to outline strategies for collecting counts of pedestrians and bicyclists, including counter technologies, location types, data management, and resource needs.

Who: City-led

Analyze Crash Data on a Periodic Basis

Bicycle and pedestrian crash data is collected by Wheat Ridge Police Department and other law enforcement agencies that respond to crashes in Wheat Ridge. Periodic analysis of this data may reveal opportunities for implementing safety projects to reduce pedestrian and bicycle crashes and increase comfort. In particular, the City should review crashes at locations with higher concentrations of crashes as well as contributing factors common throughout the City.

Example Program: The City and County of Denver has conducted pedestrian and bicycle crash studies and is now developing a Vision Zero Action Plan that will include strategies to reduce fatalities and serious injuries throughout the city, but especially along high injury corridors.

Who: City-led

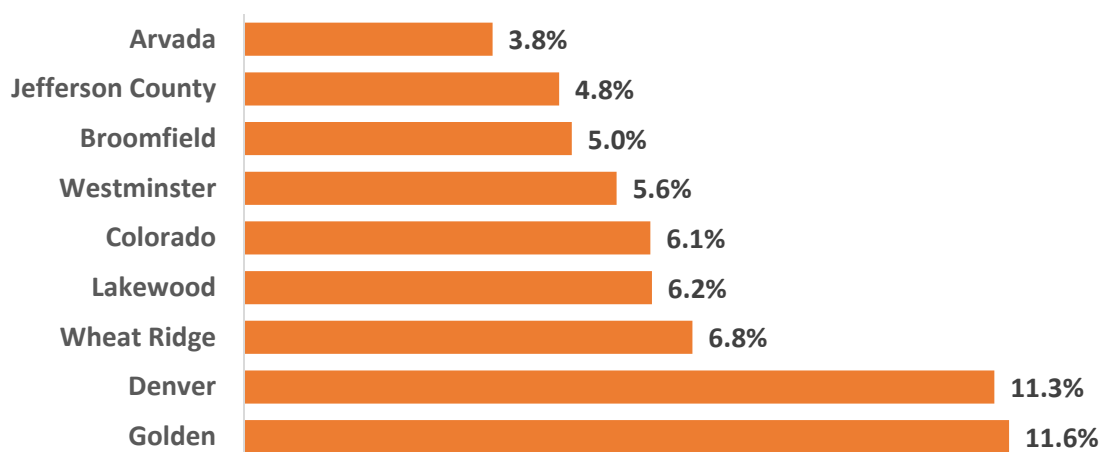
CHAPTER 4: PEDESTRIAN ELEMENT

Introduction

Walking is the most basic and universal form of transportation, yet the needs of pedestrians are often overlooked or considered after those of other modes of transportation. Pedestrians are also the most vulnerable transportation system users. For example, 25 percent of crashes involving a pedestrian in Wheat Ridge from 2011 to 2013 resulted in a serious injury, compared to only 2 percent of all crashes.

Designing a transportation system that works well for pedestrians requires slowing vehicles and providing comfortable walking environments through separation from traffic, thoughtful intersection design, pedestrian amenities, and seamless integration with destinations, including transit facilities. As a community with a high percentage of seniors, many of whom do not or eventually will not drive, providing comfortable and convenient walking facilities is extremely important for Wheat Ridge.¹⁶ Additionally, Wheat Ridge has a relatively high percentage of commuters who use transit. Transit users are an important target audience for pedestrian improvements since they often walk to access transit. Figure 8 shows the combined level of transit and walking as a percentage of all commute trips, across several geographic areas within Colorado. Although lower than Denver and Golden, the combined transit and walk mode share is higher in Wheat Ridge than in many other cities in the west Denver metro area (Figure 8).

Figure 8. Combined Walk and Transit Commute Mode Share for Nearby Cities, 2011-2015¹⁷



In this section of the plan, options for improving the pedestrian environment are provided. A Pedestrian Facility Toolbox, with treatments suitable for implementation in Wheat Ridge, is first presented. The toolbox includes implementation considerations for pedestrian routes and intersections. These include sidewalks, paths, pedestrian signals, crosswalk markings, and traffic calming measures. Some of the recommendations will also improve conditions for bicyclists. To focus Wheat Ridge's future implementation efforts on the areas with the greatest need, priority pedestrian routes were also identified. Finally, policy and project recommendations are proposed.

¹⁶ This Plan incorporates the ADA Transition Plan's recommendations for improved accessibility and compliance related to walking, especially pertinent for seniors who use mobility devices.

¹⁷ US Census. American Fact Finder. 2011-2015 American Community Survey 5-Year Estimates.

Pedestrian Facilities Toolbox

Sidewalks

Sidewalks are the most common type of pedestrian facility. They play a critical role in the function, enjoyment, and accessibility of neighborhoods, main streets, and other community destinations. They also provide a dedicated space with the primary purpose of accommodating pedestrian travel. In most areas, sidewalks constitute the majority of the pedestrian network. Key considerations related to the comfort of sidewalks include:

- **Width:** Sidewalks less than 5 feet wide do not allow people to comfortably walk side-by-side. Wider sidewalks are needed in areas with high pedestrian traffic or high traffic volumes or speed. In locations where a significant portion of bicyclists are likely to ride on the sidewalk instead of on the street, a sidepath may be constructed instead of a sidewalk to provide adequate space for pedestrians and bicyclists.¹⁸
- **Horizontal separation from traffic:** On streets with higher speeds or volumes, a buffer should be provided between the sidewalks and traffic.
- **Vertical barrier between sidewalk and traffic:** Street trees, light poles, on-street parking, or other vertical barriers provide a sense of enclosure and separation for pedestrians.
- **Shade:** Street trees, awnings, or other shade features create a more comfortable walking environment in the summer months.
- **Other Features:** Benches, lighting, trash cans, wayfinding, and similar features provide a necessary service to pedestrians throughout their journey. They are particularly important around bus stops.



Urban and suburban neighborhoods often have 5-foot sidewalks. It is preferable to have a wide terrace between the curb and the sidewalk to separate pedestrians from the road and to provide room for street trees, utility poles, and other furnishings.

"I walk twice/week to the Walmart /King Soopers center for groceries, lunch, etc. Along my 0.2 mile route, I have to push my child's stroller onto the street three times because of poor sidewalks or no sidewalks. There are many folks who walk this route, pushing grocery utility carts, strollers, walkers."

– Bicycle and Pedestrian Master Plan Survey Respondent

¹⁸ The *Shared-Use Path Level of Service Calculator* (2006) and the American Association of State and Highway Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities* should be referenced for shared use path design guidance.

Curbless Streets

Many of Wheat Ridge's original developments did not include sidewalks, but rather were built with curbless streets and adjacent ditches. This characteristic street type remains prominent today and widespread construction of sidewalks on such streets is neither feasible (from a financial standpoint) or desirable to many Wheat Ridge residents. Although sidewalks are the best way to provide separation from motor vehicles, curbless streets can work well in a residential setting with low levels of vehicle traffic. This condition is most appropriate for streets that serve short, local trips.

Engineering treatments are needed on curbless streets to ensure that vehicle speeds are appropriate for interaction with pedestrians and bicyclists. If motorists drive too fast on shared streets, the streets will not only be unsafe, but they will discourage people from walking or biking there. Several treatments can be employed to increase comfort for all street users. In many cases, a combination of treatments should be applied together in order to achieve the best outcome.

Striped Shoulder/Pedestrian Lane

On streets with adequate width, striping a shoulder where pedestrians can walk, provides a dedicated space and visual narrowing of the roadway that may encourage drivers to slow down. This treatment has been implemented on Miller Street, north of 44th Avenue.



Advisory Shoulder

Similar to a striped shoulder, advisory shoulders create a dedicated space for pedestrians or bicyclists, but allow motorists to cross the dashed shoulder marking when pedestrians and bicyclists are not present, in order to pass an oncoming vehicle. They may be useful on streets without adequate width to accommodate a striped shoulder. As a relatively new treatment type in the US, advisory shoulders should be accompanied by education and signage to ensure that they are understood by the public. They also require an approved Request to Experiment from the Federal Highway Administration.¹⁹



¹⁹ Federal Highway Administration. Manual on Uniform Traffic Control Devices: Experimentations. <https://mutcd.fhwa.dot.gov/condexper.htm>

Traffic Calming

Traffic calming is the use of physical engineering measures that change the design of streets to reduce speeds, alter driver behavior, and improve conditions for non-motorized street users. Traffic calming aims to slow the speeds of motorists to a “desired speed” (usually 20 miles per hour [mph] or less for residential streets and 25 to 35 mph for collectors and minor arterials). The greatest benefit of traffic calming is increased safety and comfort for all users, including drivers and people trying to cross the street.

Traffic calming is essential to creating a comfortable, multimodal environment. Vertical treatments such as speed humps, speed cushions, raised crossings, and other similar measures force drivers to slow down. Horizontal treatments such as chicanes have a similar effect. Although not exclusive to curbless streets, they can be used effectively in that context to reduce speeding.

Wheat Ridge has an existing Neighborhood Traffic Management Program, which includes criteria for installation of speed humps and speed radar boards.²⁰ This program creates a strong foundation for implementation of traffic calming in Wheat Ridge, but could be expanded to address a broader range of strategies. Additionally, as the current policy relies on residents to raise concerns, a more proactive approach to traffic calming is needed to promote safe walking and bicycling in Wheat Ridge.

²⁰ City of Wheat Ridge. Neighborhood Traffic Management Program (4-28-14). Accessed March 20, 2017. <http://www.ci.wheatridge.co.us/DocumentCenter/View/160>

Figure 9. Traffic Calming Examples



Speed Cushion



Speed Hump



Traffic Circle



Median Gateway



Chicanes



Chicane with On-Street Parking

Intersections and Midblock Crossings

Intersections and midblock crossings are a natural point of conflict between all street users. Through careful design, many of the inherent conflicts associated with these locations can be addressed. In this section, treatment options that increase pedestrian safety, comfort, and convenience at intersections and midblock crossings are presented.

High-Visibility Crosswalks

Crosswalks marked with continental, ladder, or zebra patterns have been found to be significantly more visible to motorists²¹ and to reduce crashes by 48 percent.²² High-visibility crosswalks are especially beneficial on multi-lane streets in conjunction with additional countermeasures, such as median refuge islands and rectangular rapid flash beacons. Crosswalks must be a minimum of 6 feet wide, or the full width of the connecting sidewalk or sidepath, whichever is wider.



Advance Yield Lines

Advance yield lines, which are composed of solid white triangles (often referred to as “shark’s teeth”), indicate where drivers should yield to pedestrians in crosswalks. They allow pedestrians to be more easily seen by advancing drivers, whose view might otherwise be blocked by a vehicle in the adjacent lane. When applied to midblock crosswalks, advance yield lines should be 20 to 50 feet from the crosswalk. Wheat Ridge has installed advance yield lines on West 44th Avenue at Robb Street.



²¹ K. Fitzpatrick, S. Chrysler, V. Iragavarapu, and E.S. Park. Detection Distances to Crosswalk Markings: Transverse Lines, Continental Markings, and Bar Pairs. Transportation Research Record: Journal of the Transportation Research Board, No. 2250. Transportation Research Board of the National Academies, Washington, DC, 2011.

²² L. Chen, C. Chen, R. Ewing, C. McKnight, R. Srinivasan, and M. Roe. Safety Countermeasures and Crash Reduction in New York City—Experience and Lessons Learned. Accident Analysis and Prevention. In print, 2012. Retrieved August 14, 2015. <http://dx.doi.org/10.1016/j.aap.2012.05.009>

Median Refuge Island

Median refuge islands provide space in the middle of intersections or midblock crossings for pedestrians to wait and look for oncoming traffic. They make crossings easier for pedestrians by providing a refuge area for people crossing the street to wait, rest, or look for oncoming motorists. Median islands should be a minimum of six feet in width, which allows for people using wheelchairs, strollers and bicycles to use them comfortably. Medians also have a traffic calming benefit and limit vehicle turning conflicts.



Curb Extension

Curb extensions or “bulbouts” extend the sidewalk into the parking lane of a street to narrow the roadway, slow traffic, increase visibility of pedestrians, and reduce the distance of the street crossing. Curb extensions can be used at intersections or mid-block crossings. Additionally, curb extensions can be planted with trees or other landscaping.



Pedestrian Countdown Timer

Countdown timers added to pedestrian signals inform pedestrians of the amount of time remaining before the solid “DON’T WALK” phase of the signal cycle. This tool increases compliance by discouraging pedestrians from beginning to cross near the end of the cycle. Reduced crash rates and delays can be realized through the installation of countdown signals.



Leading Pedestrian Interval

Traditional signal timing often results in pedestrian signals entering the “WALK” phase at the same time turning traffic is given the green arrow or straight-through traffic is given the green light, allowing right-turning traffic to enter the crosswalk. This creates conflicts between pedestrians in the crosswalk and turning motorists who either do not see the pedestrian or believe they can pass through the intersection before the pedestrian arrives at the conflict point.

Leading pedestrian intervals (LPIs) start the “WALK” phase three to ten seconds before motor vehicle traffic is allowed to proceed, allowing pedestrians to enter the crosswalk before turning motor vehicles begin moving through the intersection. LPIs may reduce crashes by as much as 60 percent.²³



Rectangular Rapid Flash Beacon

Rectangular Rapid Flash Beacons (RRFBs) are user-actuated systems that supplement warning signs at unsignalized crossing locations. When a pedestrian triggers the system, the lights flash rapidly, drawing attention to the warning sign and the presence of a pedestrian. RRFBs are only active when triggered by a pedestrian either actively (i.e., push button) or passively (i.e., sensor). They cost less than full signals and have been shown to increase driver yielding.²⁴

RRFBs work best in conjunction with a median refuge island. In such cases, a beacon can be placed in the median, which enhances the visibility of the crossing significantly. This is particularly important for streets with four or more lanes, as the distance between beacons increases. RRFBs on four lane roads should also be paired with advanced yield lines to reduce the likelihood of multiple threat crashes, which are not solved by the presence of an RRFB. A multiple threat crash involves a driver stopping in one lane of a multilane road to permit pedestrians to cross while an oncoming vehicle (in the same direction) fails to see or yield to the pedestrian who is crossing.



²³ A.C. Fayish and Frank Gross. Safety effectiveness of leading pedestrian intervals evaluated by a before–after study with comparison groups. Transportation Research Record No. 2198 (2010): 15–22.

²⁴ Federal Highway Administration. Rectangular Rapid Flash Beacon. May 2009.

https://safety.fhwa.dot.gov/intersection/conventional/unsignalized/tech_sum/fhwasa09009/fhwasa09009.pdf

High-Intensity Activated Crosswalk Beacon

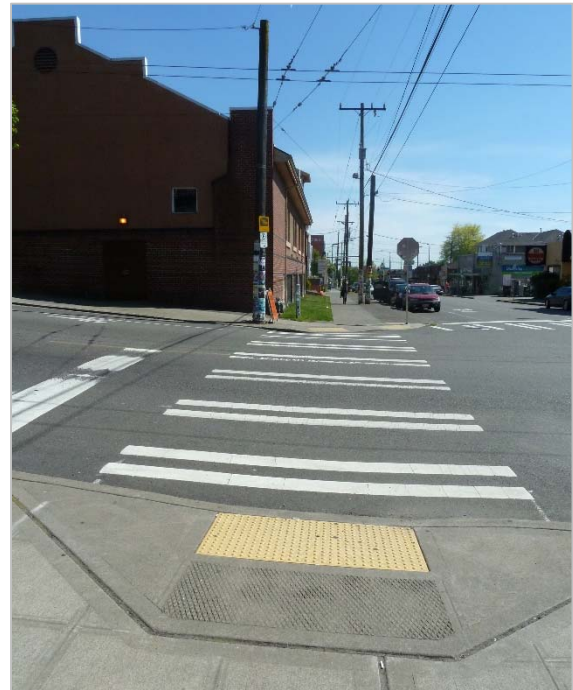
The High-intensity Activated Crosswalk Beacon (HAWK) is a type of signal intended to allow pedestrians and bicyclists to stop traffic to cross high-volume arterial streets. This type of signal may be used in lieu of a full signal or at locations which do not meet traffic signal warrants, but where assistance is needed for pedestrians or bicyclists to cross a high-volume street. HAWK signals should be considered for all trail crossings if other engineering measures are found inadequate to create safe crossings.

There are currently no HAWK signals in Wheat Ridge; however, they may be justified on Sheridan Boulevard, Wadsworth Boulevard, Kipling Street, 44th Avenue, or 38th Avenue. Midblock or unsignalized intersection locations with frequent pedestrian crossings along these streets are good candidates for HAWK signal installation due to high traffic volumes, speed, and number of lanes.

Curb Ramps

Curb ramps provide a transition between sidewalks and crosswalks and must be installed at all intersection and midblock pedestrian crossings, as mandated by federal legislation. They allow people using wheelchairs, strollers, walkers, crutches, handcars, bicycles, or who have mobility restrictions to more easily navigate the city. They also serve a wayfinding function for visually impaired pedestrians. Curb ramps should be installed at each intersection and midblock crossing throughout Wheat Ridge. These must include detectible warning surfaces (such as the yellow, bumpy pad in the photo at right, also known as a truncated dome).

Wheat Ridge is currently developing an ADA Transition Plan, which provides more detailed information regarding the highest priorities for implementation of curb ramps. From the standpoint of enhancing mobility throughout the community, curb ramps along priority pedestrian routes should be considered for replacement to achieve compliance with national guidance. Additionally, curb ramps should always be evaluated and updated as needed during resurfacing projects.



Priority Pedestrian Routes

Most pedestrian trips are less than a mile in length and are focused around activity centers and in compact neighborhoods where destinations are close together. This Plan's analysis of pedestrian needs and identification of priority routes is based on input from the public received through the project online interactive map, open house, and the Ridgefest event. It also reflects input from the ATAT, which identified high priority pedestrian routes for consideration by the project team (Appendix C).

The route identification process began with a GIS-based demand analysis that incorporated the following spatial data:

- RTD G Line Stations and Bus Stops
- Schools
- City and Regional Parks
- Destinations identified by the public through the Online Map-Based Survey or public events
- Other destinations used to develop routes in the 2016 JeffCo [Jefferson County] Regional Bikeways Wayfinding Guide, a multijurisdictional study recently completed in Jefferson County.

Based on these datasets, a demand map was developed to identify areas with the greatest potential for walk trips (Figure 10). In addition to the demand map, consideration was given to the priority pedestrian routes provided by ATAT to the project team. The ATAT map divided routes into two tiers indicating higher and lower priorities.

Building from the demand map and preliminary recommended routes, the project team developed a refined set of corridors that are recommended as priority pedestrian routes (Figure 11). These corridors were carefully selected to connect people to important destinations and result in a well-connected and comprehensive pedestrian network. In general, the routes follow major streets, as they are the most likely to serve a higher volume of pedestrians and provide direct access to destinations. However, additional routes that feed into the Clear Creek Trail, connect directly to schools, or provide a high degree of connectivity are also included.

The City recognizes that these are not the only places where people walk, or the only places that need investment to improve walkability. As previously noted, people often walk on residential streets that lack sidewalks, and in some cases this works fine for most people, but in other cases sidewalks, crosswalks, or other improvements may be needed.

Recommendations for Priority Pedestrian Routes

The identified pedestrian routes should be considered as the highest priority for implementation of pedestrian facilities. The following guidelines for implementation should be applied to the priority pedestrian routes to improve conditions for people who walk:

Infrastructure

- **Sidewalks** - Implement sidewalks on both sides of the street and fill high-priority sidewalk gaps along arterials. In some cases, these gaps overlap with gaps in the bicycle network and, as a result, sidepaths are recommended to serve both user groups. Recommended sidewalk projects are listed in Table 4 and 6 of 'Chapter 6, Implementation.'
- **Curb ramps** - Prioritize installation of curb ramps along priority routes, especially near transit stops or other priority destinations identified in the ADA Transition Plan.
- **Transit amenities** - Provide bus shelters and other amenities to increase the convenience and comfort of pedestrians waiting for the bus.

Increased Separation

- **Separation** - Provide separation from traffic through landscaped buffers and/or on-street parking.

- **Residential streets** - Implement striped shoulders on residential streets within the pedestrian priority route network where adequate width exists. For narrow streets, explore the use of advisory shoulders.

Crossings

- **Frequent crossings** - Implement designated pedestrian crossings at regular intervals (target: approximately every 500 feet).
- **Pedestrian-focused crossings** - Ensure crossings at signals and midblock locations adhere to best practice guidance.

Speed Management

- **Signal timing** - Implement traffic signal timing modifications to support desired operating speeds of 30 mph or less, where applicable.
- **School zones** - Proactively implement engineering measures to reduce speeds in school zones.
- **Traffic calming on residential streets** - Pilot traffic calming measures on residential streets within the pedestrian priority route network, evaluating outcomes such as vehicle speed, pedestrian and bicycle usage, and resident satisfaction.

Citywide Pedestrian Recommendations

The following pedestrian improvement strategies are intended to improve conditions for pedestrians across Wheat Ridge:

Programs and Policies

- Expand the City's Neighborhood Traffic Management Program to include other treatments such as chicanes, neighborhood traffic circles, speed cushions, and gateway treatments.
- Develop pedestrian crossing guidelines for arterials, including location criteria and treatment selection.

Crossing Improvements

- **Pedestrian signals** - Upgrade pedestrian signals to include countdown timers where they are not currently installed. Implement LPIs at locations with a high volume of pedestrians or turning conflicts.
- **Advanced stop lines** - Add advanced stop lines to existing midblock crossings on multi-lane streets where not currently installed.
- **Enhance pedestrian crossings** - Evaluate opportunities to implement HAWK signals on arterials such as Sheridan Boulevard, Wadsworth Boulevard, Kipling Street, 44th Avenue, or 38th Avenue.

School Walksheds

In addition to priority pedestrian routes, the project team created a series of maps to identify potential locations for implementation of school-related infrastructure improvements (Appendix B). These maps highlight the areas that are accessible to the school within a half-mile walk, based on the existing street network and trail system. Opportunities to increase levels of walking to school through construction of sidewalks or trails may exist where there are significant differences between the walking distance and straight-line distance.

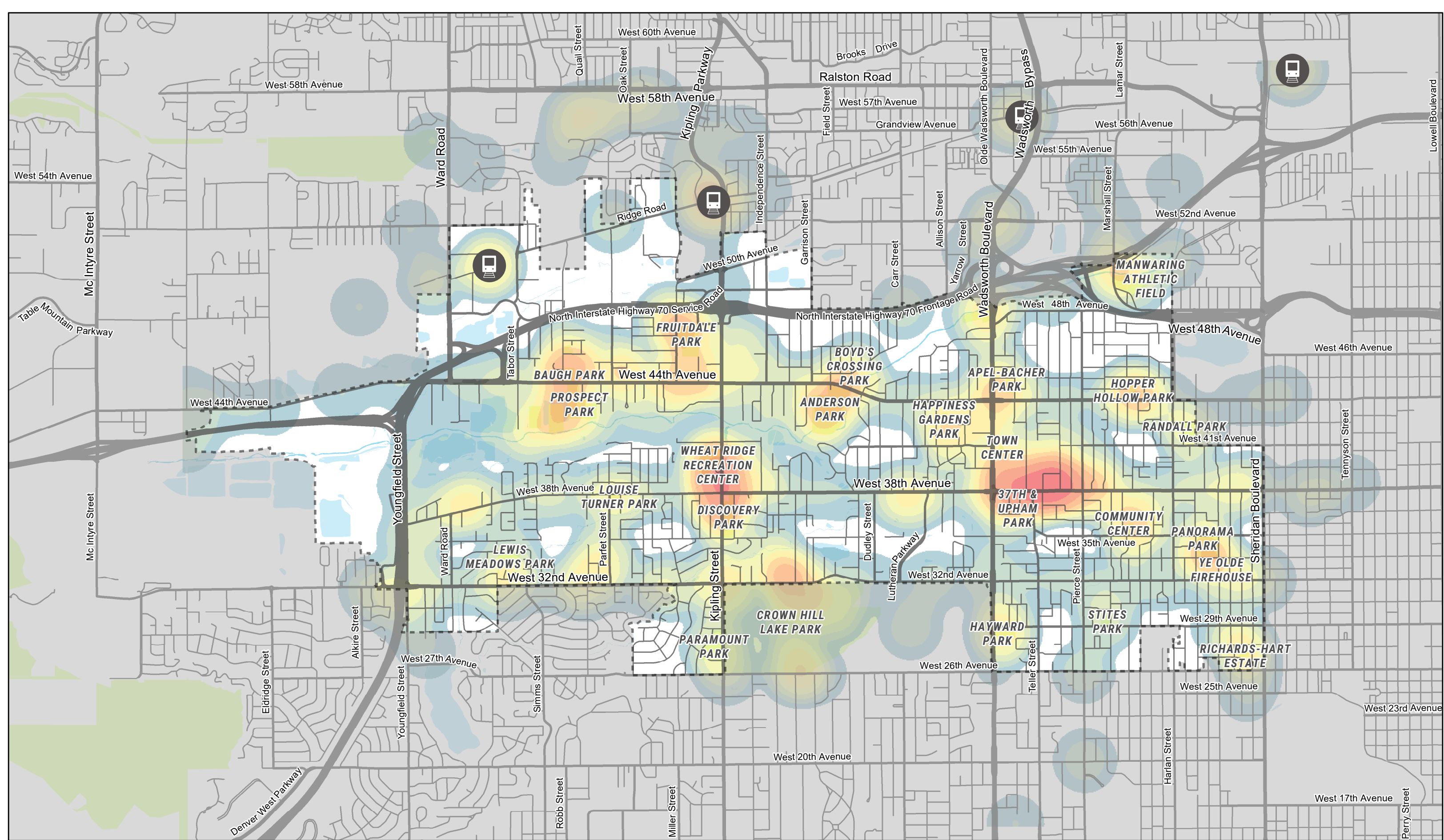
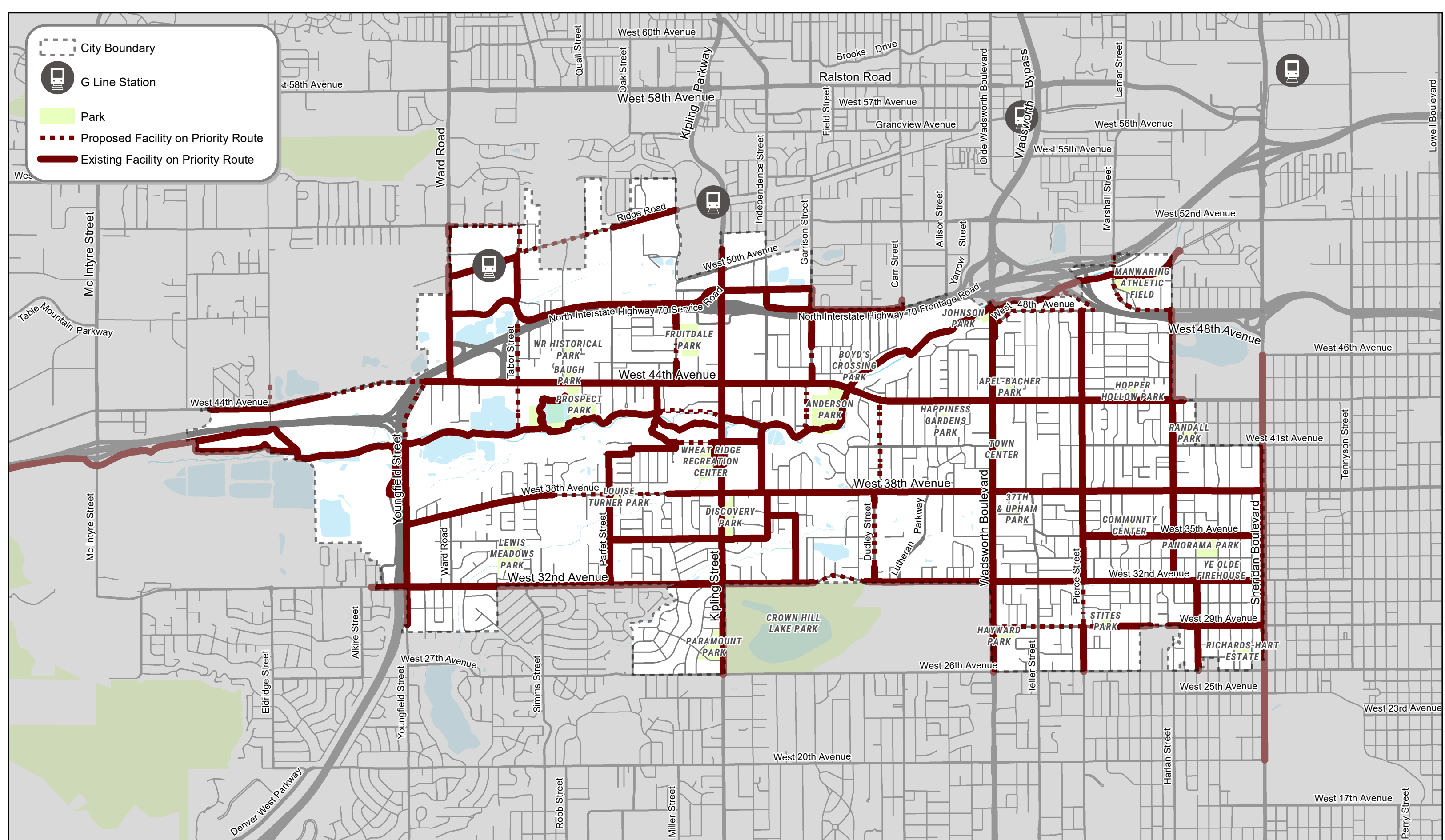


Figure 10. Pedestrian Priority Areas



CHAPTER 5: BICYCLE ELEMENT

Introduction

Wheat Ridge has made substantial progress implementing bicycle facilities since the adoption of the 2010 Bicycle and Pedestrian Master Plan. Many of the “quick wins,” such as existing roadway shoulders that can easily be striped as bike lanes, have already been achieved. However, through implementation of trail connections, sidepaths along major streets, bike lanes, shared streets, and wayfinding, a well-connected, comfortable bicycle network can be developed.

In this section of the plan, a Bicycle Facilities Toolbox is included to provide context and implementation considerations for treatments that may be appropriate for implementation in Wheat Ridge. Additionally, a comprehensive network map with recommended projects is provided.

Bicycle Facilities Toolbox

The Plan’s bicycle infrastructure recommendations are categorized into four broad categories: paved trails, sidepaths and separated bike lanes, bike lanes, and shared streets. Some of these facility types include variations, such as the addition of a striped buffer to a standard bike lane. Variations and optional treatments are described in more detail in this section of the plan.

Paved Trail

A paved trail or shared use path is an off-street bicycle and pedestrian facility that is physically separated from motor vehicle traffic. Typically, shared use paths are located in parks, stream valley greenways, along a utility corridor, or along abandoned railroad corridors. Shared use paths are for bicyclists, pedestrians, skaters, wheelchair users, and other non-motorized users. They are typically constructed of concrete or asphalt and play an important role in the overall bike network.



Design Criteria

- Minimum width: 10 feet
- Preferred Width: 10-12 feet

References and Resources

- American Association of State and Highway Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities (2012)
- National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide (2012)
- Manual on Uniform Traffic Control Devices (MUTD) (2009)

Sidepath

A sidepath is a shared use path located adjacent to a street. It is designed for two-way use by bicyclists and pedestrians. Sidepaths are sometimes created by designating a wide sidewalk for shared use, or they may be a segment of a longer path system. The use of sidepaths should be limited to roadways with limited points of conflict at intersections and driveways. Special consideration should be given to traffic control where sidepaths pass through signalized intersections. Designating a narrow sidewalk as a sidepath without making improvements to accommodate a mixture of bike and pedestrian traffic is not recommended.



Design Criteria

- Minimum width: 10 feet
- Preferred Width: 12-14 feet

References and Resources

- AASHTO Guide for the Development of Bicycle Facilities (2012)
- NACTO Urban Bikeway Design Guide (2012)

Separated Bike Lane

A separated bike lane, sometimes called a cycle track, is a bicycle facility that is physically separated from both the street and the sidewalk. A separated bike lane may be constructed at street level using street space, or at the sidewalk level using space adjacent to the street. Separated bike lanes isolate bicyclists from motor vehicle traffic using a variety of methods, including curbs, raised concrete medians, bollards, on-street parking, large planting pots/boxes, landscaped buffers, or other methods.

Separated bike lanes designed to be level with the sidewalk should provide a vertical separation between bicyclists and pedestrians, or different surface treatments to delineate the bicycle space from the pedestrian space (such as asphalt versus concrete).



The provision of separated bike lanes should consider the design and function of intersections, which may require adjustments to signal timing and phasing and/or modifications to pavement and curb sections.

Design Criteria

- Minimum width: 5 feet (one-way facility); 8 feet (bi-directional facility)
- Preferred width: 6.5 feet (one-way facility) allows for same-direction passing; 10+ feet (bi-directional facility)

References and Resources

- Federal Highway Administration (FHWA) Separated Bike Lane Planning and Design Guide (2015)
- NACTO Urban Bikeway Design Guide (2012)
- Massachusetts Department of Transportation (MassDOT) Separated Bike Lane Planning and Design Guide (2015)

Bike Lane

Bike lanes use pavement markings to designate a portion of a street for the preferential or exclusive use of bicycles. Bike lane markings are sometimes dashed where vehicles are allowed to cross the bike lane, such as for right turns or at driveway crossings. Bike lanes are best suited for two-way local and collector streets where there is enough width to accommodate a bike lane in both directions, and on one-way streets where there is enough width for a single bike lane.



Design Criteria

- Minimum Width: 4 feet exclusive of gutter, 5 feet next to parked cars
- Preferred Width: 5 feet exclusive of gutter, 6+ feet next to parked cars

References and Resources

- AASHTO Guide for the Development of Bicycle Facilities (2012)
- NACTO Urban Bikeway Design Guide (2012)
- Manual on Uniform Traffic Control Devices (2009)

Buffered Bike Lane

Buffered bike lanes are created by striping a buffer zone between a bike lane and the adjacent travel lane. Some buffered bike lanes also offer a painted buffer between the bike lane and an adjacent parking lane. Buffered bike lanes should be considered at locations where there is excess pavement width or where adjacent motor vehicle traffic speeds exceed 35 mph.



Design Criteria

- Minimum width: See bike lane minima; 2 feet for buffer adjacent to traffic
- Preferred Width: See bike lane minima; 3-4 feet for buffer adjacent to traffic

References and Resources

- FHWA Separated Bike Lane Planning and Design Guide (2015)
- NACTO Urban Bikeway Design Guide (2012)

Shared Lane Markings

Shared lane markings (also known as “sharrows”) are used on streets where bicyclists and motor vehicles share the same travel lane. They may be used to designate a preferred route for bicyclists where there is not sufficient width for bike lanes. The sharrow indicates to bicyclists the most appropriate location to ride. It also provides a visual cue to motorists that bicyclists may be present and have a right to use the street. Sharrows should be placed at least 4 feet (on center) from the face of curb where on-street parking is prohibited, or at least 11 feet (on center) from the face of curb where on-street parking is allowed. Sharrows should be used only on low-volume, low-speed streets and are not appropriate on streets with speed limits greater than 35 mph.



Design Criteria

- Preferred on streets with posted speed limits of up to 25 mph and traffic volumes of less than 4,000 vehicles per day. Maximum posted speed of street: 35 mph
- The marking's centerline must be minimum 4' from curb where parking is prohibited.
- The marking's centerline must be minimum 11' from curb where parking is permitted, so that it is outside the door zone of parked vehicles.
- For narrow lanes, it may be desirable to center shared lane markings along the centerline of the outside travel lane.

References and Resources

- AASHTO Guide for the Development of Bicycle Facilities (2012)
- NACTO Urban Bikeway Design Guide (2012)
- MUTCD (2009)

Neighborhood Bikeway

A neighborhood bikeway is a street with low motorized traffic volumes and low speeds intended to provide priority to bicyclists and neighborhood motor vehicle traffic. Neighborhood bikeways may simply have signs and shared lane markings, or may include traffic calming elements consisting of speed humps, traffic circles, chicanes, or traffic diverters.



Design Criteria

- Maximum Average Daily Traffic (ADT): 3,000
- Preferred ADT: up to 1,000
- Target motorist speeds are typically around 20 mph
- Speed differential between bicyclists and vehicles less than 15 mph

References & Resources

- NACTO Urban Bikeway Design Guide (2012)

Bicycle Network Development

The plan vision and goals served as the overarching framework for development of bicycle network recommendations. The network, containing both recommended facility locations and types, was crafted to meet the following Plan goals:

- Complete a connected network of low-stress bicycle facilities.
- Improve intermodal connections, especially access to transit.
- Increase access to the region's parks, major destinations, and recreational opportunities.
- Create a plan that is implementable and sensitive to the Wheat Ridge context.

Constraints

While Wheat Ridge has substantial opportunities for promoting and increasing bicycling, significant challenges also exist. Foremost among these is that few streets provide connectivity over long distances. Opportunities for east-west connectivity are particularly constrained. The recommended bicycle network proposes connections using low-stress neighborhood streets, but these routes are less direct than the city's arterials.

Similarly, the Rocky Mountain Ditch, Lena Gulch, and connections through Lutheran Hospital would significantly improve overall connectivity, but development of bicycle facilities through these properties is not viable at this time. Connectivity to the Clear Creek Trail is another substantial challenge, particularly west of Kipling Street, where the topography is steep and much of the adjacent land has been developed and occupied.

While the 2017 Plan is focused on shorter-term, feasible recommendations, opportunities to address significant connectivity gaps should be explored over the long-term. As attitudes toward bicycling change over time, tackling these barriers may become more realistic.

Network Development Process

With consideration of the goals and constraints outlined above, the project team began developing the 2017 network recommendations by reviewing the proposed facilities from the City's previous Bicycle and Pedestrian Master Plan. These facilities (both location and type) were compared to the input received throughout the planning process and consideration of best practices, which have evolved over the last several years. Some facility recommendations were removed, or the facility type recommendation was modified to better fit the plan goals of developing a connected network of low-stress bicycle facilities.

Information reviewed and incorporated into the network development process includes:

- Existing and proposed bicycle network data provided by the City.
- Input received from the TAC, City staff, and the public at the October open house.
- Key activity areas and transit hubs within the City (as noted by the public, the TAC, and the City).
- Information regarding planned developments (e.g., the Applewood Development, Ward Road Station area).
- Key online interactive map inputs, including barrier and line data.
- Bicycle networks of Arvada, Denver, and Lakewood.
- Jefferson County wayfinding network.
- Bike Jeffco's recommendations for north-south connectivity on Marshall Street and Garrison Street.

Using this data, the team evaluated streets for their potential in forming a gridded network of bicycle facilities that are comfortable for a large percentage of Wheat Ridge residents. The resulting network is shown in Figure 12, along with associated facility recommendations. Recommendations are made for paved trails, on-street bicycle facilities (which could include sidepaths, separated bike lanes, or conventional bike lanes), and neighborhood bikeways.

City Boundary

G Line Station

Park

Existing Facilities

Trail

Unpaved Trail

Sidepath

Bike Lane

Shared Lane Marking

Shoulder

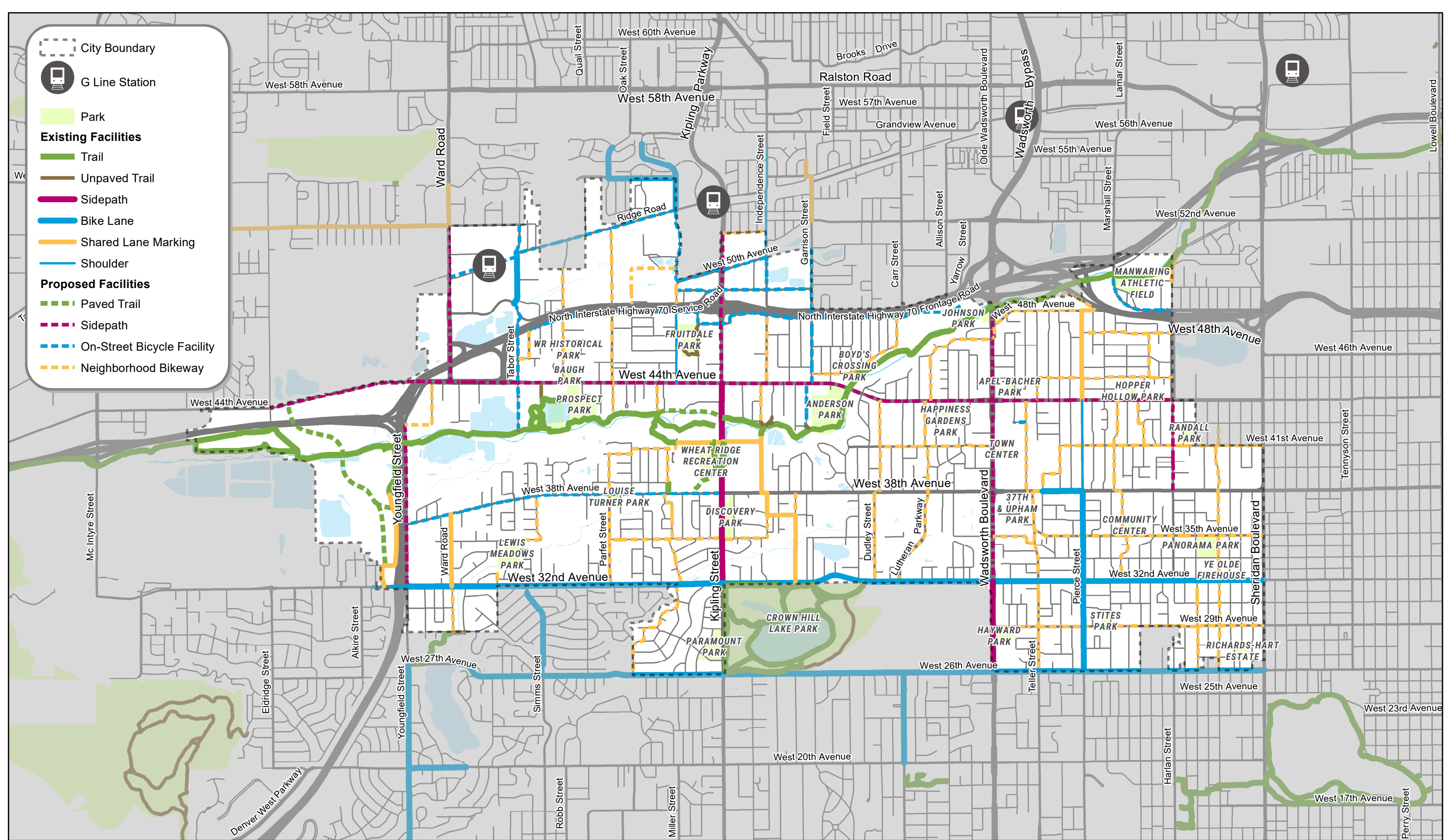
Proposed Facilities

Paved Trail

Sidepath

On-Street Bicycle Facility

Neighborhood Bikeway



Bicycle Facility Recommendations

In this section, brief descriptions of the facility recommendations shown in Figure 12 are provided. Specific projects are also listed in Tables 4 and 6 of 'Chapter 6, Implementation.'

Paved Trails

The Clear Creek Trail forms the spine of Wheat Ridge's bicycle network and attracts bicyclists of all ages and abilities. It is an important regional corridor for transportation and recreation and provides a comfortable means of biking to Golden or Denver.

The strong desire to access the Clear Creek Trail was reaffirmed at every stage of the public engagement process. There are many existing access points, but most are informal and unpaved. Additionally, wayfinding to trail access points has not been consistently implemented. Consistent with recommendations from the 2015 Wheat Ridge Parks and Recreation Master Plan, this plan recommends formalizing the connections to the Clear Creek Trail and providing amenities such as benches, trash cans, and informational kiosks (including wayfinding maps) at access points. In addition to trailhead amenities, these locations will require a short length of trail to connect to adjoining streets.

Formalized connections to the Clear Creek Trail are recommended at the following locations:

- Tabor Street (north of trail)
- Oak Street (south of trail)
- Iris Street (north of trail)
- Hoyt Court (north of trail)
- Garrison Street (north of trail)

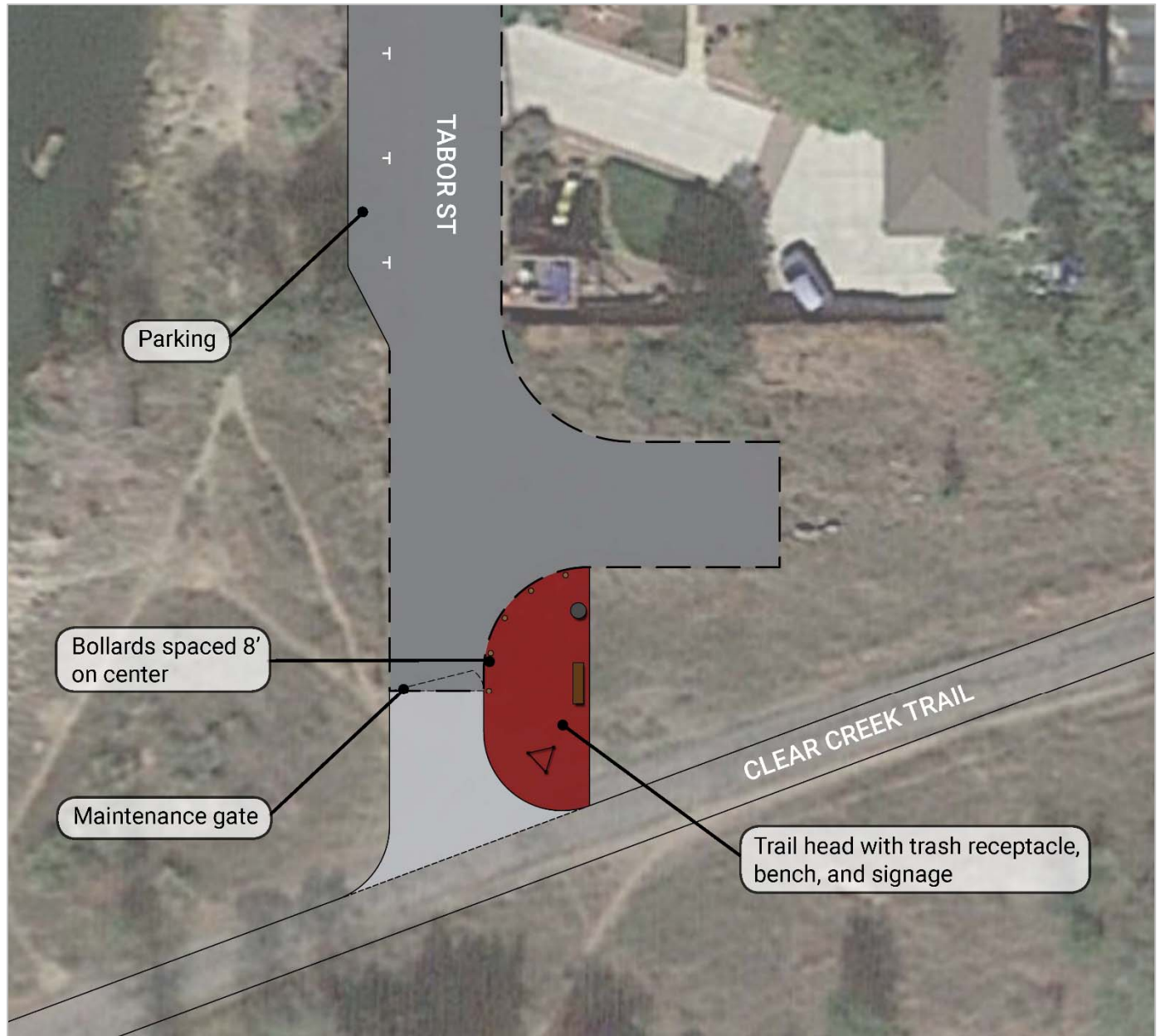
A typical concept for trail access is shown in Figure 13.

In addition to connections to Clear Creek Trail, paved trails are recommended for implementation as part of the Clear Creek Crossing development, southwest of the I-70/CO 58 interchange. The exact alignment of those trails is to be determined in the development review process.



The Clear Creek Trail near Wadsworth Boulevard

Figure 13. Typical Clear Creek Trail Trailhead Diagram



Sidepaths and Separated Bike Lanes

The recently completed sidepath along Kipling Street provides a great connection between two important bike routes – West 32nd Avenue and the Clear Creek Trail. Sidepaths are appropriate for such high-volume, high-speed streets and are recommended on other arterials as discussed below. These projects provide connectivity for bicyclists and also fill important gaps in the pedestrian network. Potential sidepath projects are listed in Table 4.

Bike Lanes

Bike lanes provide delineated space for bicyclists. For the purposes of this plan, this recommendation category includes standard bike lanes and buffered bike lanes. The appropriate variation or treatment type for each recommendation should be investigated in more detail during the development of a specific project. In cases where a lower-stress variation (such as a wider or buffered bike lane) is feasible, it should be implemented to provide greater comfort. Bike lanes are proposed for several corridors, as listed in Table 4.

Neighborhood Bikeways

Neighborhood bikeways encompass a range of strategies intended to increase comfort for bicyclists and pedestrians on streets without dedicated facilities. They are an important part of the overall bicycle network in Wheat Ridge and are especially important because of the lack of connectivity in the street network in many areas, and the limited right-of-way on most streets in the city.

A comprehensive network of neighborhood bikeways is proposed in this plan, in combination with off-street facilities and bike lanes as previously discussed. The proposed network takes advantage of the City's residential streets, which are generally low-volume, low-speed streets with on-street parking. To promote the use of this network, the City can implement pavement markings, signage, traffic calming measures where needed (i.e., where vehicular speeding is high or believed to be an issue), crossing improvements, and wayfinding. Many of the treatments discussed in the curbside streets section of Chapter 4, 'Pedestrian Element,' also contribute to an improved environment for bicycling. Potential neighborhood bikeways are listed in Table 4.

Wayfinding

Wayfinding is an important supplement to bicycle infrastructure. Strategically located signage helps bicyclists get where they want to go. It is particularly important for less-experienced bicyclist who may not be familiar with the network.

The 2016 Jefferson County (JeffCo) Regional Bikeways Wayfinding Guide serves as a toolkit for the development of a regional wayfinding network.²⁵ When implemented, the wayfinding signs will form a core component of a more intuitively navigable regional bikeway network. The wayfinding project establishes graphic standards and a framework for implementation, as well as first, second, and third priority wayfinding routes across the County. Within the City of Wheat Ridge, two routes - 32nd Avenue and a north-south route that passes through Crown Hill Park to Arvada by way of Independence Street – are identified as Priority 1 Routes. The regional wayfinding network informed the development of

²⁵ Jefferson County. Transportation and Engineering. <http://jeffco.us/transportation-and-engineering/transportation-plans/bicycle-and-pedestrian-plan/>

bicycle network recommendations within this Plan as to ensure that bicyclists traveling both within the City and throughout the County are safe and comfortable.

The intent of the JeffCo Wayfinding Guide is for regional routes to be implemented simultaneously, even though many of them cross jurisdictional boundaries. Therefore, the City of Wheat Ridge should continue coordinating with Jefferson County, Arvada, Lakewood, Westminster, and Golden, to ensure the signage is fabricated and installed in concert.

Wayfinding is also needed on routes that fall outside the recommendations of the Jeffco Wayfinding Guide. In particular, the following types of wayfinding are needed in Wheat Ridge:

- Signage directing bicyclists to the Clear Creek Trail from feeder streets,
- Routes that cross offset intersections,
- Sidepaths that cross streets, and
- Signage from bike facilities to key destinations, such as the Wheat Ridge Recreation Center, Crown Hill Park, other city parks, libraries, schools, and other activity centers.

For wayfinding that falls outside the regional priority routes, the City should use the wayfinding standards outlined in the Manual of Uniform Traffic Control Devices (MUTCD) standards.

CHAPTER 6: IMPLEMENTATION

The infrastructure recommendations described in the Pedestrian and Bicycle Elements of this Plan will help Wheat Ridge become a more bicycle- and pedestrian-friendly city. This chapter provides guidance for the City in the selection and funding of pedestrian and bicycle infrastructure projects. The implementation approach focuses on completing gaps in the pedestrian priority route network, improving access to the Clear Creek Trail, and developing a citywide low-stress bike network that is comfortable for all riders.

Prioritization

The recommended pedestrian and bicycle facilities were evaluated across six categories related to the overall goals of the community. For each category, up to four points were awarded based on the criteria described in Table 2.

Table 2. Prioritization Criteria

Local vs. Regional	Regional routes are classified as routes or streets that provide clear and direct bike or pedestrian access into neighboring communities. Proposed facilities along these routes receive 4 points while local proposed facilities receive 2 points.
Access to School	Access to school was determined with the use of ½ mile network walkshed. Proposed facilities that provide a direct connection to a school receive 4 points, while proposed facilities that do not provide a direct connection but are within the ½ mile walkshed receive 2 points. Proposed facilities outside of the ½ mile walkshed received zero points.
Geographic Priority Areas	Proposed facilities along the corridor or directly within a Geographic Priority Area (as defined in the 2010 Bicycle and Pedestrian Master Plan) receive a score of 4 points. Facilities that intersect or cross a corridor identified as a Geographic Priority Area receive 2 points. For example, a proposed neighborhood bikeway along Depew Street crosses 38th Avenue between Wadsworth and Sheridan (a geographic priority area) and receives a score of 2 points.
Serves Multiple User Types	Paved trails and sidepaths are given 4 points because these facilities are used by both bicyclists and pedestrians. Detached sidewalks, bike lanes, and neighborhood bikeways are given a 2 score of 2 points. None of the proposed facilities received a score of zero points.
Connectivity with Other Modes	Proposed facilities within ½ mile of a G Line stop receive 4 points and proposed facilities within ¼ mile of a bus stop are given a score of 2 points. There were very few projects that score a zero due to the number of bus stops within the community.
Completes a Gap or Extends Existing Route/Trail	Proposed facilities that complete a gap and connect existing facilities on each end receive 4 points. Proposed facilities that extend existing facilities receive 3 points. Proposed facilities that intersect, but do not connect to existing facilities on either end receive 2 points.

The prioritization criteria were applied to 118 potential projects, including construction of sidewalks, trails, sidepaths, bike lanes, and neighborhood bikeways. These projects are ranked separately for sidewalks and bicycle facilities (trails, sidepaths, bike lanes, and neighborhood bikeways).

Sidewalks

Sidewalk improvements should be focused along priority pedestrian routes as these corridors were carefully selected to connect people to important destinations and establish a comprehensive pedestrian network. Table 3 shows the ranking of sidewalk projects needed to fill gaps in the pedestrian priority network (see also Figure 11). Note that sidepath and trail projects listed in Table 4 also serve pedestrians. For example, six of the top ten bicycle facility projects would accommodate both pedestrians and bicycles.

Table 3. Proposed Sidewalk Projects

Rank	Proposed Route	From	To	Score
1	Ward Road	49th Avenue	52nd Avenue	22
2	Kipling Street	32nd Avenue	North of 35th Avenue	18
3	32nd Avenue	Garrison Street	Dudley Street	14
4	41st Avenue	Miller Street	Kipling Street	14
5	Ridge Road	Tabor Street	Parfet Street	14
6	Tabor Street	Ridge Road	52nd Avenue	14
7	Tabor Street	Clear Creek Trail	I-70 Frontage Road North	14
8	Miller Street	45th Avenue	47th Avenue	14
9	38th Avenue	Routt Street	Moore Street	12
10	44th Avenue	Youngfield Street	Existing sidewalk to the West	12
11	52nd Avenue	Ward Road	Tabor Street	12
12	Garrison Street	45th Avenue	46th Place	12
13	Garrison Street	42nd Avenue	44th Avenue	12
14	Pierce Street	29th Avenue	32nd Avenue	12
15	Youngfield Street	Clear Creek Trail	44th Avenue	12
16	48th Avenue	Wadsworth Boulevard	Pierce Street	10
17	48th Avenue	Pierce Street	Clear Creek Trailhead	10
18	Dover Street	38th Avenue	44th Avenue	10
19	Dudley Street	32nd Place	37th Avenue	10
20	Eldridge Street	44th Avenue	48th Avenue	9
21	29th Avenue	Jay Street	Ingalls Street	8
22	48th Avenue/Marshall Street	Harlan Street	51st Street	8
23	29th Avenue	Wadsworth Boulevard	Newland Street	8

Bicycle Facilities

Since the existing bicycle facility network is less developed than the sidewalk network, there are more recommendations for new bicycle facilities to be implemented than sidewalks. These recommendations are shown in Table 4, ranked by priority.

Table 4. Proposed Bicycle Facility Projects

Rank	Proposed Route	From	To	Facility Type	Score
1	Kipling Parkway	44th Avenue	51st Place	Sidepath	21
2	Ward Road	44th Avenue	52nd Avenue	Sidepath	20
3	44th Avenue	Eldridge Street	Harlan Street	Sidepath	19
4	32nd Avenue	Zinnia Court	Youngfield Street	Bike Lane	17
5	38th Avenue	Youngfield Street	Kipling Street	Bike Lane	17
6	Ridge Road	Ward Road	Miller Street	Bike Lane	17
7	CC Trail	Moore Street	Kipling Street	Paved Trail	17
8	CC Trail Connector	44th Avenue	Youngfield Service Road	Paved Trail	17
9	Wadsworth Boulevard	32nd Avenue	48th Avenue	Sidepath	17
10	Independence Street	49th Avenue	51st Avenue	Bike Lane	15
11	35th Avenue	Kipling Street	Independence Street	Neighborhood Bikeway	15
12	35th Avenue	Parfet Street	Kipling Street	Neighborhood Bikeway	15
13	CC Trail Connector	Wheat Ridge Rec Center	38th Avenue	Paved Trail	15
14	Pierce Street	36th Avenue	38th Avenue	Bike Lane	14
15	41st Avenue	Dover Street	Wadsworth Boulevard	Neighborhood Bikeway	14
16	41st Avenue	Reed Street	Sheridan Boulevard	Neighborhood Bikeway	14
17	High Court	38th Avenue	39th Avenue	Neighborhood Bikeway	14
18	Youngfield Street	32nd Avenue	42nd Avenue	Sidepath	14
19	Tabor Street	Ridge Road	52nd Avenue	Bike Lane	13
20	35th Avenue	Teller Street	Pierce Street	Neighborhood Bikeway	13
21	Independence Street	35th Avenue	37th Avenue	Neighborhood Bikeway	13
22	CC Trail Connector	Iris Street/42nd Avenue	Clear Creek Trail	Paved Trail	13
23	CC Trail Connector	Hoyt Court	Clear Creek Trail	Paved Trail	13
24	CC Trail Connector	Garrison Street	Clear Creek Trail	Paved Trail	13
25	Tabor Street	Clear Creek Trail	48th Avenue	Bike Lane	12
26	35th Avenue	Wadsworth Boulevard	Upham Street	Neighborhood Bikeway	12
27	Parfet Street	Clear Creek Trail	I-70 Frontage Road South	Neighborhood Bikeway	12
28	Parfet Street	32nd Avenue	41st Avenue	Neighborhood Bikeway	12
29	Upham Street	38th Avenue	44th Avenue	Neighborhood Bikeway	12
30	Harlan Street	38th Avenue	44th Avenue	Sidepath	12
31	Garrison Street	Clear Creek Trail	44th Avenue	Bike Lane	11
32	Miller Street	50th Avenue	Ridge Road	Bike Lane	11
33	35th Avenue	Cul-de-sac	Simms Street	Neighborhood Bikeway	11
34	Holland Street	37th Avenue	38th Avenue	Neighborhood Bikeway	11
35	Moore Street	Clear Creek Trail	44th Avenue	Neighborhood Bikeway	11
36	29th Avenue	Ward Court	Vivian Street	Paved Trail	11
37	50th Avenue	Miller Street	Independence Street	Bike Lane	10
38	34th Place	Upham Street	Teller Street	Neighborhood Bikeway	10
39	39th Avenue	High Court	Reed Street	Neighborhood Bikeway	10
40	Depew Street	26th Avenue	41st Avenue	Neighborhood Bikeway	10
41	Independence Street	44th Avenue	48th Avenue	Neighborhood Bikeway	10
42	Teller Street	26th Avenue	38th Avenue	Neighborhood Bikeway	10
43	29th Avenue	Wadsworth Boulevard	Sheridan Boulevard	Neighborhood Bikeway	9
44	48th Avenue	Wadsworth Boulevard	Pierce Street	Neighborhood Bikeway	9
45	Miller Court	38th Place	41st Avenue	Neighborhood Bikeway	9
46	Ward Court	29th Avenue	32nd Avenue	Neighborhood Bikeway	9
47	Oak Street	41st Avenue	Clear Creek Trail	Paved Trail	9
48	43rd Avenue	Vance Street	Upham Street	Bike Lane	8
49	49th Avenue	Miller Street	Garrison Street	Bike Lane	8
50	Garrison Street	44th Avenue	51st Avenue	Bike Lane	8
51	I-70 Frontage Road South	Swadley Street	Garrison Street	Bike Lane	8
52	41st Avenue	Parfet Street	Oak Street	Neighborhood Bikeway	8

Rank	Proposed Route	From	To	Facility Type	Score
53	41st Avenue	Oak Street	Miller Court	Neighborhood Bikeway	8
54	45th Avenue	Teller Street	Harlan Street	Neighborhood Bikeway	8
55	Balsam Street	41st Avenue	44th Avenue	Neighborhood Bikeway	8
56	Balsam Street	38th Avenue	41st Avenue	Neighborhood Bikeway	8
57	Depew Street	41st Avenue	43rd Avenue	Neighborhood Bikeway	8
58	Dudley Street	32nd Avenue	38th Avenue	Neighborhood Bikeway	8
59	Fenton Street	26th Avenue	32nd Avenue	Neighborhood Bikeway	8
60	Iris Street	42nd Avenue	44th Avenue	Neighborhood Bikeway	8
61	Lutheran Parkway	32nd Avenue	38th Avenue	Neighborhood Bikeway	8
62	Marshall Street	38th Avenue	44th Avenue	Neighborhood Bikeway	8
63	Marshall Street	32nd Avenue	35th Avenue	Neighborhood Bikeway	8
64	Marshall Street	35th Avenue	38th Avenue	Neighborhood Bikeway	8
65	Miller Street	I-70 Frontage Road North	50th Avenue	Neighborhood Bikeway	8
66	Miller Street	32nd Avenue	35th Avenue	Neighborhood Bikeway	8
67	Morningside Drive	Rangeview Drive	32nd Avenue	Neighborhood Bikeway	8
68	Otis Street	48th Avenue	Clear Creek Trailhead	Neighborhood Bikeway	8
69	Robb Street	I-70 Frontage Road North	Wheat Ridge city limit	Neighborhood Bikeway	8
70	Twilight Drive	26th Avenue	Rangeview Drive	Neighborhood Bikeway	8
71	Union Street	32nd Avenue	32nd Drive	Neighborhood Bikeway	8
72	48th Avenue	Clear Creek Trail	Harlan Street	Bike Lane	6
73	37th Place	Moore Street	Miller Court	Neighborhood Bikeway	6
74	42nd Avenue	Youngfield Street	Xenon Street	Neighborhood Bikeway	6
75	45th Avenue	Garrison Street	Everett Street	Neighborhood Bikeway	6
76	46th Avenue	Tabor Street	Swadley Street	Neighborhood Bikeway	6
77	46th Avenue	Everett Street	Carr Street	Neighborhood Bikeway	6
78	47th Avenue	Balsam Street	Wadsworth Boulevard	Neighborhood Bikeway	6
79	47th Avenue	Pierce Street	Harlan Street	Neighborhood Bikeway	6
80	Balsam Street	44th Avenue	47th Avenue	Neighborhood Bikeway	6
81	Dover Street	38th Avenue	44th Avenue	Neighborhood Bikeway	6
82	Jay Street	44th Avenue	47th Avenue	Neighborhood Bikeway	6
83	Jay Street	41st Avenue	44th Avenue	Neighborhood Bikeway	6
84	Miller Court	35th Avenue	37th Place	Neighborhood Bikeway	6
85	Moore Street	37th Place	38th Avenue	Neighborhood Bikeway	6
86	Oak Street	41st Avenue	41st Place	Neighborhood Bikeway	6
87	Rangeview Drive	Twilight Drive	Morningside Drive	Neighborhood Bikeway	6
88	Robb Street	44th Avenue	I-70 Frontage Road South	Neighborhood Bikeway	6
89	Simms Street	35th Avenue	38th Avenue	Neighborhood Bikeway	6
90	Swadley Street	46th Avenue	I-70 Frontage Road South	Neighborhood Bikeway	6
91	Teller Street	44th Avenue	45th Avenue	Neighborhood Bikeway	6
92	Upham Street	34th Place	35th Avenue	Neighborhood Bikeway	6
93	Xenon Street	42nd Avenue	44th Avenue	Neighborhood Bikeway	6
94	50th Avenue	Oak Street	Miller Street	Neighborhood Bikeway	4
95	Carr Street	46th Avenue	48th Avenue	Neighborhood Bikeway	4
96	Oak Street	I-70 Frontage Road North	50th Avenue	Neighborhood Bikeway	4

Cost Estimates

Implementation of the pedestrian and bicycle facility recommendations described above would require a significant capital investment over the course of several years. To accomplish this, Wheat Ridge would need to dedicate local funding and secure federal funding or funding from other sources.

Planning-level typical bicycle and pedestrian facility cost estimates are shown in Table 5. These are order-of-magnitude estimates and do not include right-of-way acquisition or other unforeseen costs that may be incurred. Actual costs will vary based on the ultimate project scope (i.e. potential combination of projects, or use of city staff) and economic conditions at the time of construction.

Table 5. Bicycle Facility Planning-level Typical Costs

Facility/Treatment Type	Typical Cost Range		Prevailing Typical Cost
	Low	High	
Paved Trail	\$800,000 per mile	\$1.5 million per mile	\$1 million per mile
A concrete trail in an independent alignment like a greenbelt or former railroad.	<i>Example: An 8-foot wide connector trail linking a neighborhood to a Greenbelt Spine Trail.</i>	Example: A 12-foot wide trail long a wooded greenbelt with undulating topography and numerous drainage crossings. May include boardwalk sections and small bridges.	
Sidewalks and Sidepaths	\$450,000 per mile	\$1.25 million per mile	\$1 million per mile
A concrete sidewalk or path along a roadway.	<i>Example: An 8-foot wide connector sidepath along a roadway as part of a larger reconstruction project with existing cleared and graded right-of-way.</i>	<i>Example: A 12-foot wide sidepath with multiple grade-separated roadway crossings and built in uncleared right-of-way requiring grading.</i>	
Separated Bike Lane	\$250,000 per mile	\$1 million per mile	\$750,000 per mile
Also known as a cycle track, these can be one-way or two-way. Separated from the street by vertical elements (e.g., flex posts, bollards, medians, planters.).	<i>Example: Reconfigure a roadway to include a two-way flex post-separated bike lane on existing pavement as part of a resurfacing project.</i>	<i>Example: Widen a roadway by 14 feet independent of a larger roadway project expressly to add a pair of one-way median-separated bike lanes.</i>	
Bike Lanes	\$20,000 to \$40,000 per mile	\$650,000 per mile	\$25,000 per mile
Includes variations of bike lanes, wide bike lanes, and buffered bike lanes. Significant savings can be realized by constructing as part of a larger roadway project.	<i>Example: Add bike lanes as part of a resurfacing project requiring no additional pavement, but including additional pavement markings and signs. Lower-end estimates do not include resurfacing.</i>	<i>Example: Widen a roadway by 14 feet independent of a larger roadway project expressly to add buffered bike lanes.</i>	

Shared Street	\$10,000 per mile	\$50,000 per mile	\$20,000 per mile
Low-cost, strategically-placed pavement markings (e.g., sharrows) and signage along bike routes.	<i>Example: Add bike route signs or simple wayfinding signs to an existing low-stress bikeway.</i>	<i>Example: Restripe a roadway to provide a wide outside shared lane with sharrows as a stand-alone project.</i>	
Neighborhood Bikeways	\$100,000 per mile	\$500,000 per mile	\$200,000 per mile
Streets with various combinations of traffic calming, traffic diversion, high-visibility pavement markings and enhanced signage (depending on context).	<i>Example: Add bicycle boulevard signs, shared lane markings, and minor traffic calming such as rubberized speed cushions.</i>	<i>Example: Reconfigure or add traffic signals at major intersections and add significant traffic calming features, such as curb extensions, mini traffic circles, traffic diverters, and raised crosswalks.</i>	
Shared Lane Markings	\$10,000 per mile	\$50,000 per mile	\$20,000 per mile
Low-cost, strategically-placed pavement markings (e.g., shared lane markings) and signage along bike routes.	<i>Example: Add Bikes May Use Full Lane signs or simple wayfinding signs to an existing street.</i>	<i>Example: Restripe a roadway to provide a wide outside shared lane with shared lane markings as a stand-alone project.</i>	

In Table 6, the top 10 sidewalk and top 10 bicycle facility projects are listed, along with order of magnitude costs.

Table 6. High Priority Pedestrian and Bicycle Facility Projects²⁶

Category	Description	Cost
Sidewalk	Construct sidewalk on the west side of Kipling Street from 32 nd Avenue to north of 35 th Avenue (south of Sprouts Market)	\$\$
Sidewalk	Construct sidewalk on 32 nd Avenue from Garrison Street to Dudley Street	\$\$
Sidewalk	Construct sidewalk on 41 st Avenue from Miller Street to Kipling Street	\$\$
Sidewalk	Construct sidewalk on Ridge Road from Tabor Street to Parfet Street	\$\$\$
Sidewalk	Construct sidewalk on Tabor Street from Ridge Road to 52 nd Avenue	\$\$
Sidewalk	Construct sidewalk on Tabor Street from Clear Creek Trail to I-70 Frontage Road ²⁷	\$\$\$
Sidewalk	Construct sidewalk on Miller Street from 45 th Avenue to 47 th Avenue	\$\$
Sidewalk	Construct sidewalk on 38 th Avenue from Routt Street to Moore Street	\$\$\$
Sidewalk	Construct sidewalk on 44 th Avenue from Youngfield Street to existing sidewalk to the west	\$\$\$
Sidewalk	Construct sidewalk on 52 nd Avenue from Ward Road to Tabor Street	\$\$
Sidepath	Construct sidepath on Kipling Street, from 44 th Avenue to 51 st Place	\$\$\$
Sidepath	Construct sidepath on Ward Road from 44 th Avenue to 52 nd Avenue	\$\$\$
Sidepath	Construct sidepath on 44 th Avenue from Eldridge Street to Harlan Street	\$\$\$
Bike Lane	Implement bike lanes on 32 nd Avenue from Zinnia Court to Ward Court	\$
Bike Lane	Implement bike lanes on 38 th Avenue from Youngfield Street to Kipling Street	\$
Bike Lane	Implement bike lanes on Ridge Road from Ward Road to Miller Street	\$
Paved Trail	Extend the Clear Creek Trail from 43 rd Avenue to Kipling Street	\$\$
Bike Lane	Implement bike lanes on Independence Street from 49 th Avenue to 51 st Avenue	\$
Neighborhood Bikeway	Implement neighborhood bikeway treatments on 35 th Avenue from Kipling Street to Independence Street	\$
Neighborhood Bikeway	Implement neighborhood bikeway treatments on 35 th Avenue from Parfet Street to Kipling Street	\$\$

\$ - less than \$100,000; \$\$ - \$100,000-\$500,000; \$\$\$ - \$500,000 or more

²⁶ Sidepath along Wadsworth Boulevard from 32nd Avenue to 48th Avenue and paved trail through the Clear Creek crossing development are also highly ranked, but are not listed here because these facilities will be implemented in conjunction with other planned projects.

²⁷ The northern portion of this project may not be feasible within the constraints of the current Tabor St. bridge over I-70. Bike lanes are also proposed for this section and could provide a minimal level of pedestrian accommodation until the opportunity for implementation of a sidewalk is presented.

Implementation Strategy

Given resource constraints, it is recommended that Wheat Ridge focus its effort on implementing the high priority projects in the near term. However, the City should take advantage of opportunities to implement other proposed projects by leveraging routine maintenance projects, other capital improvement projects, or private funding through new development or redevelopment. The City should remain flexible in elevating the priority of lower-ranked projects, as all the proposed projects would offer a benefit to Wheat Ridge residents.

Appendix D summarizes potential federal, state, regional, and locally-administered funds for bicycle and pedestrian infrastructure. Included within each category are a description of the funding source, eligibility requirements, and direction to additional information where available.

Conclusion

This plan update has confirmed the Wheat Ridge community's interest and dedication to providing a more comfortable and inviting environment for people who walk or bike. Building from the existing base of support and enthusiasm for active transportation, there are several strategic opportunities for the City to make walking and biking more attractive, comfortable, and convenient for all of Wheat Ridge.

Strengthening the base of programs to encourage and educate residents is a low-cost way to improve walking and across the City. In addition, building the network through engineering strategies will improve the City's bicycle and pedestrian network. However, while this Plan outlines several projects for implementation, greater investment in bicycling and walking facilities is needed to complete the network and encourage people of all ages and abilities to get outside and enjoy Wheat Ridge by foot or bike.

APPENDICES

Appendix A: Related Plans

The city, state, and region have adopted a number of plans that include evaluation and recommendations related to walking and bicycling. This section summarizes the relevant recommendations from existing plans that informed this Plan.

Recent planning efforts, including the 2015 *Parks and Recreation Master Plan*, envision a Wheat Ridge in which residents are connected to every park, trail and open space system with routes designed for biking, walking and active transportation. The City is building on these previous efforts by developing the *Bicycle and Pedestrian Master Plan*.

This Plan relates to the Strategic Prioritized Goals for the 2009 Five-year Strategic Plan. These goals address the challenges confronting the community and recognize the valuable community and city assets that can be utilized to successfully meet those challenges. A walkable and bikeable city can help attract and retain a fully engaged workforce (Goal 1: City Services). The goals of this Plan are consistent with the Strategic Plan's goal of Sustainable Growth by promoting the integration of multimodal transportation systems and of the city as a steward of public resources by pursuing activities that support environmental equity and health for all citizens.

Supporting active transportation investments supports and develops “thriving neighborhoods and commercial centers” (Goal 4: Economic Vitality). Finally, this relates to Goal 5: Quality of Life by preserving environmental resources, enhancing Wheat Ridge’s small town values, providing a safe environment, and promoting opportunities for citizens to engage in an active lifestyle. It also promotes civic engagement (Goal 6) by enhancing the sense of community.

Jefferson County – Countywide Transportation Plan (1998, amended 2002 and 2014)

Jefferson County’s *Countywide Transportation Plan* identifies four primary policy areas to guide bicycle and pedestrian investments in the County, including:

- **Coordination** - All agencies involved with the planning and implementation of pedestrian and bicycle facilities should work together to develop a coordinated effort to complete a project which is safe and convenient for alternative modes.
- **Maintenance** - It is recommended that the Cities and County evaluate how issues such as citizen concerns, regular maintenance and snow/sand removal are addressed. If deficiencies exist, appropriate departments would set up programs to meet the needs of people using alternative mode facilities.
- **Right-of-Way** - The inclusion of the acquisition of Right-of-Way (ROW) for the construction of safe and convenient pedestrian and bicycle facilities is needed when building new roadways.
- **Funding** - There should be coordinated efforts to actively compete for alternative mode funding sources through the Denver Regional Council of Governments (DRCOG) and the Colorado Department of Transportation (CDOT).

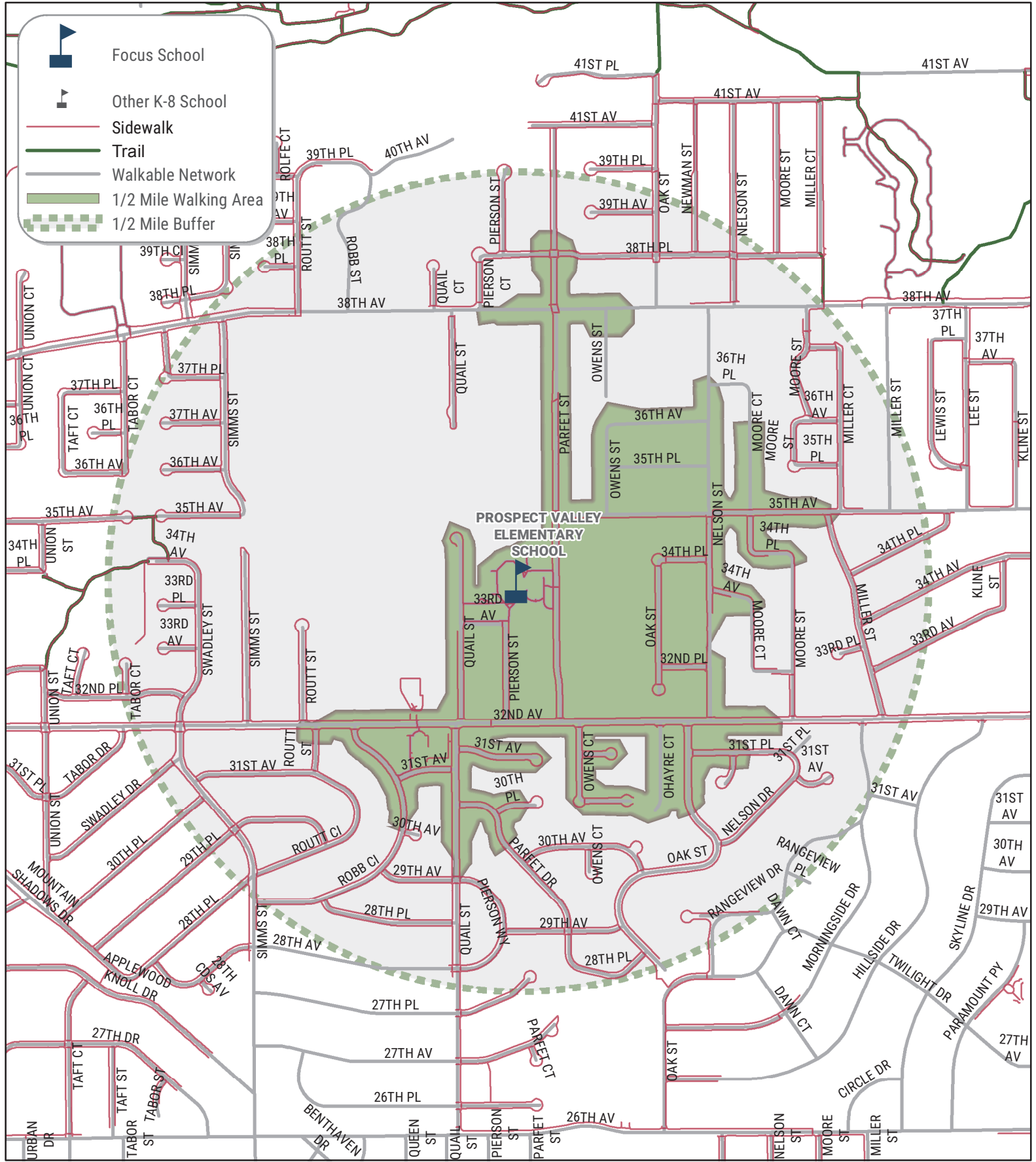
Jefferson County Bicycle and Pedestrian Plan (2012)

The *Jefferson Bicycle and Pedestrian Plan* supports the goals and policies identified in the *Jefferson Countywide Transportation Plan* and *County Comprehensive Master Plan*, and outlines a long-term vision for the County by providing details about future transportation investments to help the County achieve its goal of increasing the number of bike and walk trips. A regional approach that focuses on bicycle and pedestrian accommodations that are continuous and consistent throughout the cities, towns, and unincorporated areas of Jefferson County is also identified.

The JeffCo Regional Bikeways Wayfinding Guide (2016)

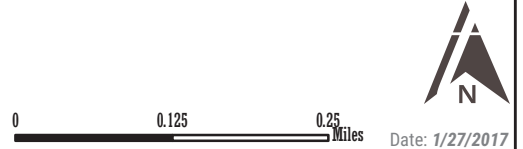
The *JeffCo Regional Bikeways Wayfinding Guide* serves as a toolkit for the development of a regional wayfinding network. When implemented, the wayfinding signs will be a core component of the well-used, more intuitively navigable, and memorable JeffCo Regional Bikeway network. Through this Guide, a clearer visual language and universal graphic standards were created to guide residents and visitors along regional bikeways and to destinations throughout the county. The signage includes tier one, two, and three tier destinations with mileage, distance, and travel time estimates. The Central Corridor (Chatfield Reservoir, Kipling Street, US-285, to Estes connection to Lakewood will pass through Wheat Ridge and 32nd Avenue).

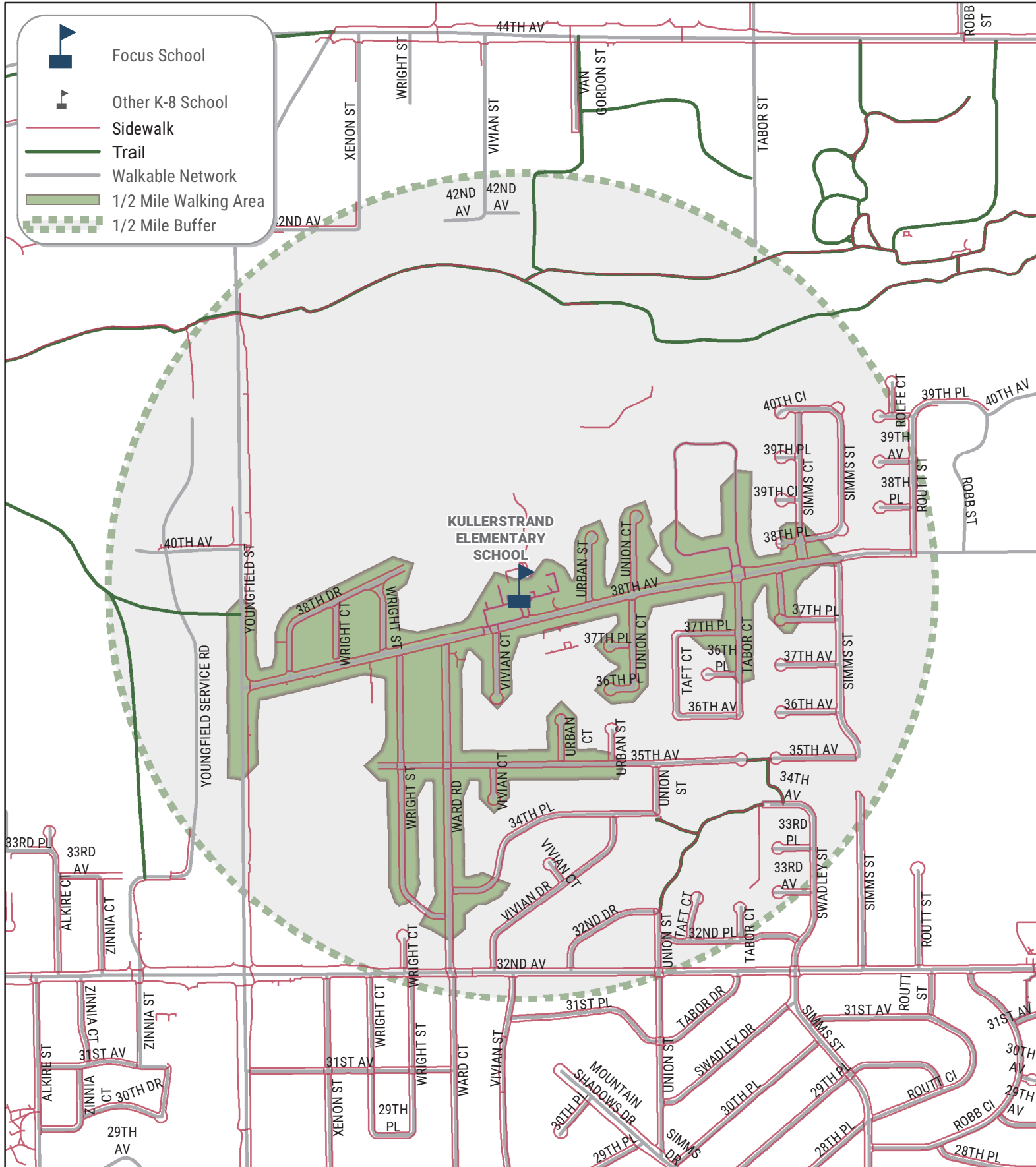
Appendix B: K-8 School Walkshed Maps

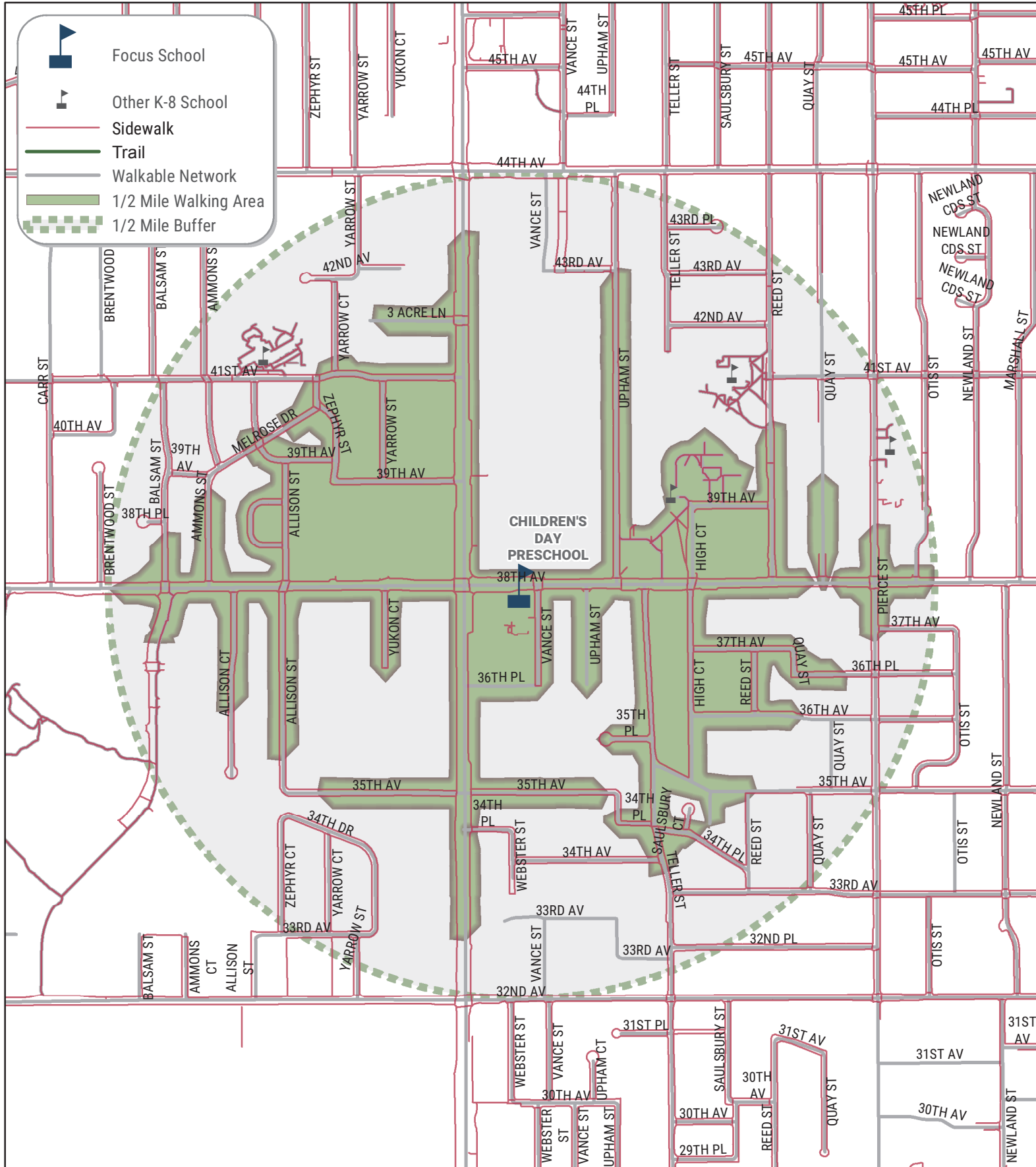


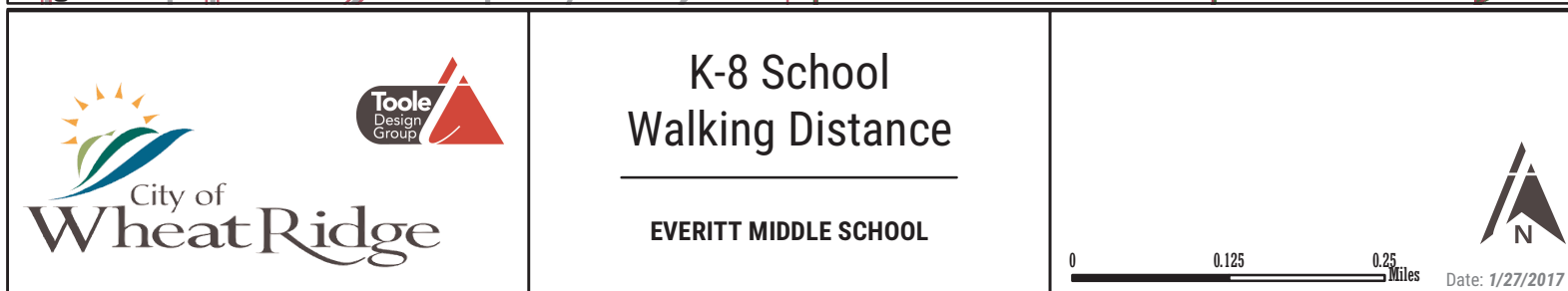
K-8 School Walking Distance

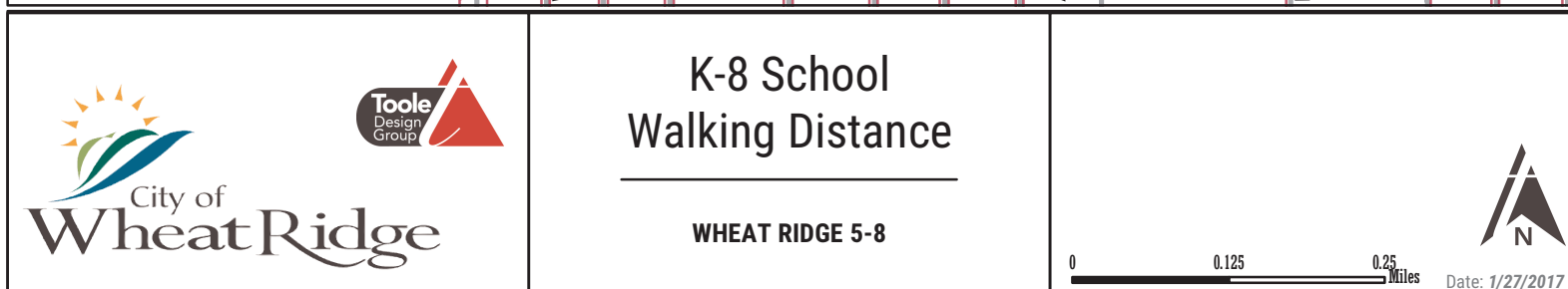
PROSPECT VALLEY ELEMENTARY SCHOOL

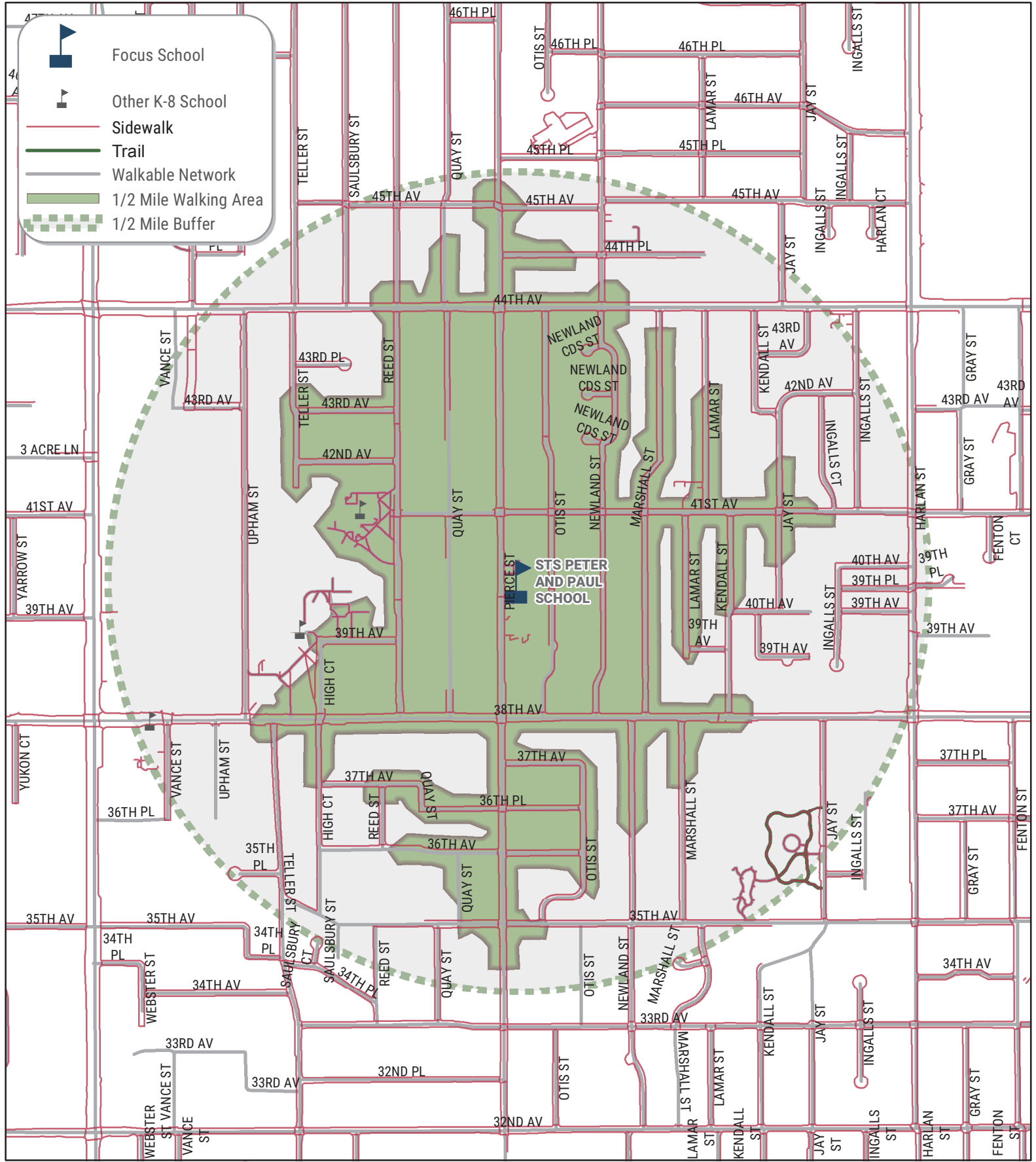






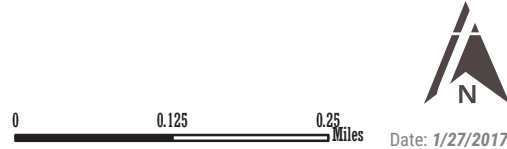


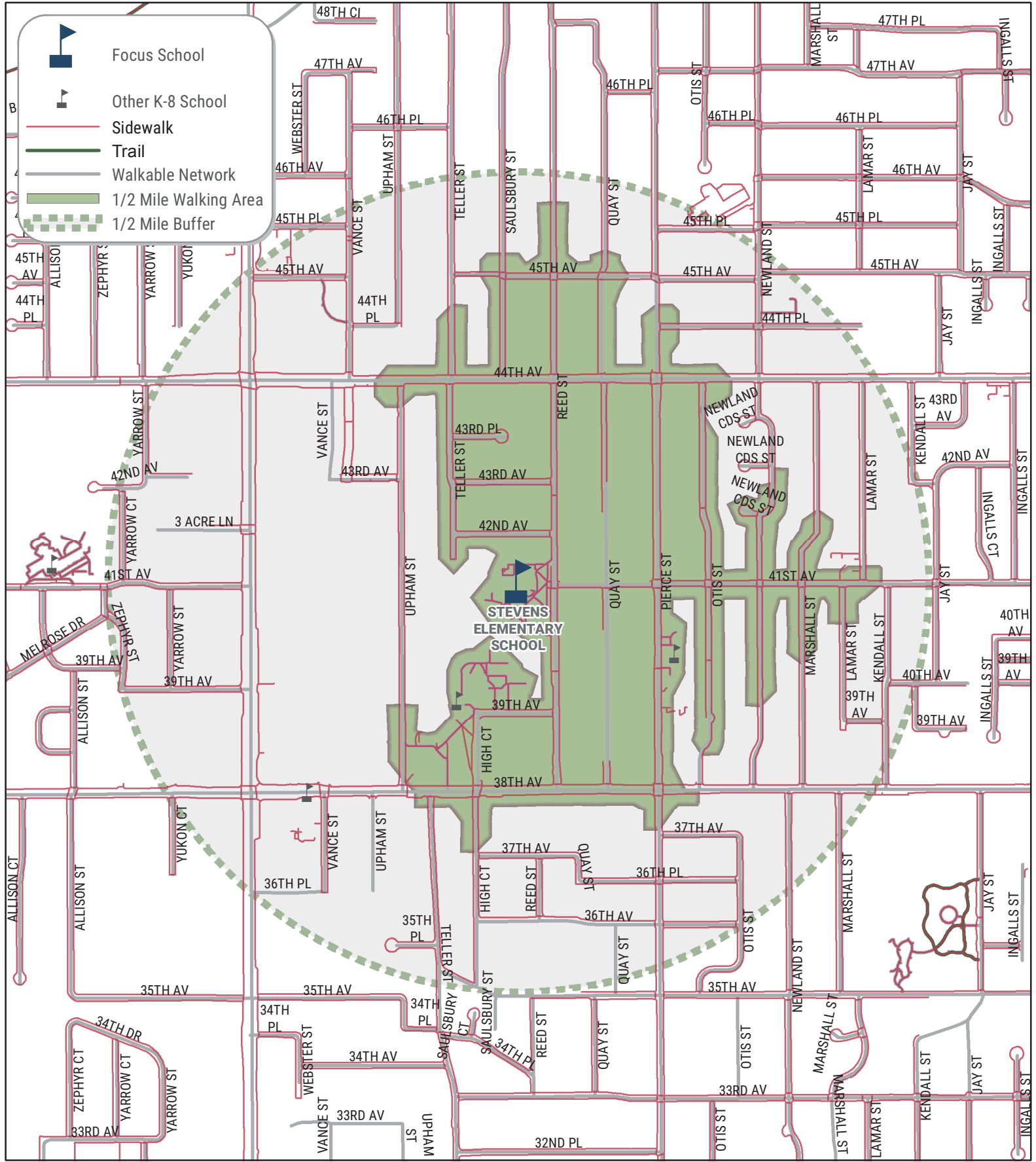




K-8 School Walking Distance

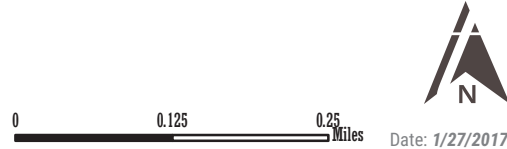
STS PETER AND PAUL SCHOOL

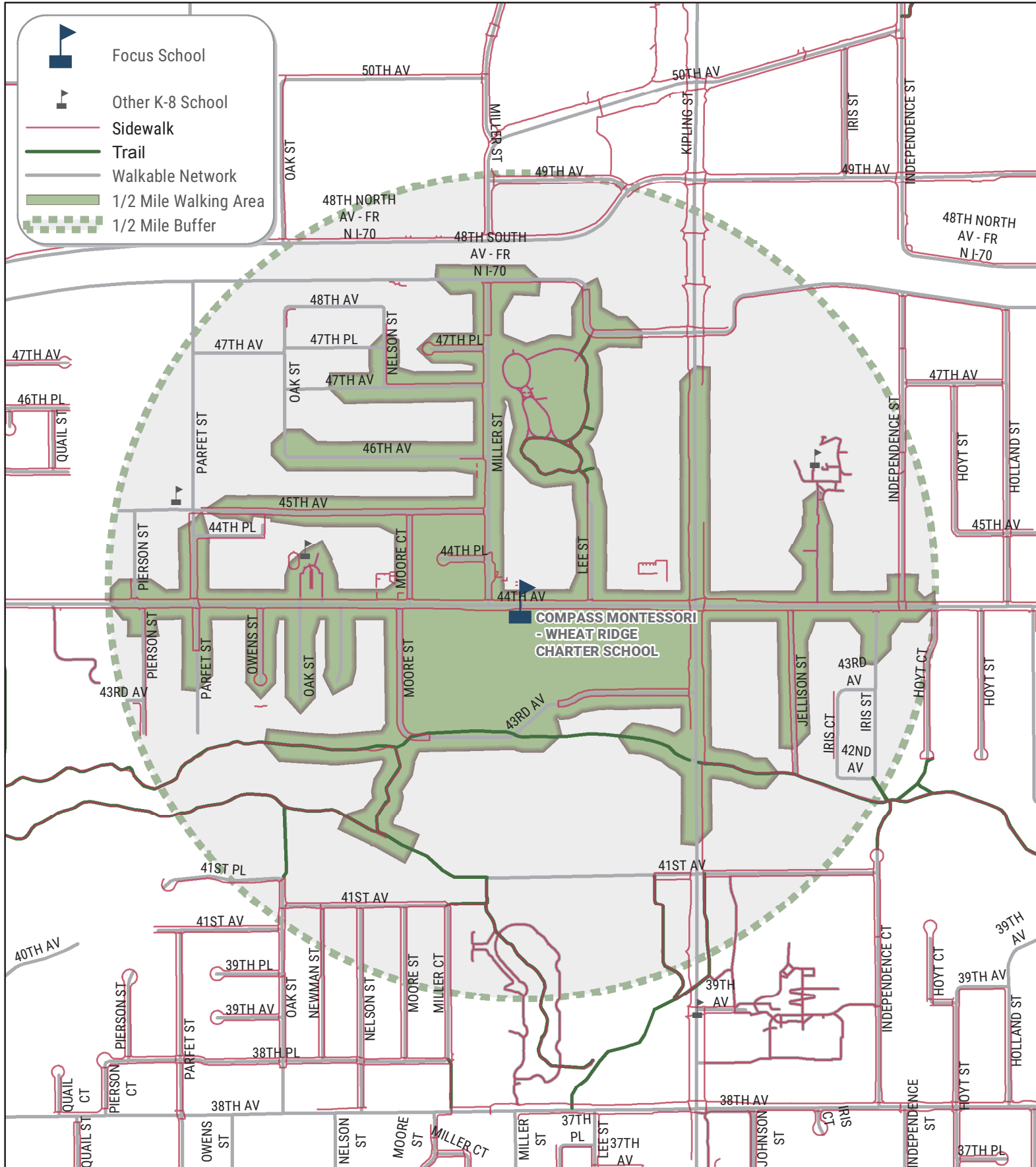


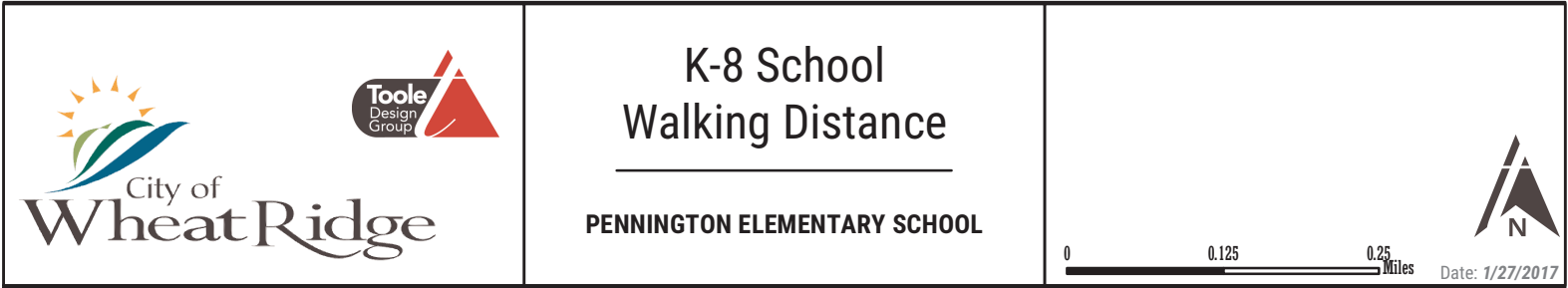


K-8 School Walking Distance

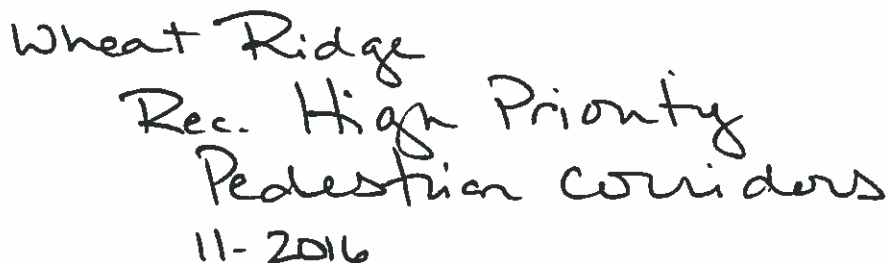
STEVENS ELEMENTARY SCHOOL







Appendix C: ATAT Pedestrian Priority Routes



Black = 1st tier
Blue = 2nd tier

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Appendix D: Funding Sources

Summarized here are potential Federal, State, regional, and locally-administered funds for bicycle and pedestrian infrastructure. Included within each category are a description of the funding source, some eligibility requirements, and direction to additional information where available.

Federal Funding

In December 2015, President Obama signed the newest transportation authorization bill, Fixing America's Surface Transportation Act (the FAST Act), into law. The FAST Act streamlines some programs but is not expected to substantially affect program eligibility or funding requirements at the local level. As with any new legislation, it is possible that some of the individual components of specific programs will change in the near future. Therefore, the City of Wheat Ridge should use up-to-date information, regulations, and requirements when pursuing grant money.

Transportation Alternatives

The FAST Act replaced the former Transportation Alternatives Program (TAP) with a set-aside of funds under the Surface Transportation Block Grant Program (STBG). For administrative purposes, the Federal Highway Administration (FHWA) will refer to these funds as the TA Set-Aside. The TA Set-Aside authorizes funding for programs and projects defined as transportation alternatives, including on- and off-road active transportation facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, recreational trail projects, and safe routes to school projects.

Transportation Investment Generating Economic Recovery (TIGER) Grant

TIGER grants fund a broad array of road, rail, transit, bicycle, and pedestrian projects. The program focuses on capital projects that generate economic development and improve access to reliable, safe, and affordable transportation, especially for disadvantaged communities. TIGER grants only fund projects that have gone through preliminary design and there is typically preference given to projects with broad stakeholder support. Applicants are required to demonstrate that project benefits outweigh costs. Projects in urban areas, such as in Wheat Ridge, must request at least \$10 million with a minimum 20 percent match.

Enhanced Mobility of Seniors and Individuals with Disabilities Program

This program is intended to enhance mobility for seniors and persons with disabilities by providing funds for programs to serve transit-dependent populations beyond traditional public transportation services and Americans with Disabilities Act (ADA) complementary paratransit services (this program consolidates New Freedom eligible projects). Bicycle and pedestrian improvements that provide access to an eligible public transportation facility and meet the needs of the elderly and individuals with disabilities can receive funding.

Section 402 State and Community Highway Safety Grant Program

The Section 402 program provides grants to states to improve driver behavior and reduce deaths and injuries from motor vehicle-related crashes. The program is jointly administered by the National Highway Traffic Safety Administration (NHTSA) and the Federal Highway Administration (FHWA) at the federal level and by State Highway Safety Offices at the state level. Funds may be used to reduce impaired driving, reduce speeding, improve pedestrian and bicycle safety, and reduce school bus deaths and injuries, among other activities. Child and adult bicycle safety education is eligible for funding.

State-Administered Funding

This section describes State-administered funding sources, including those that use Federal funds and those that use state-generated revenue:

- Safe Routes to Schools (SRTS)
- Colorado Parks and Wildlife (CPW) Trails Program
- Highway Safety Improvement Program (HSIP)
- Federal Lands Access Program (FLAP)
- Land and Water Conservation Fund
- Safe Sidewalk Program

Safe Routes to Schools (SRTS)

This program provides funding for education, enforcement, evaluations, and infrastructure improvements near elementary and middle schools that promote students walking and biking to school. Currently, the SRTS program is administered by CDOT. Interested communities can apply for infrastructure and non-infrastructure projects through a competitive application process.

Recreational Trails Program (RTP) Funds

CPW's Trails Program receives RTP funds through FHWA. Eligible grant applicants for this funding include local, state, and federal agencies, non-profits, clubs, recreation and metro districts.

Highway Safety Improvement Program (HSIP)

HSIP funds are available for safety projects aimed at reducing traffic fatalities and serious injuries. Bike lanes, roadway shoulders, crosswalks, intersection improvements, underpasses, and signs are examples of eligible projects. Projects in high-crash locations are most likely to receive funding. Colorado has identified bicycle and pedestrian safety as Emphasis Areas and is more likely to fund bicycle and pedestrian safety projects as a result.

Colorado Parks and Wildlife (CPW) Trails Program

CPW receives four types of grant funds which are distributed annually to successful trail grant applicants: Great Outdoors Colorado (GOCO) Local Government matching grants, Great Outdoors Colorado (GOCO) State Parks matching grants, Federal Recreational Trails Program (RTP) Funds, and Federal Land and Water Conservation Funds (LWCF).

Regionally Administered

This section describes funding sources administered by the Denver Region Council of Governments (DRCOG), including several Federal funding programs. In the descriptions below, the programs are referred to by their new names under the FAST Act:

- Surface Transportation Block Grant Program
- Surface Transportation Block Grant Program Set-Aside
- Congestion Mitigation and Air Quality Improvement (CMAQ) Program
- Community Services Block Grant Program (CSBG)
- Racial and Ethnic Approaches to Community Health (REACH)

Surface Transportation Block Grant Program

The STBG Program is the new name for the Surface Transportation Program. This flexible program may be used by States and localities for projects to preserve and improve the conditions and performance on

any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure anywhere, and transit capital projects, including intercity bus terminals. Eligibility includes bicycle transportation and pedestrian walkways, ADA sidewalk modification, recreational trails, and any activity eligible under the Set-Aside program (see below). DRCOG and the State control funds which they can spend or distribute within the region.

Surface Transportation Block Grant Program Set-Aside

This Set-Aside, established in the FAST Act, replaces the Transportation Alternatives Program (TAP).²⁹ Funding through the Set-Aside can be used for the construction of sidewalks, walkways or curb ramps; bike lane striping, bike parking and bus racks; traffic calming; off-road trails; bike and pedestrian bridges and underpasses; ADA compliance; acquisition of railroad rights-of-way; and planning, design and construction of multiuse trails and rail-with-trail projects. Larger Metropolitan Planning Organizations, such as DRCOG, control a share of the funds to distribute locally through a competitive process.

Congestion Mitigation and Air Quality Improvement (CMAQ) Program

The CMAQ program supports surface transportation projects, like those for active transportation projects, due to their linkage to air quality improvements. Because Wheat Ridge is within the larger Nonattainment and Maintenance Areas that are not in compliance with the National Ambient Air Quality Standards, projects to improve air quality via active modes could be eligible for CMAQ funding.

Local Funding

This section describes locally-administered funding sources:

- General Fund
- Bond Financing
- Impact Fees
- Special Assessment or Taxing Districts
- Development-driven Projects

General Fund

General funds, like those used for maintenance and some capital improvement projects, can be leveraged to enhance bicycle and pedestrian access. For example, streets identified for reconstruction or repaving should be evaluated for their potential to complete or augment the existing bicycle and pedestrian networks.

Bond Financing

Bond financing is a long-term borrowing tool used to provide funds for capital projects. Bond measures are approved by voters and can authorize specific projects, including transportation improvements identified through the legislative process.

Impact Fees

Impact fees are paid by the developers to fund a fraction of the improvements that are required because of the new growth. Impact fees can be instituted to fund bicycle and pedestrian projects, such as trails. Impact fees are typically tied to trip generation rates and traffic impacts produced by a

²⁹ The TAP included the former Transportation Enhancements Program, the Safe Routes to School Program, and the Recreational Trails Program.

proposed project. Establishing a clear nexus between the impact fee and the project's impacts is critical. Impact fees may be considered at a citywide scale or for new developments within the city.

Special Assessment or Taxing Districts

Special districts are organized to fund a specific project that benefits an identifiable group of properties. They are designated areas within which property owners are assessed a charge to defray the costs of capital improvements that can benefit the properties within the district. The costs of improvements are generally divided among property owners within a specified area. The contribution by owner can be allocated based on property frontage or other methods such as traffic trip generation. Transportation Development Districts (TDD) are one example of these districts used to finance transportation improvements, such as bicycle and pedestrian amenities. A TDD has the power to issue a bond to pay for the construction of projects that can benefit the district. Special districts may be considered for some areas within the study area; especially within downtown cores.

Development-Driven Projects

Developers construct the local streets within subdivisions and may participate in the construction of collector/arterial streets and trails adjacent to their properties

Other Sources

This section describes other potential funding sources:

- The Kresge Foundation
- The Conservation Fund
- People for Bikes
- The Walmart Foundation
- Robert Wood Johnson Foundation
- Bike Shop Sponsorships
- Home Owners' Associations
- Crowdfunding

The Kresge Foundation

The Kresge Foundation provides grants to nonprofit organizations and government agencies seeking financial assistance for projects that contribute to improving health at the community level. The goal of these grants is to create a comprehensive system that improves health outcomes, promotes health equity, reduces per-capita health costs, remove barriers to health, and offers the greatest promise for adoption on a larger scale. Active transportation facilities may be competitive for this funding.

The Conservation Fund

The Conservation Fund provides loans for land acquisition to support the creation of bicycle and pedestrian facilities. Their loan program offers flexible financing as well as sustained and expert technical assistance to organizations aiming to protect key properties in their communities.

People for Bikes

People for Bikes supports bicycle infrastructure projects and advocacy initiatives that make it easier and safer for all people to ride. Their grant funds are awarded to infrastructure projects such as bike paths, lanes, trails, bridges, and end-of-trip facilities such as bike racks, bike parking, and bike storage. Some examples of People for Bikes grants in the Denver region.

- Denver-Boulder Bikeway – In 2001, a \$10,000 grant to Bicycle Colorado to ensure the US-36 bikeway was included as the preferred alternative.
- BikeDenver – In 2009, BikeDenver received \$10,000 to implement a bike share program and improve city infrastructure and policies related to bicycling. Similarly, in 2011 they received \$2,500 to launch their first Viva Streets event in August 2011.

Walmart Foundation

Walmart Foundation provides significant funding for projects that align with their key focus areas: Opportunity, Sustainability and Community. In addition, staff are encouraged to participate in volunteer projects and can provide smaller levels of financial support.

Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation provides grants for projects that improve community health and the health care system with a focus on non-infrastructure projects. Most grants are awarded through calls for proposals (CFPs) available on their website. Brief proposals for projects that suggest new and creative approaches to solving health and health care problems can be submitted at any time.

Bike Shop Sponsorships

Trail and bicycle programs have a positive effect on the economy. Many of those who benefit would like to give back. Bike shops are often willing to donate a portion of their proceeds towards community events or the completion of a particular project.

Home Owners' Associations

As more and more communities recognize the benefits of biking and walking, they are willing to support extensions of existing systems or connections to their neighborhood. Home Owners Associations and other neighborhood groups are often willing to fund all or part of a project to hasten its completion.

Crowdfunding

Crowdfunding focuses on raising money for projects through many small donations. Websites, such as gofundme.com, ioby.com, and indiegogo.com, allow fundraising campaigns to be easily established. In 2014, Memphis raised \$70,000 through crowdfunding to build a separated bicycle lane. In 2015, Denver launched a crowdfunding campaign focused on corporate donors for the planning and design of a protected bike lane in downtown. Crowdfunding can be a creative approach to using community-based donations to leverage public funding.