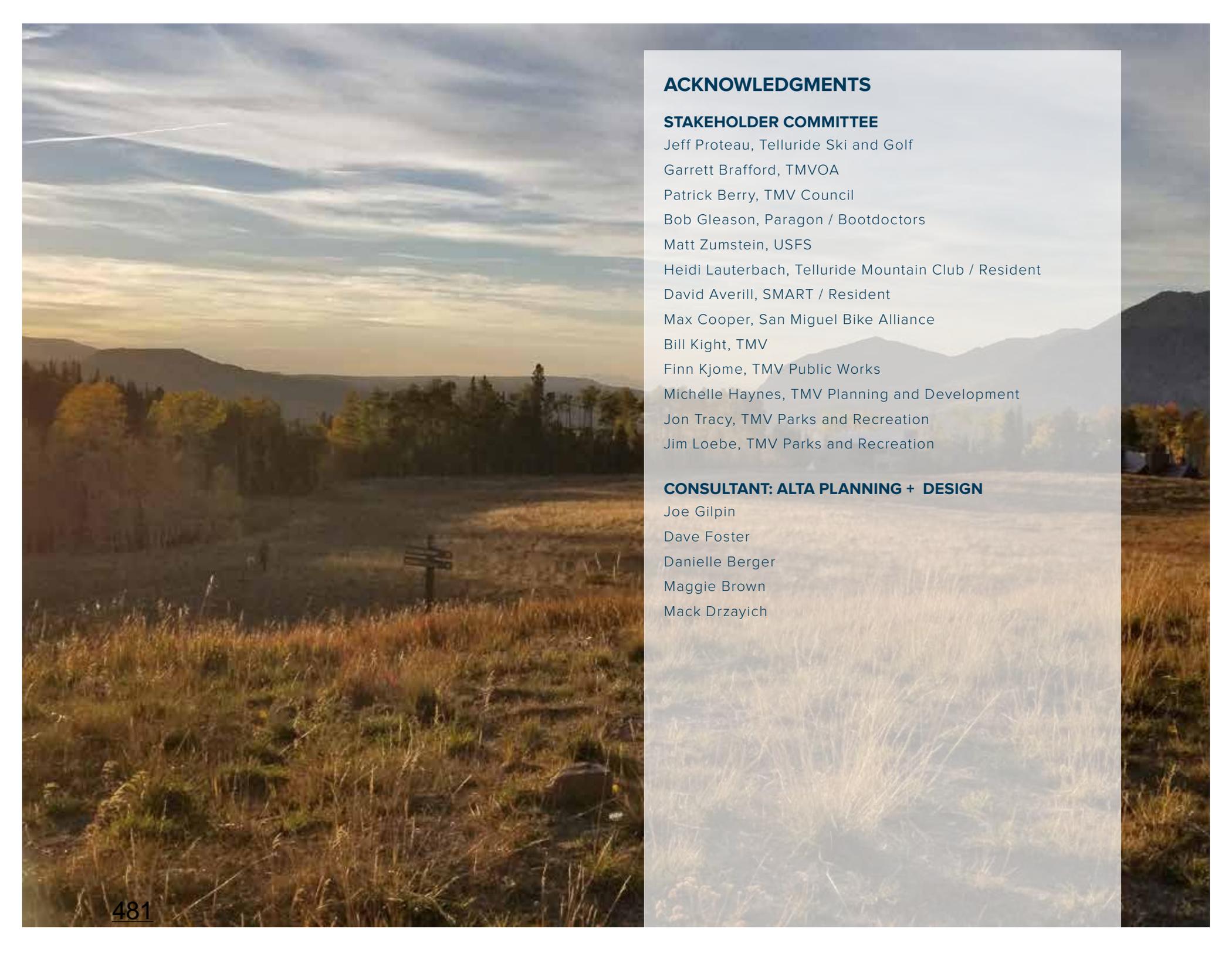


# MOUNTAIN VILLAGE

## TRAILS MASTER PLAN

MARCH 2020





## **ACKNOWLEDGMENTS**

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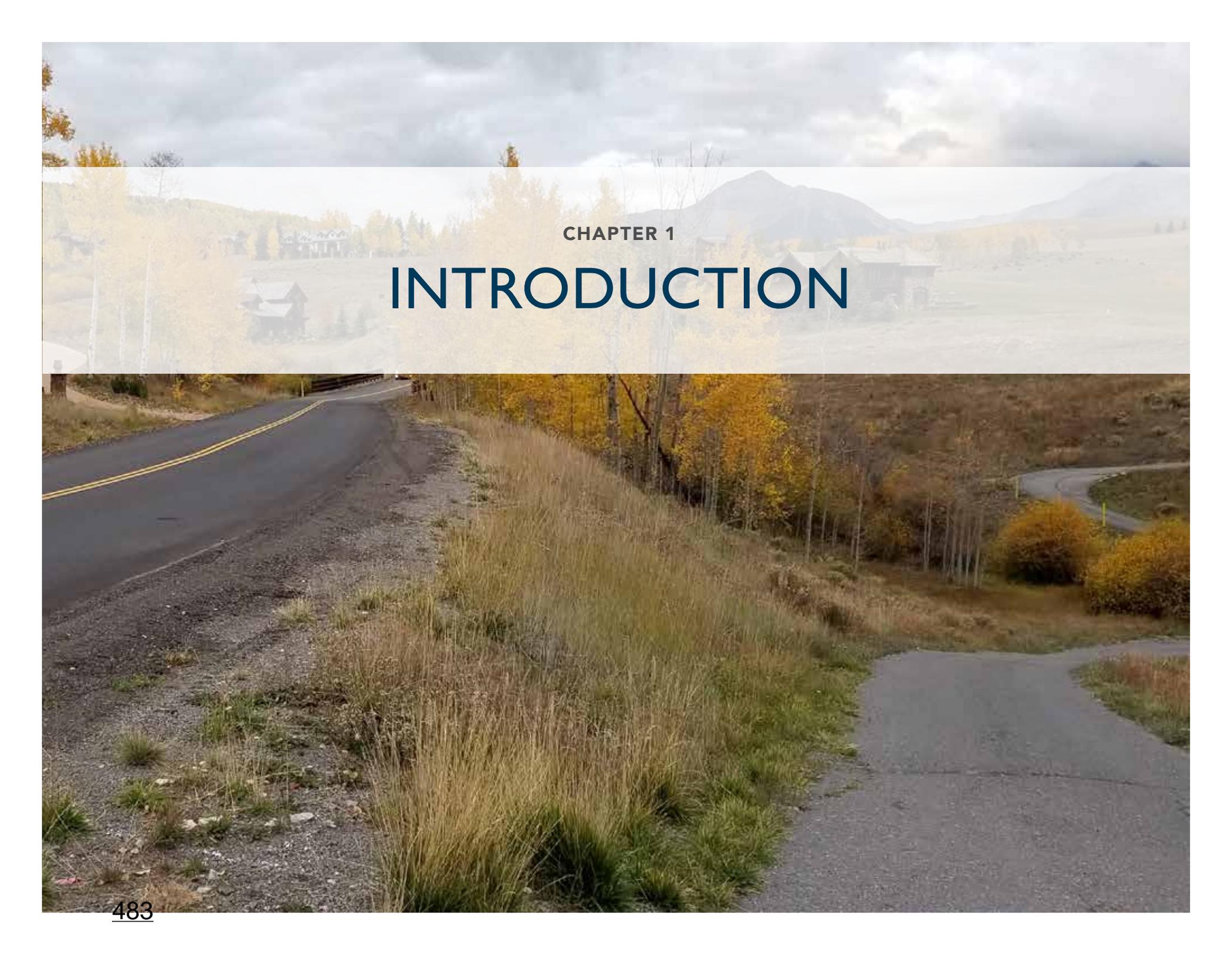
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CHAPTER 1

# INTRODUCTION

## INTRODUCTION COMPONENTS

### PLAN CONTEXT

The Town of Mountain Village is located in southwest Colorado, in the heart of the San Juan mountains at 9,545 feet above sea level. Once ranch land, the area first became part of the Telluride Ski Resort in 1972. In the early 1980s, new owners established a European-style resort community as a Planned Unit Development (PUD) on 3.5 square miles of land that today comprise the town. Infrastructure, services, and amenities were provided by the Mountain Village Metropolitan District (MVMD), which also collected property taxes. Single-family estates were distributed around a commercial center (today known as Mountain Village Center), with a golf course and trail system, all interwoven through the natural landscape.

Over time, Mountain Village has evolved into a vibrant community where people come to live, work, and play in the beautiful San Juan mountains year-round. The town was incorporated in 1995 and the new government took over the role previously held by the MVMD, which was formally dissolved in 2007. Today Mountain Village is home to 1,500 full-time residents and sees over 300,000 visitors each year.



*Mountain Village's location in the San Juan mountains offers its residents and visitors unparalleled access to outdoor recreation*



**PLAN CONTEXT** – Introduces the Town of Mountain Village and the context for the plan.



**COMPREHENSIVE PLAN** – Briefly describes relevant aspects of the Mountain Village Comprehensive Plan.



**PLAN PURPOSE** – States the intent of the plan.

## COMPREHENSIVE PLAN

Originally adopted in 2011 and amended in 2017, the Mountain Village Comprehensive Plan summarizes the visions and goals for the community and is intended to guide development for the next 30 years. The vision, goals, and objectives of the Trails Master Plan are aligned with, and in support of those outlined in Comprehensive Plan.

Comprehensive Plan goals that are relevant to active transportation and recreation include:

- Mountain Village is walkable and pedestrian-friendly;
- The transportation system effectively connects neighborhoods and destinations;
- Open space conservation and recreation enhances quality of life and contributes to the Mountain Village economy;
- Residents and visitors have access to a year-round, well-connected trail system;
- Recreation in Mountain Village is a complementary and non-competitive part of the regional recreation system;



*A conceptual rendering from the Town Hall Subarea Plan envisions paved sidepaths along Mountain Village Blvd and a new community park (Image credit: AECOM)*

- The Mountain Village transportation system is multi-modal, low-impact, environmentally-friendly, safe, and convenient.

The Mountain Village Comprehensive Plan includes subarea plans for its three activity centers. Relevant proposals from each subarea plan include:

### Mountain Village Center

- A roundabout at Mountain Village Boulevard and Country Club Drive;
- A new pedestrian connection between Sunset Plaza and Heritage Plaza;
- Development of an improved wayfinding program, with a focus on directing visitors to key destinations.

### Market Plaza

- A roundabout at Elk Pond;
- A community park at Elk Pond connected to Market Plaza by new pedestrian paths and a pedestrian tunnel under Mountain Village Boulevard;
- Eliminate the existing split roadway and reconstruct Mountain Village Boulevard as a two-way road.

### Meadows

- Construct a paved shared use path connecting the Meadows to Mountain Village Center.
- Improve safety and efficiency of road intersections for all users.



*New paved sidepaths on the south side of Mountain Village Blvd would connect users from the proposed park to the Town Hall (Image credit: OZ Architecture)*

## PLAN PURPOSE

Throughout Mountain Village’s development, trail integration, recreation, and open space preservation have been key guiding principles. Today, Mountain Village boasts more open space than the original PUD required; however, traveling between the residential areas and the community’s activity hubs, including Mountain Village Center, Market Plaza, and the Meadows, has become increasingly difficult for non-vehicle journeys due to increased traffic volumes and a lack of connected non-motorized facilities. Trail usage has also increased in recent years due to higher numbers of visitors in the greater region who recreate on the regional trail system. As the Town seeks to become a more established, year-round community—an overarching goal formalized in the Town’s Comprehensive Plan—addressing these challenges is key to its success. The purpose of the Trails Master Plan is to improve access and connectivity, for people walking and biking, both throughout the town and to the greater region.

By prioritizing the Trails Master Plan, Mountain Village is taking the first step needed to evaluate existing trail conditions and connections, and establish a prioritized plan to develop infrastructure that makes walking and bicycling feasible for both transportation and recreation. As the Plan is implemented, the expanded active transportation network will increase travel choice, and make Mountain Village a more attractive place to live, work and vacation. The Trails Master Plan has the potential to impact many important aspects of life in Mountain Village. Quality of life, tourism, transportation, recreation, and community health could all be improved by the continued development of a thoughtfully planned trail system. Specifically, these investments will also benefit the resident workforce population. Due to cost of living, resort communities are notoriously challenging to live in for the people needed to make them function. Walking and bicycling represent affordable transportation options, which could benefit the local workforce by reducing household expenses and freeing up parking and transportation capacity for visitors.

The Mountain Village Trails Master Plan consists of an existing trail system analysis and a robust public outreach process to determine the trail-related needs and desires of the community. This approach included an immersive, four-day “deep-dive” that combined focused participation by Town staff, the project team, and the public, and efficiently fostered a thorough understanding of trail planning issues in Mountain Village. In addition to the deep-dive public participation, the community was invited to participate via online engagement tools. This process resulted in recommendations that are tailored to the needs, goals, and objectives of the community. Recommendations include trail renovations, changes in trail management, policy proposals, and new trail construction. Ultimately, the Plan is a road map for implementation, providing the framework to build a world-class trail system in Mountain Village.



*A paved shared use path leads to Heritage Plaza in the Mountain Village Center*



CHAPTER 2

# EXISTING TRAIL SYSTEM

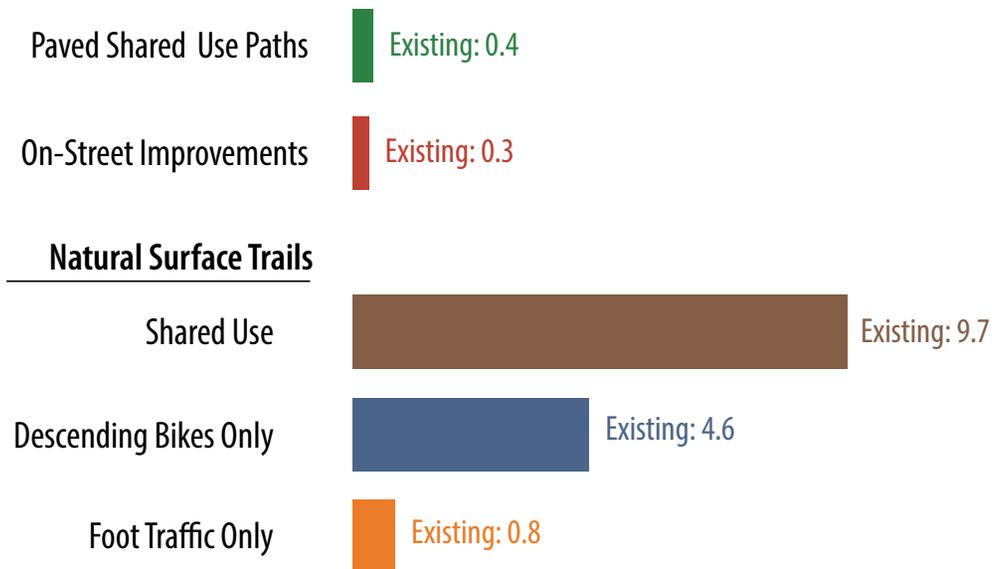
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## OVERALL EXISTING TRAIL SYSTEM

As of Summer 2018, the Town of Mountain Village existing trail system includes approximately 15.8 miles of formal trails within the municipal boundaries. Nearly half a mile are paved trails and 4.6 miles are part of the existing bike park, which is restricted to bikes traveling downhill. A 0.8 mile portion of the Ridge Trail is the only existing trail that is restricted to foot traffic only. The remaining 9.7 miles of trail are natural surface trails that are open to all non-motorized users.

Figure 2.1 illustrates the existing trail mileage by type. The overall existing trail system is displayed in Map 2.1 on page 2-6. This map and other maps in this plan display trails outside of the municipal boundaries that are not included in the trail mileages presented in Figure 2.1.

**FIGURE 2.1. EXISTING TRAIL MILEAGE BY TYPE**



## EXISTING SYSTEM COMPONENTS



**OVERALL SYSTEM** – Describes the existing overall trail system.



**TRAIL DESCRIPTIONS** – Includes information for existing major trails.



**WINTER ACCESS** – Summarizes existing winter trail use and access.



**WAYFINDING** – Describes existing wayfinding infrastructure.



**TRAILS**  
MASTER PLAN

**MAP 2.1 EXISTING TRAIL NETWORK\***

- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village
- Shared Use Path
- On-Street Improvements
- Shared Use
- Descending Bikes Only
- Foot Traffic Only

**NATURAL SURFACE TRAILS**

- Shared Use
- Descending Bikes Only
- Foot Traffic Only

\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.

## TRAIL DESCRIPTIONS

### Boulevard East Trail

The Boulevard East Trail is a paved sidepath that runs for approximately 0.4 miles adjacent to Mountain Village Boulevard between Market Plaza and Lost Creek Lane. There is one at-grade crossing of Mountain Village Boulevard with a striped crosswalk. Crossings of minor streets use the same striping pattern. Though there are a number of paved paths within Mountain Village Center, and portions of Mountain Village Boulevard east of Lost Creek Lane have sidewalks, there is no clear and consistent connection for users from the trail's eastern terminus to other destinations.



*Boulevard East Trail*

### Boulevard West Trail

The Boulevard West Trail is a nearly 2 mile natural surface (gravel) trail that begins at the west entrance to Mountain Village and connects to the paved Boulevard East Trail at Market Plaza. The trail generally follows Mountain Village Boulevard, at times deviating into the trees so that it is not visible from the road. There are two at-grade crossings of Mountain Village Boulevard with striped crosswalks. Crossings of minor streets also have striped crosswalks. The Boulevard West Trail is open to all non-motorized users and is one of the few trails suitable for novice bicyclists. There are no connections to other trails from the trail's western terminus at State Highway 145.



*Boulevard West Trail*

### Big Billie's Trail

Big Billie's Trail is a 3/4-mile natural surface (compacted soil and gravel) trail that connects Adams Ranch Road to Country Club Drive. The trail includes two legs that begin at Adams Ranch Road and connect at a ridge line. Big Billie's is a commuter route for employees who live in the Meadows and work in Mountain Village Center. It is open to all users, though hikers tend to use the eastern spur more frequently, which is narrower and has more switch backs. Much of the trail is exposed and some portions are highly eroded (see image below).

### Meadows Trail

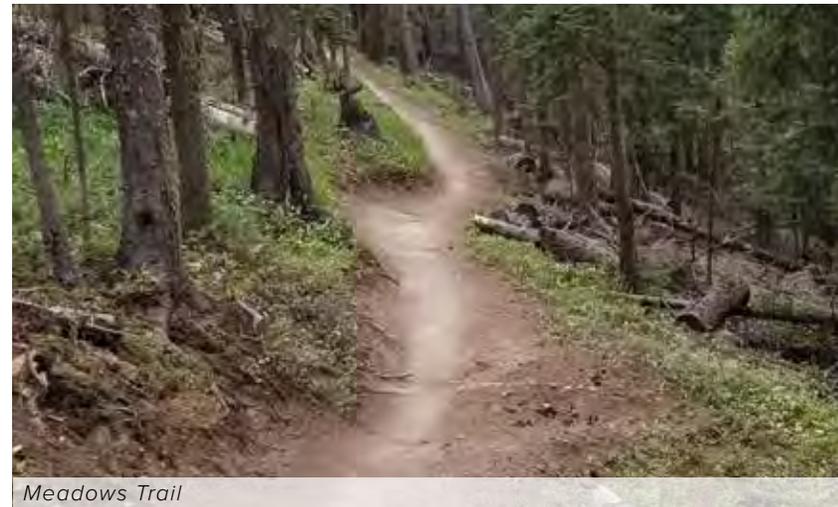
The Meadows Trail is a nearly mile-long natural surface (compacted soil) trail that runs along the ridge above Adams Ranch Road and Lawson Overlook. It terminates at Adams Ranch Road at the western end of the Meadows, approximately 450 feet shy of the Adams Ranch Road on-street improvements. Its western terminus is State Highway 145. Meadows Trail, a popular recreational trail, also serves as a commuter route for employees who live in Lawson Hill on the other side of SH 145. The majority of the trail is under forest cover and it is open to all users.



Big Billie's Trail

### Adams Ranch Road On-Street Improvements

The quarter-mile portion of Adams Ranch Road that runs through the Meadows has on-street improvements in the form of sidewalks and some bike lanes. The sidewalks provide dedicated space for pedestrians from the western end of the Meadows to the Meadows parking lot and the Chondola station (which provides access to Mountain Village Center during the winter). Signage directs bicyclists to use the bike lanes, where they exist, or use the vehicle travel lane.



Meadows Trail



Adams Ranch Road On-Street Improvements

### Jurassic Trail

The Jurassic Trail is a natural surface (compacted soil) trail that runs for 0.7 miles between Big Billie's Trail to the west and Boomerang Trail and Country Club Drive to the east. It is open to all users, but is particularly popular with mountain bikers. It is less exposed than Big Billie's Trail and for this reason is sometimes used by commuters as an alternative to Big Billie's.

### Boomerang Trail

Boomerang Trail is an old mining road, now open to all non-motorized users, that connects Country Club Drive and Jurassic Trail to the Valley Floor. As of 2018, it is the only formal trail to the Valley Floor and Telluride that does not cross the highway. However, due to steep terrain and high erosion, it is a challenging route for bicyclists and hikers alike.

### Village Trail

Village Trail is a natural surface (compacted soil) trail open to all users, approximately 1.5 miles of which is within the boundaries of Mountain Village. It begins at the ski bridge across Mountain Village Boulevard near Prospect Creek, continues southeast, and eventually beyond Mountain Village onto land owned by the US Forest Service.

### Prospect Trail

Prospect Trail is a natural surface (compacted soil) trail open to all users, approximately 1.5 miles of which is within the boundaries of Mountain Village. It connects to the Boulevard Trail at Market Plaza and continues south where it extends beyond Mountain Village onto US Forest Service land.

### Ridge Trail

The Ridge Trail is a foot traffic-only trail that originates near the Mountain Village Center gondola station and continues to the San Sophia gondola station. Approximately 0.8 miles of the trail is within the Mountain Village municipal boundaries; the remainder of the trail is on US Forest Service land.



*Boomerang Trail*



*Village Trail*

## Bike Park Trails

Approximately 4.6 miles of bike park trails are within Mountain Village. These trails are maintained and operated by Telluride Ski and Golf (TSG) and are open only to descending bikes, or those traveling in the downhill direction. Many of these trails terminate at the Mountain Village Center gondola station. As of 2019, TSG is expanding the bike park trails and will require users to purchase a park pass to access the park trails.

## Informal Trails (Social Trails/Desire Lines)

There are a number of informal trails throughout the Town of Mountain Village. Such trails typically form where people would like to walk or bicycle, but where no formal trail exists. Because informal trails are not designed or constructed using proper trail-constructing methods, they are often vulnerable to erosion and may traverse environmentally-sensitive areas. Building formalized trails that provide good connectivity to destinations can reduce the presence of and need for informal trails.

## Roadways

The majority of the roads in Mountain Village lack dedicated space for pedestrians and bicyclists, yet there is a clear demand for walking and biking. Where no trail or on-street improvement exists (or where clear wayfinding to nearby trails is lacking), many people simply walk or bicycle on the road. This poses a safety issue, particularly on Mountain Village's curvilinear roads where visibility is often limited.



*TSG Bike Park trail*



*Pedestrians walking on Mountain Village Boulevard*



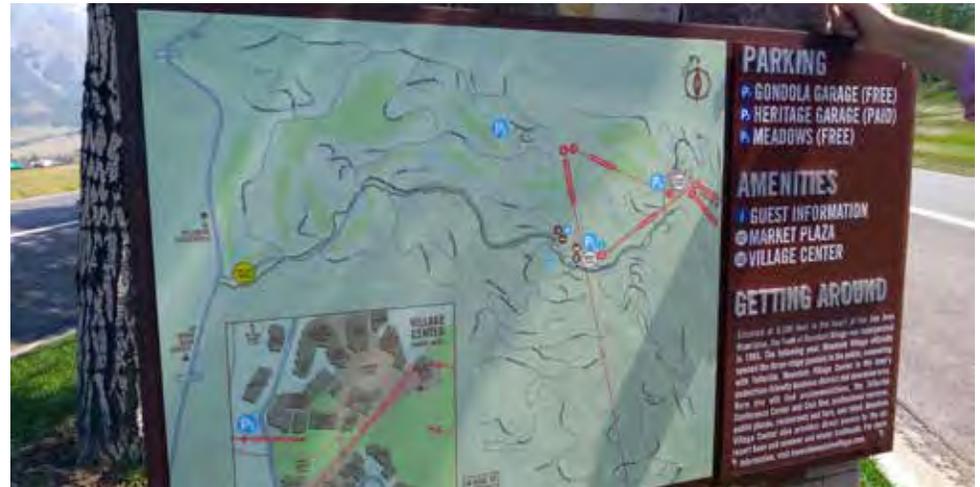
*Gravel shoulders on San Joaquin Rd*

## WINTER ACCESS

As of 2019, some winter trail opportunities do exist in Mountain Village. The paved Boulevard East Trail is plowed from Market Plaza to Village Center and the natural surface Boulevard West Trail is groomed for nordic skiing. Several nordic trails are also groomed on the golf course during the winter.

## WAYFINDING

The Town of Mountain Village has some trail wayfinding in the form of trail signage and trail map pamphlets, but discussions with the general public and stakeholders revealed that it is generally insufficient for visitors to effectively navigate the system. Signage is also inconsistent in style and type, which can be confusing for users. A major trails wayfinding update consistent with the Town's current design guidelines is currently underway and is scheduled to be completed in 2020.



A map kiosk at the entrance to Mountain Village



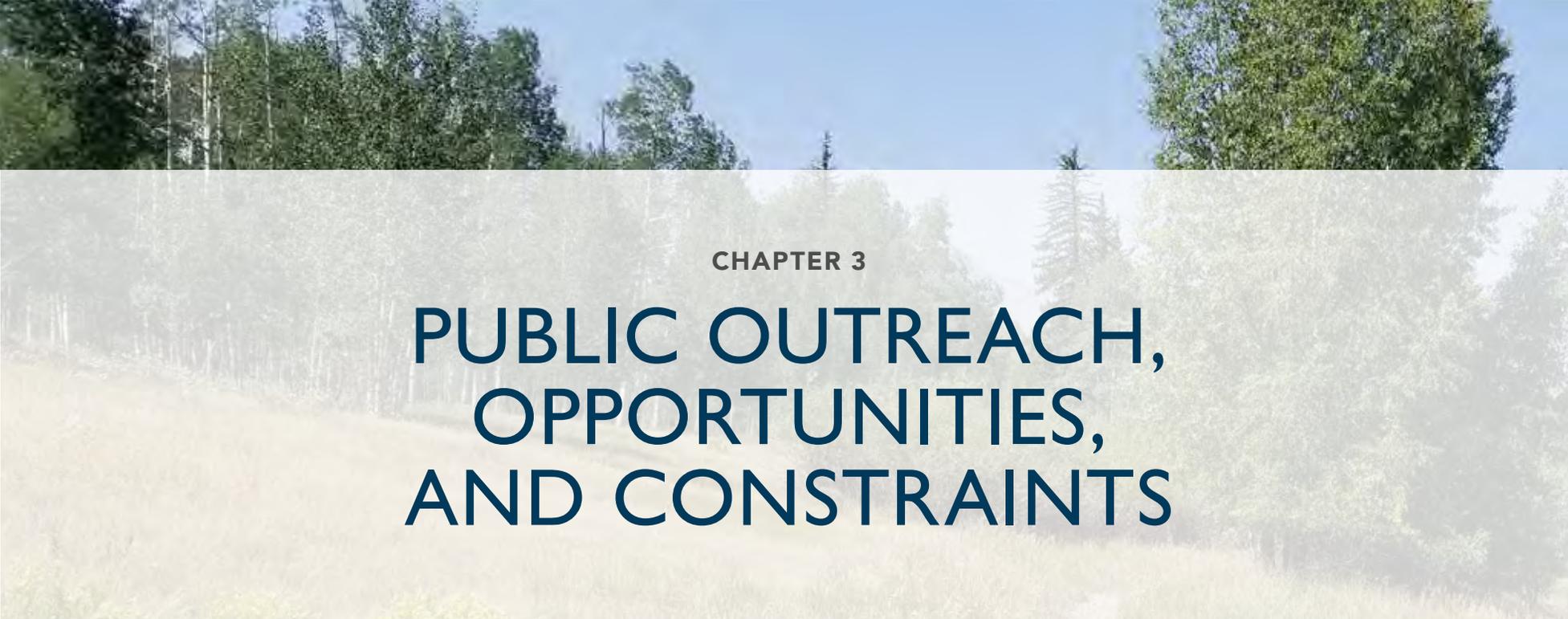
Wayfinding sign on Meadows Trail with destination distances



Wayfinding sign with trail etiquette rules on Boulevard West Trail



Wayfinding sign with trail map on Boulevard West Trail



CHAPTER 3

**PUBLIC OUTREACH,  
OPPORTUNITIES,  
AND CONSTRAINTS**

## IN-PERSON OUTREACH

Acquiring a thorough understanding of the Mountain Village community’s needs and desires concerning trails is an integral component of the planning process. In-person engagement centered around an immersive four-day “deep dive” outreach session in which Alta staff surveyed the trails, met with stakeholders, and facilitated activities to gather public input. Figure 3.1 illustrates the structure of the deep dive and the purpose of each activity.

FIGURE 3.1 DEEP DIVE



### Stakeholder Meeting #1

Alta met with the stakeholder group to introduce the project and planning process. The group was a broad coalition of representatives from organizations invested in Mountain Village trails. They provided initial information regarding context and trail issues in Mountain Village.

### Field Survey

Alta surveyed Mountain Village trails with Town staff to obtain a detailed understanding of existing trail features, locations, usage, and conditions. This included walking and biking some of the trails and scouting potential alignments to gain a true impression of their characteristics.



**IN-PERSON OUTREACH** – Describes the various in-person engagement methods and summarizes the results.



**ONLINE OUTREACH** – Summarizes the results of the online input map.



**OPPORTUNITIES AND CONSTRAINTS** – Identifies the opportunities and constraints that emerged from the public outreach process.

## Stakeholder Interviews

Alta conducted interviews with individuals from the stakeholder group to gain an in-depth understanding of their various perspectives on trails in Mountain Village. Questions focused on the definition of “trail” and what it means for the Mountain Village community, the desired impact of the Trails Master Plan, and the opportunities and constraints facing trail development in Mountain Village. Interviewees included representatives of:

- Telluride Ski & Golf
- Town of Mountain Village Homeowners’ Association
- Telluride Mountain Club
- San Miguel Authority for Regional Transportation (SMART)
- Town of Mountain Village Council
- US Forest Service
- San Miguel Bike Alliance
- Town of Mountain Village Planning Division
- Boot Doctors (Local Bike Rental Business/Outfitter)
- Telluride Sports (Local Bike Rental Business/Outfitter)

## Public Events

Alta staffed an information booth with interactive activities at two public events on Wednesday, August 15, 2018: the Market on the Plaza and the Sunset Concert. Event attendees and passersby were invited to participate by adding notes to a large vinyl floor map of Mountain Village. Different colored post-it notes were used to denote trail, pedestrian, or bicycle-specific comments, and are recreated in Map 3.1 on page 3-16.

The booth also included boards with images of different trail types and trail amenities that allowed participants to “vote” for their preferred type using stickers. Alta staff were on hand to explain the activities, discuss the plan, and answer questions. They also distributed flyers with links to the project webpage, the online input map, and the online survey.



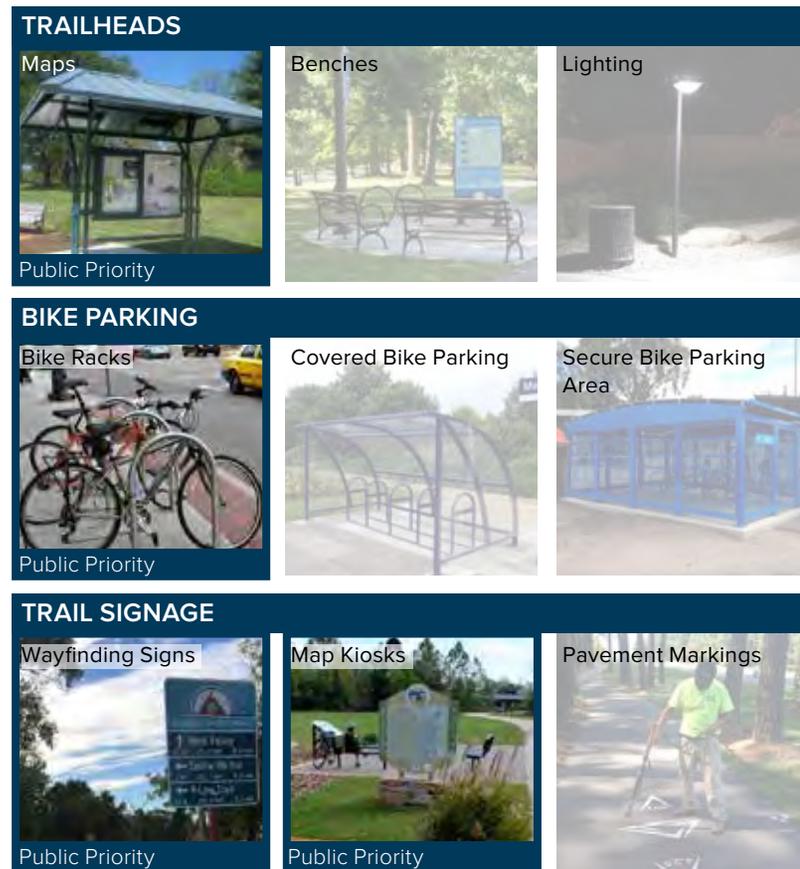
Field survey



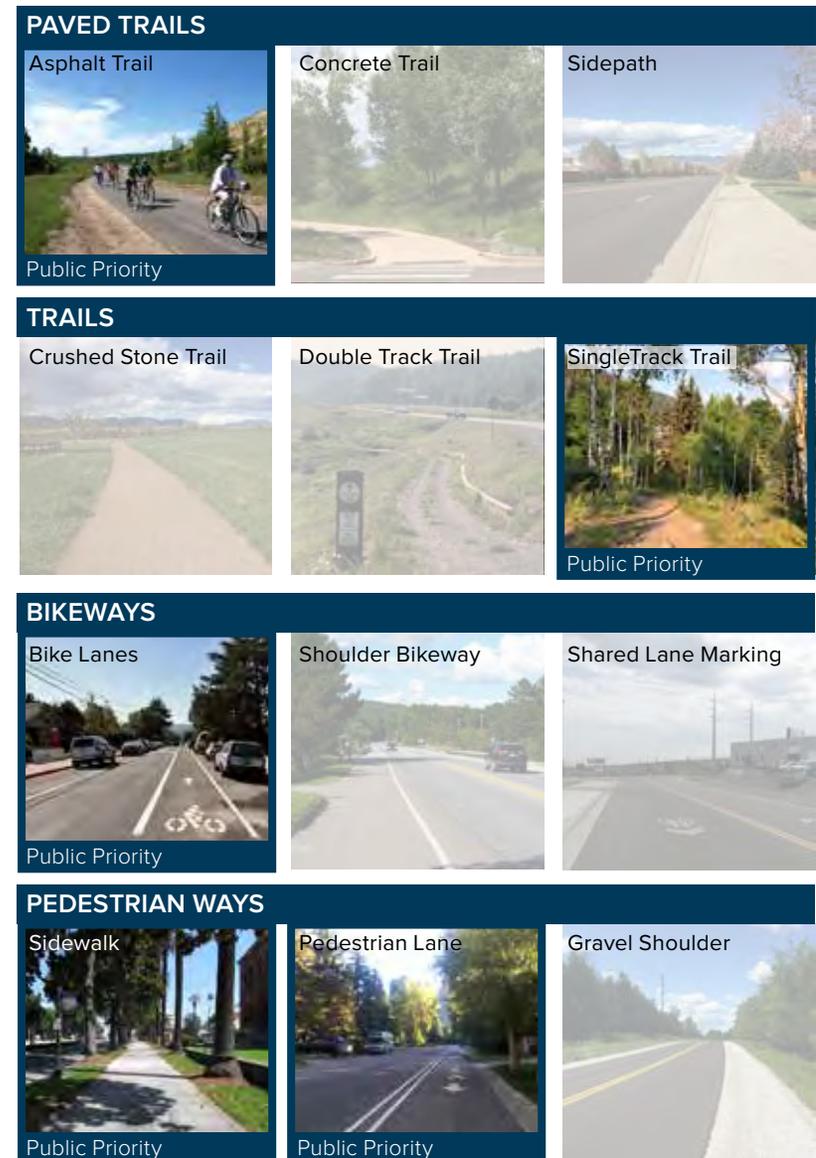
Information booth at the Sunset Concert

Figures 3.2 and 3.3 display the types of trails and trail amenities that the public event participants preferred. For trail amenities, people indicated that they prefer maps and map kiosks, standard bike racks, and wayfinding signs. For trail types, they selected asphalt trails, crushed stone trails, bike lanes, sidewalks, and pedestrian lanes.

**FIGURE 3.2 PREFERRED TRAIL AMENITIES**



**FIGURE 3.3 PREFERRED TRAIL TYPES**



## ONLINE ENGAGEMENT

Online engagement was an important component of the Trails Master Plan outreach approach, as it allowed people who did not attend the in-person events to provide their input. Two online engagement tools were developed for the plan: an online input map and an online survey.

### Online Survey

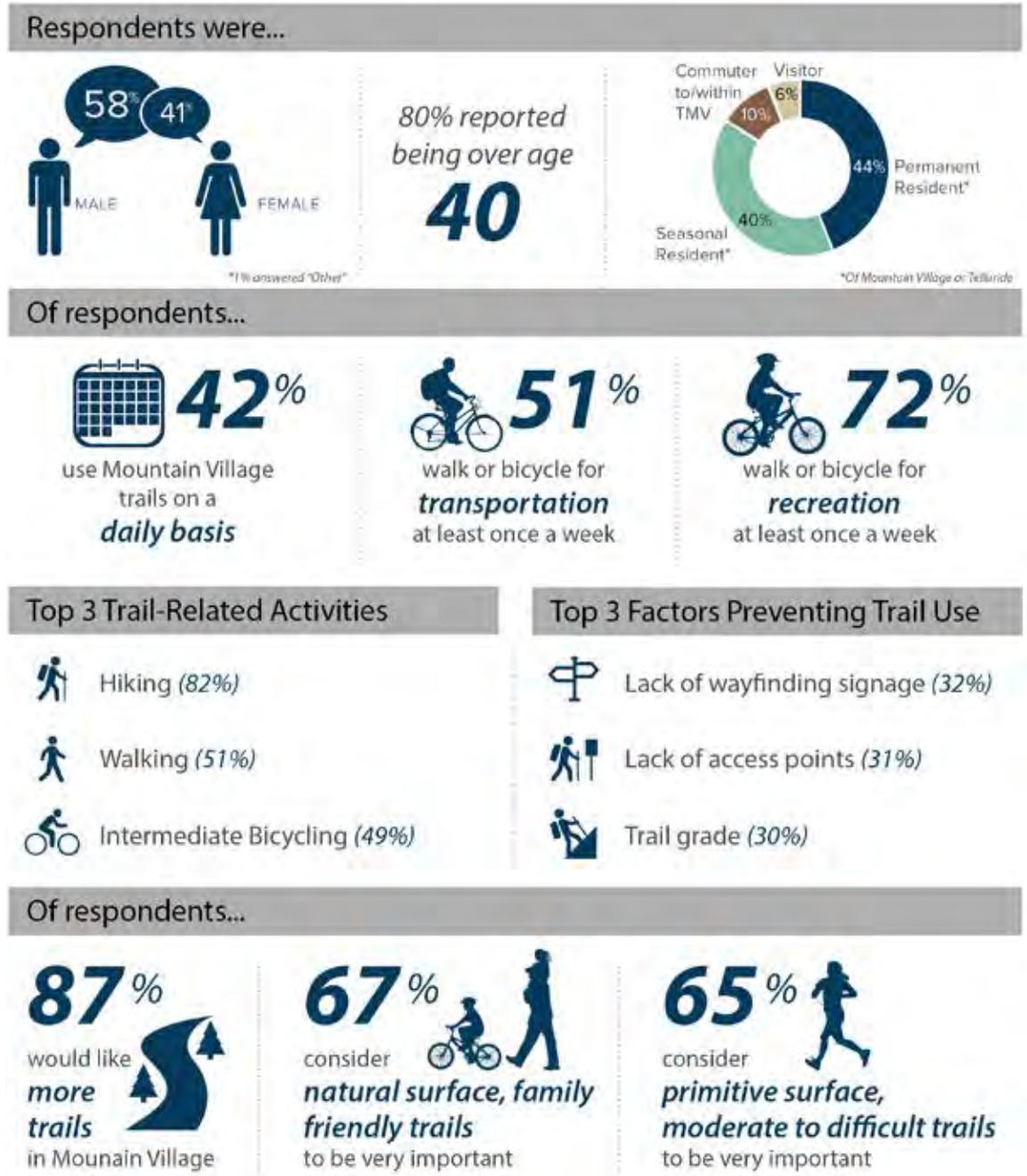
The online survey was available for approximately one month over August and September of 2018 and received 280 responses. The link to the survey was distributed at the public events and through email blasts and newsletters. Participants were asked a series of questions about how they use trails in Mountain Village, their opinions regarding trails, and the type of trail improvements they would like to see.

Figure 3.4 summarizes some of the survey results. Generally, survey respondents use Mountain Village trails frequently, especially for hiking. A large majority would like to see more trails in the community, particularly natural surface trails for all abilities.

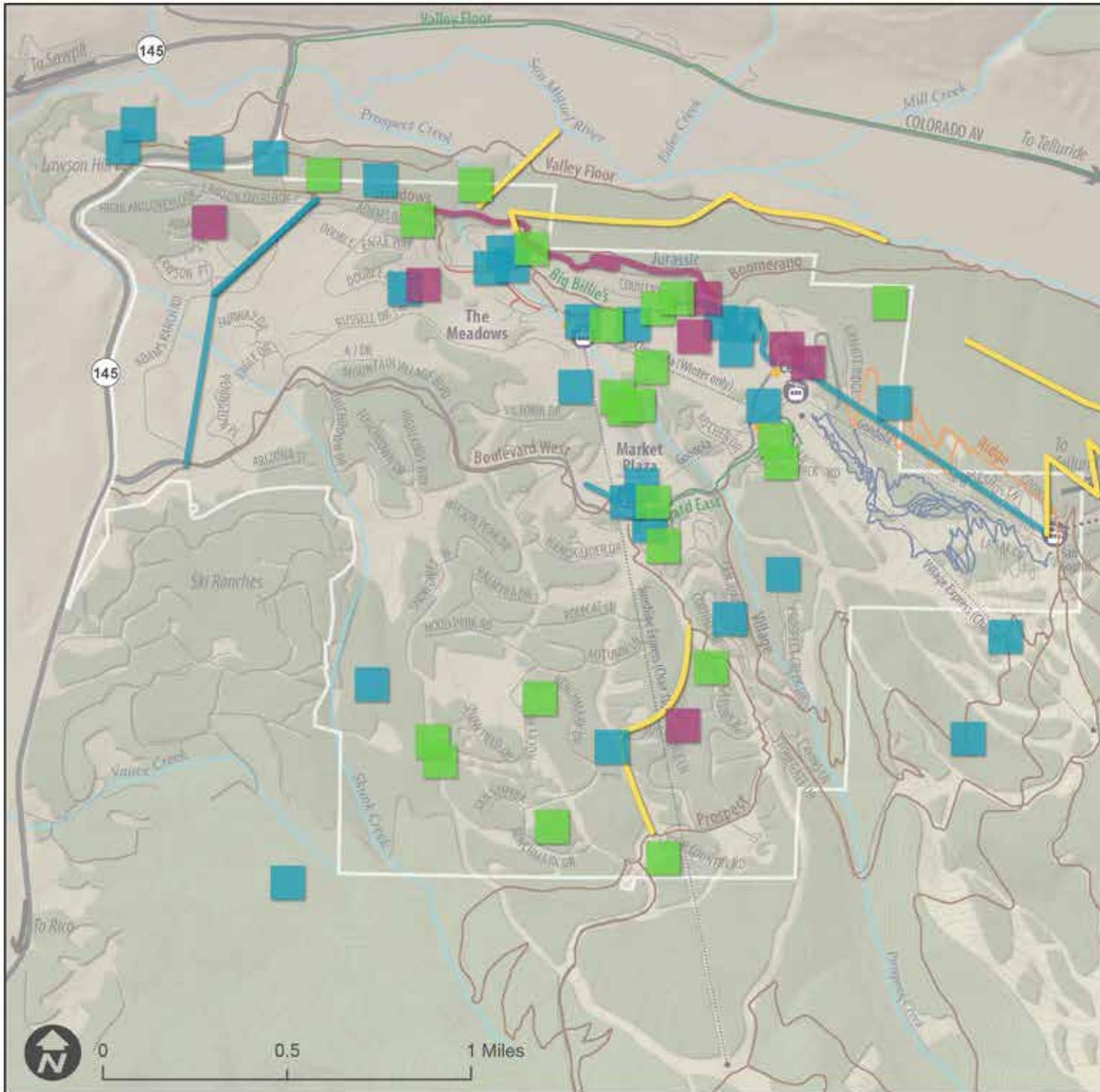
### Online Input Map

The online input map was live concurrently with the survey and allowed users to draw lines and add comments relating to walking, bicycling, and trails on a map of Mountain Village. Comments were categorized depending on whether they pertained primarily to walking or bicycling issues. Users also had the ability to add comments with suggested improvements. The online input map comments are incorporated into Map 3.1 with the results of the in-person outreach events.

FIGURE 3.4 ONLINE SURVEY RESULTS SUMMARY\*



\*The survey allowed people to skip questions. Percentages refer to the percentage of people who answered that particular question rather than total survey participants.



**MAP 3.1 PUBLIC INPUT\***

- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village

- Shared Use Path
- On-Street Improvements

**NATURAL SURFACE TRAILS**

- Shared Use
- Descending Bikes Only
- Foot Traffic Only

**COMMENT TYPE**

- Trail Improvement
- Pedestrian Improvement
- Bicycle Improvement

**ONLINE INPUT COMMENTS**

- Walking
- Bicycling
- General Suggestion

\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.

## Stakeholder Meeting #2

Culminating the deep dive, Alta met with the stakeholder group for a second time to review the information that had been gathered over the preceding days. Alta presented the findings of the field survey, stakeholder interviews, and public outreach events, and what they perceived to be the opportunities and constraints facing Mountain Village trails. A revised set of opportunities and constraints are presented in the following section and in Map 3.2.

Alta also led a visioning and goals exercise with the stakeholder group. Stakeholders were asked to write down their desired results for Trails Master Plan. The proposed goals were then discussed and organized. The activity provided Alta with the information necessary to develop a vision, goals, and objectives for the Plan, which ultimately guided development of the recommendations. The Plan vision and goals are presented in Chapter 4.

## OPPORTUNITIES AND CONSTRAINTS

Opportunities are the existing assets that can be leveraged to improve the Mountain Village trails system. Constraints are the barriers that need to be addressed to achieve this goal. While there are significantly more constraints than opportunities listed on Map 3.2, this is not necessarily unfavorable, as many constraints can become assets with dedication and proper planning. In addition, a significant opportunity that is not depicted in the map, but was made clear during the outreach activities, was that the Mountain Village community is overwhelmingly supportive of trails and the idea of building more. With this mindset, Mountain Village is well-positioned to address the constraints identified here.

### OPPORTUNITIES

- 1 A historic railroad bench above CO 145 may provide sufficient space for a new trail.
- 2 The Boulevard Trail is the spine of the community trail system that provides connections to other trails and activity centers and is a comfortable route for novice bicyclists.
- 3 The Ski Ranches trail network offers potential connections.
- 4 The informal Stegosaurus trail represents a potential solution to eliminate conflicts between bicyclists and hikers on Jurassic Trail.
- 5 Non-TSG privately owned space may afford additional local and regional trail connections

### CONSTRAINTS

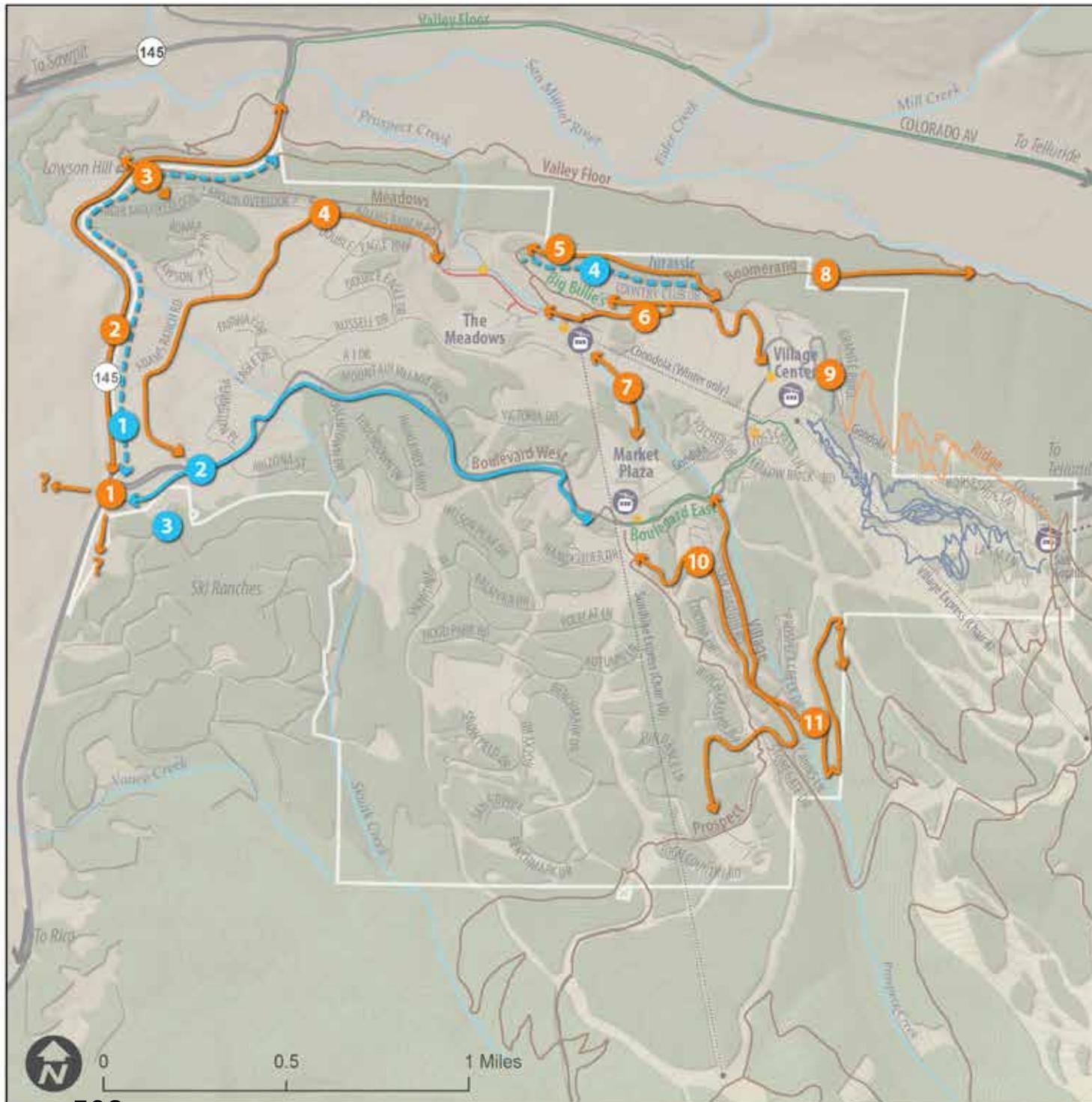
- 1 Boulevard Trail ends at CO 145 with no connections other than the highway.
- 2 Bicyclists trying to reach the Valley Floor and Telluride often travel along CO 145, a high-speed, heavily trafficked highway with multiple blind spots and narrow shoulders, creating potentially hazardous situations.
- 3 Trail users wishing to access Lawson Hill must cross high-speed highway traffic at a blind curve.
- 4 Adams Ranch Rd is used frequently by pedestrians and bicyclists but has no dedicated space for non-motorized users.
- 5 There are frequent user conflicts on Jurassic Trail between downhill bicyclists and other trail users.
- 6 Country Club Road and Mountain Village Boulevard lack comfortable bicycle and pedestrian accommodations connecting Village Center to Jurassic Trail, Big Billies , and The Meadows.
- 7 The golf course is an obstacle to connectivity between the Meadows and the Village Center and Town Hall/Market Plaza.
- 8 Boomerang is one of the few trail connections to Telluride, but is uncomfortable even for experienced mountain bikers due to steep and rocky terrain.
- 9 High volumes of mountain bikers entering the Heritage Plaza create conflicts with pedestrians.
- 10 San Joaquin and Benchmark have moderate levels of bikers and walkers but lack dedicated facilities.
- 11 High speed mountain bikers on Village Trail often conflict with hikers or uphill users.
- 12 No intuitive connection between Mountain Village Center and Boomerang / Meadows / Big Billies



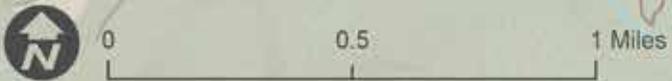
# TRAILS

## MASTER PLAN

MAP 3.2 OPPORTUNITIES AND CONSTRAINTS\*



- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village
- Shared Use Path
- On-Street Improvements
- NATURAL SURFACE TRAILS**
- Shared Use
- Descending Bikes Only
- Foot Traffic Only
- Opportunity
- Constraint



CHAPTER 4

# RECOMMENDATIONS



---

## PLAN VISION AND GOALS

The Trails Master Plan vision and goals were developed with input from the general public and stakeholders collected during the deep dive, as described in Chapter 3. The Plan vision is an aspirational statement describing the future Mountain Village trails system. The Plan goals are steps that will help to achieve that vision. Each goal also includes objectives, that when implemented, will contribute to the goal. The vision and goals guided the development of the plan recommendations.

***VISION: The Town of Mountain Village has a world-class trail system that is sustainable, safe, and accessible for all users. It is both a viable transportation system and an enjoyable recreational asset for those who live, work, and play in Mountain Village.***

### GOAL: Connectivity



***Develop a thoroughly connected trail system that can be used for a variety of trips.***

#### **Objective 1.1**

Connect the trail system to neighborhoods and major community nodes such as Market Plaza, Village Center, and the Meadows.

#### **Objective 1.2**

Integrate the trail system with the broader regional trail network.

#### **Objective 1.3**

Integrate the trail system with other transportation modes including local bus routes and the Gondola.

---

## RECOMMENDATION COMPONENTS



**VISION AND GOALS** – Introduces the plan vision, as well as plan goals and objectives.



**FACILITY TYPES** – Describes and defines a variety of trail facility types that are included in the recommendations.



**FACILITY RECOMMENDATIONS** – Presents recommendations for new trail facilities and trail facility improvements.



**POLICY RECOMMENDATIONS** – Presents policy recommendations that will support the facility recommendations.



**PUBLIC OUTREACH** – Summarizes the public outreach for the proposed vision, goals, and recommendations.

## GOAL: Safety



*Ensure that trail users feel safe and protected when on Mountain Village Trails.*

### Objective 2.1

Manage and design trails to limit conflicts between non-motorized trail users.

### Objective 2.2

Design trail and roadway intersections to maximize the safety of trail users.

## GOAL: Navigation



*Develop a system of trails and supporting infrastructure that promotes effortless navigation of the trail system.*

### Objective 4.1

Provide seamless connections to destinations with consistent and recognizable infrastructure.

### Objective 4.2

Develop a comprehensive wayfinding signage system that guides bicyclists and pedestrians throughout Mountain Village.

## GOAL: Recreation



*Provide a variety of year-round trail experiences that server users of all ages and abilities.*

### Objective 3.1

Develop a system of trails that provides transportation and recreation opportunities for varying types of trail users (hikers, mountain bikers, Nordic skiers, etc.) and ability levels.

### Objective 3.2

Develop a trail system that provides transportation and recreation opportunities through all seasons.

## GOAL: Sustainability



*Develop a sustainable trail system that respects and benefits Mountain Village's unique alpine environment.*

### Objective 5.1

Develop a trail system that encourages people to walk or bicycle for transportation instead of driving.

### Objective 5.2

Construct and maintain trails according to sustainable trail planning and construction best practices to limit environmental impacts.

## GOAL: Partnerships



*Collaborate and maintain partnerships with neighboring jurisdictions, Telluride Ski and Golf, and federal agencies to realize shared interests regarding trails.*

### Objective 6.1

Pursue collaborative funding strategies to support implementation of the trail system.

### Objective 6.2

Seek out collaborative solutions that protect the interests of all partners whenever possible.

### Objective 6.3

Coordinate with partners to promote development of the regional trail network.

## SHARED USE PATH/SIDEPATH



*Boulevard Trail East is a shared use path that is also considered a sidepath because it is adjacent to Mountain Village Blvd.*

## NATURAL SURFACE TRAIL



*Big Billie's Trail is a natural surface trail that is currently open to all non-motorized users.*

## FACILITY TYPES

Infrastructure improvements fall into one of two categories: linear facilities, which include paths, trails, and on-street improvements; and spot improvements, such as grade-separated crossings and crosswalks.

### Linear Facilities

#### Shared Use Paths

Shared use paths are typically paved, eight- to twelve-foot wide facilities designed to accommodate people walking, bicycling, and using wheelchairs and other active transportation modes. Shared use paths are physically separated from roadways, in their own right-of-way. Shared use paths can serve both transportation and recreation purposes.

Sidepaths are shared use paths that run parallel to a road in shared right-of-way. Sidepaths are similar to shared use paths but present challenges at roadway intersections. The paved section of the Boulevard Trail is considered a sidepath due to its adjacency to Mountain Village Boulevard.

In areas where a shared use path is needed, but a concrete or asphalt surface is undesirable, crusher fine can be used instead of pavement.

#### Natural Surface Trails

Natural surface trails are pathways composed of compacted native soil or gravel. They can be designed and managed to service a wide variety of users or a select few. Different types of natural surface trails include:

**Shared Use** - Shared use natural surface trails are open to all non-motorized users, which typically includes mountain bikers and hikers or pedestrians.

**Foot Traffic Only** - “Foot traffic only” trails are open only to hikers or pedestrians. These trails can include characteristics not found on trails that allow bicyclists, such as narrow tread widths, stairs, and tight switchbacks.

**Descending Bikes Only** - Descending bike only trails are trails designated exclusively for bicyclists riding in the downhill direction. This management strategy may be employed to provide a better experience for bicyclists or to address safety concerns relating to differences in user speeds.

**Uphill Bike/Multi-Directional Hike** - These natural surface trails permit hikers to travel in either direction while bicyclists are only permitted to travel in the uphill direction. Due to the similar speeds of uphill bicyclists and hikers, this management strategy allows both users to occupy the same trail without compromising the experience or trail safety of the other.

### **On-Street Improvements**

On-street improvements are facilities for bicyclists and pedestrians that are constructed as part of the roadway surface. For this plan, these improvements include wide shoulders and advisory shoulders.

**Wide Shoulders** - Wide shoulders provide usable space for pedestrians and bicyclists to travel on roads with a striped centerline. Shoulders can also be utilized by emergency and maintenance vehicles. The shoulder is designated by a solid white line. According to the *AASHTO Guide for the Development of Bicycle Facilities*, paved shoulders that are designed to accommodate bicyclists should be at least four feet wide. In many contexts, shoulders may also be utilized by pedestrians.

**Advisory Shoulders** - Advisory shoulders provide usable space for pedestrians and bicyclists to travel on two-way roads that lack a centerline and are otherwise too narrow to accommodate striped shoulders. Advisory shoulders are designated with dashed white lines to indicate the preferred travel space for non-motorized users. Motorists may move into the advisory shoulder when passing an on-coming vehicle, but only when no pedestrians or bicyclists are present.

### **WIDE SHOULDER**



*Wide paved shoulders provide pedestrians and bicyclists with usable space outside of the vehicle travel lane.*

### **ADVISORY SHOULDER**



*Advisory shoulders prioritize shoulder space for pedestrians and bicyclists on narrow roads.*

## OVERCROSSING



*Overcrossings are grade-separated trail crossings over obstacles such as roads, other paths, streams, or wetlands.*

## UNDERCROSSING



*Undercrossings are grade separated trail crossings under obstacles such as roads and other paths.*

## Spot Improvements

### Grade-Separated Crossings

**Overcrossing** - An overcrossing is a crossing that passes over a roadway at an elevated grade, allowing for the uninterrupted movement of users in both directions.

**Undercrossing** - An undercrossing is a crossing that passes under a roadway at a submerged grade, allowing for the uninterrupted movement of users in both directions.

### Crosswalk Improvements

Crosswalks are facilities that are designed to facilitate the crossing of pedestrians and bicyclists at-grade with existing roadways. Crosswalks typically include roadway striping and signage, but can be enhanced with traffic signals, flashing beacons, raised medians or refuge islands, and high-visibility pavement markings.

## CROSSWALK



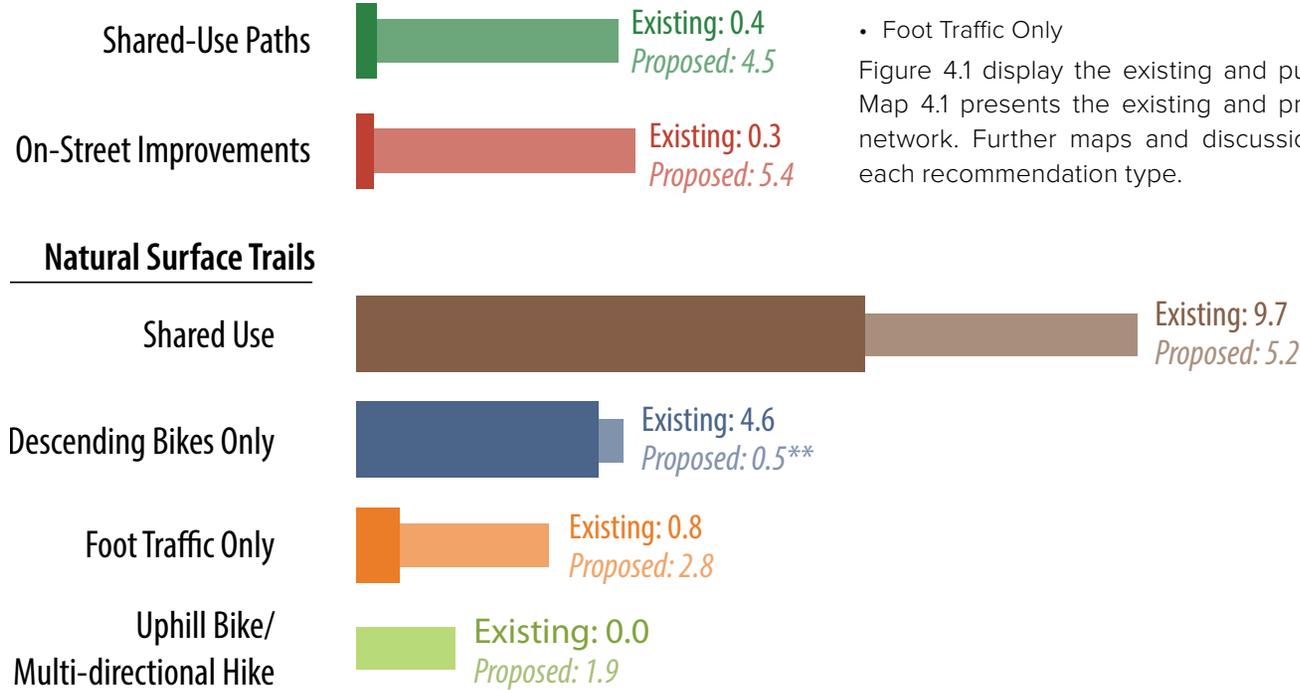
*Crosswalk improvements can include pavement striping, curb ramps, striping, signage, and flashing beacons, among others.*

## FACILITY RECOMMENDATIONS

### Overall Trail System

The plan proposes the addition or renovation of nearly 20 miles of trails in Mountain Village. The construction of new trails, in addition to improvements to existing trails and roadways, will enhance the comfort and safety of trail users.

**FIGURE 4.1. EXISTING AND PROPOSED TRAIL MILEAGE BY TYPE\***



Recommendations are separated into three categories: **Shared Use Paths (Paved)**, **On-Street Improvements**, and **Natural Surface Trails**. Natural Surface Trails are further categorized into the following sub-groups:

- Shared Use
- Open to Uphill Bike/Multi-Directional Hike
- Descending Bikes Only
- Foot Traffic Only

Figure 4.1 display the existing and purposed mileage by trail type. Map 4.1 presents the existing and proposed Mountain Village trail network. Further maps and discussion provide more detail about each recommendation type.

\*Mileage is approximate and includes only trails or portions of trails within the Mountain Village municipal boundaries. Some proposed trails are modifications to existing trails either by routing or by type. Existing trails and proposed trails do not equal the trail system at full build-out.

\*\* Does not include Telluride Ski and Golf proposed trails that will be accessible only with the purchase of bike park pass.



# TRAILS

## MASTER PLAN

### MAP 4.1 EXISTING AND PROPOSED TRAIL NETWORK\*

- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village

#### RECOMMENDATIONS

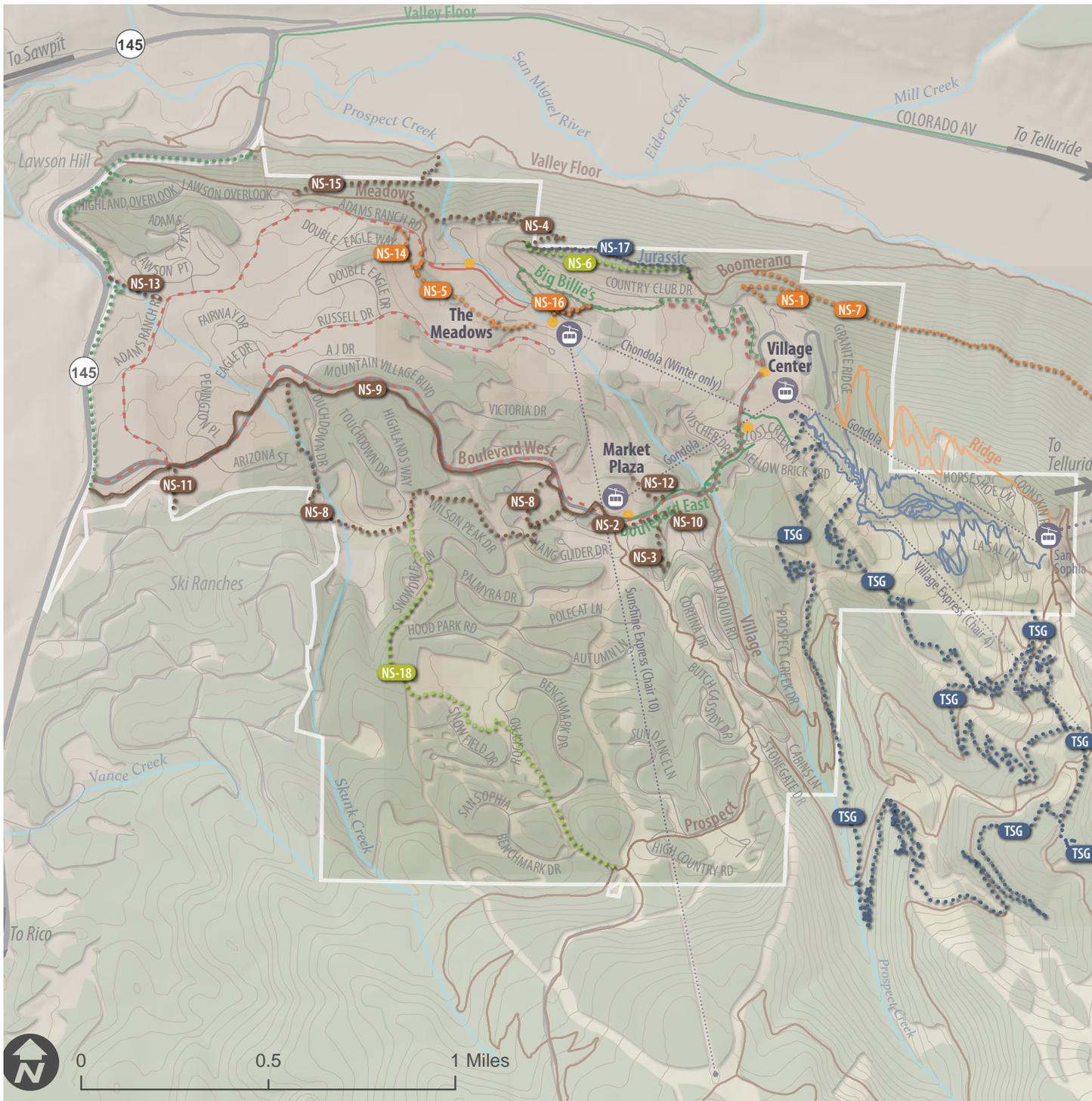
- Existing
- Proposed
- Shared-Use Path
- On-Street Improvements

#### NATURAL SURFACE TRAILS

- Shared Use
- Uphill Bike/  
Multi-Directional Hike
- Descending Bikes Only
- Foot Traffic Only
- Proposed Spot Improvement

\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.





MASTER PLAN

MAP 4.1 EXISTING AND PROPOSED TRAIL NETWORK\*

- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village

RECOMMENDATIONS

- Existing
- Proposed
- Shared Use Path
- On-Street Improvements

NATURAL SURFACE TRAILS

- Shared Use
- Uphill Bike/ Multi-Directional Hike
- Descending Bikes Only
- Foot Traffic Only
- Proposed Spot Improvement

\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.

## Natural Surface Trail Improvements

Natural surface trails comprise the majority of existing and proposed trail types in Mountain Village. These types of trails provide a naturalistic user experience and align with the town’s rural resort character. Currently, most natural surface trails in Mountain Village are open to all non-motorized users and are multi-directional.

The natural surface trail recommendations in this plan include the construction of several new natural surface trails, as well as improvements and changes in management to existing facilities. To minimize ongoing maintenance and to maximize user experience and sustainability, new natural surface trails should be designed and constructed by experienced trail builders. Suggested trail improvements include user and directional management strategies to reduce conflicts, improve safety, and provide connections to key

destinations in the area. Natural surface trail types include: Shared Use (open to all non-motorized users), Open to All Uphill Users/ Downhill Bikes Prohibited, Downhill Bikes Only, and Foot Traffic Only.

Table 4.1 includes each natural surface trail improvement with a description of the project, trail length, tread width, and potential stakeholders and partners. All natural surface trail improvements are also illustrated in Map 4.2 and labeled with their trail identification number. Proposed trails that are part of the Telluride Ski and Golf new bike park development are included in the map and are labeled “TSG”. Such trails will be open to descending bikes only with the purchase of a bike park pass and are included in the map for reference purposes only.

**TABLE 4.1 NATURAL SURFACE TRAIL IMPROVEMENTS**

Trail ID	Trail Name	Trail Type	Description	Tread Width	Length (miles)	Stakeholders/ Partners
NS-1	See Forever Hiking Trail Connector	Natural Surface-Foot Traffic Only	Natural surface trail connecting See Forever Plaza to future O’Reilly Trail.	30”	0.3	Private landowners
NS-2	Bear Creek to Market Plaza	Natural Surface - Shared Use	Natural surface trail connecting the existing Beark Creek Lodge trail along the south side of Mountain Village Boulevard to the existing crosswalk at Market Plaza.	40”	0.1	TSG, USFS, TMVOA
NS-3	Bear Creek Extension	Natural Surface - Shared Use	Natural surface trail connecting the existing Beark Creek Lodge trail up to San Joaquin Rd to serve as a potential bypass for bicyclists and pedestrians walking along San Joaquin. This would allow bicyclists and pedestrians to by-pass the constrained S-curves on lower San Joaquin.	40”	0.1	TMVOA
NS-4	Meadows Express	Natured Surface- Shared Use	Natural surface trail connecting Jurassic to the Meadows trail via a shared use natural surface trail that runs along the top of the mesa. A bridge would be required to cross Prospect Creek. Coordination and approval from the USFS would also be required.	40”	0.7	USFS
NS-5	Meadows Perimeter Hiking Trail	Natural Surface-Foot Traffic Only	Natural surface hiking trail connecting Meadows Trail to Chondola via a hike-only trail through TMVOA, TMV, and TSG property. Trail is intended to serve as a short hike-only experience to take demand off of Jurassic.	30”	0.5	TSG, TMVOA, Fairway Four HOA
NS-6	Stegosaurus	Natural Surface-Open to All Uphill Users/ Downhill Bikes Prohibited	Natural surface trail open to uphill (eastbound) bicyclists and hikers in either direction. Separating downhill bikes from other users would reduce conflicts between trail users and improve safety. Stegosaurus trail alignment should be situated slightly upslope from Jurassic however unnecessary elevation gain should be kept to a minimum.	40”	0.5	TSG

**TABLE 4.1 NATURAL SURFACE TRAIL IMPROVEMENTS, CONTINUED**

Trail ID	Trail Name	Trail Type	Description	Tread Width	Length (miles)	Stakeholders/ Partners
NS-7	O'Reilly Trail	Natural Surface - Foot Traffic Only	A foot traffic-only, natural surface trail connecting Mountain Village to the Town of Telluride. Trail could follow the old mine access via the historic O'Reilly Trail alignment. Coordination required with the USFS, TSG, and Town of Telluride.	40"	1.6	TSG, USFS, TOT
NS-8	Elk Pond Loop	Natural Surface-Shared Use	Natural surface trail connecting Elk Pond and the future community park to Russel Dr. Low angle trail provides a beginner-level hiking and mountain biking experience on a trail that cannot be shuttled via the gondola. Boardwalks may be required in some instances due to wetlands.	40"	1.5	TSG
NS-9	Boulevard Trail (renovation project)	Natural Surface-Shared Use	Improve the existing Boulevard Trail to a consistent 8'-0" tread width throughout the entirety of the natural surface section from SR-145 to Market Plaza.	8'-0"	1.9	TSG
NS-10	Tristant Trail	Natural Surface - Shared Use	Natural surface trail from the existing Bear Creek Lodge trail to the Tristant development. Trail would serve as a short-cut to Mountain Village Boulevard and an alternative to walking along San Joaquin.	40"	<0.1	TMVOA
NS-11	Ski Ranches Connector	Natural Surface-Shared Use	Construct a shared use natural surface trail from the Boulevard Trail to the cul-de-sac at the end of Meadow Dr. in the Ski Ranches. Coordinate with Ski Ranches to determine if connection is desired and feasible.	40"	0.1	Ski Ranches
NS-12	Boulevard to VCA	Natural Surface-Shared Use	Construct a shared use natural surface trail between the VCA and the Boulevard Trail across the Double Cabin ski run. Trail should avoid or construct boardwalk over any wetlands present. Existing social trail between VCA / Station Village parking garage and Mountain Lodge should be decommissioned.	40"	0.1	TSG
NS-13	Emergency Access Trail	Natural Surface-Shared Use	Construct a shared use natural surface trail along the proposed emergency access road connecting Adams Ranch Road to SR-145.	~10'	0.2	CDOT
NS-14	Meadows Hiking Trail- Connector	Natural Surface-Foot Traffic Only	Natural surface foot traffic only trail connecting Adams Ranch Road and Meadows Trail. Trail should be routed through the trees to limit visibility and exposure to golf course operations	30"	0.2	TSG, Adjacent apartments
NS-15	Banner Trail	Natural Surface-Shared Use	Natural surface shared use trail connecting Meadows Trail to the Upper Valley Floor trail. Trail would formalize and improve existing social trail that exists. This "rogue" trail is currently located on privately held open space.	40"	0.5	SMVC, USFS, TOT
NS-16	Big Billies-Hiking Connector (renovation)	Natural Surface-Foot Traffic Only	Improve and rehabilitate the existing steep section of Big Billies. Change the trail management to Foot Traffic only. Add stairs and crusher fines gravel to improve the commuting function of the trail.	30"	0.2	TSG
NS-17	Jurassic (renovation project)	Natural Surface-Descending Bikes Only	Change the management of Jurassic to support downhill bikes only. Hikers and uphill bicyclists (eastbound) will be accommodated via a new trail (Stegosaurus, NS-6) slightly upslope from Jurassic.	40"	0.5	TSG

**TABLE 4.1 NATURAL SURFACE TRAIL IMPROVEMENTS, CONTINUED**

Trail ID	Trail Name	Trail Type	Description	Tread Width	Length (miles)	Stakeholders/ Partners
NS-18	Elk Pond to Prospect Trail	Natural Surface-Uphill Bike/ Multi-Directional Hike	Natural surface trail connecting from the proposed Elk Pond Loop to Prospect Trail. Upper half mile before connecting to Prospect is constrained fall-line trail. Prohibition on downhill bikes is intended to mitigate erosion and maintenance.	40"	1.4	TSG

## Shared Use Path Improvements

Currently, the only paved path in Mountain Village is the Boulevard East Trail. Paved shared use paths and sidepaths provide the highest level of accessibility and comfort for all users, including children, the elderly, and people using wheeled mobility devices. In areas with particularly high pedestrian and bicyclist traffic, paved shared use paths are the most suitable facilities to accommodate everyone.

The suggested improvements for shared use paths presented in this plan are focused on the primary activity areas, where there is significant existing pedestrian and bicyclist traffic, higher density, and demand for enhanced connections between destinations. Table 4.2 lists the shared use path improvements while Map 4.3 and Map 4.3.1 (inset) illustrates their locations within Mountain Village.

**TABLE 4.2 SHARED USE PATH IMPROVEMENTS**

Trail ID	Trail Name	Trail Type	Description	Tread Width	Length (miles)	Stakeholders/ Partners
SU-1	Upper Country Club Dr - Mountain Village Blvd to Big Billie's Trail	Sidepath / Sidewalk - foot traffic only (paved)	Develop a paved sidepath or sidewalk for foot traffic only that would extend along the west and south side of Country Club Dr. connecting to Big Billies. Note that this will separate bicycle and pedestrian traffic.	8'-0"	0.3	TSG/The Peaks
SU-2	Boulevard Trail Extension	Sidepath (paved)	Reroute the existing Boulevard Trail to travel underneath the existing Village Bypass ski bridge over Mountain Village Boulevard. Extend trail along the west side of Mountain Village Boulevard up to Aspen Ridge Dr.	8'-0"	0.3	TSG
SU-3	Boulevard Extension #2	Sidepath (paved)	Extend the end of the Boulevard Trail through the parking / bus stop area Village Center. Some impacts to the parking lot may be required.	8'-0"	0.1	TSG
SU-4	Boulevard Trail Re-route	Sidepath (paved)	Develop a new segment of Boulevard Trail that utilizes the existing ski bridge over Mountain Village Boulevard to cross the roadway rather than the existing crosswalk.	8'-0"	0.1	TSG
SU-5	Big Billie's	Shared Use Path (paved or crusher fines)	Harden and widen the existing Big Billie's Trail with asphalt or crusher fines from Country Club Road to Meadows Village to better support summertime commuting trips. Extend trail through planned affordable housing in Meadows Village. Plant additional trees on the fairway side of the trail to protect trail users and limit the visibility of the trail from golfers.	8'-0"	0.6	TSG
SU-6	Lawson Hill Connector	Shared Use Path (paved)	Develop a paved shared use path from the end of Lawson Overlook to SR-145. Work with CDOT to construct a grade-separated bicycle-pedestrian crossing across SR-145 (See SI-1). Connection would facilitate a low-stress bicycling connection into Telluride via the Boulevard Trail, streets in Lawson, and the bike path on the Valley Floor.	8'-0"	0.1	CDOT
SU-7	Adams Ranch Rd Sidepath	Sidepath (paved, alternative to OS-3)	Develop a sidepath along Adams Ranch Road from Mountain Village Boulevard to the Meadows. Project would impact landscaping and require grading within the 15' general easement. The proposed sidepath is intended as an alternative to shoulder improvements proposed in OS-3.	8'-0"	1.4	TSG, private landowners
SU-8	SR145- Meadows Trail to Valley Floor	Sidepath (paved)	Sidepath connecting the Meadows Trail to the Valley Floor. Trail alignment could follow historic railroad grade above SR-145.	8'-10'	0.6	TSG, CDOT, SMVC, private landowners
SU-9	SR145- Emergency Access Road to Meadow Trail	Shared Use Path (crusher fines)	Shared use path trail connecting the emergency access road to the Meadows Trail. Trail could be constructed potentially in CDOT ROW or TMV open space lands, however, minor encroachments onto adjacent property could improve the trail experience and facilitate easier construction.	8'-10'	0.6	TSG, SMVC, private landowners
SU-10	SR145- Meadow Village Blvd to Emergency Access Rd	Shared Use Path (crusher fines)	Shared use path running along the SR-145 ROW from the end of the Boulevard Trail to the emergency access road. Trail could be constructed in exclusively in CDOT ROW, however minor encroachments into adjacent TSG property could improve the trail experience and facilitate easier construction.	8'-10'	0.5	TSG, CDOT



# TRAILS

## MASTER PLAN

### MAP 4.3 SHARED-USE PATH RECOMMENDATIONS\*

- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village

### RECOMMENDATIONS

- Existing
  - Proposed
  - Shared Use Path
  - On-Street Improvements
- #### NATURAL SURFACE TRAILS
- Shared Use
  - Uphill Bike/  
Multi-directional Hike
  - Descending Bikes Only
  - Foot Traffic Only

\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.



MAP 4.3.1 SHARED-USE PATH INSET



## On-Street Improvements

The majority of Mountain Village’s existing roadways lack sidewalks or dedicated space for pedestrians and bicyclists. Roads are often narrow with equally narrow paved or unpaved shoulders. Despite the lack of dedicated space, many residents and visitors walk and bicycle on roadways, either on narrow gravel shoulders, or within the vehicle travel lane. For the majority of roadways this works well when motor vehicle volumes and speeds are low. A local culture of roadway courtesy can also have a significant impact on perceptions of

safety and comfort. On some roads, particularly those with relatively heavy vehicle and non-motorized traffic and the presence of blind corners, this mixed traffic approach can pose a safety issue. This plan identifies key areas where the addition of on-street improvements, including wide shoulders and advisory shoulders will improve safety and comfort for all users.

On-street improvements are described in Table 4.3 and illustrated in Map 4.4.

**TABLE 4.3 ON-STREET IMPROVEMENTS**

Trail ID	Trail Name	Trail Type	Description	Length (miles)	Stakeholders/ Partners
OS-1	Mountain Village Boulevard - Lost Creek Lane to Market Plaza	Shoulder Improvements	Widen shoulders along Mountain Village Boulevard to accommodate a 4'-0" shoulder on downhill side / 6'-0" shoulder on uphill side. Upgrade to bike lanes if feasible.	0.4	Private landowners, TSG
OS-2	Russell Dr	Shoulders/Advisory Shoulders	Widen shoulders to 4'-0" on curves and areas requiring a solid centerline. In other locations, implement advisory shoulders and remove centerline striping.	0.9	Private landowners
OS-3	Adams Ranch Rd (alternative to project SU-7)	Shoulders/Advisory Shoulders	Widen shoulders to 4'-0" on curves and areas requiring a solid centerline. In other locations, implement advisory shoulders and remove centerline striping. Project is intended to serve as an alternative to a paved sidepath as proposed in SU-7.	1.5	Private landowners, TSG
OS-4	Mountain Village Blvd - Lost Creek Lane to Country Club Dr	Combination shoulder and sidewalk with ADA improvements	Construct shoulders from Blue Mesa to County Club Dr, fill in missing sidewalk sections for foot traffic only, and improve ADA accessibility on the east side of Mountain Village Boulevard through the Village Center.	0.2	Private landowners, TSG
OS-5	Benchmark Dr	Shoulders/Advisory Shoulders	See page 4-16 for options.	1.5	Private landowners, TSG
OS-6	San Joaquin Rd	Shoulders/Advisory Shoulders	See page 4-16 for options.	1.1	Private landowners, TSG
OS-7	Upper Country Club Dr - Mountain Village Boulevard to Big Billies	Shoulders/Advisory Shoulders	Pave 4' wide shoulders for bikes only on both sides of Country Club Dr. See page 4-16 for options. If not enough room for 4' shoulders on both sides of road, construct a shoulder on the south (uphill) of Country Club Dr for climbing bikes and paint sharrows in the lane for descending bikes.	0.5	Private landowners, TSG
OS-8	Mountain Village Boulevard - Market Plaza to Highway 145	Shoulder Improvements	Widen shoulders along Mountain Village Boulevard to accommodate a 4'-0" shoulder on downhill side / 6'-0" shoulder on uphill side. Upgrade to bike lanes if feasible.	1.8	TSG



# TRAILS

## MASTER PLAN

### MAP 4.4 ON-STREET RECOMMENDATIONS\*

- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village

### RECOMMENDATIONS

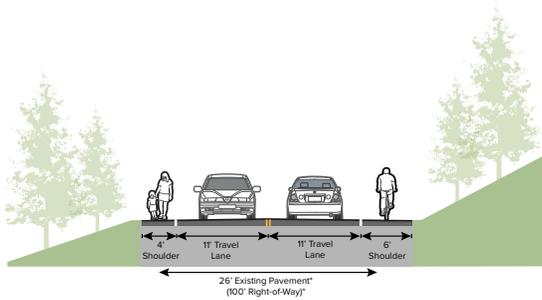
- Existing
- Proposed
- Shared Use Path
- On-Street Improvements

### NATURAL SURFACE TRAILS

- Shared Use
- Uphill Bike/ Multi-directional Hike
- Descending Bikes Only
- Foot Traffic Only

\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.

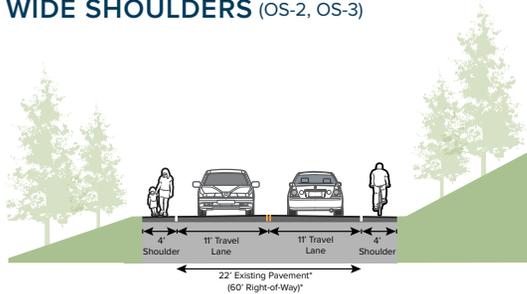
**FIGURE 4.3 WIDE SHOULDERS (OS-1)**



Advisory shoulders offer a cost-efficient and low-impact way to provide accommodations for bicyclists and pedestrians, and is achieved by striping that allows flexibility for two-way motor traffic while dedicating space for cyclists and pedestrians.

**FIGURE 4.4 WIDE SHOULDERS (OS-2, OS-3)**

**WIDE SHOULDERS (OS-2, OS-3)**

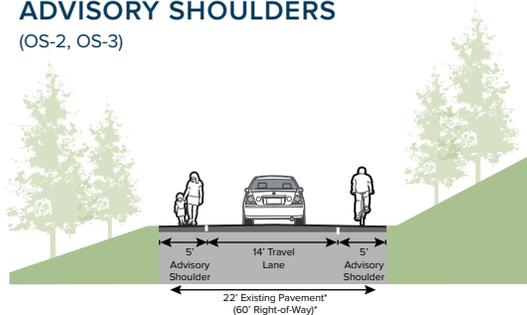


In locations that are inappropriate for advisory shoulders, or in locations where there is higher demand for bicycle and pedestrian accommodations, wide paved shoulders offer safe, delineated space to bike and walk.

**FIGURE 4.5 ADVISORY SHOULDERS (OS-2, OS-3, OS-4)**

**ADVISORY SHOULDERS**

(OS-2, OS-3)



Paved advisory shoulders on one-way streets offer a cost-efficient and low-impact way to provide accommodations for bicyclists and pedestrians, and is achieved by striping that allows flexibility for one-way motor traffic while dedicating space on both sides of the road for cyclists and pedestrians.

## On-Street Improvements Continued

**Benchmark Drive and San Joaquin Road** are the two primary roadways that connect a large portion of Mountain Village residents to the main thoroughfare, Mountain Village Boulevard. These roads in particular present challenges in creating safe and convenient access for pedestrians and cyclists with their steep profiles, sharp curves that decrease visibility, and narrow shoulders that are unpaved. The suggested improvements for Benchmark Drive and San Joaquin

Road are focused on the three options described below, and should be implemented on a case-by-case basis, giving consideration to funding, visibility, physical constraints, and engineering judgement. Shoulder widening efforts should be completed in conjunction with roadway reconstruction or utility projects.

### OPTION 1: ADVISORY SHOULDERS | \$\$\$\$\$

Advisory shoulders offer a cost-efficient and low-impact way to provide accommodations for bicyclists and pedestrians, and is achieved by striping that allows flexibility for two-way motor traffic while dedicating space for cyclists and pedestrians. Due to complications with topography and sight lines around sharp curves along these two corridors, there may be limited application for advisory shoulders along Benchmark Drive and San Joaquin road. Additional study should be conducted to assess the feasibility of advisory shoulders on various segments of Benchmark and San Joaquin.



*Advisory shoulder*

### OPTION 2: SHOULDER WIDENING | \$\$\$\$\$

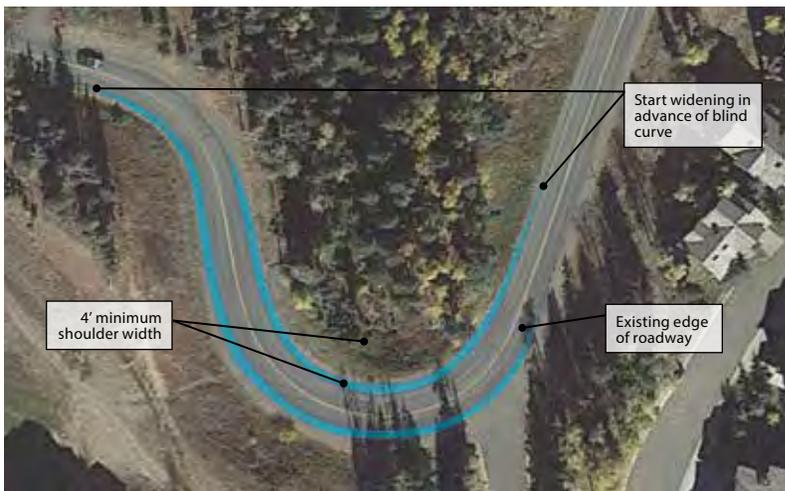
In locations that are inappropriate for advisory shoulders, or in locations where there is higher demand for bicycle and pedestrian accommodations, paved shoulders offer safe, delineated space to bike and walk. If corridor constraints limit the construction of paved shoulders on both sides of the street, shoulder widening should be consolidated to the side of the street on which users travel uphill to provide a more comfortable experience. In this scenario, downhill bicyclists are likely to “take the lane” as they will be traveling at higher speeds and the need for vehicles to pass will be less likely. Lower sections of San Joaquin that serve higher density housing developments and more potential users are a logical place to consider shoulder widening.



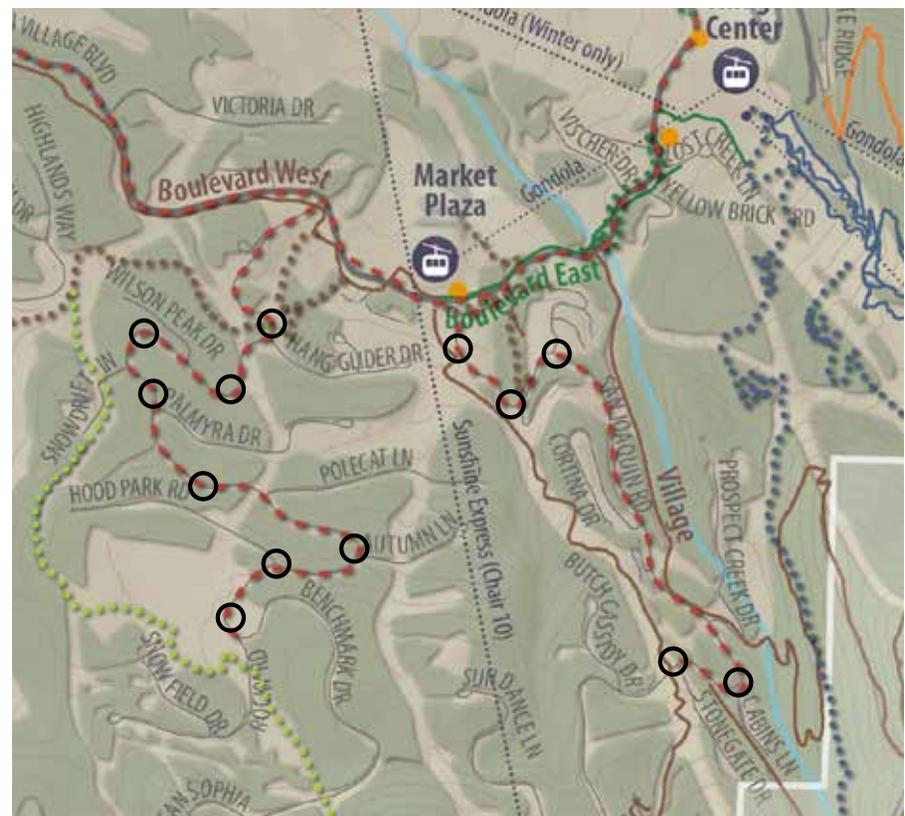
*Shoulder widening*

**OPTION 2A: SELECTIVE SHOULDER WIDENING | \$\$\$\$**

If implementation funds are limited, or if impacts from wholesale shoulder widening are deemed undesirable, selective widening may provide an option to improve bicycle and pedestrian comfort and safety at key locations. Priority locations for selective widening would be those that present challenges with regards to sight lines and visibility, particularly around sharp curves with blind corners. The image below highlights in blue selective widening of paved shoulders around a sharp curve along San Joaquin Road.



Selective shoulder widening along San Joaquin Road



○ Potential locations for selective widening along Benchmark and San Joaquin

### Spot Improvements

Proposed spot improvements are largely focused on improving bicycle and pedestrian connectivity across roads or natural features. Spot improvements are listed in Table 4.4 and displayed on Map 4.5.

**TABLE 4.4 SPOT IMPROVEMENTS**

Trail ID	Improvement Name	Improvement Type	Description	Stakeholders/ Partners
SI-1	SR-145 Grade-separated trail crossing	Grade-separated trail crossing	Construct a grade-separated trail crossing (overcrossing or undercrossing) across SR-145 to connect Mountain Village to Lawson Hill. Coordinate and explore funding options with CDOT.	CDOT
SI-2	Eliminate at-grade crossing/use ski bridge	Eliminate at-grade crosswalk	Remove the existing at-grade crosswalk on Mountain Village Boulevard which is currently sited at a skew angle and on a curve. Proposed trails on both sides of Mountain Village Boulevard and the use of the existing ski bridge as a trail crossing will eliminate the need for the at-grade crosswalk.	
SI-3	Boulevard Trail undercrossing	Trail undercrossing	Construct a new trail undercrossing from the proposed park at Elk Pond to Town Hall consistent with the Town Hall small area plan.	
SI-4	Elk Pond Trail Undercrossing	Trail undercrossing	Construct a trail undercrossing below Benchmark to facilitate the proposed Elk Pond Trail.	
SI-5	Meadows Express Bridge	Trail bridge	Construct a trail bridge over Prospect Creek to facilitate construction of the proposed Meadows Express trail.	TSG



# TRAILS

## MASTER PLAN

### MAP 4.5 SPOT RECOMMENDATIONS\*

- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village

### RECOMMENDATIONS

- Existing
  - Proposed
  - Shared Use Path
  - On-Street Improvements
- ### NATURAL SURFACE TRAILS
- Shared Use
  - Uphill Bike/  
Multi-Directional Hike
  - Descending Bikes Only
  - Foot Traffic Only

- Proposed Spot Improvement



\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.

For bicyclists wishing to avoid Heritage Plaza and connect to other trails, additional signage can direct them to the existing paved path that skirts the plaza to the south. This path will connect with the proposed Village Center to Big Billie's shared use path (SU-1), which will provide connections to other trails throughout the system.

**Develop a comprehensive signage program for on-street, off-street, and natural surface trails**



The Town of Mountain Village currently has some existing trail signage, but feedback from both stakeholders and the general public suggests that it is insufficient for most users to effectively navigate the system. Developing a comprehensive signage program for the entire trail system using current wayfinding best practices should be a priority for Mountain Village. A consistent and well-designed signage program will not only improve the user experience, it will provide an opportunity to promote the Mountain Village brand. Coordination with the Town of Telluride, the United States Forest Service, and Telluride Ski and Golf should be pursued, if possible, to facilitate connections to neighboring trail systems and destinations.

**Develop a comprehensive and coordinated trail user etiquette campaign**



With the large number of visitors coming to Mountain Village, and their varying levels of trail experience, conflicts between users on trails is not uncommon and poses a safety issue. Developing a comprehensive and coordinated trail user etiquette campaign across all trail-related organizations and businesses will help to ensure that people understand how to properly use the trail system. Such a campaign could include signage and educational materials to be distributed by the Town of Mountain Village, the Town of Telluride, Telluride Ski and Golf, and local bicycle shops.

**POLICY RECOMMENDATIONS**

Implementing a world-class trail system takes more than simply building great trails; it requires policies be put in place to ensure efficient and effective system use and management. The following policy recommendations are intended to support the facility recommendations discussed in the previous section.



**Create a dismount zone for bicyclists in Heritage Plaza**

During peak season, there are high numbers of bicyclists exiting the mountain bike park at Heritage Plaza, which is often busy with pedestrians, including small children and the elderly. With the expansion of the Telluride Ski and Golf bike park and increasing numbers of visitors to Mountain Village, conflicts between pedestrians and mountain bikers in Heritage Plaza are expected to increase. Creating a dismount zone for bicyclists in Heritage Plaza is recommended to maintain a safe environment for everyone.

A dismount zone can be established with a municipal ordinance and promoted with signage. Enforcement of violators may be necessary, particularly during peak hours. To meet everyone's needs, delineating small zones where rental shops can allow customers to test ride bikes, should be considered as a potential component of the overall dismount zone.



*A bicycle dismount zone would reduce conflicts between pedestrians and bicyclists.*



### Promote a trail system that is usable in all seasons

In recent years, winter bicycling has become increasingly popular in mountain resort communities, especially as weather patterns that ski destinations rely on become increasingly unpredictable. Winter bicycling presents an opportunity for such communities to provide outdoor recreation experiences year-round and to potentially attract new visitors.

Grooming trails after snowfalls is key to providing winter-time access. As the main trail corridor in Mountain Village, the Boulevard Trail should be prioritized for grooming. From a recreational perspective, grooming trails in open space and on the golf course presents an opportunity to provide additional fat biking opportunities, but will require coordination and approval from Telluride Ski and Golf. Trails maintained for fat biking should be kept separate from Nordic ski trails due to the differences in treads.



### Improve trail-related amenities throughout the system

Trail-related amenities such as benches, lighting, map kiosks, and bicycle parking can improve user experience by increasing convenience and comfort. Benches provide opportunities to rest, lighting increases visibility and safety, and map kiosks help users orient themselves within the system.

People may ride more frequently if they know there are ample places to securely park their bikes. The Town of Mountain Village should assess bike parking needs at the Village Center, Town Hall/Market Plaza, and the Meadows and install bike racks in public locations as needed. Bike parking can be temporary in some locations to meet seasonal fluctuations in demand. Reference the Association of Pedestrian and Bicycle Professionals (APBP)'s *Essentials of Bike Parking: Selecting and Install Bike Parking That Works* (2015) for further information on bicycle parking best practices. Mountain Village should also consider accommodating charging infrastructure for e-bikes as they continue to increase in popularity.



### Develop a shared mobility device ordinance

With a bike share program planned for launch by 2020, the Town of Mountain Village should take proactive steps to establish permitting and operational policies for other shared mobility providers. Since 2017, cities and towns have seen the rise of new direct-to-consumer business models for providing a range of shared mobility options, specifically dockless bike share, dockless e-bike share, and dockless e-scooter share. While these modes can, in some cases, coexist with established docked and hybrid systems and with other competing providers, municipalities have identified the value of closely managing the use of the public right-of-way and setting clear standards for entry to the local market and performance measures that align with city goals. This protects existing city investments and prioritizes the intended outcomes established by the city.

For examples of polices established in cities with existing public bike share programs, see: [Denver, Colorado](#); [Austin, Texas](#); and [Charlotte, North Carolina](#).



Covered short-term bicycle parking provides weather protection.

## PUBLIC OUTREACH

On Friday, September 28, 2018, the project team held a second public engagement session aimed at gathering feedback on the Mountain Village Trails Master Plan draft plan vision, goals, and recommendations. Six stations were assembled to present different information to event attendees. The stations included: 1) Vision and Goals, 2) Overall Trail System, 3) Natural Surface Recommendations, 4) Shared-Use Path Recommendations, 5) On-Street Recommendations, and 6) Spot Improvements. Each station included informational posters and/or maps and participants received forms to fill out with their feedback. Overall, the feedback was positive. A summary of general feedback is listed below. Location-specific comments are illustrated in Map 4.6.

- There is a general preference for multi-use trails, but there is also broad support for the separation of descending bikes and hikers
- There is broad support for hike-only trails
- People have concerns about the speeds of descending bikes
- Someone advocated that road shoulders be widened to 6 feet
- There is a general need for trail etiquette awareness and signage
- Providing wide, paved paths to better accommodate e-bikes would benefit more types of users
- There is interest in better accommodating e-bikes, both by increasing the amount of wide, paved paths, and by allowing e-bikes to access shared-use trails
- Someone expressed safety concerns about removing centerlines on roads, especially when the area experiencing increases in vehicular traffic
- Some people would like to preserve technical trail features in appropriate locations
- There is a desire to protect public access to trails on TSG property

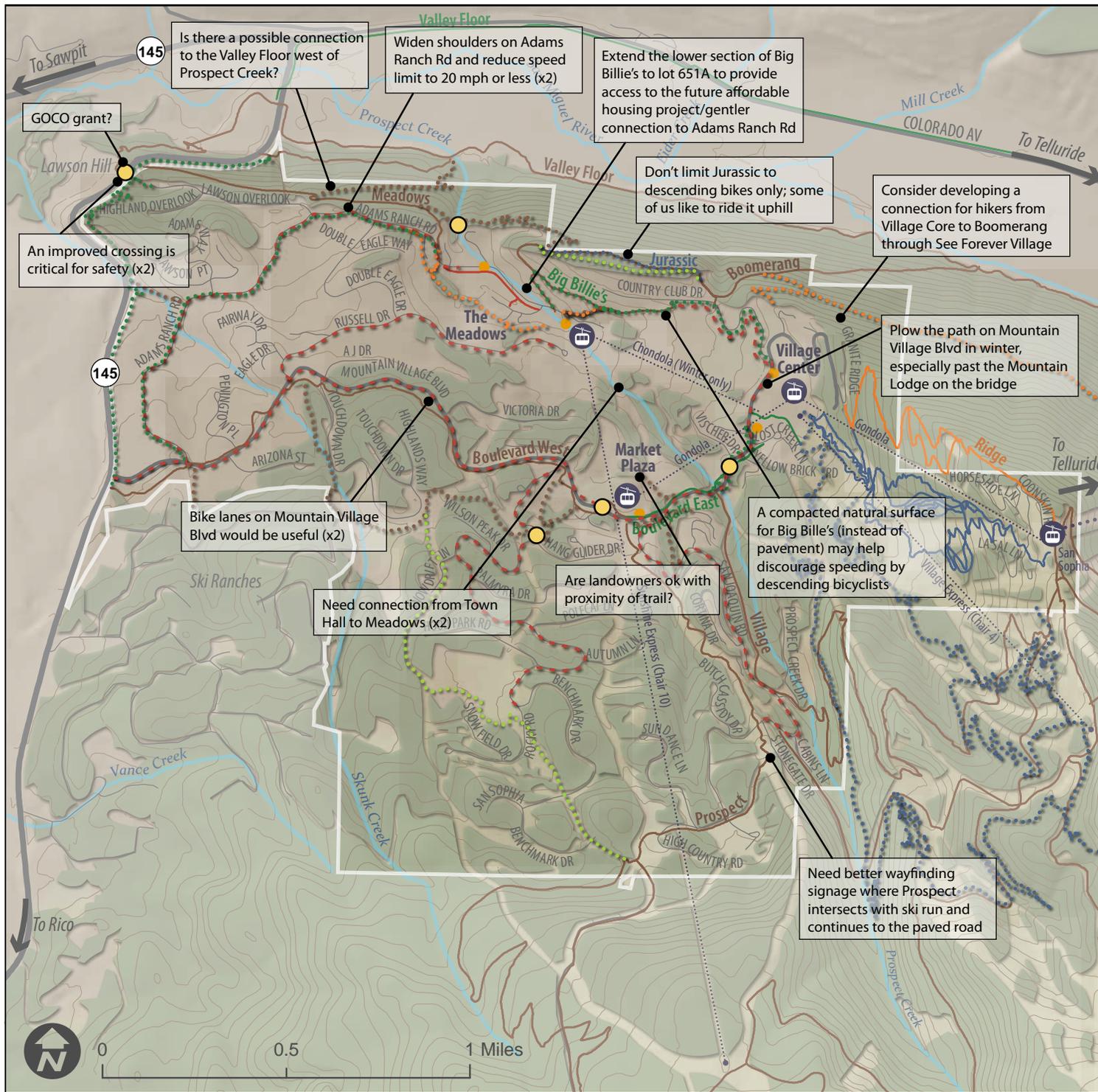
Participants were also asked to list the proposed projects they would most like to see implemented. The O'Reilly Trail (NS-7), the Stegosaurus Trail (NS-6) and the SH 145 Crossing (SI-1) were the most popular projects among meeting attendees.



*Attendees of the September event review the recommendations.*



*An advertisement for the public event held in September.*



**MAP 4.6 PUBLIC INPUT ON RECOMMENDATIONS\***

- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village

**RECOMMENDATIONS**

- Existing
- Proposed
- Shared Use Path
- On-Street Improvements

**NATURAL SURFACE TRAILS**

- Shared Use
- Uphill Bike/ Multi-Directional Hike
- Descending Bikes Only
- Foot Traffic Only
- Proposed Spot Improvement

\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.



CHAPTER 5

# IMPLEMENTATION

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## DESIGN GUIDELINES

Trails are one of the primary ways in which people experience the Town of Mountain Village. Natural surface trails that are carefully planned and sustainably constructed within Mountain Village will promote an enjoyable user experience and minimize future maintenance requirements. These design guidelines specify how trails and supporting facilities should be designed and constructed within the Town of Mountain Village. The following standards and guidelines are referred to in this guide:

- The Federal Highway Administration’s (FHWA) ***Manual on Uniform Traffic Control Devices (MUTCD)*** defines the standards to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public traffic.
- ***FHWA’s Small Town and Rural Multimodal Networks (2016)*** document is a design resource and idea book to help small towns and rural communities support safe, accessible, comfortable, and active travel for people of all ages and abilities.
- US Forest Service Standard Trail Plans and Specifications
- IMBA Trail Solutions: IMBA’s Guide to Building Sweet Singletrack
- Minnesota DNR Trail Planning, Design, and Development Guidelines

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## IMPLEMENTATION COMPONENTS



**DESIGN GUIDELINES** – Includes recommended design specifications for each facility type.



**MAINTENANCE** – Describes typical maintenance tasks for each trail type with some planning-level costs.



**PRIORITIZATION/PHASING** – Categorizes projects into three phases for implementation



**PRIORITY PROJECTS** – Highlights projects to be implemented first

## Mountain Village Trail Types

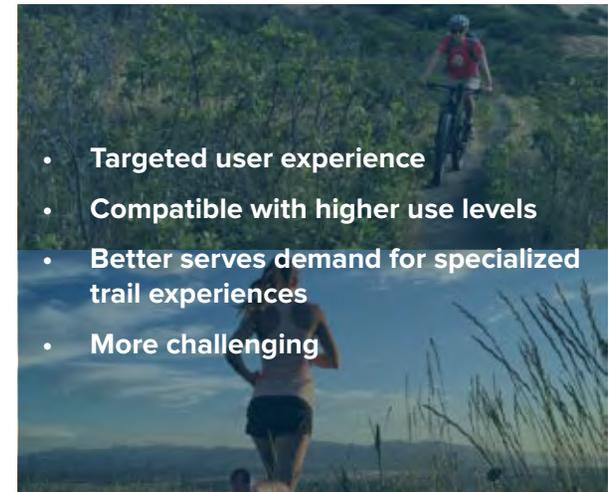
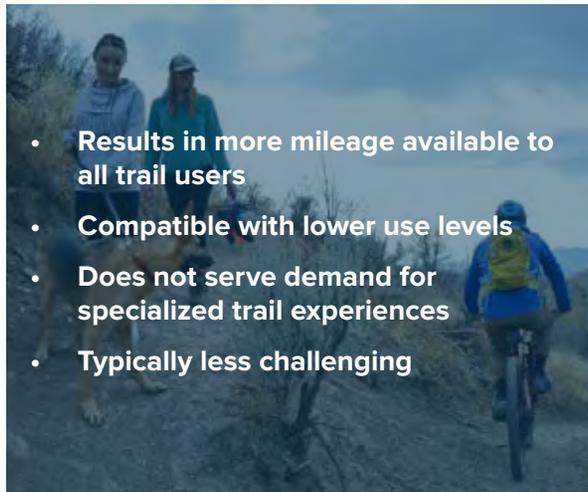
Natural surface trails can be designed to accommodate a broad or narrow range of users depending on the experience desired. Trails may also be required to serve other utilitarian access functions depending on the underlying property ownership or access agreement.

	NATURAL SURFACE				PAVED SURFACE		
	SHARED USE TRAILS	HIKE ONLY TRAILS	DESCENDING BICYCLES ONLY	UPHILL BIKE / MULTI-DIRECTIONAL HIKE	SHARED USE PATH	SHOULDER WIDENING	ADVISORY SHOULDERS
Description	Shared use trails accommodate all types of non-motorized trail users (most commonly hikers, bicyclists, and equestrians)	Hiking-only trails are constructed to facilitate access to hikers and trail runners	Descending bicycle-only trails are constructed to enhance the experience and efficiency of riding a bicycle downhill	Shared use trail used to facilitate multi-directional access to hikers and trail runners, in addition to providing adequate space and limited interference for bicyclists to ride uphill	Paved shared use trails accommodate all types of non-motorized trail users (most commonly pedestrians and bicyclists)	Paved shoulders along the edge of roadways serve as a functional space for bicyclists and pedestrians to travel	Advisory shoulders accommodate two-way vehicular traffic and prioritize space for bicyclists with little widening of the roadway surface
Typical Width	36"-72"	18"-60"	36"-72"	36"-72"	8' min. - 14'	4' min. - 8'	4' min. - 6' (preferred)
Running Slope	Overall running slope of 10% or less (up to 15% for short segments)	Can be routed with steeper running slopes up to 15% (depending on local soil conditions)	Overall running slope of 6-8% or less to limit braking/skidding damage (up to 15% for short segments)	Overall running slope of 10% or less (up to 15% for short segments)	Running slope of 5% (any distance); 8.3% (max 200'); if path is within the road ROW it can match the road's running slope	Match existing roadway	Match existing roadway
Cross Slope	5% max	8% max	5% max	5% max	2% max	2% max	2% max, or match existing
Appropriate Characteristics	Small berms, rollers, slow-speed technical features, clear sightlines on faster segments of trail	Narrow tread, steps (where needed), tight switchbacks	Larger berms and/or high speed features, jumps, drops, elevated structures, and other technical features suited to bicyclists	Small berms, rollers, slow-speed technical features, clear sightlines on faster segments of trail	Maintain during winter with plowing and sweeping	Implement on rural roads that may lack dedicated bicycle facilities	Implement on low-volume, low speed roads lacking dedicated bicycle and pedestrian facilities
Inappropriate characteristics	Large berms, jumps, drops, high-speed features	Large berms, jumps, drops, high-speed features	Mandatory advanced features without "ride-arounds"	Large berms, jumps, drops, high-speed features	Any characteristics that compromise the accessible requirements noted above	Inadequate width along highly trafficked roadway with high speeds	Roadway segments with poor visibility; roads with speeds in excess of 35 mph and 3000 ADT
Management Considerations	Managed as shared use	Managed as single use; requires clear and repeated notices specifying use type; hike only trails may be used in conjunction with descending bicycle trails to provide equal access for all trail users	Managed as single use; requires clear and repeated notices specifying use type; descending bike trails may be used to provide a specific trail experience or to separate trail users for safety reasons	Managed as shared use; requires clear and repeated notices disallowing downhill bicycle travel; Uphill bike/ multi-directional hike trails can be used to allow trail users operating at similar speeds to share the same trail while prohibiting higher speed descending bicyclists	Managed as shared use; consider allowing e-bikes on paved shared use paths throughout Mountain Village	Direction of travel is commonly specified; may also be preferred-use or single use; clear shoulders of snow in winter	Launch an educational campaign with implementation to teach people how to drive, walk, and bike on roads with advisory shoulders

## Natural Surface Trails

### Trail Management Considerations

Natural surface trails can be managed and designed as shared use (allowing all types of non-motorized trail users) or single use (allowing a single type of trail user).

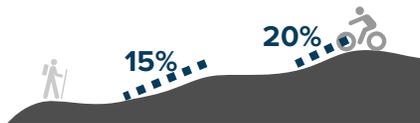
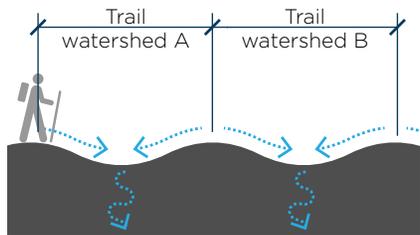
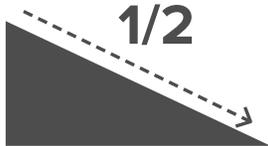


#### SHARED USE DESIGNATION CONSIDERATIONS

- Shared use trails accommodate the broadest range of users and provide the most mileage available to all user groups.
- Promotes shared stewardship of the trails.
- Cost- and resource-efficient, taking advantage of available space and trail mileage. This results in fewer miles than would be necessary to accommodate trails for individual user groups.
- Support the most visitors. Trails that lead to specific major destinations, such as historic features and scenic vistas, should be considered for shared use, since most visitors will be drawn to the point of interest regardless of the mode they'll use to get there.

#### SINGLE USE DESIGNATION CONSIDERATIONS

- Single use trails can alleviate congestion and conflicts among user groups when used in conjunction with shared use trails.
- Single use trails can be more technical or rugged, or provide higher quality trail experiences catered to a single trail user group.
- Single use trails can accommodate narrower tread widths without compromising the safety or enjoyment of other trail users.
- Single use trails can also help to mitigate site-specific constraints such as poor sightlines, steep terrain (by allowing construction of stairs), or sensitive environmental areas.



### IDENTIFY CONTROL POINTS

Positive control points are places that people want to go. These points might include scenic overlooks, trail access points, interesting landforms, water, or historic sites. Negative control points are places that the trail system should avoid. These could include places like private property, sensitive environmental resources, or safety hazards. By routing trail users to places they instinctively want to go and avoiding potential liabilities, trail planners can mitigate the potential for unauthorized social trails while limiting trail user exposure to unsafe or undesirable places.

### ADHERE TO THE HALF RULE

Trails whose running slope generally exceeds more than half the grade of the sideslope it's crossing are considered "fall line" trails. Drainage crossing a fall-line trail will follow the trail rather than crossing it creating a high probability for erosion.

### ROLLING CONTOUR TRAILS

Rolling contour trails gently undulate while traversing side slopes to divide trails into distinct trail watersheds. Trail watersheds limit the amount of drainage flowing across a trail by combining an out-sloped trail tread with frequent high and low points (grade reversals) along the trail profile.

### 10% MAX. AVERAGE GRADE

An overall trail grade of less than or equal to 10% provides a general framework for a sustainable trail profile. An overall trail grade of 5-7% allows for some undulation and for short sections approaching 10%. Overall trail grades below 10% are also suitable for most soil types and minimizes erosion.

### MAXIMUM SUSTAINABLE TRAIL GRADES

Maximum sustainable trail grades relate to short segments (10' or more) that may exceed the recommended overall average grade of 10%. Typically maximum sustainable trail grades vary between 15% and 20% depending on soil type, rock, annual rainfall, direction of travel or many other factors.

### CREATE LOOPS

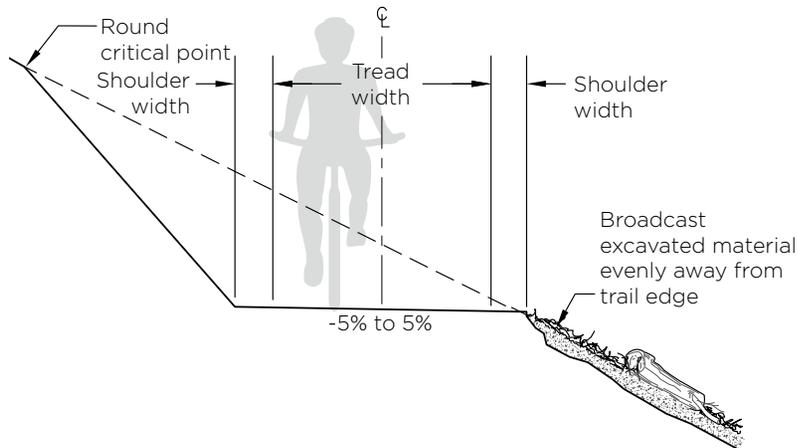
Routing trails as loops where feasible provides a more interesting trail experience. "Out and back", or dead-end trails sometimes promote the development of social trails when trail users are tempted to create their own loops.

\* Application of trail alignment principles may not be possible on existing trails but should always be applied on new trails.

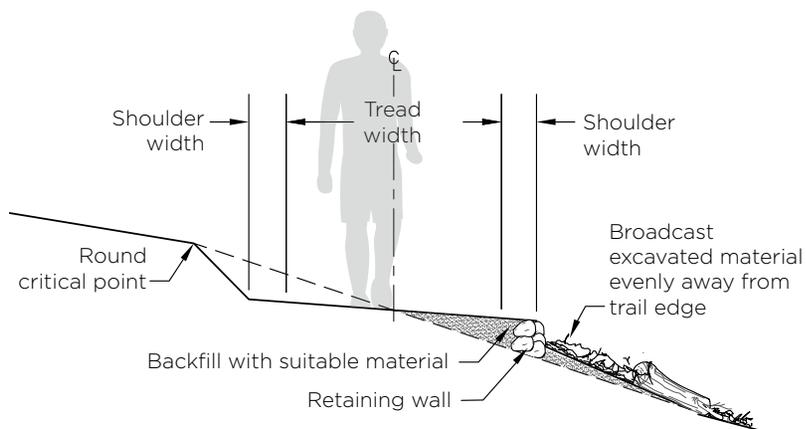
## Trail Construction

Natural surface trails meet the recreational demands of hikers, mountain bikers, and other non-motorized recreational trail users. Proper trail construction is important to reduce ongoing maintenance costs as well as to ensure that the trail is both usable and enjoyable for intended user groups.

### FULL BENCH CONSTRUCTION TRAILS



### PARTIAL BENCH CONSTRUCTION TRAILS



### DESIGN STANDARDS

- **Tread:** Trail surface should be compacted native material soil.
- **Trail Benching:** Full bench trails provide the most durable trail construction however partial bench trails can provide an adequate trail surface where full bench trails are not possible or "singletrack" is desired without waiting for vegetation to re-naturalize adjacent to the trail. Partial bench trails are only allowed with retaining walls on the downhill side.
- **Trail Texture:** Trail texture should vary based on intended user skill level, with smoother trails for less-skilled users and rugged trails for more-skilled users
- **Tread Width:** Varies by anticipated use levels, skill levels, and types of users (24" - 8'-0").
- **Horizontal Clearance:** A 1 ft. shoulder maintained with minimum vegetation should be provided free of obstacles.
- **Vertical Clearance:** 8 ft. min., 10' where equestrian use is anticipated
- **Cross Slope** May vary from -5% to 5%, but always sloped counter to user forces.
- **Running Slope:** Varies by intended trail type, see guidelines on p. 42.
- **Drainage:** Provide regular grade reversals (approximately every 25') and exits for trail drainage.
- **Erosion Control:** Spread approved native seed mix throughout disturbed soil areas along all new trails.
- **Additional Resources:** US Forest Service Standard Trail Plans and Specifications, IMBA Trail Solutions: IMBA's Guide to Building Sweet Singletrack (2004)

## Construction Methods

The manner by which a trail is constructed (mechanized or by hand) influences the finished product. However, the two methods should not be conflated with a desired end result. Rather than rely on an implementation method, a proposed trail should be described using the following performance/design standards:

- Impacts (visual, soil and plant disturbance)
- Tread width
- Tread texture
- Tread shaping (in/out-slope, berms, lips/landings)
- Clearing limits
- Sinuosity/meander
- Drainage features (spacing and amplitude of grade reversals)
- Angle of repose of the back-slope
- Maximum height of tread obstacles

It is then up to the contractor to select the most cost-effective method to build the trail in conformance with the performance standards. For example, a narrow, rugged trail in the backcountry will likely be built by hand whereas a 48"-wide, smooth trail in the front-country will likely be built using mechanized equipment. Even with performance standards it is good practice to mandate maximum equipment size so that unqualified contractors don't bid on a project expecting to use equipment that is better suited for road building than trail construction.

Other factors besides access and physical characteristics may influence the chosen trail construction method. Schedule and availability of volunteers may also impact trail construction methods.

### MECHANIZED TOOLS



**Pros**

- **Fast and cost effective**
- **Compacts soil better than hand construction**

**Cons**

- **Difficult to mobilize into the backcountry**
- **Challenging to preserve intentional tread obstacles**
- **Cannot traverse rocky terrain**

(Photo Credit: Sagebrush Construction)

### HAND TOOLS



**Pros**

- **Minimal footprint**
- **Mobile**
- **Builds a culture of trail stewardship**

**Cons**

- **Highly variable rate of production**
- **Limited soil compaction**
- **Limited availability of skilled crews**
- **Potentially more expensive for longer trail segments**

(Photo Credit: Bingham Cyclery)

## Shared Use Path

*A shared use path provides a travel area separate from motorized traffic for bicyclists, pedestrians, skaters, wheelchair users, joggers, and other users. Shared use paths are desirable for bicyclists of all skill levels preferring separation from traffic. Shared use paths should generally provide directional travel opportunities not provided by existing roadways. Most shared use paths are designed for two-way travel. Shared use paths along roadways are called “sidepaths”.*



*Shared use paths provide trail users with the most comfortable and scenic experience as there is limited points of conflict with cars and access to local natural features.*

### Typical Application

- Shared use paths are typically located in independent rights of way, separate from roadways.
- In utility corridors, such as powerline and sewer corridors.
- In waterway corridors such as along ditches, drains, streams, and rivers.

### Design Features

- Recommended minimum 10' width to accommodate moderate usage (14' preferred for heavy use). Minimum 8' width for low volume situations only.
- A 2 ft or greater shoulder on both sides of the path should be provided free of obstacles. An additional foot of lateral clearance, for a total of 3 ft, is required by the MUTCD for the installation of signage or other furnishings.
- Standard clearance to overhead obstructions should be 10 ft.

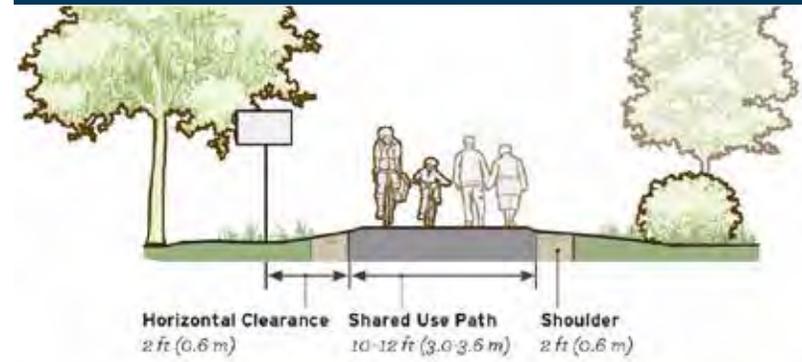
### Further Considerations

- Under most conditions, centerline markings are not necessary. Centerline markings should only be used for clarifying user positioning or preferred operating procedure:  
Solid line = No Passing

### Further Considerations (cont.)

- Where there is a sharp blind curve, painting a solid yellow line with directional arrows reduces the risk of head-on collisions.
- Short sections of centerline are recommended upon the approach to street crossings to channelize path users.
- Small scale signs should be used in path environments (MUTCD 9B.02).
- Terminate the path where it is easily accessible to and from the street system, preferably at a trailhead, controlled intersection or at the beginning of a dead-end street.
- Use of bollards should be avoided as standard practice and only used if a history of motorized access violations is present. If bollards are used at intersections and access points, they should be colored brightly and/or supplemented with reflective materials to be visible at night.

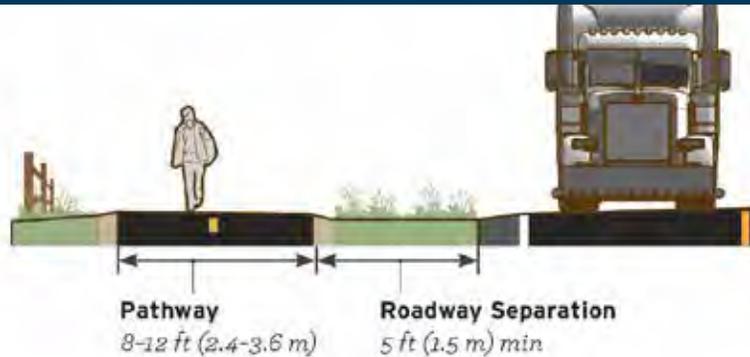
### SHARED USE PATH DIMENSIONS



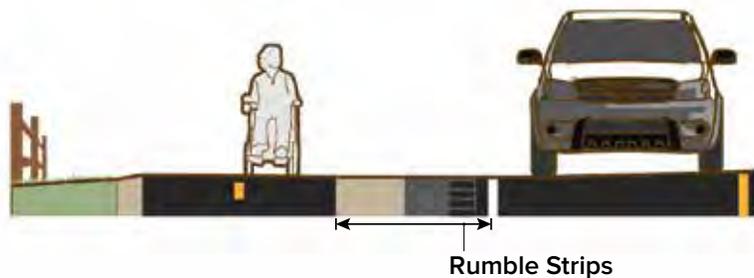
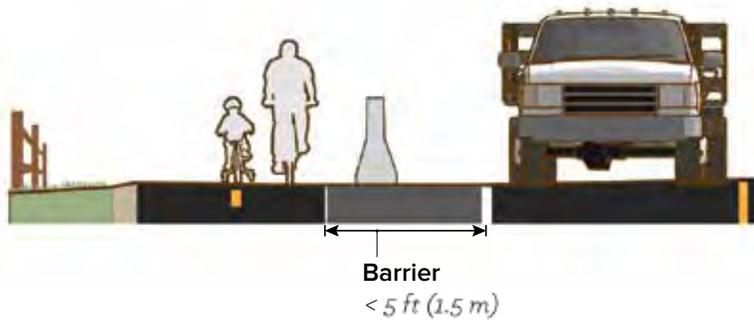
### SHARED USE PATH ROADWAY INTERSECTION



## SIDEPATH DIMENSIONS



## ROADWAY SEPARATION



## Sidepath Design Standards

- The preferred minimum roadway separation width is 6.5 - 16.5 ft. Minimum separation width is 5 ft.
- Separation narrower than 5 ft is not recommended, though it may be accommodated in constrained circumstances with the use of a physical barrier between the sidepath and the roadway. Barriers should prevent path users from moving into the roadway. Refer to the AASHTO Roadside Design Guide (2011) for additional guidance.
- In extremely constrained situations, rumble strips may be used as separation for short distances.
- It is important to keep approaches to intersections and major driveways clear of obstructions due to parked vehicles, shrubs, and signs on public or private property.
- Maximum cross slope of 2%. Design for a 1.5% cross slope to account for tolerance in construction.
- Running slopes should be below 5%. However, because sidepaths are located within a roadway right of way, the running slope may match the general grade established for the adjacent roadway.

## References

- AASHTO. Guide for the Development of Bicycle Facilities. Chapter 5. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. Chapter 9. 2009.

## Sidepath Crossings

*Sidepaths provide a high degree of comfort on long uninterrupted roadway segments, but have operational and safety concerns at driveways and intersections with secondary streets. Crossings should be designed to promote awareness, lower speeds, and facilitate proper yielding of motorists to bicyclists and pedestrians.*

### Typical Application

- At controlled and uncontrolled sidepath crossings of driveways or minor streets.
- Used to provide for visibility and awareness of the crossing by motorist in advance of the crossing.
- Increases the predictability of sidepath and road user behavior through clear, unambiguous right of way priority.

### Design Features

- The sidepath should be given the same priority as the parallel roadway at all crossings.
- Provide clear sight triangles for all approaches of the crossing.
- Maintain physical separation to the crossing of 6.5 to 20 ft. As speeds on the parallel roadway increase, so does the preference for wider separation distance. Set back crossings of at least 15 feet allow for a vehicle to cross the path in a separate decision process from the merging maneuver with vehicle traffic.
- Use high visibility crosswalk markings to indicate the through area of the crosswalk.

### Further Considerations

- Sidepaths running for long distances with many driveways or street crossings can create operational concerns. Attempt to limit or consolidate driveways along sidepaths.
- Along roadways, these facilities create a situation where a portion of the bicycle traffic rides against the normal flow of motor vehicle traffic and can result in wrong-way riding where bicyclists enter or leave the path.

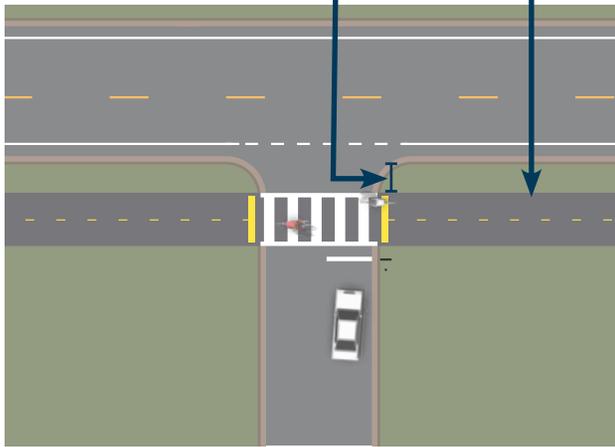
### References

- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- FHWA. Incorporating On-road Bicycle Networks into Resurfacing Projects. 2015.
- FHWA. Separated Bike Lane Planning and Design Guide. 2015.

### ADJACENT SIDEPATH CROSSING

6.5 ft minimum separation from roadway

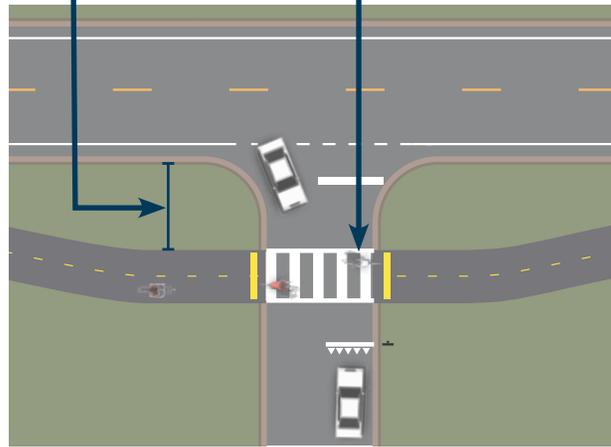
Bikeway is level along crossing



### SEPARATED SIDEPATH CROSSING

15-20 ft preferred separation from roadway

Bikeway is level along crossing

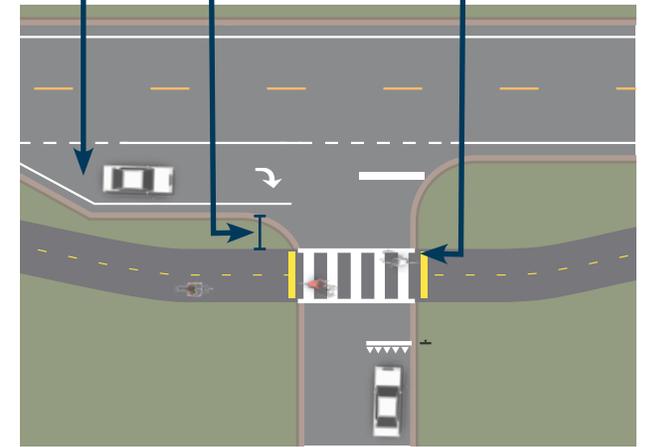


### WITH DECELERATION LANE

Right turn deceleration lane.

6.5 ft preferred separation from roadway

Bikeway is level along crossing



Where space is constrained or sight distance is limited, an adjacent crossing can promote visibility of path users.

Where space is available, a separated crossing provides room for most motorists to yield to path users outside of the flow of through traffic.

On high-speed roadways, a deceleration lane is recommended to allow motorists to slow down as needed to yield to path users.

## On-Street Improvements

### Shoulder Widening

*Where separated facilities for non-motorized users do not exist, paved shoulders can be widened and enhanced to become a functional space for bicyclists and pedestrians.*



*Wide paved shoulders provide pedestrians and bicyclists with usable space outside of the vehicle travel lane.*

#### Typical Application

- Located in more rural environments where there are no curbs or gutters.
- Suitable for roadways with moderate to high speeds.

#### Design Features

- Any amount of paved shoulder can be beneficial for pedestrians and bicyclists, but a minimum 4 ft minimum rideable surface (exclusive of any buffer or rumble strip), is necessary to be fully functional.
- Provide additional width when possible to increase user comfort and safety. Higher vehicle speeds and volumes should correspond with greater shoulder widths. (See FHWA's *Small Town and Rural Multimodal Networks* for more information).
- The shoulder edge should be clearly delineated using a solid white line. A striped buffer space provides additional separation.
- Rumble strips can improve bicyclist safety as long as they do not infringe on the minimum rideable surface. If used, locate rumble strips on the edge line or within a buffer area. 12 foot gaps every 40-60 feet should be provided to allow access as needed. For further information on rumble strips, consult FHWA Technical Advisory 5040.39 and the FHWA Rumble Strips and Rumble Stripes Website.
- Shoulders that are intended for pedestrian use are required to meet accessibility standards.

### At Intersections and Added Right Turn Lanes

- Discontinue solid shoulder edge lines at intersections and major driveways. The shoulder area can be defined through the intersection using a dotted white line. A second dotted white line can be added to the outside edge of the shoulder to provide further definition.
- Paved shoulders typically stay to the right of right turn lanes. This may lead to right-hook conflicts between through-bicyclists and turning vehicles.
- To mitigate conflicts with right turn lanes, bike lanes may be added at intersections to serve through-bicyclists. In this scenario, the right turn lane is introduced to the right of the bicycle lane, and drivers must yield to through-bicyclists before moving into the right-turn lane.

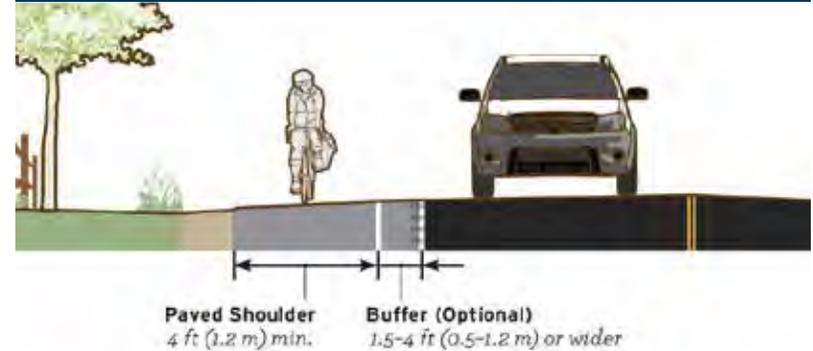
### Further Considerations

- Use signage to indicate that motorists should yield to bicyclists and pedestrians through conflict areas.
- Contrasting or colored pavement in the shoulder area can provide greater differentiation between it and vehicle travel lanes.
- MUTCD D11-1 “Bike Route” wayfinding signage is not required but may be used to identify the road as a bicycle route and enhance motorist awareness of the presence of bicyclists.

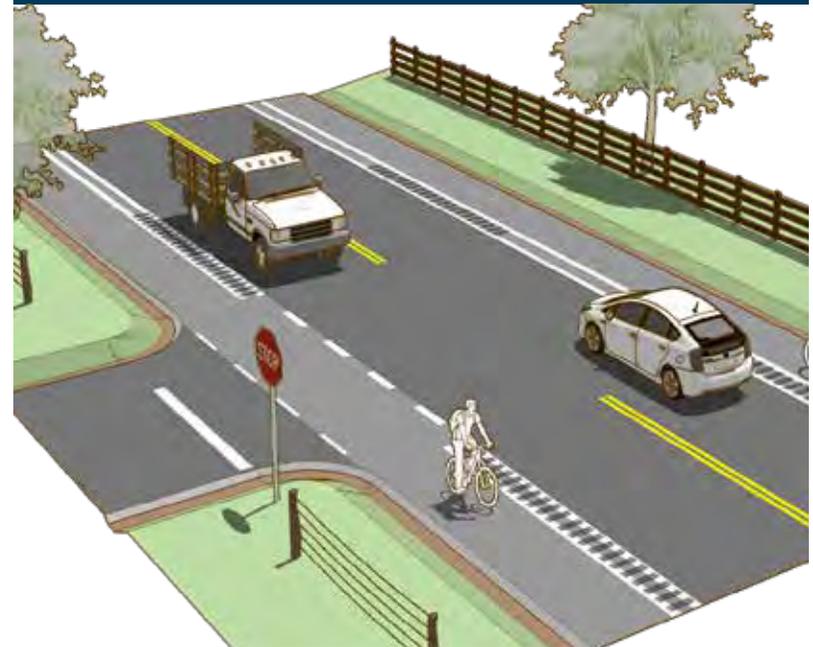
### References

- AASHTO. Guide for the Development of Bicycle Facilities. Chapter 5.2.2. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. Chapter 9. 2009.
- FHWA. Small Town and Rural Multimodal Networks. Chapter 3. 2016.

### PAVED SHOULDER DIMENSIONS



### TYPICAL PAVED SHOULDER LAYOUT



## On-Street Improvements

### Advisory Shoulders

*Roads with advisory shoulders accommodate low to moderate volumes of two-way motor vehicle traffic and provide a prioritized space for bicyclists and pedestrians with little or no widening of the paved roadway surface.*



*Advisory shoulders prioritize shoulder space for pedestrians and bicyclists on narrow roads. Image credit: Michael David.*

#### Typical Application

- Most appropriate on streets where motor vehicle traffic volumes are low-moderate (3,000-4,500 ADT), and where there is insufficient room for conventional bicycle lanes.
- Advisory shoulders are a type of shared roadway that clarify operating positions for bicyclists, occasional pedestrians, and motorists to minimize conflicts and increase comfort. Similar in appearance to bike lanes, advisory shoulders are distinct in that they are temporarily shared with motor vehicles during turning, approaching and passing.
- Advisory shoulders are delineated by dotted white lines, separated from a narrow two-way automobile travel area. The automobile zone should be configured narrowly enough so that two cars cannot pass each other in both directions without crossing the advisory lane line. Motorists may only enter the bicycle zone when no bicycles are present. Motorists must overtake bicyclists with caution due to potential oncoming traffic.

#### Design Features

- Advisory shoulder width of 5 ft (minimum)-6 ft (preferred).
- The automobile zone should be configured narrowly enough so that two cars cannot pass each other in both directions without crossing the advisory lane line. Minimum 2-way motor vehicle travel lane width of 16 ft.
- No centerline on roadway.
- Signage should be used to increase the conspicuity and intent of the treatment.

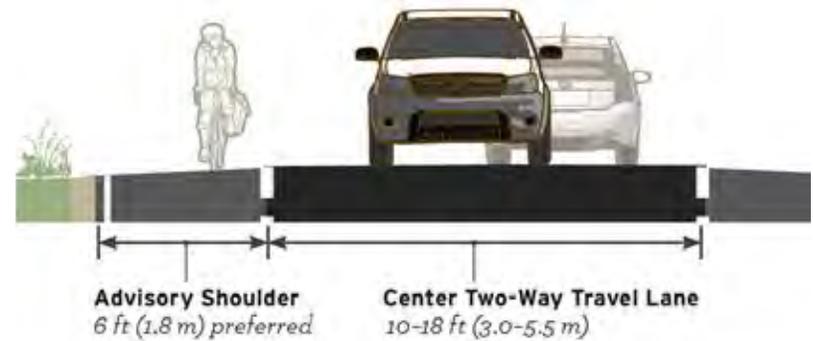
### Further Considerations

- This treatment is under experimentation with FHWA, called “dashed bicycle lanes” (FHWA 2016). On federally funded projects, new designs, devices, or applications not covered in or not in compliance with the MUTCD should seek approval for experimentation and study. Section 1A.10 of the MUTCD describes the process of submitting a Request to Experiment. This involves approval by FHWA and follow-up evaluation and communication as to a treatment’s effectiveness.
- Consider the use of colored pavement within the advisory lane area to discourage unnecessary encroachment by motorists or parked vehicles.
- It is important to consider the needs of various road users when implementing an advisory shoulder. Required passing widths for truck or emergency vehicles should be considered on routes where such vehicles are anticipated.

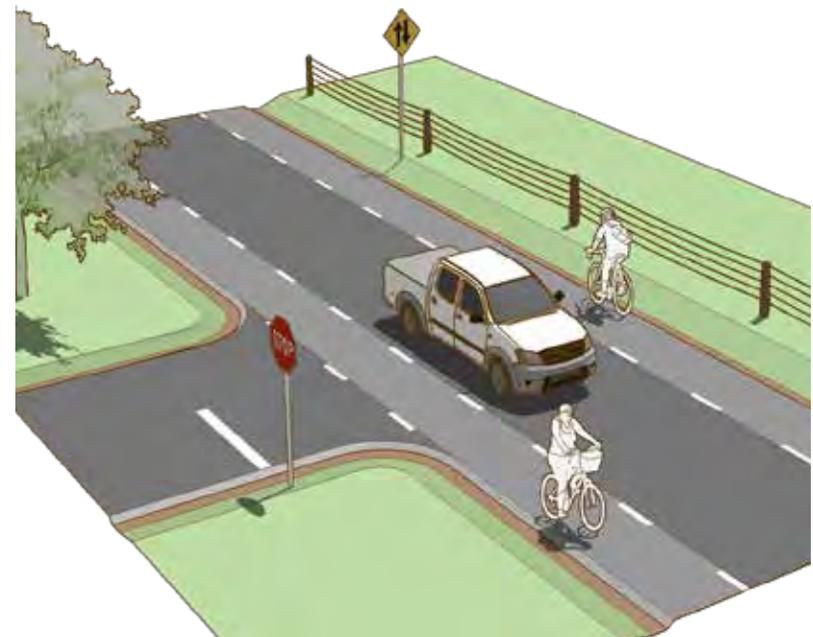
### References

- FHWA. Small Town and Rural Multimodal Networks. Chapter 2. 2016.
- American Association of State Highway and Transportation Officials. Guide for the Planning, Design, and Operation of Pedestrian Facilities. 2004.
- Federal Highway Administration. Manual on Uniform Traffic Control Devices. 2009.

### ADVISORY SHOULDER DIMENSIONS



### TYPICAL ADVISORY SHOULDER LAYOUT



## Grade-Separated Crossings

### Overcrossings

*Bicycle/pedestrian overcrossings provide critical non-motorized system links by joining areas separated by barriers such as roads, waterways, and ski runs. In most cases, these structures are built in response to user demand for safe crossings where they did not previously exist.*



*Overcrossings provide connections over barriers where at-grade crossings are infeasible or undesired.*

#### Typical Application

- Where shared use paths cross high-speed and high-volume roadways where an at-grade signalized crossing is not feasible or desired, or where crossing waterways, ski runs, or other barriers.
- Depending on the type of facility or desired user group, overcrossings may be considered in many types of projects.
- Overcrossings work best when existing topography allows for smooth transitions.
- Specific design and construction specifications will vary for each overcrossing and can be determined only after all site-specific criteria are known.

#### Design Features

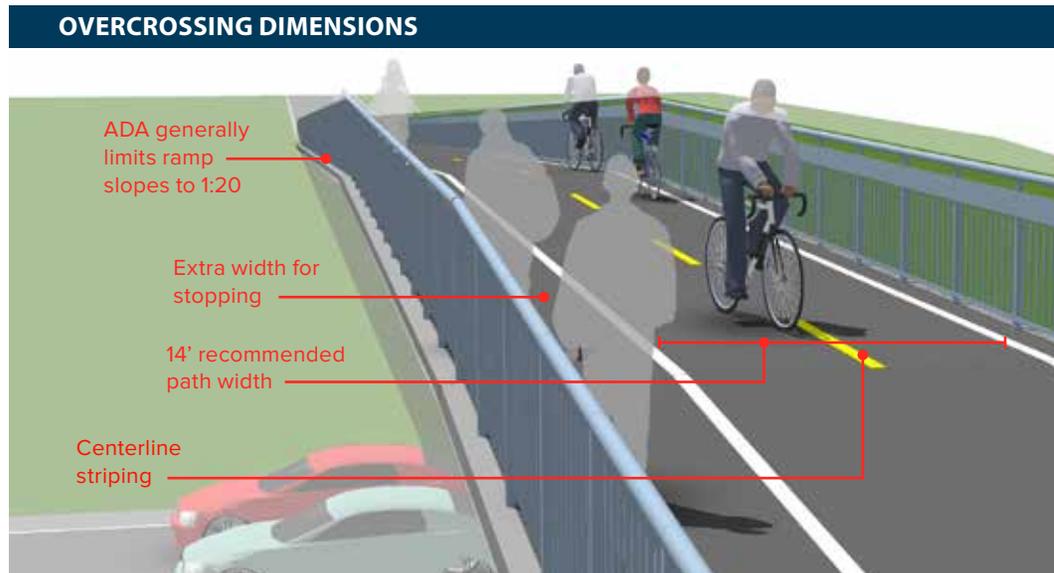
- The preferred path width is 14 feet. If the overcrossing has scenic vistas, provide additional width to allow for stopping.
- Provide a minimum 10-foot clearance for headroom on the overcrossing. Vertical clearance below the overcrossing depends on the feature being crossed. A roadway needs at least a 17-foot clearance.
- The overcrossing should have a centerline striping regardless of whether the rest of the path has one.

### Further Considerations

- Always consult a structural engineer before completing overcrossing design plans before making alterations or additions to an existing overcrossing, and prior to installing a new overcrossing.
- The United States Access Board's ADA Accessibility Guidelines (ADAAG) strictly limits ramp slopes to 5% (1:20) with landings at 400 foot intervals, or 8.33% (1:12) with landings every 30 ft.
- Handrails must be of uniform height, no less than 34 in. and no more than 38 in. high from the finish surface of the ramp slope. Refer to local or state jurisdiction for guardrail specifications.

### References

- AASHTO. Guide for the Development of Bicycle Facilities. Chapter 5. 2012.
- United States Access Board. Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way. 2011



## Grade-Separated Crossings

### Undercrossings

*Bicycle/pedestrian undercrossings provide critical non-motorized system links by joining areas separated by barriers such as roads, waterways, and ski runs. Undercrossings are potential alternatives when overcrossings are not desired or feasible.*



*Undercrossings provide connections over barriers where at-grade crossings are infeasible or undesired.*

#### Typical Application

- Locations where shared use paths or natural surface trails cross high-speed and high-volume roadways where an at-grade signalized crossing is not feasible or desired, or where crossing waterways, ski runs, or other barriers.
- Depending on the type of facility or desired user group, undercrossings may be considered in many types of projects.
- Undercrossings work best when existing topography allows for smooth transitions.

#### Design Features

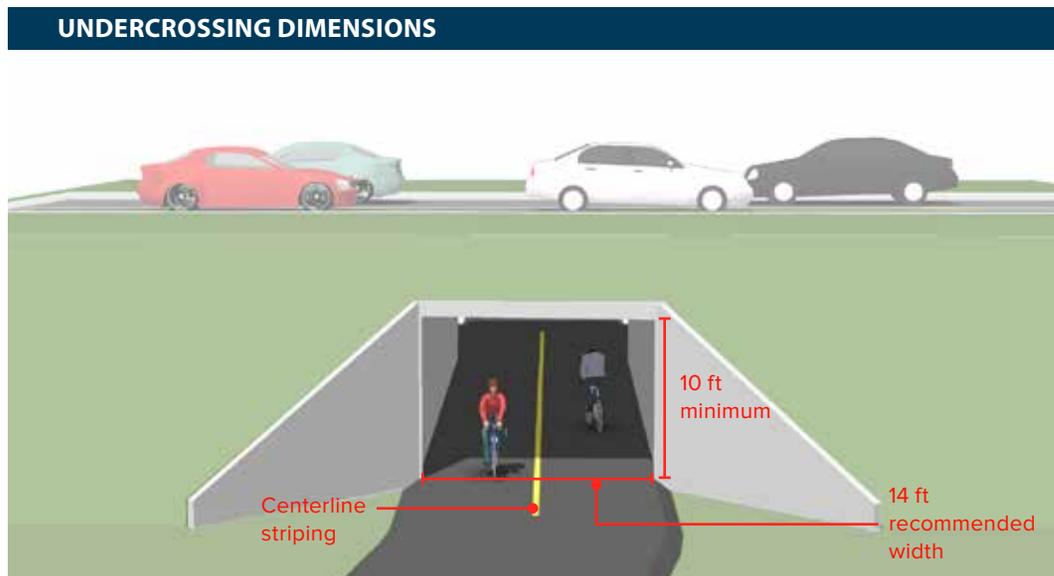
- The preferred width is 14 feet
- Undercrossings should provide a minimum of 10 feet of vertical clearance.
- To mitigate safety concerns, an undercrossing should be designed to be spacious, well-lit, and completely visible for its entire length from each end.

#### Further Considerations

- Compared to overcrossings, undercrossings of roadways typically have a smaller elevation differential, which requires shorter ramps for bicycles and pedestrians to navigate.

## References

- AASHTO. Guide for the Development of Bicycle Facilities. Chapter 5. 2012.
- United States Access Board. Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way. 2011



## MAINTENANCE

Regular maintenance is a critical component of a high-quality trail system. Without proper and timely maintenance, trails are at risk of erosion, overgrowth, and general degradation, which can pose risks to user safety and can have a negative impact on the user experience. People are more likely to walk or bicycle for transportation and recreation when they have access to well-maintained trails.

Trail maintenance is also crucial for minimizing impact on the natural environment, and wildlife; it also preserves the aesthetic beauty of the landscape. Ultimately, maintenance protects the investments made in building trails, and ensures that trails will continue to be assets to their community long into the future.

During the winter months, regular plowing and/or grooming of certain trails and paths is necessary to provide access, protect user safety, and reduce liability. Trail grooming can also increase opportunities for wintertime use such as cross-country skiing and fat biking.

The following recommendations provide a menu of options that address the three primary trail improvements proposed in this plan: **shared use paths, natural surface trails, and on-street improvements.**

### Types Of Maintenance

This section provides a brief overview of typical trail maintenance tasks. It includes some general best practices.

#### Tree and Brush Trimming

Tree branches should be trimmed in a manner that leaves a one- to five-foot minimum horizontal clearance from the shoulder of the path and an eight- to twelve-foot vertical clearance. Any branches that appear to be dying, broken, or loose should be removed. Larger trees can be trimmed beyond the recommended clearance and trimmed less often. Trees should not be trimmed or pruned in a manner that thins out the branch cover and eliminates the shade it produces. Because natural surface trails are often less accessible than other types of trails and on-street facilities, a popular strategy is to trim trees

and brush beyond the minimum clearances to reduce maintenance frequency.

#### Mowing and Landscaping

Maintaining vegetation on path shoulders (in open space) and in sidepath buffers is important for preserving the integrity of the soil, preventing encroachment, and enhancing the character of the trails. The frequency of mowing and other landscaping activities will depend on the time of year and weather conditions. Grass or vegetation patches that wither or die should be replaced by seeding the patches, placing mulch, and watering them. If erosion occurs in the patch before the new grass is grown, grading the area may be necessary.

#### Weed Abatement

In the case of landscaped buffers adjacent to sidepaths or other planted areas near trails, weeds should be removed regularly to preserve the setting's aesthetic features. Native vegetation along trails in open space and wooded areas can typically be left untended (with the exception of trimming), and will contribute to the natural aesthetic. However, invasive plant species should be removed.

#### Debris Removal

Debris on paved paths can range from natural tree and plant droppings, such as leaves and twigs, to human-produced garbage and litter. Debris should be swept or blown off of the path to prevent tripping hazards and to preserve the paths' aesthetic features. Debris removal may be required more frequently at different times of year.

#### Snow Removal

For trails where snow removal is desirable, removal should occur immediately following winter weather events. On-street pedestrian and bicycle facilities can be plowed and/or de-iced concurrently with travel lanes. Paved paths can be cleared of snow using plows, shovels, snow blowers, or mechanical snowbrushes.

### **Gravel Replacement**

Paths laid with gravel, crusher fines, or any other surface treatment other than pavement need to be inspected regularly for deterioration. Any deficiencies found in the trail, such as ruts, upheavals, potholes, or erosion, should be mitigated through grading and the reapplication of the surface material. Always compact the surface after reapplication to avoid additional deterioration. Wet spots can accelerate the degradation of gravel and crusher fine trails, and proper drainage strategies should be employed to ensure the mitigation of wet soil conditions.

### **Sign Repair and Replacement**

Trail signage is not only critical for navigation and orientation, but also serves as a “brand” for the trail system. Keeping signage in good condition is therefore vital for maintaining a usable and appealing trail system. Trail signage should be inspected annually and replaced or repaired if damaged or defaced.

### **Regrading**

Occasionally, portions of trails will need to be regraded to maintain a sufficiently even surface for users and to efficiently manage drainage. Natural surface trails will typically need spot regrading every couple of years to “deberm” the trail and promote drainage.

### **Restriping**

Striping on paved paths should be inspected annually. Spring is typically the best time to inspect and restripe paths, as salt and winter weather can remove it. Restripe any areas where the striping has faded or been removed. Restriping on-street facilities such as shoulder lines or advisory shoulders should be done annually given Mountain Village’s climate and snowplowing frequency.

### **Crack Sealing and Repair**

Sealing cracks in asphalt pavement is a cost-effective technique for extending the life of the asphalt surface. Crack sealing uses a flexible material that adheres to the crack edges but moves with the asphalt

as it contracts and expands with changes in temperature. Identifying and sealing cracks as soon as possible can reduce the rate at which potholes form. Seal cracks that are 1/8 of an inch or greater to prevent further deterioration.<sup>1</sup>

### **Sealcoating**

Exposure to water, sunshine, and other elements degrades the binder that holds the aggregate in asphalt together over time. Sealcoat is a material that provides protection from this type of damage. Regular sealcoating will extend the life of asphalt, and will also replenish the color and appearance of the pavement.

### **Pavement Overlay**

An overlay consists of adding new asphalt material over the existing surface assuming the base services is still sound enough. Overlay is distinct from total replacement, less expensive and extends the life of the pathway. Asphalt overlays are required around 20 - 30 years after the initial installation if sealcoating is done periodically.



*Crack sealing operations help to extend that lifespan of asphalt trails.*

## Natural Surface Trail Maintenance Resources

- » **USFS Trail Construction and Maintenance Notebook**
- » **IMBA Trail Solutions: Chapter 7 Maintenance**
- » **Minnesota DNR Trail Planning, Design, and Development Guidelines**

### Natural Surface Trails

Natural surface trail maintenance varies widely based upon the original trail design and routing, soils, surrounding environment, drainage, user types, user volumes, and a number of other features. The following general maintenance activities should be conducted on trails that the Town of Mountain Village will maintain.

#### Inspections

Inspections on natural surface trails should be conducted at least twice yearly in spring and fall. A trail assessment form should be completed by Town of Mountain Village staff that identifies and locates all trail maintenance issues in need of attention. IMBA and the USFS have sample forms that could be used for this purpose.

#### Drainage and Tread Repair

Periodically, due to user traffic or drainage, trail treads will require maintenance. Trail tread should be restored to its original design condition. Restoration of the tread should include removal of slough or organic material, loose rocks, stumps, or roots that exceed the original specifications of the trail. Drainage repairs can vary widely from construction of drainage dips and knicks to culverts.

#### Pruning and Vegetation Removal

Pruning of vegetation and trees is a critical maintenance activity. Trails should typically be cleared four feet on the uphill side and a minimum of eight-feet overhead. Trees and shrubs should be cut as close to the ground as possible to prevent protruding stumps.

#### Sign Repair or Replacement

Proper maintenance and replacement of signs helps provide a good user experience and can prevent unauthorized social trails. Signs should be checked for fading or vandalism twice yearly, or as part of monthly visual inspections.



### **Structure Maintenance**

Structures such as trail bridges, culverts, and retaining walls should be checked yearly for failure or risk of failure. If any structures pose a safety risk to trail users, the trail should be closed and repaired as soon as possible. If closure is anticipated for more than a couple of days, an alternate route should be provided as a bypass. Trail bridges should be checked to make sure abutments and support members are structurally sound. Culverts should be checked for blockages. Retaining walls should be checked for proper batter and loose stones.

### **Trail Decommissioning**

Decommissioning, or removal, of undesirable social trails is an important component of a comprehensive natural surface maintenance strategy. Social trails can confuse users, increase the trail system's impact on the landscape. Decommissioning of unwanted social trails can vary widely from simple closure signage to complete obliteration and naturalization of the trail. Mountain Village should coordinate with the USFS on specific decommissioning strategies and treatments for trails on USFS lands.

### **Winter Grooming**

Winter maintenance for Mountain Village natural surface trails includes grooming of the Boulevard West Trail (from Town Hall to SR 145) and grooming of the Boomerang Trail. These trails provide a pleasant Nordic skiing, snowshoeing, or fatbiking option for Mountain Village residents and a viable downhill connection into Telluride. The Town of Mountain Village should also consider grooming single track fatbike trails in conjunction with Nordic trails on the golf course. These wintertime activities provide year-round value to the trail system and can generate tourism opportunities for visitors who don't ski or are in search of a variety of activities.

### **Typical Planning Level Trail Maintenance Costs**

Trail maintenance costs can vary widely on natural surface trails due to a number of variables such as use levels, exposure, soils, and sustainability of the initial trail construction. As a rule of thumb, land managers should budget approximately 5% of the initial construction cost of a natural surface trail for annual maintenance activities, such as those described above. This estimated maintenance cost should only be applied to sustainably constructed trails. Social trails, fall-line trails, or other trails not constructed to sustainable trail standards may require significantly more maintenance depending on local conditions.



## Shared Use Paths And Sidepaths

Like natural surface trails, shared use paths and sidepaths require regular routine and capital maintenance to provide a quality experience to users. Maintenance activities will vary depending on the surface material (asphalt, concrete, or crusher fines).

### Routine Maintenance

Maintenance needs will vary depending on the unique context and needs of each path. However, general routine maintenance includes sweeping, snow removal or grooming, landscaping and vegetation control, and repairs to the path surface. Table 5.1 lists typical shared use path and sidepath routine maintenance tasks, including frequency and estimated annual costs. Overall, routine maintenance for paved paths can range between \$500 and \$1,500 a year.

### Winter Maintenance

Winter maintenance of shared use paths in Mountain Village is an important consideration for both winter tourists and residents. Winter maintenance consists of two primary activities: snow removal or grooming. This planning

document recommends snow removal on the Boulevard Trail between Town Hall and the Village Core to support winter walking and biking to these important community destinations. Recommended rerouting of the Boulevard Trail would remove the trail from active ski runs and allow winter snow removal to be considered.

Grooming of shared use paths is recommended on other shared use paths not identified for snow removal. This would include trails such as the proposed Big Billies Trail, Adams Ranch Road sidepath, and SR 145 trail. Grooming of these trails would support recreation and transportation uses during winter months.

### Capital Maintenance

Major or capital maintenance activities typically involve more intensive maintenance repairs such as pavement seal coating, pavement overlays, pavement reconstruction, or other structural rehabilitations. Needs can vary widely based upon environmental factors, such as soil conditions, drainage and the quality of initial construction. Any paved path surface will deteriorate over time with asphalt surfaces dropping in quality rapidly after 10 years. Preservation efforts such as

**TABLE 5.1 SHARED USE PATH AND SIDEPATH ROUTINE MAINTENANCE**

Maintenance Activity	Function	Frequency	Est. Annual Cost (per mi.)
Path sweeping	Keep paved surfaces debris free	Twice annually (once in spring and once in fall)	\$140 (x2)
Litter and trash removal	Keep path clean and maintain consistent quality of experience for users	Annually, or as needed	\$70
Mowing path shoulders (native opens space areas)	Increases the effective width of the path corridor and helps prevent encroachment	Twice annually, in late spring and mid-to late-spring	\$100 (x2)
Tree and brush trimming	Eliminate encroachments into path corridor and open up sight lines	Annually, or less frequently as needed	\$100
Weed abatement	Manage existence and/or spread of noxious weeds, if present	Twice annually, in late spring and mid to late summer	\$140 (x2)
Safety Inspections	Inspect path tread, slope stability, and bridges or other structures	Annually	\$20
Snow removal/grooming	Limited to sections of the path where year-round access is desired	As needed (assume 20 events)	\$480
Sign and other amenity inspection/replacement	Identify and replace damaged infrastructure	Annually (assume 2 sign replacements)	\$100
Crack sealing and repair	Seal cracks in asphalt to reduce long term damage	Annually	\$250

seal coating extend the life of asphalt efficiently and at a lower cost than waiting for the surface to require reconstruction. Overlays may be needed after multiple seal coats or at approximately 30 years of service. A full reconstruction is typically needed after 50 years if the seal coat and overlay have been provided. Table 5.2 describes a typical 10-year capital maintenance scenario for paved paths.

Concrete paths will require significantly less capital maintenance than asphalt paths. Although they may require isolated jacking or replacement, limited capital maintenance expenditures can generally be expected for upwards of 50 years.

Shared use paths constructed out of crusher fines provide a stable ADA compliant surface. Like asphalt or concrete paths, these trails require periodic maintenance to provide a high quality experience. Minor re-grading should be done every two years to eliminate any ruts and add gravel to low spots. Table 6.5 illustrates typical costs associated with surface maintenance of crusher fines paths.

Financial planning for major or capital maintenance can be challenging. Typically asphalt shared use paths require greater capital maintenance activities with age and ultimately require full reconstruction at some point. Some jurisdictions stay focused on eventual reconstruction and treat this as a maintenance item to be budgeted for, whereas some treat this as a separate capital project to be considered at a later date.

**TABLE 5.2 PAVED SHARED USE PATH AND SIDEPATH CAPITAL MAINTENANCE**

Maintenance Activity	Time	Long Term Capital Costs		
Sealcoat	Year 10	\$0.19/SF	\$1.90/LF	\$10,000/mi
Sealcoat	Year 20	\$0.19/SF	\$1.90/LF	\$10,000/mi
Overlay	Year 30	\$2.00/SF	\$20.00/LF	\$105,000/mi
Sealcoat	Year 40	\$0.19/SF	\$1.90/LF	\$10,000/mi
Reconstruction	Year 50	\$6.50/SF	\$65.00/LF	\$343,000/mi

**TABLE 6.5 UNPAVED SHARED USE PATH CAPITAL MAINTENANCE**

Maintenance Activity	Time	Long Term Capital Costs		
Regrade	Every other year	\$0.05/SF	\$0.40/LF	\$2,112/mi

## Capital Maintenance Guidance

- » Seal cracks as soon as possible to stop pot holes from forming.
- » Sealcoat the asphalt path surfaces on a regular basis to provide protection from the elements and extend the pavement’s usable life.
- » When minor to modest damage is present, overlays can sufficiently repair the surface without having to complete a total reconstruction.



*A bobcat with a plow can be used to plow shared use paths and sidepaths.*

## *Sweeping Guidance*

- » Establish a seasonal sweeping schedule that prioritizes roadways with on-street bicycle and pedestrian facilities.
- » Sweep on-street facilities whenever there is an accumulation of debris.
- » Perform additional sweeping in the spring and fall  
In curbed sections, sweepers should pick up debris; on open shoulders, debris can be swept onto gravel shoulders.
- » Pave gravel driveway approaches to minimize loose gravel on paved roadway shoulders.

## *Pavement Surface Guidance*

- » Ensure that on new roadway construction, the finished surface on shoulders does not vary more than  $\frac{1}{4}$  inch.
- » Maintain pavement so ridge buildup does not occur at the gutter-to-pavement transition.
- » Inspect the pavement 2 to 4 months after trenching construction activities are completed to ensure that excessive settlement has not occurred.
- » During chip seal maintenance projects, if the pavement condition of the shoulder is satisfactory, it may be appropriate to chip seal the travel lanes only. However, use caution when doing this so as not to create an unacceptable ridge between the shoulder and travel lane.
- » Maintain a smooth pothole-free surface.

## **On-Street Facilities**

On-street pedestrian and bicycle facilities, including shoulders and advisory shoulders, are typically maintained as part of standard roadway maintenance programs, and extra emphasis should be put on keeping roadway shoulders clear of debris and snow, as well as keeping vegetation overgrowth from blocking visibility or creeping into the roadway. Maintenance activities could be driven by a regular schedule or by maintenance requests from the public. Typical maintenance costs for on-street facilities are shown in Table 5.3 on the following page.

### **Sweeping**

When an on-street bicycle or pedestrian facility becomes filled with debris, users are forced into the motor vehicle lane. Poor facility maintenance can contribute to crashes and deter potential bicyclists and walkers.

Periodic checks should be made of the on-street bicycle and pedestrian network with the majority of work being confined to spot fixes and damage response. Street sweeping of on-street facilities will need to be coordinated with the management agency's roadway maintenance program to ensure that the roadway is cleared curb to curb.

### **Pavement Surface**

Bicyclists are more sensitive to pavement quality than motorists because of reduced speeds, narrower tire widths, and, typically, lack of suspension or dampening systems. A chip size of  $\frac{1}{4}$  inch or  $\frac{3}{8}$  inch is recommended to provide comfortable riding surfaces for bicyclists. A seal coat, which is applied after the chip, also contributes to a smooth roadway surface.

Compaction, which occurs after trenches and other construction holes in roadways are filled, is another important pavement surface issue to consider. Uneven settlement after trenching can affect the roadway surface nearest the edge or curb where bicycles and pedestrians travel. Sometimes compaction is not achieved to a satisfactory level, and an uneven pavement surface can result due to settling over the course of days or weeks.

### Pavement Overlay

Pavement overlays represent good opportunities to improve conditions for on-street bicycle and pedestrian facilities if done carefully. A ridge should not be left in the area where users travel (this occurs where an overlay extends part-way into a shoulder). Overlay projects also offer opportunities to widen shoulders or to re-stripe a roadway with advisory shoulders.

### Winter Maintenance

Winter maintenance of bicycle and pedestrian facilities is an important consideration for a town like Mountain Village that receives significant amounts of snowfall. The Town should expect bicyclists and pedestrians to use the road and trail network year-round, even in inclement conditions, and providing safe conditions for trail users should be a top priority. Facilities that connect key destinations such as Mountain Village Center, Town Hall, and the Meadows should be prioritized for snow removal. Some communities plow streets with bicycle and pedestrian facilities by 7:00 am (starting at 4:00 am), Monday through Friday, to facilitate users' commute to school and work. On-street facilities should be plowed at the same time as the rest of the street and should not require additional cost or effort. Figure 5.1 displays recommended trail grooming and plowing for Mountain Village.

**TABLE 5.3 ON-STREET FACILITIES MAINTENANCE**

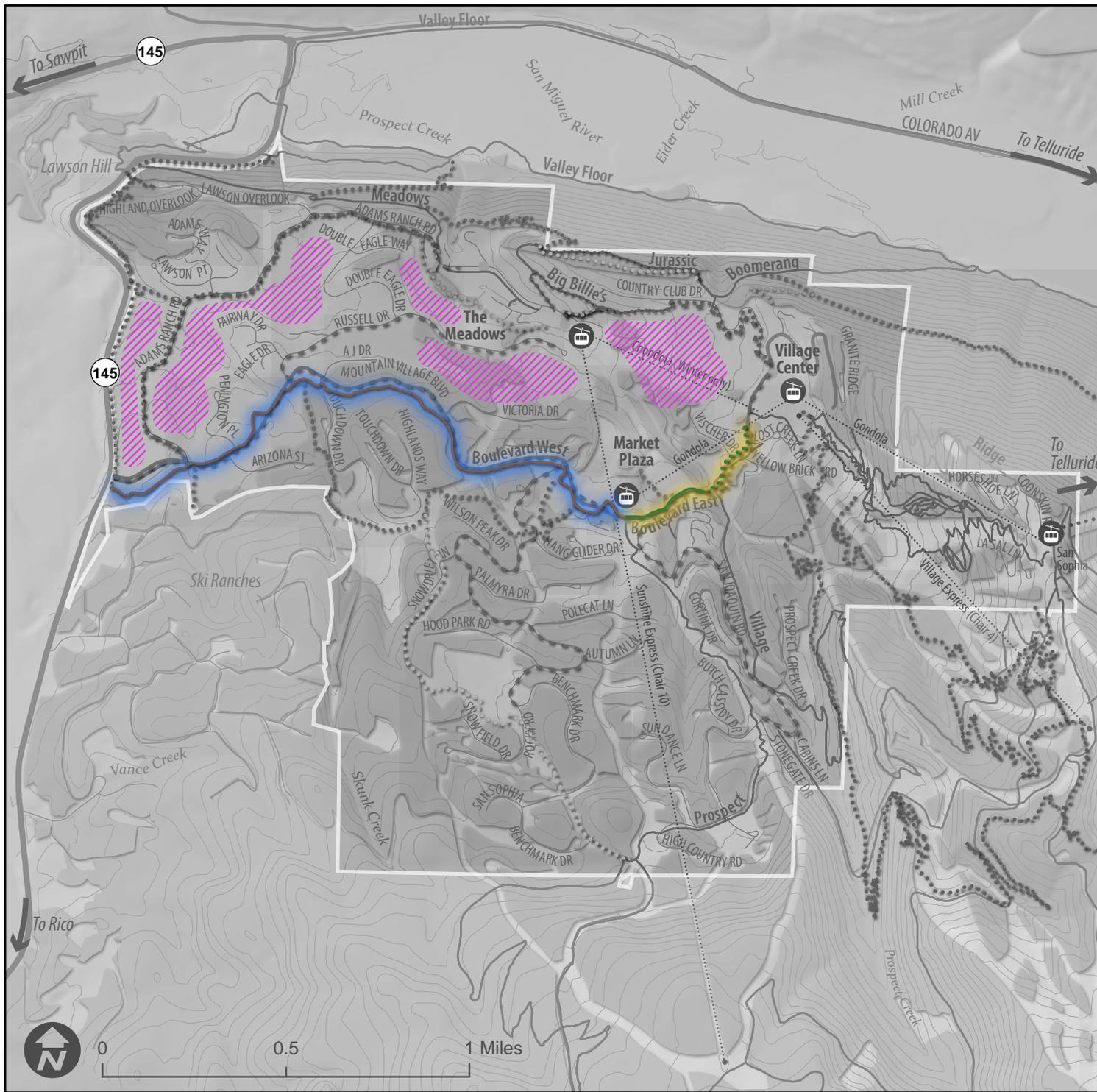
Maintenance Activity	Material	Frequency	Estimated Cost
Pavement sweeping	All	Weekly or monthly as needed	Part of regular street sweeping activities and costs
Snow removal	All	Simultaneous with regular roadway snow removal; otherwise, as needed	Depends on conditions; approx \$150/mile
Tree and shrub trimming	All	5 months to 1 year	Part of regular street sweeping activities and costs
Sign repair and replacement	Signs and poles	Every 10 years	\$300/sign
Shoulder striping	Paint	Yearly	\$1,230/mile

## Pavement Overlay Guidance

- » Extend the overlay over the entire roadway surface to avoid leaving an abrupt edge.
- » If the shoulder pavement is of good quality, it may be appropriate to end the overlay at the shoulder provided no abrupt ridge remains.
- » Ensure that inlet grates, and manhole and valve covers are within ¼ inch of the finished pavement surface and are made or treated with slip-resistant materials.
- » Pave gravel driveways to property lines to prevent gravel from being tracked onto shoulders.

## Snow Removal Guidance

- » Mountain Village should employ a proactive or anti-icing strategy, and have a plan for the removal of de-icing surface material debris that accumulates in and around on-street bicycle and pedestrian facilities.
- » A prioritization schedule for snow removal is necessary and should focus on primary routes and destinations that impact the highest volume of bicyclists and pedestrians immediately following snow events.
- » Plow all the way to the curb or road edge to clear shoulders.



# TRAILS

## MASTER PLAN

### MAP 5.1 WINTER MAINTENANCE\*

- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village

### RECOMMENDATIONS

- Existing
- Proposed
- Shared-Use Path
- Natural Surface Shared Use

### WINTER MAINTENANCE

- Plow
- Groom
- Nordic Skiing & Fat Biking Grooming

\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.

## PRIORITIZATION / PHASING

Implementation of the proposed Mountain Village trail system will require a phased approach that accounts for both capital construction and ongoing maintenance. The following pages specify a general phasing framework for the implementation of the Mountain Village Trail system. Each proposed project in the plan was scored on its ability to advance this plan's goals, as identified in Chapter 4. Projects were then distributed into three phases: Phase I- Near term, Phase II- Medium term, and Phase III- Long Term. A recommended approach for project selection would be for Mountain Village's council to select projects during the annual budgeting process using the proposed phasing plan as a general guide.

Although this plan recommends phasing for specific projects, flexible and opportunistic implementation is encouraged. Deviation from the proposed implementation schedule may be warranted if opportunities exist to construct projects more economically, partner with other agencies, partner with other planned projects (such as utility work), respond to specific grant funding, or address a pressing public need.

## PLANNING-LEVEL COSTS

Table 5.4 includes planning-level cost estimates per unit for the different types of facility and spot improvements that are recommended in this plan. Estimates are based on typical unit costs with similar projects. Detailed estimates from engineers and contractors should be obtained prior to construction.

Tables 5.5 to 5.7 list the improvements recommended for three distinct phases. Planning-level cost estimates are provided for each project based on the per unit cost in Table 5.4 and the length of the project.

**TABLE 5.4 PLANNING-LEVEL COST ESTIMATES BY IMPROVEMENT TYPE**

Facility Types	Unit	Unit Cost	Notes
Advisory Shoulders	LF	\$0.70	x2
4" skipped white stripe - paint	LF	\$0.25	
Symbol - paint	EACH	\$30.00	spaced every 300'
Sign	EACH	\$300.00	spaced every 600'
Natural Surface Trail			
12' path, 1' shoulders, native soil	LF	\$8.00	
Shared-Use Path, Sidepath			
12' path, 1' shoulders - asphalt	LF	\$200.00	
12' path, 1' shoulders - crusher fine	LF	\$100.00	
Shoulder Widening (approx. 4')	LF	\$215.00	x2
Standard Bike Lane	LF	\$0.85	x2
4" white stripe - paint	LF	\$0.25	
Bike Lane Symbol - paint	EACH	\$30.00	spaced every 300'
Bike Lane sign	EACH	\$300.00	spaced every 600'
Trail Overcrossing/Bridge	LF	\$3,500.00	
Trail Undercrossing	n/a	Varies	

\*Planning Level Costs do not account for permitting, land acquisition, or design. Site-specific issues or constraints may result in higher costs.

## PRIORITIZATION PROCESS

The following project prioritization methodology should serve as a general guide for prioritizing investment in the trail system; however, flexibility in implementation is highly encouraged when opportunities arise to share resources, achieve costs savings, or partner with other agencies. For each project identified as part of the proposed system, scoring was established based on the following criteria:

Goal	Criteria	Scoring Methodology
Safety	Improves or supports user safety	0- Project does not contribute to improved user safety
		1- Project provides moderate improvements to user safety
		2- Project provides substantial improvements to user safety
Connectivity	Connects to key community destinations	0- Project does not connect to any key destinations
		1- Project connects to one or more secondary community destinations
		2- Project connects to one or more primary community destinations
Recreation	Broadens or improves recreation opportunities for Mountain Village residents or visitors	0- Project does not broaden or improve recreation opportunities
		1- Project provides moderate improvements to recreation opportunities
		2- Project provides significant improvements to recreation opportunities
Sustainability	Improves the ability to walk or bike for transportation in Mountain Village	0- Project is not likely to be used for transportation or commuting purposes
		1- Project provides moderate improvements for commuters walking and biking in and around Mountain Village
		2- Project provides significant improvements for commuters walking and biking in and around Mountain Village
Partnerships	Project supports the interests of multiple stakeholders such as the Town of Mountain Village, Town of Telluride, Telluride Ski & Golf, or the USFS	0- Project has limited to no potential to form or leverage partnerships
		1- Project offers moderate potential to develop or leverage partnerships
		2- Project offers significant potential to form robust partnerships

## PHASE I

The projects identified for Phase I are those which are considered to be most critical to meet immediate needs. Ideally, Phase I will be completed in one to three years.

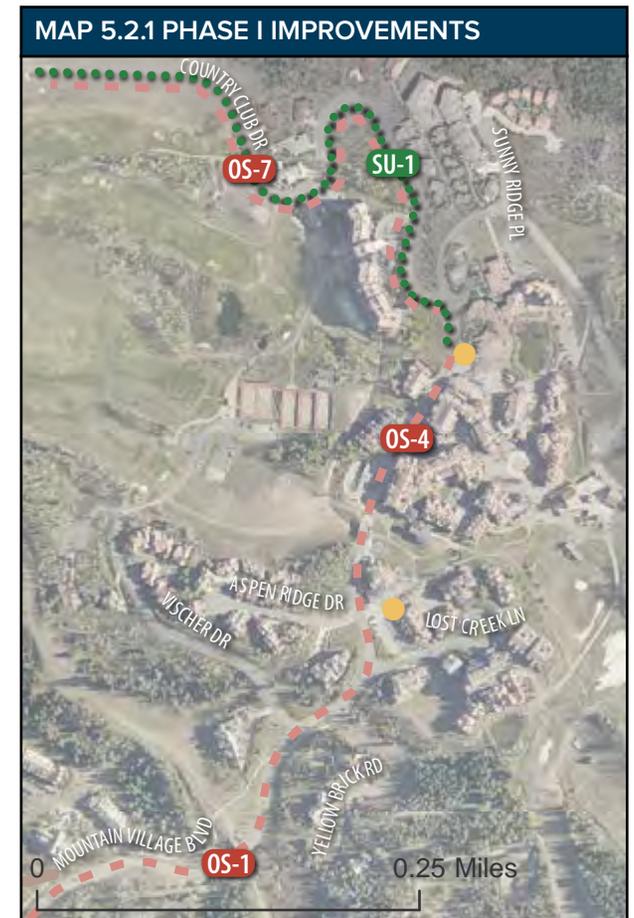
**TABLE 5.5 PHASE I IMPROVEMENTS**

Trail ID	Trail Name	Improvement Type	Length (miles)	Planning-Level Cost
SI-1	SR-145 Grade- separated trail crossing	Grade-separated trail crossing	n/a	\$2,000,000
S1-5	Meadows Express Bridge	Trail Bridge	130'	\$455,000
NS-6	Stegosaurus	Natural Surface- Open to All Uphill Users/Downhill Bikes Prohibited	0.5	\$21,120
NS-17	Jurassic (renovation project)	Natural Surface- Descending Bikes Only	0.5	\$0**
SU-1	Upper Country Club Dr - Mountain Village Blvd to Big Billie's Trail	Sidewalk/Sidewalk - foot traffic only (paved)	0.3	\$300,000
OS-4	Mountain Village Blvd - Lost Creek Lane to Country Club Dr	Combination shoulder and sidewalk with ADA improvements	0.2	\$340,000
NS-4	Meadows Express	Natural Surface - Shared Use	0.7	\$29,568
NS-7	O'Reilly Trail	Natural Surface- Foot Traffic Only	1.6	\$67,584
SU-6	Lawson Hill Connector	Shared Use Path (paved)	0.1	\$105,600
NS-9	Boulevard Trail (renovation project)	Natural Surface-Shared Use	1.9	\$40,128
OS-6	San Joaquin Rd	Shoulders/Advisory Shoulders†	1.1	\$460,000
OS-1	Mountain Village Boulevard - Lost Creek Lane to Market Plaza	Shoulder Widening	0.4	\$454,080
OS-7	Upper Country Club Dr - Mountain Village Blvd. to Big Billies	Shoulders	0.5	\$400,000
<b>Phase I Total</b>				<b>\$4,673,080</b>

\*Reconstruction assumed to be \$4.00/LF

\*\*Management change only

†One-third of project assumed to require shoulder widening





# TRAILS

## MASTER PLAN

### MAP 5.2 PHASE I IMPROVEMENTS\*

- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village

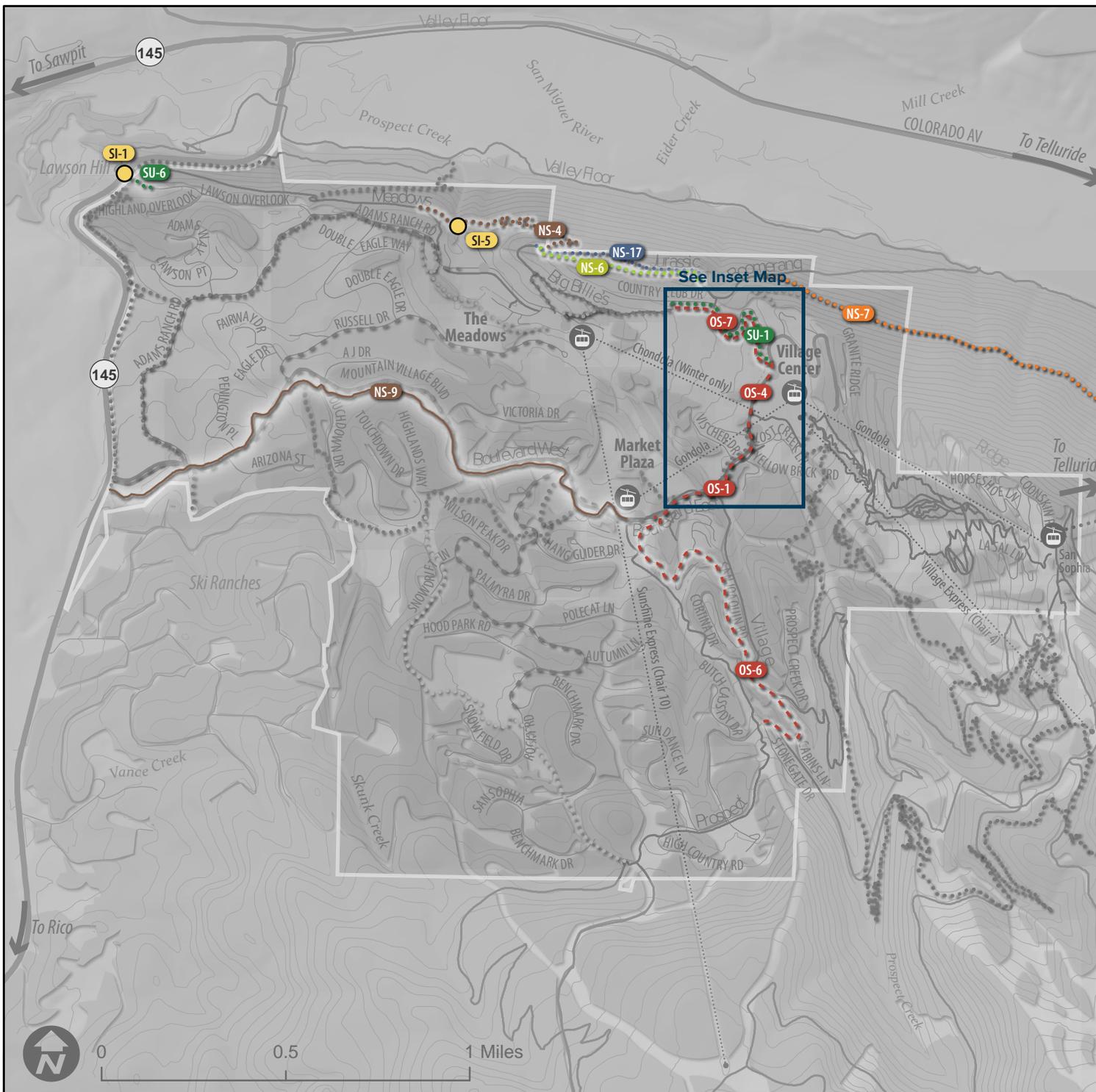
### RECOMMENDATIONS

- Existing
- Proposed
- Shared-Use Path
- On-Street Improvements

### NATURAL SURFACE TRAILS

- Shared Use
- Uphill Bike/  
Multi-Directional Hike
- Descending Bikes Only
- Foot Traffic Only
- Proposed Spot Improvement

\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.



**TABLE 5.5.1 PHASE I SCORING**

Trail Name		Safety		Connectivity		Recreation		Sustainability		Partnerships		Total
SI-1	SR 145 Grade-Separated Trail Crossing	2	Solves serious safety issue at SR-145	2	Vital connection to the valley floor and Lawson Hill	2	Supports the Meadows Trail	2	Important commuting opportunity for Lawson Hill	0	Opportunity to partner with SMART and CDOT	<b>10</b>
SI-5	Meadows Express Bridge	1	Eliminates the need for on-street connection from Jurassic Trail to Meadows Trail	2	Assists in linking Lawson Hill to Village Center via Meadows Trail and Jurassic	2	Improves trail experience on Jurassic and Meadows Trails	2	Supports important commuting route	2	Possible partnerships with TSG or USFS	<b>9</b>
NS-6	Stegosaurus	2	Alleviates bike-hike conflicts	2	Important connection between Lawson Hill and Village Center	2	Improves recreation function of Jurassic	2	Improves commuting function of Jurassic	0	None	<b>8</b>
NS-17	Jurassic (renovation project)	2	Alleviates bike-hike conflicts	2	Important connection between Lawson Hill and Village Center	2	Improved recreation functionality in conjunction with Stegosaurus trail	2	Improved commuting functionality in conjunction with Stegosaurus trail	0	None	<b>8</b>
SU-1	Village Center to Big Billie's	2	Important connection to get bicyclists off of Country Club	2	Assists in connecting Meadows Village to Village Center	2	Provides connectivity from Village Center to Jurassic / Boomerang	2	Offers good commuting route from Village Center to Lawson Hill or Telluride via Banner Trail	0	Connectivity to USFS Land or Town of Telluride	<b>8</b>
OS-7	Upper Country Club Dr - Mountain Village Blvd. to Big Billies	2	Important connection to create safe area for bicyclists on Country Club Dr	2	Assists in connecting Meadows Village to Village Center	2	Provides connectivity from Village Center to Jurassic / Boomerang	2	Offers good commuting route from Village Center to Lawson Hill or Telluride via Banner Trail	0	Connectivity to USFS Land or Town of Telluride	<b>8</b>
OS-4	Mountain Village Blvd to Country Club Dr	2	Important, highly used connection with no sidewalks or bicycle facilities	2	Important connection for pedestrians and bicyclists to Jurassic / Boomerang	1	Supports connection to highly used recreational trails from Village Center	2	Links residences and businesses along this segment of Mountain Village Blvd.	1	Potential partnership with TSG	<b>8</b>

**TABLE 5.5.1 PHASE I SCORING (CONTINUED)**

Trail Name		Safety		Connectivity		Recreation		Sustainability		Partnerships		Total
NS-4	Meadows Express	1	Removes need to make on-street connection through Meadows	2	Part of important connection linking Village Center to Lawson Hill	2	Creates off-street connection between Jurassic and Meadows Trails	2	Improves commuting functions of Jurassic and Meadows Trails	0	None	<b>7</b>
NS-7	O'Reilly Trail	0	Limited safety value <sup>2</sup>	2	Major regional connection	2	Important and sizable new recreational trail	1	Some potential for commuting	2	Opportunity to partner with Town of Telluride / TSG / USFS	<b>7</b>
SU-6	Lawson Hill Connector	2	In conjunction with SI-1, provides safe on-street bicycle connection to Lawson Hill and potentially Valley Floor	1	Connects to Lawson Hill	0	Limited recreational value	2	Important potential commuting route to Lawson Hill and Valley Floor	2	Possible partnerships in conjunction with SI-1 (grade separated crossing of SR-145)	<b>7</b>
NS-9	Boulevard Trail (renovation project)	1	Should lessen conflicts on Boulevard Trail	1	Connects to Market Plaza	1	Improves all-season recreation and capacity on Boulevard Trail	2	Improves commuting functions for winter and summer	1	Opportunity to partner with TSG	<b>6</b>
OS-6	San Joaquin Rd	2	Provides improved accommodation for bicyclists and pedestrians along San Joaquin Rd	2	Connects Market Plaza and numerous developments along San Joaquin Rd	0	Limited recreational value	2	Good commuting opportunity, particularly for higher-density developments on lower San Joaquin Rd	0	No partnerships	<b>6</b>
OS-1	Mountain Village Boulevard	1	Some value to improving shoulders, though Boulevard Trail provides good alternative	2	Connects SR-145 to Market Plaza and Village Center	0	Limited recreational value	1	Some commuting value. Boulevard Trail provides good alternative.	0	No partnerships	<b>4</b>

## PHASE II

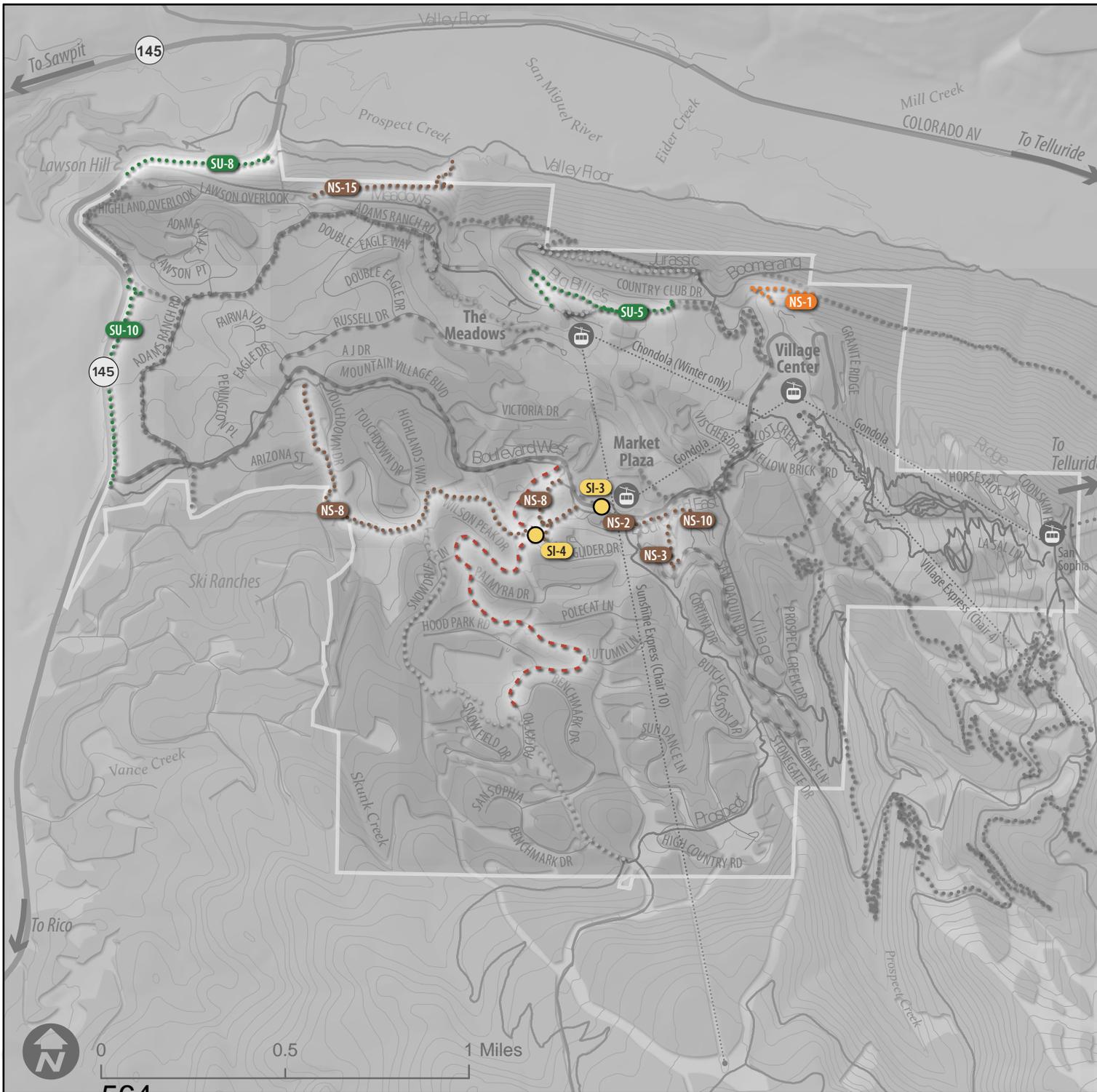
Phase II projects are mid-term projects to be completed in potentially three to six years. These projects are less critical than Phase I projects, but are still important to improve non-motorized access and connectivity in Mountain Village.

**TABLE 5.6 PHASE II IMPROVEMENTS**

Trail ID	Trail Name	Improvement Type	Length (miles)	Planning-Level Cost
SU-8	SR145 - Meadows Trail to Valley Floor	Sidepath (paved)	0.6	\$1,000,000
SU-10	SR145- Mountain Village Blvd to Emergency Access Road	Shared Use Path (crusher fines)	0.5	\$264,000
SU-5	Big Billie's	Shared Use Path (paved)**	0.6	\$633,600
NS-8	Elk Pond Loop	Natural Surface - Shared Use	1.5	\$63,360
SI-3	Boulevard Trail Undercrossing	Construct a new trail undercrossing from the proposed park at Elk Pond to Town Hall consistent with the Town Hall small area plan.	n/a	\$2,000,000
NS-15	Banner Trail	Natural Surface- Shared Use	0.5	\$21,120
OS-5	Benchmark Dr	Shoulder Widening/Advisory Shoulders*	1.5	\$571,296
NS-1	See Forever Hiking Trail Connector	Natural Surface-Foot Traffic Only	0.3	\$12,672
NS-2	Bear Creek to Market Plaza	Natural Surface - Shared Use	0.1	\$4,224
NS-3	Bear Creek Extension	Natural Surface - Shared Use	0.1	\$4,224
NS-10	Tristant Trail	Natural Surface - Shared Use	<0.1	\$4,224
SI-4	Elk Pond Trail Undercrossing	Construct a trail undercrossing below Benchmark to facilitate the proposed Elk Pond Trail.	n/a	\$800,000
<b>Phase II Total:</b>				<b>\$5,378,720</b>

\*Renovation assumed to be \$8.00/LF

\*\*Crusher fines would be approximately 50% the cost of paving



## TRAILS MASTER PLAN

### MAP 5.3 PHASE II IMPROVEMENTS\*

- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village

### RECOMMENDATIONS

- Existing Proposed
- Shared-Use Path
- On-Street Improvements

### NATURAL SURFACE TRAILS

- Shared Use
- Uphill Bike/  
Multi-Directional Hike
- Descending Bikes Only
- Foot Traffic Only
- Proposed Spot Improvement

\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.

**TABLE 5.6.1 PHASE II SCORING**

Trail Name		Safety		Connectivity		Recreation		Sustainability		Partnerships		Total
SU-8	SR-145 Meadow Trail to Valley Floor	2	High quality alternative to SR-145	2	Connection to valley floor	1	Connects Meadows Trail to valley floor trails	1	Some commuting potential for valley to Valley Floor and Lawson Hill	2	Potential partnerships with CDOT	<b>8</b>
SU-10	Mountain Village Blvd to emergency access road	2	High quality alternative to SR-145	1	-	0	Limited recreational value	2	Limited commuting value	2	Possible partnerships with CDOT	<b>7</b>
SU-5	Big Billie's	2	Improves Big Billie's connection	2	Assists in connecting Meadows Village to Village Center	0	Limited recreational value	2	Offers good commuting potential from the Meadows to the Village Center	0	No partnerships	<b>6</b>
NS-8	Elk Pond Loop	0	Limited safety value	1	Provides connection to Market Plaza	2	New low-elevation trail opportunity	1	Some opportunity to commute to Market Plaza	1	Ability to partner with TSG	<b>5</b>
SI-3	Boulevard Trail undercrossing	2	Offers safe connection between future Elk Pond Park improvements and Market Plaza	1	Connects to Market Plaza	1	Some recreational value from proposed Elk Pond trails to Market Plaza	1	Some commuting value linking Benchmark Drive residents to Market Plaza	0	No partnerships	<b>5</b>
NS-15	Banner Trail	1	Provides connection to valley floor without crossing SR-145	1	Connection to valley floor	1	New connection to valley floor trails	0	Not a likely commuting route	1	Partnerships with the Town of Telluride / USFS	<b>4</b>
OS-5	Benchmark Dr	2	Provides improved accommodation for bicyclists and pedestrians along Benchmark Dr	1	-	0	-	1	Some commuting opportunity, particularly for developments on lower San Joaquin	0	-	<b>4</b>
NS-1	See Forever Hiking Trail Connector	0	-	1	Provides connection to Town of Telluride via O'Reilly Trail	1	Some recreation potential to link to Town of Telluride trails	1	Some commuting potential to Town of Telluride	0	No partnerships	<b>3</b>

**TABLE 5.6.1 PHASE II SCORING (CONTINUED)**

Trail Name		Safety		Connectivity		Recreation		Sustainability		Partnerships		Total
NS-2	Bear Creek to Market Plaza	1	Provides safe access to Market Plaza for lower San Joaquin residents	1	Assists in providing connectivity to Market Plaza	0	Short trail, limited recreation potential	1	Offers some commuting potential	0	No partnerships	<b>3</b>
NS-3	Bear Creek Extension	1	Provides safe access to Market Plaza for lower San Joaquin residents	1	Assists in providing connectivity to Market Plaza	0	Short trail, limited recreation potential	1	Offers some commuting potential	0	No partnerships	<b>3</b>
NS-10	Tristant Trail	1	Provides safe access to Market Plaza for lower San Joaquin residents	1	Assists in providing connectivity to Market Plaza	0	Short trail, limited recreation potential	1	Offers some commuting potential	0	No partnerships	<b>3</b>
SI-4	Elk Pond Trail undercrossing	1	Undercrossing improves safety issues related to the proposed Elk Pond Trail crossing Benchmark	0	Limited connectivity improvement	1	Supports Elk Pond Trail development	1	Some commuting opportunity to connect Benchmark residents to planned Elk Pond Park and Market Plaza	0	No partnerships	<b>3</b>

## PHASE III

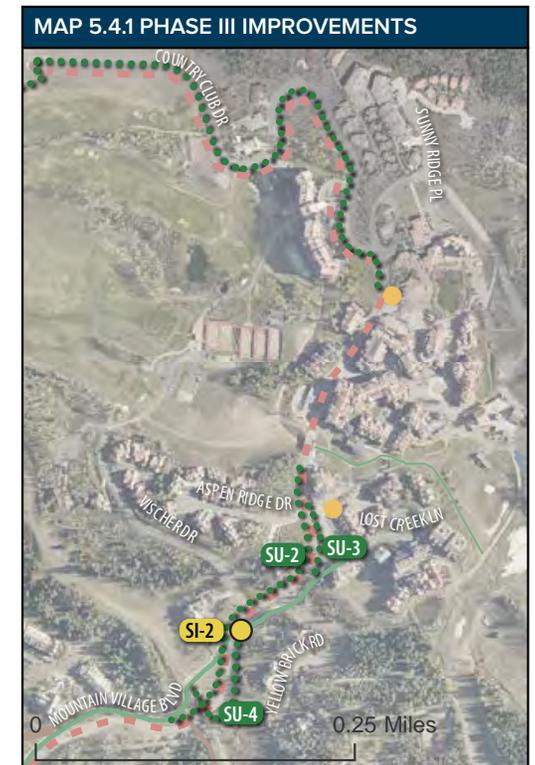
Phase III represents long-term projects that should be implemented after Phase I and II are complete. They will further improve the trail user experience and will help to meet future trail demand. Prior to implementation, Phase III projects should be reevaluated to determine whether they are still relevant to the conditions or if they need to be adjusted.

**TABLE 5.7 PHASE III IMPROVEMENTS**

Trail ID	Trail Name	Improvement Type	Length (miles)	Planning-Level Cost
SU-9	SR145- Emergency Access Road to Meadow Trail	Shared Use Path (crusher fines)	0.6	\$316,800
SU-2	Boulevard Trail Extension	Sidepath (paved)	0.3	\$316,800
SU-4	Boulevard Trail Re-Route	Sidepath (paved)	0.1	\$105,600
SU-7	Adams Ranch Rd Sidepath	Sidepath	1.4	\$1,478,400
NS-18	Elk Pond to Prospect Trail	Natural Surface - Uphill Bike/Multi-Directional Hike	1.4	\$59,136
SU-3	Boulevard Extension #2	Sidepath (paved)	0.1	\$105,600
OS-2	Russell Dr	Shoulder Widening/Advisory Shoulders*	0.9	\$685,555
OS-3	Adams Ranch Rd (alternative to project SU-7)	Shoulder Widening/Advisory Shoulders*	1.5	\$571,296**
NS-5	Meadows Perimeter Hiking Trail	Natural Surface - Foot Traffic Only	0.5	\$21,120
NS-11	Ski Ranches Connector	Natural Surface - Shared Use	0.1	\$4,224
NS-12	Boulevard to VCA	Natural Surface - Shared Use	0.1	\$4,224
NS-14	Meadows Hiking Trail - Connector	Natural Surface - Foot Traffic Only	0.2	\$8,448
NS-16	Big Billies - Hiking Connector (renovation)	Natural Surface - Foot Traffic Only	0.2	\$8,448
SI-2	Eliminate at-grade crossing/use ski bridge	Eliminate at-grade crosswalk	n/a	\$1,500
NS-13	Emergency Access Trail	Natural Surface - Shared Use	0.2	\$8,448
OS-8	Mountain Village Blvd. - Market Plaza to Highway 145	Shoulder Improvements	1.7	\$1,929,840
<b>Phase III Total:</b>				<b>\$5,054,143</b>

\*One-third of project assumed to require shoulder widening; additional study needed to determine precise limits of advisory shoulders and areas requiring shoulder widening

\*\*Not included in Phase III total





# TRAILS

## MASTER PLAN

### MAP 5.4 PHASE III IMPROVEMENTS\*

- Bus Stop
- Gondola Station
- Contour Line (100 feet)
- Forest Cover
- Town of Mountain Village

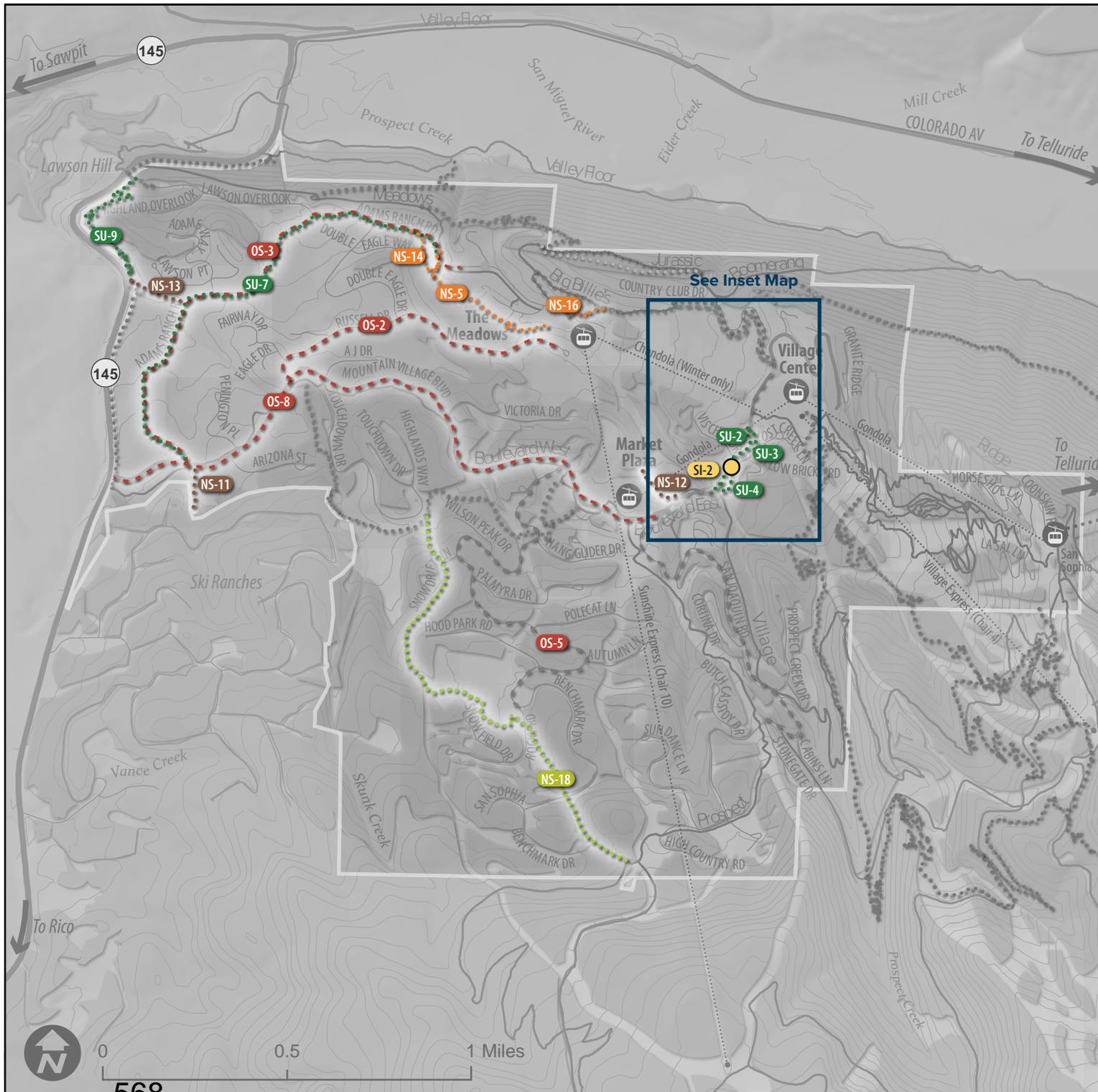
### RECOMMENDATIONS

- Existing
- Proposed
- Shared-Use Path
- On-Street Improvements

### NATURAL SURFACE TRAILS

- Shared Use
- Uphill Bike/  
Multi-Directional Hike
- Descending Bikes Only
- Foot Traffic Only
- Proposed Spot Improvement

\*Trails depicted in this map that are outside of the Mountain Village municipal boundary are not included in trail mileage mentioned elsewhere in this plan.



**TABLE 5.7.1 PHASE III SCORING**

Trail Name		Safety		Connectivity		Recreation		Sustainability		Partnerships		Total
OS-8	Mountain Village Blvd. - Market Plaza to Highway 145	2	Important, highly used connection with no existing bicycle or pedestrian facilities	2	Important connectino for bicyclists and pedestrians to SR-145	1	Supports connection to highly used recreational trails	2	Links residences and businesses along Mountain Village Blvd.	1	Potential partnership with TSG	<b>8</b>
SU-9	SR-145 - Emergency Access Road to Meadow Trail	2	High quality alternative to SR-145	1	-	0	Limited recreational value	0	Limited commuting value	2	Potential partnerships with CDOT	<b>5</b>
SU-2	Boulevard Trail Extension	1	Eliminates at-grade crossing at a dangerous location on Mountain Village Boulevard	2	Offers connectivity from Market Plaza to Village Center	0	Limited recreational value	1	Offers some commuting potential to Village Center	0	No partnerships	<b>4</b>
SU-4	Boulevard Trail Re-Route	2	Eliminates at-grade crossing at a dangerous location on Mountain Village Boulevard	1	Assists in connecting Market Plaza to Village Center	0	Limited recreational value	1	Offers some commuting potential to Village Center	0	No partnerships	<b>4</b>
SU-7	Adams Ranch Road Sidepath	2	Could provide safer, off-street option for bicyclists and pedestrians along Adams Ranch Road	1	Connects to the Meadows and the Boulevard Trail	1	Could offer nice off-street path options around Mountain Village in conjunction with Big Billie's and Boulevard Trails	0	Limited commuting value	0	No partnerships	<b>4</b>
NS-18	Elk Pond to Prospect Trail	0	Limited safety value	1	Provides connection to desirable Prospect Trail	2	Provides good cross-country trail alternative for Mountain Village residents	0	Limited commuting potential	0	No partnerships	<b>3</b>
SU-3	Boulevard Extension #2	1	Provides improved connection to Sunset Plaza and transit stop	1	Assists in connecting Market Plaza to Village Center	0	Limited recreational value	1	Offers some commuting value for Yellow Brick Road Place and lower San Joaquin developments	0	No partnerships	<b>3</b>

**TABLE 5.7.1 PHASE III SCORING (CONTINUED)**

Trail Name		Safety		Connectivity		Recreation		Sustainability		Partnerships		Total
OS-2	Russell Dr	1	Provides better accommodation for bicyclists and pedestrians along Russell Dr	1	Provides connectivity to the Meadows	0	Limited recreational value	1	Some commuting potential via Big Billie's and proposed Country Club sidepath	0	No partnerships	<b>3</b>
OS-3	Adams Ranch Road (alternative to project SU-7)	1	Provides for improved accommodation for bicyclists and pedestrians along Adams Ranch Rd	1	Connects to the Meadows and the Boulevard Trail	1	Could offer nice biking and walking loop options around Mountain Village in conjunction with Big Billie's and the Boulevard Trail.	0	Limited commuting value	0	No partnerships	<b>3</b>
NS-5	Meadows Perimeter Hiking Trail	0	Limited safety value	1	Provides connection to the Chondola	1	Good hike only, 20-minute option for Meadows residents	0	Limited commuting potential	0	No partnerships	<b>2</b>
NS-11	Ski Ranches Connector	0	Limited safety value	1	Connectivity to Ski Ranches	0	Short trail, limited recreation potential	0	Limited commuting potential	1	Partnerships with Ski Ranches	<b>2</b>
NS-12	Boulevard to VCA	0	Limited safety value	1	Provides connection from VCA towards Village Center	0	Limited recreational value	1	Moderate commuting value	0	No partnerships	<b>2</b>
NS-14	Meadows Hiking Trail- Connector	0	Limited safety value	1	Provides connection to the Chondola in conjunction with Meadows Perimeter Hiking Trail	1	Good hike-only, 20-minute option for Meadows residents	0	Limited commuting potential	0	No partnerships	<b>2</b>
NS-16	Big Billie's- Hiking Connector (renovation)	0	Limited safety value	1	Provides connectivity to the Meadows	0	Limited recreational value	1	Moderate commuting value	0	No partnerships	<b>2</b>
SI-1	Eliminate at-grade crossing/use ski bridge	1	Removes a challenging at-grade crossing of Mountain Village Boulevard	0	Offers same access as existing	0	Limited recreational value	0	Limited commuting value	1	Partner with TSG	<b>2</b>

## **PRIORITY PROJECT- JURASSIC RENOVATION / STEGOSAURUS CONSTRUCTION**

Trail user conflicts on Jurassic were one of the most commonly cited issues identified through the public outreach process. In particular, conflicts between high-speed descending bicyclists and other trail users including hikers, dog-walkers, and uphill bicyclists was routinely brought up. Jurassic serves as an important recreational amenity for Meadows Village residents and as an important commuter corridor in warmer months by linking the Village Plaza to the Meadows Trail and destinations beyond such as Lawson Hill and the Valley Floor.

Given the high volume of users, descending nature of the trail corridor, and constrained topography, the Planning Team determined that trail user conflicts likely could not be mitigated entirely by simply redesigning or widening the trail. A trail management strategy of separating trail users was proposed to address the speed differential, and associated safety concerns, between descending bicyclists and all other trail users.

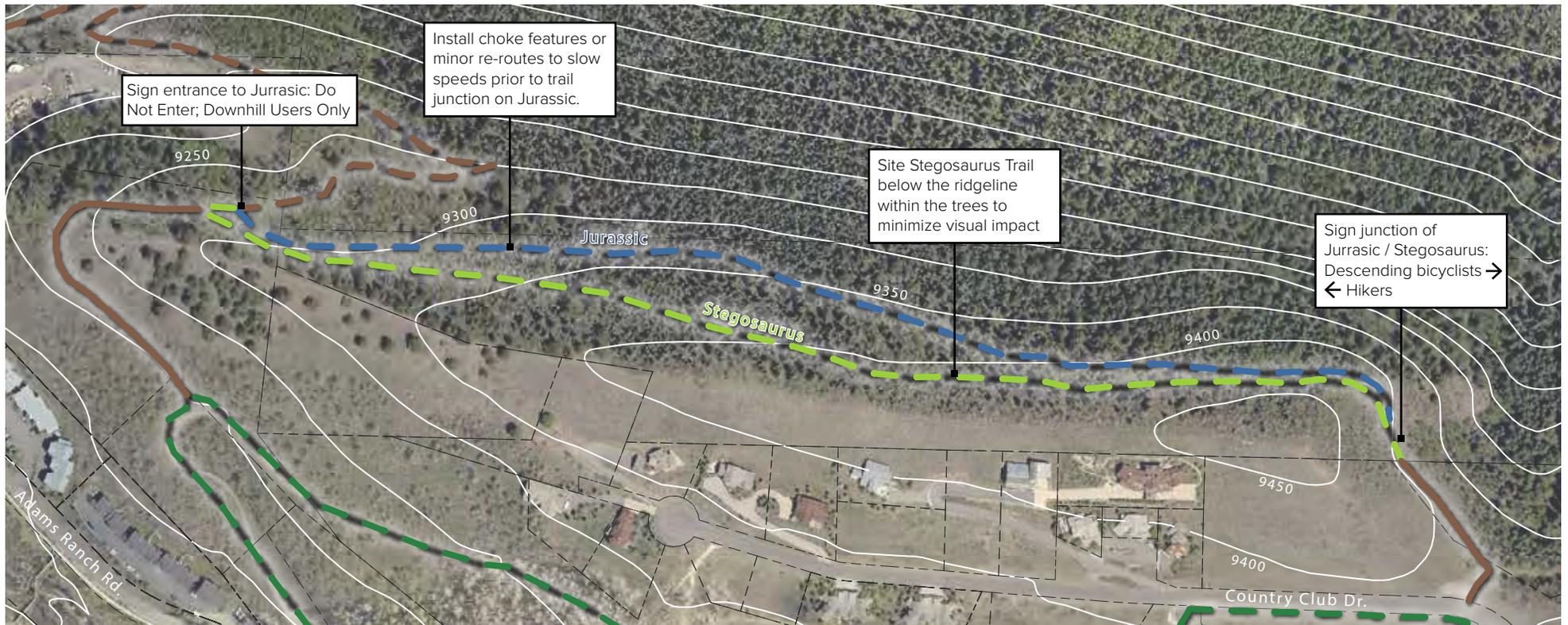
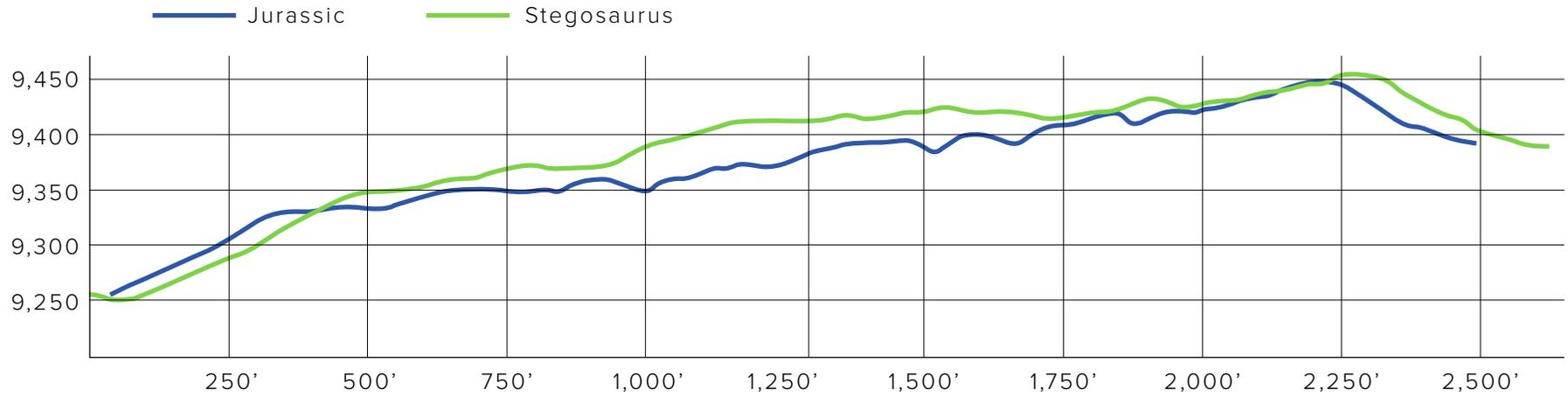
In the proposed configuration, Jurassic should serve as a one-way (westbound) descending bicycle-only trail. Hikers and up-hill bicyclists would be routed on a newly constructed trail (Stegosaurus) that would run roughly parallel and slightly uphill from Jurassic. S

### **Jurassic Trail Renovation Specifications**

- Trail Management: Descending bicyclists only
- Tread widening to 30" - 36"
- Vertical clearance: 8' min.
- Minor reroutes to maintain momentum but keep speeds under control
- Addition of knicks or rolling grade dips where needed to improve drainage
- Mitigate blind corners through earthwork and vegetation removal
- Include small berms in corners to maintain momentum but do not encourage excessive speeds
- Trail Narrative: Provide a bicycle-optimized descending trail connecting Country Club Drive to the proposed Meadows Connector. Trail should allow bicyclists to maintain momentum but not encourage excessive speeding. Trail tread should be widened and blind corners should be rerouted or modified to improve visibility.

### **Stegosaurus Trail Construction Specifications**

- Trail Management: Open to uphill bicyclists and multi-directional hiking traffic
- Tread width 42"
- Provide regular grade reversals to encourage positive drainage.
- Vertical clearance: 8' min.
- Trail Narrative: Provide a mellow, sustainable hiking and climbing bicycle trail to separate conflicting trail users from Jurassic. Seek to create an equally appealing trail experience so that hikers or climbing bicyclists would choose to use Stegosaurus over Jurassic. Trail should be situated below the ridge in the trees to minimize the visual impact. A separation of at least 20' should be maintained from Jurassic to discourage unauthorized access by descending bicyclists. In addition, design trail turns and features to be ridden at low speeds and discourage downhill bicycle use.



SCALE: 1" = 300'

