

Leadville/Lake County Bicycle, Pedestrian, and Trails Master Plan



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ACKNOWLEDGEMENTS

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EXISTING CONDITIONS



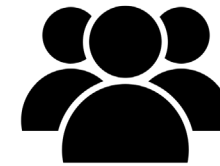
OVERVIEW

Lake County is located in the south western region of Colorado adjacent to Summit and Eagle Counties. The only municipality within Lake County is the City of Leadville. Lake County and the City of Leadville are located over 10,000 feet, and home to the highest point in Colorado and the Rocky Mountains - Mt. Elbert (14,400 feet). The City of Leadville has a wide variety of historical and recreational assets including the Climax Mine, the San Isabel National Forest, the Arkansas River, the Colorado Trail, and the Mineral Belt Trail.



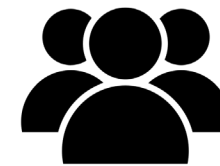
DEMOGRAPHICS

Lake County, Colorado



According to data from the American Community Survey (ACS) 5-Year Estimates, Lake County has a total population of 7,481 and the median age is 39 years. For means of transportation to work, the majority of those surveyed reported driving (77.3%), some walk (10.9%) or work from home (8.3%), several take public transit (1.5%), and a few bike (0.5%)

Lake County, Colorado



Based on the ACS 5-Year Estimates, the City of Leadville has a total population of 2,645 and the median age is 39 years. The majority of the population is white (93.1%) and twenty-two percent of those surveyed reported being Hispanic/Latino (22.0%). For means of transportation to work, less people reported driving compared to Lake County as a whole (63.4%); more reported walking (20.1%), biking (5.1%), work from home (13.8%); and public transportation is relatively the same as Lake County (1.3%).

EXISTING CONDITIONS

GOALS AND OBJECTIVES

The following goals and objectives were identified by the Project Team and informed by Project Partners to better connect existing planning documents and improve multi-modal connectivity to amenities and recreational assets.

Goal 1: Understand existing Leadville & Lake County transportation planning priorities

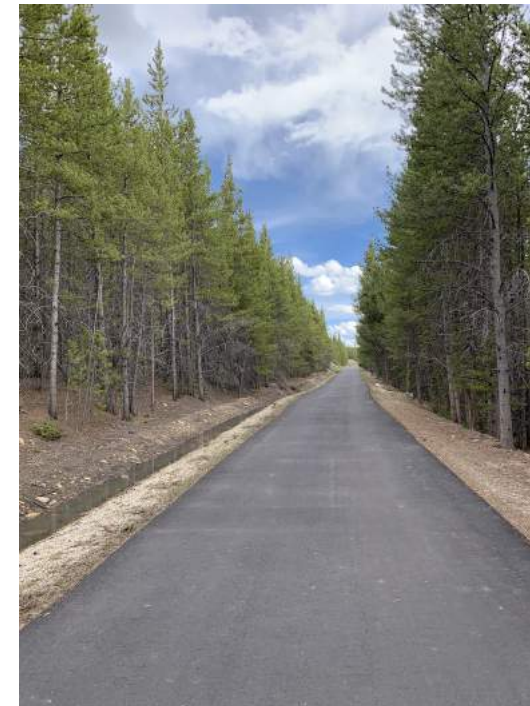
- Objective 1: Identify all relevant transportation goals from existing plans
- Objective 2: Consolidate existing and proposed plans

Goal 2: Encourage inclusive and better community engagement for transportation and mobility planning

- Objective 1: Understand community preferences and needs related to biking and walking
- Objective 2: Create Community Engagement Toolkit

Goal 3: Increase bicycle, pedestrian, and winter recreation connectivity to amenities and recreational trails

- Objective 1: Address connectivity gaps in the existing and planned recreational trails network
- Objective 2: Prioritize streets from the Leadville/Lake County Multimodal Pedestrian and Bike Corridor Map
- Objective 3: Address vehicle, bicycling, and winter sports parking needs
- Objective 4: Supplement the existing Leadville/Lake County wayfinding system for bicyclists and pedestrians
- Objective 5: Create Complete Streets Design Guide



Mineral Belt Trail



Park



Timberline Trail System

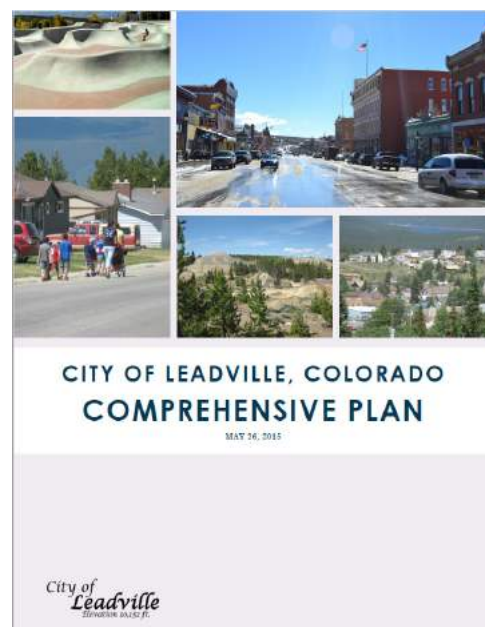
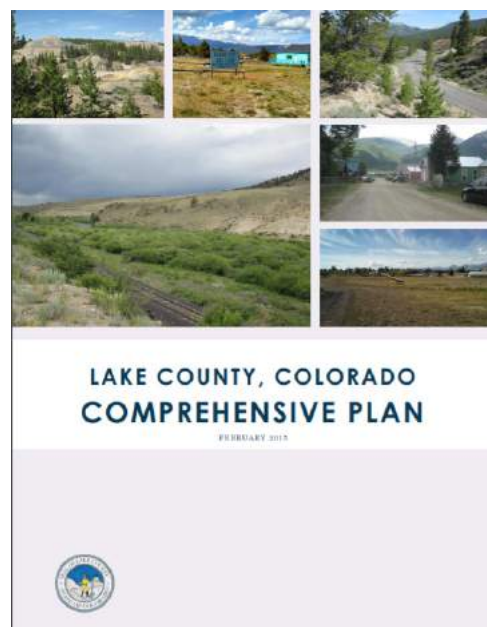
RELEVANT PLANS

A thorough review was conducted on relevant planning documents within the City of Leadville and Lake County. Key findings from these documents are presented below.

Leadville and Lake County Comprehensive Plans

Both Leadville and Lake County have similar goals for streets and trails in their comprehensive plans. Some relevant focus areas mentioned are:

- Pedestrian and bicycle connectivity within town and the region to recreational and community destinations by creating connections where they are currently absent
- Balance auto access with pedestrian and bike access along Highway 24
- Improve safety conditions for pedestrians/bicyclists
- Streetscape beautification and transportation improvements within the Downtown Core



Cloud City Wheelers 2020 Strategic Plan

- The mission of the Cloud City Wheelers is to create, enhance, preserve, and promote cycling in Leadville and Lake County. In the strategic plan, a main goal is to design and propose new trails throughout the region.



2013 Leadville-Lake County Youth Master Plan

Key goals from this plan include the following:

- Assess how to get people from where they live to key community locations safely and on foot or bike
- Build new paved and unpaved trails in order to increase access to the outdoors for youth and families, as well as provide safe options for non-motorized transportation within the community

Vision Leadville The 2013 Leadville – Lake County Youth Master Plan

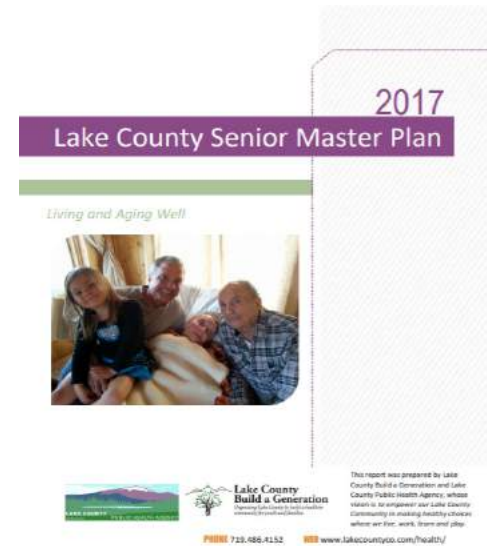


EXISTING CONDITIONS

2017 Lake County Senior Master Plan

Key goals from this plan include the following:

- Include more reliable, safe, and wheelchair accessible transportation and infrastructural improvements (sidewalks, lighting, snow removal) that improve wheelchair accessibility and pedestrian safety
- Given that “walking is the third most common form of transportation for Colorado’s older adults and people with disabilities,” features such as well-marked intersections, adequate time to cross streets, and benches for rest are recommended to create safe pedestrian travel



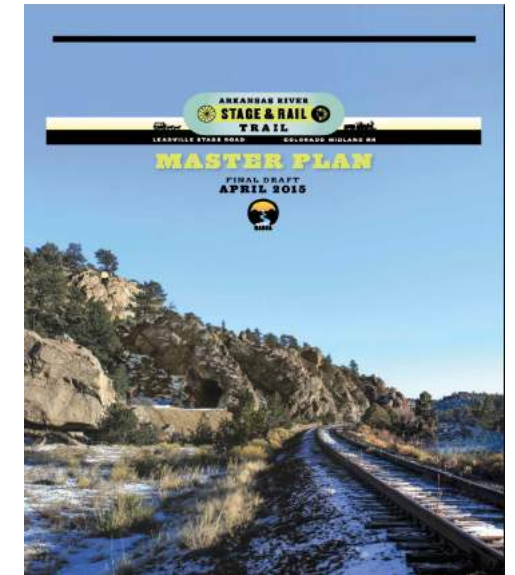
2015 Lake County Safe Routes to School Assessment

- In 2013, results indicated that an average of 6.8% of K-8th graders were walking to or from school, with less than 1% of students riding bikes. The majority of students are either bussed (46.3%) or taken by family vehicle (41%). In 2014, the percentage of kids walking or biking to/from school was even lower (walk=3.3%, bike=0.4%). In addition, the percentage of kids that rode a school bus increased by over 15% for 2014.



Cloud City Wheelers 2020 Strategic Plan

- Leadville and Lake County expressed interest in connecting current and future trails in the region to the proposed Stage and Rail Trail. The trail would extend some 64 miles from Salida to Leadville in Chafee and Lake Counties. Approximately 13 miles would be non-motorized single-track and the remainder would follow open public roads and highways.



Lake County Recreation Master Plan

Key priorities from the plan include:

- Advancement of the Complete Streets and Safe Routes to School initiatives and ongoing development of plans to improve walkability and bikeability in Leadville and Lake County
- The Winter Trails Committee and High Riders Snowmobile Association will work to figure out plans and operations to develop, maintain, and improve a winter trails system in Lake County. They will also continue to improve signage, regular grooming, trail expansion, and better parking at trailheads.
- Continued development of the single-track trail network

EXISTING CONDITIONS

Lake County Branding, Signage & Wayfinding Plan

Goals involve:

- Placemaking – Reinforce a sense of place for Leadville/Lake County, enhancing the community image and brand
- Brand Awareness - Support, brand, and identify a distinct identity for Leadville/Lake County with signage that blends with the historic yet modern feel of the area
- Legibility – Highlight important community resources and destinations, and how to access them through clearly defined directional information
- Highway Visibility - Direct visitors to Leadville/Lake County destinations from major transportation arteries
- Economic Development – Increase awareness of Leadville/Lake County, helping to increase sales tax revenues, general interest in the area, economic growth, and investment



2012 Lake County Public Health Assessment and Improvement Plan

Relevant goals include:

- Provide safe routes to school and the city core
- Increase options for transportation to health care appointments
- Increase students' access to healthy eating and active living
- Create changes in programs or policies to create a safer Lake County to live or travel

2012 LAKE COUNTY PUBLIC HEALTH ASSESSMENT AND IMPROVEMENT PLAN



11/8/2012 Creating Healthier Outcomes through Planning, Partnership and Prevention

LiveWell Leadville Community Food Assessment

Related goals from this assessment:

- Active Transportation: Increase the number of people in our community who are traveling by walking or biking
- Community Physical Activity: Increase activity levels among Leadville residents through recreational opportunities

LIVEWELL LEADVILLE COMMUNITY FOOD ACCESS ASSESSMENT



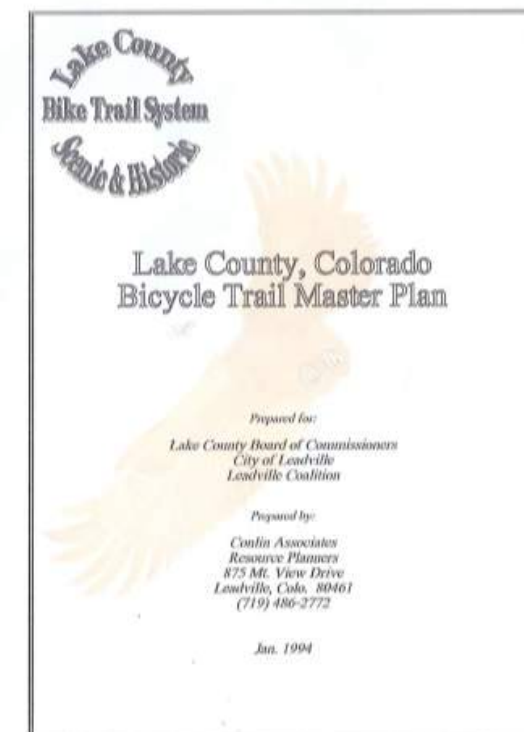
10/27/2014 Assessing Fresh Food Access and Affordability in Leadville-Lake County, Colorado



Lake County, Colorado Bicycle Trail Master Plan

The last bicycle trails master plan was completed in 1994. The plan intended to integrate multi-modal transportation components into the county's long-range transportation plan, provide for orderly phasing and development of design elements, and provide uniform standards and guidelines for construction. Community goals from the plan include the following:

- Creation of a Bicycle Friendly Community
- Connectivity to surrounding communities
- Linkage to major activity centers
- Linkage to historic sites
- Non-vehicular scenic and historic biway
- Increased quality of life
- Year round use



Prepared for:
Lake County Board of Commissioners
City of Leadville
Leadville Coalition

Prepared by:
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Jan. 1994



COMMUNITY ENGAGEMENT

The Leadville Comprehensive Plan has been developed in close coordination with the residents of Leadville. Under the guidance of RPI Consulting and through a combination of community surveys and regular public meetings with the Planning Commission and local government officials, residents have guided the planning policy to meet their vision for the future of Leadville. A consistent takeaway from community participation has been the desire to see improvements in pedestrian accessibility and connectivity between both local neighborhoods and regional attractions. Seventy-two percent of respondents considered the ability to walk or bike to the workplace or stores to be “important” or “very important.” Forty-seven percent responded that downtown sidewalks, streets, and pedestrian crossings “need improvement,” while 63% thought that improvements could be made to trails and pathways connecting neighborhoods and communities. However, the Project Team noticed that the Comprehensive Plans lack the quantity of responses that were received, and a lack in reporting how the surveys were administered. The Branding, Signage, and Wayfinding Plan from August 2018 had one of the most impressive public engagement executions among the relevant plans. Public engagement included community workshops and open house, intercept and community survey, and individual and group stakeholder meetings.

Stakeholders

To assist with the concept plan phase, the research team identified stakeholder groups that will be administrators and participants in public engagement for future projects. The stakeholder groups include: Lake County and City of Leadville, Lake County Build a Generation, Cloud City Wheelers, residents and community members, tourists and athletes, and businesses.

During the stakeholder analysis, the Project Team divided the stakeholders into four categories based on their level of interest and their level of influence. Emerged the following four lists:

Regular Minimal Contact

- Residents (also in a later list depending on their needs)

Anticipate and Meet Needs

- Tourists
- Businesses

Keep Completely Informed

- Lake County and City of Leadville
- Residents and community members

Manage and Collaborate with Most Thoroughly

- Lake County Build a Generation
- Cloud City Wheelers



COMPLETE STREETS

Lake County Build a Generation (LCBAG) is a project created and managed by the Lake County Public Health Agency that focuses on the social, environmental, and economic factors that impact health where community members live, learn, work, and play in Lake County and the City of Leadville.

EXISTING CONDITIONS

LCBAG has recently completed a draft of a resolution to adopt a Complete Streets Policy and gathered relevant resources for a Complete Streets Materials Packet related to “...transportation improvements that integrate walking, bicycling, transit, and motor vehicle use, while promoting safe and efficient operations in existing subdivisions and in future developments.” The purpose of the Complete Streets Policy is to create streets in the City of Leadville that are for everyone and can be safely accessed by all users, regardless of their age, ability, or mode of transportation. Complete Streets enhance quality of life for a variety of users including youth, people with disabilities, and seniors by enhancing health equity and improving safety.

Currently, Harrison Avenue is the only street throughout the City of Leadville that could be considered the most complete street. There is a temporary installation project along this street with two lanes going both ways that have parking and striped bike lanes on both sides. However, there is poor bicycling and pedestrian connectivity to Highway 24 from both the north and south.

According to Smart Growth America’s National Complete Streets Coalition, there are specific elements that should be included in a Complete Streets Policy. These can be found on the next page.

Complete Streets Materials Packet



RESOLUTION
A RESOLUTION ADOPTING A COMPLETE STREETS POLICY AS RELATED TO TRANSPORTATION IMPROVEMENTS TO INTEGRATE WALKING, BICYCLING, TRANSIT, AND MOTOR VEHICLE USE, WHILE PROMOTING SAFE AND EFFICIENT OPERATIONS IN EXISTENT SUBDIVISIONS AND FUTURE DEVELOPMENTS.

WHEREAS, [The City of Leadville/County of Lake] recognizes the need to accommodate all modes of travel on City streets/County road right-of-ways, for all users, including pedestrians, users with disabilities, cyclists, motorists, truck traffic and public transit; and

WHEREAS, [Streets/Roads] are public spaces and should therefore be treated as such, vehicular traffic is of equal importance to pedestrian and cyclist traffic; and

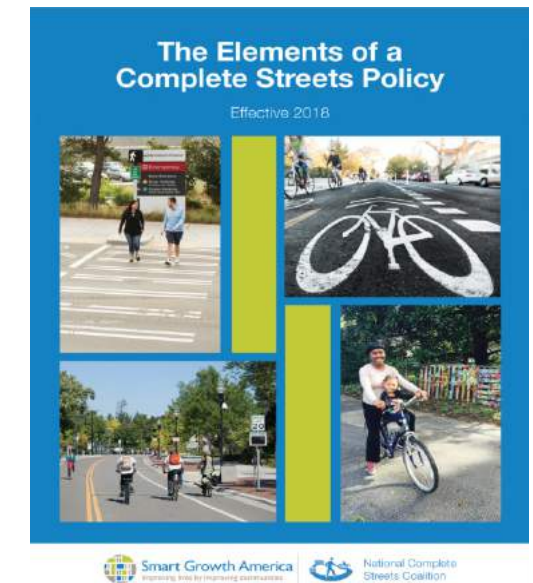
WHEREAS, the [City of Leadville/County of Lake] will seek to enhance/commit to repair and replace existing roads in the City and County and enhance connectivity, WITHOUT placing an economic burden on residents and business owners; and

WHEREAS, to improve community health, the [City of Leadville/County of Lake] seeks to transform its street network from a barrier to an asset for regular walking and biking, for all ages of user groups; and

WHEREAS, Complete Streets are necessary to advance long-term community goals around health and transportation that support the vision and strategies outlined in various county wide plans including the City of Leadville Comprehensive Plan and Lake County Comprehensive Plan; and

This policy was reviewed by the Project Team and feedback was provided to ensure the policy includes these elements. Since each street is unique, it must respond to the physical context of its surroundings. Throughout this process, the Project Team will also taken into consideration a context-sensitive approach to ensure each street is designed to meet the community’s specific needs and best-practices.

Figure 1-3. Harrison Avenue



Elements of an Ideal Complete Streets Policy

Smart Growth America, National Complete Streets Coalition

- *Vision and intent:* Includes an equitable vision for how and why the community wants to complete its streets. Specifies need to create complete, connected, network and specifies at least four modes, two of which must be biking or walking.
- *Diverse users:* Benefits all users equitably, particularly vulnerable users and the most underinvested and underserved communities.
- *Commitment in all projects and phases:* Applies to new, retrofit/reconstruction, maintenance, and ongoing projects.
- *Clear, accountable expectations:* Makes any exceptions specific and sets a clear procedure that requires high-level approval and public notice prior to exceptions being granted.
- *Jurisdiction:* Requires interagency coordination between government departments and partner agencies on Complete Streets.
- *Design:* Directs the use of the latest and best design criteria and guidelines and sets a time frame for their implementation.
- *Land use and context sensitivity:* Considers the surrounding community's current and expected land use and transportation needs.
- *Performance measures:* Establishes performance standards that are specific, equitable, and available to the public.
- *Project selection criteria:* Provides specific criteria to encourage funding prioritization for Complete Streets implementation.
- *Implementation steps:* Includes specific next steps for implementation of the policy.

Other Key Elements

A few other key elements that are recommended to be included in a Complete Streets Policy are as follows:

- Specifies that 'all users' includes pedestrians, bicyclists and transit passengers of all ages and abilities, as well as trucks, buses, emergency vehicles, and automobiles
- Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes
- Is understood by all agencies to cover all roads
- Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way
- Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions
- Directs the use of the latest and best design criteria and guidelines while recognizing the need for flexibility in balancing user needs
- Directs that Complete Streets solutions will complement the context of the community
- Establishes performance standards with measurable outcomes
- Includes specific next steps for implementation of the policy

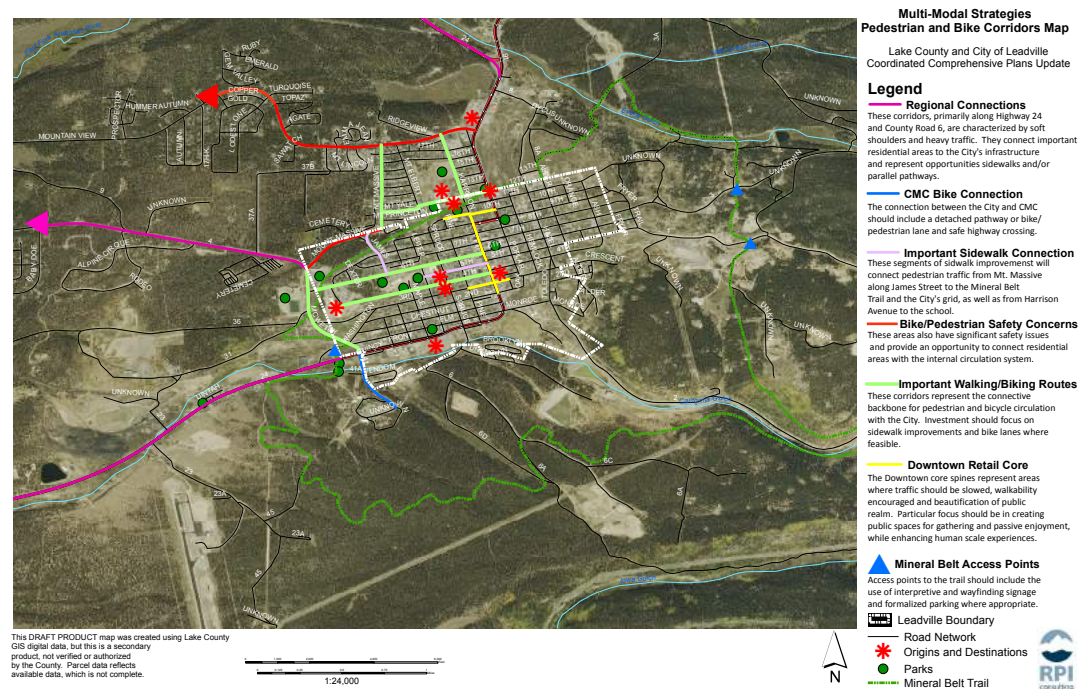


MULTIMODAL NETWORK

Pedestrian and Bike Corridor Map

The Lake County Comprehensive Plan and the City of Leadville Comprehensive Plan determined priority pedestrian and bicycling areas based on community input for regional connections, the Colorado Mountain College (CMC) Bike connection, important sidewalk connection, bike/pedestrian safety concerns, important biking/walking routes, downtown retail core, and Mineral Belt access points (Figure 4). The existing conditions of these priority routes and street segments were assessed by the Project Team and are discussed in the following sections.

Figure 4. Pedestrian and Bike Corridor Map



Manufactured Homes

The three manufactured homes surrounding the City of Leadville are

home to a significant number of residents that need key connections and access to the city and downtown area.

Mountain Valley Estates Mobile Home Park

The Mountain Valley Estates Mobile Home Park is located to the north east of the Leadville boundary. It is approximately 0.8 miles away from the Safeway and 1.5 miles away from the North end of Harrison Ave. In order to travel this distance by foot or bicycle, residents have to walk on the shoulder of Highway 91. Along this route, the residents also have to cross the US 24 junction, where there are three opportunities for cars to exit and enter onto Highway 91. A sidewalk is present just before the Safeway at the transition of Highway 91 into US 24 East and it continues into town.

Figures 5 and 6. Pedestrian/Bicycling route from Mountain Valley Estates Manufactured Home Park



Along Highway 91 towards Leadville



Bicyclist crossing Highway 91 and 24 junction

Mountain View Village Mobile Home Park

Mountain View Village is located 3.2 miles from Leadville along US 24 West.

EXISTING CONDITIONS

The typical pedestrian and bicycling route follows Highway 99 to Highway 9 to Highway 4, which merges with McWethy Drive. This route is less trafficked than following US 24 West to Highway 91, but it still requires users to stick to an unprotected and sometimes unpaved shoulder.

Mountain View Village Mobile Home Park

Mountain View Village is located about 3.2 miles from Leadville along US 24 West. The typical pedestrian and bicycling route follows Highway 99 to Highway 9 to Highway 4, which merges with McWethy Drive. This route is less trafficked than following US 24 West to Highway 91, but it still requires users to use an unprotected and sometimes unpaved shoulder.

Figures 7 and 8. Pedestrian/Bicycling route from Mountain Valley Estates Manufactured Home Park



US 24 West shoulder towards Leadville



Highway 99

Lake Fork Mobile Home Park

The Lake Fork Mobile Home Park is located at the junction of US 24 East and Highway 46 is about 5 miles from Leadville. The most commonly traveled pedestrian/bicycling route follows County Road 36

and McWethy Drive. These roads do not have heavy traffic and it is the most direct route into Leadville, but they are closed in the winter and not maintained during the rainy seasons.

Figures 9 and 10. Pedestrian/Bicycling route from Lake Fork Mobile Home Park



Route into Leadville



Highway 36A to Leadville

The City of Leadville Bicycle and Pedestrian Infrastructure

The Leadville Comprehensive Plan emphasizes the need for safe crossings downtown and continuous sidewalks connecting neighborhoods to destinations in the city such as schools, parks, and trails. The pedestrian and bicycling infrastructure is concentrated in a few areas within Leadville. The only existing bike lane is along Harrison Street, which starts at 9th Street and continues to Monroe and Elm Street. There is a substantial amount of pedestrian infrastructure along Harrison Avenue with ADA accessible sidewalks, painted crosswalks, and signals for pedestrians to walk across the street at key intersections. There are a number of sidewalks that extend a block or two off of Harrison street, but there is a lack of connectivity

EXISTING CONDITIONS

for safe pedestrian routes. The Project Team completed an observational assessment of the street conditions in the City of Leadville. Overall, all of the streets need to be re-paved because there are significant amounts of bumps and cracks, and un-even surfaces that make it unsafe for bicyclists and pedestrians. Some visual representations of existing streets in the City of Leadville are provided below.

Figures 11 and 12. Example of existing street conditions



McWethy Drive from Highway 24 to Mount Massive Drive
McWethy Drive from Highway 24 to Mount Massive Drive currently has two driving lanes with minimal pedestrian infrastructure and no bicycle infrastructure. The Mineral Belt Trail connects to McWethy Drive along this segment of the street, and key destinations such as the Aquatic Center and Lake County Community Park are important biking and walking connections. There is a painted crosswalk just past 6th Street and McWethy Drive with pedestrian signs that helps connect people from the community park to the Aquatic Center but there is only a dirt path/desire line that has been created by pedestrians using this route. It is also a street with high vehicle traffic.

Figures 13 and 14. McWethy Drive from Highway 24 to Mount Massive Drive



Crosswalk connecting to Aquatic Center and park



McWethy Drive and 6th Street

Mount Massive Drive from McWethy Drive to Mountain View Drive
Mount Massive Drive from McWethy Drive to Mountain View Drive is a more residential street with two driving lanes and recently installed sidewalks on both sides of the street.

EXISTING CONDITIONS

There is currently no bicycle infrastructure along this street. This street serves as an important connection for bicyclists and pedestrians traveling to and from McWethy Drive.

Figure 15. Mount Massive Drive from McWethy Drive to Mountain View Drive



Sidewalk along Mount Massive Drive

Mountain View Drive

Mountain View Drive has two driving lanes and a paved shoulder. The paved shoulder on the south side of the street has crosswalks at street intersections and American's with Disabilities Act (ADA) ramps. Based on observations by the Project Team, people were currently using this shoulder for walking, running, and biking. This street connects to Mount Massive Drive and Highway 24 where Safeway, the only full service grocery store in Leadville, is located. This street also connects to the recreational trails at Turquoise Lake.

Figures 16 and 17. Mountain View Drive



Paved shoulder and crosswalk



Highway 24 and Mountain View Drive adjacent to Safeway

Highway 24/Poplar Street from Mountain View Drive to Harrison Avenue

Highway 24/Poplar Street from Mountain View Drive to Harrison Avenue is a two lane road with a middle turn lane, and a Colorado Department of Transportation (CDOT) owned road. There is a sidewalk on the west side of the street then on both sides, and pedestrian and bicycle crossings with signage as shown in Figures 18 and 19. This road is heavily trafficked and supports through traffic by visitors and those living in Summit County and other nearby counties. This street connects bicyclists and pedestrians using the Mineral Belt Trail near 12th Street. The future Railyard Neighborhood will also be located along the east side of this stretch of the road and will include pedestrian infrastructure and connect future residents to the Mineral Belt Trail and Safeway at

EXISTING CONDITIONS

Mountain View Drive. There is no existing bicycle infrastructure along this street. This street is an important connector to the Mineral Belt Trail, downtown Leadville, and Safeway.

Figures 18 and 19. Highway 24 from Mountain View Drive to Harison Avenue



Sidewalk and two driving lanes



Pedestrian and bicycle crossing near 12th Street

Harrison Avenue

As mentioned previously, Harrison Avenue is the most complete street that currently exists in the City of Leadville. It has two driving lanes, one middle turn lane, bicycle lane and parallel parking on both sides of the streets, and sidewalks that are ADA compliant. Harrison Avenue is the Main Street for the City of Leadville and provides tourists and residents access to resataurants, cafe's, thrift shops, and recreational stores. City Hall, Pueblo Bank & Trust, Community Banks of Colorado, and the courthouse are also located on Harrison Avenue. Other amenities include Zeitz Park and other parklets, patio spaces with moveable chairs, and planter boxes along the street. Harrison Avenue is CDOT owned.

Figures 19 and 20. Harrison Avenue



Harrison Avenue turn lane, bike lane, parking, and driving lane



Zeitz Park adjcant to Pueblo Bank & Trust along Harrison Avenue

Harrison Avenue/Highway 24

Harrison Avenue turns into Silver Drive/Front Street/Highway 24 at Elm Street at the southern portion. This is also a CDOT owned road/highway. It turns into a two lane driving lane, and the bicycle lane along Harrison Avenue drops off along this segement of the road and turns into an informal paved shoulder for bicyclists to use as desired. This road is heavily trafficked by residents and tourists traveling to and through the downtown area. No pedestrian infrastructure exists but pedestrians and runners can use the paved shoulder.

Highway 24 and McWethy Drive and College Road

Highway 24 and McWethy Drive and College Road connects students, staff, visitors, and residents from CMC to the Mineral Belt Trail and downtown Leadville. There is currently a crosswalk along Highway 24 on the west side of this intersetion for pedestrians and bicyclists to use. There is a recently installed separated sidewalk along College Road. There is no sidewalk along McWethy Drive to connect to the crosswalk and there are no bicycle

EXISTING CONDITIONS

facilities. Based on observations by the Project Team, bicyclists have been using the sidewalk and crosswalk to cross this intersection. The crosswalk along Highway 24 is also owned by CDOT.

Figures 21-23. Harrison Avenue/Highway 24



Bike lane along Harrison Avenue to Highway 24 West



Bike lane along Harrison Avenue to Highway 24 West



Bike lane turns into paved shoulder and drops off

Figures 24-26. Highway 24 and McWethy Drive and College Road



Pedestrian sign at crosswalk adjacent to McWethy Drive



Crosswalk along Highway 24



Separated sidewalk along College Road to CMC

Mineral Belt Trail

The Mineral Belt Trail is a 11.6 mile non-motorized and ADA accessible loop. There are a variety of access points to the trail throughout the City of Leadville and it allows users to experience the historic Leadville Mining District. It is a key recreational asset designed for bicyclists, pedestrians, long-boarders, in-line skaters, wheel chair rollers, and strollers. In the winter, the trail can be used for skiing, snowshoeing, and winter bicycling. Increasing access and connectivity to and from the Mineral Belt Trail is essential for enhancing recreational tourism, increasing bicycling and walking among residents, and connecting people to community and recreational assets throughout Leadville. Based on the observational assessment conducted by the Project Team, the Mineral Belt Trail is in good condition and may only need the center lane to be re-striped.

Figures 27-30. Mineral Belt Trail



Person wheelchair rolling along trail



Leadville Mining District



Wayfinding and signage



Lake County Intermediate School



EXISTING CONDITIONS

Regional Trails and Connections

The City of Leadville and Lake County has a variety of recreational trails for hikers, bicyclists, mountain bikers, and winter sports such as cross country skiing and snowshoeing. These trails provide both recreational opportunities and also connectivity options for residents who want safe, non-motorized options for getting to downtown Leadville from their residences.

Beyond the Mineral Belt Trail, there are a variety of other recreational trails either partially completed or in development today. The goal is for these trails to form a complete recreational trail network serving the Leadville area and beyond to Summit and Chaffee Counties. However, this vision cannot be reached without identifying connectivity gaps in this planned network and developing connections to bridge these gaps.

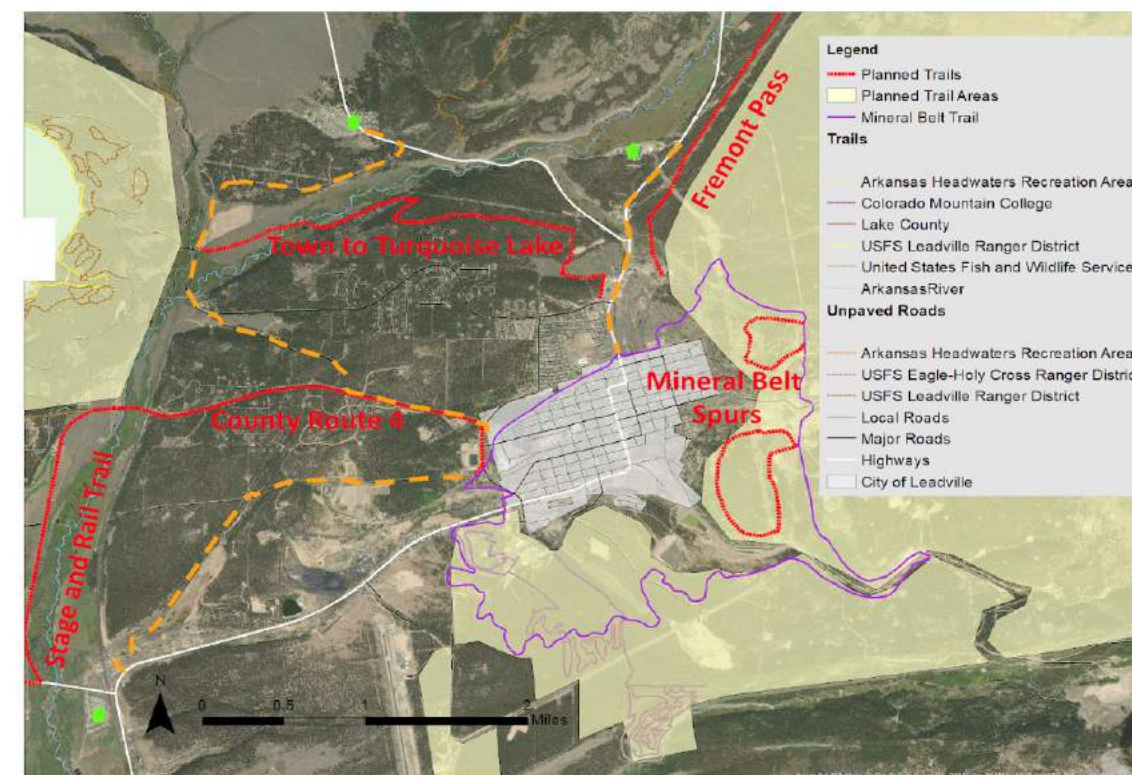
Planned Trails

There are ongoing efforts to further develop the trail network in the Leadville area. This effort involves many players and initiatives, including the state of Colorado's '16 in 2016' program for regional trail development, the Leadville Lake County Economic Development Corporation, and non-profit groups such as Lake County Build a Generation and the Cloud City Wheelers.

A map of proposed trails in the Leadville area can be seen in Figure 31. The Stage and Rail Trail and Fremont Pass Trail are the two largest planned regional trail projects for the Leadville area. These two multi-county, regional trails will both terminate in Leadville at the Mineral Belt Trail, and will ultimately develop a connected recreational trail

network that stems from Salida in the south (via the Stage and Rail Trail) to Copper Mountain in the north (via the Fremont Pass Trail).

Figure 31. Planned recreational trails in the greater Leadville area



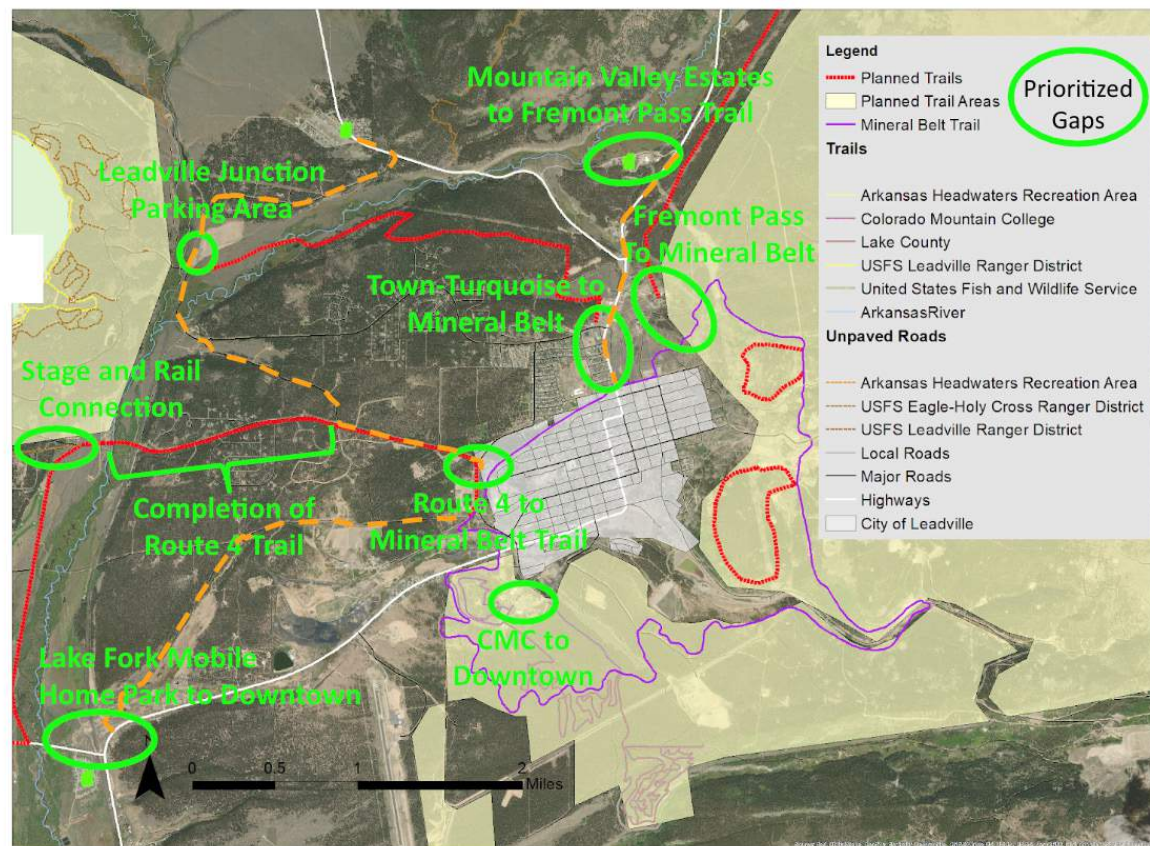
There are also several planned local trails that aim to connect Leadville with local recreational opportunities at Turquoise Lake while also increasing accessibility from neighborhoods in the greater Leadville area to the Mineral Belt Trail and downtown Leadville. The most direct connection is the County Route 4 Trail, while the Town to Turquoise route will span from Safeway north of Leadville to the Leadville Junction area allowing for easy access to the trail network near Turquoise Lake. There are additional trail development plans near Turquoise Lake and also in former mining land to the east of Leadville, but the routes mentioned above will be the key focus of this plan.

EXISTING CONDITIONS

Key Network Gaps

Approximate routes have been identified for these trails, but if the ultimate goal is a unified trail network, many connectivity gaps between these proposed trails need to be addressed. Currently, none of the proposed trails have a seamless connection route to the Mineral Belt trail, and for Mineral Belt to act as the hub of this trail network, identifying gaps and proposing connectivity options is critical. These trails are important not just to recreationalists but are also another key priority is accessibility for manufactured home park residents. The three major manufactured home parks are located several miles outside of town and additional non-automotive routes into town will be beneficial for these residents as well.

Figure 32. Existing gaps in recreational trail network



Bicycle and Pedestrian Counts

Bicycle and pedestrian counts were also completed at priority intersections and streets to gather behavioral data on people biking, walking, and wheelchair rolling in the City of Leadville. This provided an opportunity for the Project Team to better understand driver behaviors at these key points as well. The list of priority intersections are provided below and additional data for these counts can be found in Appendix D. Counts were completed on July 10th during peak hours from 7:30am to 9:30am and 4pm to 6pm. This data is not completely accurate because of the time of year the counts were conducted. However, it provided the Project Team with a general overview of biking and walking in the City of Leadville, and important observational data which is provided below. The Project Team recommends conducting these counts when school is in session, and completing pre- and post-counts following bicycle and pedestrian improvements to better understand the impacts.

Priority intersections

- 6th Street and McWethy Drive
- Highway 24 and McWethy Drive
- Harrison Avenue and 6th Street
- 6th Street and Leiter Avenue (and school cut through)

Priority streets

- County Road 4 (road and street)
- Harrison Avenue

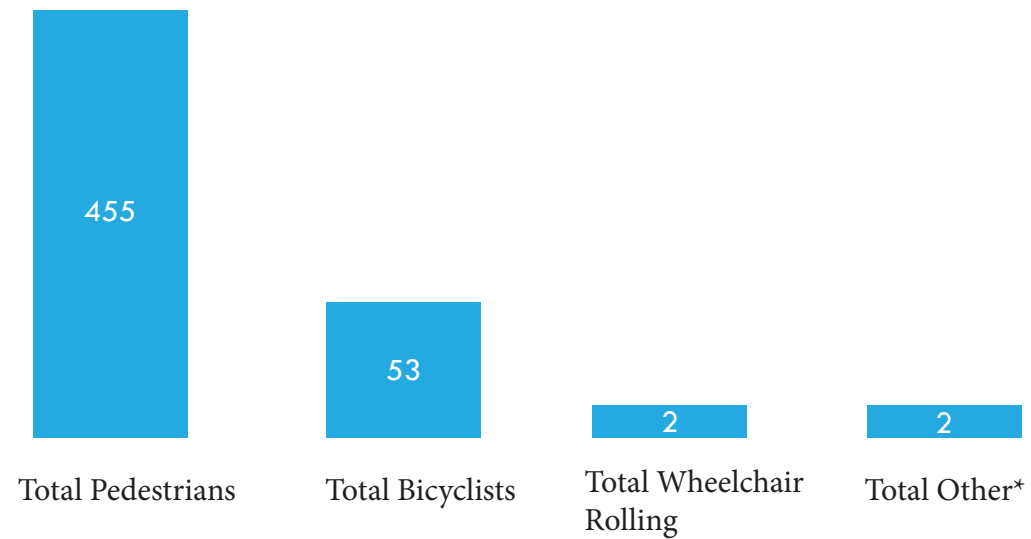
Some of the important observational findings are mentioned below.

- Wheelchair roller cut across the Aquatic Center to connect to the Mineral Belt Trail on 6th Street instead of using McWethy Drive
- Pedestrians were crossing or jaywalking at Highway 24 and McWethy Drive because of limited infrastructure

EXISTING CONDITIONS

- A person was using a regular scooter in the bike lane on Harrison Avenue
- A person was using a regular skateboard on the sidewalk on Harrison Avenue

Figure 33. Total count of bicycle, pedestrian, wheelchair rolling, and other



*Other includes skateboards and scooters

Bicycle Parking

Bicycle parking is also important to provide end of trip facilities and helps to encourage bicycling. There are currently bicycle parking facilities throughout the City of Leadville including along Harrison Avenue, Ice Palace Park, Safeway, and Lake County Community Park. A desire for additional parking has been mentioned to the Project Team at the following locations: Zeitz Park, the Courthouse lawn, 9th Street and Poplar Street, and moving the bicycle parking at Harrison Avenue and 8th Street where Mule Kick and Melenzana are located from the City Hall side to the Melanzana side.

A thorough assessment of bicycle parking was not an integral part of this effort due to time limitations but could be a potential need in the future as bicycling increases in the City of Leadville.

Figures 34-37. Bicycling parking



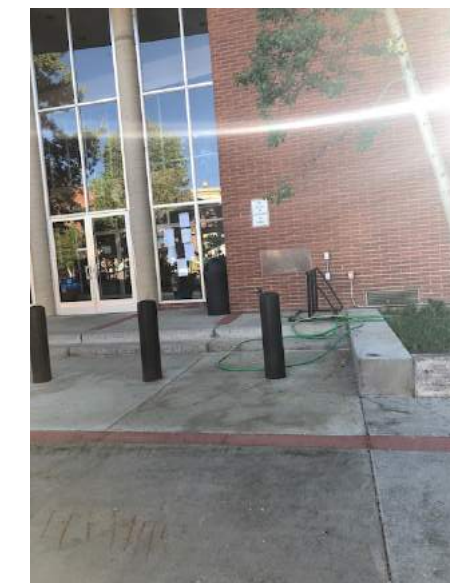
Ice Palace Park



Lake County Community Park



Harrison Avenue



Courthouse on Harrison Avenue

EXISTING CONDITIONS

Signage and Wayfinding

Completed in the Fall of 2018, the Leadville/Lake County Branding, Signage, and Wayfinding Plan provides an extensive review of the existing conditions surrounding signage in the region. There is an inconsistent design palette in addition to some areas lacking signage. On the other hand, some areas have signage clutter, with too many signs detracting from the main information. These conditions extend from the downtown area, historic signage, parks and recreation signs, community resources, and trails.

The Signage Plan broke up the region into character areas that will have slightly different design elements to enhance sense of place. These are: Leadville, Twin Lakes, Turquoise Lake, and the Historic Mining District. In addition, destinations and amenities that should have signage were broken into categories: Recreational Destinations, Historic Sites/Landmarks, City/County Municipal, Recreational Assets, and Community/Visitor Amenities.

The plan finalized a design and recommended sign-by-sign locations by category: Primary Gateway, Vehicular Directional, Auto/Pedestrian Kiosk, Pedestrian/Navigation Kiosk, Merchant Sign, Large-Format Destination, Destination Sign, Bus Stop/Bike Signs, Trailhead/Trail Directional Signs, and Interpretive Signs.



A phasing plan for sign implementation recommends:

Priority 1: Gateways and Auto Directional Signs Along Major Arterials

Priority 2: Destinations

Priority 3: Downtown Kiosks

Priority 4: Mineral Belt Trail Penetration Points

Although the implementation plan has a general order of priority, it has been brought to the Project Team's attention that funding for signage has been limited and hard to obtain. Gateways and Auto Directional Signage is the most costly category of implementation and may take longer to get funded. To jump start implementation, the Project Team recommends installing cheaper signage first. For the purpose of this study, signage influencing recreational trails and pedestrians/cyclist experience will be addressed here and prioritized within these categories. In addition, sign types and location will be suggested for the proposed trail gap connections.

Mineral Belt Trail Signage and Wayfinding

The Mineral Belt currently has its own, unique wayfinding system that the Project Team feels is adequate and does not need any improvements.



Branding, Signage & Wayfinding Plan example design



Mineral Belt Trail Kiosk



Mineral Belt Trail Kiosk

EXISTING CONDITIONS

Case Studies

Several preliminary case studies from around the US were identified and reviewed to help inform the considerations and overall recommendations for this plan. These case studies are briefly discussed below.

Community Engagement

The Lawrence Bikes Plan from Lawrence, Kansas was created to inform the city about current comfort levels of bicyclists and recommends infrastructure improvements based on these findings. The five goals of the Plan are to improve safety, increase ridership, increase access, create a network of low-stress bikeways and gain bicycle friendly community silver level recognition.

This plan was chosen because of its unique and thorough public engagement process that helped to inform the final recommendations in this plan. A few components of this process that could be adopted in the City of Leadville include the following:

- Understanding the community's bicycling comfort levels - implemented a survey; and hosted fifteen mobile meetings around the city, a guided bicycle ride, and two open houses
- Understanding how to make the city more bike friendly and safe - implemented a survey, mobile meetings, and one open house

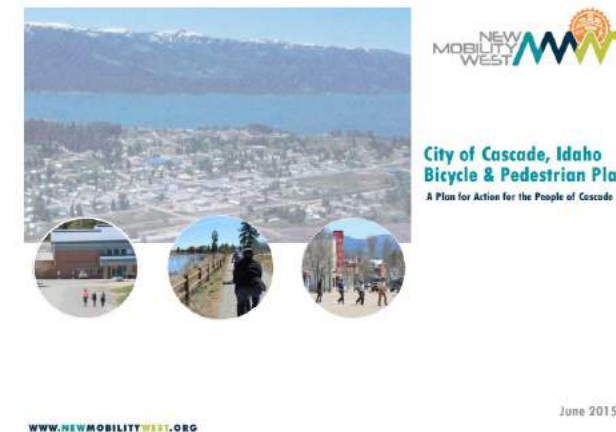


Bicycle and Pedestrian Infrastructure

The City of Cascade, Idaho Bicycle & Pedestrian Plan was a relevant case study to review because of its similarities to the City of Leadville.

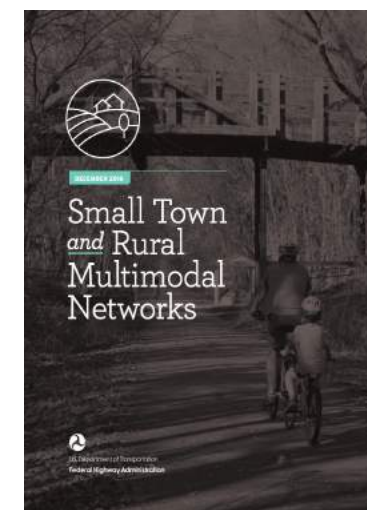
The city has a highway that goes through its downtown area, the plan identified and prioritized corridors and intersections in need of pedestrian and bicycle infrastructure

improvements similar to the Bike and Pedestrian Corridor Map from the City of Leadville and Lake County's Comprehensive Plan, and the top priority projects focused on connecting pedestrian and bike trail systems.



We also found a variety of case studies highlighting best practices from the US Department of Transportation Small Towns and Rural Networks Guide related to feasible bicycle and pedestrian infrastructure in small and rural towns. This document was also important to review because the City of Leadville is a small/rural town and the case studies had similar climates. A few examples of bicycle and pedestrian infrastructure gathered from this document are shown in Figures 41-43.

These examples provided a few ideas for the proposed concepts moving forward throughout this process. Additionally, the Project Team acknowledged that road widths, and community needs and interests would be integral part of recommendations for future infrastructure improvements.



EXISTING CONDITIONS

A few examples of pedestrian and bicycle infrastructure that can be used by the City of Leadville and Lake County are mentioned below.

Shared-Use Markings or Sharrows

Shared lane markings, also referred to as sharrows, are important to promote safe biking on low traffic roads, where bicyclists and vehicles share the same lane. These markings increase visibility of bicyclists for motor vehicles. Shared lane markings typically connect to other bikeways or bike lanes.

Paved shoulder with rumble strip

Paved shoulders help increase levels of comfort for bicyclists on busy streets. They provide a dedicated space on the edge of the road for bicyclists to travel and are appropriate in rural areas. Rumble strips can also be applied to paved shoulders. These are an Federal Highway Administration (FHWA) Proven Safety Countermeasure to help reduce crashes and improve safety for bicyclists. However, it is important to note that rumble strips can sometimes negatively impact bicyclists. Considerations for bicyclists must be taken into account when installing rumble strips.

School connections

Providing safe and convenient school connections is vital for the City of Leadville and Lake County to support youth traveling to and from school by foot or bike. Various bicycle and pedestrian infrastructure can be installed depending on the which street improvements are being made, and could include a paved shoulder, shared-use path, or a sidewalk.

Figures 41-43. Small Town and Rural Multimodal Network Bicycle and Pedestrian Infrastructure Examples



Shared-Use Marking or Sharrow



Paved shoulder with rumble strip



Connecting to schools

A photograph of a street in a town. On the left is a two-story brick building with several windows and a fire escape. On the right is a taller, more ornate building with many windows. The street is paved and has several cars parked along the sides. In the background, there are snow-capped mountains under a clear blue sky. A red banner with white text is overlaid across the middle of the image.

CONCEPT PLAN

OVERVIEW

Based on findings from the existing conditions, the Project Team put together a series of design and route considerations to improve community engagement; bicycling, walking, and trail connectivity; and wayfinding in the City of Leadville and Lake County. These considerations are presented in the sections below.

COMMUNITY ENGAGEMENT

During the existing conditions assessment it became apparent that there is room for improvement and further implementation for community engagement. Effective community engagement can be difficult due to time, funding, and understanding what is most appropriate within a given context. The Project Team conducted an assessment of different community engagement strategies, and narrowed them down to the six that seemed most appropriate for the City of Leadville. These six tools were assembled into an engagement toolkit.

Community Engagement Toolkit

The toolkit is designed to:

- Create opportunities to engage all of Leadville and Lake County
- Meaningfully engage the community in ways that facilitate conversation and spark creative solutions
- Create opportunities for engagement throughout the planning process and through various forms of participation

For this reason, engagement strategies in the toolkit span the planning process, from the existing conditions assessment phase, to creating concept plans, to implementation. Additionally, the items vary in the level and type

of participation they require. Some items require minimum participation from the public, while others are much more hands on and intensive.

The toolkit items include: survey; guided bike tour; mobile open houses and meetings; participatory budgeting; pop-up events; and creative play. The full Community Engagement Toolkit can be found in Appendix H.

Biking and Walking Survey

In addition to the toolkit, the project team created a pilot survey in order to begin a preliminary assessment of community preferences and needs related to biking and walking. This pilot survey inquires about the community's comfort levels related to cycling and pedestrian infrastructure (see appendix). The results of this survey do not necessarily dictate what should be implemented, but allow researchers to understand where the community may need more education or increases in comfort levels. An additional goal of this pilot survey is to provide a base layer for future survey efforts.

Figure 44. Tools for Community Engagement



MULTIMODAL NETWORK

Pedestrian and Bicycle Priority Routes and Streets

The Priority Streets Gap Matrices was created to refine and further prioritize bicycle and pedestrian improvements in the City of Leadville and Lake County based on the Pedestrian and Bike Corridor Map mentioned previously (Appendix E). The Project Team evaluated each of the priority streets and connections using a likert scale from 1 to 5 (1 being the least important/lowest to 5 being the most important/highest) to assess the following features below. A total score was tallied out of 20 and the top streets were identified.

- Cost: Estimated cost for improvements
- Safety Concern Value: Higher score means greater safety concerns (e.g. close to a highway) for trail/bicycle/pedestrian users
- Access Value: Higher score means more important for access to key community resources and attractions in Leadville and Lake County
- Usage Value: Higher score means greater amount of use, also informed by bicycle and pedestrian counts
- Community Value: Higher score means higher importance of the trail/route/street for the community

Based on this assessment, the streets that were identified as being of highest priority in the City of Leadville and Lake County are provided below. Street widths mentioned in the following sections are approximates and not exact due to the inaccuracy of available information.

Recreational Trails

- Fremont Pass to Mineral Belt Trail
- Route 4 to Mineral Belt Trail

- Completion of the Route 4 Trail
- Stage and Rail Connection

In Town Streets and Routes

- Highway 4

Highway 4 is an important regional connection from the west side of Leadville to the Turquoise Lake recreational area. Through several windshield surveys and talking to Leadville residents, it is a moderately trafficked road by vehicles, bicyclists, as well as pedestrians. Highway 4 has an 80 foot right-of-way. Currently, the road width is 35 five feet and includes two driving lanes

There is an informal trail on the south side of the road that continues from McWethy Drive to Baby Doe Drive. The trail is not marked and its condition varies between paved and dirt. Most of the bicyclists, pedestrians, and runners used the thirty five foot paved road, rather than the informal trail. One possible design consideration to improve bicyclist and pedestrian experiences on Highway 4 would be to formalize the trail as a shared-use path and extend it to Highway 9. This would take advantage of the 80 foot right-of-way, as well as provide users a safe alternative to being on the shoulder and close to vehicular traffic.

Figure 45. Highway 4



Important Sidewalk Connections

- James Street from 6th Street to Mount Massive Drive

James Street is an important connection to 6th Street and Mount Massive Drive. Currently, James street has an estimated 35 foot to forty foot right-of-way, which has two driving lanes. Most cars are half parked in the street and half on the grass of a front lawn. There is only half a sidewalk between 7th and 8th Street. The proposed design is to complete the sidewalks on both sides of the street from 6th Street to Mount Massive Drive and add painted sharrows, which allow bicyclists and cars to share the driving lane.

Figure 46. James Street



Bicycle and Pedestrian Safety Concerns

- Mountain View Drive

Mountain View Drive is a highly trafficked road that provides users access to the Safeway on Highway 4 and other connections to the north Leadville area. Mountain View Drive is similar to Highway 4 and has a 35 foot right-of-way. Currently the road has approximately five foot shoulders on either side of the road and two driving lanes. The proposed design would be to have a shared-use path and would require the road to be restriped.

Figures 47 and 48. Mountain View Drive



Shoulder



Mountain View Drive and Highway 24

Important Bicycling and Walking Routes

- 6th Street from Harrison Avenue to McWethy Drive
- McWethy Drive from Highway 24 West to Mount Massive Drive/ Highway 4 Junction

6th Street is an important connection from the center of Leadville to McWethy Drive, which provides access to important community assets like the Leadville High School, hospital, and Aquatic Center. 6th Street has a 50 foot right-of-way. There is a five foot sidewalk on both sides of the street. The street also includes parking and two driving lanes. The street narrows to a 35 foot right-of-way between Spruce Street and

James Street, and lacks a sidewalk. The proposed design consideration is to complete the sidewalks and add a bike lane on both sides of the street. Between Spruce Street and James Street, the bike lane would become a sharrows until the road widens again where bike lanes could be installed.

McWethy Drive is an important pedestrian connection on the west side of Leadville. The street width is 25 feet and the approximate right-of-way is 35 feet. The proposed design consideration is to construct sidewalks and bike lanes on both sides of the street, while maintaining two driving lanes.

Downtown Retail Core

- 10th Street from Highway 24 to Pine Street
- 2nd Street from Oak Street to Pine Street
- Harrison Avenue from 10th Street to West Chestnut Street

Figure 49. 6th Street



Figure 50. McWethy Drive



10th Street from Highway 24 to Pine Street is listed as an important section of the downtown retail core that is meant to slow traffic and increase walkability. 10th Street from Highway 24 to Harrison Avenue has sidewalks on both sides. The sidewalks end at Harrison Avenue and the road narrows to approximately a 25 foot right-of-way. The proposed design consideration is to complete the sidewalks to Spruce Street and add sharrows on the two driving lanes.

2nd Street from Oak Street to Pine Street is another important section of the downtown retail core. The section from Oak Street to Harrison Avenue lacks a sidewalk. On 2nd Street between Harrison Avenue and Pine Street, there is a 10 foot sidewalk on the north side of the street. 2nd Street has a 55 foot right-of-way. The proposed design recommendation is to construct five foot sidewalks on both sides of 2nd Street and add sharrows from

Figure 51. 10th Street



Figure 52. 2nd Street



Oak Street to Washington Street, where bicyclists can connect to the proposed bike lane on McWethy Drive.

Harrison Avenue from 10th Street to West Chestnut Street is the main street of the City of Leadville. Currently, there is a 90 foot right-of-way, which includes sidewalks, bike lanes, parking lanes and two driving lanes. Parking is not allowed at the corners on Harrison Avenue. To take advantage of the available space on the corners, the proposed design recommendation is to install temporary bulb outs for bike parking or restaurant seating where desired. Harrison Avenue is part of Highway 24 and therefore, owned and maintained by CDOT. CDOT is re-doing Harrison Avenue in 2020, which provides an important opportunity for a Complete Streets redesign. The proposed future design recommendation is to create a raised bike lane next to the sidewalks on both sides. The bike lanes will be protected by the parking lane, which will be moved next to the driving lanes.

Figure 53. Harrison Avenue



Design Considerations

Some of the priority streets and routes identified by the Project Team have similar street widths, usage, and design. As a result, the Project Team combined related streets and routes to create design considerations for improvements to bicycle and pedestrian infrastructure. These design considerations are presented on the following pages.

Regional Trails and Connections

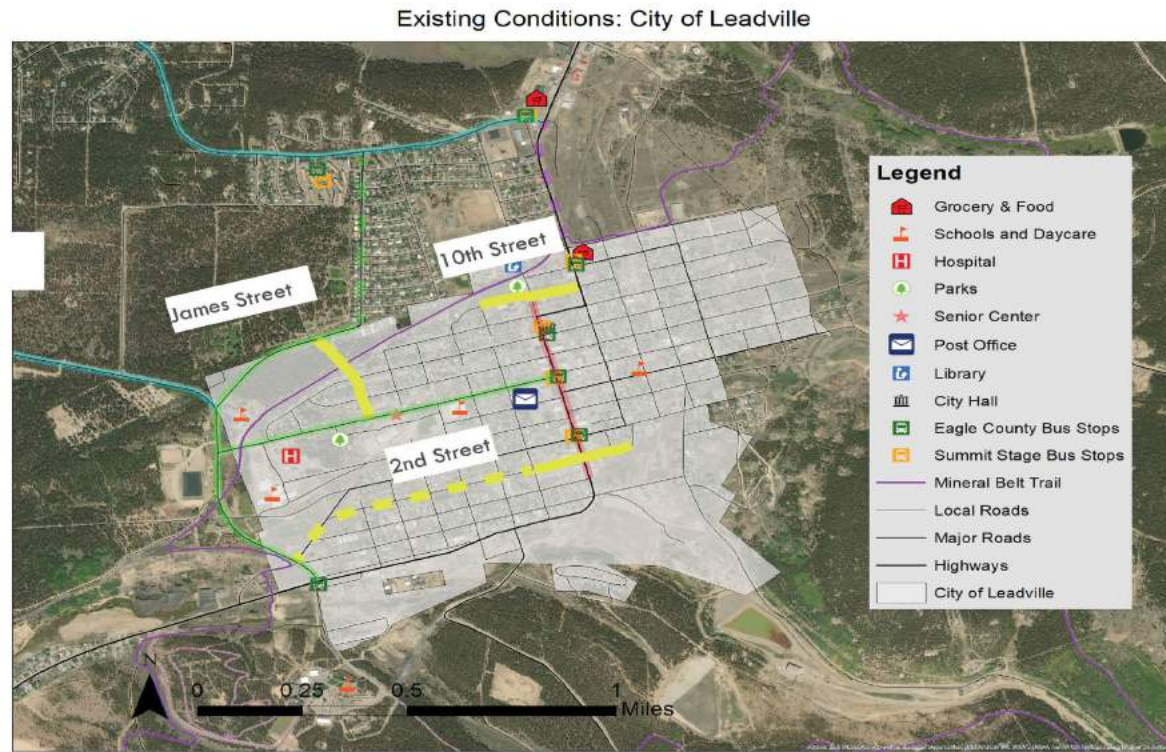
As detailed in the Existing Conditions section, Leadville and the surrounding area has a series of completed and in-progress recreational trails. Today, the major challenge with turning these individual trails into a complete network is addressing connectivity gaps between trails.

Connecting the two planned regional trails, the Fremont Pass Trail and Stage and Rail Trail, to the Mineral Belt Trail (MBT) and downtown Leadville is the top priority. In addition, the Route 4 connector trail between Leadville and Turquoise Lake is another key priority that needs both a clear connection to the MBT and completion of a stretch along the western extent of Route 4 near Route 9D.

Wherever new trails are needed along proposed routes, either paved or hard-packed gravel trail materials will be used. Existing roadways and trails, with improvements as needed, will be used for all other trail sections. Several connectivity options are detailed in the sections below for each of these trails, with key pros and cons for each option discussed to the right of each of the images.

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Figure 54. 2nd Street, 10th Street, and James Street Design Considerations



2nd Street



10th Street



James Street



Design Considerations

- Complete sidewalk
- Shared-use markings

Sidewalk



Shared-Use Marking



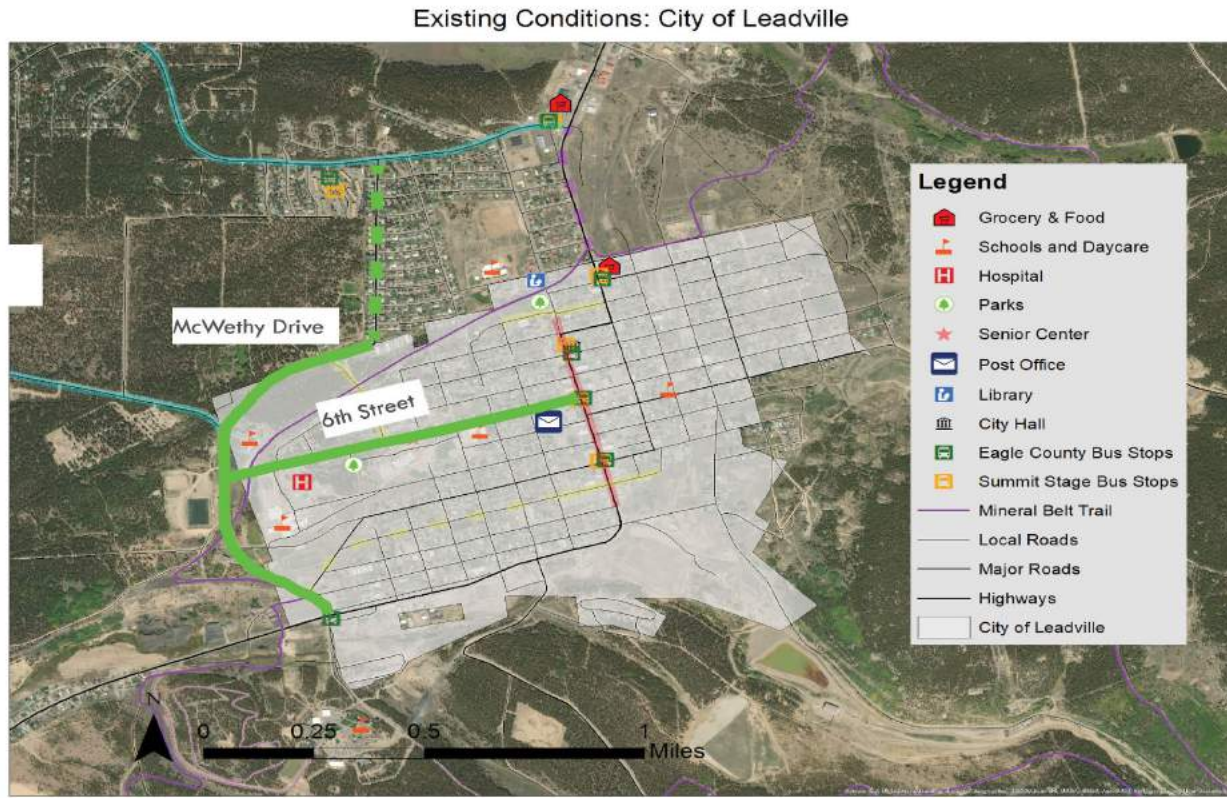
2nd Street towards Harrison



Approximately 40 ft

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Figure 55. 6th Street and McWethy Drive Design Considerations



6th Street



McWethy Drive



Design Considerations



Complete sidewalk



Install bicycle lane



Improve trail crossings

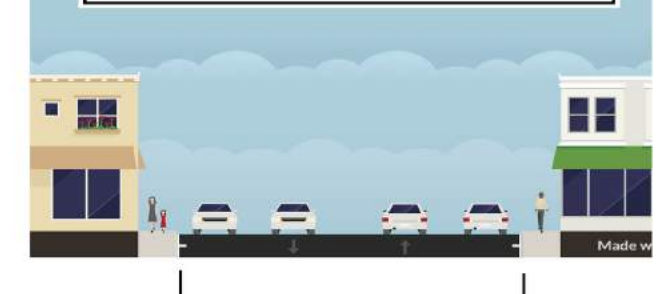
Bike Lane and Sidewalk



Flashing Beacon Trail Crossing



6th Street towards Harrison

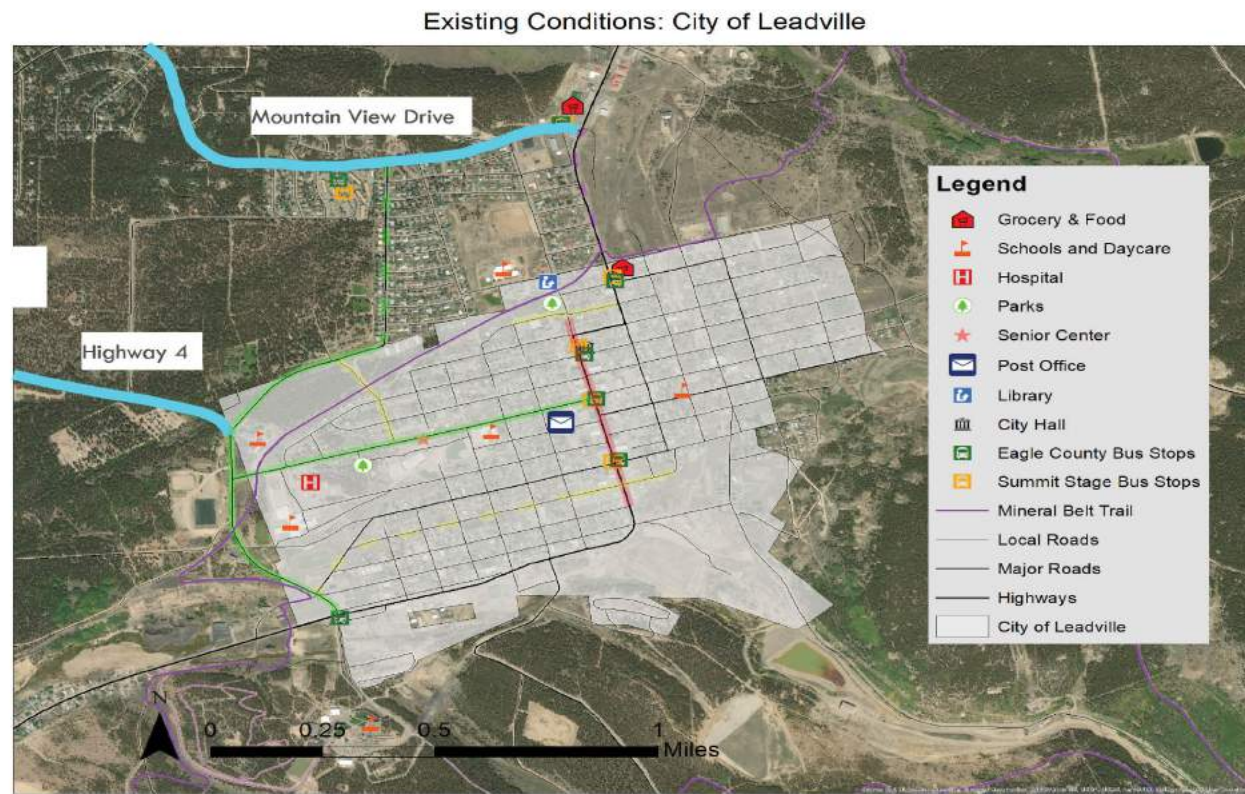


Approximately 45 ft



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Figure 56. Mountain View Drive and Highway 4 Design Considerations



Mountain View Drive



Highway 4

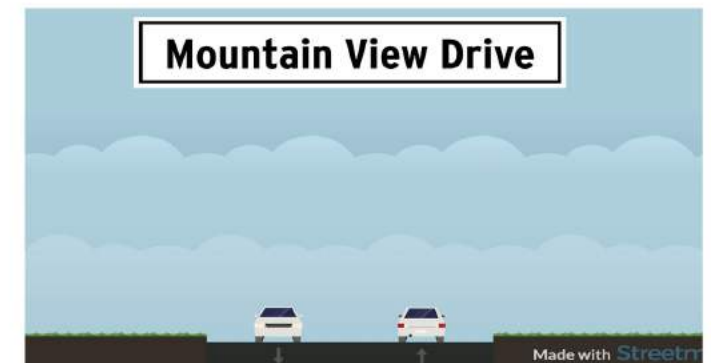


Design Considerations



Install shared-use path

Shared-Use Path

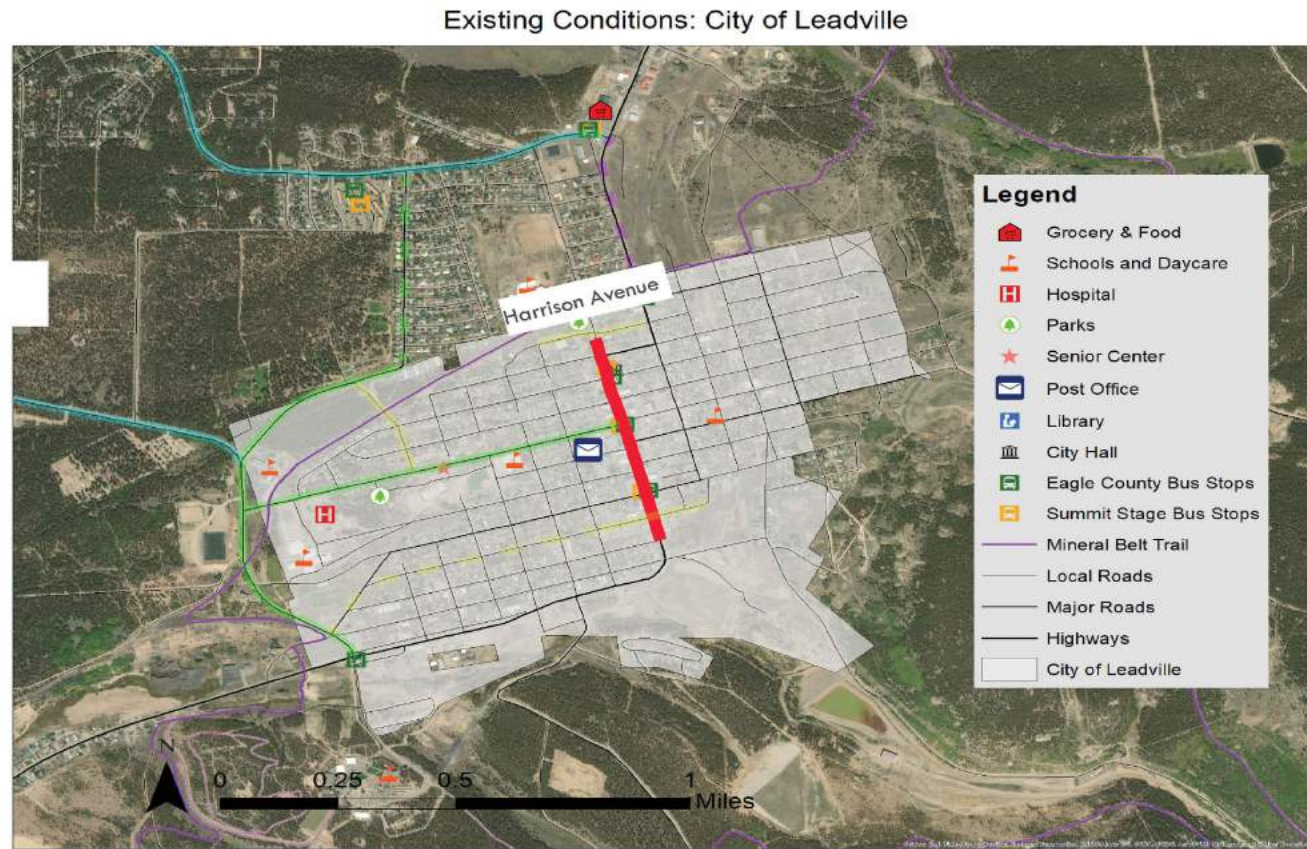


Approximately 35 ft



CONCEPT PLAN

Figure 57. Harrison Avenue Design Considerations



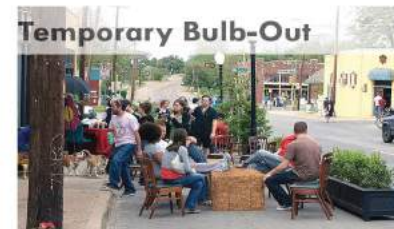
Harrison Avenue



Design Considerations



- Install temporary bulb-outs
- Improve ADA ramps
- Improve crosswalks



- Install protected bicycle lane
- Install raised bicycle lane

Protected Bicycle Lane



Raised Bicycle Lane



Approximately 60 ft



Fremont Pass Trail

The Fremont Pass Trail is a planned trail between Copper Mountain in Summit County to Leadville's Mineral Belt Trail. The trail is currently in the planning process, and routing for a connection to the Mineral Belt Trail has not yet been established and the planned trail alignment currently ends north of the MBT. Four routing options are proposed in Figure 62.

Option A: This route leverages an existing service road to connect with the MBT; however, the last 1/3 of a mile between the service road and MBT will require purchase of land or an easement and construction of new trail. The service road has a slight downhill grade and is surrounded by the forest, making it an enjoyable ride for all trail users. Upgrading this service road to a paved or compacted gravel will also improve the ride.

Figure 58. Fremont Pass Trail Option A



Option A

Pros

- > Leverages existing service road/trail until last 1/3 mile
- > Gentle grade
- > Wooded route enjoyable for users

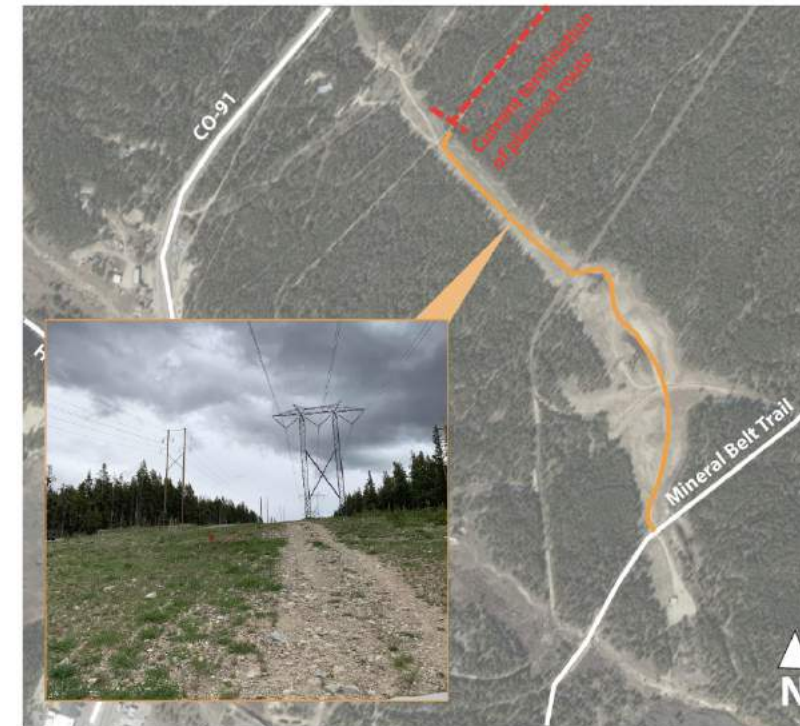
Cons

- > Land acquisition & trail construction needed for last 1/3 mile



Option B: This is the most direct route to the MBT, but there are several issues with this option. First, the road is comprised of large and bumpy rocks which would need to be replaced to make it rideable for all bikers; in addition it is a steep uphill climb for those heading south on the trail from Copper to Leadville. This route is also directly underneath a transmission line right of way, which makes it a less than scenic experience for riders.

Figure 59. Fremont Pass Trail Option B



Option B

Pros

- > Most direct route to Mineral Belt Trail
- > Route plowed in the winter

Cons

- > Large rocks along road impassible for road bikes
- > Large power lines overhead

Option C: This route focuses on funneling riders from the trail to downtown Leadville through a direct route. This option does not connect to the MBT until 12th Street while continuing south towards downtown. This direct routing aims to draw more bikers into downtown Leadville and increase tourist revenue. A small section of new trail must be constructed

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along a historic railroad to make the connection to County Route 8 and downtown.

Figure 60. Fremont Pass Trail Option C



Option D: This is a similar route to Option C, but it also connects to the Mineral Belt Trail before continuing on Dycus Lane towards downtown. This option lets users get on the MBT sooner while also providing a direct route to downtown Leadville.

The major considerations for routing of the Fremont Pass Trail include land acquisition, new trail construction, and the level of desire to link the trail most directly to downtown Leadville. All of the Fremont Pass Trail connection options are presented in Figure 62 on the right.

Figure 61. Fremont Pass Trail Option D

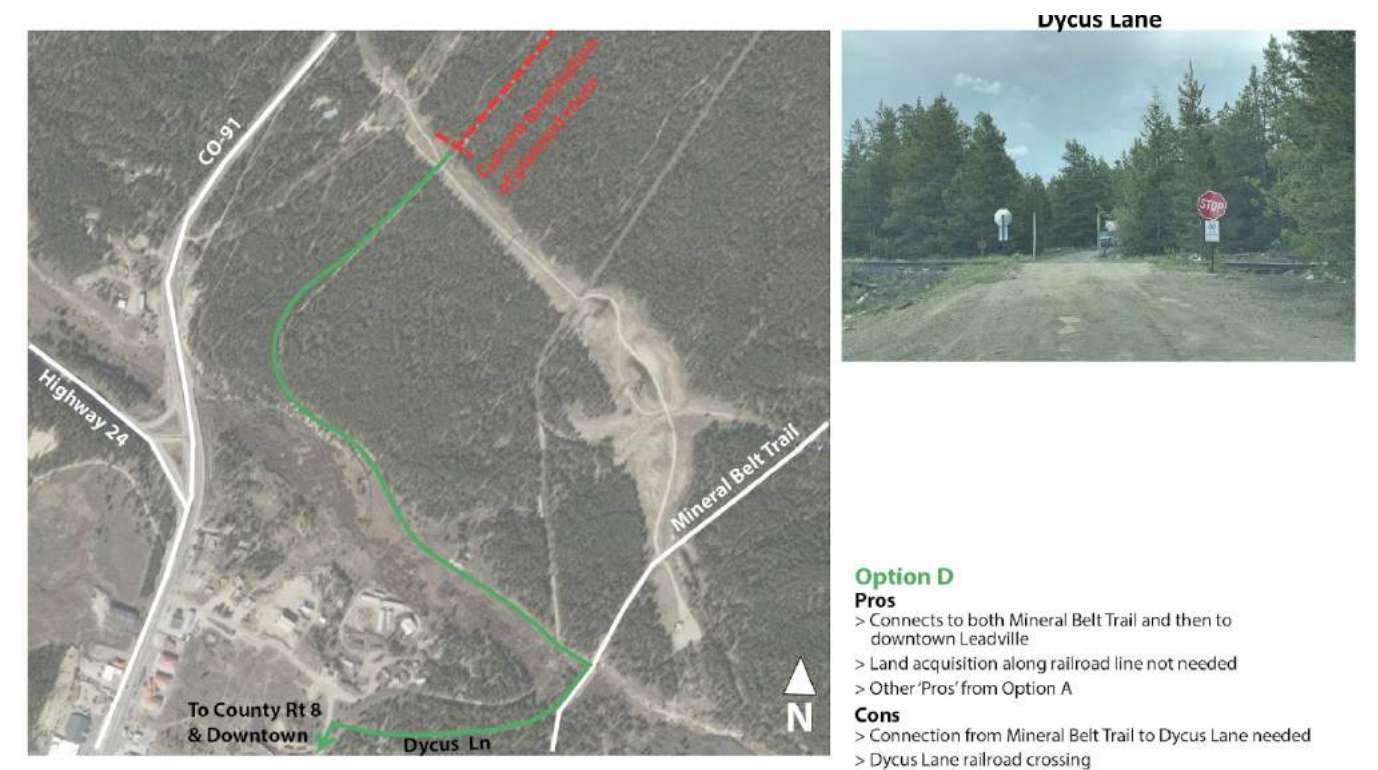
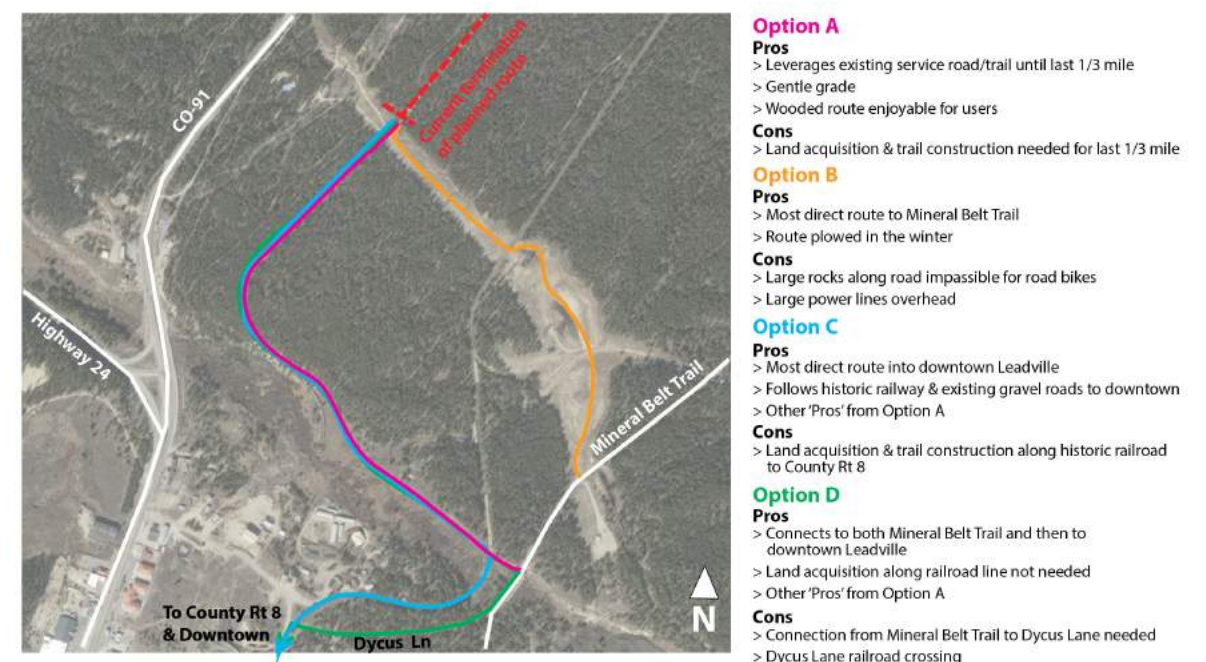


Figure 62. Fremont Pass Trail All Options



Route 4 to Mineral Belt Trail

The Route 4 Trail currently terminates at McWethy Drive in an informal manner that is both confusing for users and potentially dangerous as there is no signage or street markings indicating bicyclists and pedestrians are exiting the path, as can be seen below. Clearly linking the Route 4 Trail to the MBT will provide an excellent connection between Leadville and the Turquoise Lake area. There are two main options for this connection.

Figure 63. Route 4 to Mineral Belt Trail



Option A: This route travels along McWethy Drive to 6th Street, which provides a direct route to downtown while also crossing the MBT. This route would leverage McWethy Drive's existing 25 foot roadway by adding improvements along McWethy and the two major intersections the path would cross (Route 4 and McWethy Drive, McWethy Drive and 6th Street).

Figure 64. Route 4 to Mineral Belt Trail Option A



- Option A**
- Pros**
- > New trail not needed to connect with Mineral Belt Trail
 - > Connection to downtown via 6th St.
- Cons**
- > Improvements to McWethy needed
 - > McWethy & 6th St. intersection

Option B: This is a current informal route that could be formalized by upgrading the rough dirt pathway to hardpacked gravel or pavement. This route also passes nearby the proposed Climax Affordable Housing Site to the north, providing additional accessibility for the neighborhood's future residents. The steepness of this route and its positioning along the north side of a building (ice and snow concerns) are the major challenges.

Figure 65. Route 4 to Mineral Belt Trail Option B



Figure 66. Route 4 to Mineral Belt Trail All Options



Finalization of the Route 4 Trail

Finalizing the eastern terminus of the Route 4 Trail is important for the connection between Turquoise Lake and Leadville, along with providing safer connectivity to downtown Leadville along Route 4. It will also help increase ridership along Route 4 which will benefit local residents and tourists who are looking to comfortably bike or walk beyond the bounds of downtown Leadville. The western terminus of the Route 4 Trail is currently near the intersection with Baby Doe Drive. From this point and west towards CR-9D, trail users no longer have a separated trail; instead they must use the roadway shoulder. Finishing the trail will eliminate this challenge and allow a wider range of users who may not feel comfortable biking or walking on the side of a narrow road. There are two primarily options for completion of this trail.

Option A: This route would take advantage of the wide 80 foot right-of-way along Route 4 by continuing the separated trail through the woods. The major issue with this option are the steeper grades alongside Route 4 as it gets closer to CR-9D. Driveways coming off Route 4 are raised to meet with the road, which would require the trail to raise up to the driveway's grade when crossing. There are nine parcels of land going through the uncompleted area, so this challenge will need to be addressed for all parcels that have driveways.

Option B: This route would extend the width of the shoulder and have the path closer to the road. This proximity to the road, combined with curvy sections of Route 4 with low visibility may make some bikers uncomfortable. Challenges with driveways, mailboxes and other impediments at path crossing points must be addressed.

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The Stage and Rail Trail

The Stage and Rail Trail is a planned bike trail that will start in Salida, run north through the Arkansas River Valley and terminate at the MBT in Leadville. Preliminary routing was identified in a 2015 plan, but funds are still being raised to complete the trail. There are four proposed routing options, with two originating from the 2015 Stage and Rail Master Plan.

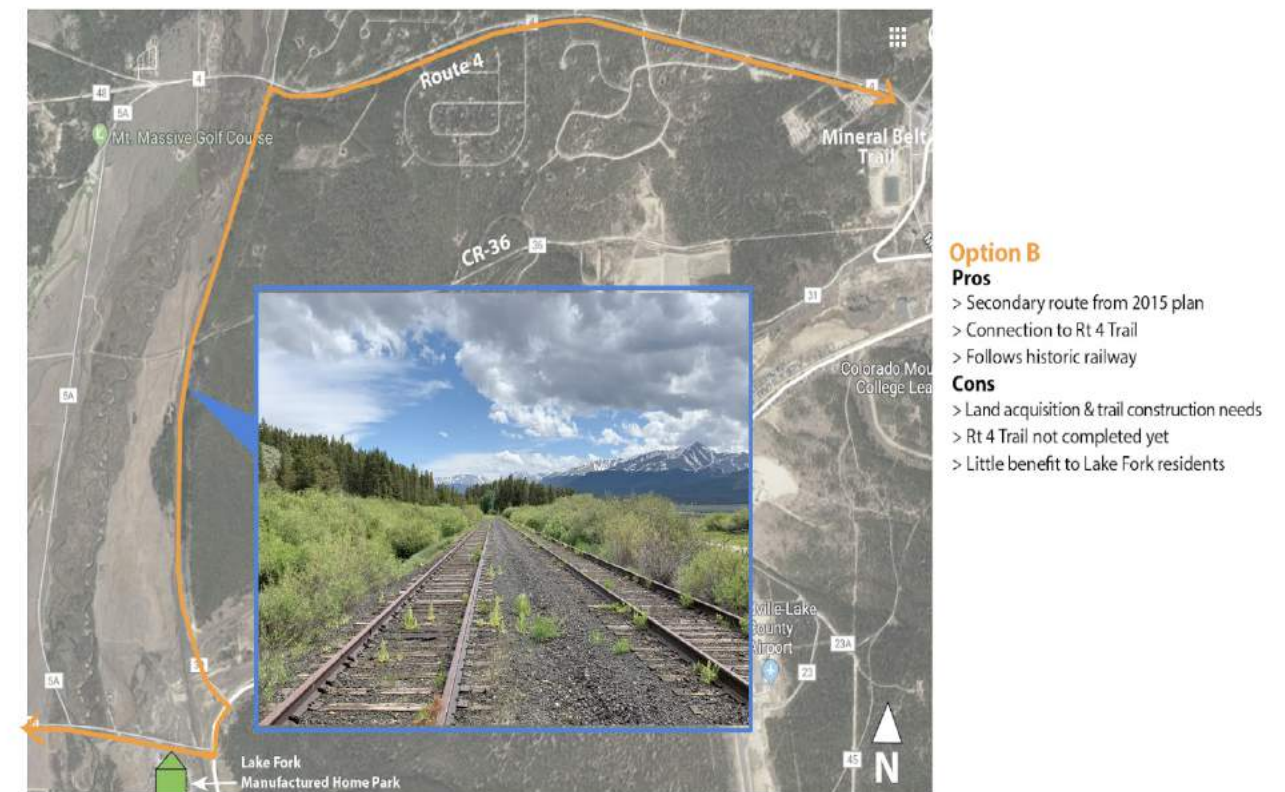
Option A: This is the priority route from the 2015 Stage and Rail Master Plan. This route is somewhat indirect but leverages existing roadways to keep costs low. This becomes an issue for the final leg along Route 4, which depends on the currently unfinished trail in this area--or an uncomfortable ride along a narrow, busy roadway.

Figure 67. Stage and Rail Trail Option A



Option B: This is the alternative route from the 2015 Stage and Rail Master Plan. It follows the historic railways more closely but would require land acquisition and new trail between California Gulch and County Road 36.

Figure 68. Stage and Rail Trail Option B

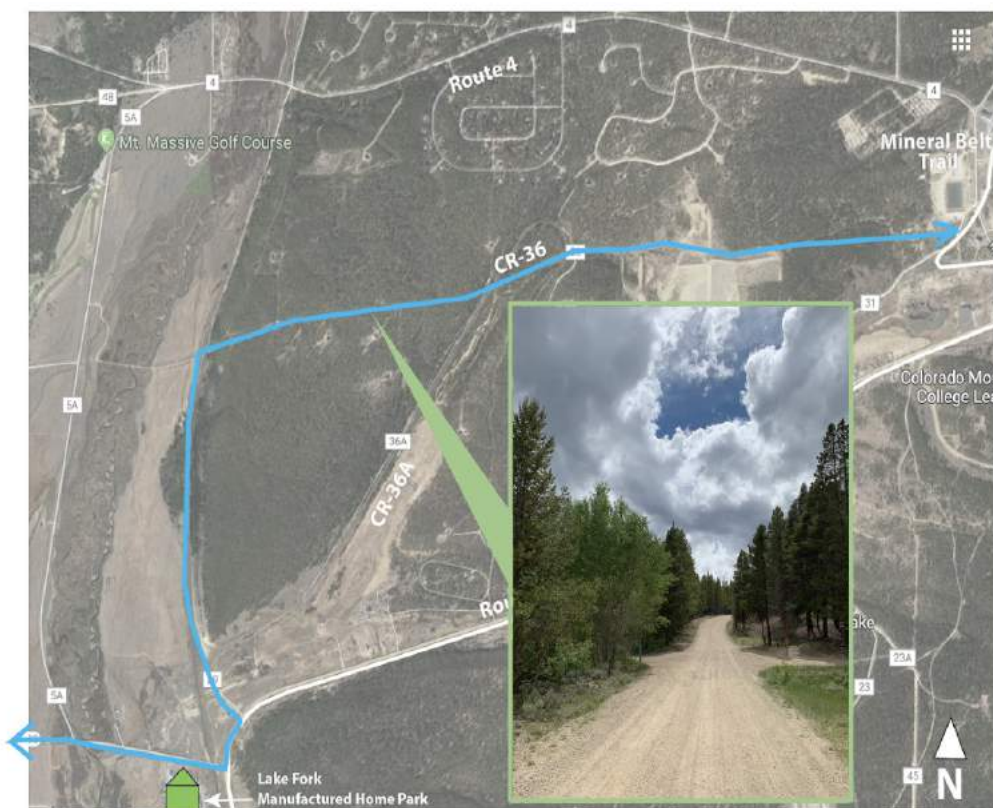


While the Stage and Rail Trail is primarily recreational, there is also opportunity to provide easier access to Leadville for Lake Fork Manufactured Home Park residents. Unfortunately, both proposed routes are indirect and do not improve accessibility for Lake Fork residents. Two other options that address this challenge are detailed on the next page.

CONCEPT PLAN

Option C: This is a more direct route to Leadville that leverages the existing County Road 36--a hard-packed gravel road. Much like Option B, this would require land acquisition and trail construction for a small area between California Gulch and County Road 36.

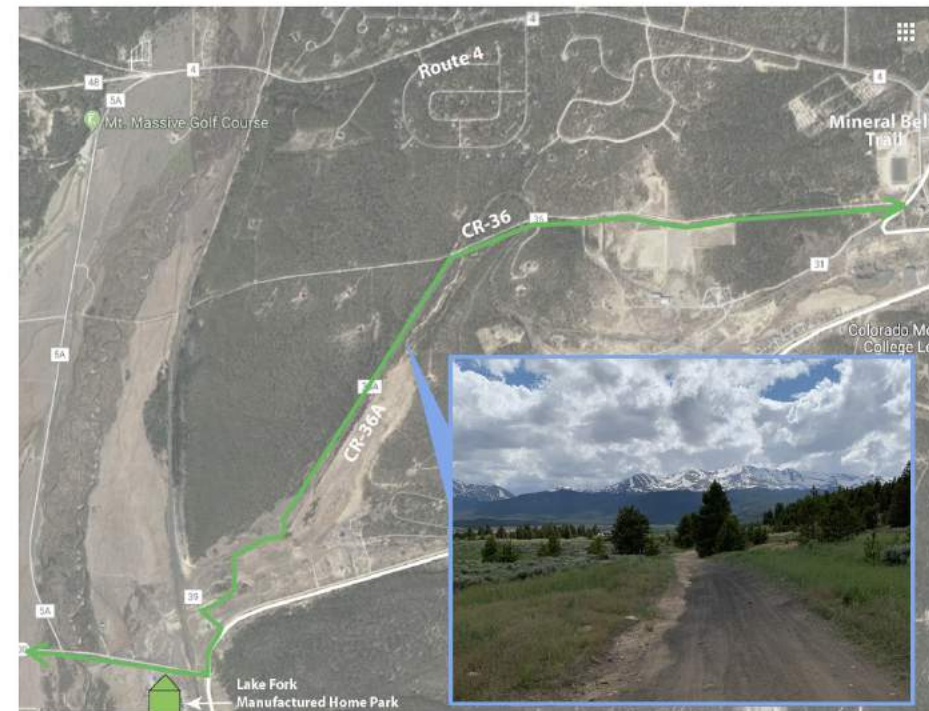
Figure 69. Stage and Rail Trail Option C



- Option C**
- Pros**
- > Follows historic railway & existing road
 - > Dense forest along Route 36
 - > Benefit to Lake Fork residents
- Cons**
- > Land acquisition & trail construction needs

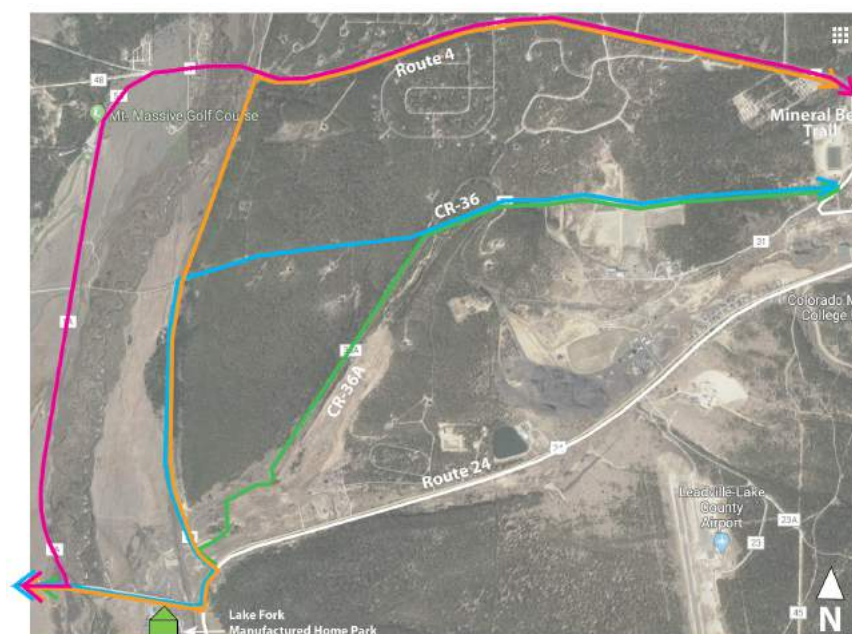
Option D: This is the most direct route to Leadville, but there are challenges with Route 36A because of its loose dirt surface. This surface becomes extremely muddy and impassible in the spring, and it is also not plowed in the winter.

Figure 70. Stage and Rail Trail Option D



- Option D**
- Pros**
- > Most direct route to Mineral Belt
 - > Follows existing routes
 - > Benefit to Lake Fork residents
- Cons**
- > Route 36A winter & spring closures

Figure 71. Stage and Rail Trail All Options



- Option A**
- Pros**
- > Priority route from 2015 plan
 - > Connection to Rt 4 Trail
 - > Leverages existing roadways (Rt 5A)
- Cons**
- > Rt 4 Trail not completed yet
 - > Indirect route; no benefit to Lake Fork residents
- Option B**
- Pros**
- > Secondary route from 2015 plan
 - > Connection to Rt 4 Trail
 - > Follows historic railway
- Cons**
- > Land acquisition & trail construction needs
 - > Rt 4 Trail not completed yet
 - > Little benefit to Lake Fork residents
- Option C**
- Pros**
- > Follows historic railway & existing road
 - > Dense forest along Route 36
 - > Benefit to Lake Fork residents
- Cons**
- > Land acquisition & trail construction needs
- Option D**
- Pros**
- > Most direct route to Mineral Belt
 - > Follows existing routes
 - > Benefit to Lake Fork residents
- Cons**
- > Route 36A winter & spring closures

CONCEPT PLAN

Halfmoon Creek Road Parking Expansion

Moving beyond the scope of recreational trails in the Leadville area, Lake County is home to several 14ers, including Mount Massive and Mount Elbert. Common trailheads for hikers looking to conquer these mountains are located along Halfmoon Creek Road.

Figure 72. Halfmoon Parking Options

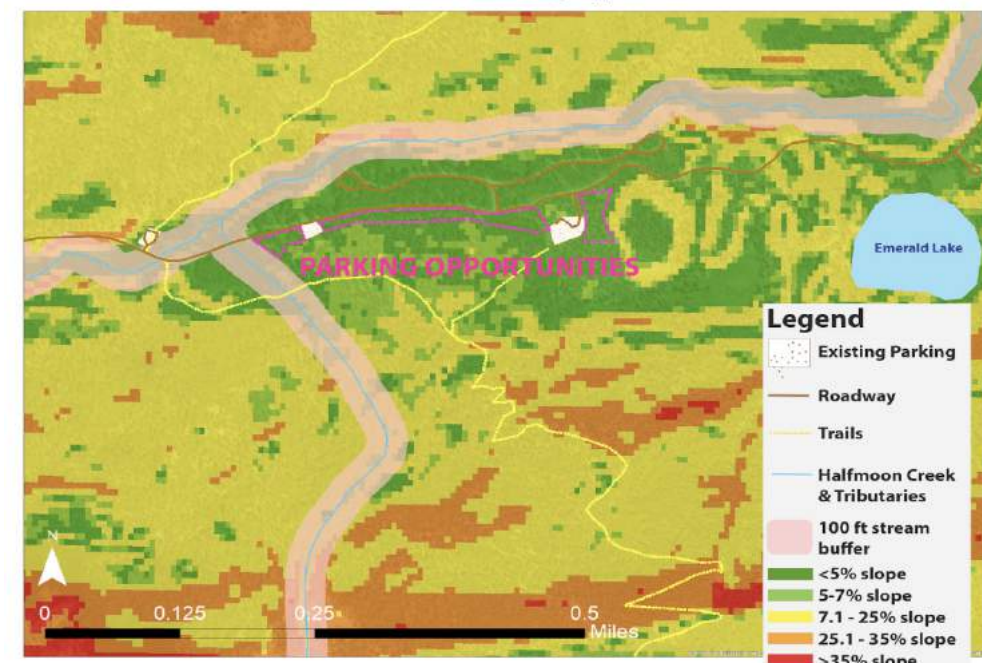


Parking availability, which today is approximately 60-70 spots, has not kept up with demand to hike these peaks. This challenge leads to hikers parking along the roadside and other areas that are creating traffic and concerns of environmental degradation. Preliminary discussions between the US Forest Service and Cloud City Wheelers have

acknowledged this issue but citing areas for expanded parking lots has not yet happened.

There are several challenges associated with citing parking in this area. First, no new parking can be within 100 feet of and waterways in national forest, so new parking locations must be at least this distance from Halfmoon Creek and its tributaries. Second, the topography of this area is variable and steep, meaning that parking must be located in areas with minimal slope. Areas with a slope under 5% are ideal to ensure parking on a relatively flat surface. After factoring in these two variables, options for parking have been identified on the south side of Halfmoon Creek Road, as can be seen below. Although the area north of the road is flat enough for parking, there is a campsite in this area which prevents parking from being added in that area.

Figure 73. Stage and Rail Trail Option B



There are additional variables and investigations required, such as an Environmental Assessment, before developing additional parking, but this identification of possible parking locations is an important first step to increasing accessibility to Lake County's most desirable trails.

Signage and Wayfinding

To accompany the suggested routes, signage and wayfinding should be placed in visible areas. Three groups of signage will provide route users with a sense of place and quick-glance identification of where they are located within the region. The three categories are:

- Regional Trail Network
- In-Town Street Network
- Parking Areas

In the Leadville-Lake County Signage and Wayfinding Plan, various types of signage are grouped into categories. For our concept plan, Regional Trails and the In-Town Street Network will utilize the trailhead/trail sign designs (unless otherwise noted in the Wayfinding Plan). Parking Areas will use the Pedestrian/Auto Kiosks design.

To add on to the wayfinding plan, each category of trails/routes could have a slightly different design element to differentiate them.

Option 1: Different icons for each trail type in addition to a color assigned to the icon

Option 2: Different icons for each trail type to remain in the original brown and white design

Option 3: No icons but different colors identifying the trail type

The icons would not change the design laid out in the original wayfinding plan but would be an additional element added onto the wood post, or, in the case of no icon, coloring added to the background behind the route name.

Regional Trails

Connections from the proposed Stage and Rail Trail and the Fremont Pass Trail should include signage when connecting to the Mineral Belt Trail, Leadville, and Route 4. Once these trails are completed, coordinating signage with the appropriate agencies will be important. In addition, any connection into town should include signage. A red icon with a bicyclist symbol will make identification of connections easier.

In Town Street Network

The wayfinding plan already notes locations along our identified priority routes to locate signage, with various categories recommended. The signage in-town may use the color blue or an icon depicting a building so users recognize they are within Leadville. This can be added to the already established designs. Many of the signage designs also already note nearby destinations. Simply adding an element of color or an icon can make wayfinding easier for visitors.

Parking Areas

Various parking areas that could be used for bikers and walkers currently have no signage. A pedestrian/auto kiosk design should be placed in these lots with the circular destination map attached depicting nearby attractions. Orange with a car icon can be used in these areas so visitors know they have reached an appropriate place to park.

CONCEPT PLAN

Figure 74. Example icons designating in town street network locations, parking areas, and regional trail network locations



Figure 75. Proposed locations for signage with identification icons

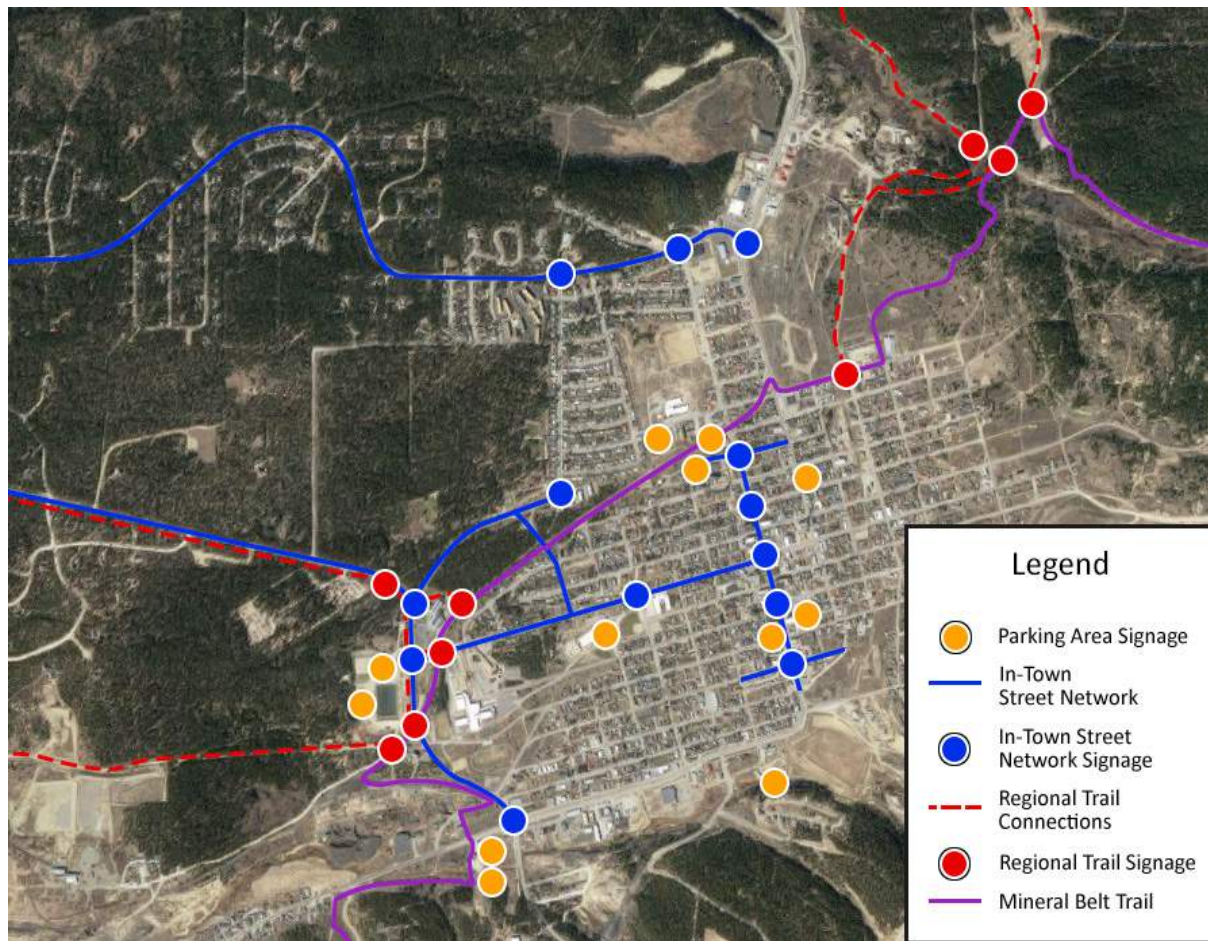
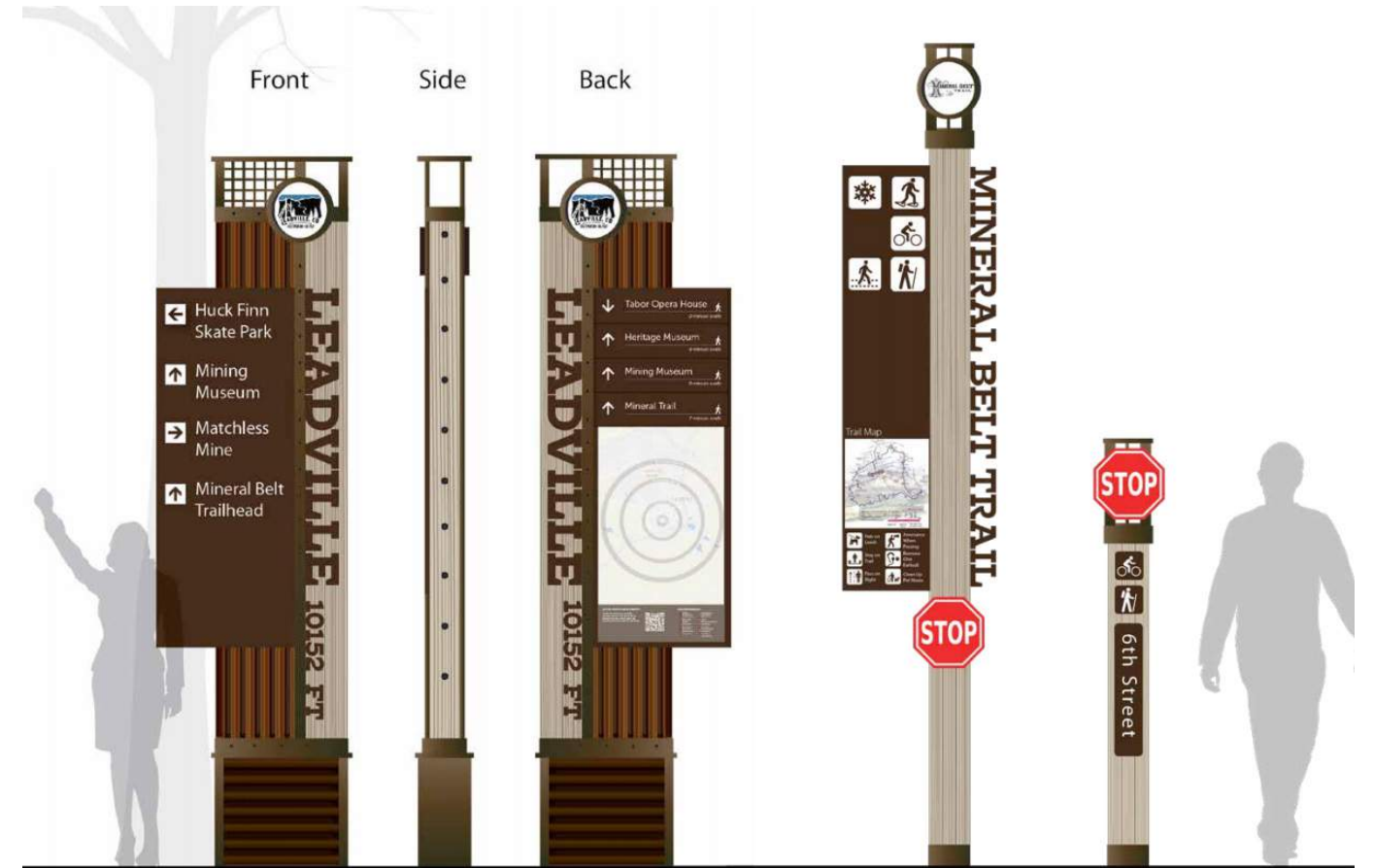


Figure 76. Example signage proposed in the Leadville/Lake County Branding, Signage & Wayfinding Plan



A photograph of a rural road. On the right side, a wooden utility pole stands with a street light arm extending over the road. The road is paved on the left and gravel on the right. In the background, there is a large white building with a dark arched entrance, surrounded by trees and a clear blue sky. A small wooden building is visible on the right side in the distance.

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OVERVIEW

Based on feedback from the Concept Plan, the Project Team further developed a few concepts and put together final recommendations. The final recommendations are provided in the sections below.

COMMUNITY ENGAGEMENT

The pilot survey received 24 responses and findings are provided below.

Key findings from the survey include:

- Participants were asked to identify their comfort level with cycling. 20.8% stated that they were “Strong and Fearless,” 29.2% identified as “Enthusied and Confident,” the number one answered response was “Interested but Concerned” at 37.5%. And 12.5% of people identified as “No way/ No how”.
- The majority of respondents stated that they bike frequently (41.7%) or sometimes (29.2%). And 8.3% stated that they refuse or cannot bike.
- When asked about the level of satisfaction with downtown sidewalks, streets, and pedestrian crossings, the majority of respondents stated that the sidewalks were good or satisfactory (62.5%), 41.7% of people stated that the downtown infrastructure required improvement. No one stated that the downtown pedestrian infrastructure was excellent.
- When asked to rate the level of satisfaction with neighborhood sidewalks, streets, and pedestrian crossings, a noticeable majority stated that these areas need improvement (87.5%). 12.5 % stated that the neighborhood pedestrian infrastructure was good or satisfactory. No one stated that the neighborhood pedestrian infrastructure was excellent.

Figure 77. Survey respondents comfort levels for bicycling infrastructure



MULTIMODAL NETWORK

Pedestrian and Bicycle Priority Routes and Streets

Based on feedback for pedestrian and bicycle priority routes and streets, the Project Team developed final recommendations from the Concept Plan section. Streets from the priority street network identified by the Project Team and recommendations for these streets are presented below.

2nd Street, James Street, and 10th Street

Since James Street, 10th Street, and 2nd Street have similar right-of-ways and existing sidewalk infrastructure, the proposed recommendations for improvement are appropriately the same. The design recommendations include completing five foot sidewalks on both sides of the street, two parking lanes, and two drive lanes. To improve the bicycle network, the two drive lanes will have “sharrows”, shared lane markings, that allow bicyclists and cars to share the road. This improvement will allow for the normal flow of traffic, while maintaining designated parking lanes. The existing conditions and proposed improvements are provided in Figures 78 and 79.

Mountain View Drive

Mountain View Drive has a 35 foot right-of-way, which is currently occupied by two drive lanes and shoulders on either side. The recommended improvement is to install a bi-directional shared-use path for pedestrians and bicyclists on the south side of the road. This will formalize and consolidate the paths typically walked or biked and will create a safer environment for the users. This improvement will require restriping along Mountain View Drive, to provide enough room for a 10 foot shared-use path on one side of the street (see Figures 80 and 81).

Figure 78. Existing conditions of 2nd Street, James Street, and 10th Street



Figure 79. Proposed improvements for 2nd Street, James Street, and 10th Street

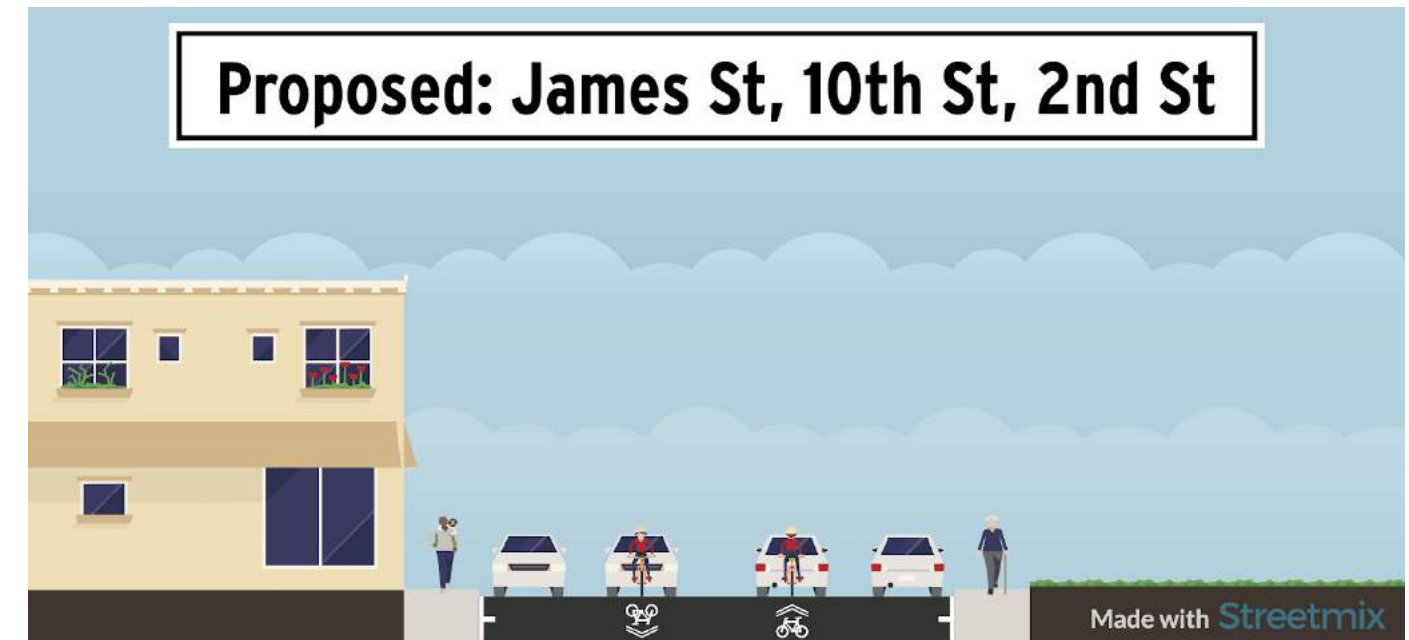


Figure 80. Existing conditions of Mountain View Drive

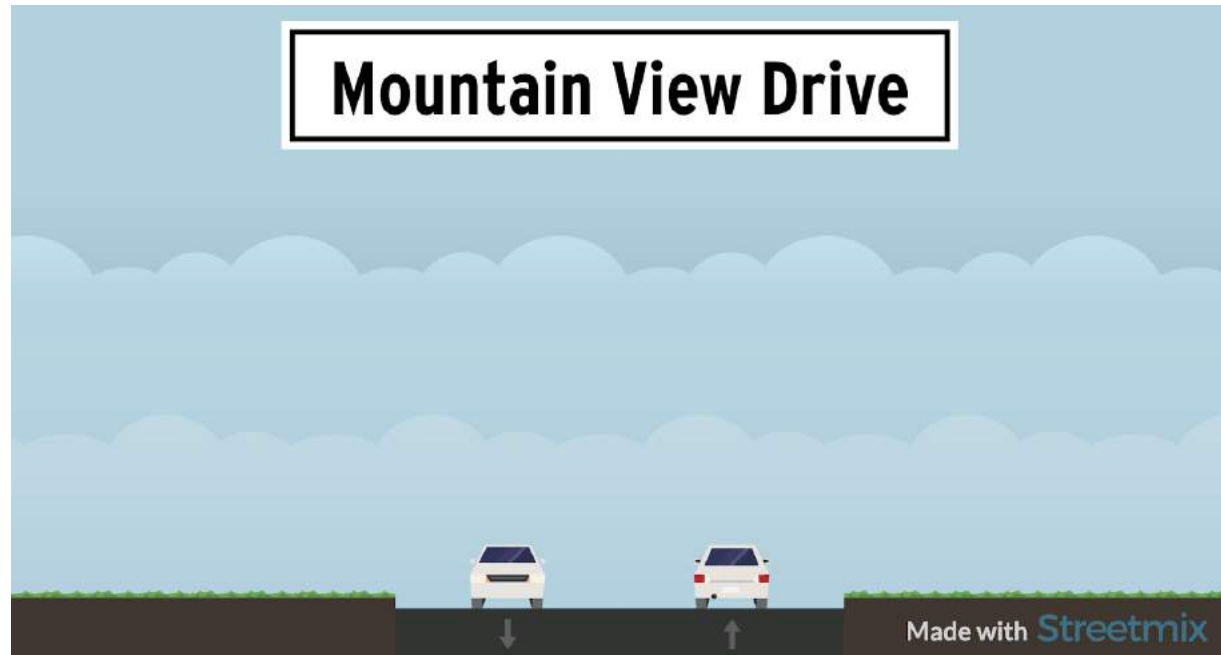


Figure 81. Proposed improvements for Mountain View Drive



6th Street and McWethy Drive

6th Street and McWethy Drive are highly used by vehicles, pedestrians, and bicyclists. These streets provide important connections for the community to the school along Harrison Avenue and the aquatics center. The proposed improvement for 6th Street is to complete the five foot sidewalks for the entire length of the street and add bike lanes. Between Leiter Street and James Street, 6th Street narrows beyond the acceptable width for bike lanes and for this stretch of the street, the proposed recommendation is to install sharrows for bicyclists and drivers to share the lane.

6th Street is home to an important Mineral Belt trail crossing that is currently lacking safe infrastructure. It is recommended that the crosswalk be repainted with either white or another color to catch the eye of the driver to alert them of the presence of non-motorized modes. It is also recommended to add pedestrian crossing signs. These improvements will be helpful for users of the trail and vehicles driving west on 6th Street, who might not see people crossing as they come up over a slight incline.

Along McWethy Drive, the proposed recommendation is to include five foot sidewalks, bike lanes, and two driving lanes within the right-of-way. Unlike 6th Street, it is not recommended to include parking lanes because there aren't parking lanes that currently exist and no vehicles were found parking along this street during observational assessments completed by the Project Team. The existing conditions and proposed improvements for both streets can be found on the following page in Figures 82 and 83, and Figures 84 and 85.

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Figure 82. Existing conditions of 6th Street



Figure 83. Proposed improvements for 6th Street



Where 6th Street and McWethy Drive intersect, the recommended improvement is to have a two-way stop on McWethy Drive with painted crosswalks, and a yield sign on 6th Street. By reducing the width of 6th Street at the intersection and adding stop signs, it will become safer for all users traveling through the space. Since these streets were identified as important bicycling and walking routes in the City of Leadville and Lake County master plans, the recommended improvements will help create infrastructure that supports bicycling and walking (see Figures 86-88).

Figure 84. Existing conditions of McWethy Drive



Figure 85. Proposed improvements for McWethy Drive



Harrison Avenue

Harrison Avenue currently has the most multi-modal infrastructure in Leadville. Short term recommendations are to utilize temporary bulb-outs within the spaces where parking does not exist, to help create a space for bike racks, restaurant patio seating, or as a public gathering space. These could be tested on a few street corners, where parking is restricted and studied to determine if they should become permanent features. As mentioned previously, Harrison Avenue is owned by CDOT and it is understood that the street will be repaved in

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2020. To take advantage of this opportunity, a long term recommendation is to create elevated bike lanes immediately adjacent to the sidewalk, which would be protected by the slight elevation off the road as well as by the parking lane that would act as a buffer from moving traffic (see Figures 89-93). Completing these improvements will help improve safety; and transform Harrison Avenue into a complete street that supports all ages and abilities, and transportation modes.

Figures 86 and 87. Existing conditions and proposed rendering improvements for 6th Street and McWethy Drive



Figure 88. Proposed rendering improvements for 6th Street and McWethy Drive



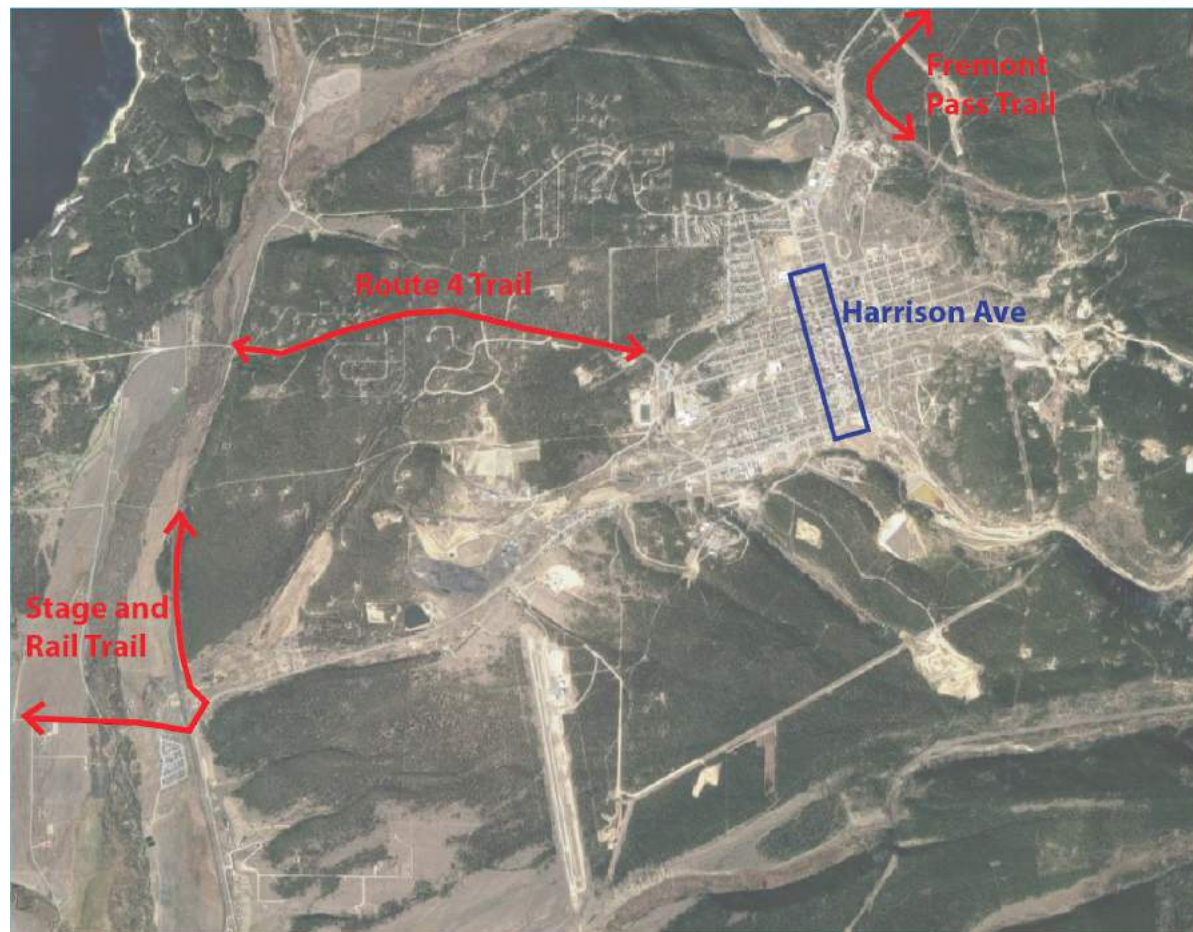
Figure 89. Existing conditions of Harrison Avenue



Regional Trails and Connections

Due to the diversity of trail projects at various levels of completion in the Leadville area, several approaches will be detailed. Many trail connectivity gaps were identified earlier on in the project, but only the top priorities were focused on for the project implementation phase. The three key focus areas that will be discussed are the Route 4 trail terminus at McWethy Drive, the Fremont Pass Trail's proposed southern connection to the Mineral Belt Trail, and the Stage and Rail Trail's proposed northern connection to the Mineral Belt Trail.

Figure 94. Proposed rendering improvements for Harrison Avenue



The Route 4 trail terminus at McWethy Drive focuses on safely connecting the trail to the Mineral Belt by providing a clear link between these trails by adding bike lane pavement markings and improving the McWethy Drive and Route 4 intersection. These proposed improvements will also tie in closely to the McWethy Drive and 6th Street intersection improvements detailed previously.

Both the Fremont Pass and the Stage and Rail Trail connectivity to the Mineral Belt Trail do not require trail users to pass through heavily trafficked intersections, like the Route 4 and McWethy Drive. This means less focus on trail interface with roadways and more of a focus on identifying trail widths, materials and costs for linking these regional trails to the Mineral Belt Trail and downtown Leadville. A trail pricing model has been developed to estimate these costs and will be further detailed in the regional trails section below.

Route 4 Trail Improvements

Currently, the northern terminus of the Route 4 Trail ends on a dirt and sand slope near the Route 4 and McWethy Drive intersection. This endpoint is not suitable for most bicyclists, as it is steep and hard to navigate. Furthermore, bikers and hikers must then walk along the shoulder of McWethy Drive to reach connections for downtown Leadville and the Mineral Belt Trail via 6th Street. Beyond the safety and comfort of recreational users, the safety of youth using this trail to reach the Lake County Intermediate School and Lake County Aquatic Center is paramount. The proposed connection of the Route 4 Trail to McWethy Drive necessitates complete street improvements such as high visibility bike lanes and crosswalks, along with traffic calming efforts at

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intersections. The Route 4 Trail will be paved and extended up the hill beyond its current terminus to meet a short section of two-way bike lane, as can be seen on the right side of the image below.

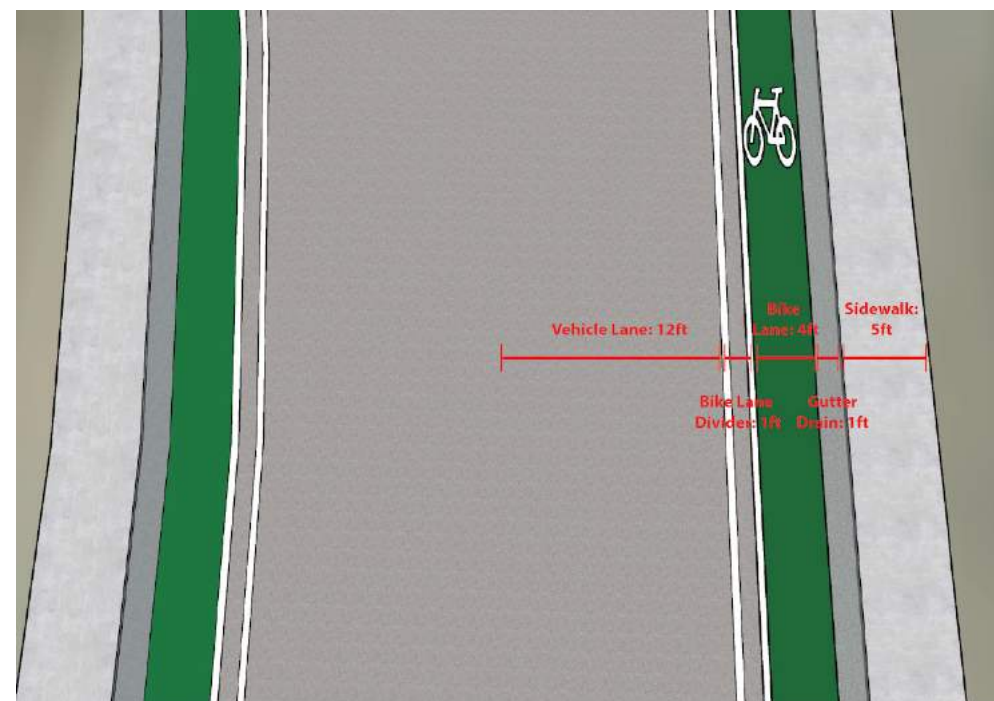
Trail users who wish to continue towards 6th Street and the Mineral Belt Trail will continue along a separated bike lane on the west side of McWethy drive. Users coming from 6th Street, the Mineral Belt Trail or Intermediate School will travel on a bike lane on the east side of McWethy before crossing at the Route 4 intersection to meet the trail.

Figure 95. Proposed improvements for Route 4



The proposed bike lanes will be five feet wide in each direction, with an additional one foot separation from the street. In addition, a five foot sidewalk will be added for pedestrians alongside the bike lane. These proposed measurements are detailed in Figure 96.

Figure 96. Measurements for proposed improvements for Route 4



Route 4 and McWethy Drive Intersection Improvements

The Route 4 and McWethy Drive intersection is currently a three-way 'Y Intersection' with the roads meeting in a way that form acute angles, which limit driver visibility when turning and leads to unsafe crossing for bicyclists and pedestrians in this area. Beyond the constraints imposed by the physical layout of the intersection, there are also no intersection treatments such as crosswalks or designated crossing areas for bicyclists.

Safety at this intersection should be paramount due to its proximity to the Intermediate School, Aquatic Center, and Route 4 Trail. Immediate and low-cost improvements such as crosswalks for pedestrians and designated bike crossings for the Route 4 Trail are one strategy that will improve the safety of this intersection. However, re-orientation of

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the intersection itself to make Route 4 and McWethy Drive meet at a 90 degree angle would be the most desirable option. According to the National Association of City Transportation Officials (NACTO) Street Design Guide, when addressing safety concerns at complex intersections it is important to “bend streets so that they meet at as close to a right angle as possible...”, which “enhances overall clarity and visibility for both vehicles and pedestrians.” The proposed realignment of this intersection can be seen in Figures 97-99.

An additional consideration for improvement of this intersection is the relocation of the entrances to the Intermediate School and Aquatic center. A secondary NACTO recommendation for complex intersection is to “consolidate driveways to properties with multiple entry points.” The current entrances add unnecessary complexity to the intersection, with entrances almost immediately on either side of the intersection. This can be addressed by closing off these entrances with the addition of sidewalks that will connect to the proposed Climax Affordable Housing Site and then moving the entrance further south down McWethy Drive.

The specific siting this new entrance is beyond the scope of this chapter’s recreational trails focus but should be considered as a next step beyond intersection realignment.

Fremont Pass Trail and Stage and Rail Pricing Projections

The Concept Plan section of this report detailed proposed routes to connect these regional trails to the Mineral Belt Trail, but no matter what route is ultimately decided upon, understanding cost estimates for

Figures 97-99. Existing conditions and proposed rendering improvements for Route 4 and McWethy Drive intersection



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all of these options is critical when looking to secure funding. After completing research on pricing estimates for trail construction, our group developed an Excel spreadsheet pricing tool that estimates total costs of new trail construction. A link to the interactive Excel pricing tool is provided in Appendix G.

The major cost variables included in the pricing spreadsheet are detailed in the table below.

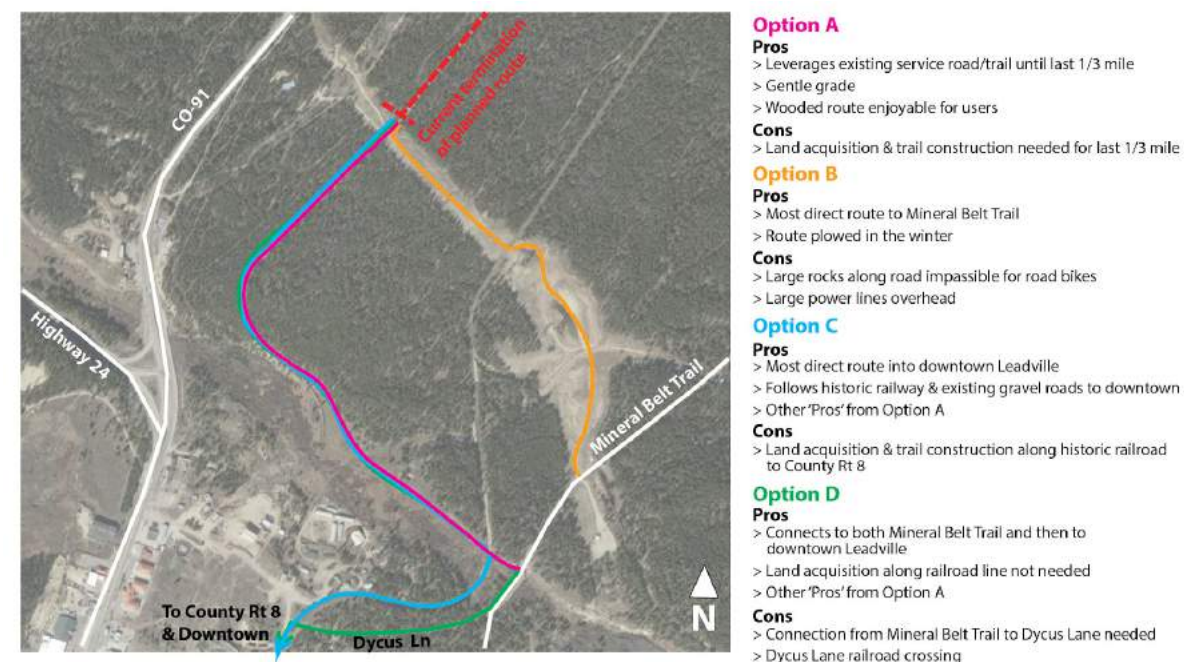
Trail Construction Hard Costs	Unit	Price Per Unit
Clearing & Grubbing	Acre	\$2,550
Grading	Feet	\$0.70
Granular Subbase	Sq ft	\$0.50
Asphalt Surface	Sq ft	\$1.30
Trail Construction Soft Costs		
Planning		2% of Trail/Materials
Preliminary Design		2% of Trail/Materials
Construction documents		5% of Trail/Materials
Construction services		5% of Trail/Materials
Administration		5% of Trail/Materials
Other Costs (drainage, signage, support services, etc)		10% of Trail/Materials

These costs are combined with trail length and width variables to develop cost estimates for trail construction. Costs for land acquisition, signage placement and other expenses are not included in this tool.

Fremont Trail Example Cost Estimate

Four possible routes were proposed for Fremont Pass Trail connectivity to the Mineral Belt Trail and downtown Leadville, as mentioned in the Concept Plan section.

Figure 100. Fremont Pass Trail proposed connections



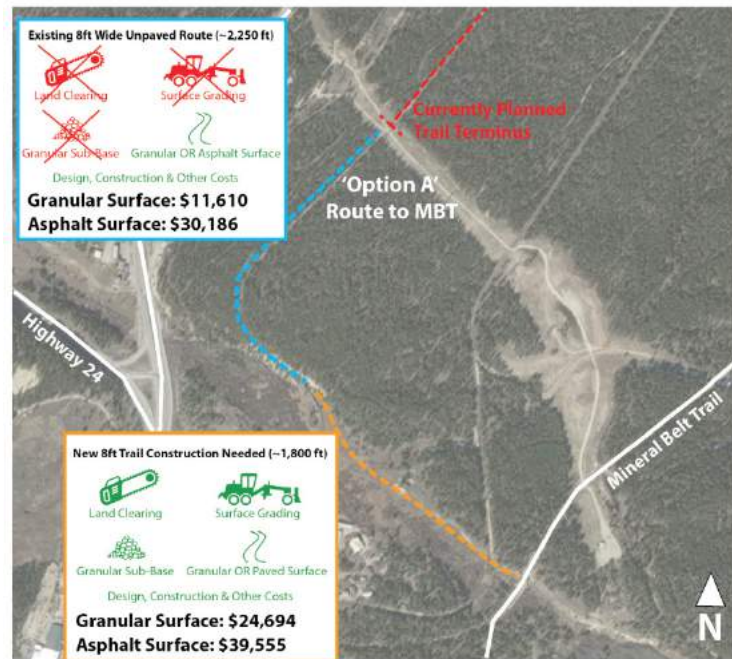
Each of these proposed routes have sections in various conditions, with these different conditions requiring varying levels of construction to reach trail completion. An example of this can be seen in Figure 101, which shows the necessary construction required for sections of Fremont Trail completion.

For example, Figure 101 shows that first half mile trail section in blue would only require surface treatment because there is already a cleared and unpaved service road in this area. The second 1,800 foot section

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shown in orange would require new trail construction, which is more expensive. When looking at total costs, the major cost differentiator is granular loose rock surface vs paved asphalt, as a granular loose rock surface costs only \$0.50 per square foot compared to a cost of \$1.30 per square foot for asphalt.

Figure 101. Freemont Pass Trail estimated cost estimates for trail completion



Estimated costs for trail completion range from **\$36,304** (unpaved surface) to **\$69,741** (asphalt surface).

Note: estimate does not include land acquisition costs

Stage and Rail Trail Example Cost Estimate

Another pricing example was calculated from the Stage and Rail Trail connectivity 'Option C' as shown in Figure 102. This route leverages the historic railway for just over one mile, which is already cleared and graded but mile still requires surface improvements that range from approximately \$30,000 to \$80,000 to complete in addition to land acquisition and costs as shown in Figure 103.

Figure 102. Stage and Rail Trail proposed connections

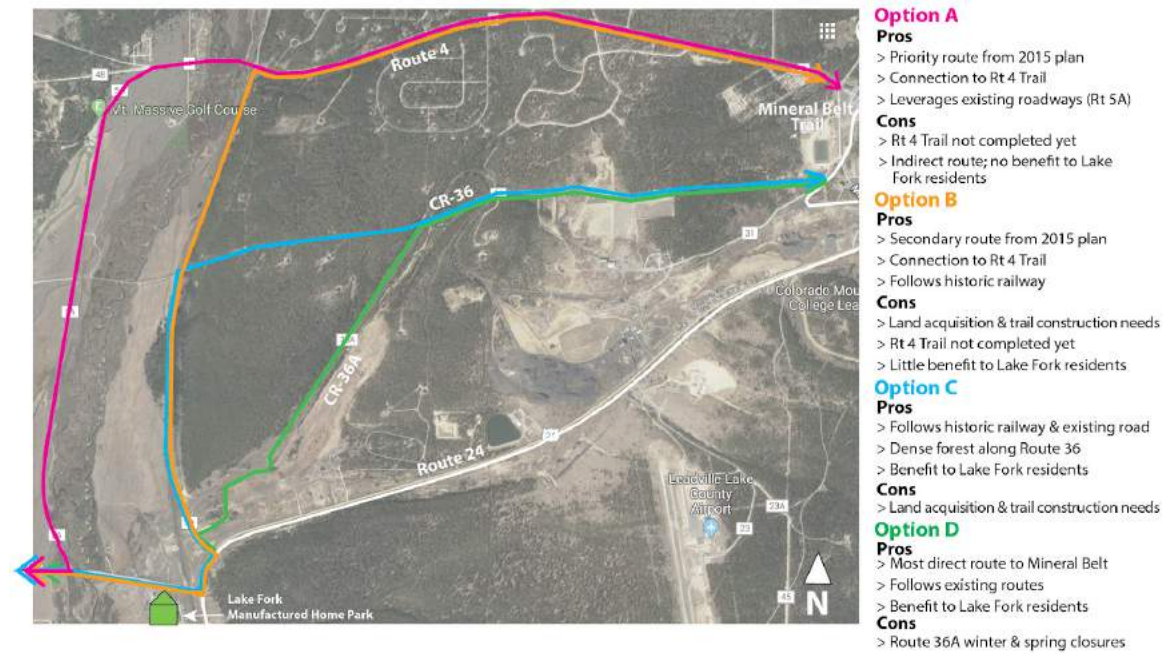


Figure 103. Stage and Rail Trail cost estimate for trail completion



Estimated costs for trail completion range from **\$30,786** (unpaved surface) to **\$80,045** (asphalt surface).

Note: estimate does not include land acquisition costs

Wayfinding and Signage

Implementation of the suggested signage and wayfinding is similar to the implementation plan outlined in the Leadville/Lake County Signage and Wayfinding Plan. As mentioned in the plan, there are various opportunities and funding mechanisms to finance new signage throughout Lake County.

*For more information on Signage and Wayfinding Implementation, see the Leadville/Lake County Signage and Wayfinding Plan

Implementation Strategies

Additional implementation strategies including local and state grants, public-private partnerships, and tax assistance from general funds are presented below.

Local and State Grant Programs

- Special Districts
- Tax Increment Financing
- Community Development Block Grant Program
- Development Impact Fees
- Transportation Equity Act
- Division of Local Government Grants
- Office of Economic Development and International Trade Grants
- Surface Transportation Block Grant Program
- Governor's Energy Office and USDA Rural Development Energy Programs (to fund energy-efficient new lighting)
- Colorado Health Foundation Activating Places and Spaces Together

Public-private Partnerships

- Side street signage costs can be offset through the sale of sign blades
- Crowd-funding campaigns can be used to raise funds for historic walking tour signs and trail signage

Tax Assistance from General Funds

- Allocate specific funds for the signage and wayfinding improvements

APPENDICES

Appendix A. Biking and Walking Connectivity Survey - English

Section 1: Biking and Walking

How do you typically travel to work/school

Drive Alone

Carpool

Bike

Walk

Bus

Other: Write in

N/A

How often do you typically bike?

Frequently (once or more per week)

Sometimes (once or more per month)

Infrequently (a few times a year)

Rarely/Never

I refuse or cannot bike

How often would you like to bike?

Frequently (once or more per week)

Sometimes (once or more per month)

Infrequently (a few times a year)

Rarely/Never

I refuse or cannot bike

How often do you typically walk?

Frequently (once or more per week)

Sometimes (once or more per month)

Infrequently (a few times a year)

Rarely/Never

I refuse or cannot walk

How often would you like to walk?

Frequently (once or more per week)

Sometimes (once or more per month)

Infrequently (a few times a year)

Rarely/Never

I refuse or cannot walk

Section 2: Connectivity

How well do the roads/streets/trails near your home connect to downtown Leadville?

Not well

Somewhat well

Fairly well

Very well

Where would you like to bike or walk to? (check all that apply)

- Grocery store
- Work
- School
- Faith-based organizations and facilities
- Recreational amenities (ie. parks and trails)
- Health clinic/Hospital
- Community centers
- Community gathering spaces
- Downtown/retail

Rate your level of satisfaction with downtown sidewalks, streets, pedestrian crossings

- Needs improvement
- Good or satisfactory
- Excellent

Rate your level of satisfaction with neighborhood sidewalks, streets, pedestrian crossings

- Needs improvement
- Good or satisfactory
- Excellent

Section 3: Comfort Levels

What is your comfort level for biking?

- Strong and fearless: will ride regardless of challenging traffic conditions
- Enthusied and confident: will ride in most traffic conditions but prefer dedicated bikeway facilities
- Interested but concerned: will ride only if there are comfortable bikeway facilities provided
- No way/ No how: Will never ride for personal or physical reasons

As a cyclist, please state your comfort level biking on the street below:

Conventional Bike Lane



- Low
- Medium
- High

As a cyclist, please state your comfort level biking on the street below:

Shared-Lane Markings



Low
Medium
High

As a cyclist, please state your comfort level biking on the street below:

Paved Shoulder



Low
Medium
High

As a cyclist, please state your comfort level with sharing an unmarked residential road with vehicles:

Unmarked Shared Road



- Low
- Medium
- High

Section 4: Demographics and Living

What is your age?

What best describes your gender?

- Woman
- Man
- Other: write in
- Choose not to answer

What is your race?

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Other: Write in
- Prefer not to answer

What community/area do you live in? (check one)

- City of Leadville
- West Park Area
- Neighborhoods west of Leadville
- Highway corridor/ south of Leadville
- Twin Lakes Area
- East Fork Mobile Home Park
- Mountain View West Park
- Lake Fork Mobile Home Park
- Other, inside of Lake County
- Other, outside of Lake County

What type of housing do you currently live in? (check one)

- Single family detached unit
- Apartment
- Condo/ Townhome
- Manufactured Home
- Other: (write in)

Appendix B. Biking and Walking Connectivity Survey - Spanish

Sección 1. Caminando y andando en bicicleta

¿Como viaja usualmente a la escuela / trabajo?

Manejo sola (o)

Comparto coche

Voy en bicicleta

Camino

Tomo el Bus

Otro: _____

No viajo

¿Qué tan a menudo uso la bicicleta?

Frecuentemente (Una o más veces por semana)

Alguna vez (Una o más veces al mes)

Una que otra vez (pocas veces al año)

Casi nunca / Muy rara vez

No quiero o no puedo usar la bicicleta

¿Qué tan a menudo le gustaría usar la bicicleta?

Frecuentemente (Una o más veces por semana)

Alguna vez (Una o más veces al mes)

Una que otra vez (pocas veces al año)

Casi nunca / Muy rara vez

No quiero o no puedo usar la bicicleta

¿Qué tan a menudo usted camina?

Frecuentemente (Una o más veces por semana)

Alguna vez (Una o más veces al mes)

Una que otra vez (pocas veces al año)

Casi nunca / Muy rara vez

No quiero o no puedo usar la bicicleta

¿Qué tan a menudo le gustaría caminar?

Frecuentemente (Una o más veces por semana)

Alguna vez (Una o más veces al mes)

Una que otra vez (pocas veces al año)

Casi nunca / Muy rara vez

No quiero o no puedo usar la bicicleta

Sección 2: Conectividad

¿Como son las conexiones de calles/caminos/senderos de su casa al centro de Leadville?

Mala conexión

Algo malas

Algo buenas

Muy buena conexión

¿Adónde le gustaría poder andar en bicicleta o poder caminar fácilmente? (marque todas las que aplican)

Supermercado

Trabajo

Escuela

Lugar de fe (centros de organización y centros de religión)

Lugares de recreación (parques y senderos)

Hospital y/o clínica de salud

Centro comunitario o instituciones publicas

Lugares de encuentro de la comunidad

Centro de Leadville y/o tiendas de compras

Califique el nivel de satisfacción con respecto a las aceras, calles y cruces peatonales en el centro de Leadville:

Necesita mejoras

Esta bien

Es excelente

Califique su nivel de satisfacción con respecto a las aceras, calles y cruces peatonales en su vecindario: (barrio / comunidad próxima a su lugar de residencia)

Necesita mejoras

Se encuentra bien

Es excelente

Sección 3: Nivel de Comodidad

¿Qué tan cómodo se siente andando en bicicleta?

Fuerte y Audaz: Anda sin miedo, las condiciones de tráfico/infraestructura no impactan o limitan su uso de la bicicleta.

Entusiasta y con confianza. Andaría en la mayoría de las condiciones de tráfico/infraestructura, pero prefiere espacios dedicados y con protección.

Le interesa pero le preocupa: Andaría nada más si hay espacios cómodos disponibles y con protección para bicicletas.

De ninguna manera / No puede: Nunca andaria por razones personales o por condiciones físicas

Como ciclista, por favor háganos saber cuál es su nivel de comodidad en la siguiente calle:



Bajo

Medio

Alto

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Como ciclista, por favor háganos saber cuál es su nivel de comodidad en la siguiente calle:



Bajo
Medio
Alto

Como ciclista o peatón, por favor háganos saber cuál es su nivel de comodidad en el siguiente espaldón:



Bajo
Medio
Alto

Como ciclista, por favor háganos saber cuál es su nivel de comodidad al compartir una calle con un automóvil, como en la siguiente imagen:



Bajo
Medio
Alto

Sección 4: Demografía y Residencia

¿Cuál es su edad?

¿Cuál genero le describe mejor?

Mujer
Hombre
Otro
Prefiero no responder

¿En qué tipo de vivienda vive actualmente? (marque uno)

Casa unifamiliar (separada)
Apartamento multifamiliar
Condominio / Duplex (Townhome)
Casa manufacturada (Mobile Home)
Otro: _____

Appendix C. Review of Complete Streets Policy

The draft resolution to adopt a Complete Streets Policy was reviewed by the Project Team using the 10 elements of an ideal Complete Streets policy from Smart Growth America’s National Complete Streets Coalition. Elements in green almost meet or meet the criteria outlined, those in orange somewhat meet these criteria but need improvements, and red elements do not meet many of the criteria and are in need of significant improvements. It is important to note that this evaluation is subjective and could change depending on reviewees. However, it still provides a preliminary assessment that can be used to take steps towards improving this policy document. Detailed information from this review is provided in the table below. Additional information can be found at <https://smartgrowthamerica.org/app/uploads/2018/02/CS-Policy-Elements.pdf>.

Table 1C. Review of Complete Streets Policy

Complete Street Element	Points Earned*	Comments
<p>Vision and intent: Includes an equitable vision for how and why the community wants to complete its streets. Specifies need to create complete, connected, network and specifies at least four modes, two of which must be biking or walking.</p>	<p>12/12</p>	<ul style="list-style-type: none"> • Uses a lot of shall language and some may language (+3) • States that the City of Leadville shall create a complete transportation network that provides connected facilities.... (+2) • Specifies multiple benefits of Complete Streets (+2) • Specifies equity as an additional motivation or benefit of Complete Streets (+1) • Specifies modes, with a base of four modes, two of which are biking and walking (+4)

<p>Diverse users: Benefits all users equitably, particularly vulnerable users and the most underinvested and underserved communities.</p>	<p>1/9</p>	<ul style="list-style-type: none"> • States that the City of Leadville and Lake County recognizes that children, seniors, and persons with disabilities may require inclusive accommodations. (+1) • Does not establish an accountable, measurable definition for priority groups or places (+0)
<p>Commitment in all projects and phases: Applies to new, retrofit/reconstruction, maintenance, and ongoing projects</p>	<p>6/10</p>	<ul style="list-style-type: none"> • States that the City and County shall approach every public or private project, program and practice that affects the transportation network or occurs in the right-of-way as an opportunity to improve street conditions and travel routes for everyone (+1) • States that the City of Leadville/County of Lake expects full compliance with this policy and will review bicycle, pedestrian, and transit facilities for incorporation in street construction, reconstruction, repaving, and rehabilitation projects, except under one or more of the following conditions.... (+4) • States that routine maintenance of the transportation network does not change the roadway operations, such as mowing, sweeping, and spot repair; (+1)

<p>Clear, accountable expectations: Makes any exceptions specific and sets a clear procedure that requires high-level approval and public notice prior to exceptions being granted.</p>	<p>4/8</p>	<ul style="list-style-type: none"> • States that routine maintenance of the transportation network does not change the roadway operations, such as mowing, sweeping, and spot repair; (+4) • Does not state who is responsible for approving exceptions (+0) • Does not state that it requires public notice prior to granting an exception in some form. This could entail a public meeting or an online posting with opportunity for comment (+0)
<p>Jurisdiction: Requires interagency coordination between government departments and partner agencies on Complete Streets.</p>	<p>2/8</p>	<ul style="list-style-type: none"> • States that the City and County shall approach every public or private project, program and practice that affects the transportation network or occurs in the right-of-way as an opportunity to improve street conditions and travel routes for everyone (+2) • Does not state a requirement for interagency coordination between various agencies such as public health, housing, planning, engineering, transportation, public works, city council, and/or mayor or executive office (+0)

<p>Design: Directs the use of the latest and best design criteria and guidelines and sets a time frame for their implementation.</p>	<p>5/7</p>	<ul style="list-style-type: none"> • States that the City of Leadville and County of Lake will take a flexible, innovative and balanced approach to creating context-sensitive complete streets that meet or exceed national best-practice guidelines (+5) • Does not set a specific time frame for implementation (+0)
<p>Land use and context sensitivity: Considers the surrounding community's current and expected land use and transportation needs</p>	<p>4/10</p>	<ul style="list-style-type: none"> • States that it is considering requiring new developments to design, make, and maintain pedestrian and cyclist pathways that connect to existing paths (trails, sidewalks, etc.) (bottom section under things to keep in mind) (+0) • States the connection between land use and transportation (+2) • States that the City of Leadville and County of Lake will take a flexible, innovative and balanced approach to creating context-sensitive complete streets that meet or exceed national best-practice guidelines (+2) • Policy does not mention the need to mitigate unintended consequences (+0)

<p>Performance measures: Establishes performance standards that are specific, equitable, and available to the public.</p>	<p>1/13</p>	<ul style="list-style-type: none"> • States that the City of Leadville/County of Lake shall maintain an inventory of pedestrian and bicycling infrastructure and will carry out projects, when practical, to eliminate gaps in the bike route, sidewalk and trail networks (+0.5) • States that the City of Leadville/County of Lake will develop implementation strategies that may include evaluating and revising manuals and practices, and considering Complete Streets principals when updating adopted planning documents to strive to provide Complete Streets over time (+0.5) • Does not establish specific performance measures for the implementation process such as tracking how well the public engagement process reaches underrepresented populations or updates to policies and documents (+0) • Does not mention equity in performance measures by measuring disparities by income/race/vehicle access/language/etc. as relevant to the jurisdiction (+0) • Does not specify a time frame for recurring collection of performance measures (+0) • Does not require performance measures to be released publicly (+0) • Does not assign responsibility for collecting and publicizing performance measures to a specific
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		individual/agency/committee (+0)
<p>Project selection criteria: Provides specific criteria to encourage funding prioritization for Complete Streets implementation.</p>	0/8	<ul style="list-style-type: none"> • Does not establish specific criteria to encourage funding prioritization for Complete Streets implementation (+0) • Does not mention specifically address how equity will be embedded in project selection criteria (+0)
<p>Implementation steps: Includes specific next steps for implementation of the policy.</p>	1/15	<ul style="list-style-type: none"> • Mentions revising procedures, plans, regulations, and other processes (+1) <ul style="list-style-type: none"> • The City of Leadville/County of Lake will develop implementation strategies that may include evaluating and revising manuals and practices, and considering Complete Streets principals when updating adopted planning documents to strive to provide Complete Streets over time • The City and County should anticipate future demand for bicycling, walking, and transit facilities. • The City of Leadville/County of Lake shall maintain an inventory of pedestrian and bicycling infrastructure and will carry out projects, when practical, to eliminate gaps in the bike route, sidewalk and trail networks

		<ul style="list-style-type: none"> • Does not mention workshops or other training opportunities for transportation staff. Policy is specific about the timing and/or staff members for the training and workshops (+0) • Does not mention responsibility for implementation to a new or existing 15 committee that includes both internal and external stakeholders that are representative of underinvested and vulnerable communities. Policy is specific about (+0) • Does not create a community engagement plan with specific strategies for who, when, and how they will approach public engagement in the project selection, design, and implementation process (+0)
TOTAL	36/100	

*Points earned refers to the rating system used in the Elements of a Complete Streets Policy document

Appendix D. Bicycle and Pedestrian Counts

Table 1D. Bicycle, Pedestrian, and Wheelchair Rolling Counts

Date and Time Wednesday, July 10th 7:30am to 9:30am					
Location	Count				Comments
	Bike	Walk	Roll	Other	
County Rd 4 (Road)	6	0	0	0	<ul style="list-style-type: none"> • About 1 car passing by each 1 to 2 minutes • Lake County School bus went by westbound twice; eastbound once • Two bikers turned off onto Route 9 when heading west
County Rd 4 (Trail)	2	4	0	0	
6th Street and McWethy Drive	6	6	1	0	<ul style="list-style-type: none"> • Wheelchair roller had to cut across the Aquatic Center parking lot off of McWethy Drive to connect to the Mineral Belt Trail on 6th Street • Noticed quite a bit of bicycle and pedestrian traffic on the Mineral Belt Trail crossing McWethy Drive and 6th Street, and turning onto 6th Street from the trail
Highway 24 and McWethy Drive	1	5	0	0	<ul style="list-style-type: none"> • One Ped crossed three times to get to the ranger station because there's no crosswalk on that side of the street (SE -> SW, SW -> NW, NW -> NE); One Ped "jaywalked" from the corner of the ranger station south (no crosswalk); One Ped ran along the shoulder of 24 (No sidewalk)

Date and Time Wednesday, July 10th 4pm to 6pm					
Location	Count				Comments
	Bike	Walk	Roll	Other	
Harrison Avenue	25	325	1	2	<ul style="list-style-type: none"> • Other category: 1 = regular scooter traveling in bike lane and 1 = skateboarder on sidewalk • Traffic was going speed limit and weren't being crazy towards bikes/peds; lots of car traffic; weird angled crosswalk at 6th and Harrison
6th Street and Harrison Avenue	9	108	0	0	<ul style="list-style-type: none"> • 10 second walk before blinking stop light; 30 second without pushing button and 45 with pushing button
6th Street and Leiter Avenue	3	3	0	0	<ul style="list-style-type: none"> • Most cars were driving E/W on 6th. Not much traffic on Leiter. After the intersection, there is an uphill section on 6th going W, which might deter bike/peds
6th Street and Leiter Ave (School cut through)	1	4	0	0	<ul style="list-style-type: none"> • There is an alley by the baseball field that people would walk down and cut through the school parking lot, rather than going up to the corner of 6th and Leiter • There is a sidewalk on 6th that ends right at the Elementary school

Appendix E. Priority Streets Matrices

Table 1E. Priority Streets Matrixes

Planning Area	Project	Cost: Estimated costs for improvement	Safety Concern Value: Higher score means greater safety concerns (e.g. close to a highway) for trail/bicycle/pedestrian users	Access Value: Higher score means more important for access to key community resources and attractions in Leadville and Lake County	Usage Value: Higher score means greater amount of use, also informed by bicycle and pedestrian counts	Community Value: Higher score means higher importance of the trail/route/street for the community	Total Score
Recreational Trails							
Lake Fork Mobile Home Park to Downtown		\$	4	4	3	3	14
Mountain Valley Estates to Fremont Pass Trail/Downtown	16 in 2016 Trails Initiative	\$\$	4	3	3	3	13
Fremont Pass to Mineral Belt Trail	16 in 2016 Trails Initiative	\$\$	3	5	4	3	15
Route 4 to Mineral Belt Trail		\$\$	4	4	4	4	16

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Completion of Route 4 Trail		\$\$\$	5	5	4	4	18
Stage and Rail Connection	16 in 2016 Trails Initiative	\$\$\$\$	4	5	4	3	16
CMC to Downtown		\$\$	3	3	3	2	11
Leadville Junction Parking Area		\$\$\$	1	3	4	4	12
Twin Lakes to CO Trail Connection		\$\$	3	3	4	3	13
Halfmoon Creek Trailhead Parking		\$\$\$	3	4	5	2	14
In-Town Streets							
Highway 24 West to Leadville	Regional connections	\$\$	5	3	2	2	12
Highway 4		\$\$\$	5	4	5	4	18
Highway 24 West out of Leadville		\$\$	5	4	4	3	16
CMC Bike Connection	CMC bike connection	\$\$	4	3	3	2	12

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5th Street: Harrison Avenue to Maple Street	Important sidewalk connections	\$\$\$	3	4	4	4	15
James Street: 6th Street to Mount Massive Drive		\$\$\$	5	4	4	4	17
Mountain View Drive	Bike/pedestrian safety concerns	\$\$	4	5	4	4	17
Highway 24 West into Leadville		\$\$\$	4	5	3	4	16
Highway 24 West: 2nd Street to Quincy Street		\$\$\$	4	3	3	4	14
Mount Massive Drive	Important walking and biking routes	\$\$	2	3	4	4	14
Mount Yale Drive		\$	2	2	3	5	12
Harrison Avenue: 12th Street to Mountain View Drive		\$\$\$	2	5	3	5	15

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6th Street: Harrison Avenue to McWethy Drive		\$\$	4	5	3	5	17
3rd Street: Harrison Avenue to McWethy Drive		\$\$	3	5	3	5	16
McWethy Drive: Highway 24 West to Mount Massive/ Highway 4		\$\$\$	4	5	4	5	18
10th Street: Highway 24 to Pine Street	Downtown Retail Core	\$\$\$	4	5	4	4	17
Harrison Avenue: 10th Street to West Chestnut Street		\$	2	5	5	5	17
2nd Street: Oak Street to Pine Street		\$\$\$	4	5	4	4	17

Appendix F. Complete Streets Design Guide

Overview of Complete Streets

Streets play a significant role in connecting people of all ages, abilities, and modes to and from key destinations and improving public health for people who live, learn, work, and play in the City of Leadville and Lake County. Complete Streets enhance quality of life for a variety of users including youth, people with disabilities, and seniors by improving equity, safety, and public health. It helps create multi-modal transportation systems that enhance quality of life and economic vitality; provide people with additional transportation choices for traveling to and from places; promote safety and equity; and improve mobility and air quality. Not everyone in the City of Leadville have the opportunity to drive due to financial or physical limitations, or other personal reasons. This is especially true for people of color, low-income groups, and people with disabilities.

Currently, Harrison Avenue is the only street in the City of Leadville that could be considered the most Complete Street. There is currently a temporary installation project along this street with two lanes going both ways that have parking and striped bike lanes on both sides but this road will be re-done next year.

The following resources were reviewed and informed the design elements included in this Complete Streets Design Guide created by the Project Team:


- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities
- FHWA Small Town and Rural Multimodal Networks

- NJ Department of Transportation New Jersey School Zone Design Guide
- NJ Department of Transportation Roadway Design Manual
- NACTO Urban Street Design Guide
- NACTO Urban Bikeway Design Guide
- MUTCD for Streets and Highways
- 2009 FHWA Separated Bike Lane Planning and Design Guide
- AASHTO Guide for the Development of Bicycle Facilities

Complete Streets Toolkit

A toolkit of bicycle and pedestrian design options relevant for the City of Leadville were gathered by the Project Team. Information on the name of the design element, an overview, and guidance on when and how to use each feature are presented in the table on the following page. Due to the high interest in bike corrals and bulb outs from Project Partners, the Project Team expanded design examples to include those outside of small and rural towns, and outside the United States for these two design features.

Table 1F. Complete Streets Toolkit

Design Element	Overview	Guidance
<p>PEDESTRIAN INFRASTRUCTURE</p> <p>Everyone walks or wheelchair rolls as part of every transportation trip or leisure time activity. Therefore, it is important to provide safe and comfortable pedestrian infrastructure to meet the needs of individuals of varying ages and abilities to support biking, walking, and wheelchair rolling at a community-wide level. All sidewalks should be compliant with American’s with Disabilities Act (ADA) standards and at least 5 feet. Sidewalks that are physically separated from the street with a buffer are preferred, where feasible.</p>		
<p>Sidewalk</p>  <p>Denmark, South Carolina</p>	<p>Sidewalks provide many benefits including supporting mobility and healthy communities, and increasing safety. Supportive pedestrian infrastructure can increase trips made by foot and walking for recreational purposes. It also improves public health by increasing the amount of people who reach the recommended minutes of physical activity each day.</p>	<ul style="list-style-type: none"> • Sidewalks should be at least 5 feet at a minimum to meet American’s with Disabilities Act (ADA) standards • Pedestrian buffer zones between the street and the sidewalk are highly recommended where feasible and should also be at least 5 feet at a minimum • Landscaping should be provided including trees and shrubs in planter boxes or within the pedestrian buffer zones where feasible • All sidewalks must meet ADA • Maximum ramp slope based on ADA standards: • Slope steeper than 1:8 is prohibited • Slope steeper than 1:10 but not steeper than 1:8 should have a maximum rise of 3 inches (75 mm) • Steeper than 1:12 but not steeper than 1:10 should have a maximum rise of 6 inches (150 mm)

BICYCLE FACILITIES

Different bicycle facilities should be used on streets depending on the type of street, right-of-way constraints, and community needs. As speeds and the amount of traffic on a street increases, the need for more protected bicycle facilities also increases to improve safety and support comfort-levels among bicyclists. Bicycle facility designs, overviews, and guidance information are provided below.

Paved Shoulder



D'Illberville, MS

Paved shoulders help increase levels of comfort for bicyclists on busy streets. They provide a dedicated space on the edge of the road for bicyclists to travel and are appropriate in rural areas.

Rumble strips can also be applied to paved shoulders. These are an FHWA Proven Safety Countermeasure to help reduce crashes and improve safety for bicyclists. However, it is important to note that rumble strips can sometimes negatively impact bicyclists. Considerations for bicyclists must be taken into account when installing rumble strips.

- Minimum recommended width is four feet
- Paved shoulders should be wider than four feet where there is higher bicycle usage and where a high amount of trucks and heavy vehicles use the roadway

Conventional Bike Lane



Harrison Avenue

A conventional bicycle lane is a lane dedicated for bicyclists, typically provided on both sides of the road traveling in the same direction as motor vehicle traffic.

- Conventional bike lanes should be installed on streets that have less than or equal to average traffic of 3,000 motor vehicle
- Colored or painted bike lanes should be included in bike lanes or cycle tracks, conflict right vehicle turn lanes, streets with high traffic volume, across driveways and stop/yield cross-streets
- Bike lanes should be a minimum of 5 feet, not including the gutter pan

Buffered Bicycle Lane



Lyndonville, Vermont

Buffered bike lanes are similar to conventional bike lanes but have an additional separation (buffer) between travel and/or parking lanes. Buffered bike lanes increase comfort-levels for bicyclists because there is extra space between the bike lane and travel/parking lane.

- Buffered bicycle lanes should be included anywhere a conventional bicycle lane is being considered
- Should be included on streets with high travel speeds, volumes, and/or high amounts of truck traffic
- Should be included on streets with additional lane width
- Special considerations such be given at transit stops to manage conflicts with bicyclists and pedestrians
- The recommended width of the buffer is at least 3 feet and should be wider where appropriate
- The buffer area should include interior diagonal cross hatchings or chevron markings

Shared-Lane Markings (Sharrows)



Ennis, MT

Shared lane markings, also referred to as sharrows, are important to promote safe biking on low traffic roads, where bicyclists and vehicles share the same lane. These markings increase visibility of bicyclists for motor vehicles. Shared lane markings typically connect to other bikeways or bike lanes.

Should be used for the following:

- Along bicycle boulevards (see more information on bicycle boulevard design feature below)
- Alternative to a conventional bike lane when there is limited street widths
- Along front-end angled parking
- To transition bicyclists from conventional bike lanes or cycle tracks to a shared lane
- In the street alongside separated bikeway facilities such as cycle tracks to allow use of the street by bicyclists who prefer riding in the street
- Not recommended for streets with speeds above 35mph

Bicycle Boulevard



Arcata, California

Bicycle boulevards are designated bicycle route on streets to make biking the priority and encourage through traffic to consider other ways.

- Bicycle boulevards are appropriate to install along streets with low speeds and traffic volumes to help create a safe bicycling environment

Shared-Use Path



South Lake Tahoe, California

Shared-use paths, also referred to as multi-use trails, provide an off-street option for non-motorized users to travel along the same two-way facility. These paths are typically used by people who are biking, walking, running, or wheelchair rolling but can also be used by scooters and skateboarders.

- Should be a minimum of 10 feet to reduce conflicts between users
- Should be separated from the street by a buffer

Raised One-Way Cycle Track



Missoula, Montana (MT)

A raised one-way cycle track increases safety and comfort for bicyclists by elevating the bicycle lane to the same level as the sidewalk to provide further separation from vehicular traffic.

Should be used for the following:

- Along higher speed streets with few driveways and cross streets
- Along streets on which bike lanes would cause many bicyclists to feel stress because of factors such as multiple lanes, high traffic volumes, high speed traffic, high demand for double parking, and high parking turnover
- On streets for which conflicts at intersections can be effectively mitigated using parking lane setbacks, bicycle markings through the intersection, and other signalized intersection treatments
- On streets with numerous curves where vehicle encroachment into bike lanes may be a concern
- Along streets with high bicycle volumes

OTHER DESIGN ELEMENTS

Additional design elements can be used to help encourage biking and walking while also increasing safety for all modes.

Flashing Beacons



Bentonville, AR

Flashing beacons can be used as an additional safety precaution at crossing locations to alert motor vehicles of the presence of non-motorized vehicles such as bikes and pedestrians. It also encourages motor vehicles to slow down and use caution to allow bicyclists and pedestrians to cross the street safely.

- Appropriate to use in places where sight distance is limited

Bulb Outs



Trail Net

Bulb outs are one method for extending the curb to help narrow the road to create a safer environment for pedestrians to cross the street and slow down traffic. It also increases the amount of space that can be dedicated to street furniture, street streets and landscaping, and benches.

- Recommended where there is on-street parking
- Can be implemented on neighborhood and residential streets or in downtown areas

Bike Corrals



Fietsvlonder (temporary bike platform), Rotterdam, Netherlands



San Francisco, CA

Bike corrals are used in parking spaces and can accommodate between 12 and 24 bikes. These can be temporary or permanent. See the pop-up events design feature below for temporary installation ideas.

Contacts for more information

California bike corral
San Francisco Municipal Transportation Agency, Bikeparking@sfmta.com

Fietsvlonder (temporary bike platform),
Deputy Mayor Robert van Asten, robert.vanasten@denhaag.nl

- Can be installed where parking is located
- Can also be installed at the corners of intersections since they have no effect on the visibility of pedestrians for motor vehicles

Pop-Up Events



Portsmouth, NH



Barberton, OH

Pop up events, also referred to as tactical urbanism or pop up demonstration projects, are a low-cost, simple, and easy approach to testing temporary designs throughout cities and towns to support community gathering spaces and improve livability. Typically, these projects take are led by organizations or community members. Pop up events can be installed to increase safety for pedestrians and bicyclists. See more information [here](#)

- Used for temporary design projects
- Used to test out temporary improvements to the built environment to support long-term improvements

Table 2F. Design recommendations for priority streets in the City of Leadville

Street Type	Street Name	Design Recommendation
City of Leadville	All streets	<ul style="list-style-type: none"> • Sidewalks
Main Street	Harrison Avenue	<ul style="list-style-type: none"> • Raised bicycle lane • Bike corrals • Bulb outs • Pop-up events
Low Density/State and County Highways	Highway 4	<ul style="list-style-type: none"> • Multi-use path • Paved shoulder
	Highway 24 West to Leadville	<ul style="list-style-type: none"> • Paved shoulder
	Highway 24 West out of Leadville	<ul style="list-style-type: none"> • Paved shoulder
	Mountain View Drive	<ul style="list-style-type: none"> • Multi-use path
	McWethy Drive	<ul style="list-style-type: none"> • Conventional bike lane
Residential	2nd Street	<ul style="list-style-type: none"> • Sharrows
	10th Street	<ul style="list-style-type: none"> • Sharrows
	James Street	<ul style="list-style-type: none"> • Sharrows
	6th Street	<ul style="list-style-type: none"> • Buffered bike lane • Sharrows • Conventional bike lane
	5th Street	<ul style="list-style-type: none"> • Sharrows • Conventional bike lane

Other Considerations and Recommendations

Other considerations and recommendations to enhance the success of implementing this Complete Streets Design Guide moving forward are to:

- Use the Complete Streets Checklist from Smart Growth America to determine appropriate design implementation strategies for streets in the City of Leadville which can be found at <https://www.smartgrowthamerica.org/app/legacy/documents/cs/impl/nv-southernnevadartc-checklist.pdf>
- Create a Complete Streets Checklist similar to one from NJDOT which can be accessed at <https://www.smartgrowthamerica.org/app/legacy/documents/cs/impl/nj-dot-checklist.pdf>
- Consider conducting a Level-of-Service (LOS) analysis for bicycling and walking facilities to determine convenience, comfort, security experienced by users to help influence transportation decisions, and performance standards and targets
- Signage and wayfinding should be installed, where feasible, to alert motor vehicles of the presence of bicyclists and pedestrians; and can be used to help bicyclists and pedestrians orient themselves around the City, and access destinations
- Integrate Complete Streets concepts in Comprehensive Planning and Zoning
- Ensure plans, programs, and funding are aligned

References

- <https://smartgrowthamerica.org/policy-6-road-design-leads-real-complete-streets/>
- <http://njbikeped.org/wp-content/uploads/2017/05/Complete-Streets-Design-Guide.pdf>
- <https://smartgrowthamerica.org/implementing-complete-streets-small-towns-rural-communities/>
- <https://www.northamptonma.gov/DocumentCenter/View/6668>
- <https://altaplanning.com/resources/small-town-rural-multimodal-networks-guide/>
- <http://ruraldesignguide.com/>
- https://safety.fhwa.dot.gov/ped_bike/tools_solve/walkways_trifold/

Appendix G. Trail Cost-Estimate Matrices

The Trail Pricing Tool Calculator is an interactive Excel spreadsheet, with variables that can be manipulated to estimate costs for several different types of recreational trail construction. To use the tool, download the Excel spreadsheet located at <https://drive.google.com/file/d/19JUMczqQ1F6BAiwKLIQ3oUS3CxYTG9IW/view?usp=sharing> and read the directions on the first tab.

Appendix H. Community Engagement Toolkit

Overview

The Community Engagement Toolkit provides the City of Leadville and Lake County a basic understanding of six potential engagement tools that the agencies can implement during the planning process.

When designing this toolkit, the research team went through over twenty different forms of public participation practices. From here, the research team selected six that were most appropriate for the City of Leadville and Lake County. The selected tools include the following: Surveys, Guided Bike Tours, Participatory Budgeting, Mobile Meetings, Pop-up Events, and Creative Play.

All items are low cost and easy to implement. In addition to laying out the overview and goals of each tool, when in the planning process the tool would be effective, potential limitations, and additional resources. Additionally, each tool is categorized by the type of participation that is involved. These engagement types are pulled directly from the International Association for Public Participation’s (IAP2) Spectrum of Public Participation (see more here <https://www.iap2.org/>).






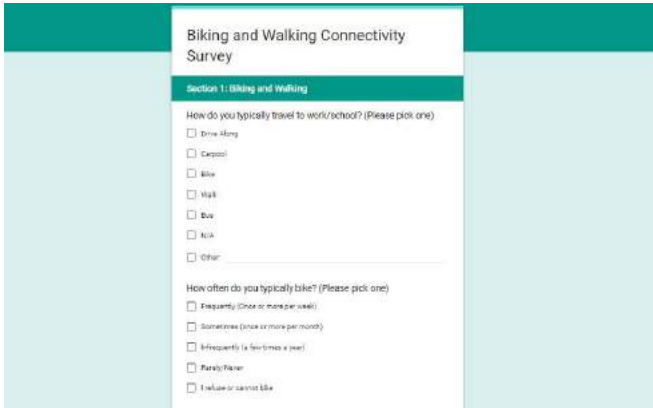

IAP2 Category	Description of activity types typical of IAP2 Category
 EMPOWER	Empower. This activity builds the capacity of agents of change (individuals, organizations, etc) to advance common vision and collective impact. Individuals act on collective will, as if joined as one.
 COLLABORATE	Collaborate. The activity supports cross-sector partnership building, cultivation of social capital, and collaborative problem solving and innovation.
 INVOLVE	Involve. The activity enables two-way communication between individual members of the public and the public sector decision-makers, where planners/public officials work directly with the public to ensure their concerns are voiced, understood, and considered.
 CONSULT	Consult. The activity obtained input from the public on analysis, alternatives, and/or decisions. Examples: public comment, focus groups, surveys, public meetings.
 INFORM	Inform. The activity provides the public with balanced and objective information that advances transparency and assists community members in understanding the problem, alternatives, opportunities, and/or solutions. Examples: Fact sheets, web sites, open houses.

Table 1H. Community Engagement Toolkit

Tool	Goals	When In Process	Type of Participation	Cost	Limitations
<p>Survey</p>  <p>Online and print surveys are a great way to get feedback from a wide audience of community members. They can help researchers understand existing conditions, get feedback on concept plans, and can be administered various times throughout the planning process.</p> <p>Additional resources:</p> <ul style="list-style-type: none"> • Harvard University Program on Survey Research https://psr.iq.harvard.edu/book/questionnaire-design-tip-sheet • Survey engines and social media applications (such as SurveyMonkey, LinkedIn, and Qualtrics) write helpful blog posts as well 	<ul style="list-style-type: none"> • Solicit feedback from a wide variety of community members and visitors • Understand existing conditions • Get feedback on concept plans • Understand community needs, preferences, and comfort levels 	<ul style="list-style-type: none"> • Existing Conditions • Concept Plans • Final Plan and Implementation 	<ul style="list-style-type: none"> • Consult 	<p>\$</p>	<p>Promoting and distributing surveys requires time and marketing. Print surveys are only administered to the specific people who happen to be in an area at a time, and online surveys reach only those who have internet access. Additionally, having surveys in multiple languages is important to include those who may not speak English well.</p>

<p>Guided Bicycle Rides and Walking Tours</p>  <p>Lead by a designated host, these guided bike (or walking) tours take community members through existing infrastructure of the city. During these bike rides and walking tours, the host can stop and talk with community members in order to brainstorm problems with the existing infrastructure and to brainstorm what could be done in concept plans. These tours give the host a better understanding of the community comfort levels and preferences, and could easily involve a group that is diverse in age, income, and experiences within Leadville.</p> <p>Additional resources:</p> <ul style="list-style-type: none"> City of Lawrence conducted guided bike tours during their Lawrence and Countywide Bikeway Plan Update http://assets.lawrenceks.org/assets/mpo/bicycle/BikePlan-Draft.pdf 	<ul style="list-style-type: none"> Better understand the strengths and weaknesses of built environment Map existing assets in the network Spark conversation about long-term changes Understand community comfort levels with existing infrastructure 	<ul style="list-style-type: none"> Existing Conditions Concept Plan 	<ul style="list-style-type: none"> Involve 	<p>\$</p>	<p>Even though this is a unique way to get people involved, it excludes those who cannot bike or walk, or those who could not make the designated tours (due to location or scheduling). Furthermore, this activity only solicits feedback about the designated routes, and not the network as a whole.</p>
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Mobile Meetings and Open House



Staff at local governments are no strangers to public meetings. An element that the research team suggests is taking these public meetings on the road (so to speak). Having meetings at different community centers and locations, and at different times throughout the day, increases the amount of people able to attend public meetings and provide feedback to plans. This may help garner insight from communities that are typically left out (due to location or work schedules).

Additional resources:

- Department of Transportation https://www.planning.dot.gov/PublicInvolvement/pi_documents/4b-d.asp
- Environmental Protection Agency <https://www.epa.gov/international-cooperation/public-participation-guide-public-meetings>

- Allows community to provide feedback and insight
- Foster conversation between staff and community
- Reach a wide range of people, including those historically left out

- Concept Plan

- Collaborate

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To ensure that mobile meetings fulfil their goal of reaching a representative population, it helps to promote these events well in advance so that community members can plan and schedule accordingly.

Participatory Budgeting



The Participatory Budget Project

Participatory budgeting (PB) is when a community is given a say in how to spend a portion of their local government’s budget. PB is generally divided into three phases. The first is a brainstorming session, where attending community members can suggest and propose what they’d like to see the money go towards. During the second phase, delegates from the community come together and narrow down the proposed ideas, combine similar ones, and filter out ones that may not be able to be completed at that time. The third, and final phase, involves a voting process, in which the whole community selects from among the narrowed down options.

- Gives community members a voice in the democratic process
- Helps the local government understand the values, concerns, and needs of the community
- Starts conversations
- Sparks creative solutions

- Concept Plan
- Implementation

- Empower

\$

During the PB process, it is important to ensure that the community members involved are representative of the community as a whole. PB falls short of being successful if decision makers only represent a small segment of community members who could benefit from this process. Ways to reach underrepresented community members may include having mobile meetings, meetings at different times of the day, and investing time in promoting the meetings and inviting historically underrepresented populations.

<p>Additional resources:</p> <ul style="list-style-type: none">• Video from The Atlantic: https://www.youtube.com/watch?v=DHhm6W0sD7M• Participatory Budgeting website: www.participatorybudgeting.org.html• Participatory Budgeting as if Emancipation Mattered Gianpaolo Baiocchi, Ernesto Ganuza https://journals.sagepub.com/doi/full/10.1177/0032329213512978• Video from PBP: https://vimeo.com/107121298					
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Pop-Up Events (Tactical Urbanism)



Pop-up events (or tactical urbanism) are low-cost, temporary changes to the existing town or infrastructure. These changes could be implemented for a variety of reasons, including to increase safety, give citizens a unique place to gather, and/or to understand the preferences and use patterns of a given space. Pop-up events allow community members to experience and think of their space in a different way. While these events are generally temporary, they can help inform permanent changes.

Additional resources:

- The Tactical Urbanism Guidebook <http://tacticalurbanismguide.com/guides/tactical-urbanism-volume-2/>


- Create safe and unique spaces for people to congregate (placemaking)
- Temporary or permanent
- Understand preferences of community
- Understand how community uses a given space
- Start conversations and spark creative solutions

- Concept Plans
- Implementation

- Collaborate

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Potential limitations could include obtaining permits to use the right of way, getting businesses on board, creating a safe place that is inviting and inclusive to all populations

<p>Creative Play</p>  <p>When designing inclusive community engagement that involves all ages, incorporating an element of play helps connect to community members beyond conversations. Using elements of playing (such as using Legos to imagine what a community park could look like) allows community members to work together, brainstorm ideas, and think constructively, critically, and creatively about their city. These activities can be modified for different ability levels, activities can also serve as a conversation starter.</p>	<ul style="list-style-type: none"> • Involve all ages and abilities • Surpass language barriers • Spark creative ideas and solutions • Start conversations 	<ul style="list-style-type: none"> • Concept Plan 	<ul style="list-style-type: none"> • Collaborate 	<p>\$-\$\$</p>	<p>Limitations could include the cost of items, finding locations and times that suit a wide population, and ensuring that participants feel encouraged to play around with ideas-- no matter how “out there!”</p>
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Additional resources:

- Placemaking with Children and Youth: Participatory Practices for Planning Sustainable Communities <https://nyupress.org/9781613321003/>
- The City as a Classroom: Designing for Outdoor Learning <https://www.arkilab.dk/product/the-city-as-a-classroom-designing-for-outdoor-learning/>
- Case study of Me on the Map Exercise in Vancouver, BC <https://newworldtheatre.com/portfolio-item/me-on-the-map/>